FLINT HILLS resources®

4111 East 37th Street North
Wichita, Kansas 67220

February 10, 2026

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

Re: Renewal Application for Hazardous Waste Permit No. 50290
Flint Hills Resources Odessa, LLC – Former Odessa Petrochemical Plant
2400 South Grandview Ave., Odessa, Texas 79766-9108
SWR No. 30142, EPA ID No. TXD980626014, CN604038646, RN101867554

Dear Sir or Madam:

Flint Hills Resources Odessa, LLC (FHR) has prepared the attached Renewal Application for the above referenced facility in Odessa, Texas. Enclosed are an original and one copy of the application, Correspondence Cover Sheet, Plain Language Summary Forms, and proof of payment. An electronic copy of this application, including the Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136), has been uploaded to the TCEQ file transfer protocol server (FTPS) for electronic review. The Renewal Application includes the following:

- Plain Language Summary Forms
- Attachment A – Part A Complete Application (including signed Core Data Form)
- Attachment B – Part B Complete Application with the following Appendices:
  - Appendix I – General Information
  - Appendix II – Facility Siting Criteria
  - Appendix III – Facility Management
  - Appendix IV – Wastes and Waste Analysis
  - Appendix V – Engineering Reports
  - Appendix VI – Geology Reports
  - Appendix VII – Closure and Post Closure Plans
  - Appendix VIII – Financial Assurance
  - Appendix IX – Releases from Solid Waste Units and Corrective Action
  - Appendix XI – Compliance Plan (Corrective Measures Implementation Work Plan)
  - Appendix XII – Hazardous Waste Permit Application Fee
- Attachment C – Proof of Payment Receipt for Renewal Application from TCEQ ePAY

If you have any questions regarding the attached materials for the Permit Renewal Application, please contact me at (609) 602-8209

Sincerely,

Neal Melchionni
Senior Project Manager, Remediation Services
Global Remediation & Environmental Services, LLC

Texas Commission on Environmental Quality

Correspondence Cover Sheet
Waste Permits Division

Date: 2/10/2026
Facility Name: Flint Hills Resources Odessa, LLC
Permit, Registration, or Authorization No.: 50290

Nature of Submittal:
☒ Initial
☐ Deficiency Response to TCEQ Tracking No.: _____
(from subject line of TCEQ Notice of Deficiency)

Affix a completed Correspondence Cover Sheet to the front of each submission to the Waste Permits Division. Check ***one box*** to indicate type of correspondence. Call (512) 239-2335 if you have questions.

Table 1 - Municipal Solid Waste Correspondence

Applications	Reports and Communications
Permit (New): ☐ Landfill ☐ Processor ☐ Compost	☐ Alternative Daily Cover Status Report
☐ Registration Application (New)	☐ Closure Report
☐ Major Amendment	☐ Compost Report
☐ Limited Scope Major Amendment	☐ Groundwater Alternate Source Demonstration
☐ Modification with Public Notice	☐ Groundwater Corrective Action Report
☐ Modification without Public Notice	☐ Groundwater Monitoring Report
☐ Ownership Transfer/Name Change Modification	☐ Groundwater Background Evaluation Report
☐ Temporary Authorization	☐ Landfill Gas Corrective Action Report
☐ Voluntary Revocation	☐ Landfill Gas Monitoring Report
Subchapter T: ☐ Permit ☐ Registration	☐ Liner Evaluation Report
☐ Subchapter T Disturbance Non-Enclosed Structure	☐ Soil Boring Plan
Notice of Intent: ☐ New ☐ Revision ☐ Closure	☐ Special Waste Request
☐ Other Application:	☐ Other Report or Communication:

Table 2 - Industrial & Hazardous Waste Correspondence

Applications	Reports and Notifications	
☐ CCR Registration (New)	☐ Extension Request	☐ Interim Status Change
☐ Permit Application (New)	☐ CfPT Plan/Result	☐ Interim Status Closure Plan
☒ Permit Renewal	☐ CPT Plan/Result	☐ Closure Certification/Report
☐ Post-Closure Order (New)	☐ Construction Certification/Report	**CCR Notifications:**
☐ Major Amendment	☐ Corrective Action Effectiveness Report	☐ CCR Closure Care Plan
☐ Minor Amendment	☐ Groundwater Alternative Source Demonstration Report	☐ CCR Design Criteria
Class of Permit Modification: ☐ 1 ☐ 1ED ☐ 2 ☐ 3	☐ Groundwater Background Evaluation Report	☐ CCR Groundwater Monitoring and Corrective Action Report
☐ Endorsement	☐ Groundwater Monitoring Report	☐ CCR Location Restriction
☐ Temporary Authorization	☐ Soil Core Monitoring Report	☐ CCR Operating Criteria
☐ Voluntary Revocation	☐ Treatability Study	☐ CCR Post-closure Care Plan
☐ 335.6 Notification	☐ Trial Burn Plan/Result	☐ Other Report or Notification (specify):
☐ Other:	☐ Unsaturated Zone Monitoring Report	

RCRA RENEWAL APPLICATION

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
2400 South Grandview Avenue
Odessa, Texas 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

FEBRUARY 2026

Revision No. 1, Revision Date: February 26, 2026

PN: 1039.005.001

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

ATTACHMENT A - PART A APPLICATION MATERIALS

RENEWAL APPLICATION

PART A & PLAIN LANGUAGE SUMMARY

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
2400 South Grandview Avenue
Odessa, Texas 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 FEBRUARY 2026

PN: 1039.005.001

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

Texas Commission on Environmental Quality

Plain Language Summary

Industrial and Hazardous Waste Permit Applications

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

Application Information

Purpose of application: ☐New ☒Renewal ☐Modification/Amendment	
Date Submitted to TCEQ: February 10, 2026	
Customer Name: Flint Hills Resources Odessa, LLC	
Facility Name: Flint Hills Resources Odessa, LLC	
CN: 604038646	**RN:** 101867554
Permit Number: 50290	**Solid Waste Registration Number:** 30142
Facility Street Address: 2400 S Grandview Avenue, Odessa, TX 79766	
Weblink to Street Address: https://maps.app.goo.gl/r18oh2urMGjGUCdH9	

Facility Information *(check all that apply)*

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

Waste Management Information *(check all that apply)*

What types of wastes are managed?	☐Nonhazardous industrial ☐Hazardous ☒Other **If other, enter description:** Facility is no longer active
Where does the waste come from?	☐Off-site source ☐On-site source
How is the waste managed?	☐Storage ☐Process / Treatment ☐Disposal ☒Other **If other, enter description:** Facility is in Post-Closure Care
What type of units manage the waste?	☐Active ☒Post-Closure **Type and count:** Oil-Water Separator (2), Ponds (3)
What happens to waste managed at the facility?	☐Transported off-site ☐Disposed on-site ☒Other **If other, enter description:** Facility is in Post-Closure Care, no active waste.

Pollution Control Methods *(check all that apply)*	
How will the facility prevent spills, leaks, and releases?	☒Routine inspections ☒Engineered liner systems ☒Spill containment ☐Proper waste handling ☐Operations in enclosed buildings ☒Groundwater monitoring ☐Other **If other, enter description:**
How will the facility clean up spills, leaks, and releases?	☒Spill clean-up supplies ☒Decontamination equipment ☐Other **If other, enter description:**
How will the facility prevent / minimize air emissions?	☐Air monitoring / control systems ☐Filters / scrubbers ☐Routine inspections ☐Proper waste handling ☐Operations in enclosed buildings ☒Other **If other, enter description:** Not applicable

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

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

Clear Form

Comisión de Calidad Ambiental de Texas

Resumen en Lenguaje Sencillo

Solicitudes de Permisos de Desechos Industriales y Peligrosos

Instrucciones

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

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

Información de la Solicitud

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

Sometido a TCEQ: February 10, 2026

Nombre del Cliente: Flint Hills Resources Odessa, LLC

Nombre de la Instalación: Flint Hills Resources Odessa, LLC

CN: 604038646	**RN:**101867554
Número de Permiso:50290	**Número de Registro de Desechos Sólidos:** 30142

Dirección de la Instalación: 2400 S Grandview Avenue, Odessa, TX 79766

Enlace Web a la Dirección Postal: https://maps.app.goo.gl/r18oh2urMGjGUCdH9

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

¿Cuál es el tipo principal de negocio?	☐Planta de manufactura química ☐Refinería de aceite ☐ Instalación de tratamiento, almacenamiento o eliminación ☒Otro **Si es otro, introduzca la descripción:** Instalación ya no está activa
¿Qué produce la instalación?	☐Químicos ☐Combustibles / lubricantes ☐Sin productos ☒Otro **Si es otro, introduzca la descripción:** Instalación ya no está activa

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

¿Qué tipos de desechos se gestionan?	☐Industrial no peligroso ☐Peligroso ☒Otro **Si es otro, introduzca la descripción:** Instalación ya no está activa
¿De dónde provienen los desechos?	☐Fuente externa ☐Fuente interna
¿Cómo se gestionan los desechos?	☐Almacenar ☐Procesar / Tratar ☐Eliminación ☒Otro **Si es otro, introduzca la descripción:** Instalación ya no está active (Post-Closure Care)

¿Qué tipo de unidades gestionan los desechos?	☐ Activo ☒ Postcierre **Teclee y cuente:** Separador de aceite y agua (2), Estanques (3)
¿Qué sucede con los desechos gestionados en la instalación?	☐Transportados fuera del sitio ☐Eliminado en el sitio ☒Otro **Si es otro, introduzca la descripción:**Instalación ya no está active (Post-Closure Care)

Métodos de Control de la Contaminación *(marque todos los que correspondan)*			
¿Cómo evitará la instalación derrames, fugas y liberaciones?	☒Inspecciones de Rutina	☒Sistemas de revestimiento de ingeniería	☒Contención de derrames
	☐Manejo adecuado de desechos	☐Operaciones en edificios cerrados	☒Monitoreo de aguas subterráneas
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo limpiará la instalación los derrames, fugas y liberaciones?	☒Suministros de limpieza de derrames	☒Equipos de descontaminación	
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo evitará / minimizará la instalación las emisiones atmosféricas?	☐Sistemas de monitoreo / control de aire	☐Filtros / depuradores	☐Inspecciones de rutina
	☐Manejo adecuado de desechos	☐Operaciones en edificios cerrados	
	☒Otro **Si es otro, introduzca la descripción:** No aplica		

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

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

No aplica

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

☐ New Permit or Registration Application

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

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

Section 2. Secondary Screening

☒ Requires public notice,

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

☒ Located within any of the following geographical locations:

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

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

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

A Public Involvement Plan is not applicable to this application because there is not considered to be significant public interest related to this Permit Renewal Application. All units are in Post-Closure Care and have been for the past 20+ years.

Section 3. Application Information

Type of Application (check all that apply):

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

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

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

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

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

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

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

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

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

(City)

(County)

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

☐ City ☐ County ☐ Census Tract

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

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

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

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

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

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

☐ Yes ☐ No

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

☐ Yes ☐ No

If Yes, please describe.

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

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

☐ Yes ☐ No

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

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

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

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

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

☐ Yes ☐ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

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

Part A

[**Form Availability**: This form, along with other Industrial and Hazardous Waste documents, is available online at:
https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits/ihw_permit_forms.html.
The number for this form is 0283. Questions may be e-mailed to ihwper@tceq.texas.gov.]

General Instructions

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

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

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

   Note: TCEQ will publish electronic copies of the application and associated documents online. Applicants must provide copy of the administratively complete application and technically complete application. The electronic copy provided would be the current, complete version with revisions and replacements made throughout the document and without redline/strikeout text. TCEQ will also publish electronic versions of NOD responses online.

3. Signature on Application [30 TAC 305.44]. The application shall be signed by the owner and operator or by a duly authorized agent, employee, officer, or representative of the owner or operator and shall be verified before a notary public. When another person signs on behalf of the owner and operator, this person's title or relationship to the

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

owner or operator should be shown. In all cases, the person signing the form should be authorized to do so by the owner or operator (the Commission may require a person signing on behalf of an owner or operator to provide proof of authorization). An application submitted for a corporation must be signed by (or the signatory must be authorized by) a responsible corporate officer such as a president, secretary, treasurer, vice-president, or designated manager; or for a partnership or sole proprietorship, by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application shall be signed by either a principal executive officer or ranking elected official.

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

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

5. Fees and Costs

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

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

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

7. Designation of Material as Confidential

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

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

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

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

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

application is incomplete.

Part II

Procedural Information

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

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

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

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

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

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

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

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

Requirements of Giving Notice of the Application:

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

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

2. By the Texas Commission on Environmental Quality: The Commission will mail notice of

the application (except for permit modifications) to affected persons and certain governmental entities. The notice will be mailed at the same time instructions for newspaper publications are mailed to the applicant.

3. Bilingual Notice Instructions:

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

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

Bilingual Notice Application Form:

Bilingual notice confirmation for this application:

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

   ☒YES ☐ NO

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

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

   ☒ YES ☐ NO

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

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

   ☐ YES ☐ NO

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

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

   ☐ YES ☐ NO

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

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

Consideration of the Permit Application by the Commission:

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

Table of Contents

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

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

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

A. Facility Name 1
B. Facility Contact 1
C. Operator 1
D. Owner 2
E. Type of Application Submittal 3
F. Registration and Permit Information 3
G. Give a brief description of the nature of your business. 4
H. TCEQ Core Data Form 4

Signature Page 5
II. Facility Background Information 6

A. Location of Facility for which the application is submitted 6
B. Legal Description of Facility 6
C. SIC Codes 6

III. Wastes and Waste Management 7

A. Waste Generation and Management Activities 7
B. Waste Management Units Summary 7
C. Location of Waste Management Units 8
D. Flow Diagram/Description 9

IV. Index Of Attachments 10
Table III-1 – Hazardous Wastes and Management Activities 11
Table III-2 – Hazardous Waste Management Unit Checklist 18

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

I. General Information

A. Facility Name: Flint Hills Resources Odessa, LLC

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: 30142 EPA I.D. No.: TX980626014

Street Address (If Available): 2400 South Grandview Avenue

City: Odessa, State: Texas Zip Code: 79766

County: Ector

Telephone Number: (316) 828-1556 Charter Number: 801507296

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

B. Facility Contact

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

Primary Application Contact:
Neal Melchionni
Senior Project Manager, Remediation Services
Global Remediation & Environmental Services, LLC
133 Peachtree Street NE
Atlanta, GA 30303
Tel: (316) 828-1556
Email: [redacted]

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

United Agent Group Inc.
2595 N Dallas Pkwy, Suite 350
Frisco, TX 75034

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

Operator Name: Flint Hills Resources Odessa, LLC

Address: 2400 South Grandview Avenue

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

City: Odessa, State: Texas Zip Code: 79766

Telephone Number: (316) 828-1556 Charter Number: 801507296_____

D. Owner

1. Indicate the ownership status of the facility:

   a. Private ___X_____

      (1) _____Corporation
      (2) _____Partnership
      (3) _____Proprietorship
      (4) _____Non-profit organization
      (5) ___X_____Limited Liability Company

   b. Public _____

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

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

   ☒ Yes ☒ No*

   *** Flint Hills Resources Odessa, LLC (FHR) is the operator of the five post-closure care units for the purposes of this permit in the portion of the permitted facility owned by REXtac, LLC (REXtac).**

   If you checked "no",

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

      See Attachment A.2 Remediation Easement Agreement.

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

      REXtac owns the majority of the permitted facility, and FHR owns a portion of the southern permitted facility. FHR will continue to be the operator of the five post-closure care units in the portion of the permitted facility owned by REXtac for the purposes of this permit. The outline of the permitted facility owned by FHR and REXtac is identified in Attachment C Facility Boundaries and Adjacent Waters Map.

Owner Name: Flint Hills Resources Odessa, LLC

Address: 2400 South Grandview Avenue

City: Odessa, State: Texas Zip Code: 79766

Telephone Number: (316) -828-1556

Owner Name: REXtac, LLC

Address: 2501 South Grandview Avenue

City: Odessa, State: Texas Zip Code: 79766

Telephone Number: (432) 332-0058

E. Type of Application Submittal:

Initial _____ or Revision __X_____

F. Registration and Permit Information

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

	Relevant Program and/or Law	Permit No.	Agency*
1.	Texas Solid Waste Disposal Act	None	
2.	Wastewater disposal under the Texas Water Code	None	
3.	Underground injection under the Texas Water Code	None	
4.	Texas Clean Air Act	None	
5.	Texas Uranium Surface Mining & Reclamation Act	None	
6.	Texas Surface Coal Mining & Reclamation Act	None	
7.	Hazardous Waste Management program under the Resource Conservation and Recovery Act	HW-50290	TCEQ
8.	UIC program under the Safe Drinking Water Act	None	
9.	TPDES program under the Clean Water Act	None	
10.	PSD program under the Clean Air Act	None	
11.	Nonattainment program under the Clean Air Act	None	

12. National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act	None	
13. Ocean dumping permits under the Marine Protection Research and Sanctuaries Act	None	
14. Dredge or fill permits under section 404 of the Clean Water Act	None	
15. Other relevant environmental permits[1]	See Attachment A.1	

[1]**All applicable permits listed in Attachment A.1 are owned and operated by REXtac.**

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

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

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

The Odessa facility operated as a petrochemical manufacturing complex near Odessa, Texas until 2009. In the past, the facility produced ethylene and propylene as petrochemical products, as well as intermediates and polyethylene and polypropylene resins as products. The major feedstocks for this production included ethane and propane. The facility was comprised of two processing areas known as the East Plant (or East Complex) and the West Plant (or West Complex) that are divided by S. Grandview Ave. Portions of the operating areas of the East Plant were sold and transferred to REXtac in 2009. The manufacturing operations at the facility were shut down and decommissioned in 2009. FHR redeveloped the property into a terminal facility which operated from March 2012 through July 2013. There is currently no activity at the site other than sampling and inspection/maintenance activities performed as part of this permit. A portion of the facility was sold to REXtac on 22 March 2016, and a previous Class 1[1] Permit Modification was submitted in May 2016 to add REXtac as an additional owner to the permit. REXtac now owns the majority of the permitted facility, and FHR owns a portion of the southern permitted facility. FHR is the operator of the five post-closure care units in the portion of the permitted facility owned by REXtac for the purposes of this permit.

H. TCEQ Core Data Form

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

See Attachment A.3 Core Data Form.

Signature Page

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

Operator Signature: _____ Date: 2/16/26

Name and Official Title (type or print): Phil Gaarder, Executive Vice President, Operations

Operator Signature: Not Applicable Date: Not Applicable

Name and Official Title (type or print): Not Applicable

Operator Signature: Not Applicable Date: Not Applicable

Name and Official Title (type or print): Not Applicable

Owner Signature: **Two owners: FHR (operator) and REXtac (see signature page 5b)** Date: NA

Name and Official Title (type or print): Not Applicable

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

I, Not Applicable hereby designate Not Applicable
(operator) (authorized representative)
as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

Not Applicable
Printed or Typed Name of Operator or Principal Executive Officer

Not Applicable
Signature

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

Subscribed and sworn to before me by the said PHIL GAARDER on this 16 day of FEBRUARY, 2026.

My commission expires of the 7th day of APRIL, 2027

_____
Notary Public in and for SEDGWICK County, ~~Texas~~ Kansas

KRISTIE R. LANDON
Notary Public, State of Kansas
My Appointment Expires 4-7-27

Signature Page

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

Operator Signature: **See Signature Page 5** Date: N/A

Name and Official Title (type or print): See Page 5

Operator Signature: See Page 5 Date: N/A

Name and Official Title (type or print): See Page 5

Operator Signature: See Page 5 Date: N/A

Name and Official Title (type or print): See Page 5

Owner Signature: [signature] Date: FEB 19, 2026

Name and Official Title (type or print): James Nicholas Fowler, President, REXtac, LLC

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

I, Not applicable (operator) hereby designate Not applicable (authorized representative) as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

HEATHER LOMAX - ID 128957823 NOTARY PUBLIC STATE OF TEXAS EXP. 04/16/2028

Not applicable
Printed or Typed Name of Operator or Principal Executive Officer

Not applicable
Signature

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

Subscribed and sworn to before me by the said James Nicholas Fowler on this 19th day of February, 2026.

My commission expires of the 16 day of April, 2028

Heather Lomax
Notary Public in and for Ector County, Texas

II. Facility Background Information

A. Location of Facility for which the application is submitted

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

The Odessa facility is located near the intersection of I-20 and S. Grandview Ave. in Odessa, Texas.

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

From US-385, turn east at I-20 Service Road and continue on E. Pool Road. Take a slight right on S. Grandview Ave.

3. Enter the geographical coordinates of the facility:

Latitude: _31_____ deg _49_____ min _1.65_ sec

Longitude: _-102__ deg _20_____ min _9.91_ sec

4. Is the facility located on Indian lands?

☐ Yes ☒ No

B. Legal Description of Facility

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

See Attachment B Site Legal Description.

C. SIC Codes

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

4-digit SIC Code	Description
2821	Plastic Materials and Resins (REXtac)
32511 (NAICS)	Petrochemical Manufacturing (REXtac)

SIC code numbers are descriptions which may be found in the Standard Industrial Classification Manual prepared by the Executive Officer of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual.

III. Wastes and Waste Management

A. Waste Generation and Management Activities

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

☒ Yes ☐ No

If no, skip to question Number 2 below.

If yes, answer the following question.

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

   ☒ Yes ☐ No ☐ Pending

   The facility is registered with Solid Waste Registration No. 30142.

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

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

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

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

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

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

   See attached Table III-1.

B. Waste Management Units Summary

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

   See attached Table III-2.

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

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

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

   ☒ Yes ☐ No

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

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

   See Attached Table III-2.

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

C. Location of Waste Management Units

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

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

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

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

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

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

   See Attachment C Facility Boundaries and Adjacent Waters Map. Due to the scale of this attachment, not all details listed above are shown; however, this information is included in other sections of the renewal application. Monitoring wells and boreholes are shown on figures provided in Section

XI of Part B. Water well locations are considered approximate.

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

   See Attachment D Photographs.

D. Flow Diagram/Description

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

The flow diagrams or descriptions should include the following information:

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

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

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

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

Not applicable. There are no active hazardous waste management units at the Odessa facility.

IV. Index Of Attachments

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

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

Table III-1 – Hazardous Wastes and Management Activities

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Active									
Purged groundwater from semiannual sampling events	8043102H	D018				X			
Inactive									
Batteries, wet	0001309H	D002							
Mercury contaminated materials	0007319H	D009							
Benzene contaminated waste water	0200101H	D018							
Crude oil waste	0201206H	D001, D018							
Polymer resin	1001207H	D001, D002, D018							
Feed fractionator filters	1004310H	D018							
Arsine reactor catalyst	1007393H	D004							
Olefin sludge	1010519H	D001, D018							
Cracked gas knockout polymer	1011403H	D018							
C Boiler Firebox Residue	1013303H	D007, F003							
Polishing bed carbon	1014404H	D018							
Off spec aromatic concentrate	1015206H	D001, D018							
DOX waste oil	1016206H	D001, D018							
Spent caustic 3-4% NaOH solution	1017109H	D002, D018							
Olefin soil & debris	1018301H	D018							

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

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

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Polymer resin, stabilized, hazardous	1020403H	D018							
Red oil	1022206H	D001, D002, D018							
Amber oil propylene and residual catalyst	1023509H	D001, D003, F003							
Selas cracker oil	1025205H	D001, D018							
SRT tar	1027606H	D018							
Sludge from cleaning rainwater tanks	1028512H	D001, D002, D003, D018							
Hydrocarbons from water stripper overheads and flare KO Pots	1031206H	D001, D018							
Sludge with benzene and reactive sulfides	1032101H	D003, D018							
Styrene process sewer solids	2005319H	D018							
Benzene-contaminate styrene waste oil	2006206H	D001, D018							
DNBP contaminated debris	2007319H	P020							
DNBP contaminated soil and debris	2008301H	P020							
Styrene sludge	2010609H	D001, D018							
Heat exchanger bundle cleaning sludge	2011609H	D001, D018							
Polystyrene, hazardous	2012403H	D001, D018							
Styrene waste oil	2013203H	D001, D018							
Waste oil from pumps/compressors	2018206H	D001, D018							
NSI Trailer water	2019119H	P020							
Styrene soil & debris	2020301H	D018							
Paper and cloth filter media	2023310H	D018							
Crude styrene NSI dissolver	2025219H	D001, D018							
Water contaminated with Dinoseb	2026113H	P020							
Spent naptha	3003203H	D001							
Heptane with organic peroxides	3004212H	D001, D002							
Antioxidant	3005203H	D001							
Lithium bromide filters	3010310H	D007							

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Recovery heptane	3012219H	D001							
Heptane/Organic peroxide filters	3013310H	D001							
VA column sludge	3014609H	D001							
Organic peroxide rinse water	3016207H	D001							
Antioxidant and acetone	3017203H	D001							
Hydraulic oil from modifier pumps	3018206H	D001							
Used or unused Lithium bromide	3019114H	D007, F003							
Hexane filters	3500310H	D001							
Heavy ends	3501203H	D001							
Cleanout sludge from octene processing	3504609H	D001, D018							
Wastewater with octene	3505101H	D001							
Filters and debris with ignitable liquids	3506310H	D001							
Octene/Hexane debris	3507319H	D001							
Surplus titanium chloride catalyst	4002393H	D001, D002, D003							
Spent xylene	4003203H	D001, F003							
Hexane/oil sludge	4004606H	D001							
Sludge contaminated with solvent xylene	4005606H	D001, F003							
Waste titanium trichloride catalyst	4006697H	D003							
Sodium in mineral oil	4007212H	D003							
Sodium/mineral oil contaminated debris	4008310H	D002, D003							
TiCl4/mineral oil contaminated debris	4010310H	D002, D003							
Soil & debris, xylene solvent contaminated	4011301H	F003							
Unused custom blended catalyst	4013393H	D003, F039, U069, U088							
V-2500 KO Pot liquids	4014101H	D001, F003							
Aluminum alkyl in mineral oil	4015212H	D003							
Waste alkyl	4016205H	D001, D003							

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Grey to black spheres of catalyst	5001393H	D004, D008							
Mixed lab packs, hazardous	5002003H	Multiple D, F, P and U listings. See NOR.							
Radioactive lab packs	5003009H	D001-D043, Multiple F and U listings. See NOR.							
Flammable organic liquids	5005219H	D001, D018, F003							
R&D wastewater	5007102H	D007, D018							
Vapor canister carbon	5008404H	U019, U239							
Spent xylene with polymer	5009203H	D001, F003							
Polymethylaluminoxane dissolved in toluene	5016212H	D001							
Paint waste, liquid	6002209H	D001, D005, D007, D008, D018, D035, F003, F005							
Parts washer solvent	6006203H	D008, D018, D040							
Rinse water	6008102H	D018							
Sandblast media	6010319H	D006, D008							
Spent acid	7001105H	D002							
Centrate, hazardous	7006119H	D018							
Water softener sludge	7007503H	D018							
Wastewater that goes to POTW	7008119H	P020							
Lift station water	7010119H	D007, D018							
Waste oil from centrifuge	7011206H	D001, D018							
Charcoal/sand and gravel media w/ water treatment slude	7016404H	D018							
Hazardous wastewater	7018119H	D018, F003							

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Liquid caustic, soda ash, caustic beads	7020110H	D002							
Waste from acid spill cleanup	7022519H	D002							
Water collected in TK45	7023119H	D001, D018							
Oil contaminated material, hazardous	8002310H	D001, D018, F003							
Mercury contaminated materials	8003302H	D009							
Drilling mud, hazardous	8008514H	D018							
Chromium contaminated soil/debris	8009302H	D007							
Ignitable wastes, light oils	8013203H	D001, D008, D040							
Process water filters	8014310H	D018							
Cooling tower blowdown	8015119H	D007							
Mercury liquid	8020117H	D002, D009, U151							
Solvent toluene contaminated soil/debris	8025301H	D001, D018, F005							
Benzene contaminated soil/debris	8028301H	D018							
Benzene contaminated sludge	8029512H	D018							
Vapor abatement carbon	8031404H	D018							
Product benzene contaminated soil/debris	8032301H	U019							
Recovery NAPL	8035206H	D001, D018							
Fluorescent and mercury vapor bulbs	8040388H	D008, D009							
Clear to red-organics liquid, unused biocides	8042108H	D002							
Soil and debris with xylene from source red.	8045301H	F003							
Oily sludge from cleanout of sumps	8047119H	D003							
Waste oil from pumps, compressors	8049206H	D001, D008, D010, D018							
Unwanted liquids with pH > 12.5	8053110H	D002							

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Liquid from aersol can puncture stations	8054204H	D001, D039, D040							
Ignitable liquids also corrosive	8055119H	D001, D002							
Unused electronic equipment	8056319H	D008, D009							
Discarded aerosol cans	8058801H	D001							
Benzene contaminated debris	8059319H	D018							
Filters, absorbents and debris that fail paint filter and flash	8062310H	D001, D002, D007, F003							
Mole sieve	8063310H	D018							
Water from olefin caustic areas	8064110H	D002, D018							
Wastewater with flammable liquids	8065113H	D001, D018, F003							
Solid catalyst and support media	8079319H	D018							
Liquid waste with pH < 2	8080119H	D002							
Liquid waste with pH > 12.5	8081110H	D002							
KOH solution from arsine reactor	8082110H	D002, D004, D009							
Chlorinated surfactant	9003202H	D001, D039, D040							
Corrosive epoxy grout hardener	9004001H	D002							
Unused cleaning solvent	9005001H	U226							
Mixture of acetone and isonox	9006206H	D001, D002, F003							
Lead oxide catalyst	9008393H	D008							
Acidic aqueous waste with Cr	9009105H	D002, D007							
Oily waste from transload operation	9015301H	D001, D018							
Brine diesel waste	9016102H	D018							
Waste Trigonox	9017219H	D001							
Recovery groundwater haz due to benzene	9018102H	D018							
Brine contaminated with benzene	9021113H	D018							
Oil water mixture	9023205H	D001,							

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
		D018, D022							
Organic liquid waste	9024207H	D018							
Oil mixture	9025205H	D001, D018							
Flammable liquid found during demolition process	9026219H	D001							
Hydrocarbon contaminated debris	9028319H	D001, D018							
Hydrocarbon contaminated soil and soil/water mixture	9029301H	D018							
Ethylene vapor residue	9031206H	D001, D018							
Organic liquid waste	9032110H	D001, D002, D018							
Waste lube oil	9033206H	D018							
Sludge from Tank 36	9034606H	D001, D018							
D-8608 liquid	9035319H	D001, D018							
Used antifreeze	9054296H	D010							

Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
Polypropylene Fouled Xylene Storage Tank (Tank)	023	CLOSED	24,510 gallons	~22 years	RCRA permitted unit closed by TCEQ on 10/27/2009. Note: This closed unit is no longer part of the FHR-owned property.
Olefin Oil/Water Separator (Landfill)	037	CLOSED – Post Closure Care	65,000 gallons	~32 years	RCRA permitted unit closed by TCEQ on 12/18/1998.
Styrene/Butadiene Oil/Water Separator (Landfill)	038	CLOSED – Post Closure Care	65,000 gallons	~32 years	RCRA permitted unit closed by TCEQ on 12/18/1998.
Gulf Seal Ponds (Surface Impoundment)	063	CLOSED – Post Closure Care	1,073,680 gallons	~11 years	RCRA permitted unit closed by TCEQ on 2/9/2001.
South Flare Pond (Landfill)	067	CLOSED – Post Closure Care	1,280,680 gallons	~8 years	RCRA permitted unit closed by TCEQ on 2/18/1998
South Storage Pond (Landfill)	068	CLOSED – Post Closure Care	3,494,000 gallons	~9 years	RCRA permitted unit closed by TCEQ on 10/14/1999.
West Side Drum Storage Area (Container Storage Area)	069	CLOSED	7,500 square feet	~20 years	RCRA permitted unit closed by TCEQ on 8/17/2010.

[1] Indicate only one of the following: Active, Inactive, Closed, or Proposed
[2] Cubic yards, gallons, pounds, gallons/minute, pounds/hour, BTUs/hour, etc.

PART A - ATTACHMENT A.1
ADDITIONAL PERMIT INFORMATION

ATTACHMENT A.1
ADDITIONAL PERMITS

REXtac, LLC

Brine Pits

Permit No. P000275C	Brine Pit OB-2
Permit No. P000275A	Brine Pit OE-1
Permit No. P000275B	Brine Pit OE-3
Permit No. P000277	Brine Pit OE-4
Permit No. P009274	Brine Pit OE-5
Permit No. P010978	Brine Pit OE-6
Permit No. P011978	Brine Pit OC-2
Permit No. P010988	Brine Pit OC-5

Cavern Permits

UIC Control No. 11842	Well No. 1
UIC Control No. 11843	Well No. 2
UIC Control No. 11844	Well No. 3
UIC Control No. 11845	Well No. 4
UIC Control No. 11846	Well No. 5
UIC Control No. 11847	Well No. 6
UIC Control No. 11848	Well No. 7
UIC Control No. 11849	Well No. 8
UIC Control No. 11850	Well No. 9
UIC Control No. 11851	Well No. 10

Pipeline Permits

Pipeline Permit No. 04713

TCEQ Permits

Air Permit No. 16963
IHW Solid Waste Registration No. 88902
Stormwater Permit No. TXR05CW41

PART A - ATTACHMENT A.2
REMEDIATION EASEMENT AGREEMENT

REMEDIATION EASEMENT AGREEMENT

STATE OF TEXAS)
) ss. KNOW ALL BY THESE PRESENTS:
COUNTY OF ECTOR)

That for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, REXtac, LLC, a Texas limited liability company ("Grantor"), whose current address is 2501 S. Grandview, Odessa, Texas 79766, does hereby grant unto Flint Hills Resources Odessa, LLC, a Delaware limited liability company ("Grantee"), whose current address is 4111 E. 37th Street North, Wichita, Kansas 67220, its successors and assigns, for use by Grantee and its employees, affiliates, agents, contractors, and invitees (collectively with Grantee, the "Grantee Group"), a non-exclusive permanent and perpetual right-of-way and access easement in, on, over, through and across the property described on Exhibit A attached hereto (the "Burdened Property") for the purpose of conducting the Permitted Activities (as defined below). Grantee and Grantor shall collectively be referred to hereinafter as the "Parties."

1. Permitted Activities. "Permitted Activities" means any and all activities (i) required by the Hazardous Waste Permit/Compliance Plan No. 50290 ("Plan 50290") issued by the Texas Commission on Environmental Quality (the "TCEQ") to Huntsman Polymers Corporation and transferred to Flint Hills Resources, including all subsequent revisions and amendments and as further described in the Semi-Annual Groundwater Monitoring Reports submitted by Grantee to the TCEQ as required by Plan 50290 and any activity deemed necessary by Grantee to achieve and obtain regulatory compliance, including, without limitation, sampling, testing, and evaluating groundwater retrieved for analysis and in-situ field tests, evaluation and other remediation; (ii) necessary to investigate, assess, evaluate and monitor environmental conditions at the Burdened Property; (iii) in connection with any treatment or remediation of environmental conditions that Grantee deems necessary or desirable or is required by law, including constructing, operating, maintaining, repairing, replacing, and decommissioning and removing any remediation-related equipment, structures and wells; and (iv) required pursuant to any environmental permits applicable to the Burdened Property that are retained by Grantee.

2. Maintenance and Repairs. Grantee shall repair or cause the repair of any damage to the Burdened Property, beyond normal wear and tear, that is caused by Grantee's or any other Grantee Group member's exercise of its rights hereunder. All repairs by Grantee or any other

Grantee Group member shall be performed in a good and workmanlike manner, and in compliance with all laws and applicable governmental requirements.

3. Use; Non-Exclusive. Grantee acknowledges that Grantor and others may use the Burdened Property, and the Parties agree to each make reasonable efforts to not unreasonably interfere with the other's use of the Burdened Property hereunder.

4. Indemnity. Grantee agrees to indemnify, defend, and hold Grantor and its employees, officers, directors, affiliates and agents (collectively, "Indemnitees"), harmless from any and all claims, strict liability claims, demands, and causes of action ("Liabilities") for damage to property or the environment or injury to or death of persons that result from the exercise by Grantee or any other member of the Grantee Group of any of the rights herein granted, except to the extent such Liabilities are caused by any Indemnitee's gross negligence or willful misconduct. **THE INDEMNIFICATION PROVISION IN THIS PARAGRAPH APPLIES WITH RESPECT TO MATTERS THAT IN WHOLE OR IN PART ARE CAUSED BY OR ARISE OUT OF, OR ARE CLAIMED TO BE CAUSED BY OR ARISE OUT OF, THE NEGLIGENCE OR STRICT LIABILITY OF AN INDEMNITEE BUT NOT TO THE EXTENT CAUSED BY OR ARISING OUT OF THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF AN INDEMNITEE.**

5. Easement Only. It is understood that this grant of a right-of-way and easement does not constitute a conveyance of the land described herein or of the minerals therein and thereunder but grants only the easement and right-of-way described herein.

6. Perpetual Easement. Grantor acknowledges that this grant of a right-of-way and easement is permanent and perpetual in nature (unless and until the rights granted hereunder are abandoned by Grantee or released by Grantee), and that Grantee shall not be required to make any payments to Grantor now or in the future with respect to this grant of a right-of-way and easement.

7. Easement in Gross; Burdens Run with the Land. All covenants and agreements herein contained that are binding on Grantor shall be deemed to be covenants and agreements running with fee title to the Burdened Property. The easement and right-of-way granted to Grantee hereunder is an easement in gross.

8. Assignment. Grantee may not assign the easement and right-of-way granted to Grantee hereunder except with the prior written permission of Grantor; provided, however, that Grantee may upon written notice to Grantor assign the easement and right-of-way granted hereunder to a parent, subsidiary, or affiliate of Grantee.

9. Conditions on Entry. Grantee shall give Grantor notice of entry to the Burdened Property in advance of the Permitted Activity to be conducted and shall not unreasonably interfere with the business activities of Grantor or its employees, affiliates, agents, contractors, tenants, or invitees on the Burdened Property.

10. Non-Exclusive. The right-of-way and easement and rights hereby granted are subject to all other easements, exceptions, reservations, rights, and encumbrances either of record

or evidenced physically on the Burdened Property, and are granted without any warranty of title, express or implied, by Grantor.

11. Notices. All notices and other communications hereunder shall be in writing and shall be deemed given when (i) delivered personally by hand (with written confirmation of receipt), (ii) when sent by facsimile or email (with confirmation of transmission) or (iii) one (1) business day following the day sent by overnight courier (with written confirmation of receipt), in each case at the following addresses and facsimile numbers (or to such other address or facsimile number as a party may have specified by notice given to the other party pursuant to this provision):

If to Grantee, to:	Flint Hills Resources Odessa, LLC 4111 East 37th Street North Wichita, Kansas 67220 Attention: President Facsimile No.: (316) 828-8245
and copies (which shall not constitute notice) to:	Flint Hills Resources Odessa, LLC 4111 East 37th Street North Wichita, Kansas 67220 Attention: General Counsel Facsimile No.: (316) 828-8245
and:	Koch Companies Public Sector, LLC 4111 East 37th Street North Wichita, Kansas 67220 Attention: Associate General Counsel – Corporate and Commercial Facsimile No.: (316) 828-3133
If to Grantor, to:	REXtac, LLC 2501 S. Grandview Odessa, Texas 79766 Attention: Nick Fowler Facsimile: (432) 332-0058
and copy (which shall not constitute notice) to:	Jay Allen Chaffee 712 Main Street, Suite 1700 Houston, Texas 77002 Facsimile: (713) 223-5379

12. Governing Law. This easement and right-of-way shall be governed by and construed in accordance with the law of the State of Texas.

13. Effective Date. This Remediation Easement Agreement shall be effective for all purposes as of the ___ day of March, 2016 (the "Effective Date").

[*The remainder of this page is intentionally left blank.*]

IN WITNESS WHEREOF, the parties hereto have caused this Remediation Easement Agreement to be executed on the dates set forth in the acknowledgment blocks below to be effective for all purposes as of the Effective Date.

GRANTOR:

REXtac, LLC,
a Texas limited liability company

By: _____
Name: J. Nicholas Fowler
Title: President

STATE OF Texas)
) SS
COUNTY OF Ector)

This instrument was acknowledged before me on March 4th, 2016, by J. Nicholas Fowler, the President of REXtac, LLC, a Texas limited liability company, on behalf of said limited liability company.

HEATHER GOLDEN
NOTARY PUBLIC STATE OF TEXAS
COMMISSION EXPIRES:
04-16-2016

_____
Notary Public, State of Texas

My commission expires: 04-16-2016

[seal]

ACKNOWLEDGED AND AGREED TO BY:

GRANTEE:

Flint Hills Resources Odessa, LLC,
a Delaware limited liability company

By: _____
Name: Anthony J. Sementelli
Title: Executive Vice President and Chief Financial Officer

LEGAL

STATE OF Kansas)
) SS
COUNTY OF Sedgwick)

This instrument was acknowledged before me on 3/4, 2016, by Anthony J. Sementelli, the Exec. V.P. + CFO of Flint Hills Resources Odessa, LLC, a Delaware limited liability company, on behalf of said limited liability company.

Jeananne Hampel
Notary Public, State of Kansas

My commission expires: 3/12/2017

[seal]

JEANANNE HAMPEL
NOTARY PUBLIC
STATE OF KANSAS
My Appt. Exp. 3/12/17

Exhibit A

To Remediation Easement Agreement

Burdened Property

162.8 ACRE TRACT

FIELD NOTES OF A 162.8 ACRE TRACT OF LAND OUT OF A 324.675 ACRE TRACT OF LAND, RECORDED IN VOLUME 1327, PAGE 217, ECTOR COUNTY DEED RECORDS, ECTOR COUNTY, TEXAS, IN SECTIONS 38 AND 47, BLOCK 42, T-2-S, T & P RY. CO. SURVEY, ECTOR COUNTY, TEXAS.

BEGINNING at a found 1/2 inch iron rod in the east right-of-way of Dixie Boulevard for the northwest corner of said 324.675 acre tract recorded in Volume 1327, Page 217, Ector County Deed Records, Ector County, Texas and this tract, from which point the southeast corner of Section 38, Block 42, T-2-S Ry. Co. Survey, Ector County, Texas bears S75°44'28"W, 60.00 feet, S14°15'32"E 2645.79 feet;

THENCE N76°28'31"E, with the north boundary line of said 324.675 acre tract, 4542.48 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for the northeast corner of this tract;

THENCE S20°33'37"W, 171.26 feet to ½ inch iron rod with cap marked "HOWELL F-100147" set for an exterior corner of this tract;

THENCE S45°45'45"W, 331.12 feet to a mag nail with survey marker set for an exterior corner of this tract;

THENCE S76°28'31"W, 192.58 feet to a mag nail with survey marker set for an interior corner of this tract;

THENCE S14°10'15"E, 1003.83 feet to mag nail with survey marker set for an exterior corner of this tract;

THENCE S75°44'33"W, 381.66 feet to mag nail with survey marker set for an interior corner of this tract;

THENCE S14°10'15"E, passing the northwest corner of a 81.41 acre tract, recorded in Volume 479, Page 292, Ector County Deed Records, Ector County, Texas, in all 862.68 feet to ½ inch iron rod with cap marked "HOWELL F-100147" set for the northeast corner of a 0.43 acre tract, recorded in Volume 510, Page 183, Ector County Deed Records, Ector County, Texas, and an exterior corner of this tract;

THENCE S76°01'51"W, 125.8 feet to point for an interior corner of this tract;

THENCE S14°10'15"E, with the west boundary line of said 0.43 acre tract, 150.00 feet to ½ inch iron rod with cap marked "HOWELL F-100147" set for an interior corner of this tract;

THENCE N76°01'51"E, with the south boundary line of said 0.43 acre tract, 125.8 feet to ½ inch iron rod with cap marked "HOWELL F-100147" set for the southeast corner of said 0.43 acre tract and an exterior corner of this tract;

THENCE S14°10'15"E, with a west boundary line of said 81.41 acre tract, 133.85 feet to a found 3 inch brass disk for an exterior corner of this tract;

THENCE S76°01'51"W, with a north boundary line of said 81.41 acre tract, 250.40 feet to a found 3 inch brass disk for an interior corner of this tract;

THENCE S14°07'55"E, with a west boundary line of said 81.41 acre tract, at 173.41 feet passing the south boundary line of said Section 38 and the north boundary line of said Section 47, in all 230.00 feet to a found 60d nail for an exterior corner of this tract;

THENCE S75°44'22"W, with a north boundary line of said 81.41 acre tract, 376.28 feet to a found 2 inch brass disk in concrete for an interior corner of this tract;

THENCE S14°24'57"E, with a west boundary line of said 81.41 acre tract, 1144.36 feet to ½ inch iron rod with cap marked "HOWELL F-100147" set for an exterior corner of this tract;

THENCE S76°30'00"W, 66.1 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for an interior corner of this tract;

THENCE S01°22'19"E, 379.82 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for the southeast corner of this tract;

THENCE N88°15'01"W, at 22.03 feet passing the southeast corner of an 8.20 acre tract, recorded in Volume 577, Page 558, Ector County Deed Records, Ector County, Texas, in all 498.21 feet to a found 1/2 inch iron pipe for an exterior corner of this tract;

THENCE N80°00'32"W, with a southwesterly boundary line of said 8.20 acre tract, 393.40 feet to a found 1/2 inch iron pipe for an exterior corner of this tract;

THENCE N63°25'52"W, with a southwesterly boundary line of said 8.20 acre tract, 401.30 feet to a found 1/2 inch iron pipe for an interior corner of this tract;

THENCE N68°10'44"W, with a southwesterly boundary line of said 8.20 acre tract, 304.00 feet to a found 1/2 inch iron pipe for an exterior corner of this tract;

THENCE N44°50'03"W, with a southwesterly boundary line of said 8.20 acre tract, 309.20 feet to a found 1/2 inch iron pipe for the exterior corner of this tract;

THENCE N41°37'09"W, with a southwesterly boundary line of said 8.20 acre tract, 312.4 feet to a found 1/2 inch iron rod for the southwest corner of this tract;

THENCE N54°58'53"E, 246.06 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for an exterior corner of this tract;

THENCE N75°44'22"E, 401.06 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for an interior corner of this tract;

THENCE N14°24'57"W, 198.94 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for an exterior corner of this tract;

THENCE N75°44'22"E, 206.91 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for an interior corner of this tract;

THENCE N14°24'57"W, at 15.82 feet passing the north boundary line of said Section 47 and the south boundary line of said Section 38 in all 1045.10 feet to found 60d nail for an exterior corner of this tract;

THENCE N75°44'22"E, 157.25 feet to marked "x" in concrete for an interior corner of this tract;

THENCE N14°15'32"W, 1109.36 feet to a mag nail with survey marker set for an interior corner of this tract;

THENCE S76°28'31"W, 549.86 feet to a mag nail with survey marker set for an interior corner of this tract;

THENCE N14°15'32"W, 402.82 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for an interior corner of this tract;

THENCE S76°28'31"W, at 751.66 feet passing the northeast corner of a 2.43 acre tract of land, recorded in Volume 777, Page 276, Ector County Deed Records, Ector County, Texas, in all 1559.51 feet with the north boundary line of said 2.43 acre tract, to a found 3/4 inch iron pipe in the east right-of-way line of said Dixie Boulevard and in the west boundary line of said 324.675 acre tract for the northwest corner of said 2.43 acre tract and an exterior corner of this tract;

THENCE N14°15'32"W, with the east right-of-way line of said Dixie Boulevard and the west boundary line of said 324.675 acre tract, 99.86 feet to the place of beginning and containing 162.8 acres of land.

4.0 ACRE TRACT

FIELD NOTES OF A 4.0 ACRE TRACT OF LAND OUT OF A 324.675 ACRE TRACT OF LAND, RECORDED IN VOLUME 1327, PAGE 217, ECTOR COUNTY DEED RECORDS, ECTOR COUNTY, TEXAS, SECTION 47, BLOCK 42, T-2-S, T & P RY. CO. SURVEY, ECTOR COUNTY, TEXAS.

BEGINNING at a ½ inch iron rod with cap marked "HOWELL F-100147" set in the south boundary line of a 81.41 acre tract of land, recorded in Volume 479, Page 292, Ector County Deed Records, for the northeast corner of this tract, from which point the southeast corner of said Section 47 bears N13°30'00"W, 1205.19 feet, S76°23'55"W, 3380.05 feet;

THENCE S14°24'27"E, 508.03 feet to a point for the southeast corner of this tract;

THENCE N88°15'01"W, 444.31 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for the southwest corner of this tract;

THENCE N01°22'19"W, with the east boundary line of a 2.05 acre tract out of a 15.79 acre tract, recorded in Volume 483, Page 200, Ector County Deed Records, 379.47 feet to an "x" cut for an exterior corner of this tract;

THENCE N76°23'11"E, with the south boundary line of said 2.05 acre tract, 50.00 feet to the point for an exterior corner of said 2.05 acre tract and for an interior corner of this tract;

THENCE N13°36'49"W, 20.00 feet to a point in the south boundary line of said 81.41 acre tract for the northwest corner of this tract;

THENCE N76°30'00"E, with the south boundary line of said 81.41 acre tract, 290.85 feet to the place of beginning and containing 4.0 acres of land.

5.0 ACRE TRACT

FIELD NOTES OF A 5.0 ACRE TRACT OF LAND OUT OF A 324.675 ACRE TRACT OF LAND, RECORDED IN VOLUME 1327, PAGE 217, ECTOR COUNTY DEED RECORDS, ECTOR COUNTY, TEXAS, OUT OF SECTION 38, BLOCK 42, T-2-S, T & P RY. CO. SURVEY, ECTOR COUNTY, TEXAS.

BEGINNING at a ½ inch iron rod with cap marked "HOWELL F-100147" set for the northwest corner of this tract, from which point the southeast corner of said Section 38 bears S75°44'28"W, 495.22 feet, S14°15'32"E, 1190.34 feet;

THENCE N75°39'45"E, 630.74 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for the northeast corner of this tract;

THENCE S13°34'38"E, 342.93 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for the southeast corner of this tract;

THENCE S74°54'27"W, 624.24 feet to a ½ inch iron rod with cap marked "HOWELL F-100147" set for the southwest corner of this tract;

THENCE N14°39'56"W, 351.13 feet to the place of beginning and containing 5.0 acres of land.

PART A - ATTACHMENT A.3
CORE DATA FORM

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 604038646		**RN 101867554**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	2/1/2012

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

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

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

Flint Hills Resources Odessa, LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0801507296	32045637017	900753188	968178710

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☒ Other: Limited Liability Company

12. Number of Employees

☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☐ **Yes** ☒ **No**

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

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

15. Mailing Address:

4111 East 37th Street North

City	Wichita	**State**	KS	**ZIP**	67220	**ZIP + 4**	3203

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(316) 828-1556		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Flint Hills Resources Odessa, LLC

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2400 South Grandview Avenue							
	City	Odessa	**State**	TX	**ZIP**	79766	**ZIP + 4**	9108
24. County	Ector							

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

25. Description to Physical Location:	Not applicable, street address was provided.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Not applicable, street address was provided.					

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

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
2821		325211	

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

Former petrochemical facility (inactive)

34. Mailing Address:	**4111 East 37th St North**							
	City	**Wichita**	**State**	**KS**	**ZIP**	**67220**	**ZIP + 4**	**3203**
35. E-Mail Address:	[redacted]							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(316) 828-1556		**( ) -**

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				SWR#30142, IHW Permit #50290
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Neal Melchionni	**41. Title:**	Senior Project Manager
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(316) 828-1556		( ) -	Neal.Melchionni@gapac.com

SECTION V: Authorized Signature

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

Company:	Flint Hills Resources Odessa, LLC	**Job Title:**	Executive Vice President, Operations
Name *(In Print):*	Phil Gaarder	**Phone:**	(316) 828- **8000**
Signature:		**Date:**	2/16/26

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 603530866		**RN 101867554**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	3/4/2016

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

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

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

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0801110872	32039328128	364655657	832232263

11. Type of Customer:

☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited

Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☒ Other: Limited Liability Company

12. Number of Employees

☐ 0-20 ☒ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?

☒ **Yes** ☐ **No**

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

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

15. Mailing Address:	2501 S Grandview Avenue						
	City	Odessa	**State**	TX	**ZIP**	79766	**ZIP + 4**	9169

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(432) 332-0058		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

REXtac, LLC

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2400 South Grandview Avenue							
	City	Odessa	**State**	TX	**ZIP**	79766	**ZIP + 4**	9108
24. County	Ector							

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

25. Description to Physical Location:	Not applicable, street address was provided.				
26. Nearest City			**State**	**Nearest ZIP Code**	
Not applicable, street address was provided.					
Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).					
27. Latitude (N) In Decimal:	NA, St Add. Provided		**28. Longitude (W) In Decimal:**	NA, St Add. Provided	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
2821		325211	

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

Polypropylene Manufacturing

34. Mailing Address:	**2501 S Grandview Avenue**							
	City	**Odessa**	**State**	**TX**	**ZIP**	**79766**	**ZIP + 4**	**9169**
35. E-Mail Address:	[redacted]							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(432) 332-0058		( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				IHW Permit #50290
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Neal Melchionni	**41. Title:**	Senior Project Manager
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(316) 828-1556		( ) -	Neal.Melchionni@gapac.com

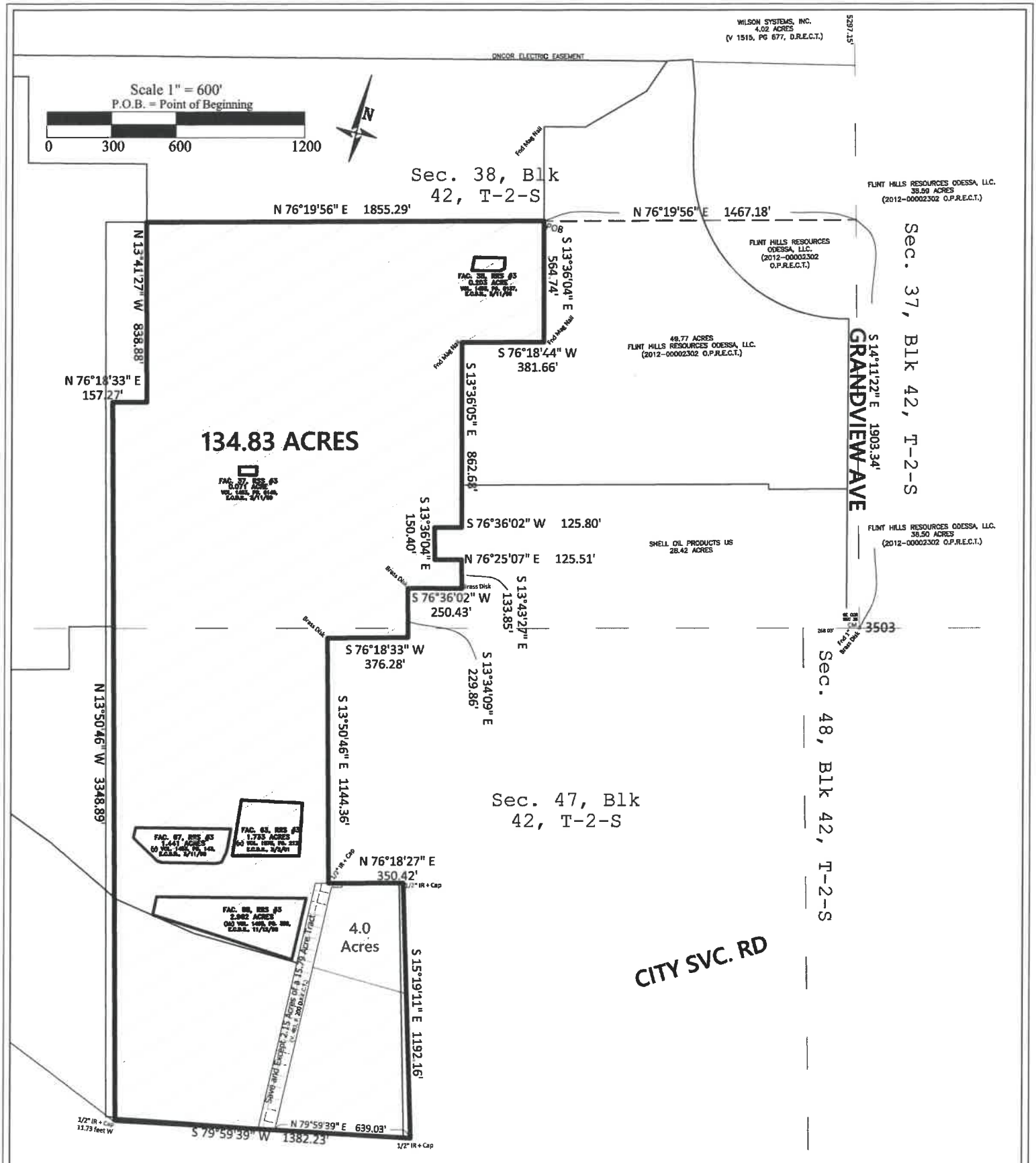
SECTION V: Authorized Signature

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

Company:	REXtac, LLC	**Job Title:**	President	
Name *(In Print):*	James Nicholas Fowler		**Phone:**	(432) 332- **0058**
Signature:			**Date:**	FEB 19, 2026

HEATHER LOMAX - ID 128957823 NOTARY PUBLIC STATE OF TEXAS EXP. 04/16/2028

PART A – ATTACHMENT B
SITE LEGAL DESCRIPTION



Date:	February 02, 2018	134.83 ACRES (Save and Except 2.15 Acres) IN SECTIONS 38 & 47, BLOCK 42, T-2-S, T&P RY. CO. SURVEY of Ector County, Texas
Revised:	May 03, 2018	
Job Number:	17-34955	
Exhibit "A"	Page 1 of 2	
Drawn by:	RJD	FLINT HILLS RESOURCES, WEST PLANT, ODESSA, TEXAS

S.W. HOWELL, INC.
409 East 57th Street, Odessa, Texas, 79762
Phone: (432) 367-5711
swh@swhowell.com
TEXAS SURVEYING FIRM #F-100147-00
TEXAS ENGINEERING FIRM #F-173
Surveying, Engineering and Land Planning

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THE PLAT HEREON OF 134.83 ACRES OF LAND (SAVE AND EXCEPT 2.15 ACRES OUT OF A 15.79 ACRE TRACT DESCRIBED IN VOLUME 483, PAGE 200, DEED RECORDS OF ECTOR COUNTY, TEXAS), DESCRICBED MORE FULLY BY METES AND BOUNDS BELOW OUT OF SECTION 38 AND 47, BLOCK 42, T-2-S, T & P RY. CO. SURVEY ECTOR COUNTY, TEXAS;

BEGINNING at a point in the west boundary line of a 49.77 ACRE FLINT HILLS RESOURCES TRACT (Instrument #2012-00002302, Official Public Records, Ector County, Texas) for the northeast corner of this tract from which a 2" brass disk found for the southeast corner of Section 38, Block 42, T-2-S, T&P Ry. Co. Survey, Ector County, Texas, bears N 76°19'56" E, 1467.18 feet and S 14°11'22" E, 1903.34 feet;

THENCE S 13°36'04" E, 564.74 feet, to a mag nail found for an exterior corner of this tract;

THENCE S 76°18'44" W, 381.66 feet, to a mag nail found for an interior corner of this tract;

THENCE S 13°36'05" E, 862.68 feet, to a point for an exterior corner of this tract;

THENCE S 76°36'02" W, 125.80 feet, to a point for an interior corner of this tract;

THENCE S 13°36'04" E, 150.40 feet, to a point for an interior corner of this tract;

THENCE N 76°25'07" E, 125.51 feet, to a point for an exterior corner of this tract;

THENCE S 13°43'27" E, 133.85 feet, to a 2" brass disk found for an exterior corner of this tract;

THENCE S 76°36'02" W, 250.43 feet, to a 2" brass disk found for an interior corner of this tract;

THENCE S 13°34'09" E, crossing the common south line of Section 38 and north line of Section 47, of said Block 42, 229.86 feet, to a point for an exterior corner of this tract;

THENCE S 76°18'33" W, 376.28 feet, to a 2" brass disk found for an interior of this tract;

THENCE S 13°50'46" E, 1144.36 feet, to a 1/2" iron rod with cap found for an interior corner of this tract;

THENCE N 76°18'27" E, 350.42 feet, to 1/2" iron rod with cap found for an exterior corner of this tract;

THENCE S 15°19'11" E, 1192.16 feet, to a 1/2" iron rod found for the most southerly southeast corner of this tract;

THENCE S 79°59'39" W, 1382.23 feet, to a point for an the most southerly southwest corner of this tract;

THENCE N 13°50'46" W, crossing the common north line of Section 47 and south line of Section 38, of said Block 42, 3348.89 feet, to a point for the most westerly northwest corner of this tract;

THENCE N 76°18'33" E, 157.27 feet, to a point for an interior corner of this tract;

THENCE N 13°41'27" W, 838.88 feet, to a point for the most northerly northwest corner of this tract;

THENCE N 76°19'56" E, 1855.29 feet, to the Point of Beginning and containing 134.83 acres of land.

SAVE AND EXCEPT A 2.15 ACRE TRACT BEING PART OF A 15.79 ACRE TRACT RECORDED IN VOLUME 483, PAGE 200, DEED RECORDS OF ECTOR COUNTY, TEXAS, DESCRICBED MORE FULLY BY METES AND BOUNDS BELOW:

BEGINNING at a point for the southeast corner of this tract in the most southerly boundary line of above described 134.83 acre tract from which the most southerly southeast corner of said 134.83 acre tract bears N 79°59'39" E, 639.03 feet;

THENCE S 79°59'39" W, with the most southerly boundary line of said 134.83 acre tract, 79.64 feet, to a point for the south east corner of this tract;

THENCE N 00°21'41" W, 1177.18 feet, to a point for the most easterly northeast corner of this tract;

THENCE N 76°18'27" E, passing a 1/2" iron rod with cap found at an interior corner of said 134.73 acre tract then continuing with a northerly boundary line of said 134.83 acre tract, 126.37 feet, to a point in a northly boundary line of said 134.83 acre tract;

THENCE S 13°26'52" E, 18.78 feet, to a point for an exterior corner of this tract;

THENCE S 76°33'08" W, 50.00 feet, to a point for an interior corner of this tract;

THENCE S 00°21'41" E, 1163.37 feet, to the Point of Beginning and Containing 2.15 acres of land.

Basis of Bearing: East Section Line of Sec. 38, Blk. 42, T-2-S, T&P Ry. Co. Survey, Ector County, Texas, as Measured by GPS Observation Relative to the Texas State Plane Coordinate System NAD 1983, Texas Central Zone (4203).

Job # 17-34955
Flint Hills Resources
West Plant

S. W. HOWELL, INC.

Sam Howell, II
Registered Professional Land Surveyor No. 4631

Date:	February 02, 2018	134.83 ACRES (Save and Except 2.15 Acres) IN SECTIONS 38 & 47, BLOCK 42, T-2-S, T&P RY. CO. SURVEY of Ector County, Texas
Revised:	May 03, 2018	
Job Number:	17-34955	
Exhibit "A"	Page 2 of 2	
Drawn by:	RJD	FLINT HILLS RESOURCES, WEST PLANT, ODESSA, TEXAS

S.W. HOWELL, INC.
409 East 57th Street, Odessa, Texas, 79762
Phone: (432) 367-5711
swh@swhowell.com
TEXAS SURVEYING FIRM #F-100147-00
TEXAS ENGINEERING FIRM #F-173
Surveying, Engineering and Land Planning
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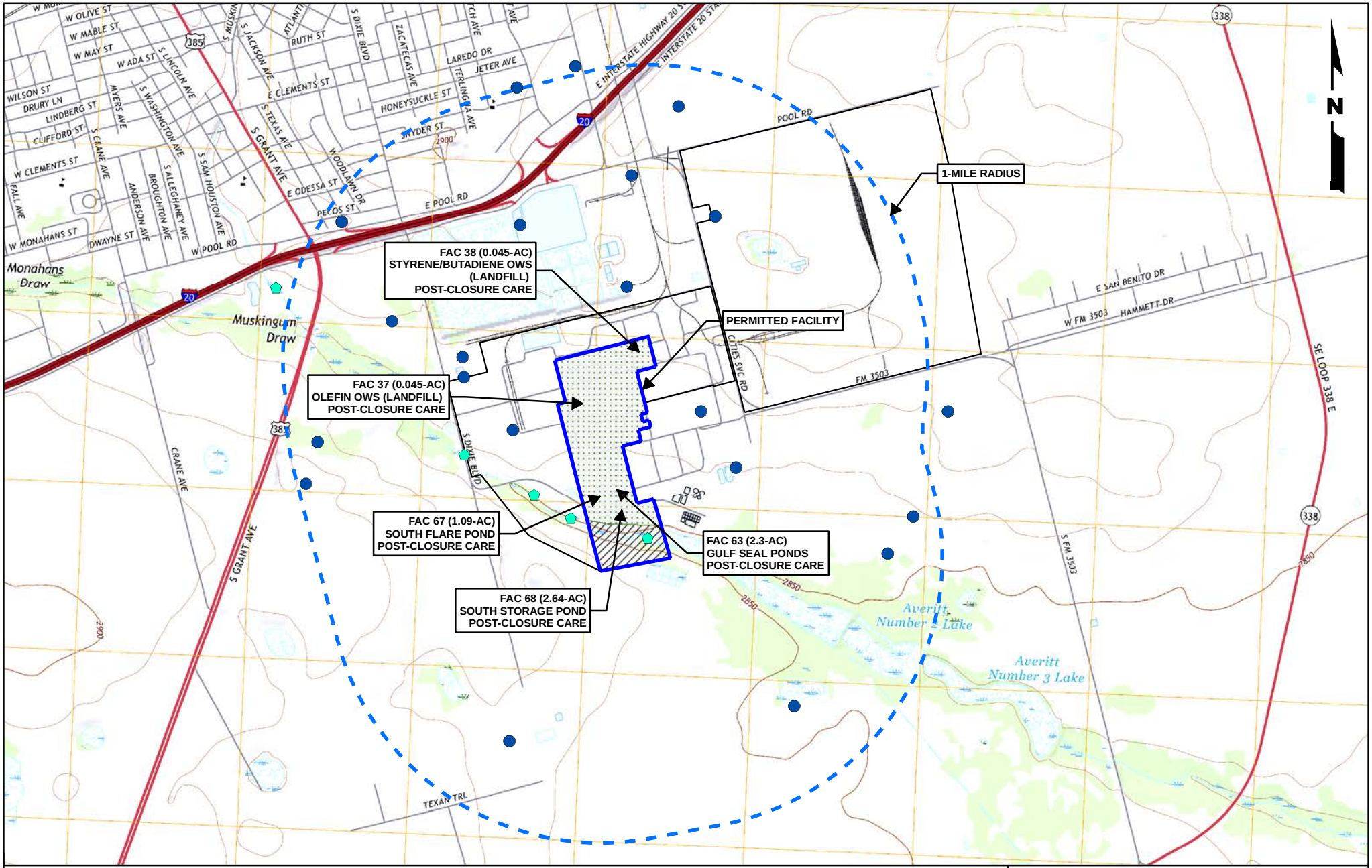
PART A – ATTACHMENT C
FACILITY BOUNDARIES AND ADJACENT WATERS MAP



LEGEND:

- WATER WELL
- MONAHANS DRAW SEEP
- 1-MILE RADIUS
- PERMITTED FACILITY
- FORMER EXTENT OF ODESSA PLANT
- REXTAC, LLC OWNED
- FLINT HILLS RESOURCES ODESSA, LLC OWNED

0 1,250 2,500

SCALE IN FEET

SOURCE: U.S. GEOLOGICAL SURVEY, 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, ODESSA SE, TEXAS - 2016

ATTACHMENT C
TOPOGRAPHIC MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE
ODESSA, TEXAS 79760

DATE:	FEB 2026	PN:	1039.005.001

File: \\truespatial\projects\SQE\1039\001.001\mxd\Class 1_1 Mod\Topographic Map 2018.mxd, 5/8/2018 4:59:38 PM

PART A – ATTACHMENT D
PHOTOGRAPHS

Photographic Log
FHR Odessa Property

Photo 1: View of the NE corner of the facility.

Photo 2: View of the NE section of the facility.

Photo 3: View of the fence line along the eastern side of the facility.

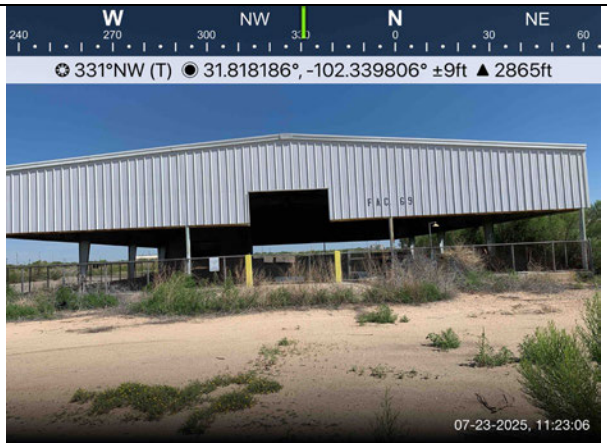


Photo 4: View of Unit 69 storage facility at the center of the facility.

Photo 5: View of NOR Unit #37.

Photo 6: View of NOR Unit #37 sign.

Date Taken	Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
07/23/25	212IC-HN-03014	Carlos Tomlinson	1 of 5	Flint Hills Resources	Odessa Facility	TETRA TECH

Photographic Log
FHR Odessa Property

Photo 7: View of the road that leads to the southeastern portion of the property.

Photo 8: View of the southeastern corner of the facility.

Photo 9: View of NOR Unit #63 sign.

Photo 10: View of NOR Unit #63.

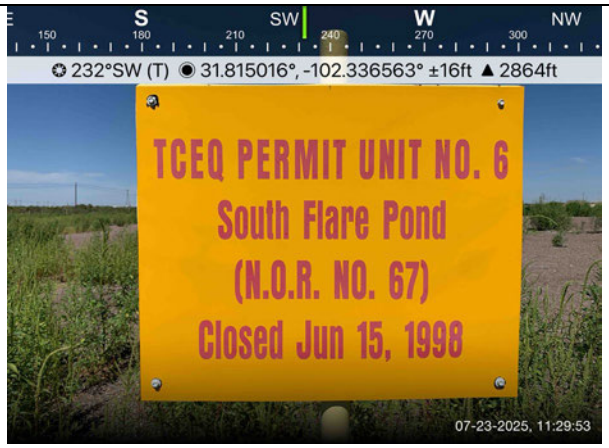


Photo 11: View of NOR Unit #67 sign.

Photo 12: View of NOR Unit #67.

Photographic Log
FHR Odessa Property

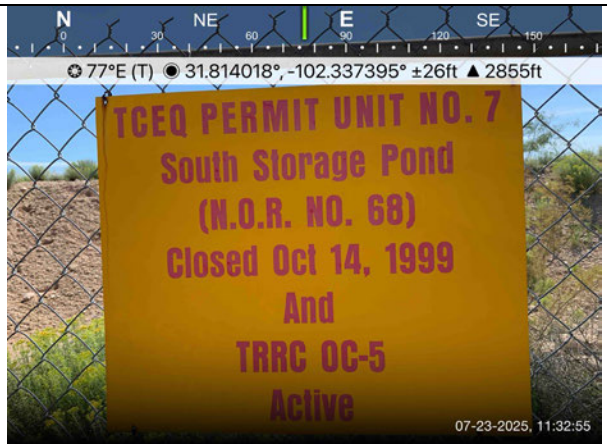


Photo 13: View of Unit #68 sign.

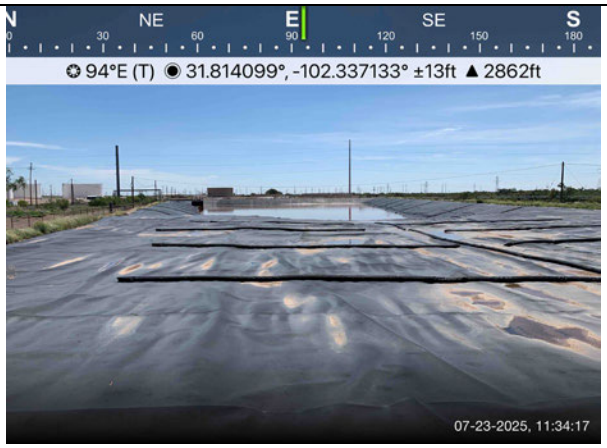


Photo 14: View of Unit #68.

Photo 15: View of the road adjacent to the southern fence line.

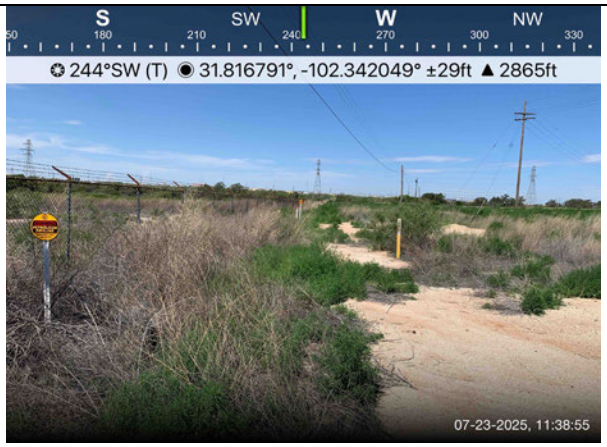


Photo 16: View of the road adjacent to the southwestern fence line.

Photo 17: View of the road adjacent to the western fence line along Dixie Blvd.

Photo 18: View of the road adjacent to the western fence line along Dixie Blvd.

Photographic Log
FHR Odessa Property

Photo 19: View of old security gate with another gate visible in the background along Dixie Blvd.

Photo 20: View of the northwestern corner of the facility.

Photo 21: View of the northern edge of the facility adjacent to the rails.

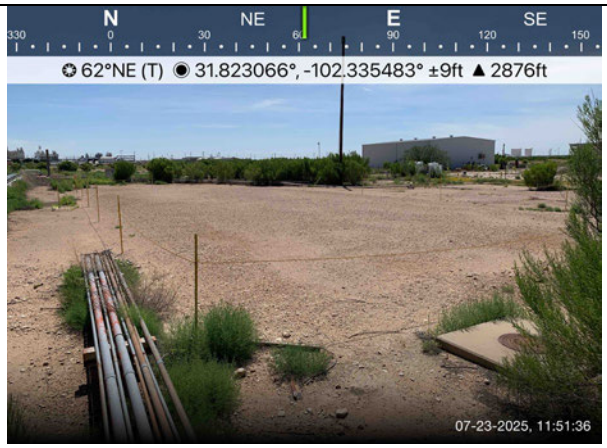


Photo 22: View of NOR Unit #38.

Photo 23: View of NOR Unit #38 sign.

Photographic Log
FHR Odessa Property

Photo 24: View of the northeast corner of the facility showing cleared ground and berm against the fence.

Photo 25: View of the eastern side of the facility.

Photo 26: View of the locked gate to the southeast of the facility along Dixie Blvd.

Date Taken	Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
07/23/25	212IC-HN-03014	Carlos Tomlinson	5 of 5	Flint Hills Resources	Odessa Facility	TETRA TECH

ATTACHMENT B - PART B APPLICATION MATERIALS

RCRA RENEWAL APPLICATION

PART B – (APPENDICIES I – XII)

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
2400 South Grandview Avenue
Odessa, Texas 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 FEBRUARY 2026

PN: 1039.005.001

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

APPENDIX I
GENERAL INFORMATION

ITEMS INCLUDED IN THIS APPENDIX:

- Table I – General Information
- Table I.1 – Description of Proposed Changes
- Attachment A1 – Core Data Form
- Attachment A2 – Figure 1 Adjacent Landowner Map and Adjacent Landowner Information
- Labels – Adjacent Landowner Labels

Table I: General Information

A. Applicant: Facility Operator

Name[1]	Flint Hills Resources Odessa, LLC
Address[2]	2400 South Grandview Avenue
City, State[2]	Odessa, Texas
Zip Code[2]	79766
Telephone Number	3168281556
Alternate Telephone Number	
TCEQ Solid Waste Registration No.	30142
EPA I.D. No.	TX980626014
Permit No.	50290
County	Ector
Regulated Entity Name	Odessa Petrochemical Plant
Regulated Entity Reference Number (RN)	RN101867554
Customer Name[2]	Flint Hills Resources Odessa, LLC
Customer Reference Number:	CN604038646
Charter Number[3]	0801507296
Previous or Former Names of the Facility (if applicable)	Huntsman Polymers Corporation

B. Facility Owner: Identify the Facility Owner if different than the Facility Operator[4]

☐ Same as Facility Operator?

Name	Flint Hills Resources Odessa, LLC
Address	2400 South Grandview Avenue
City, State	Odessa, Texas
Zip Code	79766
Telephone Number	3168281556
Alternate Telephone Number	

AND

REXtac, LLC
2501 South Grandview Avenue
Odessa, Texas 79766

C. Facility Contact

1. Persons or firms who will act as primary contact:

Name, Title:	Neal Melchionni, Senior Project Manager
Address	133 Peachtree St NE
City, State:	Atlanta, GA
Zip Code	30303
Telephone Number	3168281556
Alternate Telephone Number	6096028209
E-mail	[redacted]

Persons or firms who will act as primary contact (if more than one):

Name, Title:	
Address	
City, State:	
Zip Code	
Telephone Number	
Alternate Telephone Number	
E-mail	

2. Agent in Service or Agent of Service (if you are an out-of-state company)[5]:

Name, Title:	United Agent Group Inc.
Address	2595 N Dallas Pkwy, Suite 350
City, State:	Frisco, TX
Zip Code	75034

3. Individual responsible for causing notice to be published:

Name:	Neal Melchionni
Address	2400 South Grandview Avenue
City, State:	Odessa, Texas
Zip Code	79766
Telephone Number	3168281556
Alternate Telephone Number	6096028209
E-mail	[redacted]

4. Public place in county where application will be made available[6]:

Name	Ector County Library
Address	321 W. 5th Street
City, State	Odessa, Texas
Zip Code	79761

D. Application Type and Facility Status

1. Application Type

- [x] **Permit**
  - [ ] New
  - [x] Renewal
  - [ ] Interim Status
  - [ ] Compliance Plan
  - [ ] RD&D
- [x] **Amendment**
  - [x] Major
  - [ ] Minor
- [ ] **Modification**
  - [ ] Class 3
  - [ ] Class 2
  - [ ] Class 1[1]
  - [ ] Class 1

2. Part of a Consolidated Permit Processing request? [30 TAC Chapter 33] No

3. Does the application contain confidential material?[7] No

4. Facility Status. Check all that apply

- [ ] Proposed
- [x] Existing
- [x] On-Site
- [ ] Off-site
- [ ] Commercial
- [ ] Recycle
- [ ] Land Disposal
- [ ] Areal or capacity expansion
- [x] Compliance plan

5. Is the facility within the Coastal Management Program boundary? No

6. Description of Application Changes

Complete Table I.1 - Description of Proposed Application Changes

Note: List all changes requested in Table. Unlisted requests risk remaining unaddressed or possibly denied if brought to the permit application reviewer's attention at a later time.

7. Total acreage of the facility being permitted: 134.83

8. Identify the name of the drainage basin and segment where the facility is located[8]

River Segment	Segment 1412B
River Basin	Beals Creek (unclassified water body)

E. Facility Siting Summary:

Is the facility located or proposed to be located:

1. Within a 100-year floodplain?	Yes
2. in wetlands?	No
3. In the critical habitat of an endangered species of plant or animal?	No
4. On the recharge zone of a sole-source aquifer?	No
5. In an area overlying a regional aquifer?	Yes
6. Withing 0.5 mile (2,640 feet) of an established residence, church, school , day care center, surface water body used for public drinking water supply, or dedicated public park?[9] [30 TAC 335.202] If Yes: the TCEQ shall not issue a permit for this facility.	No
7. In an area in which the governing body of the country or municipality has prohibited the processing or disposal of municipal hazardous waste or industrial solid waste? If yes: provide a copy of the ordinance or order.	No

F. Wastewater and Stormwater Disposition

1. Is the disposal of any waste to be accomplished by a waste disposal well at this facility?	No
If Yes: List WDW Permit No(s):	
2. Will any point source discharge of effluent or rainfall runoff occur as a result of the proposed activities?	No

3. If Yes, is this discharge regulated by a TPDES or TCEQ permit?

☐ Yes

TCEQ Permit No.

TDPES Permit No.

☐ No

Date TCEQ discharge permit application filed:

Date TPDES discharge application filed:

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator

Name:	Kevin Sparks, 432-685-6031, [redacted]
Address	6 Desta Drive, Suite 1325
City, State:	Midland, Texas
Zip Code:	79705

State Representative

Name:	Brooks Landgraf, 432-332-0937, [redacted]
Address	P.O. Box 12910
City, State:	Austin, Texas
Zip Code	78711

Local Officials List [30 TAC 39]

Mayor

Name:	Cal Hendrick, 432-335-4104, [redacted]
Address	411 W 8th St
City, State:	Odessa, Texas
Zip Code	79760

Local Health Authority

Name:	Brandy Garcia (Ector County Health Department), [redacted]
Address	221 N. Texas
City, State:	Odessa, Texas
Zip Code	79761

County Judge

Name:	Dustin Fawcett, 432-498-4100, [redacted]
Address	300 North Grant, Room 227
City, State:	Odessa, Texas
Zip Code	79761

County Health Authority

Name:	Brandy Garcia (Ector County Health Department), [redacted]
Address	221 N. Texas
City, State:	Odessa, Texas
Zip Code	79761

Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?	Yes
Bilingual Language(s):	Spanish
TCEQ Core Data Form Submitted?(Required)	Yes
Has any information changed on the TCEQ Core Data Form since the last submittal?	Yes
Signature on Application Submitted? (see Section I Instructions, Item c)	Yes

1. Individual, Corporation, or Other Legal Entity Name on the Permit - must match the Secretary of State's database records for the Facility).
2. The legal name and address must match the Core Data Form.
3. If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.
4. The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on Part A of this application [Section 361.087, Texas Health and Safety Code].
5. If the application is submitted by a corporation or by a person residing out of state, the applicant register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.
6. For applications for new permits, renewals, major amendments and Class 3 modifications a copy of the administratively complete application must be made available at a public place in the county where the facility is, or will be, located for review and copying by the public. Identify the public place in the county (e.g., public library, county court house, city hall), including the address, where the application will be made available for review and copying by the public.
7. For confidential information cross-reference the confidential material throughout the application to Section XIII: Confidential Material, and submit as a separate Section XIII document or binder conspicuously marked "CONFIDENTIAL".
8. Use the segments line map created by TCEQ GIS Team to find the Segment Name and Basin Name.
9. Use only for a new commercial hazardous waste management facility or areal expansion of an existing hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202.

Table I.1-Description of Proposed Application Changes

Permit/Compliance Plan Application Appendix/Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Appendix VII Section VII.D Post-Closure Care Estimate	Updated Post-Closure Care Cost Estimate	Minor	Not Applicable
Appendix XI Compliance Plan. CP Tables	Updated Corrective Action Cost Estimates	Minor	Not Applicable
Appendix XI Compliance Plan	Completion of Corrective Action for GWCA-F	Major	30 TAC 335.166; 30 TAC 305.69(k)

TCEQ Use Only

TCEQ Core Data Form

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

SECTION I: General Information

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

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

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

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 604038646		**RN 101867554**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	2/1/2012

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

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

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

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0801507296	32045637017	900753188	968178710

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

12. Number of Employees	**13. Independently Owned and Operated?**
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher	☐ **Yes** ☒ **No**

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

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

15. Mailing Address:	4111 East 37th Street North						
	City	Wichita	**State**	KS	**ZIP**	67220	**ZIP + 4**	3203

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(316) 828-1556		( ) -

SECTION III: Regulated Entity Information

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

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

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

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

Flint Hills Resources Odessa, LLC

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2400 South Grandview Avenue							
	City	Odessa	**State**	TX	**ZIP**	79766	**ZIP + 4**	9108
24. County	Ector							

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

25. Description to Physical Location:	Not applicable, street address was provided.

26. Nearest City	State	Nearest ZIP Code
Not applicable, street address was provided.		

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

27. Latitude (N) In Decimal:			28. Longitude (W) In Decimal:		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
2821		325211	

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

Former petrochemical facility (inactive)

34. Mailing Address:	**4111 East 37th St North**							
	City	**Wichita**	**State**	**KS**	**ZIP**	**67220**	**ZIP + 4**	**3203**
35. E-Mail Address:	[redacted]							

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(316) 828-1556		( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				SWR#30142, IHW Permit #50290
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Neal Melchionni	**41. Title:**	Senior Project Manager
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(316) 828-1556		( ) -	[redacted]

SECTION V: Authorized Signature

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

Company:	Flint Hills Resources Odessa, LLC	**Job Title:**	Executive Vice President, Operations
Name *(In Print):*	Phil Gaarder	**Phone:**	(316) 828- **8000**
Signature:	[signature]	**Date:**	2/16/26

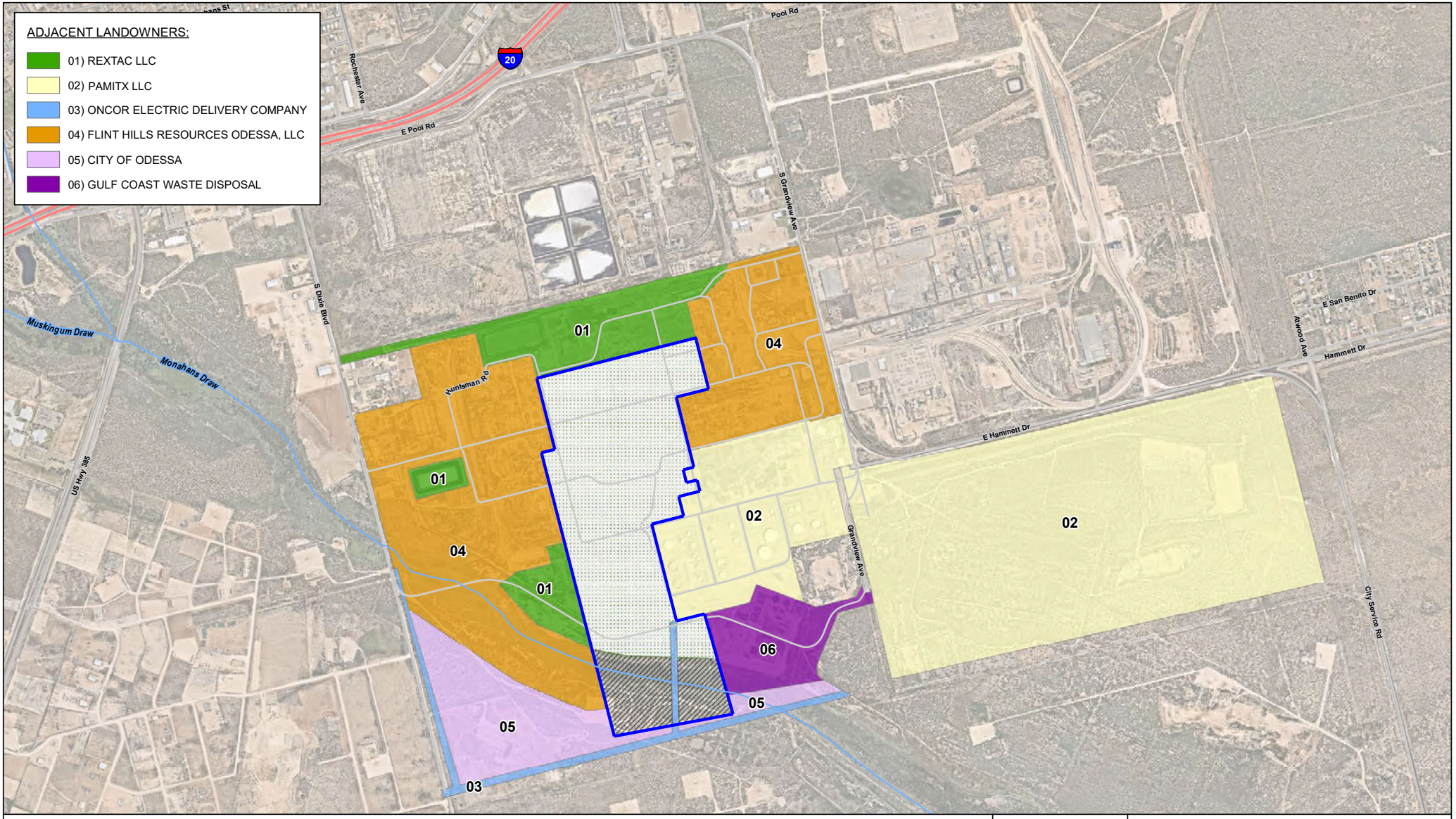
Signature Page

I, Phill Gaarder, Executive Vice President, Operations, Flint Hills Resources, LLC,
(Operator) *(Title)*

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

Signature: _____ Date: 2/16/26

- - - -



LEGEND:

- PERMITTED FACILITY
- REXTAC, LLC OWNED
- FLINT HILLS RESOURCES ODESSA, LLC OWNED

SOURCES:
1. NEARMAP AERIAL PHOTOGRAPHY, JULY, 2017
2. ECTOR COUNTY CENTRAL APPRAISAL DISTRICT, TAX ROLL DATABASE, JULY, 2025

0 500 1,000
SCALE IN FEET

N

SQ Environmental, LLC

FIGURE 1

ADJACENT LANDOWNERS MAP

FLINT HILLS RESOURCES ODESSA, LLC
2400 S. GRANDVIEW AVE
ODESSA, TEXAS 79760

SCALE: 1 IN = 1,000 FT

DATE: FEB 2026

PN: 1039.005.001

File: \\truespatial\projects\SQE\1039\001.001\mxd\Class 1_1 Mod\Adjacent Landowners 2018.mxd, 5/8/2018 4:52:08 PM

ADJACENT LANDOWNER LIST
Flint Hills Resources Odessa, LLC
2400 S. Grandview Ave, Odessa, Texas 79760
SWR No. 30142 | IHW Permit 50290 | RN101867554

01) REXTAC LLC	REXTAC LLC	2501 S GRANDVIEW AVE	ODESSA	TX	79766-9169
02) PAMITX LLC	PAMITX LLC	1515 DES PERES RD, STE 300	ST LOUIS	MO	63131-1846
03) ONCOR ELECTRIC DELIVERY COMPANY	ONCOR ELECTRIC DELIVERY COMPANY	PO BOX 219071	DALLAS	TX	75221-9071
04) CITY OF ODESSA	CITY OF ODESSA	PO BOX 4398	ODESSA	TX	79760-4398
05) GULF COAST WASTE DISPOSAL	GULF COAST WASTE DISPOSAL	910 BAY AREA BLVD	HOUSTON	TX	77058-2604

ADJACENT LANDOWNER MAILING LABELS

Flint Hills Resources Odessa, LLC

2400 S. Grandview Ave, Odessa, Texas 79760

SWR No. 30142 | IHW Permit 50290 | RN101867554

REXTAC LLC
2501 S GRANDVIEW AVE
ODESSA TX 79766-9169

PAMITX LLC
1515 DES PERES RD, STE 300
ST LOUIS MO 63131-1846

ONCOR ELECTRIC DELIVERY COMPANY
PO BOX 219071
DALLAS TX 75221-9071

CITY OF ODESSA
PO BOX 4398
ODESSA TX 79760-4398

GULF COAST WASTE DISPOSAL
910 BAY AREA BLVD
HOUSTON TX 77058-2604

APPENDIX II
FACILITY SITING CRITERIA

ITEMS INCLUDED IN THIS APPENDIX:

- Table II – Facility Siting Criteria Information
- Site Selection Report

Table II

Table II contains the following: Table II.A, Table II.B, Table II.C, Table II.D, Table II.E and Flooding from Section II. F of the Part B Application

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

Is the facility located or proposed to be located[1]:

In wetlands? [as applicable: 30 TAC 335.204(a)(2), (b)(2), (c)(2), (d)(2), and/or (e)(2)	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste management facility or areal expansion of an existing facility into wetlands, pursuant to 30 TAC 335.205(a)(1).	
In the critical habitat of an endangered species of plant or animal?[6] [as applicable: 30 TAC 335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)]	No
If Yes: submit in Section V information demonstrating that design, construction, and operational features will prevent adverse effects on such critical habitat.	
On the recharge zone of a sole-source aquifer?2 [30 TAC 335.204(a)(3), (b)(3), (c)(3), (d)(3), and/or (e)(3)]	No
If Yes: then for storage and processing facilities (excluding storage surface impoundments), submit in Section V information demonstrating that secondary containment is provided to preclude migration to groundwater from spills, leaks, or discharges.	
In an area overlying a regional aquifer? [as applicable: 30 TAC 335.204(a)(4), (b)(4), (c)(4), (d)(4), and/or (e)(4)]	Yes, see below
If Yes: submit site-specific information in Section V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1).	
In areas where soil unit(s) are within five feet of the containment structure, or treatment zone, as applicable, that have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10-5 cm/sec? [as applicable: 30 TAC 335.204(a)(5), (b)(5), (c)(5), (d)(5), and/or (e)(5)]	No
If Yes: provide additional information in Sections V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1)	
In areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system?[6] [as applicable: 30 TAC 335.204 (a)(6), (b)(7), (c)(6), and/or (e)(8)].	No
If Yes: provide information in Section V demonstrating compliance with 30 TAC 335.205(a)(1).	

In areas of active geologic processes, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes?[6] [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/ or (e)(9)]	No
Within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures?[6] [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]	No

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

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

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

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

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(6) and 335.205(a).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: submit in Section V.F design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	No
If Yes: submit Section V.F design, construction and operational features, which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(11) and 335.205(a)(1).	

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

Is the waste pile located or proposed to be located:

Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: submit in Section V.E design, construction, and operational features on the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	No
If Yes: submit Section V.E design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?[6]	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste pile or an areal expansion of an existing waste pile, pursuant to 30 TAC 335.204(c)(10) and 335.205(a)(1).	

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

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

Within 1000 feet of an area of active coastal shoreline erosion even though the area is protected by a barrier island or peninsula	No
If Yes: submit in Section V.D design, construction, and operational features of the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	No
If Yes: then submit in Section V.D design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?[6]	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste storage surface impoundment or an areal expansion of an existing storage surface impoundment, pursuant to 30 TAC 335.204(d)(10) and 335.205(a)(1).	

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

Is the landfill located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(6) and 335.205(a)(1).	
(For commercial hazardous waste landfills) in the 100-year flood plain of a perennial stream that is delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(7) and 335.205(a)(1).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	No
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barriers island or peninsula.	No
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(12) and 335.205(a)(1).	

Flooding (see Section II Instructions, Item F)

Is the facility within a 100-year flood plain?	Yes
Has a flood plain map been provided?	Yes
Has information about flooding levels and events, and other special flooding factors, been provided?[3]	Yes
Do any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.) designed to prevent washout from the 100-year flood?[3]	Yes
If Yes: provide in Section V an engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][4]	
If No: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][5]	
If applicable, and in lieu of the flood protection devices from above, was a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded provided?[3, 6]	Yes
Additional Information Requirements (see Section II instructions, Item G): Submitted?	No

1. Provide the source of information for all questions in the appendix.
2. Note: Land treatment facilities, waste piles, storage surface impoundments, and landfills may not be located on the recharge zone of a sole-source aquifer.
3. Only required to be submitted if the facility is subject to inundation as a result of a 100-year flood event.
4. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
5. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
6. The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC 335.201(b)]

SITE SELECTION REPORT

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
2400 South Grandview Avenue
Odessa, Texas 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 February 2026

STATE OF TEXAS
QUINTIN K. McNULTY
89396
LICENSED
PROFESSIONAL ENGINEER

Quintin K. McNulty, P.E. Principal
Texas P.E. No. 89396, F-15202
Signed electronically on 2/3/26

Nick Danger
Project Manager

PN: 1039.005.001

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

1 UNSUITABLE SITE CHARACTERISTIC EVALUATION

This Site Selection Report was prepared for the renewal of Hazardous Waste Permit No. 50290 for the above-referenced facility in Odessa, Texas. This renewal application is for five Resource Conservation and Recovery Act (RCRA)-regulated post-closure care units located in the facility, as illustrated in the renewal application. These five units were closed, certified, and approved by the TCEQ between 1998 and 2001. All five units are in post-closure care and this application does not include any new units or areal expansion of the existing units; there is no plan to extend or use the units in the future. Therefore, site selection is not applicable for this renewal application; however, this section has been prepared for a complete renewal application.

- 100-year Floodplain – Post-closure care units 63, 67, and 68 are located within the 100-year floodplain. A flood plain map is provided as **Figure 1**. Information regarding the flood plain map is taken from the National Flood Insurance Program FIRM Map Panels 0355E and 0365E, revised 2012. Further information regarding flooding levels and events is provided in Appendix V of the application regarding engineering. Post-closure care units 63, 67, and 68 have diked walls and geosynthetic liners. Further details regarding flood protection are provided in Appendix V.

- Wetlands – Information sourced from the US Fish & Wildlife Services National Wetlands Inventory Wetlands Mapper (www.fws.gov/wetlands/data/mapper.html). According to the Mapper, features along Monahans Draw are classified as PEM1Ch. These features, as discussed in a previously submitted SLERA (Weston, Tier 2 Screening Level Ecological Risk Assessment, February 2009) are considered intermittent and do not contain water regularly during the year and are not considered wetlands. Other features on the map are shown as PUBHx which are basins that were excavated by humans (such as human-made diked ponds); these are not considered wetlands either. A copy of the NWI Map is included as **Appendix A.1**.

- Recharge Zone Sole-Source Aquifer – The post-closure care units are not located on the recharge zone of a sole-source aquifer. According to the City of Odessa, water supplied to the City of Odessa is sourced from the Colorado River Municipal Water District (CRMWD), specifically lakes such as Lakes Ivie, Spence, and Thomas, all surface water sources.

- Overlying Regional Aquifers – There are two regional aquifers extending into the FHR property, the Ogallala aquifer and the underlying Antlers (Trinity Group) aquifer. Further details regarding the regional aquifers are provided in Appendix VI (Geology Report).

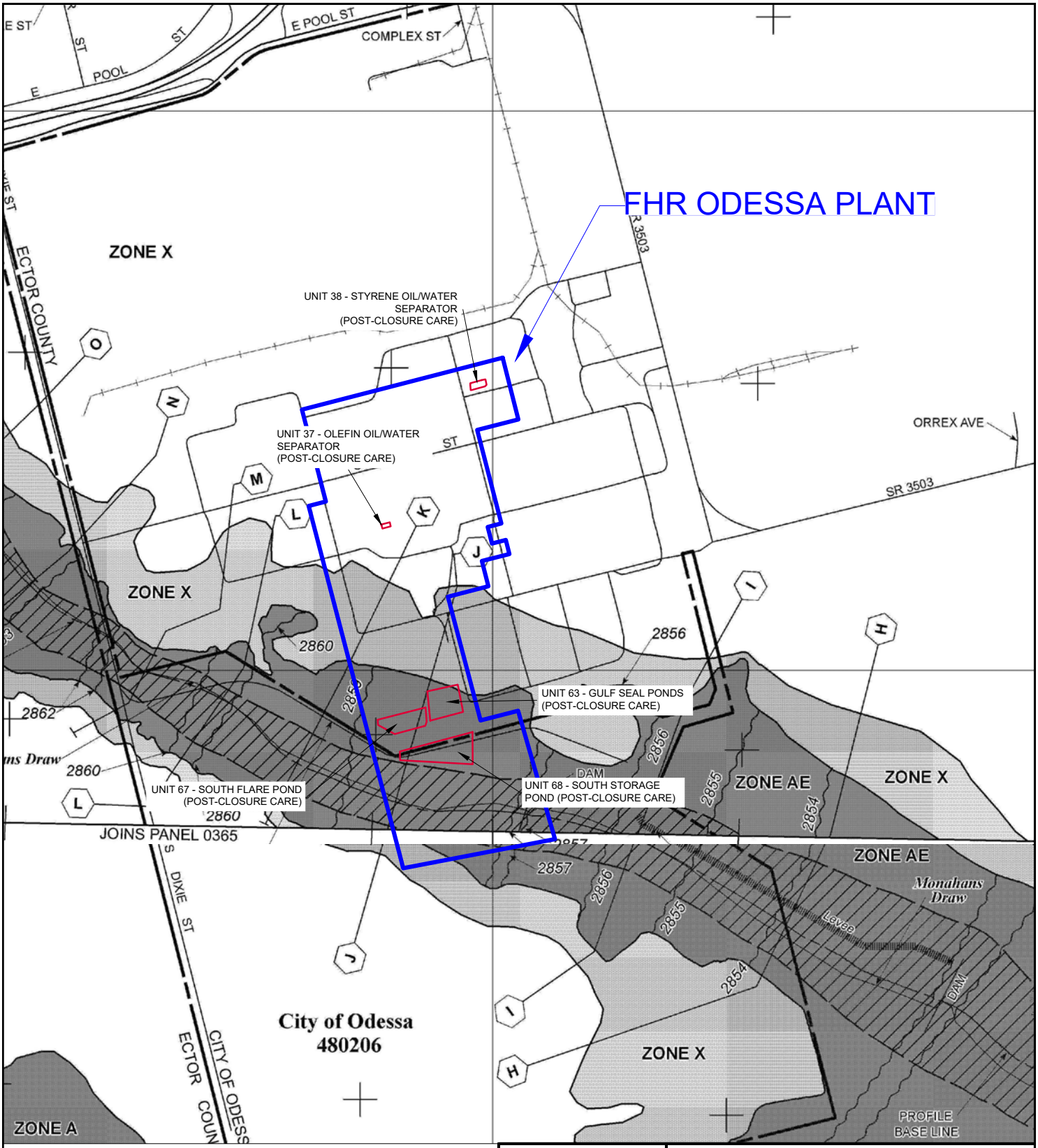
- Direct Drainage – There are no lakes within one mile of the property that provide drinking water to the nearby area.

- Geologic Processes – The property and associated post-closure care units are not located in areas of active geologic processes. Information regarding geologic processes is included in Appendix VI (Geology Report) of the renewal application.

- Faults – No surface expressions of a fault have been identified within 50 feet of the post-closure care units. No expressions of a fault are identified in geologic maps included in Appendix VI (Geology Report) of the application materials.

- Habitat – The post-closure care units are not located within the critical habitat of an endangered species of plant or animal. The units are located wholly within the boundaries of a former refinery and the area is not believed to be attractive to wildlife or livestock, including threatened or

endangered species. The post-closure care units do not serve as valuable habitat, foraging area, or refuge for ecological communities. Further, none of the regional or endangered species are expected to use Monahans Draw for foraging at any time throughout the year. Information regarding threatened and endangered species is taken from the Texas Parks and Wildlife Department Rare, Threatened, and Endangered Species of Texas map available through tpwd.texas.gov, accessed in July 2025. Information regarding threatened and endangered species for Nueces County is included in **Appendix A.2.**



SOURCE: FEDERAL EMERGENCY MANAGEMENT AGENCY, FLOOD INSURANCE RATE MAP, ECTOR COUNTY, TEXAS, PANEL 355 OF 500, MAP REVISED MARCH 15, 2012.

ZONE X - OTHER FLOOD AREAS. AREAS WITH 0.2% ANNUAL CHANCE OF FLOOD.

ZONE AE - SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD (100-YR FLOOD).

N

0 600 1200

SCALE IN FEET

SQ Environmental, LLC

FIGURE 1

FLOOD PLAIN MAP

FLINT HILLS RESOURCES ODESSA, LLC
2400 S GRANDVIEW AVE
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 1200 FT	FEB 2026	1039.005.001

APPENDIX A.1

NWI Map

U.S. Fish and Wildlife Service
National Wetlands Inventory

NWI Map - FHR Odessa, Texas

July 30, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

APPENDIX A.2

Texas Fish and Wildlife Department Information

Last Update: 1/15/2025

ECTOR COUNTY

AMPHIBIANS

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

BIRDS

Baird's Sparrow *Centronyx bairdii*

Shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SUN

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Bank Swallow *Riparia riparia*

Bank Swallows live in low areas along rivers, streams, ocean coasts, and reservoirs. Their territories usually include vertical cliffs or banks where they nest in colonies of 10 to 2,000 nests. Though in the past Bank Swallows were most commonly found around natural bluffs or eroding streamside banks, they now often nest in human-made sites, such as sand and gravel quarries or road cuts. They forage in open areas and avoid places with tree cover.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2B,S4N

Brewer's Blackbird *Euphagus cyanocephalus*

Shrubby and bushy areas (especially near water), riparian woodland, aspen parklands, cultivated lands, marshes, and around human habitation; in migration and winter also in pastures and fields (AOU 1983).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Cactus Wren *Campylorhynchus brunneicapillus*

Desert (especially with cholla cactus or yucca), mesquite, arid scrub, coastal sage scrub, and in trees in towns in arid regions (Tropical to Subtropical zones) (AOU 1983). Nests in OPUNTIA cactus, or in twiggy, thorny, trees and shrubs, sometimes in buildings. Nest may be relined and used as a winter roost.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

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ECTOR COUNTY

BIRDS

chestnut-collared longspur *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Common Nighthawk *Chordeiles minor*

Common Nighthawks nest in both rural and urban habitats including coastal sand dunes and beaches, logged forest, recently burned forest, woodland clearings, prairies, plains, sagebrush, grasslands, open forests, and rock outcrops. They also nest on flat gravel rooftops, though less often as gravel roofs are being replaced by smooth, rubberized roofs that provide an unsuitable surface.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

Franklin's gull *Leucophaeus pipixcan*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

golden eagle *Aquila chrysaetos*

Golden eagles generally inhabit open and semi-open country such as prairies, sagebrush, savannah or sparse woodland, and barren areas, especially in hilly or mountainous regions, in areas with sufficient mammalian prey base and near suitable nesting sites.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S3B

lark bunting *Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (Koeleria), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

Loggerhead Shrike *Lanius ludovicianus*

Loggerhead Shrikes inhabit open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. They frequent agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. Loggerhead Shrikes are often seen along mowed roadsides with access to fence lines and utility poles.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4B

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ECTOR COUNTY

BIRDS

mountain plover *Charadrius montanus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

Northern Bobwhite *Colinus virginianus*

Inhabits a wide variety of vegetation types, particularly early successional stages. Occurs in croplands, grasslands, pastures, fallow fields, grass-brush rangelands, open pinelands, open mixed pine-hardwood forests, and habitat mosaics (Brennan 1999).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S4B

Pyrrhuloxia *Cardinalis sinuatus*

Pyrrhuloxias live in upland deserts, mesquite savannas, riparian (streamside) woodlands, desert scrublands, farm fields with hedgerows, and residential areas with nearby mesquite. When not breeding, some Pyrrhuloxias wander into urban habitats, mesquite-hackberry habitats, and riparian habitats with Arizona sycamore and cottonwood.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

Sanderling *Calidris alba*

Nonbreeding: primarily sandy beaches, less frequently on mud flats and shores of lakes or rivers (AOU 1983) also on exposed reefs (Pratt et al. 1987). Sleeps/loafs on upper beach or on salt pond dike.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Scaled Quail *Callipepla squamata*

In general, preferred habitat is arid-semiarid, mixed shrub-grassland. Common shrubs of preferred habitat include acacia (ACACIA spp.), sand sagebrush (ARTEMISIA FILIFOLIA), four-winged saltbush (ATRIPLEX CANESCENS), cacti (OPUNTIA spp.), honey mesquite (PROSOPIS GLANDULOSA), sumacs (RHUS AROMATICA, R. MICROPHYLLA, R. TRILOBATA), yucca (YUCCA spp.), and snakeweed (XANTHOCEPHALUM SAROTHRAE).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

Snowy Plover *Charadrius nivosus*

Algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. An optimal site characteristic would be large in size. The size of populations appear to be roughly proportional to the total area of suitable habitat used. Formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

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ECTOR COUNTY

BIRDS

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4B

Willet *Tringa semipalmata*

Marshes, tidal mudflats, beaches, lake margins, mangroves, tidal channels, river mouths, coastal lagoons, sandy or rocky shores, and, less frequently, open grassland (AOU 1983, Stiles and Skutch 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5B

Wilson's Warbler *Cardellina pusilla*

Wilson’s warblers key in on forests and scrubby areas along streams to fatten up during migration. During the nonbreeding season they use many types of habitats from lowland thickets near streams to high-elevation cloud forests in Mexico and Central America.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

yellow-billed cuckoo *Coccyzus americanus*

In Texas, the populations of concern are found breeding in riparian areas in the Trans Pecos (know as part of the Western Distinct Population Segment). It is the Western DPS that is on the U.S. ESA threatened list and includes the Texas counties Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, and Presidio. Riparian woodlands below 6,000' in elevation consisting of cottonwoods and willows are prime habitat. This species is a long-distant migrant that summers in Texas, but winters mainly in South America. Breeding birds of the Trans Pecos populations typically arrive on their breeding grounds possibly in late April but the peak arrival time is in May. Threats to preferred habitat include hydrologic changes that don't promote the regeneration of cottonwoods and willows, plus livestock browsing and trampling of sapling trees in sensitive riparian areas.

Federal Status: T	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4S5B

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ECTOR COUNTY

INSECTS

migratory monarch butterfly *Danaus plexippus plexippus*

Habitat description is not available at this time.

Federal Status: C	State Status:	SGCN: Y
Endemic:	Global Rank: G4T3	State Rank: SNR

MAMMALS

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

black-tailed prairie dog *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

greater western mastiff bat *Eumops perotis californicus*

Arid canyons; roosts in crevices in rock walls of desert canyons, old buildings, hollow trees; roost site must have clearance for a three meter fall by exiting bats; colony size varies from several individuals to several dozen; males and females may remain together throughout the year; single offspring (occasionally twins) born June-July.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5T4	State Rank: S3

hoary bat *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3

hooded skunk *Mephitis macroura*

Rocky canyons & riparian corridors at low elevations, rarely to 6000 feet. Avoids man-made habitations. Only known from the Trans-Pecos regions along the Rio Grande.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1S2

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ECTOR COUNTY

MAMMALS

Jones's pocket gopher *Geomys knoxjonesi*

This fossorial rodent is restricted to areas with deep, sandy, aeolian soils; usually in native yucca-grassland habitat, although it is also found on grassy roadsides, pastures, and lawns (Bradley and Baker, in Wilson and Ruff 1999).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3Q	State Rank: S2

kit fox *Vulpes macrotis*

Open desert grassland; avoids rugged, rocky terrain and wooded areas.

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4	State Rank: S1S2

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T3T4	State Rank: S3?

pronghorn *Antilocapra americana*

Prefers hilly and plateau areas of open grassland, desert-grassland, and desert-scrub, where it frequents south-facing slopes and other sheltered areas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Western pipistrelle *Parastrellus hesperus*

Desert to pine-oak woodland. Cliffs and rock crevices provide roosts.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3S4

REPTILES

plateau spot-tailed earless lizard *Holbrookia lacerata*

Terrestrial: Habitats include moderately open prairie-brushland regions, particularly fairly flat areas free of vegetation or other obstructions (e.g., open meadows, old and new fields, graded roadways, cleared and disturbed areas, prairie savanna, and active agriculture including row crops); also, oak-juniper woodlands and mesquite-prickly pear associations (Axtell 1968, Bartlett and Bartlett 1999).

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: GNR	State Rank: S2

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ECTOR COUNTY

REPTILES

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

western massasauga *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

PLANTS

Cory's ephedra *Ephedra coryi*

Dune areas and dry grasslands in the southern Plains Country; Perennial; Flowering April-Sept; Fruiting May-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

neglected sunflower *Helianthus neglectus*

Deep sands on rolling hills and dunes of Pleistocene sand sheets, often associated with Havards shin oak dwarf woodlands or mesquite-sand sage woodlands; flowering July-September

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2Q	State Rank: S2

sticky tansy aster *Xanthisma viscidum*

Occurs on calcareous or sandy soils in Chihuahuan Desert shrublands or mesquite grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

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APPENDIX III
FACILITY MANAGEMENT

ITEMS INCLUDED IN THIS APPENDIX:

- Appendix III.B – Personnel Training Plan
- Appendix III.C – Security
- Appendix III.D – Inspection Plant and Schedule
- Table III.D – Inspection Schedule

APPENDIX III.A – COMPLIANCE HISTORY AND APPLICANT EXPERIENCE

No other solid waste management sites in Texas are owned, operated, or controlled by Flint Hills Resources Odessa, LLC.

APPENDIX III.B – PERSONNEL TRAINING PLAN

FLINT HILLS RESOURCES ODESSA, LLC
PERSONNEL TRAINING PROGRAM PLAN

Table of Contents

1.0 Introduction 1

2.0 Training Requirements 2

3.0 Recordkeeping Requirements 4

FLINT HILLS RESOURCES ODESSA, LLC
PERSONNEL TRAINING PROGRAM PLAN

1.0 Introduction

This Personnel Training Plan is intended to ensure the proper and safe management of hazardous wastes at the Flint Hills Resources Odessa, LLC (FHR) Odessa Plant in Odessa, Texas. The Plan conforms to the requirements established in 40 CFR 264.

Petrochemical operations at the Odessa Plant were discontinued in 2009. No active RCRA-permitted hazardous waste management units are located on-site; five units are in post-closure care.

This plan covers facility personnel as defined in 40 CFR 260.10 -- *"all persons who work at, oversee the operations of, a hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements of Part 264 or 265 of this chapter."*

2.0 Training Requirements

40 CFR 264.16 requires that:

Facility personnel successfully complete a program of classroom instruction or on-the job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this part [§264.16(a)(1)].

FHR Odessa Plant personnel are required to complete either a 40-hour or 24-hour classroom or online Hazardous Waste Operations and Emergency Response (HAZWOPER) course that complies with 29 CFR 1910.120(e). Topics covered in this course include:

- Agencies, Laws, and Regulations
- HAZWOPER Training
- Principles of Safety
- Toxicology
- Planning and Organization
- Preparation for Fieldwork
- Chemical Hazard Identification Systems
- Understanding of Radiation Safety
- Respiratory Protection
- Personal Protective Equipment
- Air and Environmental Monitoring
- Sampling and Packaging
- Fire Protection
- Handling Drums and Containers
- Confined Space Hazards
- Site Emergencies
- Decontamination Procedures
- Medical Surveillance

In instances where the HAZWOPER course is taken online, the training course provides interaction with an instructor and the opportunity for students to ask questions and receive help. In addition, a minimum of 8

hours of the course is required to be “hands-on” training in addition to the remaining hours of online course material.

Appropriate FHR personnel are required to complete an 8-hour annual refresher for HAZWOPER.

Employees with hazardous waste handling responsibilities are provided the information necessary to comply with the facility’s RCRA Part B Permit through an annual online training module titled “RCRA – Waste Management and Release Reporting”. This module describes various types of hazardous waste; recognizes hazardous waste storage areas; describes procedures to store, label, and manage hazardous waste properly; and defines a release and describes how to properly report it.

Site-specific annual refresher training may also be required, which includes General Awareness Training for Spill Prevention Control and Countermeasures (SPCC); Water Management Training (stormwater and wastewater); and Environmental Compliance. An outline of topics that may be covered in the annual refresher training are:

- SPCC Regulations in 40 CFR 112
- Facility Response Plan (FRP) and SPCC Applicability
- SPCC Plan Contents
- Secondary Containment Requirements
- Oil Storage Containers and Piping
- Loading and Unloading Operations
- Emergency Response Actions
- Spill Reporting Requirements
- FRP Drills and Exercises
- Stormwater and Wastewater Permit Types
- Stormwater and Wastewater Permit Requirements
- Good Housekeeping Practices
- Material Management
- RCRA Regulations
- Waste Generation
- Waste Classification
- Classifications of Hazardous Wastes
- Universal Wastes
- Waste Documentation
- Waste Tracking
- Accumulation/Container Management
- Waste Management Areas
- Satellite Accumulation Areas
- Container Labeling
- Used Oil Management
- Aerosol Can Management
- Mercury-Containing Devices
- Scrap Metal
- Bulk Containers
- Uniform Hazardous Waste Manifest
- Waste Minimization
- Topics Described above for 40-Hr HAZWOPER

FHR maintains an operations training manual and operating training procedures.

The program must be directed by a person trained in hazardous waste management procedures and must include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed [§264.16(a)(2)].

Training requirements are maintained and specified by the FHR Training Department Supervisor. This individual is well versed in methods for effective presentation of information. In addition to being trained in hazardous waste management procedures, the Training Supervisor is familiar with the procedures relevant to the positions in which they are employed.

At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, where applicable:

- *(i) Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment;*
- *(ii) Key parameters for automatic waste feed cut-off systems;*
- *(iii) Communications or alarm systems;*
- *(iv) Response to fires or explosions;*
- *(v) Response to ground-water contamination incidents; and*
- *(vi) Shutdown of operations*

[§264.16(a)(3)].

The training program ensures that facility personnel are able to respond effectively to emergencies. Personnel are trained to notify the proper authorities in the case of an emergency. Because facility operations were shut down in 2009, many of the requirements of the training program described above are no longer applicable. For example, facility emergency and monitoring equipment is limited to the use of fire extinguishers. Facility personnel will notify the proper authorities necessary to respond to emergencies. No waste feed cut-off systems or procedures are in place for the shutdown of operations, as no operations are currently conducted. In addition, because response actions for affected groundwater consist of Monitored Natural Attenuation (MNA), training for response to groundwater contamination incidents are generally limited to the proper reporting of spills associated with groundwater sampling activities. Contingency Plan training is conducted annually as part of the Refresher Training program.

Facility personnel must successfully complete the program required in paragraph (a) of this section within six months after the effective date of these regulations or six months after the date of their employment or assignment to a facility, or to a new position at a facility, whichever is later [§264.16(b)].

FHR requires that appropriate FHR personnel complete the HAZWOPER course and site-specific orientation prior to permanent assignment.

Facility personnel must take part in an annual review of the initial training required in paragraph (a) of this section [264.16(c)].

Facility personnel are required to take part in annual refresher training after the initial training requirements fulfilled.

3.0 Record Keeping Requirements

The owner or operator must maintain the following documents and records at the facility:

(1) The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job;

(2) A written description for each position listed under paragraph (d)(1) of this section. This description must be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position;

(3) A written description of the type and amount of both introductory and continuing training that will be given to each person listed in paragraph (d)(1) of this section;

(4) Records that document that the training or job experience required under paragraphs (a), (b), and (c) of this section has been given to, and completed by, facility personnel.

[264.16(d)].

Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records must accompany personnel transferred within the same company [264.16(e)].

The Human Resources department in Wichita, Kansas maintains a job title and job descriptions for each position at the facility. Descriptions for positions currently related to hazardous waste management include:

- Site Manager: This position is responsible for environmental support activities and requires a high school diploma, an in-depth knowledge of the site and existing equipment, and at least 3 years of operations experience. Classroom training on procedures and regulations required for handling hazardous wastes is also required. This position also requires 24-hour HAZMAT/HAZWOPR certification and annual 8-hour refresher training.
- Technical Services Manager: This position has overall oversight of site activities and provides technical knowledge on equipment and various production processes formerly occurring at the site. This position requires an engineering degree and a minimum of 5 years of chemical plant leadership experience.

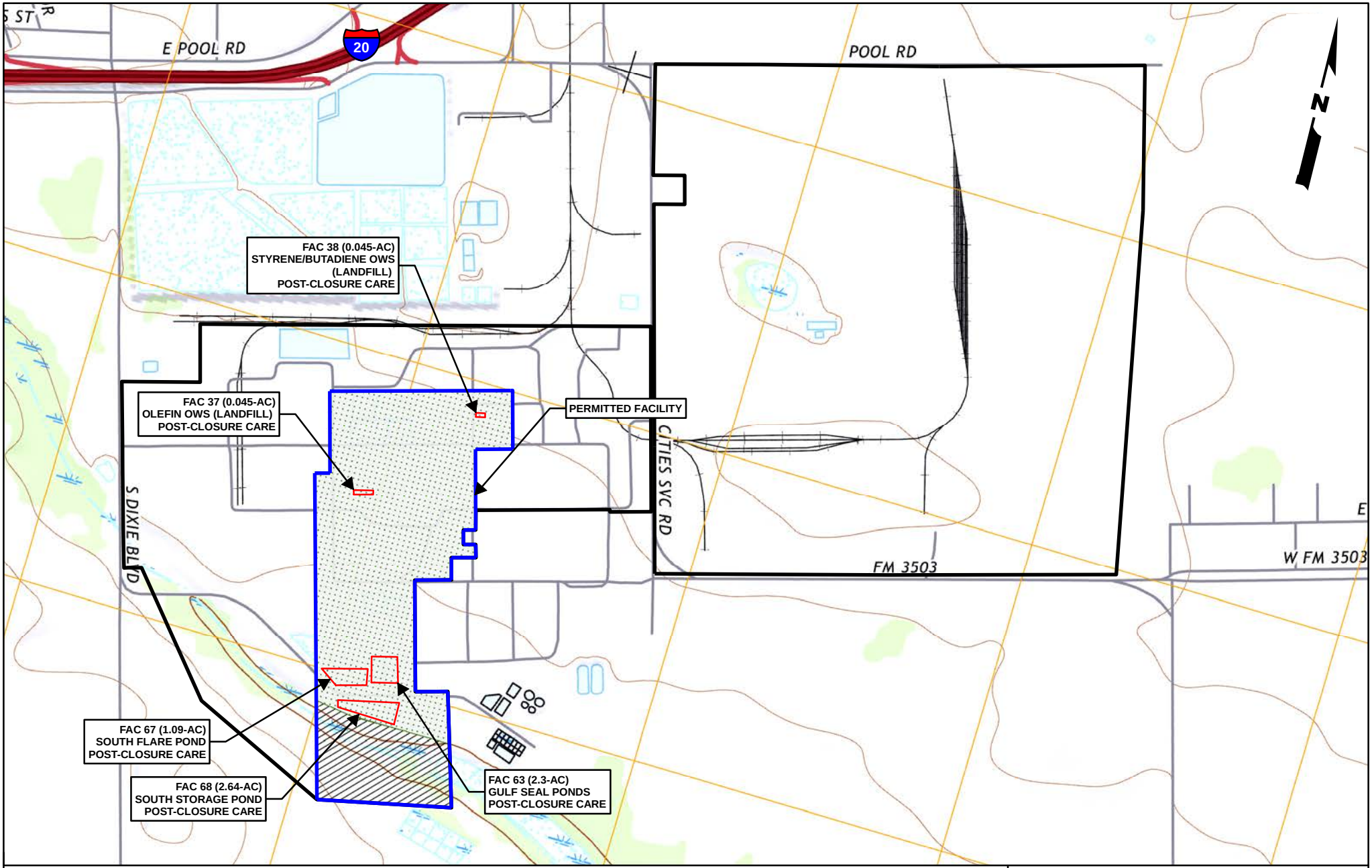
The Training Department maintains a file on each employee, in Wichita, Kansas, that details the list of training courses the employee has completed and the date of those completions, and the results of any training tests the employee had taken. Additionally, the computer based training system administered by the Training Department keeps a record of all CBT courses completed by each employee and the scores of the final exams on CBT courses. All records are retained for a minimum of three years after the employee leaves the location and are available for inspection at the FHR Training Department.

APPENDIX III.C – SECURITY

No active Resource Conservation and Recovery Act (RCRA)-Permitted Hazardous Waste Management Units are located within the boundaries of the Flint Hills Resources Odessa, LLC (FHR) permitted facility. There is currently no activity at the permitted facility other than sampling activities performed as part of this permit. A portion of the larger, previously permitted facility was sold to REXtac, LLC (REXtac) on 22 March 2016. Under the recently re-defined permitted facility boundary, REXtac owns the majority of property within the permitted facility, and FHR owns a portion of the southern permitted facility. FHR will continue to be the operator of the five previously closed units within the portion of the permitted facility owned by REXtac for the purposes of this permit. Should REXtac's activities within the facility require a permit, those permits are the responsibility of REXtac and will be handled separately by REXtac.

The permitted facility currently uses an artificial barrier (e.g., a perimeter fence) in good repair to prevent and minimize the possibility for livestock and unauthorized people from entering the portions of the facility under post-closure care. The current perimeter fence is shown on the attached Security Figure. A 24-hour guard service is in place at the permitted facility, which is owned and operated by REXtac. The REXtac Security Guard Shack is located along S. Grandview Avenue, on the east side of the permitted facility. A locked gate is located on the west side of the permitted facility. REXtac is responsible for access to the permitted facility.

As a security measure, each of the five FHR-owned Post Closure Care Units are located within the perimeter fence which encompasses the permitted facility and the greater property that was historically part of this permit. The five FHR-owned Post Closure Care Units are shown on the attached Security Figure, as well as the existing perimeter fence. Access to the permitted facility will remain restricted and controlled. Should property between the current perimeter fence and the current permitted facility boundary be sold, or condition of the current perimeter fence warrant it, a new perimeter fence may be constructed along the current permitted facility boundary. Alternatively, FHR may choose to install a fence (six-foot chain link fence topped with barb wire) around each of the five post closure care units in lieu of the perimeter fence. The new fence(s) may be equipped with a gate and locked using a key, combination, or similar-style lock. If warranted, signs posted that state "DANGER – UNAUTHORIZED PERSONNEL KEEP OUT" in both English and Spanish that are legible from a distance of at least 25 feet may be added.



LEGEND:

- PERMITTED FACILITY
- FORMER EXTENT OF ODESSA PLANT (CURRENT PERIMETER FENCE)
- REXTAC, LLC OWNED
- FLINT HILLS RESOURCES ODESSA, LLC OWNED
- POST CLOSURE CARE UNITS

0 0.25 0.50

SCALE IN MILES

NOTE: SHOULD FUTURE PROPERTY USE OR CONDITION OF THE CURRENT PERIMETER FENCE WARRANT IT, A NEW PERIMETER FENCE MAY BE CONSTRUCTED AROUND THE PERMITTED FACILITY, OR FHR MAY CHOOSE TO INSTALL A FENCE (EITHER A SIX-FOOT CHAIN LINK FENCE TOPPED WITH BARB WIRE OR A 4-STRAND BARBED WIRE FENCE) AROUND EACH OF THE FIVE POST CLOSURE CARE UNITS IN LIEU OF THE PERIMETER FENCE. IF WARRANTED, SIGNS MAY BE POSTED THAT STATE "DANGER – UNAUTHORIZED PERSONNEL KEEP OUT" IN BOTH ENGLISH AND SPANISH THAT ARE LEGIBLE FROM A DISTANCE OF AT LEAST 25 FEET.

SOURCE: U.S. GEOLOGICAL SURVEY, 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, ODESSA SE, TEXAS - 2016

APPENDIX III.C - SECURITY MAP

FLINT HILLS RESOURCES ODESSA, LLC
2400 S. GRANDVIEW AVE
ODESSA, TEXAS 79760

DATE:	FEB 2026	PN:	1039.005.001

File: \\truespatial\projects\SQE\1039\001.001\mxd\Class 1_1 Mod\Security Map 2018.mxd, 6/7/2018 2:41:42 PM

APPENDIX III.D – INSPECTION SCHDULE

INSPECTION SCHEDULE
FOR
FLINT HILLS RESOURCES ODESSSA, LLC
ODESSA, TEXAS

INSPECTION PLAN AND SCHEDULE

This Inspection Plan and Schedule was prepared to comply with the general inspection requirements outlined in 40 CFR 264.15. A summary of regulatory applicability is described as follows:

40 CFR 264.15 General Inspection Requirements

> (a) The owner or operator must inspect his facility malfunctions and deterioration, operator errors, and discharges, which may be causing – or may lead to – (1) release of hazardous waste constituents to the environment or (2) a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

FHR prepared this Inspection Plan and Schedule to describe inspection procedures to identify potential malfunctions and deterioration, operator errors, and discharges that could lead to a release of hazardous waste to the environment or a threat to human health. As described in the Post-Closure Care Plan, included in Section VII of the RCRA Permit Renewal Application, inspections of post-closure care units will occur monthly. Inspections will include an evaluation of the following components:

- Soil cover
- Cover system (e.g., caps, concrete caps, etc.)
- Dikes or other secondary containment features
- Liners, if applicable
- Fluid recovery from leak detection systems, if applicable.

The Post-Closure Care Plan also describes corrective measures that will be taken to minimize the potential for harm to human health or the environment.

> (b)(1) The owner or operator must develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

The schedule is described in Table III.D of the application and is also summarized as follows:

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Olefin Oil/Water Separator (NOR No. 37)	Cap inspected for erosion.	Inspected monthly
Styrene Oil/Water Separator (NOR No. 38)	Cap inspected for erosion.	Inspected monthly
Gulf Seals Pond (NOR No. 63)	Cap inspected erosion.	Inspected monthly
South Flare Pond (NOR No. 67)	Cap inspected for erosion.	Inspected monthly
South Storage Pond (NOR No. 68)	Cap inspected for holes, tears, and abrasions. Check leachate collection system for fluids.	Inspected monthly

(b)(2) He must keep this schedule at the facility.

A copy of this schedule will be maintained at the facility.

(b)(3) The schedule must identify the types of problems (e.g., malfunctions or deterioration) which are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, eroding dike, etc.).

Inspection requirements are detailed in the Post-Closure Care Plan for each unit and include inspections of cover systems, liners, leachate collection systems, erosion, etc. There are no active permitted units at the facility, and as such, there are no operating equipment such as pumps, fittings, etc. that require inspection.

(b)(4) The frequency of inspection may vary for the items on the schedule. However, the frequency should be based on the rate of deterioration of the equipment and probability of an environmental or human health incident if the deterioration, malfunction, or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the items and frequencies called for in §264.174, 264.193, 264.195, 264.226, 264.254, 264.278, 264.303, 264.347, 264.602, 264.1033, 264.1052, 264.1053, 264.1058, and 264.1083 through 264.1089 of this part, where applicable.

The frequency of inspections for post-closure care units are to be monthly, as indicated on the Inspection Schedule (Table III.D) of the renewal application. No active permitted units are located at the facility, and therefore, the following references are not applicable:

- 264.174 (Containers). Not applicable. No active permitted container storage areas are located on the property.
- 264.193 and 264.195 (Tank Systems). Not applicable. No active permitted tank systems are located on the property. Specific inspection requirements for tank systems that are less than 90 day storage are included in the following section.
- 264.226 (Surface Impoundments). Not applicable. No permitted active surface impoundments are located on the property.
- 264.254 (Waste Piles). Not applicable. No active permitted waste piles are located on the property.
- 264.278 (Land Treatment). Not applicable. No active land treatment units are located on the property.
- 264.347 (Incinerators). Not applicable. No active incinerators are located on the property.
- 264.602 (Misc. Units). Not applicable. No active miscellaneous units are located on the property.
- 264.1033, 264.1052, 264.1053, 264.1058, 264.1083 through 264.1089 (Air Emission Standards). Not applicable. No active permitted units are located on the property.

(c) The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an

environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.

If inspections reveal erosion, holes, tears, or abrasions to unit caps or cover systems, corrective actions will be initiated before the next inspection period and completed promptly thereafter to ensure that the problem does not lead to an environmental or human health hazard. The units included in post-closure care do not require any specific equipment that requires inspection. If a problem is identified where an environmental or human health hazard has occurred, remedial action will be taken immediately.

(d) The owner or operator must record inspections in an inspection log or summary. He must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and the time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

Procedures for record inspections and record retention is detailed in the Post Closure Care Plan included in Section VII of the Part B Renewal Application. Records will be maintained for three years at either the facility or with corporate environmental personnel off-site and will at a minimum include the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

Table III.D- Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Olefin Oil/Water Separator (NOR No. 37)	Cap inspected for erosion	Inspected monthly
Styrene Oil/Water Separator (NOR No. 38)	Cap inspected for erosion	Inspected monthly
Gulf Seals Pond (NOR No. 63)	Cap inspected for erosion	Inspected monthly
South Flare Pond (NOR No. 67)	Cap inspected for erosion	Inspected monthly
South Storage Pond (NOR No. 68)	Cap inspected for holes/tears/abrasions Check leachate collection system for fluids	Inspected monthly

APPENDIX III.E – CONTINGENCY PLAN

Contingency Plan requirements are not applicable because this renewal application is for post-closure care only.

APPENDIX III.F – EMERGENCY RESPONSE PLAN

Emergency Response Plan requirements are not applicable as this is a renewal application for an existing permit.

APPENDIX IV
WASTES AND WASTE ANALYSIS

ITEMS INCLUDED IN THIS APPENDIX:

- Table IV.B – Wastes Managed in Permitted Units

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
1003	PP Recycle KO Sludge	NA	3931
1004	Feed fractionator filters	D018	310H
1008	Arsenic contaminated material	NA	3191
1011	Cracked gas knockout polymer	D018	403H
1012	C4+ Filter Charcoal	NA	4041
1021	Water Stripper Reboiler Tar	NA	4031
1023	Propylene Recycle KO Liquid	D001, D003, F003	509H
1025	Selas Cracker Oil	D001, D018	205H
1026	Amine Skid Filters	NA	3101
1027	SRT Tar	D018	606H
3002	PE Oil Sludge	NA	6031
3004	Organic Peroxides in Heptane	D001, D003	212H
3010	Lithium Bromide Filters	D007	310H
3013	Hepane/Org. Peroxide Filters	D001	310H
3014	Non-aqueous Sludge	D001	609H
3015	Blender Grease	NA	2061
3016	Peroxide Rinse Water	D001	207H
3017	Antiox and Acet	D001, F003	203H
3018	Lube Oil with Vinyl Acetate	D001	206H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
3019	Lithium Bromide Filters	D007, F003	114H
3500	Hexane Filters	D001	310H
3503	Teal Filters	NA	3101
3506	Octene Filters	D001	310H
3507	Octene/Hexane Debris	D001	319H
4002	Surplus TiCl3 Catalyst	D001, D002, D003	393H
4003	Spent Xylene	D001, F003	203H
4004	IPA/Heptane/Polymer	D001	606H
4005	Flare Knockout Pot Sludge	D001, F003	606H
4006	Titanium Trichloride Catalyst	D003	697H
4007	Sodium in Mineral Oil	D003	212H
4008	Sodium/Mineral Oil Cont. Debris	D002, D003	310H
4009	TiCl3/Mineral Oil Cont. Debris	D002, D003	1191
4010	Soil & Debris, Xylene Product	D002, D003	310H
4012	IPA Contaminated Soil	NA	3011
4014	V-2500 Mixture	D001, F003	101H
4015	Aluminum Alkyl in Mineral Oil	D003	212H
4016	Waste Alkyl in Bullets	D001, D003	205H
5002	Mixed Lab Packs, Hazardous	Multiple - See NOR	003H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
5004	Mixed Lab Packs, Nonhaz	NA	0031
5005	Flammable Organic Liquids	D001, D018, F003	219H
6002	Paint Waste, Liquid	Multiple, See NOR	209H
6007	Lubricating Oil	NA	2061
6009	Used Antifreeze	NA	2961
6010	Haz. Sandblasting Grit	D006, D008	319H
7015	Spent Charcoal Filter Media	NA	4041
7016	Charcoal Filter Media Hazardous	D018	404H
7019	Soil & Debris, Contaminated with Caustics	NA	3021
7020	Caustic Sludge	D002	110H
8001	Oil Cont. Material	NA	3101
8002	Oil Cont. Material, Hazardous	D001, D018, F003	310H
8003	Mercury Contaminated Material	D009	302H
8009	Chromium Cont. Soil & Debris	D007	302H
8013	Ignitable Wastes	D001	203H
8014	Process Water Filters	D018	310H
8016	Mercury Cont Soil & Debris, Nonhaz	NA	3021
8017	High TPH Soil & Debris	NA	3011
8020	Mercury, Liquid	D002, D009, U151	117H

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
8028	Benzene Cont. Soil & Debris	D018	301H
8029	Benzene Cont. Sludge	D001, D018	512H
8031	Vapor Abatement Carbon	D018	404H
8035	Recovery NAPL	D001, D018	206H
8040	Fluorescent & Hg Vapor Lights	D009	388H
8041	Unused Water Treating Polymers	NA	2191
8042	Unused Biocide	D002	108H
8044	Treatment Chemicals	NA	1191
8046	Oily Sludge	NA	1191
8049	Benzene Contaminated Oil	D001, D008, D010, D018	206H
8050	High TPH Vapor Abatement Carbon	NA	4041

APPENDIX V
ENGINEERING REPORTS

ITEMS INCLUDED IN THIS APPENDIX:

- Table V.A. Facility Waste Management Handling Units
- Appendix V - Engineering Report

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
3	Olefin Oil/Water Separator	37	Tank, below grade reinforced concrete structure; approximate dimensions: 76 feet long X 26 feet wide X 10 feet deep; closed as a landfill	65,000 gallons	Post-Closure Care
4	Styrene/Butadiene Oil/Water Separator	38	Tank, below grade reinforced concrete structure; approximate dimensions: 76 feet long X 26 feet wide X 10 feet deep; closed as a landfill	65,000 gallons	Post-Closure Care
5	Gulf Seal Ponds	63	Two below grade surface impoundments, 3 feet deep, lined and bermed; closed as a landfill	1,073,000 gallons	Post-Closure Care
6	South Flare Pond	67	Below grade surface impoundment, approximately 47,850 square feet X 4 feet deep, unlined and bermed; closed as a landfill	1,280,680 gallons	Post-Closure Care
7	South Storage Pond	68	Below grade surface impoundment, approximately 115,000 square feet X 2 feet deep, lined and bermed; closed as a landfill	3,494,000 gallons	Post-Closure Care

1. Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.

2. Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.

3. If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of Table V.A.

ENGINEERING REPORT

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
3400 South Grandview Avenue
Odessa, TX 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 February 2026

Quintin K. McNulty, PE
Texas PE. No. 89396
Firm No. F-15202
Signed Electronically on 2/2/2026

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

TABLE OF CONTENTS

Section **Page**

1 INTRODUCTION....1-1

1.1 BACKGROUND AND PURPOSE....1-1
1.2 GENERAL INFORMATION....1-1

2 FEATURES OF POST-CLOSURE CARE UNITS....2-1

2.1 OLEFIN OIL/WATER SEPARATOR (NOR NO. 37)....2-1
2.2 STYRENE/BUTADIENE OIL/WATER SEPARATOR (NOR NO. 38)....2-1
2.3 GULF SEAL PONDS (NOR UNIT NO. 63)....2-2
2.4 SOUTH FLARE POND (NOR UNIT NO. 67)....2-3
2.5 SOUTH STORAGE POND (NOR UNIT NO. 68)....2-4

3 SITE CHARACTERISTICS....3-1

3.1 WIND ROSE....3-1
3.2 FLOOD INFORMATION....3-1

LIST OF TABLES AND FIGURES

Figure 1-1 Site Location Map 1-4

Figure 1-2 Facility Layout Map 1-5

Figure 2-1 Olefin Oil/Water Separator (NOR Unit No. 37) Cover System and Cap 2-5

Figure 2-2 Styrene Oil/Water Separator (NOR Unit No. 38) Cover System and Cap 2-6

Figure 2-3 Gulf Seals Pond (NOR Unit No. 63) Cover System and Cap 2-7

Figure 2-4 South Flare Pond (NOR Unit No. 67) Cover System and Cap 2-8

Figure 2-5 South Storage Pond (NOR Unit No. 68) Cover System and Cap 2-9

Figure 3-1 Wind Rose for Midland, Texas 3-4

Figure 3-2 Flood Insurance Study Cross Section 3-5

APPENDICES

Appendix A Flood Insurance Study

1 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This Engineering Report was prepared to accompany the 2026 Resource Conservation and Recovery Act (RCRA) Hazardous Waste Permit and Compliance Plan renewal application for the Flint Hills Resources Odessa, LLC (FHR) Odessa Plant (Hazardous Waste Permit No. 50290). Specifically, this report was prepared to provide general engineering information as required in the application materials and the Part B Checklist used by the Texas Commission on Environmental Quality (TCEQ). In this document TCEQ is used to refer to TCEQ and the predecessor agencies the Texas Water Commission (or TWC) and the Texas Natural Resource Conservation Commission (or TNRCC).

No active units are planned to be permitted in this renewal application. Five units are currently in post-closure care. Provided below is the list of the five units and the Notice of Registration (NOR) number. The NOR Unit number and Facility number are used interchangeable in this report.

- Olefin Oil/Water Separator (NOR No. 37)
- Styrene/Butadiene Oil/Water Separator (NOR No. 38)
- Gulf Seal Ponds (NOR No. 63)
- South Flare Pond (NOR No. 67)
- South Storage Pond (NOR No. 68)

This report provides general engineering information as needed for the completeness of the Part B Application.

1.2 GENERAL INFORMATION

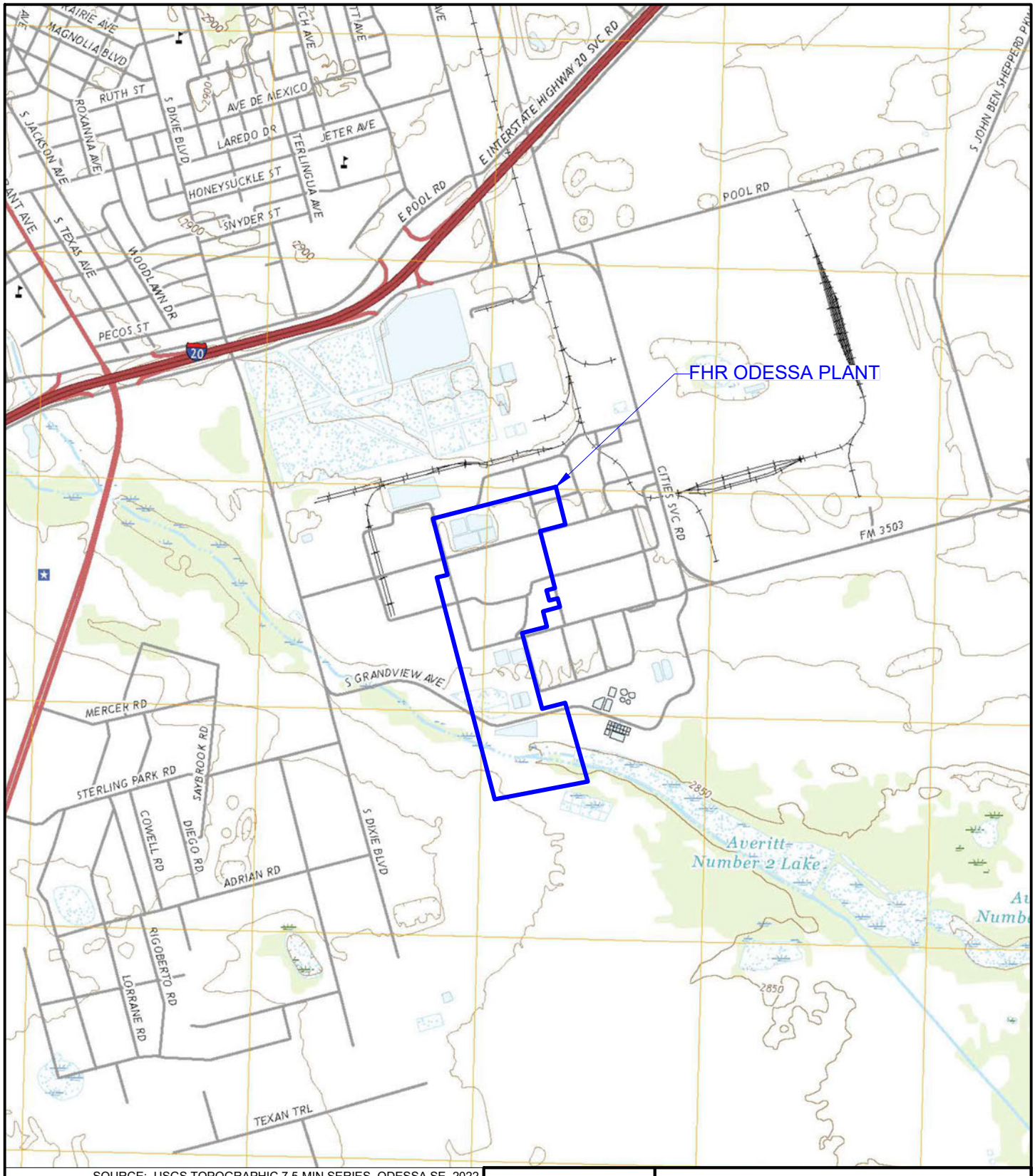
An overall plan view of the Odessa Plant is provided as **Figure 1-1**. The figure is provided on a United States Geologic Survey (USGS) 7.5-minute topographic map and fulfils the requirements of 30 TAC 305.45(a)(6).

A Facility Layout Map is provided as **Figure 1-2**. The figure shows the locations of five post-closure care units, along with the NOR number (which is the same as the Facility ID or FAC) for each of the units. This figure is provided, in part, to fulfil the requirements of 40 CFR 270.14(b)(19). Each of the requirements of 40 CFR 270.14(b)(19) are listed below, and are included on **Figure 1-2**, unless an alternate location for the information is provided or the item is not applicable to the current RCRA permit renewal application:

- Scale and date.
- 100-year flood plain (shown in Appendix II [Facility Siting Criteria] of this renewal application).
- Surface water features, primarily consisting of Monahans Draw.
- Surrounding land owners (shown in Appendix I [General Information] of this renewal application).
- Wind rose (provided as **Figure 3-1** in Section 3 of this report).
- Orientation of the map and north arrow.

- Legal boundaries of the facility (included as Attachment B to the Part A application).
- Access control or surveillance equipment (included in Appendix III.C – Security).
- Buildings. The base map for **Figure 1-2** is an aerial photograph and was generated using Geographic Information System (GIS) software. Although buildings are visible on the base map, individual structures are not noted, as several of these will be modified during decommissioning activities and do not affect those units that are in post-closure care.
- Treatment, storage or disposal operations. Not applicable. There are no active operations.
- Recreation areas.
- Run-off control system. As discussed above, details of stormwater runoff is not provided on the aerial base map of **Figure 1-2**. Precipitation that falls on the property is collected in a number of storm drains in paved areas which drain to trenches and ditches and eventually to Monahans Draw. A discussion of stormwater and those units included in post-closure care is discussed in Section 3 of this Engineering Report.
- Access and internal roads.
- Storm, sanitary, and process sewerage system. Details of storm, and former sanitary and process sewerage systems are not provided on the aerial base map of **Figure 1-2**. Former sanitary and process sewer systems do not affect those units in post-closure care.
- Loading and unloading areas. Not applicable. There are no active loading or unloading areas.
- Fire control areas. Not applicable, no active processes are conducted – see applicable security information in Appendix III.C of this renewal application.
- Barriers for drainage or flood control. Berms associated with each unit in post-closure care are shown on figures provided in Section 2 of this Engineering Report.
- Location and outline of operational units. Not applicable.
- Identification of the uppermost aquifer (described in the Appendix XI of this application).
- Delineation of the waste management units.
- Property boundary.
- Point of Compliance (described in the Appendix XI of this application).
- Proposed location of GW monitoring wells (described in the Appendix XI of this application).
- Information related to units. Information on Solid Waste Management Units is given in Appendix IX (Preliminary Review) of this application.
- Designation of type of unit. Unit type described in Appendix IX.

- General dimensions and structural description (as discussed in this report).
- When unit was operated (discussed in Section 2 of this report).
- Specification of wastes that have been managed at the unit (discussed in Appendix IV of this application).
- Features to mitigate unsuitable site characteristics (discussed in Section 2 of this report).



SOURCE: USGS TOPOGRAPHIC 7.5-MIN SERIES, ODESSA SE, 2022

N

TEXAS

0 1000 2000

SCALE IN FEET

SQ Environmental, LLC

FIGURE 1-1

FACILITY LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 2000 FT	FEB 2026	1039.005.001

UNIT Y - SOLVENT RINSE SUMP
UNIT 28 - FOULED XYLENE STORAGE TANK V-912
UNIT 24 - FOULED XYLENE STORAGE TANK V-911

GWCA-E

GWCA-F

GWCA-G

UNIT 38 - STYRENE OIL/WATER SEPARATOR (POST-CLOSURE CARE)

UNIT 46 - STYRENE OIL STORAGE TANK

GWCA-C

GWCA-D

UNIT 73 - BUTADIENE WASTEWATER LAGOON

UNIT 37 - OLEFIN OIL/WATER SEPARATOR (POST-CLOSURE CARE)

UNIT 45 - OILEFIN OIL STORAGE TANK

UNIT 10 - WASTE PILE

GWCA-B

UNIT 36 - LAND TREATMENT UNIT (WEST)

UNIT K - FILTER DUMP SUMP

UNIT 32 - HMDA WASTE PILE

GWCA-A

UNIT 65 - WASTEWATER INJECTION POND (CLOSED)

UNIT 66 - NORTH FLARE POND

UNIT 01 - WASTEWATER TREATMENTS SLUDGE LANDFILL (CLOSED)

UNIT 44 - STYRENE TAR PITS

UNIT 02 - ADIPIC ACID WASTE PILE

UNIT 63 - GULF SEAL PONDS (POST-CLOSURE CARE)

UNIT 67 - SOUTH FLARE POND (POST-CLOSURE CARE)

UNIT 68 - SOUTH STORAGE POND (POST-CLOSURE CARE)

N

LEGEND:

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM
- SOLID WASTE MANAGEMENT UNITS (SWMU) SUBJECT TO CORRECTIVE ACTION PROGRAM

SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018

0 400 800
SCALE IN FEET

SQ Environmental, LLC

FIGURE 1-2

FACILITY LAYOUT MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 800 FT	FEB 2026	1039.005.001

2 FEATURES OF POST-CLOSURE CARE UNITS

Information contained in this section was sourced from the Post-Closure Care Plan prepared by Huntsman Polymers Corporation and included in the 2003 Renewal Application (Huntsman, 2003) and by SQ Environmental, LLC (SQE) in the 2015 Renewal Application (SQE, 2015).

2.1 OLEFIN OIL/WATER SEPARATOR (NOR NO. 37)

The Olefin Oil/Water Separator was in the central portion of the West Plant and consisted of a below-grade, reinforced concrete structure approximately 76 ft long, 26 ft wide, and 10 ft deep. The Olefin Oil/Water Separator was used from approximately 1961 to 1993 and was used to manage wastewater generated from the production of ethylene and propylene from natural gas liquids. All waste residue was removed and the concrete structure was cleaned in August 1993.

A Phase 1 Closure Plan for Facility 37 was submitted to the TCEQ on September 5, 1995. The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. The first set of soil samples were collected in October 1995. Following a meeting with TCEQ to discuss results, additional samples were collected in February and April 1996.

A Phase 2 Closure Plan and Report for this unit was submitted to the TCEQ in July 1996. That report showed that the impacts to soils from the facility had been delineated and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. The report was approved by the TCEQ, with modification, on April 4, 1997. The modification concerned performance standards for the proposed cap and cover to be installed once the unit was demolished and backfilled.

A Final Report for this unit was submitted on October 9, 1998. The TCEQ approved the Final Report and Certification of Closure December 18, 1998.

Philip Environmental began closure activities on April 14, 1997. Wall demolition was accomplished using a track hoe with a hydraulic hammer attachment. The center wall of the pit was demolished to the bottom of the pit, then a ramp was cut into the west outside wall to allow the track hoe access to the pit floor. From inside the pit, the west, north and south outside walls were demolished to approximately 3 feet below grade. All the demolished concrete was left inside the pit.

During backfilling operations, a total of about 650 cubic yards of construction debris and rip rap were hauled in to fill the pit to a level of about 4 ft below grade. Approximately 300 cubic yards of soil were hauled in to bring the site level with grade. Approximately 200 cubic yards of caliche were hauled in on top of the soil to provide a base for the geotextile liner.

Approximately 4,563 square feet (ft^2) of Clay-Max liner were installed over the pit in 15 foot wide sheets. The liner was installed along the east-west axis of the pit (the long axis), and the sheets were overlapped about 1 foot to provide coverage of the entire pit, and extended 3 feet beyond the edges of original pit. The final cap consisted of about 400 cubic yards of caliche crowned in the center and sloped to provide rainfall runoff. Closure activities were complete April 21, 1997, and a diagram of the final closure, with cap, is provided as **Figure 2-1**.

2.2 STYRENE/BUTADIENE OIL/WATER SEPARATOR (NOR NO. 38)

The Styrene/Butadiene Oil/Water Separator (Facility 38) was in the eastern portion of the West Plant. The oil/water separator was a below-grade, reinforced concrete structure approximately 76 ft long, 26 ft wide and 10 ft deep.

From 1958 to 1990, the Styrene/Butadiene Oil/Water Separator was used to transfer and manage process wastewater generated from the production of styrene and butadiene. Operation of the unit ended in 1990. All residual wastes were removed, and the concrete structure was cleaned in August 1990.

A Phase 1 Closure Plan for Facility 38 was submitted to the TCEQ on September 5, 1995. The unit was investigated for impacts concurrently with the RCRA Facility Investigation. The first set of soil samples were collected in October 1995. Following a meeting with TCEQ to discuss results, additional samples were collected in February 1996.

A Phase 2 Closure Plan and Report for this unit was submitted to the TCEQ in August 1996. That report showed the impacts to soils from the facility had been delineated, and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. The report was approved by the TCEQ, with modification, on April 10, 1997. The modification concerned performance standards for the proposed cap and cover to be installed once the unit was demolished and backfilled.

A Final Report for this unit was submitted on June 18, 1997. The TCEQ approved the Final Report and Certification of Closure on 18 December 1998.

Philip Environmental began closure activities on 22 April 1997. Wall demolition was accomplished using a track hoe with a hydraulic hammer attachment. The center wall of the pit was demolished to the bottom of the pit, then a ramp was cut into the east outside wall to allow the track hoe access to the pit floor. From inside the pit, the west, north and south outside walls were demolished to approximately 3 feet below grade. All the demolished concrete was left inside the pit.

During backfilling operations, a total of about 650 cubic yards of construction debris and rip rap were hauled in to fill the pit to a level of about 4' below grade. Approximately 300 cubic yards of soil were hauled in to bring the site level with grade. Approximately 200 cubic yards of caliche were hauled in on top of the soil to provide a base for the geotextile liner.

Approximately 4,536 ft^2 of Clay-Max liner were installed over the pit in 15 foot wide sheets. The liner was installed along the east-west axis of the pit (the long axis), and the sheets were overlapped about 1 foot to provide coverage of the entire pit, and were extended 3 feet beyond the edges of original pit. The final cap consisted of about 400 cubic yards of caliche crowned in the center and sloped to provide rainfall runoff. Closure activities were completed April 29, 1997 and a diagram of the final closure, with cap, is included as **Figure 2-2**.

2.3 GULF SEAL PONDS (NOR UNIT NO. 63)

The Gulf Seal Ponds (Facility 63) were in the southwestern portion of the West Plant. Facility 63 consisted of two lined surface impoundments with a total capacity of about 1,073,680 gallons. The unit was originally excavated to about 3 ft below grade and the excavated soils were used to construct the earthen berms around the facility.

The unit provided surge capacity for Huntsman's wastewater treatment system. The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. Data from investigations conducted in September and October 1996 were used to delineate impacts.

A Phase 2 Closure Plan and Report was submitted to the TCEQ on June 25, 1997 and the TCEQ approved it on June 14, 2000. Huntsman submitted an amended closure plan on November 15, 2000 that was verbally approved by TCEQ on November 16, 2000 and formally approved on November 28, 2000. Huntsman submitted the Closure Certification Report on January 31, 2001 and the TCEQ

approved it in correspondence dated February 9, 2001. The TCEQ approved the deed certification on March 19, 2001.

Closure activities began on November 27, 2000. After removal of all appurtenances, the sludge that resided in the west impoundment was transferred to the east impoundment in batches and stabilized with fly ash and with soil from the berms. Stabilized sludge was distributed across both impoundments and shaped to facilitate storm water runoff. A 2-foot cover of soil was placed over the stabilized sludge to provide a base for the geomembrane. The geomembrane was equivalent to 2 ft of clay and was placed over the areal extent of the original facility. The geomembrane was covered with 9 inches of base grade caliche and the rolled and compacted caliche was covered with rock and gravel. The outer border of the unit was covered with a 20-foot wide band of 3-inch minus rock and the inside of the unit was covered with gravel sized 1-inch or less. Work was completed on January 9, 2001. A diagram of the final closure with cap, is included as **Figure 2-3**.

2.4 SOUTH FLARE POND (NOR UNIT NO. 67)

The South Flare Pond (Facility 67) was in the southwestern portion of the West Plant. Facility 67 was an unlined surface impoundment with a capacity of about 1,280,680 gallons. It occupied a surface area of about 47,850 ft^2. The unit was originally excavated to about 4 ft below grade and the excavated soils were believed to have been used to construct the 3 ft high earthen berms around the facility.

The unit provided temporary storage for storm water runoff from Huntsman's West Plant and provided surge capacity for the Wastewater Treater (Facility 64). It was also used for temporary storage of wastewater solids removed from the Gulf Seal Ponds.

The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation (RFI). Data from investigations conducted in September and October 1990 and in October 1995 were used to delineate impacts, along with the results of samples collected in February and October 1996 (during the RFI).

The *Closure Plan and Report for Facility 67* was submitted to the TCEQ on January 22, 1997. The report showed that the impacts to soils from the facility were delineated, and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. An *Addendum to Closure Plan and Report, Facility 67- South Flare Pond* was submitted on April 7, 1997. The report and addendum were approved by the TCEQ on November 4, 1997. Unit closure began on December 27, 1997. A Final Report for this unit was submitted on June 18, 1997. The TCEQ approved the Final Report and Certification of Closure on December 18, 1998.

Closure activities began on December 27, 1997. The impoundment was back-filled with debris and soils according to the *Addendum.* About 2,500 cubic yards of concrete debris were placed in the northwest corner of the impoundment. The debris was followed with 7,300 cubic yards of caliche that covered the debris and the remaining impoundment. Following filling and compaction of debris and soil, the site was contoured to a 2.5% slope to shed most of the rainfall towards the southeast. Following contouring, the site was rolled for further compaction and to establish a smooth base for liner installation.

The contractor began laying geosynthetic membrane on December 31, 1997. A bentonite liner equivalent to 2 ft of clay was spread over the entire impoundment and extended 5 ft past the perimeter of the unit. The bentonite membrane was then key-seated into a 24-inch trench along the east, west and south edges of the unit. An additional 5 ft of liner was installed along the northern edge of the unit then rolled back before covering.

A nine-inch cover of base grade caliche was placed on top of the membrane, then rolled and compacted, and a 3 to 4 inch layer of crushed rock was spread over the site to minimize erosion. All work was completed by January 6, 1998. A diagram of the final closure, with cap, is included as **Figure 2-4**.

2.5 SOUTH STORAGE POND (NOR UNIT NO. 68)

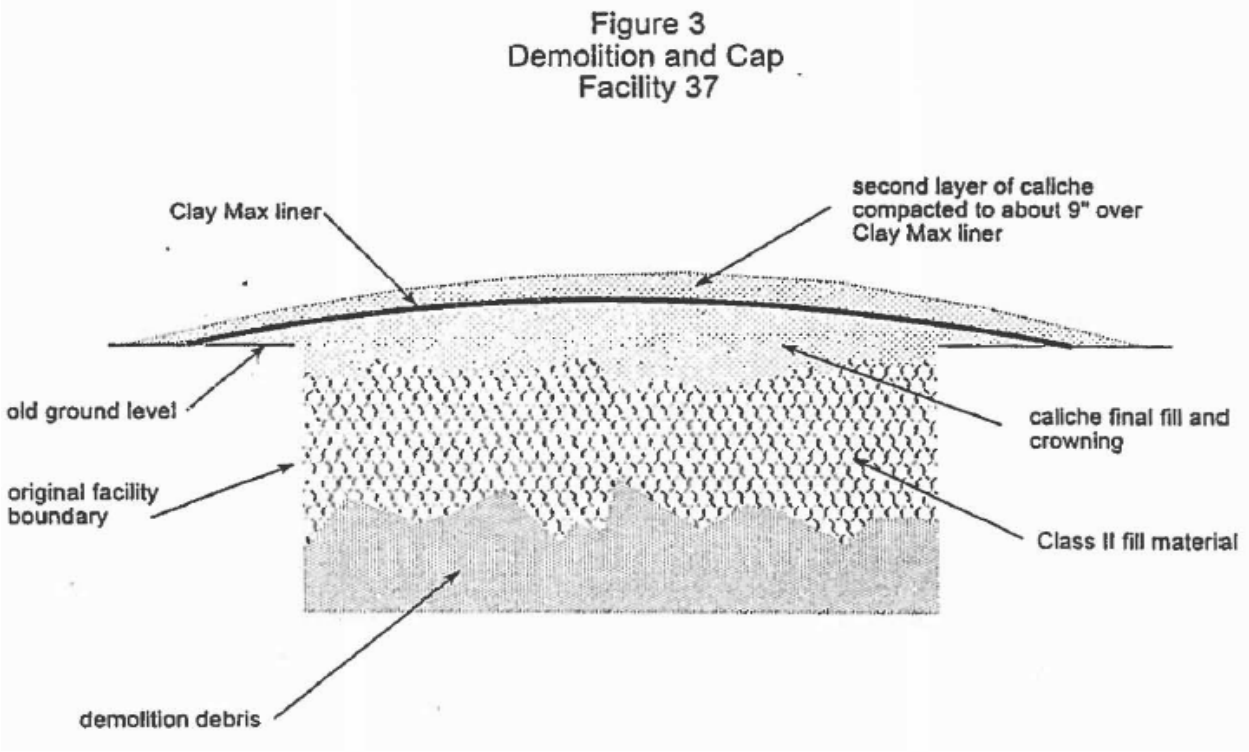
The South Storage Pond (Facility 68) is located in the southwestern portion of the West Plant. Facility 68 was a lined surface impoundment constructed with a capacity of about 3,494,000 gallons and an aerial extent of about 115,000 ft^2. The unit was originally excavated to about 2 ft below grade and the excavated soils were used to construct the 7-foot high earthen berms around the facility. The unit provided surge capacity for the complex wastewater treating system.

The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. Data from investigations conducted in October 1996 were used to delineate impacts.

Huntsman submitted *Phase II Closure Plan and Report for Facility 68* to the TCEQ in June 1997. The report showed that the impacts to soils from the facility were delineated, and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. This report was approved by the TCEQ on March 23, 1998. One option proposed in the closure plan was to close the facility as a hazardous waste surface impoundment, reline the unit with a double-liner/leachate collection system, and re-permit the impoundment under The Railroad Commission of Texas (RRC) as a brine storage pond for use in the plant's cavern well LPG storage system. Huntsman began to re-line Facility 68 on January 20, 1998 and completed the task on February 10, 1998. Huntsman submitted a closure certification report in September 1999, and it was approved on October 14, 1999.

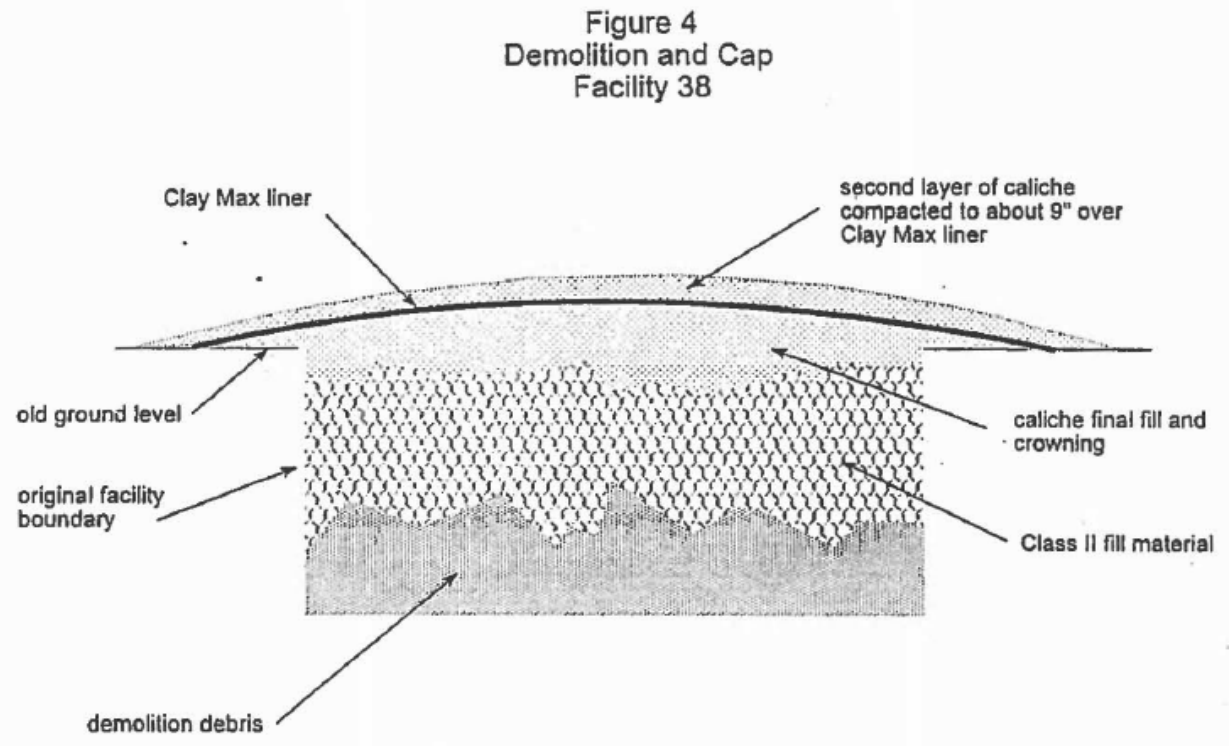
Closure activities began on January 20, 1998. Closure involved removing sections of the 40 mil high-density polyethylene (HDPE) liner installed in 1991, installing leak detection trenches and piping and relining the unit with a bottom liner of 40-mil HDPE, a 16 ounce geotextile, and a top liner of 60-mil HDPE. Together, these structures formed a double-liner system with leachate collection. All work was completed by February 10, 1998. On February 12, 1998, the RRC issued a permit to operate this unit as a brine pond. A diagram of the system is included as **Figure 2-5**.

Figure 2-1
Olefin Oil/Water Separator (NOR Unit No. 37) Cover System and Cap



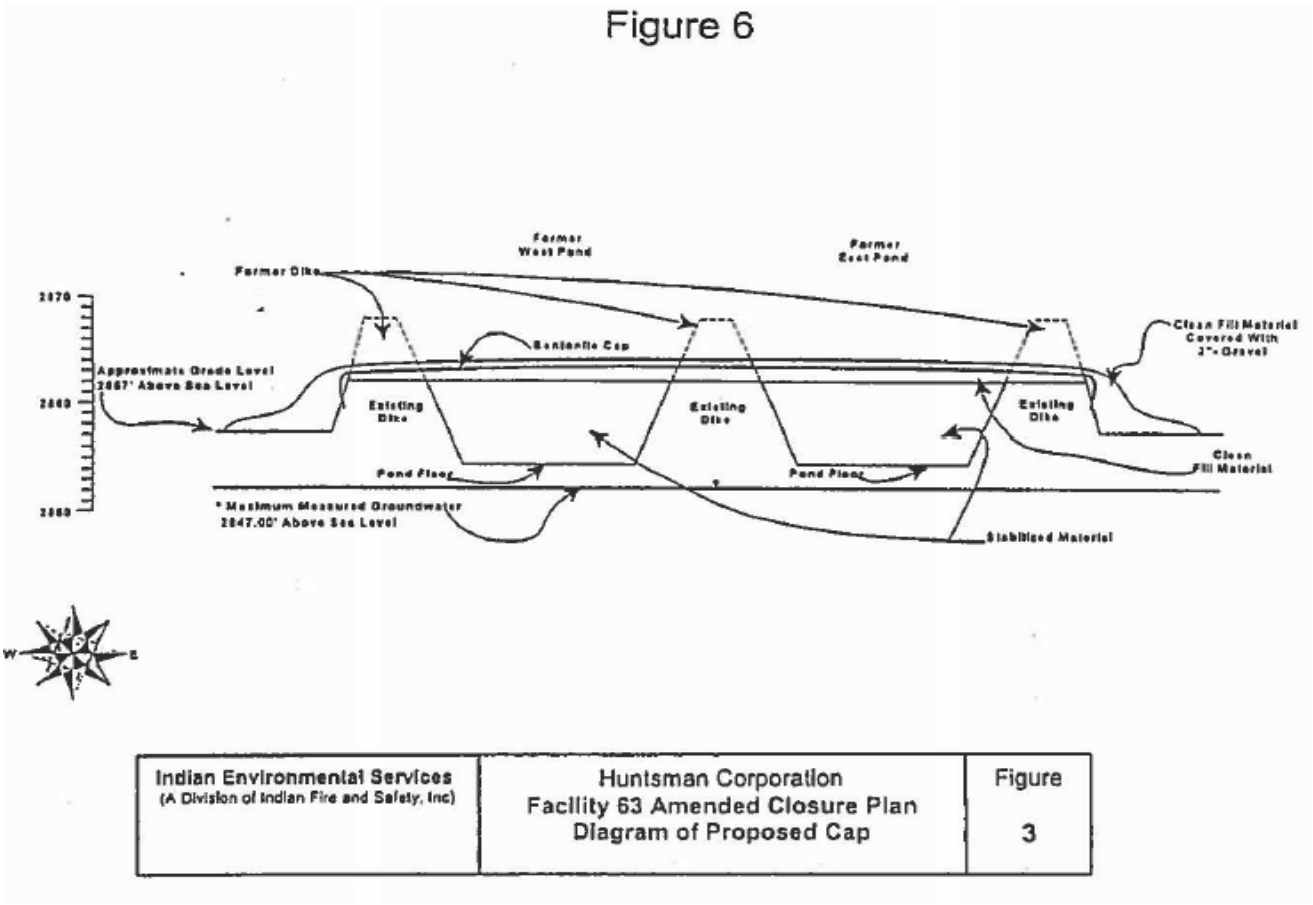
Note: This Figure was sourced from the Revised Post-Closure Care Plan prepared by Huntsman Polymers Corporation, included in the 2003 Renewal Application.

Figure 2-2
Styrene Oil/Water Separator (NOR Unit No. 38) Cover System and Cap



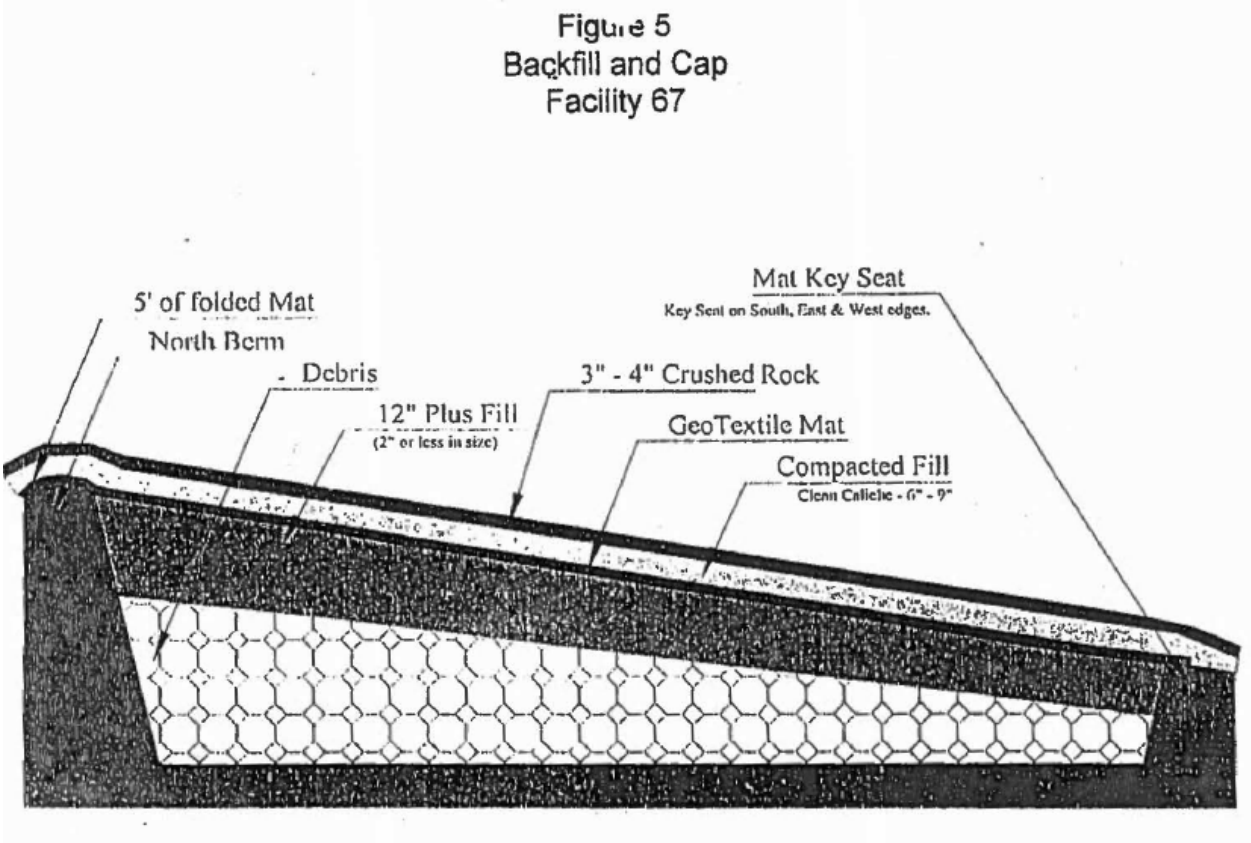
Note: This Figure was sourced from the Revised Post-Closure Care Plan prepared by Huntsman Polymers Corporation, included in the 2003 Renewal Application.

Figure 2-3
Gulf Seals Pond (NOR Unit No. 63) Cover System and Cap



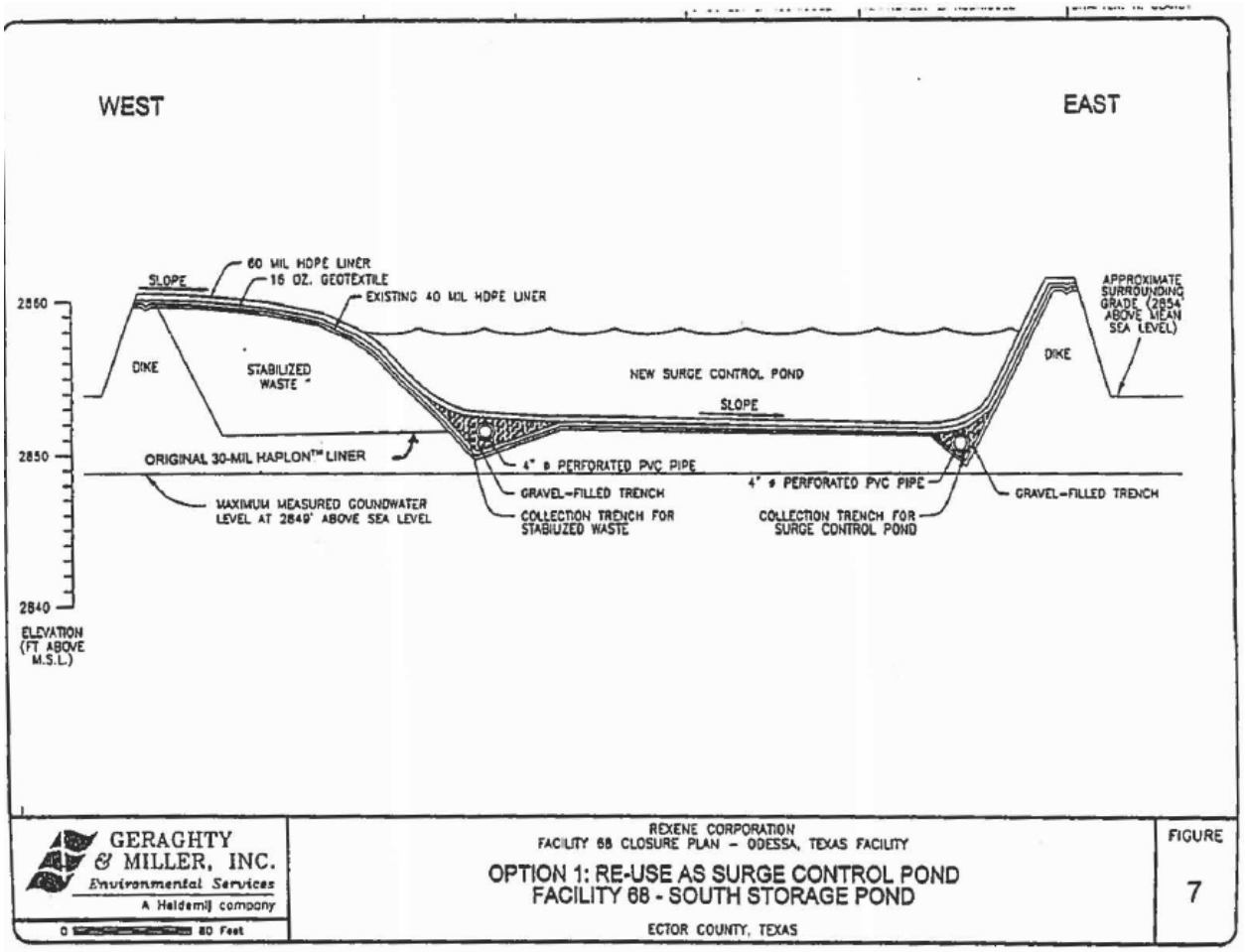
Note: This Figure was sourced from the Revised Post-Closure Care Plan prepared by Huntsman Polymers Corporation, included in the 2003 Renewal Application.

Figure 2-4
South Flare Pond (NOR Unit No. 67) Cover System and Cap



Note: This Figure was sourced from the Revised Post-Closure Care Plan prepared by Huntsman Polymers Corporation, included in the 2003 Renewal Application.

Figure 2-5
South Storage Pond (NOR Unit No. 68) Cover System and Cap



Note: This Figure was sourced from the Revised Post-Closure Care Plan prepared by Huntsman Polymers Corporation, included in the 2003 Renewal Application.

3 SITE CHARACTERISTICS

3.1 WIND ROSE

The general illustration of wind direction at the Odessa Plant is shown on the Wind Rose provided as **Figure 3-1**. Wind Rose information was obtained from the National Weather Service (Partnership of NWS and Iowa State University Iowa Environmental Mesonet Tool) (https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=MAF&network=TX_ASOS). Wind rose information was obtained for Midland International Air & Space Port (MAF), Texas, the closest location to the Odessa Plant.

As shown, the predominant wind direction is from the south at approximately 11 to 16 miles per hour (mph).

3.2 FLOOD INFORMATION

As shown in Appendix II (Facility Siting Criteria) of the Part B Application, NOR Units 63, 67, and 68 lie within the 100-year flood plain as represented by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Revised 15 March 2012 for the City of Odessa, Ector County, Texas. All three of these NOR Units are located in the southern portion of the facility. For additional engineering construction details regarding each of these units, see Section 2 of this Engineering Report.

Each of these NOR Units (63, 67, and 68) are in the flood plain of Monahans Draw. Information obtained from FEMA for the City of Odessa and Ector County, Texas Flood Insurance Study (FIS) showed that Cross-Section J (relating to Station 199,900 of the Monahans Draw HEC-2 flood model) was surveyed through the Facilities 63, 67, and 68 area. A copy of the FIS is included in Appendix A. The attached cross-section diagram (**Figure 3-2**) shows the Monahans Draw Cross-Section J with respect to facilities 63, 67, and 68. These facilities (63, 67, and 68) are not within the Monahans Draw channel; they are in the overbank of Monahans Draw. In addition, these facilities (63, 67, and 68) are within the 100-year floodplain that extend into the Monahans Draw overbank. The FIS 100-year flood model results show that the average velocity in the main channel is 3.3 feet per second (fps). Cross section information indicates that the width of the floodway is 610 ft and a sectional area 4,690 ft^2. Table 4 of the FIS also summarizes Manning's roughness coefficients (n) for Monahans Draw within the channel varying between 0.04 and 0.07 and within the overbank between 0.055 and 0.075.

The Federal Highway Administration (FHA) manual, Design of Roadside Channels with Flexible Linings (Hydraulic Engineering Circular No. 15, Third Edition), indicates that the maximum permissible velocity of stream flow is given by:

$$v_p = \frac{1.49}{n\sqrt{\gamma d}} R^{\frac{1}{6}} \tau_p^{\frac{1}{2}}$$

where,

v_p is permissible velocity (ft/s)
γ is the unit weight of water (62.4 lb/ft^3)
d is the maximum depth of flow (ft)
n is Manning coefficient
R is the hydraulic radius (ft)
τ_p is the permissible shear stress (lb/ft^2)

Based on information contained in the FIS, a Manning's roughness coefficient of 0.065 was assumed. In addition, a triangle-shaped channel configuration with side slopes of 1:0.75 was assumed for estimations of the hydraulic radius of the channel at the location of each unit. Permissible shear stresses were taken from the FHA Design Manual, as well as, permissible shear stresses outlined in the Texas Department of Transportation Hydraulic Manual (Revised September 2019). Each unit has diked walls and geosynthetic liners, which typically have allowable shear stresses greater than 10 lb/ft^2. Based on the locations of each unit in proximity to Monahans Draw and the channel characteristics during a 100-year flood, the following characteristics were assumed:

Unit	d (ft)	R (ft)	τ_p (lb/ft^2)	Material/Basis
63	0.5	0.2	10	Geomat from TxDOT
67	1.5	0.64	10	Geomat from TxDOT
68	3.5	1.5	10	Geomat from TxDOT

Based on the assumptions above, the following permissible velocities were estimated:

- Unit 63: ~10 fps
- Unit 67: ~7 fps
- Unit 68: ~5 fps

Each of the estimated permissible velocities were well above the anticipated streamline velocity during a 100 year event (3.3 fps). This is considered a conservative estimate, as the velocity within the overbank will be less than the streamline velocity.

Based on the stabilized containment features of the unit, the waste materials alone have sufficient integrity to withstand washout from a 100 year flood. Additionally, a margin of safety is provided by the engineering features that were installed during closure activities for each of the units.

NOR Unit	Engineered Structures
63	A 2-foot cover of soil was placed over the stabilized sludge waste material to serve as a base. A geomembrane material equivalent to 2-feet of clay was placed over the base. The geomembrane was covered with 9 inches of base grade caliche and then rolled and compacted. The caliche was covered with rock and gravel. The outer border of the unit was covered with a 20-foot wide band of 3-inch minus rock and the inside of the unit was covered with gravel that is sized 1-inch or less.
67	The waste material (concrete debris and caliche) was rolled and compacted to establish a smooth base for liner installation. A geosynthetic liner equivalent to two feet of clay was spread over the entire impoundment and extended 5 feet past the perimeter of the unit. The geosynthetic liner was then key seated into a 24-inch trench along the east, west, and south edges of the unit. An additional 5 feet of liner was installed along the northern edge of the unit then rolled back before covering. The northern side of the unit was installed in this manner as a means to tie into the cover installed at Facility 66 (North Flare Pond). A nine-inch cover of base grade caliche was placed on top of the geosynthetic liner, then rolled and compacted, and a 3 to 4 inch layer of crushed rock was spread over the site to minimize erosion.
68	Closure activities involved removing sections of the 40 mil HDPE liner that was installed in 1991 so that leak detection trenches and piping could be installed. The unit was then relined with a 40 mil HDPE bottom liner, a 16 ounce geotextile and a 60-mil HDPE top liner. Together, these structures formed a double-liner system with leachate collection.

The engineered structures described in the table above would serve to deflect any floodwaters and prevent them from coming in contact with the waste; therefore, facilities 63, 67, and 68 are adequately designed to prevent washout of the wastes in the event of a 100-year flood.

Figure 3-1
Wind Rose for Midland, Texas

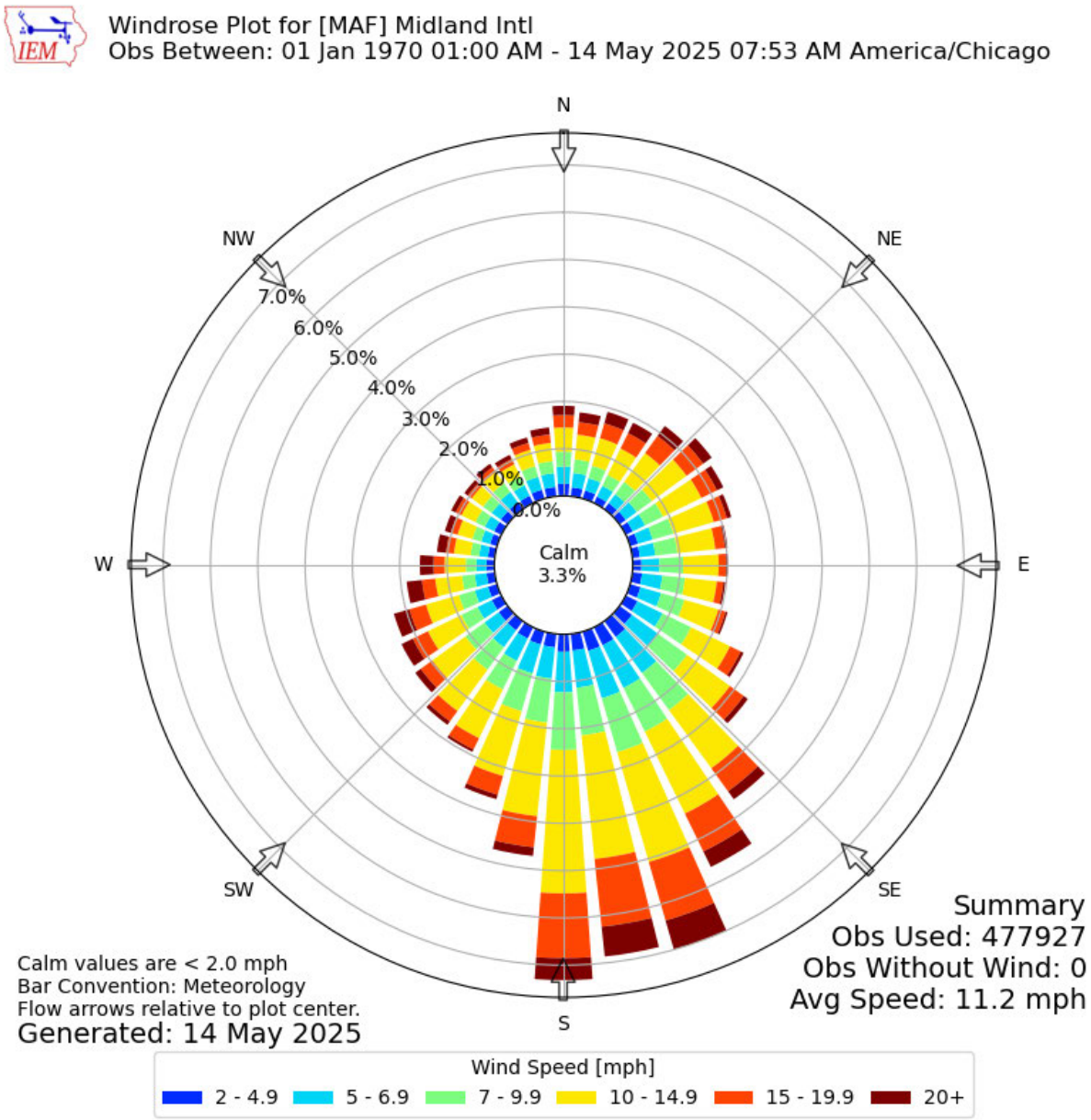
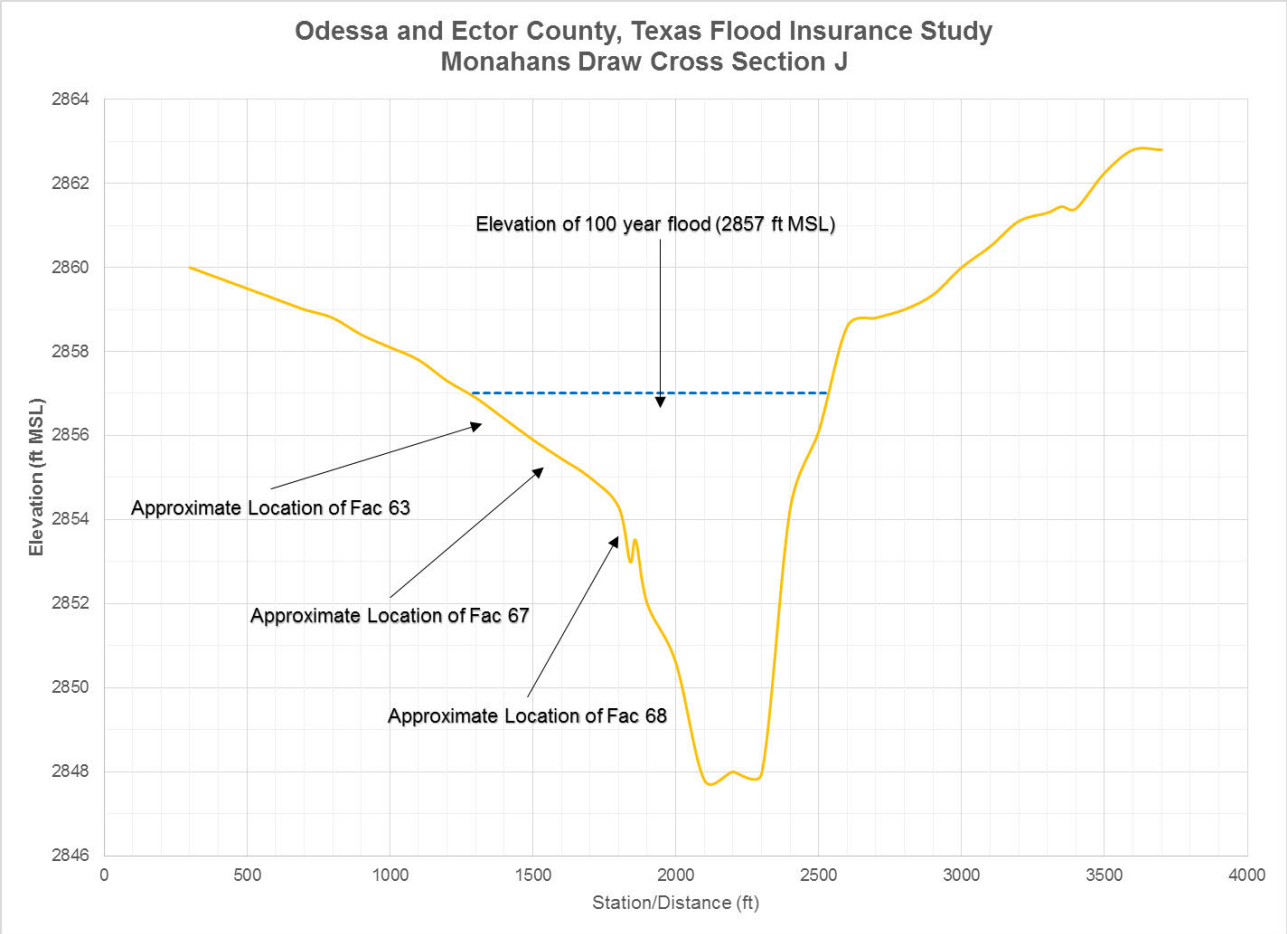


Figure 3-2
Flood Insurance Study Cross Section



APPENDIX A

FLOOD INSURANCE STUDY

FLOOD INSURANCE STUDY

ECTOR COUNTY, TEXAS
AND INCORPORATED AREAS

Community Name	Community Number
ECTOR COUNTY, UNINCORPORATED AREAS	480796
*GOLDSMITH, CITY OF	480797
ODESSA, CITY OF	480206

*Non-Floodprone

REVISED
March 15, 2012

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
48135CV000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this Flood Insurance Study may be revised and republished at any time. In addition, part of this Flood Insurance Study may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the Flood Insurance Study. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current Flood Insurance Study components. A listing of the Community Map Repositories can be found on the Index Map.

Initial Countywide FIS Effective Date: March 4, 1991

First Revised Countywide FIS Date: October 20, 1998

Second Revised Countywide FIS Date: March 15, 2012

TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
1.1 Purpose of Study 1
1.2 Authority and Acknowledgments 1
1.3 Coordination 1
2.0 AREA STUDIED 2
2.1 Scope of Study 2
2.2 Community Description 4
2.3 Principal Flood Problems 5
2.4 Flood Protection measures 5
3.0 ENGINEERING METHODS 5
3.1 Hydrologic Analyses 5
3.2 Hydraulic Analyses 11
3.3 Vertical Datum 12
4.0 FLOODPLAIN MANAGEMENT APPLICATIONS 13
4.1 Floodplain Boundaries 13
4.2 Floodways 13
5.0 INSURANCE APPLICATION 23
6.0 FLOOD INSURANCE RATE MAP 23
7.0 OTHER STUDIES 24
8.0 LOCATION OF DATA 24
9.0 BIBLIOGRAPHY AND REFERENCES 26

TABLE OF CONTENTS *(continued)*

FIGURES

Page

Figure 1: Floodway Schematic 14

TABLES

Table 1: Streams Studied by Detailed Methods 3

Table 2: Summary of Discharges 6

Table 3: Summary of Stillwater Elevations 10

Table 4: Summary of Roughness Coefficients 11

Table 5: Floodway Data 15

Table 6: Community Map History 25

EXHIBITS

Exhibit 1 – Flood Profiles

East Side Channel	Panels	01P-03P
East Side Channel Split Flow	Panel	04P
Far East Channel	Panels	05P-06P
Monahans Draw	Panels	07P-14P
Monahans Draw Tributary 1	Panel	15P
Monahans Draw Tributary 2	Panel	16P
Muskingum Draw	Panels	17P-21P
Muskingum Draw – South Overflow Channel	Panel	22P
Muskingum Draw – South Tributary	Panel	23P
Stream ESC-1	Panel	24P
Stream FEC-1	Panel	25P
Stream FEC-1A	Panel	26P
Stream FEC-S	Panel	27P
Stream WSDC-D	Panel	28P
Stream WSDC-DD	Panel	29P
West Side Drainage Channel	Panels	30P-31P

Exhibit 2 – Flood Insurance Rate Map Index (published separately)
Flood Insurance Rate Maps (published separately)

FLOOD INSURANCE STUDY
ECTOR COUNTY, TEXAS AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 PURPOSE OF STUDY

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Ector County, including the Cities of Odessa and Goldsmith, and the unincorporated areas of Ector County (referred to collectively herein as Ector County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This restudy has developed flood-risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

Please note that the City of Goldsmith is non-floodprone.

Please note that the City of Odessa is geographically located in Ector and Midland Counties. The portion of the City of Odessa that is located inside of Ector County is included in this FIS report. The portion of the City of Odessa that is located within Midland County is included in the Midland County FIS report.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 AUTHORITY AND ACKNOWLEDGMENTS

The sources of authority for this FIS report are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by Watershed VI Alliance, for the Federal Emergency Management Agency (FEMA), under Contract No. EMT-2002-CO-0048, Project Order No. J034. This study was completed in July 2008.

The hydrologic and hydraulic analyses for the original study were prepared by the U.S. Army Corps of Engineers (USACE), Fort Worth District, for FEMA, under Interagency Agreement No. EMW-83-E-1153, Project Order No. 1, and Interagency Agreement No. EMW-86-E-2226, Project Order No. 17. This work was completed in March 1987 and December 1987, respectively.

The hydrologic and hydraulic analyses for the first revision were performed by the USACE, Fort Worth District, for FEMA, under Interagency Agreement No. EMW-91-E-3525. Project Order No. 6. The USACE study was completed in January 1996.

1.3 COORDINATION

For this restudy, the initial Consultation Coordination Officer (CCO) meeting was held on May 9, 2007, and attended by representatives of FEMA, Ector County, the City of Odessa, and the study contractor.

The results of the study were reviewed at the final CCO meeting held on December 10, 2008, and attended by representatives of FEMA, Ector County, the City of Odessa, The

Texas Water Development Board, and the study contractor. All problems raised at that meeting have been addressed in this study.

For the original study, initial CCO meetings were held on April 18, 1983, attended by representatives of FEMA; the USACE, Fort Worth District (the study contractor); and the City of Odessa, and on November 7, 1985, attended by representatives of FEMA, the USACE, and Ector County. These meetings were held to identify specific flooding sources that would be investigated by detailed study methods. Also discussed were local floodplain regulations, available community maps, flood history, and other hydrologic data.

Vertical-control data used to establish the network of elevation reference marks were provided by the U.S. Geological Survey, U.S. Coast and Geodetic Survey, and Texas Department of Highways and Public Transportation (TDHPT). Available data were requested from the Natural Resources Conservation Service (formerly the Soil Conservation Service), the TDHPT, the Texas Water Commission, Dewberry & Davis, and Greenhorne & O'Mara, Inc.

For the original study, a final CCO meeting was held with representatives of FEMA, the USACE, Ector County, and the City of Odessa to review the results of the study.

The results of the restudy were reviewed at the final CCO meeting held on May 28, 1997, and attended by representatives of FEMA, the USACE, Ector County, and the City of Odessa. All problems raised at that meeting were addressed and included in the October 1998 FIS report.

2.0 AREA STUDIED

2.1 SCOPE OF STUDY

This Flood Insurance Study covers the geographic area of Ector County, Texas, including the incorporated communities listed in Section 1.1.

Table 1, "Streams Studied by Detailed Methods," lists the flooding sources studied by detailed methods.

Numerous playas were studied by detailed methods for this restudy, several of which are interconnected with the aforementioned streams.

The areas studied by detailed methods were selected with priority given to all known flood hazards and areas of projected development or proposed construction.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon, by FEMA and Watershed VI Alliance.

Table 1: Streams Studied by Detailed Methods

Flooding Source	Study Type	Reach Length (miles)	Study Area
East Side Channel	Redelineation	2.7	From its confluence with Far East Side Channel to Custer Avenue
East Side Channel Split Flow	Redelineation	0.7	From its convergence with East Side Channel to its divergence with East Side Channel
Stream ESC-1	Redelineation	0.3	From its confluence with East Side Channel to approximately 700 feet upstream of Pagewood Avenue
Far East Channel	Redelineation	3.7	From approximately 130 feet downstream of its confluence of East Side Channel to approximately 250 feet upstream of Maple Avenue
Stream FEC-1	Redelineation	0.9	From its confluence with Far East Channel to approximately 0.6 mile upstream of its confluence of Stream FEC-1A
Stream FEC-1A	Redelineation	0.9	From its confluence with Stream FEC-1 to its divergence from Far East Channel
Stream FEC-S	Redelineation	0.2	From its confluence with Far East Channel to divergence from Stream FEC-1A
Monahans Draw	Redelineation	18.0	From approximately 1.2 miles downstream of Grandview Road to approximately 100 feet upstream of FM 886
Monahans Draw Tributary 1	Redelineation	2.4	From its confluence with Monahans Draw to Cypress Road
Monahans Draw Tributary 2	Redelineation	1.7	From its confluence with Monahans Draw to approximately 0.7 mile upstream of Westcliff Drive
Muskingum Draw	Redelineation	5.1	From its confluence with Monahans Draw to just upstream of Loop 338
Muskingum Draw - South Tributary	Redelineation	1.4	From confluence with Muskingum Draw to Loop 338
Muskingum Draw - South Overflow Channel	Redelineation	0.3	From its convergence with Muskingum Draw to its divergence with Muskingum Draw - South Tributary
West Side Drainage Channel	Redelineation	2.3	From its confluence with Monahans Draw to the outlet from Playa 24
Stream WSDC-D	Redelineation	1.5	From West County Road to approximately 0.8 mile upstream of 10th Street
Stream WSDC-DD	Redelineation	0.8	From U.S. Highway 80 to just downstream of West County Road

Approximate methods of analysis were used to study all remaining areas having a potential flood hazard that did not have available scientific or technical data. The following streams and their tributaries were studied by approximate methods: East Side Channel, Far East Side Channel, Landreth Draw, Monahans Draw, Playas No. 25, 26, and 27, and Stream FEC-1.

2.2 COMMUNITY DESCRIPTION

Ector County is located in western Texas, on the northern border of the Edwards Plateau, on the lower shelf of the Great Plains. It is bordered by the unincorporated areas of Andrews, Winkler, Ward, Crane, and Midland Counties to the north, west, southwest, south, and east, respectively.

The population of Ector County was 224 in 1890, 381 in 1900, 15,051 in 1940, 41,947 in 1950, 90,005 in 1960, 91,805 in 1970, and 134,200 in 1982, with approximately 90,027 of the residents living in the City of Odessa (References 1 and 2). In 2000, the population of Ector County was 121,123 (Reference 1).

Ector County was founded in 1887, and named for General Mathew Duncan Ector. The County is approximately a 30-mile square, with an area of 907 square miles. The Texas and Pacific Railroad foresaw a great agricultural future for the County and granted free hauling of farm machinery and household goods to encourage migration. Of interest to scientists is the giant meteor crater located 8 miles southwest of the City of Odessa (Reference 2).

The City of Odessa, the County seat of Ector County, is located 138 miles southwest of Lubbock and 325 miles west of Fort Worth. First established by the Texas and Pacific Railroad in 1886, the City of Odessa received its name because of the resemblance of its prairies to the steppes of Russia.

The City of Odessa is the chief shipping point for the livestock industry in the surrounding area, as well as a center for the petroleum industry, servicing and supplying oil fields of the Permian Basin. A potash mine and carbon black plant are among its business enterprises.

With the opening of Penn Field in 1929 and Cowden Field in 1930, the City of Odessa became an established oil center and grew rapidly in population and industries. In the 1940s, the City of Odessa was known as a millionaires' town, having one of the highest per capita incomes in the United States (Reference 2).

The University of Texas of the Permian Basin, Odessa College, and the Texas Tech Academic Health Center are located in the City of Odessa.

The recovery of oil and gas dominates the economy of the west-central and southwestern areas of the Plains. This area, which centers on the Cities of Midland and Odessa, serves as the focal point of oil and gas production in the Plains. In 1983, approximately 66 percent of the oil and 41 percent of the gas produced in Texas came from this region (Reference 2).

Climate data are available from the National Weather Service (NWS) at the Midland Regional Air Terminal (Reference 3). The climate is semi-arid and vegetation consists primarily of grass, brush, and mesquite. Most rainfall occurs during violent spring and early summer thunderstorms, often accompanied by winds in excess of 40 miles per hour. Dust storms occur in late winter and early spring and usually last several days.

Numerous small convective storms occur in the hot and dry summers. Prevailing winds are from the southeast. The average annual rainfall from 1943 to 1982 was 14.35 inches;

the lowest and highest recorded annual rainfalls were 4.24 inches and 22.19 inches in 1951 and 1949, respectively. The observed temperature extremes are 109°F, recorded in June 1951, and -8°F, recorded in January 1962. The mean relative humidity is 65 percent (Reference 5).

2.3 PRINCIPAL FLOOD PROBLEMS

Generally, the major storms experienced in the vicinity are characterized by heavy rainfall from frontal-type storms. Major flooding can be produced by these localized thunderstorms, which may occur at any time during the year but are more prevalent in the spring and summer months. Significant flooding occurred in 1936, 1959, 1978, 1979, and 1986. In September 2004, flash flooding in the City of Odessa caused the closure of many of the cities roads (Reference 5). A significant flood event occurred in May 2007 that damaged homes and closed roads throughout the county (Reference 6).

There are no stream-gaging stations in the study area. The City of Odessa has maintained a precipitation station since 1930.

2.4 FLOOD PROTECTION MEASURES

All streams in this restudy, except for Monahans Draw, have been channelized to varying degrees. Ector County entered the Emergency and Regular Phases of the NFIP in September 1981 and March 1991, respectively. The City of Odessa entered the Emergency and Regular Phases of the NFIP in March 1980 and March 1991, respectively. Floodplain development is regulated by County and City ordinances.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood-hazard data required for this study. Flood events of a magnitude that is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 HYDROLOGIC ANALYSES

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the community. Peak discharge-drainage area relationships for streams studied by detailed methods are shown in Table 2, “Summary of Discharges.”

Table 2: Summary of Discharges

Flooding Source and Location	Drainage Area (Square miles)	Peak Discharges (Cubic Feet per Second) 10-percent	2-percent	1-percent	0.2-percent
EAST SIDE CHANNEL					
Just above confluence with Far East Channel	2.05	905	1,262	1,428	1,851
Above convergence with East Side Channel Split Flow	1.56	851	1,109	1,226	1,490
Just below Pagewood Avenue	0.90	551	651	685	761
Above divergence with East Side Channel Split Flow	0.90	631	911	1,050	1,346
EAST SIDE CHANNEL SPLIT					
At convergence with East Side Channel	0.90	80	260	365	585
FAR EAST CHANNEL					
Just downstream of Unnamed Caliche Road	13.02	1,223	1,980	2,419	3,525
At Unnamed Caliche Road upstream of confluence of East Side Channel	11.77	1,279	2,020	2,422	3,241
At upstream side of Unnamed Caliche Road upstream of confluence of East Side Channel	9.72	616	1,294	1,470	2,004
Approximately 450 feet downstream of Trunk Street	9.19	592	1,242	1,403	1,898
Approximately 540 feet downstream of Frontage Road	9.19	592	1,353	1,779	3,697
Approximately 680 feet downstream of Pepperidge Place	8.48	564	1,414	1,953	3,768
Approximately 160 feet upstream of confluence of FEC-1	2.40	376[1]	990[1]	1,110[1]	1,345[1]
Approximately 480 feet upstream of confluence of FEC-S	2.40	376[1]	640[1]	710[1]	870[1]
Just downstream of Maple Avenue	2.40	376	1,021	1,385	2,295

[1]Discharge reduced due to split flow

Table 2: Summary of Discharges (*continued)*

Flooding Source and Location	Drainage Area (Square miles)	Peak Discharges (Cubic Feet per Second) 10-percent	2-percent	1-percent	0.2-percent
STREAM FEC-1					
Approximately 240 feet upstream of confluence with Far East Channel	4.36	150	443[1]	851[1]	2,534[1]
Approximately 0.2 mile upstream of confluence of Stream FEC-1A	4.36	150	412	576	1,684
STREAM FEC-1A					
At confluence with Stream FEC-1	--[2]	0	31	275	950
Approximately 0.21 mile upstream of Unnamed Campus Road	--[2]	0	381	675	1,425
STREAM FEC-S					
At confluence with Far East Channel	--[2]	0	350	400	475
MONAHANS DRAW					
Approximately 5,000 feet downstream of County Boundary	261.18	6,405	13,208	17,865	33,462
Downstream of Dam	228.30	5,268	11,643	15,712	30,063
Downstream of Sewage Disposal Road	208.54	4,848	10,679	14,369	27,508
Upstream of confluence of Muskingum Draw	151.64	4,168	9,502	12,859	24,702
Downstream of County Road	140.18	3,828	8,966	12,084	22,963
Approximately 0.5 mile upstream of Avenue L	72.57	3,686	8,468	11,279	21,145
Approximately 1,000 feet upstream of 16th Street	61.49	3,430	7,665	10,239	19,147
At the upstream side of Palomino Drive	31.94	2,010	4,412	5,895	11,258
At the upstream side of Knox Drive	22.04	1,565	3,517	4,649	8,772

[1]Discharge increased due to overflow from Far East Channel
[2]Overflow from Far East Channel, contributing drainage area 2.4 square miles

Table 2: Summary of Discharges (*continued)*

Flooding Source and Location	Drainage Area (Square miles)	Peak Discharges (Cubic Feet per Second) 10-percent	2-percent	1-percent	0.2-percent
MONAHANS DRAW (Continued)					
Approximately 0.4 mile downstream of Westcliff Drive	13.63	1,085	2,375	3,082	5,660
Approximately 0.48 mile downstream of FM 866	8.18	1,055	1,993	2,543	4,289
MONAHANS DRAW TRIBUTARY 1					
At confluence with Monahans Draw	24.03	1,783	3,596	4,664	8,327
Upstream of Greer Street	24.03	1,563	3,483	4,539	8,156
MONAHANS DRAW TRIBUTARY 2					
At upstream side of Damascus Drive	8.41	864	1,822	2,380	4,310
Approximately 475 feet upstream of Westcliff Drive	7.51	864	1,759	2,303	4,054
MUSKINGUM DRAW					
At confluence with Monahans Draw	56.90	1,759	2,539	2,904	6,754
At May Street	54.85	1,543	2,221	2,708	6,783
Just above 19th Street	50.57	1,114	1,883	2,560	6,712
Just above 31st Street	45.37	718	1,741	2,362	6,372
Just above Gage Avenue	42.84	714	1,680	2,347	6,320
Just above 55th Street	42.84	835	1,922	2,565	6,556
Just below 63rd Street	41.11	791	1,805	2,428	6,473
Just above U.S. Highway 385	41.11	1,865	2,903	3,472	6,695
Just below West Street	23.02	296	886	1,615	4,456
MUSKINGUM DRAW SOUTH TRIBUTARY					
Below Muskingum Draw –South Overflow Channel	23.02	69	207	378	1,042
Above Muskingum Draw – South Overflow Channel	23.02	163	487	888	2,450

Table 2: Summary of Discharges (*continued)*

Flooding Source and Location	Drainage Area (Square miles)	Peak Discharges (Cubic Feet per Second) 10-percent	2-percent	1-percent	0.2-percent
MUSKINGUM DRAW-SOUTH OVERFLOW CHANNEL					
At Muskingum Draw	23.02	94	280	510	1,408
WEST SIDE DRAINAGE CHANNEL					
Above confluence with Monahans Draw	60.98	729	1,180[1]	1,285[1]	1,500[1]
Above divergence of Stream WSDC-D	60.98	729	2,010	3,286	8,206
Approximately 500 feet downstream of Conover Avenue	2.08	640	943	1,047	1,324
STREAM WSDC-D					
At West County Road	--[2]	--[3]	215[1]	517[1]	1,734[1]
At West Ninth Street	--[2]	--[3]	332[1]	800[1]	2,682[1]
Above divergence of Stream WSDC-DD	--[2]	--[3]	830	2,001	4,230
STREAM WSDC-DD					
At U.S. Highway 80	--[2]	--[3]	615[4]	1,484[4]	4,973[4]
Approximately 100 feet downstream of 10th Street	--[2]	--[3]	498[4]	1,201[4]	4,024[4]
At divergence from WSDC-D	--[2]	--[3]	307	739	2,476

[1]Discharge reduced due to split flow
[2]Overflow from West Side Drainage Channel, contributing drainage area 60.98 square miles
[3]No flow diversions occur for the selected recurrence interval
[4]Discharge increased due to overflow from Stream WSDC-D

Peak discharges were calculated using the USACE HEC-1 computer program (Reference 7) which was based on the SWFHYD hydrologic analysis package developed by the USACE, Fort Worth District. Unit hydrographs were computed using Snyder's method and loss rates were computed using curve number methodology. Rainfall data were developed using Weather Bureau Technical Paper No. 40, "Rainfall Frequency Atlas of the United States" (Reference 8), and NWS Technical Memorandum NWS Hydro-35, "Five- to 60-Minute Precipitation Frequency of the Eastern and Central United States"(Reference 9). Stream routing and routing through playas were performed using the modified Puls method.

The stillwater elevations for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods have

been determined for the playas studied by detailed methods and are summarized in Table 3, "Summary of Stillwater Elevations."

Table 3: Summary of Stillwater Elevations

Flooding Source and Location	Elevation (Feet) 10-percent	2-percent	1-percent	0.2-percent
Playa No. 1	2,986.1	2,988.0	2,988.9	2,991.2
Playa No. 2	3,003.1	3,004.0	3,004.5	3,005.8
Playa No. 3	2,974.9	2,976.3	2,977.0	2,979.0
Playa No. 4	2,978.8	2,980.8	2,981.7	2,984.2
Playa No. 5	2,996.0	2,996.6	2,996.9	2,997.3
Playa No. 6	2,985.8	2,987.0	2,987.5	2,989.1
Playa No. 7	2,979.6	2,981.1	2,981.5	2,982.8
Playa No. 8	2,971.6	2,973.6	2,974.6	2,976.8
Playa No. 10	2,959.0	2,961.5	2,962.7	2,966.1
Playa No. 11B	2,943.5	2,950.9	2,946.5	2,947.1
Playa No. 12	2,943.1	2,943.4	2,943.5	2,943.8
Playa No. 13	*	*	2,963.0	*
Playa No. 14	2,910.8	2,911.4	2,911.7	2,912.4
Playa No. 15	2,905.7	2,906.1	2,906.3	2,906.5
Playa No. 16	2,903.9	2,905.4	2,905.7	2,906.4
Playa No. 17	2,905.6	2,906.4	2,906.6	2,907.1
Playa No. 18	2,870.6	2,871.7	2,872.2	2,874.3
Playa No. 19	2,893.7	2,894.0	2,894.2	2,894.5
Playa No. 20	2,894.1	2,895.7	2,895.7	2,896.7
Playa No. 21	2,910.3	2,912.3	2,912.5	2,913.1
Playa No. 23	2,968.9	2,969.7	2,970.0	2,971.0
Playa No. 24	2,909.8	2,911.7	2,914.9	*
Playa No. 25	2,932.5	2,933.6	2,933.8	2,934.0
Playa No. 26	2,931.5	2,933.1	2,933.4	2,934.5
Playa No. 27	2,926.0	2,937.0	2,937.6	2,939.4
Playa Nos. 28 and 29	2,937.6	2,938.4	2,938.5	2,938.9
Playa No. 30	*	*	2,951.3	*
Playa No. 31	*	*	2,993.3	*

*Data not available

3.2 HYDRAULIC ANALYSES

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

For the original study, cross-section data for the backwater analyses were field surveyed and located at close intervals above and below bridges and culverts in order to compute the significant backwater effects of these structures. Bridge data were obtained from the TDHPT.

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 10). Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. Starting water-surface elevations for Monahans Draw were taken from the Flood Insurance Study for Midland County, Texas and Incorporated Areas (Reference 11). Starting water-surface elevations for Far East Channel, Stream FEC-lA, Monahans Draw Tributary 1, Monahans Draw Tributary 2, Muskingum Draw, West Side Drainage Channel, Stream WSDC-D, and Stream WSDC-DD were calculated using the slope-area method. Starting water-surface elevations for the remaining streams studied in detail were calculated using the coincident peak method.

Channel roughness factors (Manning's "n" values) used in the hydraulic computations were based on engineering judgment and field inspection. Channel and over bank "n" values for the streams studied by detailed methods are shown in Table 4, "Summary of Roughness Coefficients."

Table 4: Summary of Roughness Coefficients

Flooding Source	Roughness Coefficients	
	Channel	Overbanks
East Side Channel	0.020-0.060	0.020-0.100
East Side Channel Split Flow	0.025-0.035	0.025-0.080
Stream ESC-1	0.020	0.050-0.090
Far East Channel	0.015-0.060	0.030-0.080
Stream FEC-1	0.035	0.050-0.065
Stream FEC-1A	0.020-0.035	0.040-0.060
Stream FEC-S	0.035	0.060
Monahans Draw	0.040-0.070	0.055-0.075

Table 4: Summary of Roughness Coefficients (continued)

Flooding Source	Roughness Coefficients	
	Channel	Overbanks
Monahans Draw Tributary 1	0.060-0.065	0.070-0.075
Monahans Draw Tributary 2	0.060-0.070	0.070-0.075
Muskingum Draw	0.025-0.060	0.060-0.090
Muskingum Draw – South Tributary	0.060	0.070
Muskingum Draw – South Overflow Channel	0.070	0.070
West Side Drainage Channel	0.025	0.055-0.085
WSDC – D	0.060	0.060
WSDC – DD	0.060	0.060

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the FIRM (Exhibit 2).

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the Flood Profiles (Exhibit 1) are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

3.3 VERTICAL DATUM

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD). With the completion of the North American Vertical Datum of 1988 (NAVD), many FIS reports and FIRMs are now prepared using NAVD as the referenced vertical datum.

Flood elevations shown in this FIS report and on the FIRM are referenced to the NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. Some of the data used in this revision were taken from the prior effective FIS reports and FIRMs and adjusted to NAVD88. The datum conversion factor from NGVD29 to NAVD88 in Ector County is +1.3 feet.

For information regarding conversion between the NGVD and NAVD, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at www.ngs.noaa.gov.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS report provides 1-percent-annual-chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent-annual-chance flood elevations; delineations of the 1- and 0.2-percent-annual-chance floodplains; and a 1-percent-annual-chance floodway. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS report as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 FLOODPLAIN BOUNDARIES

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community. For each stream studied by detailed methods, the 1- and 0.2-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section.

Between cross sections, the boundaries were interpolated using topographic maps at scales of 1:24,000, with a contour interval of 5 feet (Reference 12).

For streams identified as studied by redelineation methods, the effective flood elevations were re-mapped using updated topography (Reference 13).

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM. On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, and AO), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations, but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM. Approximate 100-year floodplain boundaries in some portions of the study area were taken directly from the Flood Hazard Boundary Map for the City of Odessa, Texas (Reference 14).

4.2 FLOODWAYS

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas

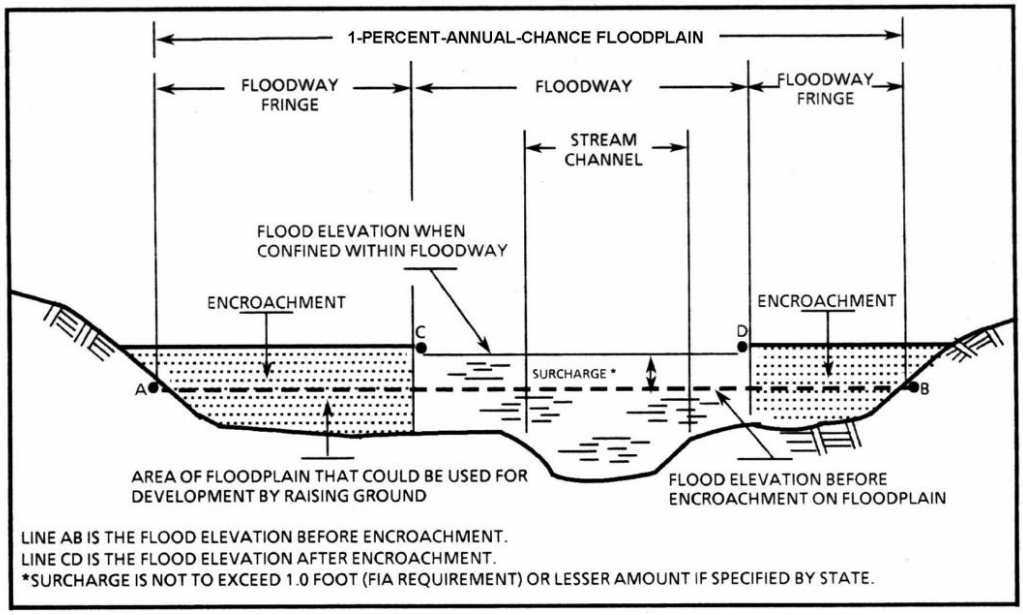
beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the base flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal-conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (see Table 5, "Floodway Data Table" of this FIS report). In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Floodways for streams studied by redelineation methods were digitized from the effective FIRMs.

No floodways were computed for Stream ESC-1, Stream FEC-S, West Side Drainage Channel, WSDC-D, and WSDC-DD.

The area between the floodway and 1-percent-annual-chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water surface elevation (WSEL) of the base flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

Figure 1: Floodway Schematic



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
East Side Channel								
A	2,410[1]	265	580	2.5	2,862.4	2,862.4	2,863.1	0.7
B	5,190[1]	150	401	3.6	2,871.8	2,871.8	2,872.3	0.5
C	6,160[1]	150	380	4.2	2,876.3	2,876.3	2,876.9	0.6
D	7,510[1]	200	532	3.0	2,881.2	2,881.2	2,882.1	0.9
E	10,920[1]	80	73	9.4	2,898.5	2,898.5	2,898.5	0.0
F	13,040[1]	86	171	6.2	2,909.1	2,909.1	2,909.4	0.3
G	13,970[1]	80	202	5.2	2,911.5	2,911.5	2,912.1	0.6
East Side Channel Split Flow								
A	1,430[2]	50	72	5.1	2,893.5	2,893.5	2,894.1	0.6
B	2,170[2]	68	64	5.7	2,901.0	2,901.0	2,901.3	0.3

[1] Feet above confluence with Far East Channel.

[2] Feet above convergence with East Side Channel.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

EAST SIDE CHANNEL – EAST SIDE CHANNEL SPLIT FLOW

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Far East Channel								
A	9,170[1]	300	908	1.6	2,868.0	2,868.0	2,868.7	0.7
B	11,160[1]	160	484	2.9	2,874.3	2,874.3	2,875.2	0.9
C	12,940[1]	100	461	3.9	2,879.4	2,879.4	2,880.2	0.8
D	14,510[1]	105	512	3.8	2,884.4	2,884.4	2,884.5	0.1
E	16,340[1]	59	212	5.2	2,891.6	2,891.6	2,891.7	0.1
F	17,810[1]	51	195	5.7	2,896.8	2,896.8	2,896.8	0.0
G	18,720[1]	51	195	5.7	2,900.9	2,900.9	2,900.9	0.0
Monahans Draw								
A	183,500[2]	612	5,672	2.8	2,836.5	2,836.5	2,837.5	1.0
B	185,080[2]	590	5,163	3.0	2,837.9	2,837.9	2,838.9	1.0
C	186,870[2]	465	4,709	3.3	2,839.9	2,839.9	2,840.9	1.0
D	188,070[2]	613	5,030	3.1	2,841.4	2,841.4	2,842.3	0.9
E	189,500[2]	1,021	7,779	2.0	2,844.1	2,844.1	2,844.6	0.5
F	191,200[2]	729	4,789	3.3	2,845.8	2,845.8	2,846.7	0.9
G	192,720[2]	1,029	5,292	3.0	2,847.9	2,847.9	2,848.7	0.8
H	196,130[2]	951	5,562	2.8	2,853.8	2,853.8	2,854.6	0.8
I	197,700[2]	734	5,290	3.0	2,855.7	2,855.7	2,856.5	0.8
J	199,900[2]	610	4,690	3.3	2,858.6	2,858.6	2,859.2	0.6
K	200,900[2]	534	4,657	3.4	2,859.6	2,859.6	2,860.3	0.7

[1] Feet above Unnamed Pond.

[2] Feet above Highway 1379.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

FAR EAST CHANNEL – MONAHANS DRAW

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Monahans Draw (Continued)								
L	201,780	559	5,092	2.8	2,860.4	2,860.4	2,861.3	0.9
M	202,520	413	3,600	4.0	2,861.1	2,861.1	2,862.0	0.9
N	203,770	466	4,081	3.5	2,863.4	2,863.4	2,864.1	0.7
O	204,850	475	4,334	3.3	2,864.7	2,864.7	2,865.6	0.9
P	205,900	517	4,034	3.6	2,866.0	2,866.0	2,867.0	1.0
Q	207,000	585	5,482	2.6	2,869.6	2,869.6	2,870.1	0.5
R	208,320	541	4,091	3.1	2,870.4	2,870.4	2,871.2	0.8
S	210,150	354	2,943	4.4	2,877.1	2,877.1	2,877.8	0.7
T	211,650	567	5,195	2.5	2,879.2	2,879.2	2,879.9	0.7
U	212,970	571	4,745	2.7	2,879.7	2,879.7	2,880.4	0.7
V	213,620	588	4,486	2.9	2,880.1	2,880.1	2,880.7	0.6
W	214,600	370	2,708	4.7	2,881.6	2,881.6	2,882.3	0.7
X	216,050	304	2,669	4.5	2,885.0	2,885.0	2,885.9	0.9
Y	217,370	361	2,916	4.1	2,888.2	2,888.2	2,889.2	1.0
Z	218,370	432	3,030	4.0	2,889.9	2,889.9	2,890.8	0.9
AA	219,300	389	4,525	2.7	2,890.6	2,890.6	2,891.6	1.0
AB	219,850	283	1,792	6.7	2,891.0	2,891.0	2,892.0	1.0
AC	221,920	483	4,780	2.5	2,897.6	2,897.6	2,898.5	0.9
AD	223,300	445	4,238	2.9	2,898.4	2,898.4	2,899.3	0.9
AE	224,380	413	3,648	3.3	2,899.4	2,899.4	2,900.3	0.9

[1] Feet above Highway 1379.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

MONAHANS DRAW

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Monahans Draw (Continued)								
AF	225,370	454	4,824	2.5	2,904.9	2,904.9	2,905.4	0.5
AG	226,290	432	4,717	2.6	2,905.3	2,905.3	2,905.9	0.6
AH	227,110	392	3,930	3.1	2,905.7	2,905.7	2,906.3	0.6
AI	227,980	407	3,889	3.1	2,906.4	2,906.4	2,907.0	0.6
AJ	229,400	431	3,391	3.6	2,908.2	2,908.2	2,908.9	0.7
AK	230,250	309	2,808	4.3	2,909.6	2,909.6	2,910.2	0.6
AL	231,210	335	2,718	4.1	2,911.3	2,911.3	2,911.9	0.6
AM	232,260	264	2,391	4.7	2,913.2	2,913.2	2,914.0	0.8
AN	233,520	244	2,306	4.9	2,915.8	2,915.8	2,916.6	0.8
AO	234,870	341	3,239	3.5	2,918.9	2,918.9	2,919.7	0.8
AP	235,200	393	3,808	3.0	2,920.8	2,920.8	2,921.4	0.6
AQ	237,240	379	3,756	3.0	2,922.1	2,922.1	2,922.9	0.8
AR	239,500	399	3,118	3.6	2,924.3	2,924.3	2,925.1	0.8
AS	241,480	361	2,375	4.3	2,928.9	2,928.9	2,929.3	0.4
AT	242,970	489	2,957	3.5	2,931.2	2,931.2	2,931.9	0.7
AU	243,710	371	2,099	2.8	2,932.6	2,932.6	2,933.4	0.8
AV	245,730	422	3,002	2.0	2,938.1	2,938.1	2,938.4	0.3
AW	247,600	441	1,712	3.5	2,940.9	2,940.9	2,941.4	0.5
AX	251,480	348	1,787	3.3	2,951.8	2,951.8	2,952.3	0.5
AY	254,850	576	2,391	2.5	2,959.1	2,959.1	2,959.7	0.6

[1] Feet above Highway 1379.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

MONAHANS DRAW

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Monahans Draw (Continued)								
AZ	257,850	568	2,353	2.5	2,965.1	2,965.1	2,965.7	0.6
BA	260,280	484	1,879	2.5	2,971.9	2,971.9	2,972.5	0.6
BB	262,550	466	1,840	2.5	2,978.1	2,978.1	2,978.7	0.6
BC	264,190	534	1,550	3.0	2,985.9	2,985.9	2,986.0	0.1
BD	266,240	551	1,422	2.2	2,993.7	2,993.7	2,994.4	0.7
BE	268,330	543	1,330	2.3	3,002.1	3,002.1	3,002.9	0.8
BF	269,780	459	1,235	2.5	3,008.4	3,008.4	3,008.8	0.4
BG	271,740	422	1,169	2.6	3,017.7	3,017.7	3,018.5	0.8
BH	274,950	413	1,090	2.3	3,029.5	3,029.5	3,030.2	0.7
BI	277,455	455	2,857	0.9	3,043.3	3,043.3	3,044.0	0.7

[1] Feet above Highway 1379.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Monahans Draw Tributary 1								
A	1,570	231	1,134	4.1	2,936.4	2,936.4	2,936.7	0.3
B	2,780	269	1,474	3.2	2,940.0	2,940.0	2,940.4	0.4
C	3,790	300	1,398	3.3	2,942.7	2,942.7	2,942.9	0.2
D	5,170	350	1,433	3.3	2,946.8	2,946.8	2,947.0	0.2
E	7,150	1,100	1,939	1.6	2,950.9	2,950.9	2,951.2	0.3
F	9,580	1,600	3,073	1.5	2,956.2	2,956.2	2,956.8	0.6
G	10,930	1,400	2,758	1.7	2,959.5	2,959.5	2,960.3	0.8
H	12,440	600	1,847	2.5	2,964.6	2,964.6	2,964.8	0.2
Monahans Draw Tributary 2								
A	1,650	300	1,064	2.2	2,985.3	2,985.3	2,986.3	1.0
B	3,910	300	871	2.7	2,992.1	2,992.1	2,992.4	0.3
C	5,600	230	654	3.6	2,999.7	2,999.7	3,000.1	0.4
D	6,550	220	708	3.3	3,004.9	3,004.9	3,005.3	0.4
E	9,120	375	934	2.5	3,016.4	3,016.4	3,017.0	0.6

[1] Feet above confluence with Monahans Draw.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

MONAHANS DRAW TRIBUTARY 1 – MONAHANS DRAW TRIBUTARY 2

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Muskingum Draw								
A	39,950[1]	600	2,498	1.4	2,946.0	2,946.0	2,947.0	1.0
B	41,020[1]	600	1,665	2.1	2,948.2	2,948.2	2,948.7	0.5
C	43,000[1]	720	1,952	1.8	2,950.4	2,950.4	2,950.9	0.5
D	44,000[1]	750	2,089	1.7	2,951.7	2,951.7	2,952.4	0.7
E	45,000[1]	800	2,117	1.6	2,953.0	2,953.0	2,953.8	0.8
F	46,000[1]	1,200	2,162	0.7	2,954.5	2,954.5	2,954.8	0.3
G	48,240[1]	365	785	1.6	2,957.5	2,957.5	2,958.4	0.9
H	49,060[1]	200	582	2.1	2,959.3	2,959.3	2,960.2	0.9
I	50,820[1]	200	439	1.7	2,962.3	2,962.3	2,963.0	0.7
J	51,810[1]	250	521	1.4	2,964.2	2,964.2	2,965.1	0.9
Muskingum Draw-South Overflow Channel								
A	315[2]	312	431	1.2	2,960.9	2,960.9	2,961.3	0.4
B	870[2]	200	348	1.5	2,962.0	2,962.0	2,962.9	0.9

[1] Feet above confluence with Monahans Draw.

[2] Feet above convergence with Muskingum Draw.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

MUSKINGUM DRAW – MUSKINGUM DRAW-SOUTH OVERFLOW CHANNEL

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD 88)	WITHOUT FLOODWAY (FEET NAVD 88)	WITH FLOODWAY (FEET NAVD 88)	INCREASE (FEET)
Muskingum Draw-South Tributary								
A	1,880[1]	450	1,408	0.3	2,956.2	2,956.2	2,957.0	0.8
B	2,970[1]	200	437	0.9	2,956.3	2,956.3	2,957.0	0.7
C	3,980[1]	100	184	2.1	2,958.9	2,958.9	2,959.5	0.6
D	4,480[1]	150	201	1.9	2,960.5	2,960.5	2,961.0	0.5
E	5,710[1]	200	547	1.6	2,962.9	2,962.9	2,963.8	0.9
F	6,380[1]	200	676	1.3	2,963.6	2,963.6	2,964.4	0.8
G	6,830[1]	250	850	1.0	2,963.8	2,963.8	2,964.7	0.9
Stream FEC-1								
A	240[2]	41	181	4.7	2,889.0	2,889.0	2,889.6	0.6
B	1,300[2]	200	349	2.4	2,891.9	2,891.9	2,892.3	0.4
C	2,700[2]	200	225	2.6	2,895.2	2,895.2	2,895.6	0.4
D	4,820[2]	47	141	4.1	2,900.2	2,900.2	2,900.4	0.2
Stream FEC-1A								
A	1,220[3]	24	74	3.7	2,897.7	2,897.7	2,897.8	0.1
B	3,210[3]	180	153	1.8	2,903.6	2,903.6	2,904.1	0.5

[1] Feet above confluence with Muskingum Draw.

[2] Feet above confluence with Far East Channel.

[3] Feet above confluence with Stream FEC-1.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

FLOODWAY DATA

MUSKINGUM DRAW-SOUTH TRIBUTARY – STREAM FEC-1 – STREAM FEC-1A

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base (1-percent-annual-chance) flood elevations (BFEs) or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by detailed methods. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile (sq. mi.), and areas protected from the base flood by levees. No BFEs or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Ector County. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. This countywide FIRM also

includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community are presented in **Error! Reference source not found.**, "Community Map History."

7.0 OTHER STUDIES

An initial Flood Insurance Study, dated March 4, 1991, was prepared for Ector County, Texas and Incorporated Areas (Reference 15).

Two Floodplain Information reports for streams within this study area were prepared by the USACE, Fort Worth District (References 16 and 17).

A Flood Insurance Study for Midland County, Texas and Incorporated Areas was published on September 16, 2005 (Reference 11). The results of this restudy are in complete agreement with the results of that study.

This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting FEMA Region VI, Federal Insurance and Mitigation Division, 800 North Loop 288, Denton, Texas 76209.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Ector County, Unincorporated Areas	November 29, 1977	None	March 4, 1991	None
*Goldsmith, City of	None	None	None	None
Odessa, City of	June 28, 1974	November 14, 1975 July 17,1979	March 4, 1991	None

* Non-Floodprone

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

9.0 BIBLIOGRAPHY AND REFERENCES

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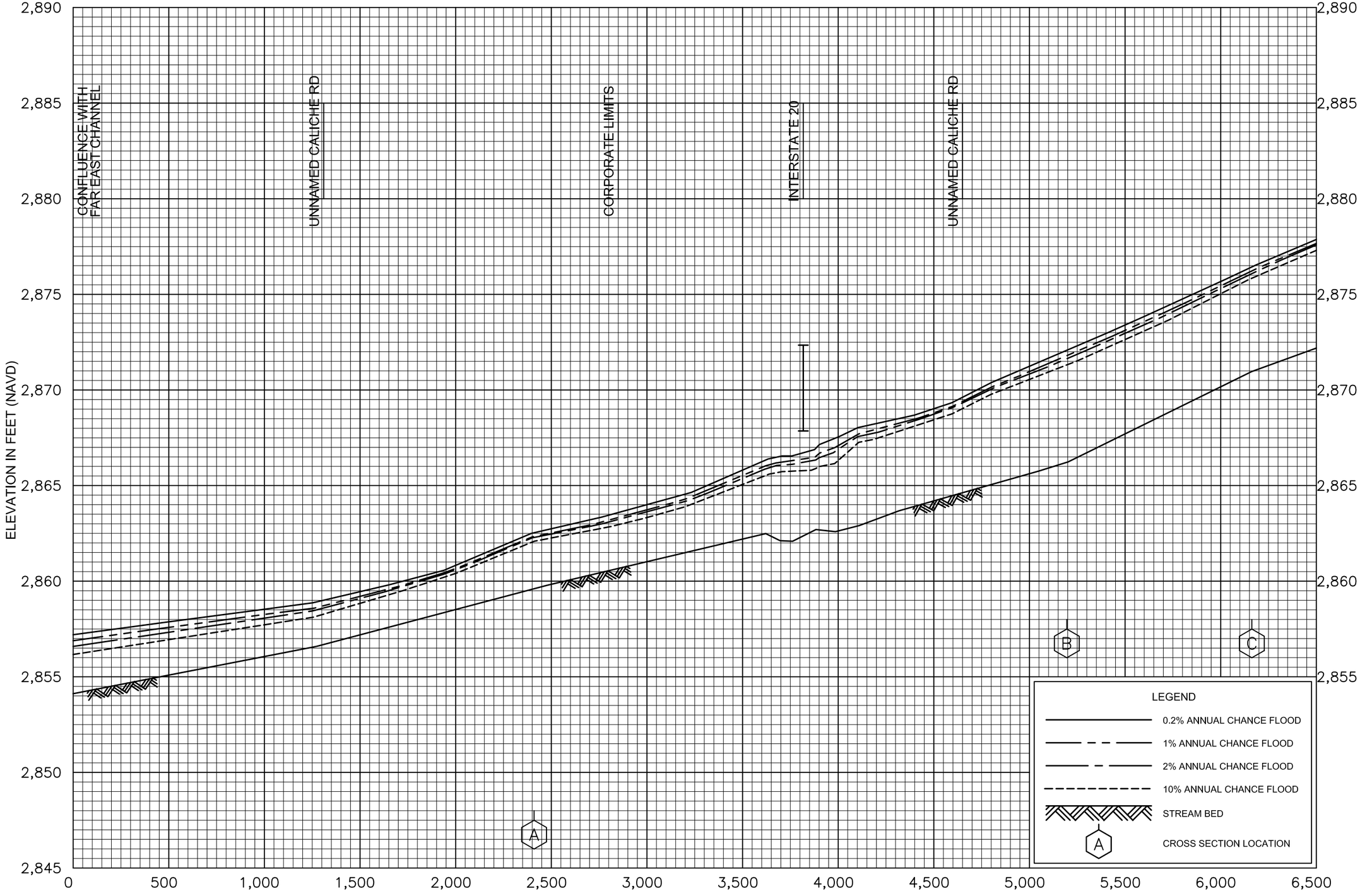

FLOOD PROFILES

EAST SIDE CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

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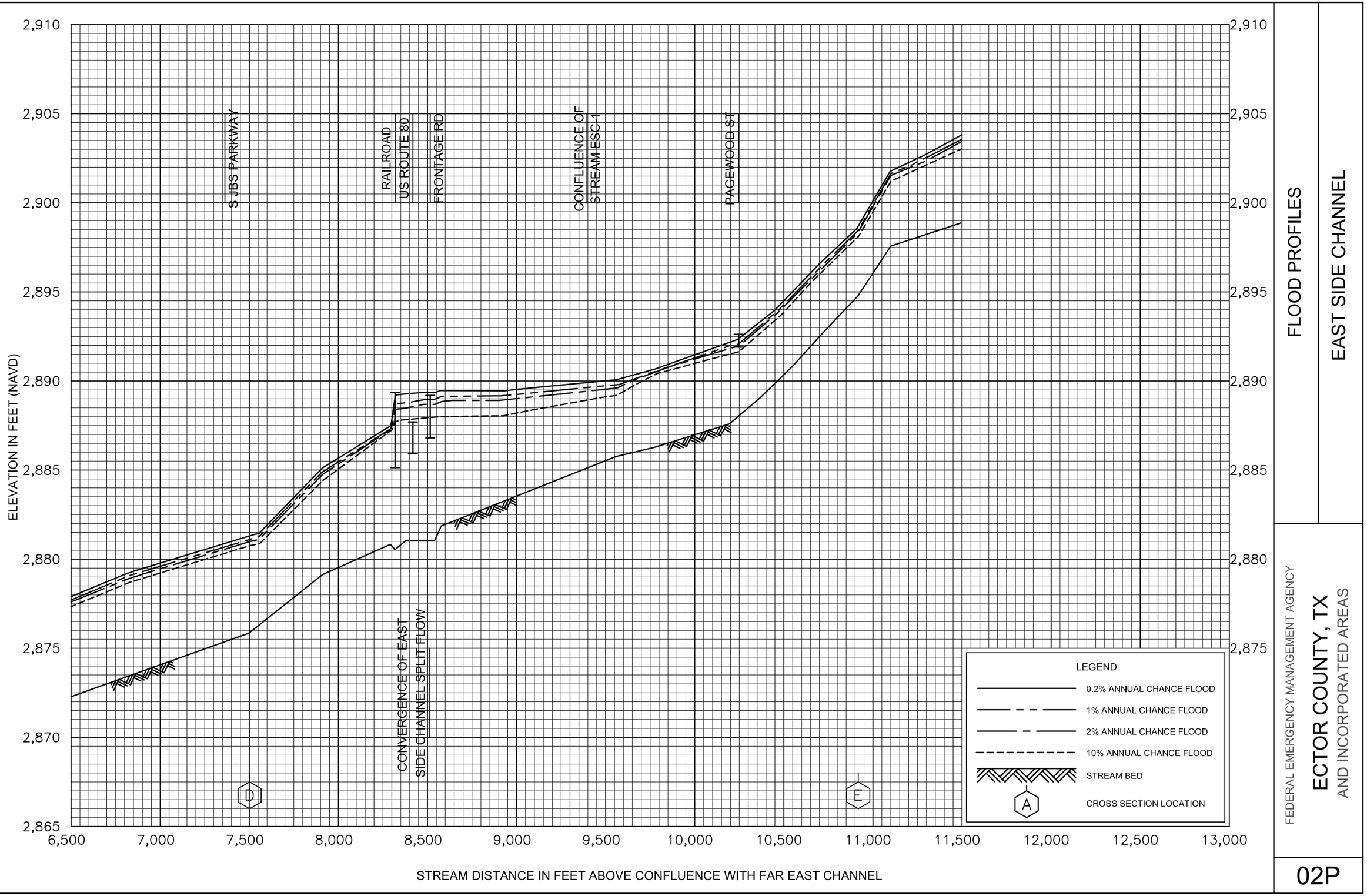

FLOOD PROFILES

EAST SIDE CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

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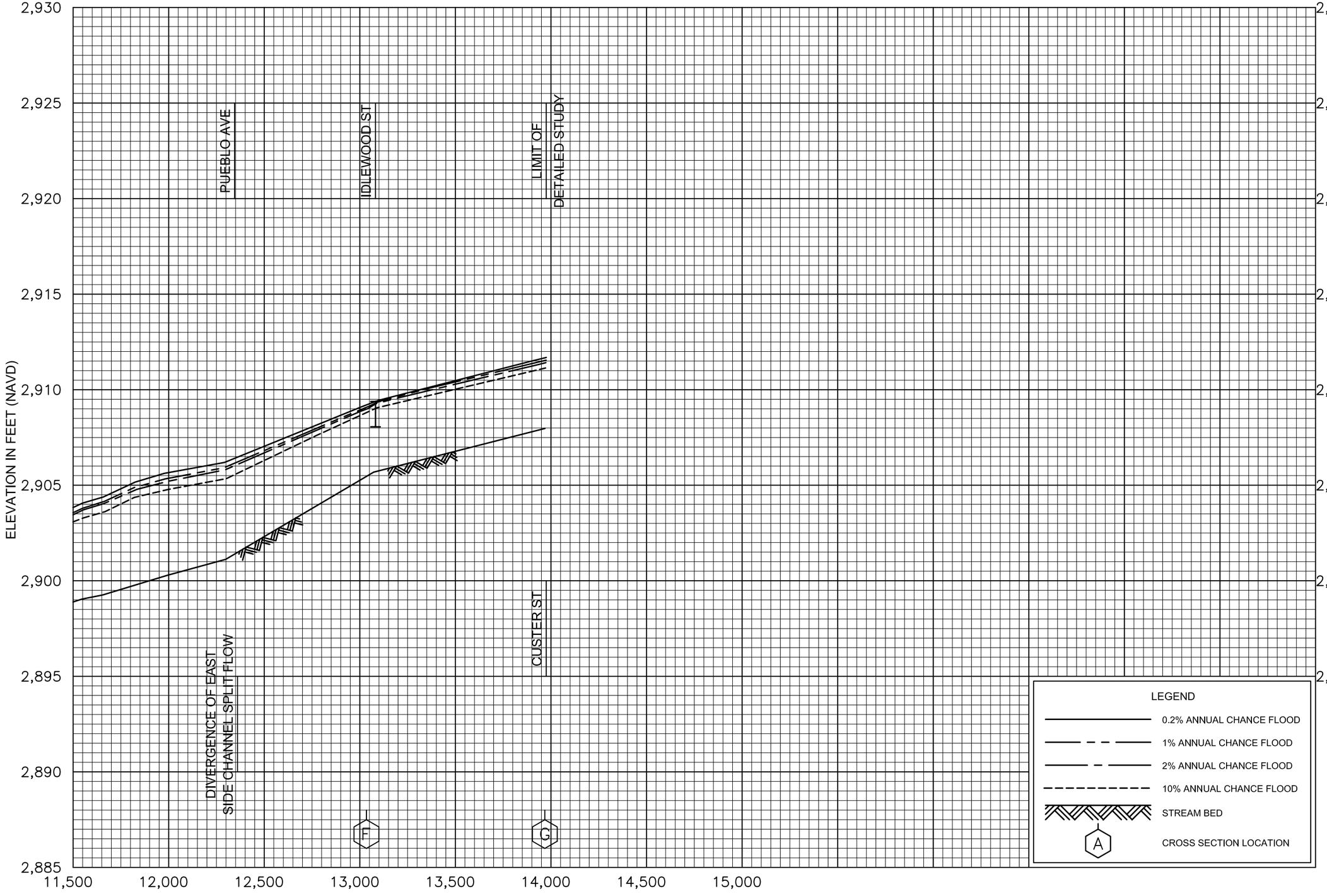


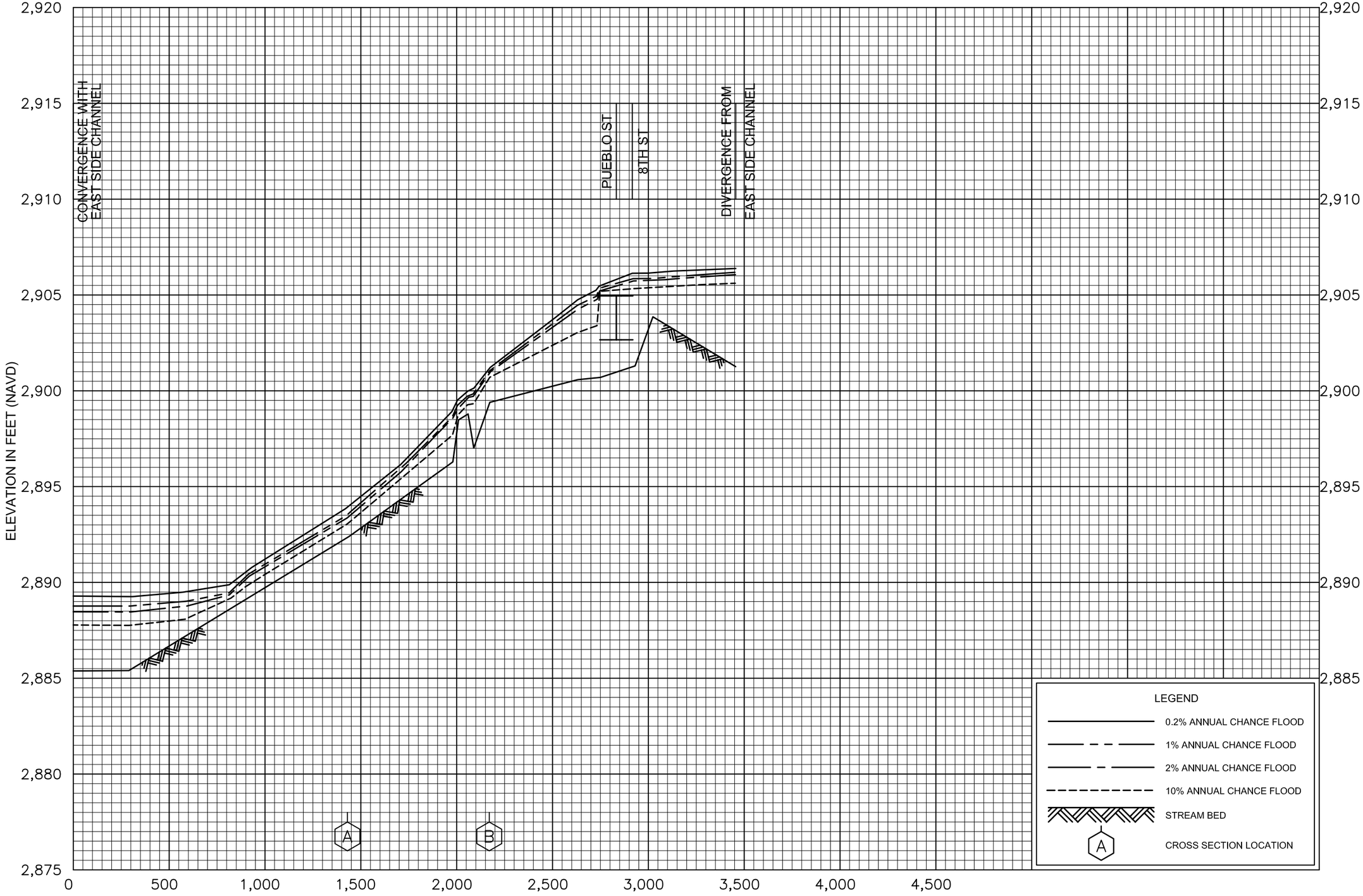
FLOOD PROFILES

EAST SIDE CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

03P



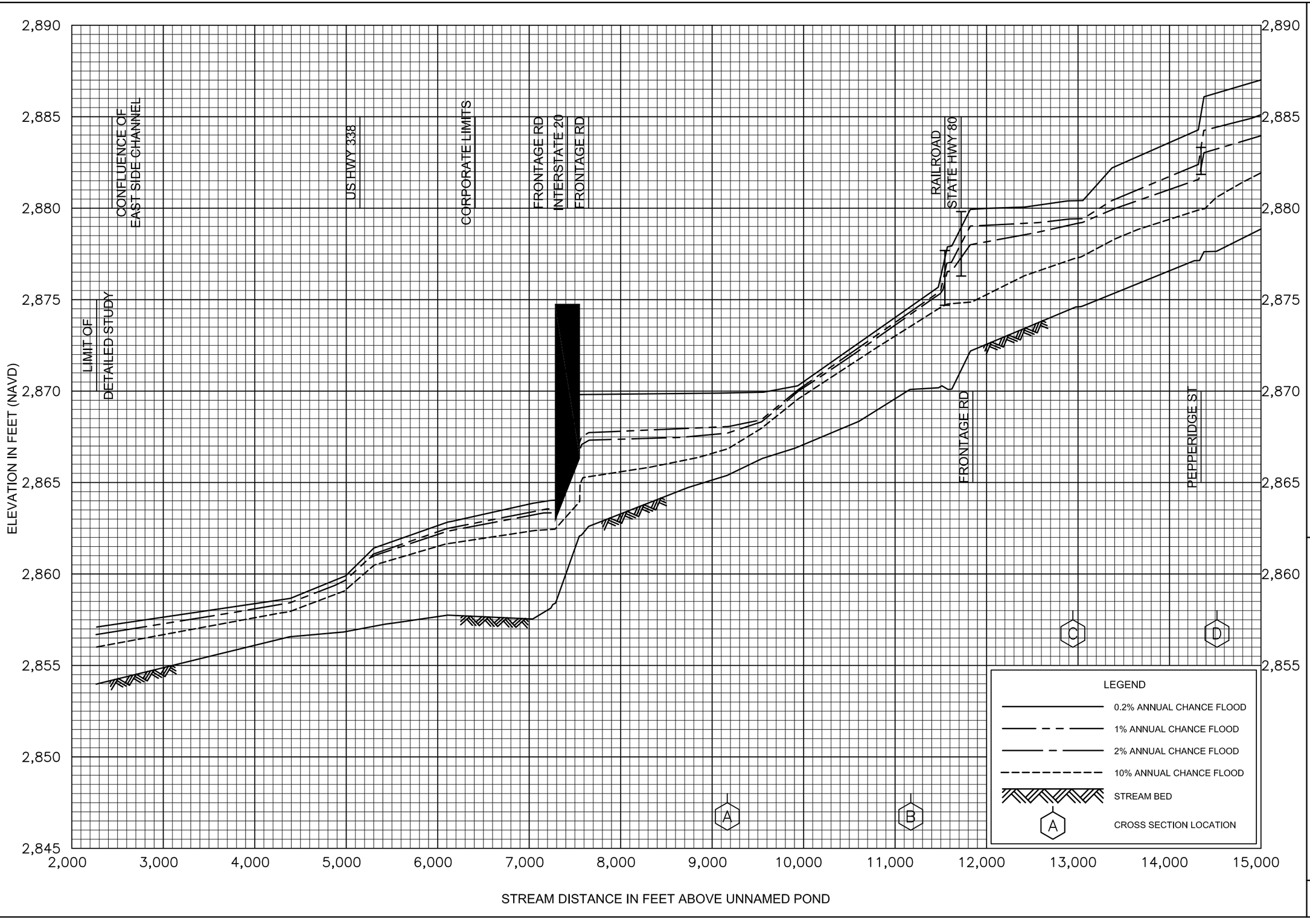
FLOOD PROFILES

EAST SIDE CHANNEL SPLIT FLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

04P



FLOOD PROFILES

FAR EAST CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

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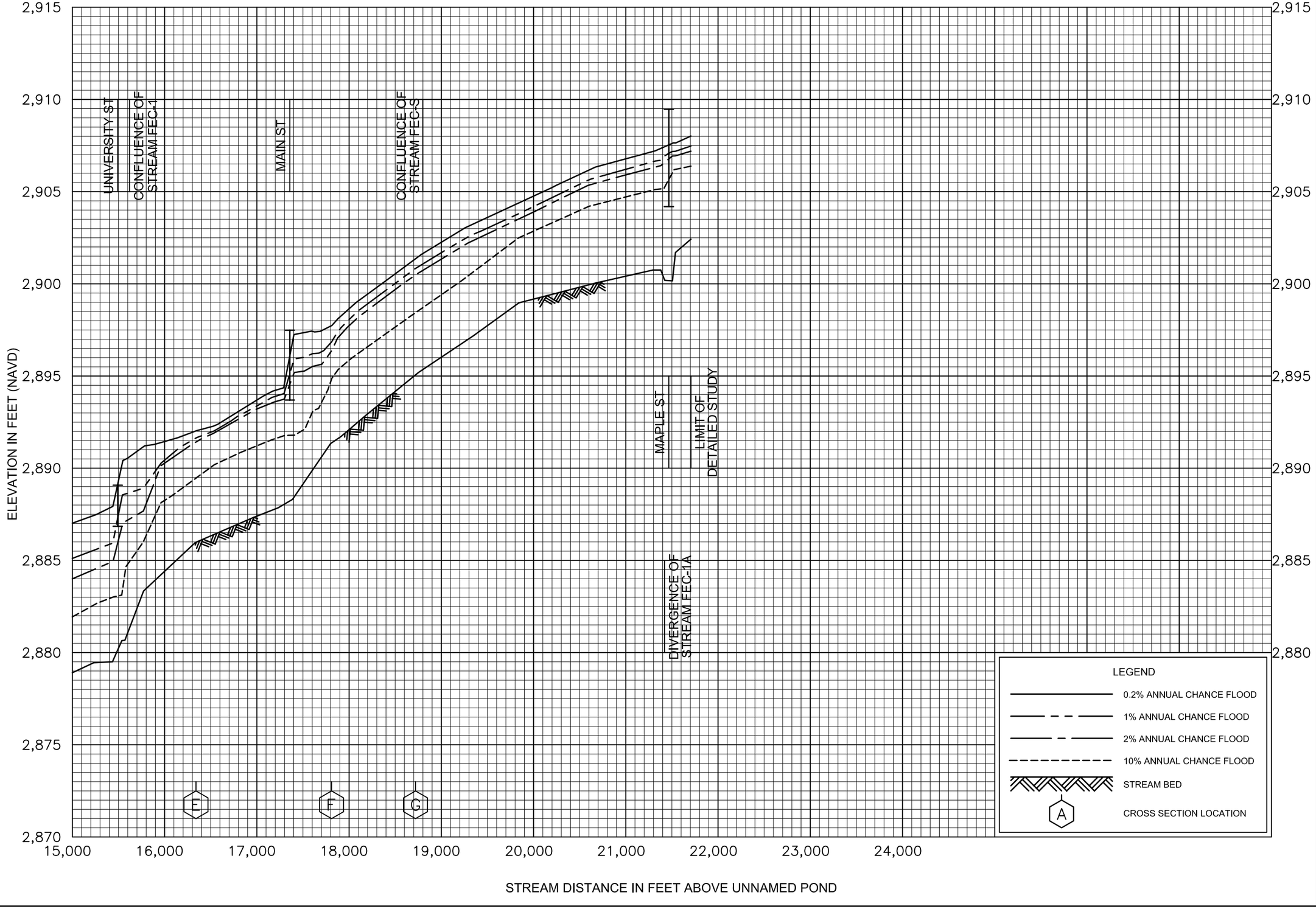


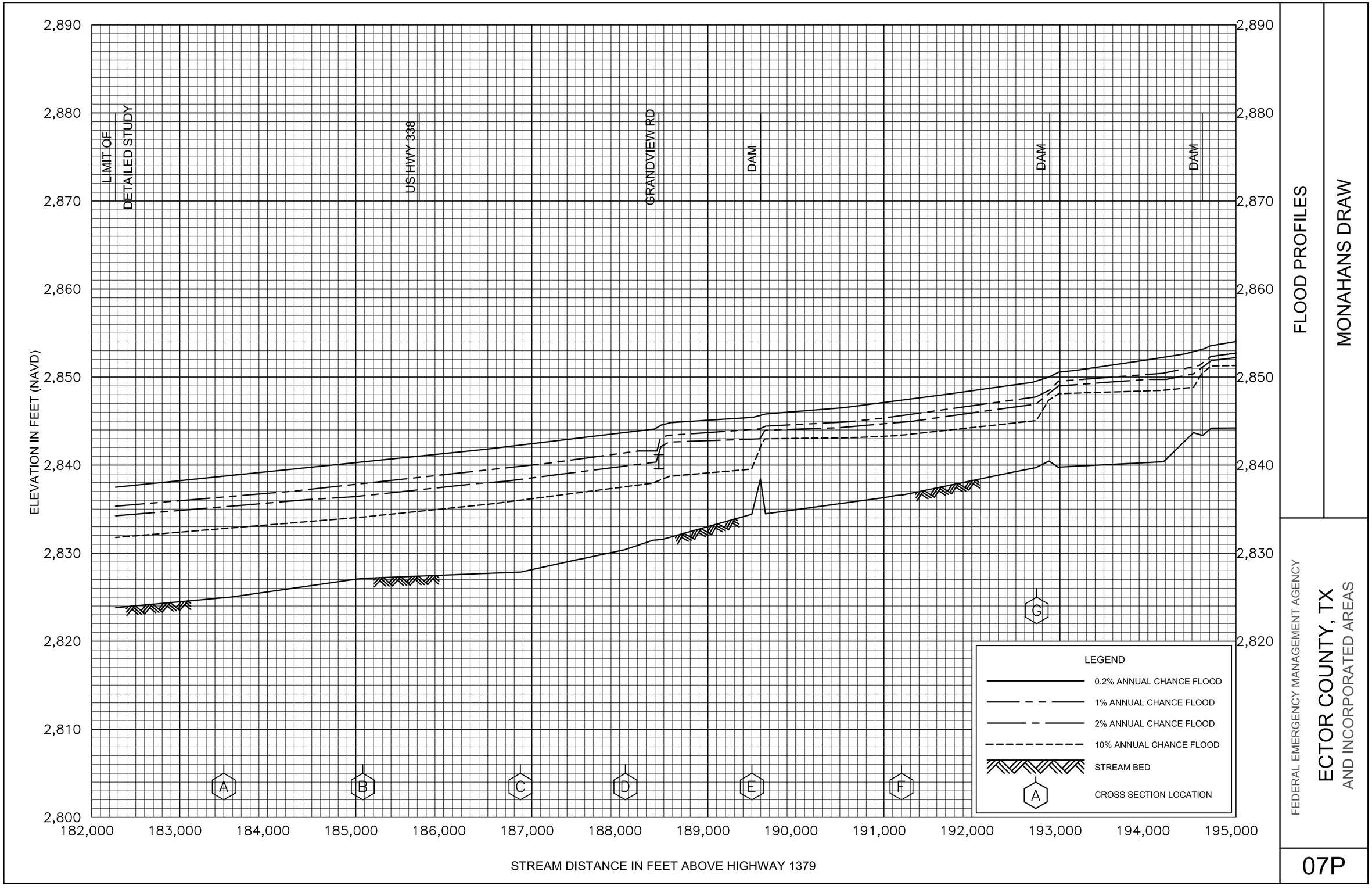
FLOOD PROFILES

FAR EAST CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

06P



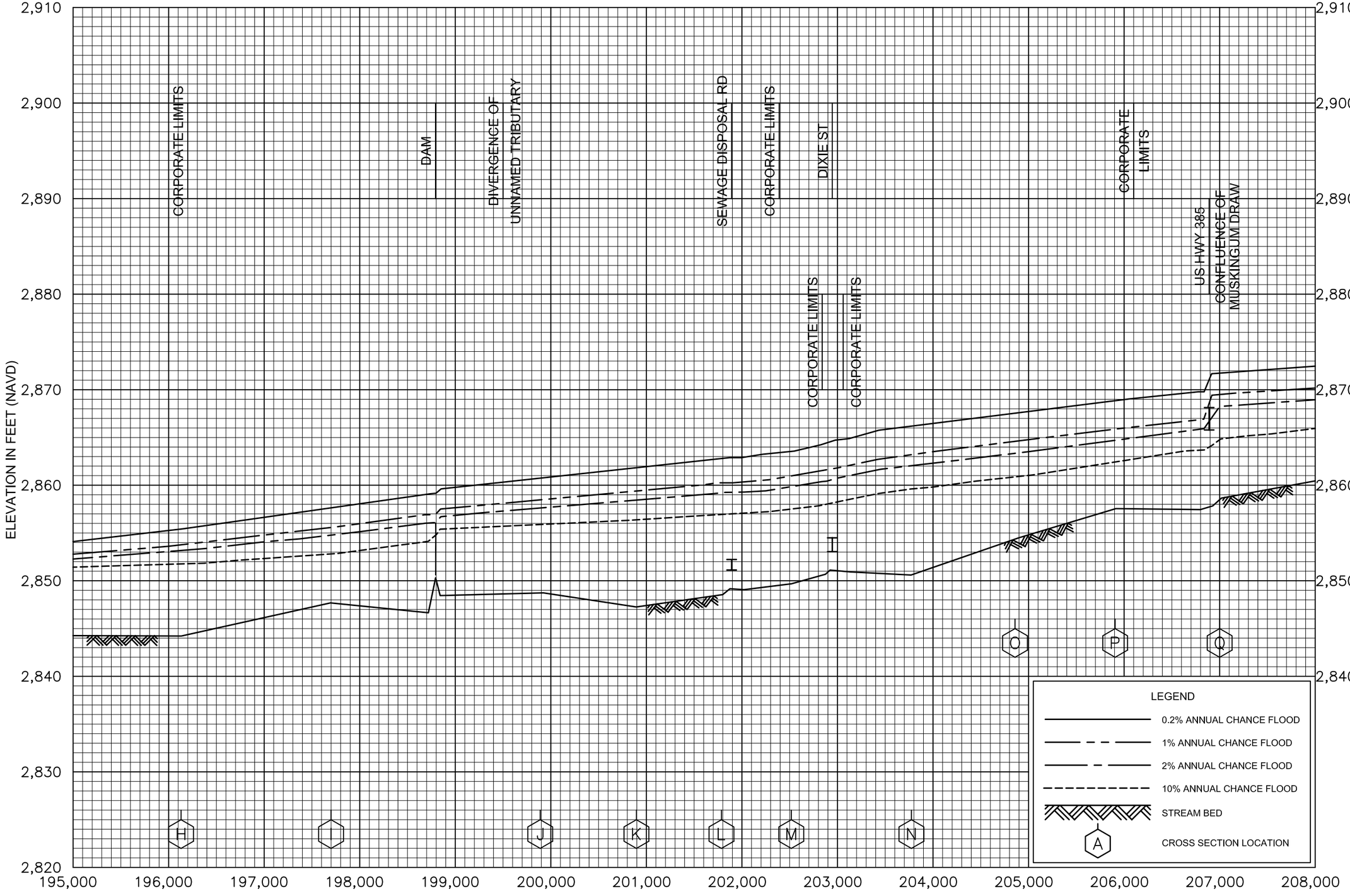
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

07P



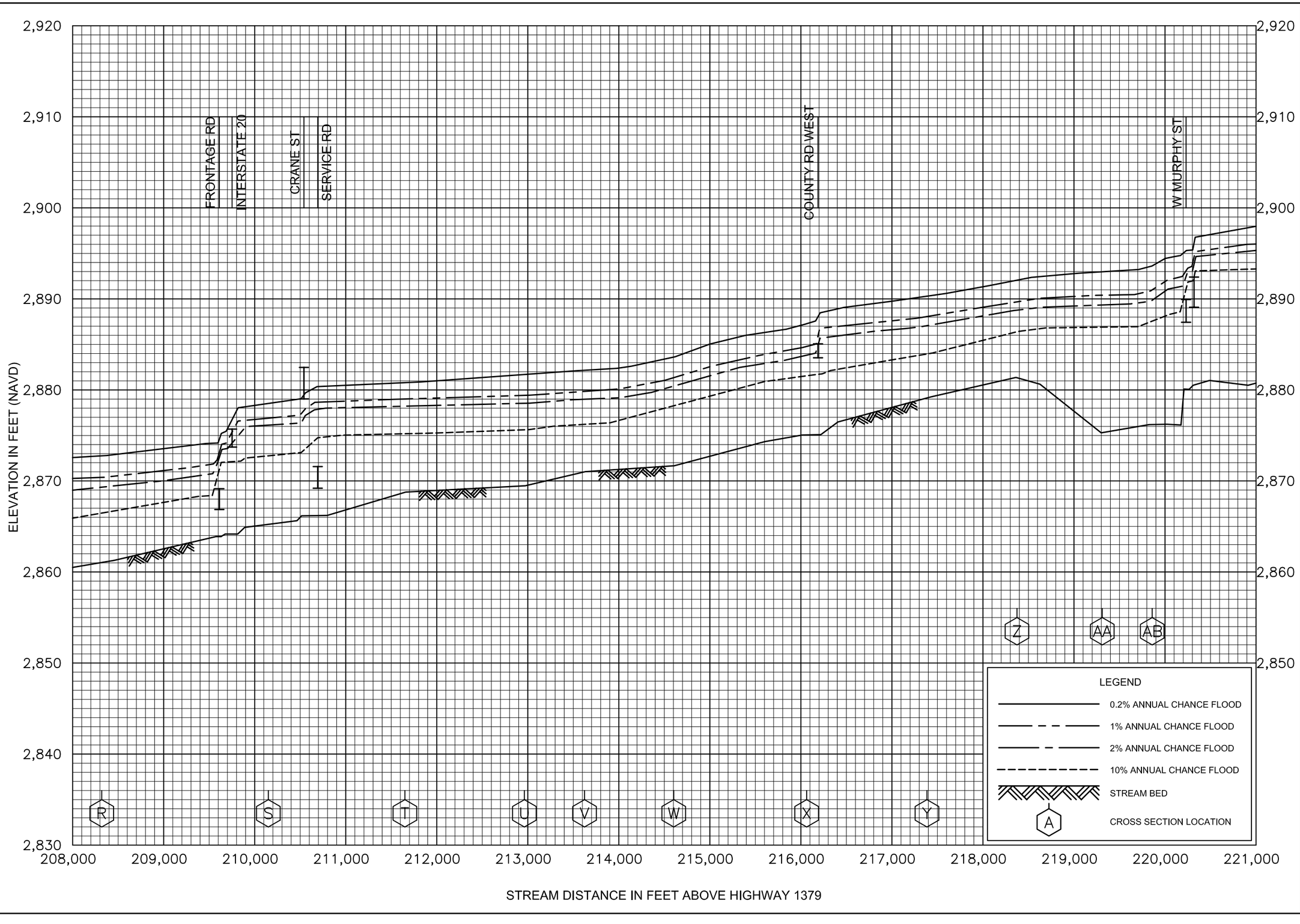
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

08P



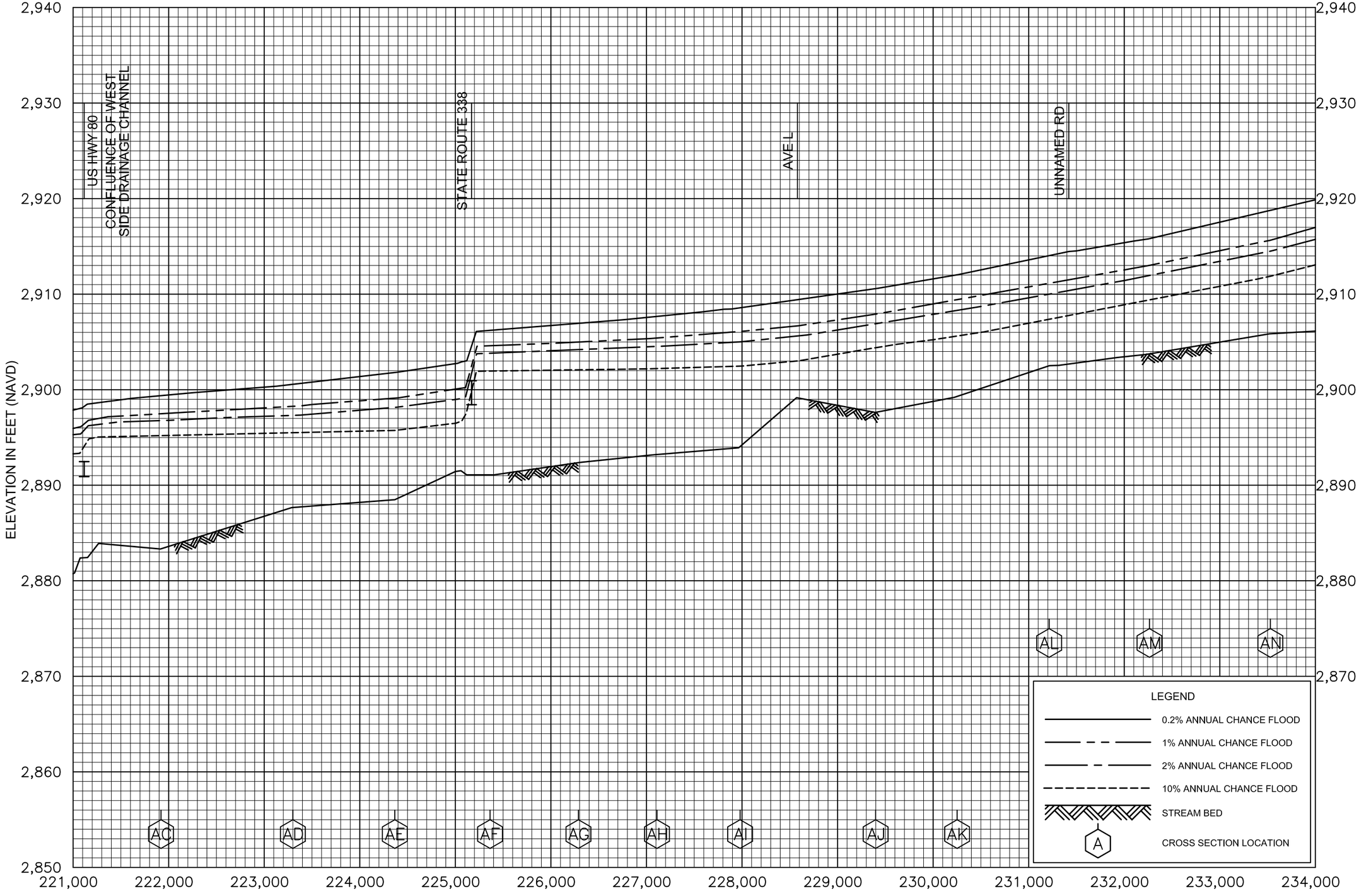
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

09P



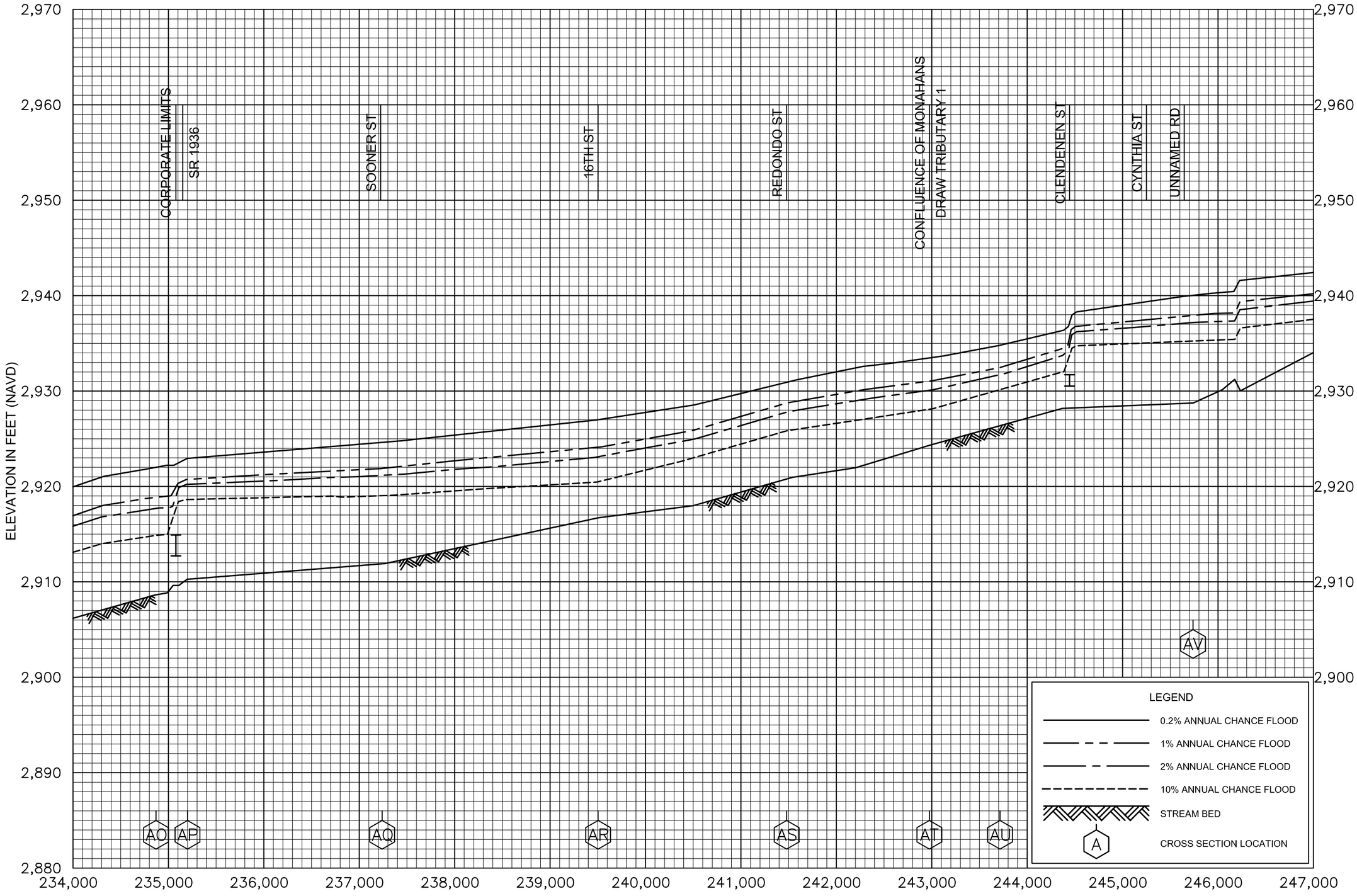
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

10P



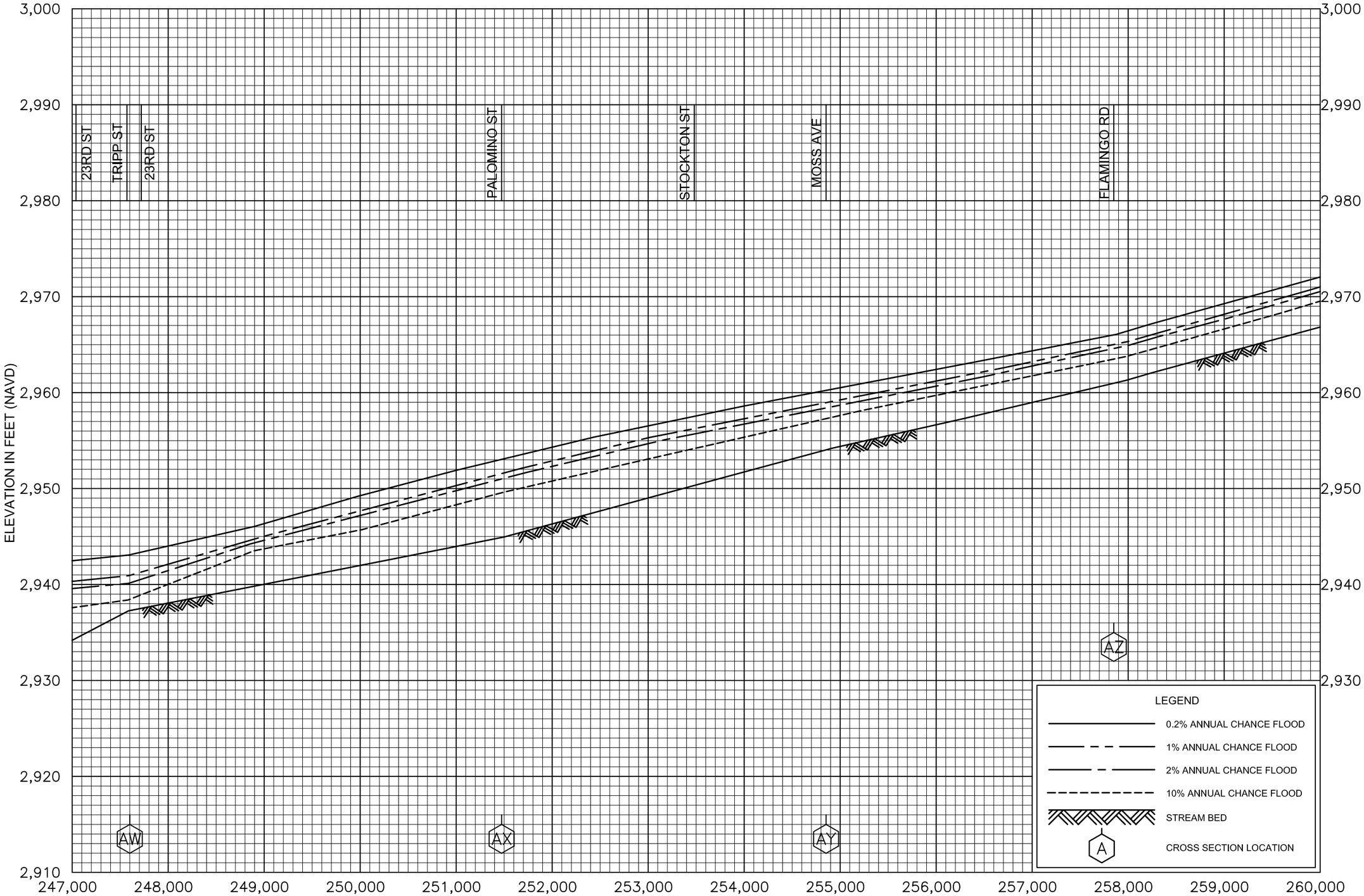
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

11P



FLOOD PROFILES

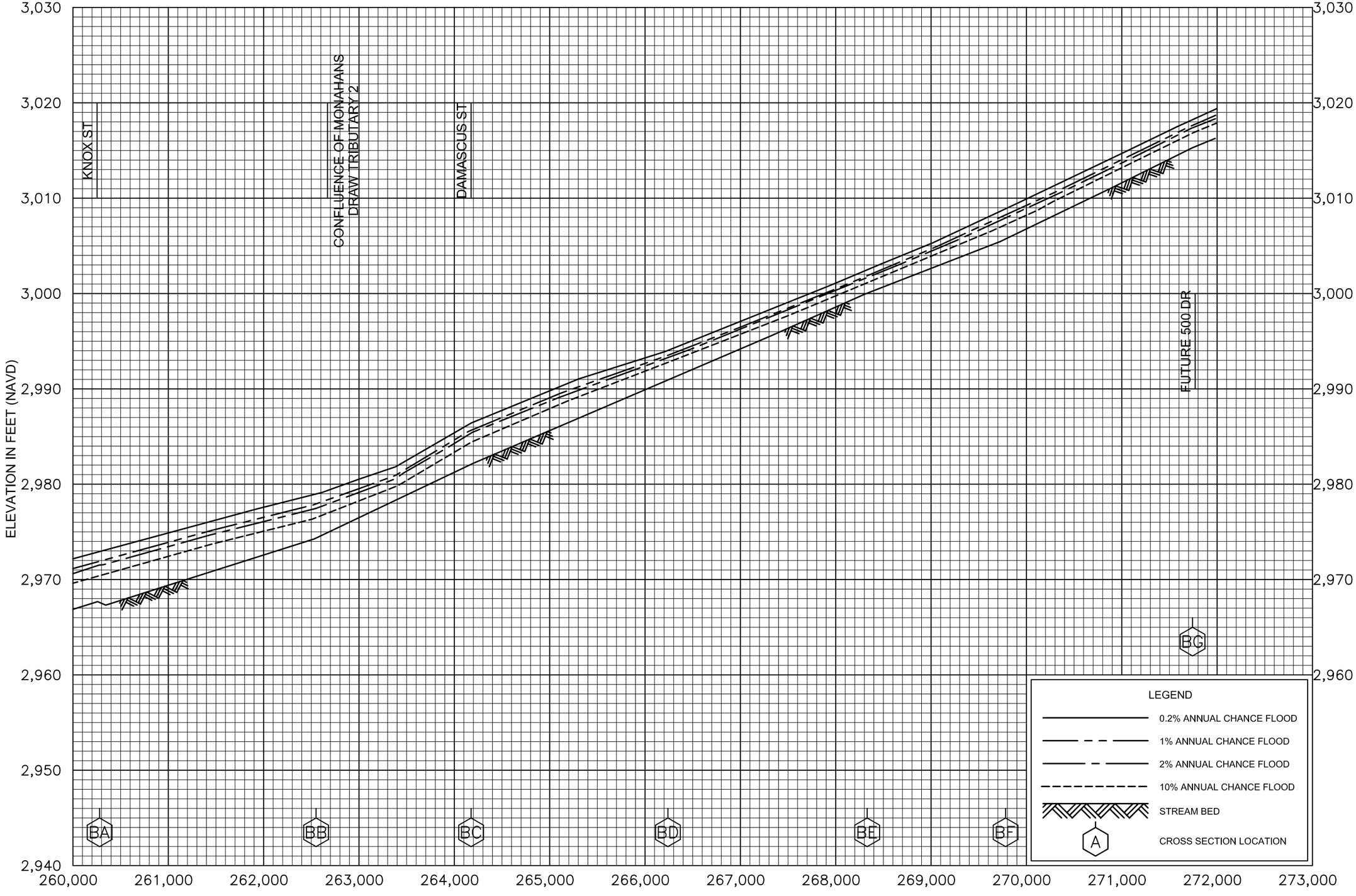
MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

12P



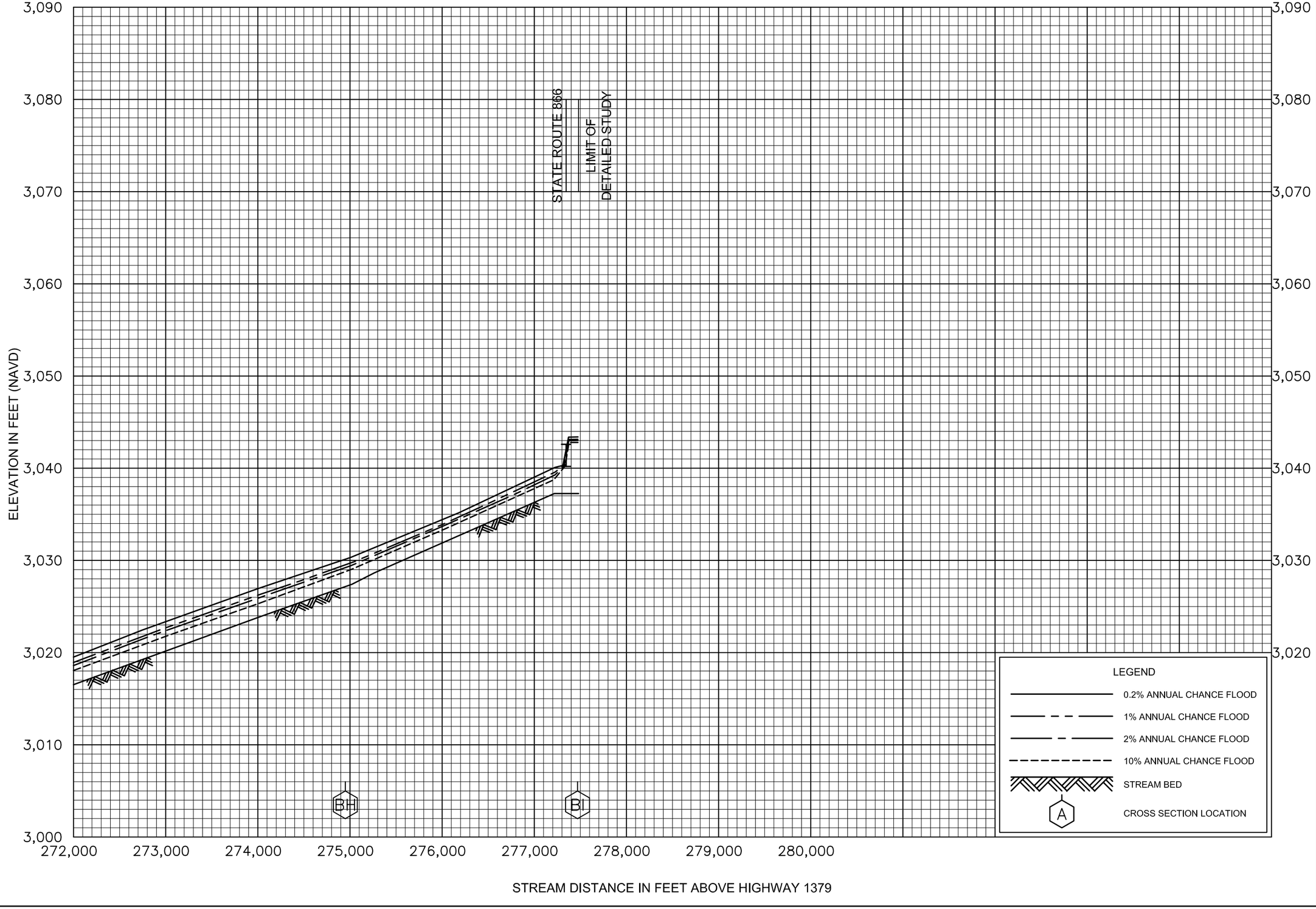
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

13P



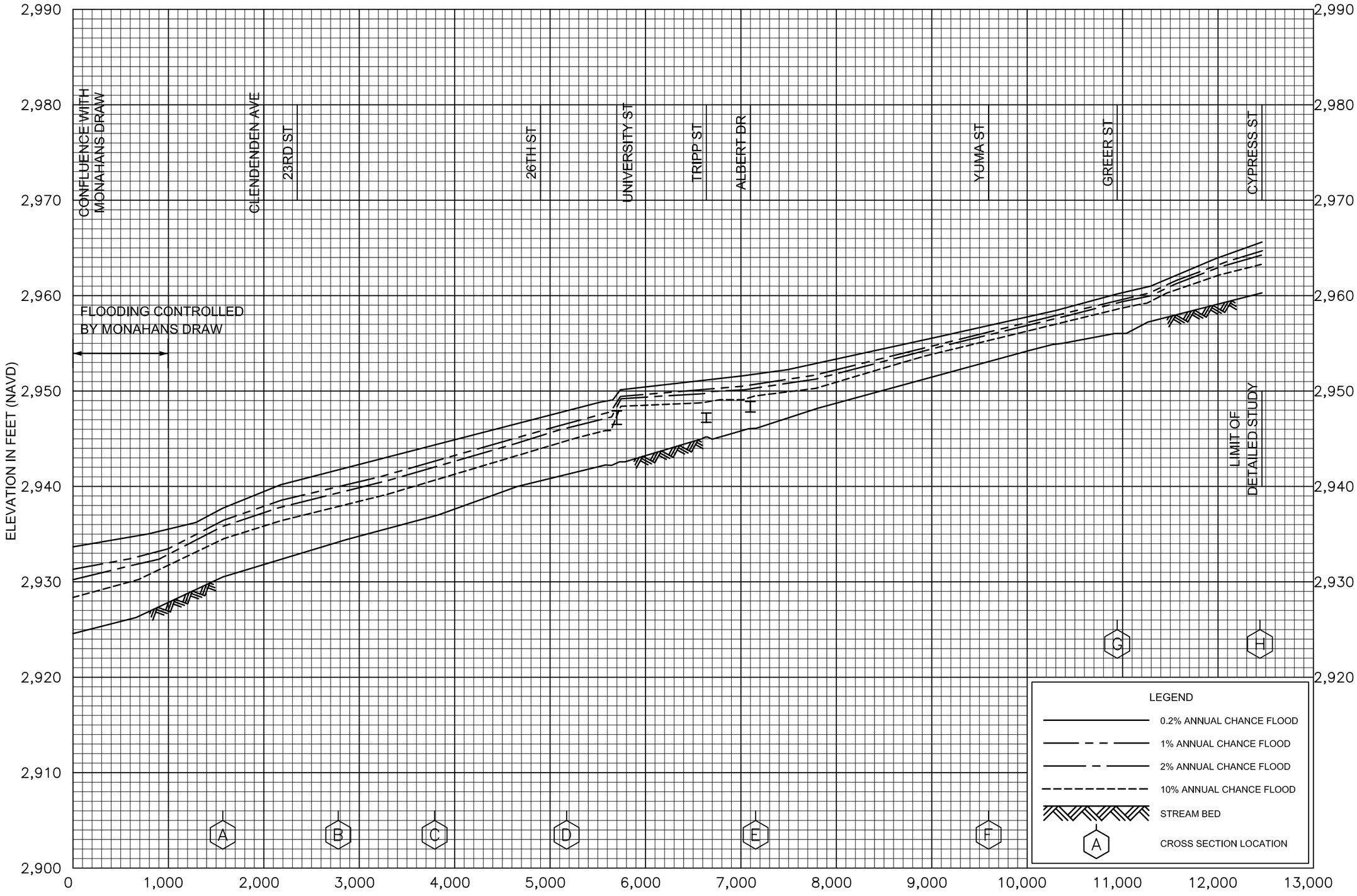
FLOOD PROFILES

MONAHANS DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

14P



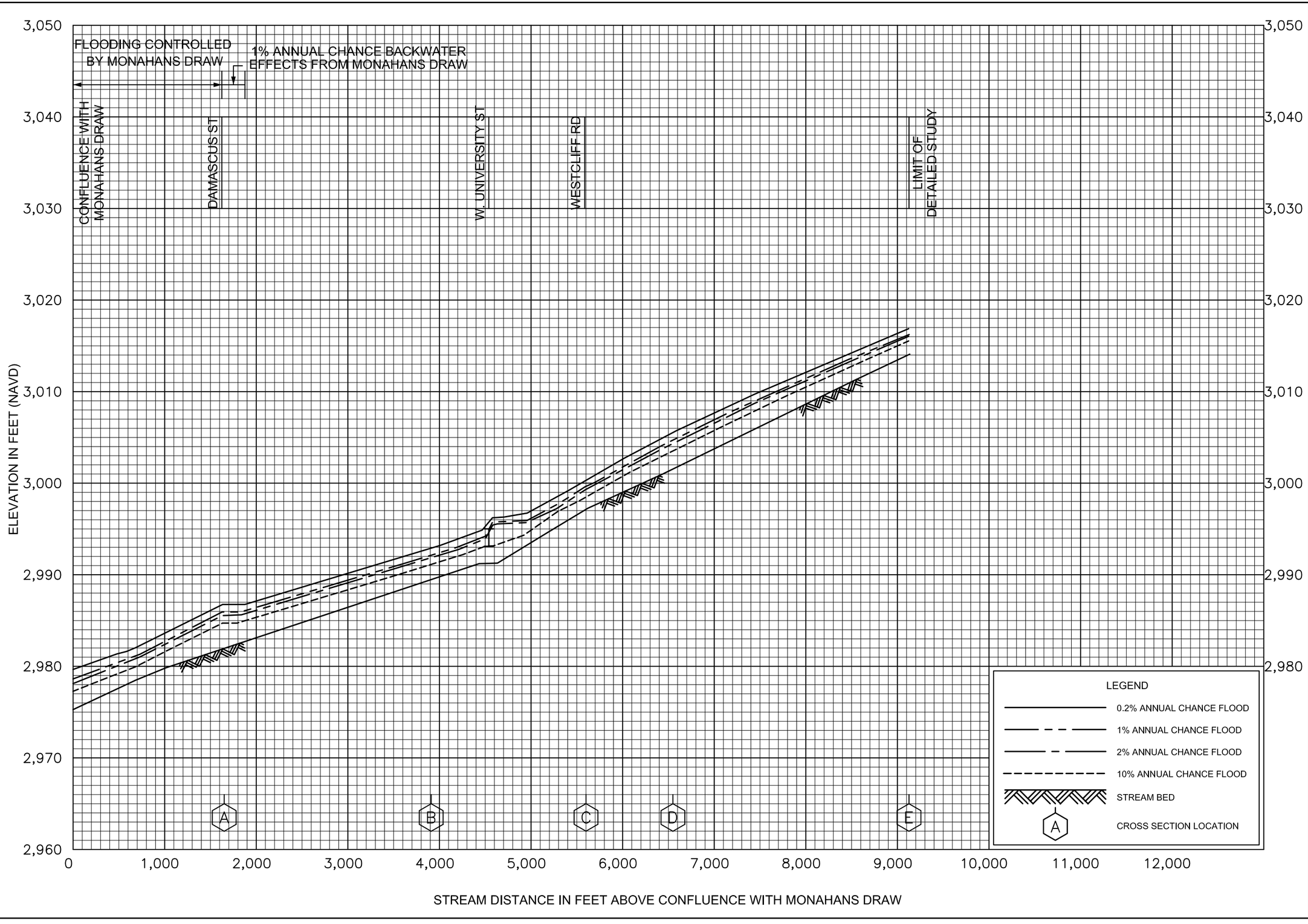
FLOOD PROFILES

MONAHANS DRAW TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

15P



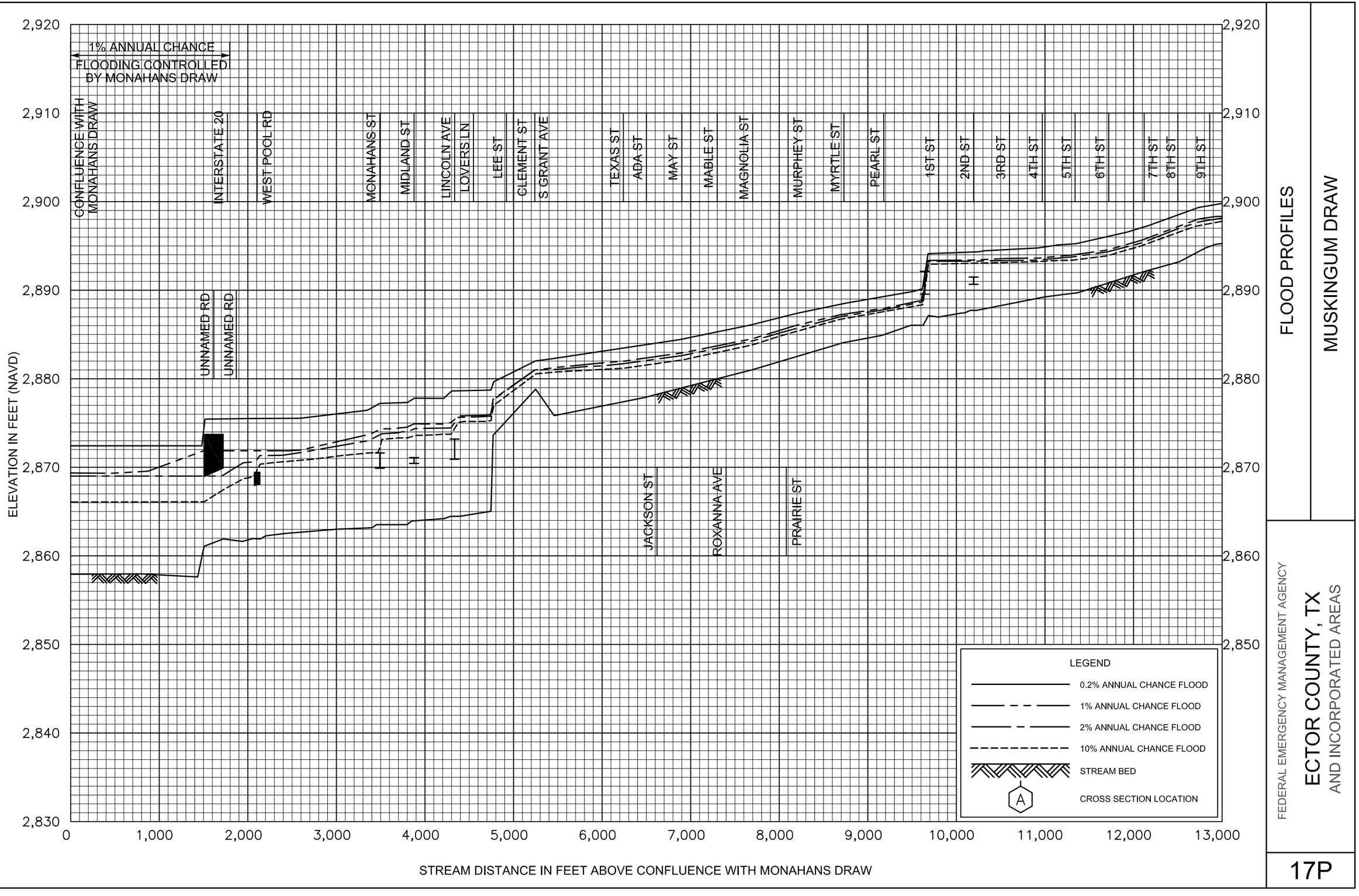
FLOOD PROFILES

MONAHANS DRAW TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

16P



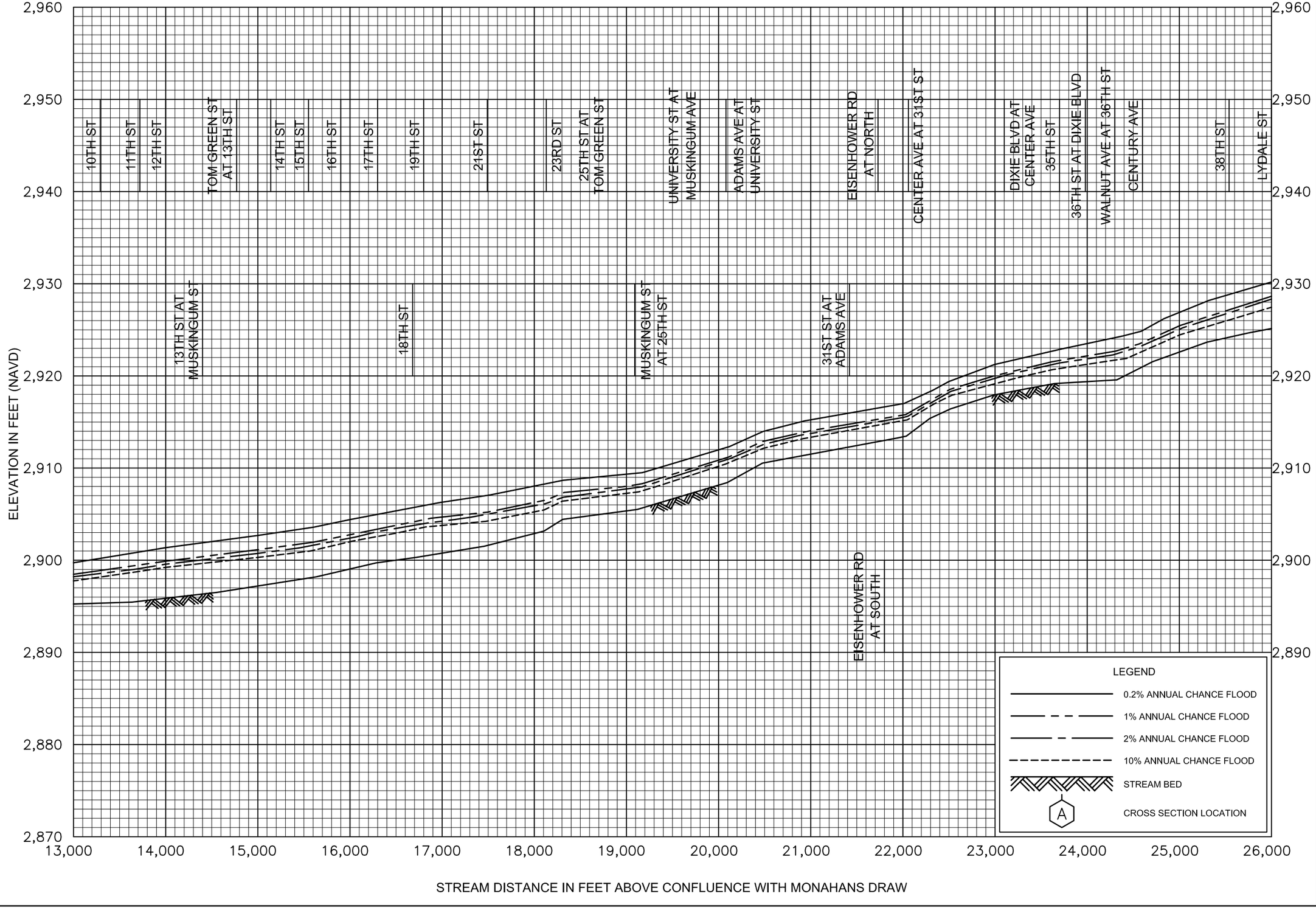
FLOOD PROFILES

MUSKINGUM DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

17P



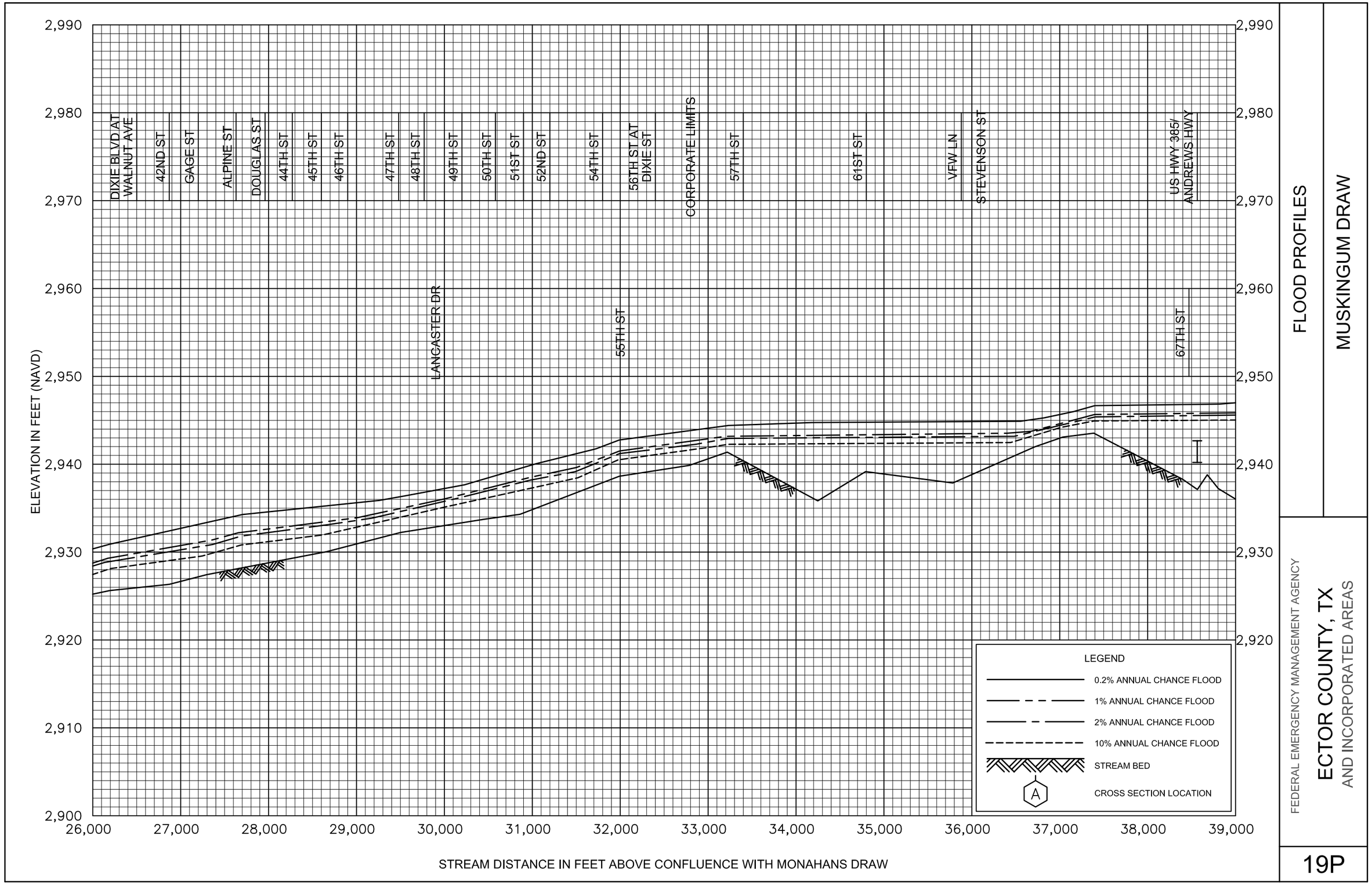
FLOOD PROFILES

MUSKINGUM DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

18P



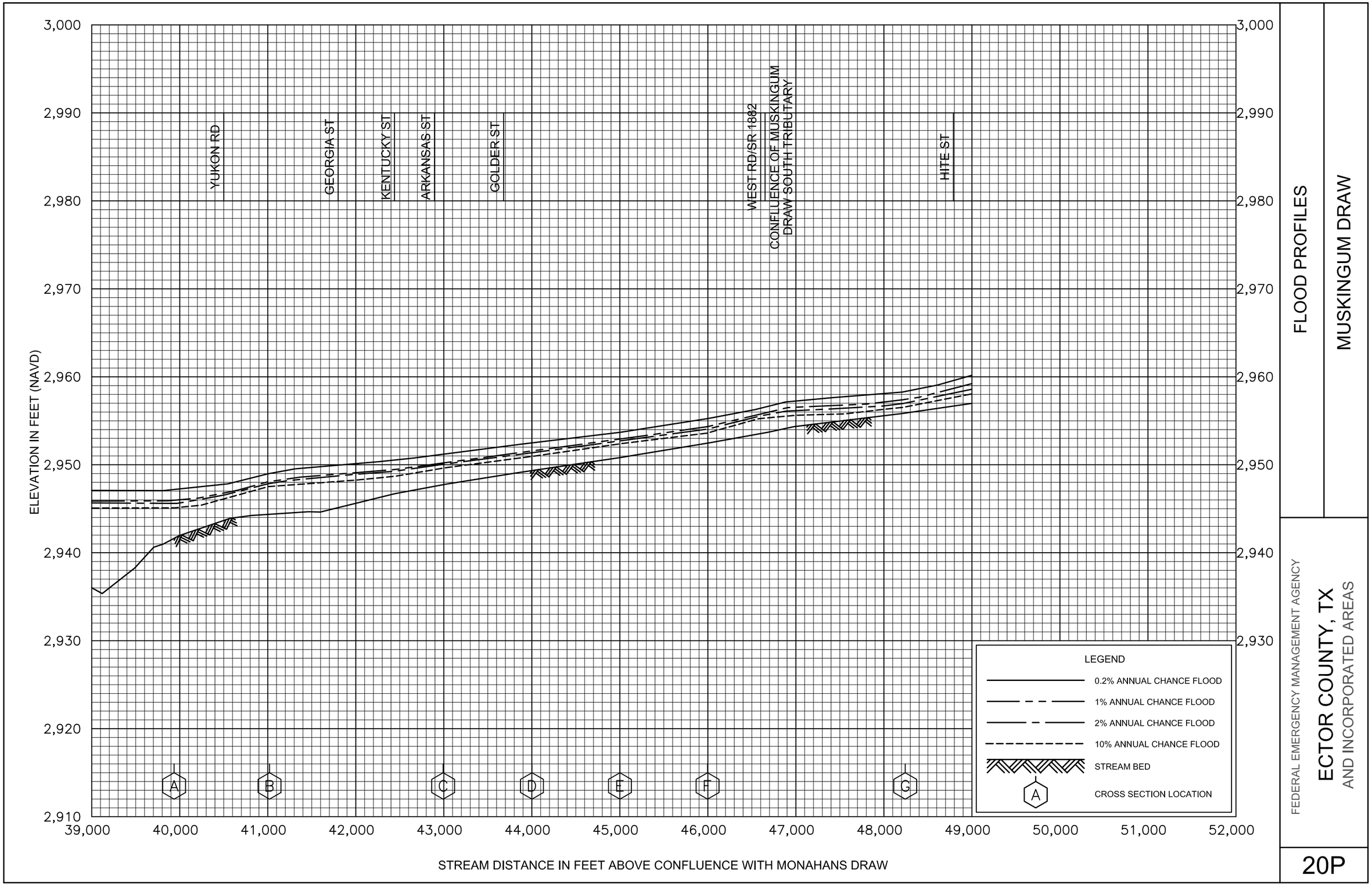
FLOOD PROFILES

MUSKINGUM DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

19P



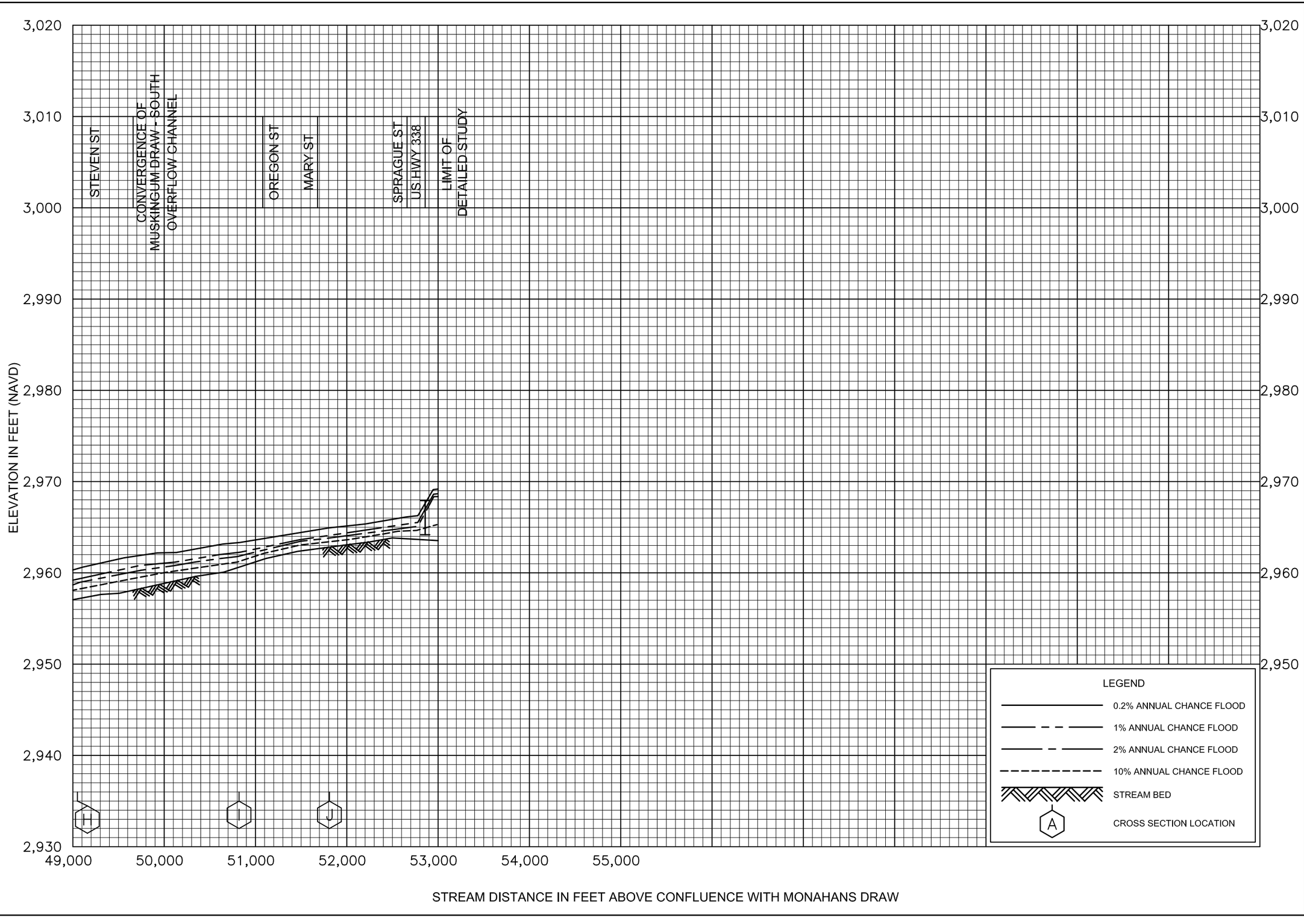
FLOOD PROFILES

MUSKINGUM DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

20P



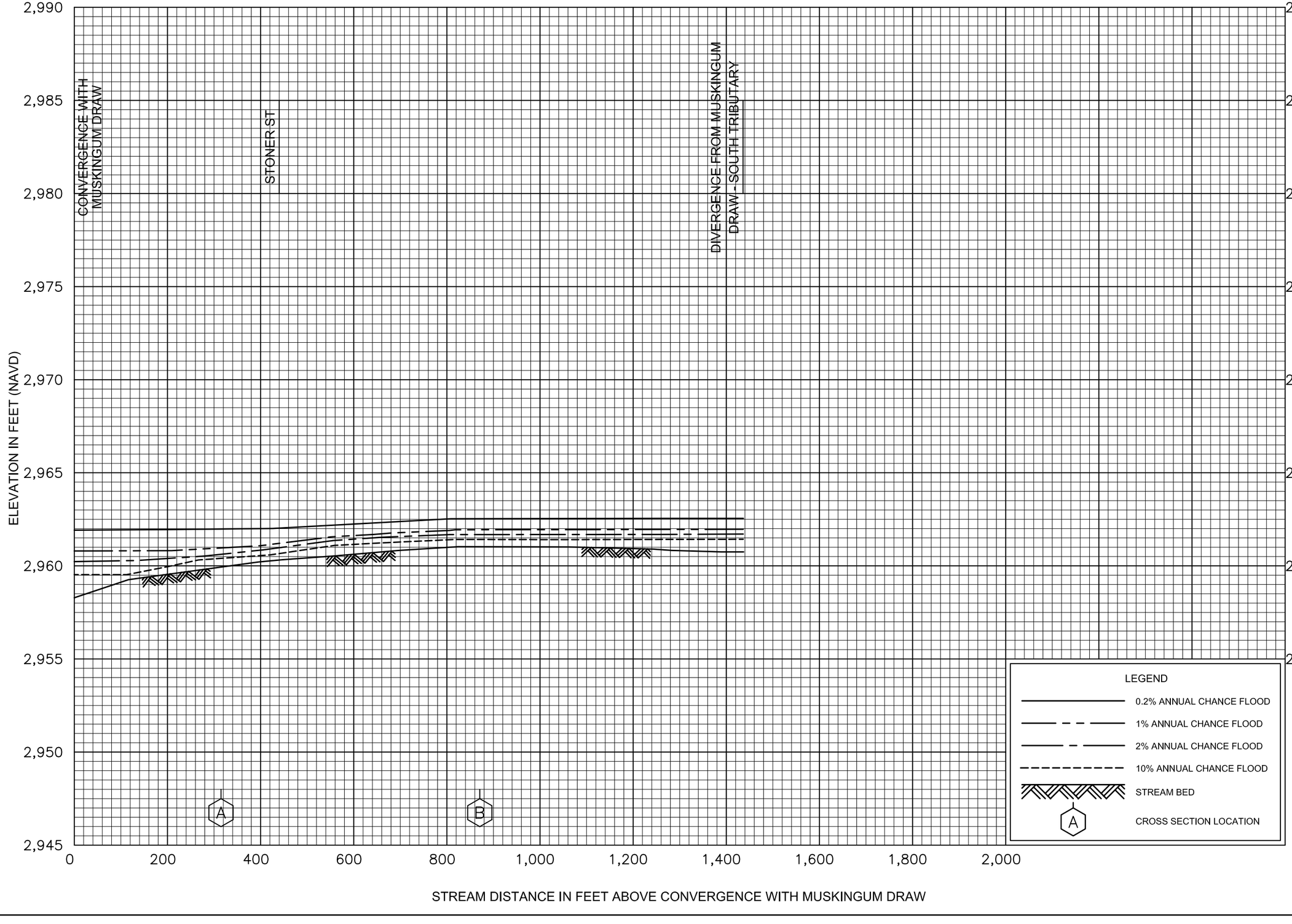
FLOOD PROFILES

MUSKINGUM DRAW

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

21P

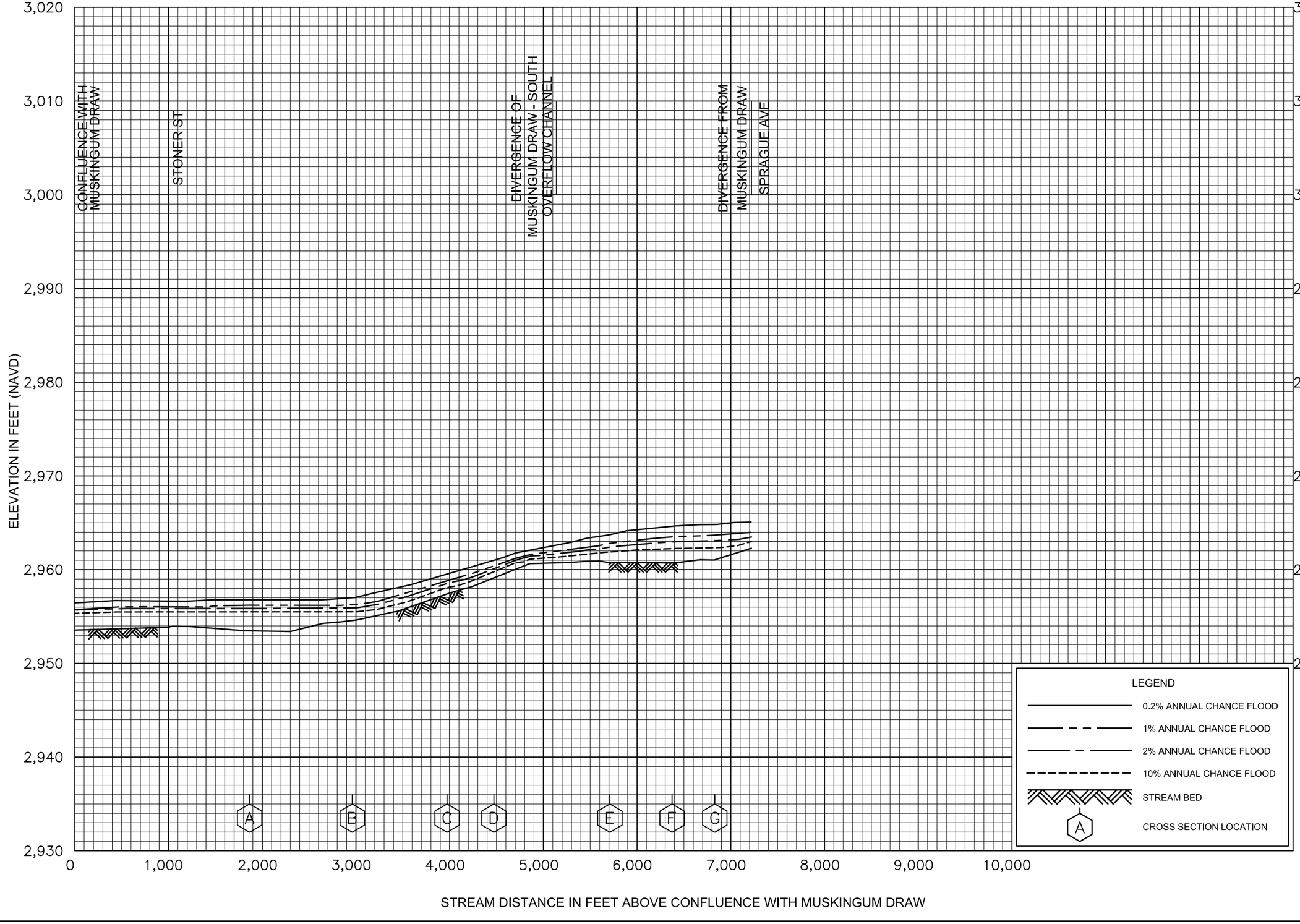


FLOOD PROFILES

MUSKINGUM DRAW - SOUTH OVERFLOW CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS



FLOOD PROFILES

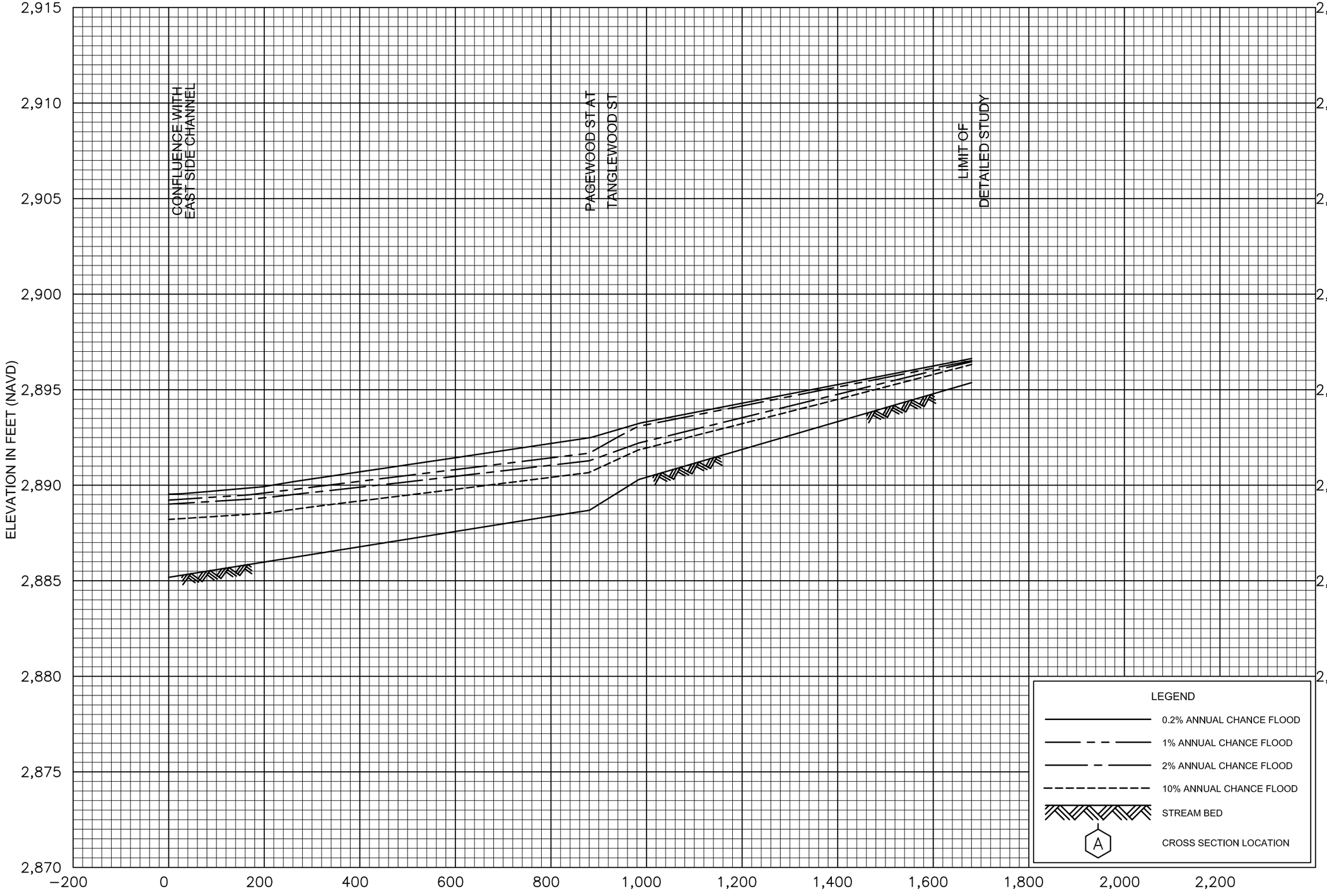
MUSKINGUM DRAW - SOUTH TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

23P



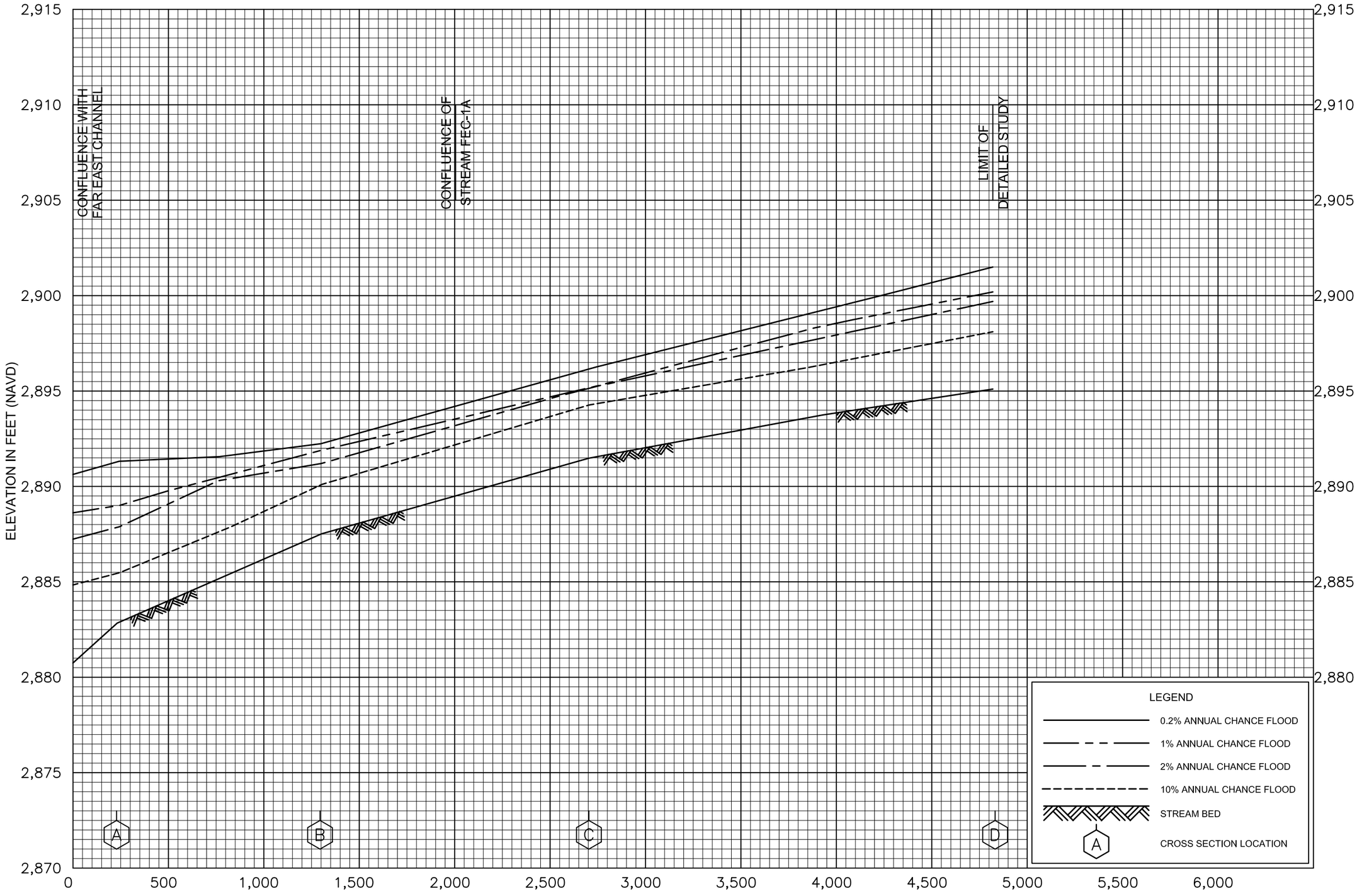
FLOOD PROFILES

STREAM ESC-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

24P

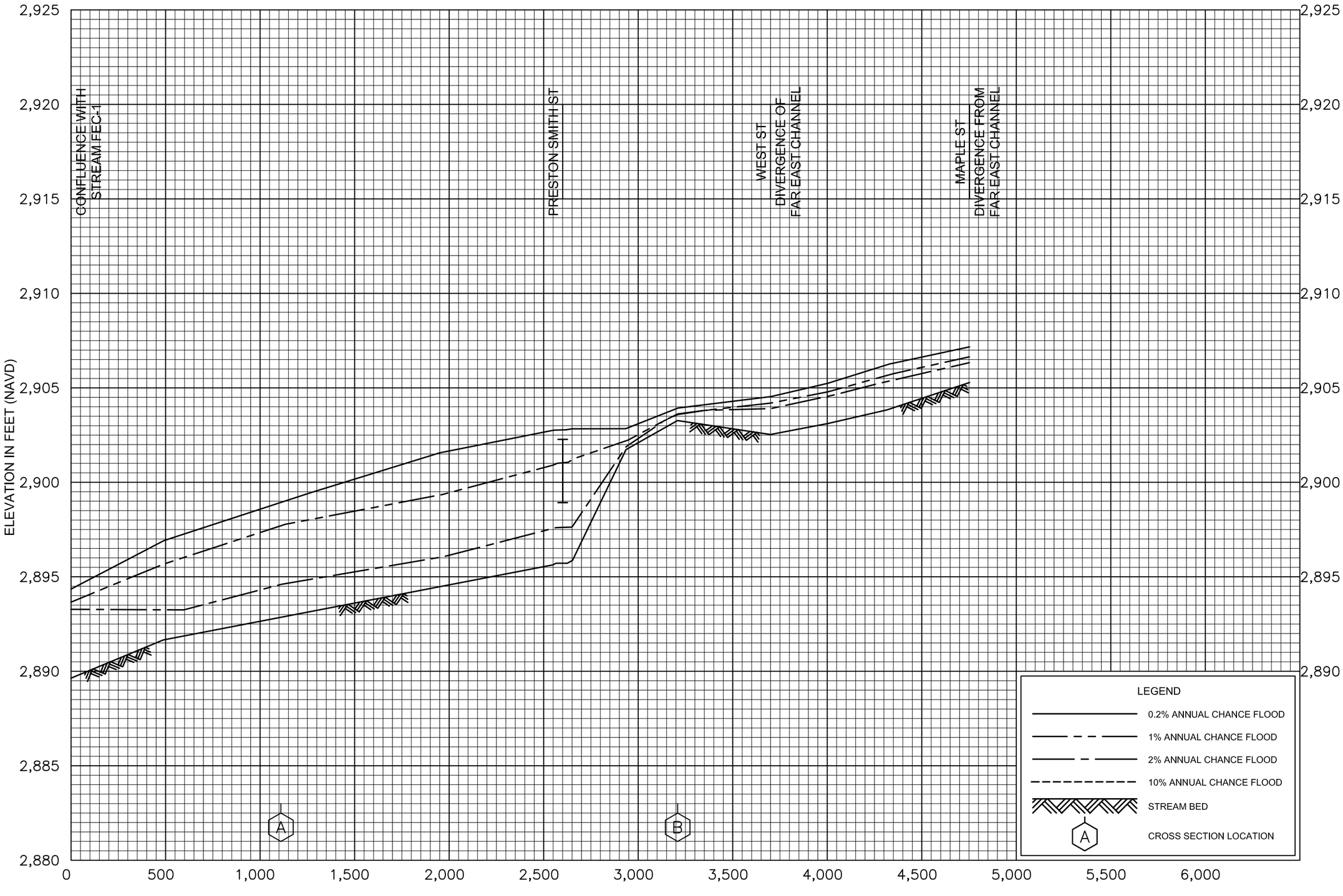


FLOOD PROFILES

STREAM FEC-1

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

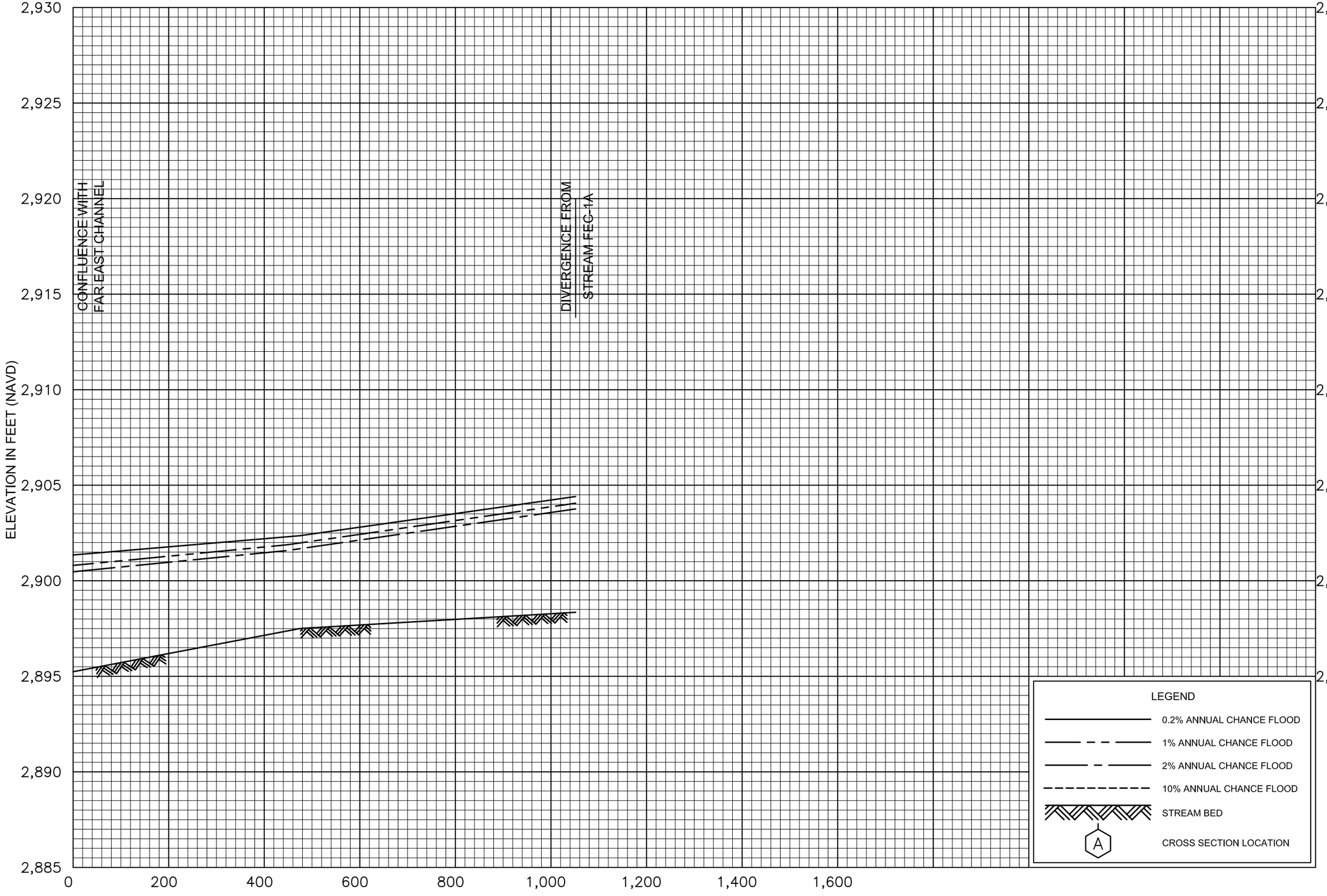


FLOOD PROFILES

STREAM FEC-1A

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS



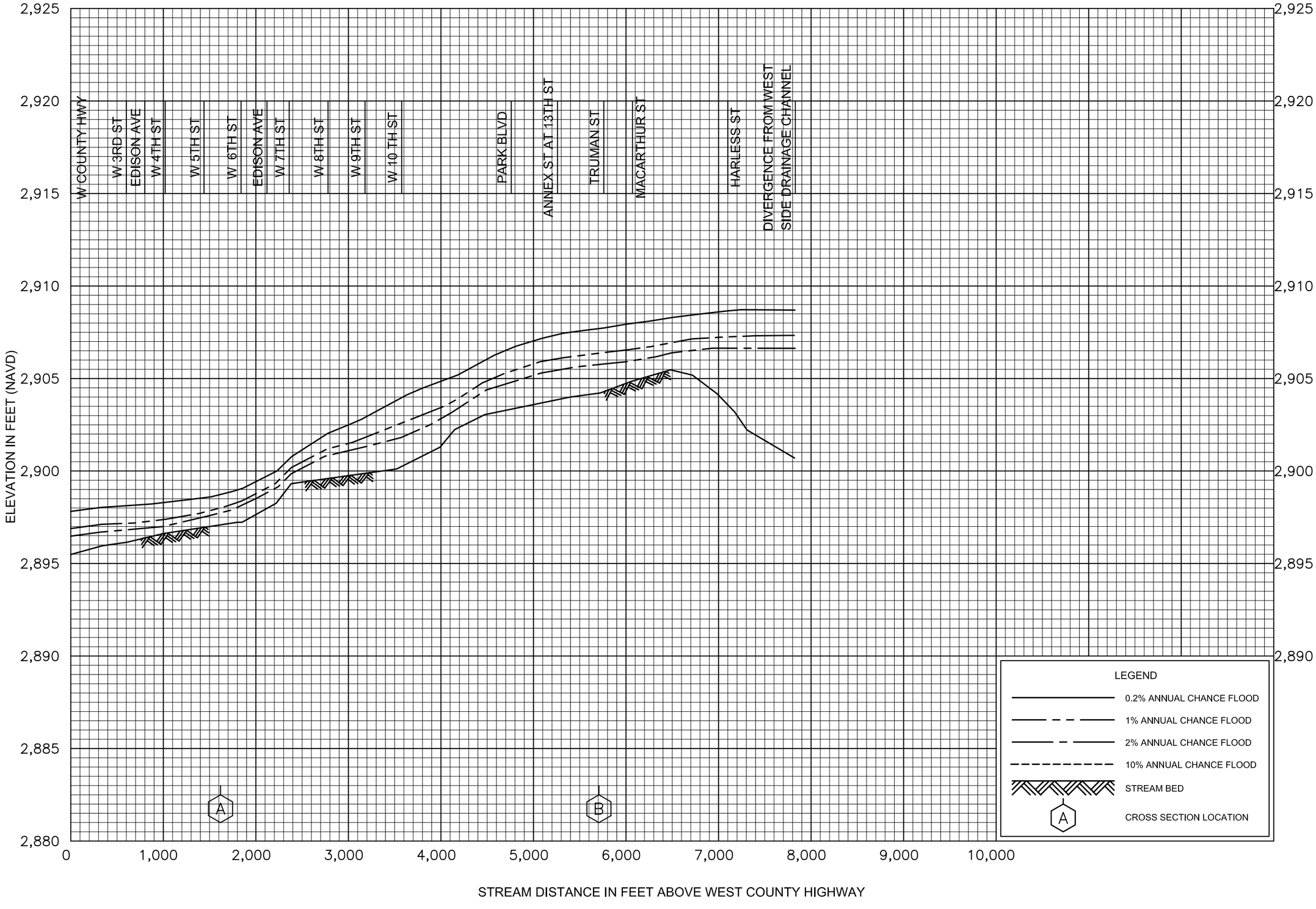
FLOOD PROFILES

STREAM FEC-S

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

27P



FLOOD PROFILES

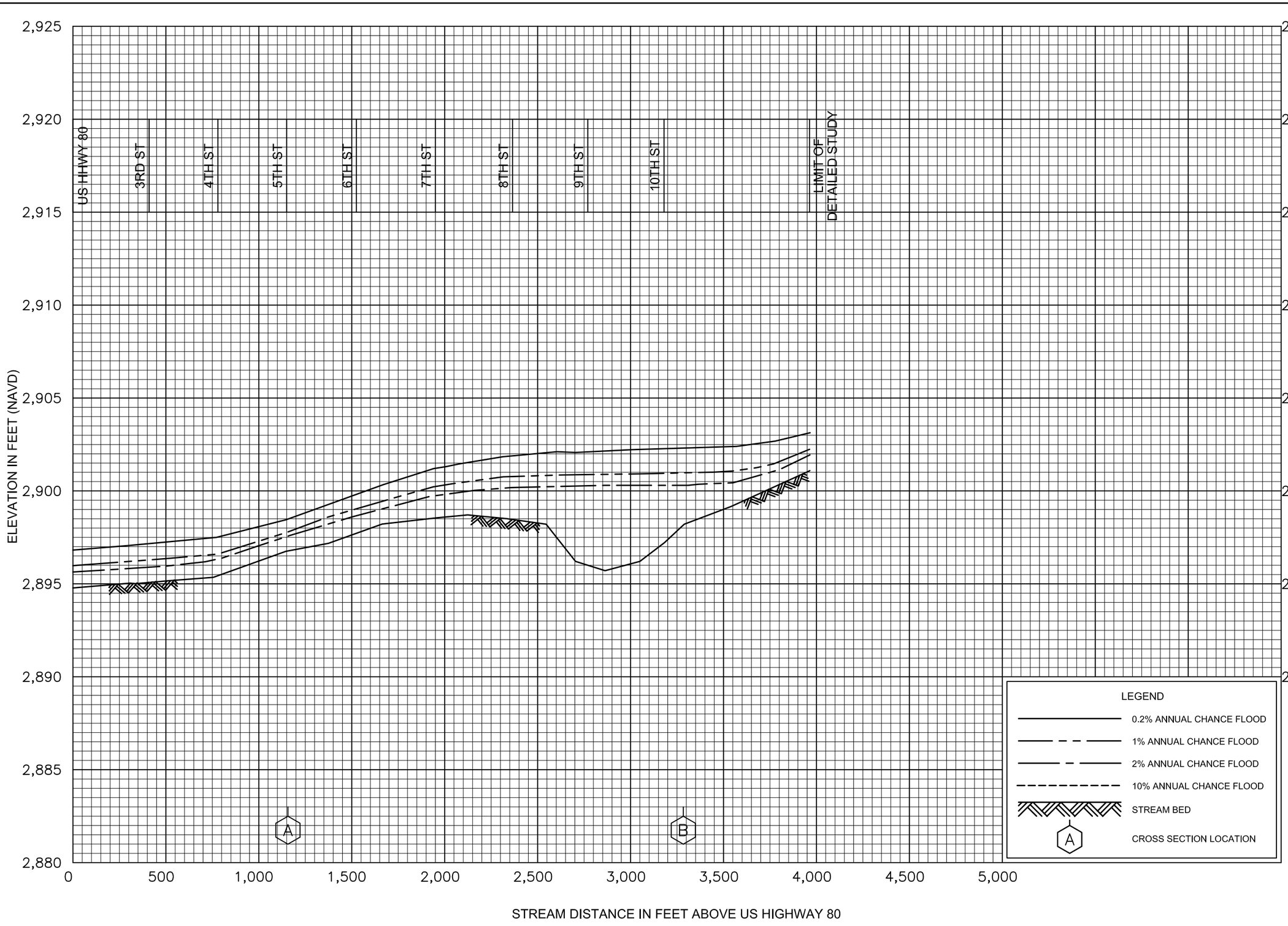
STREAM WSDC-D

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

28P



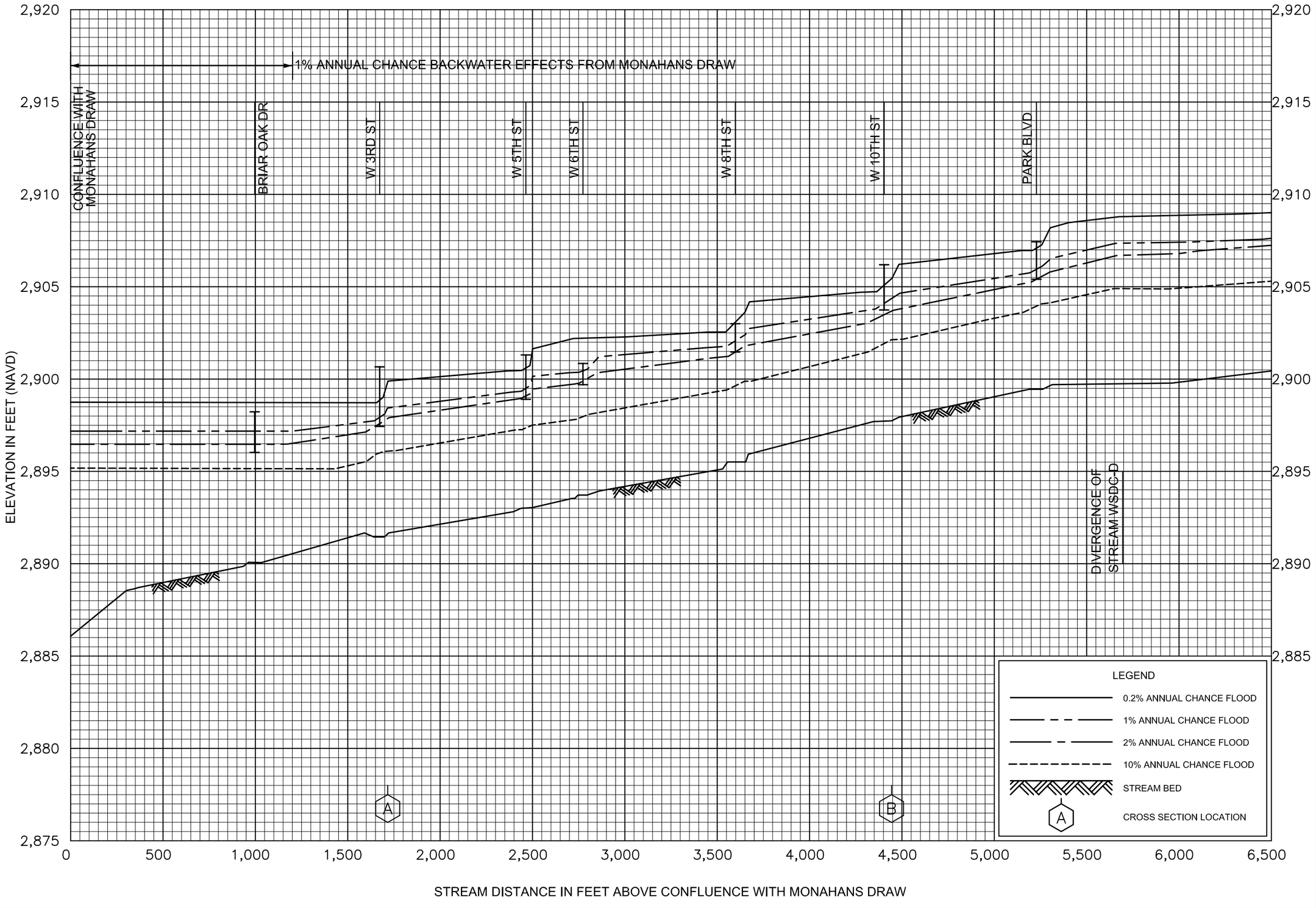
FLOOD PROFILES

STREAM WSDC-DD

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

29P



FLOOD PROFILES

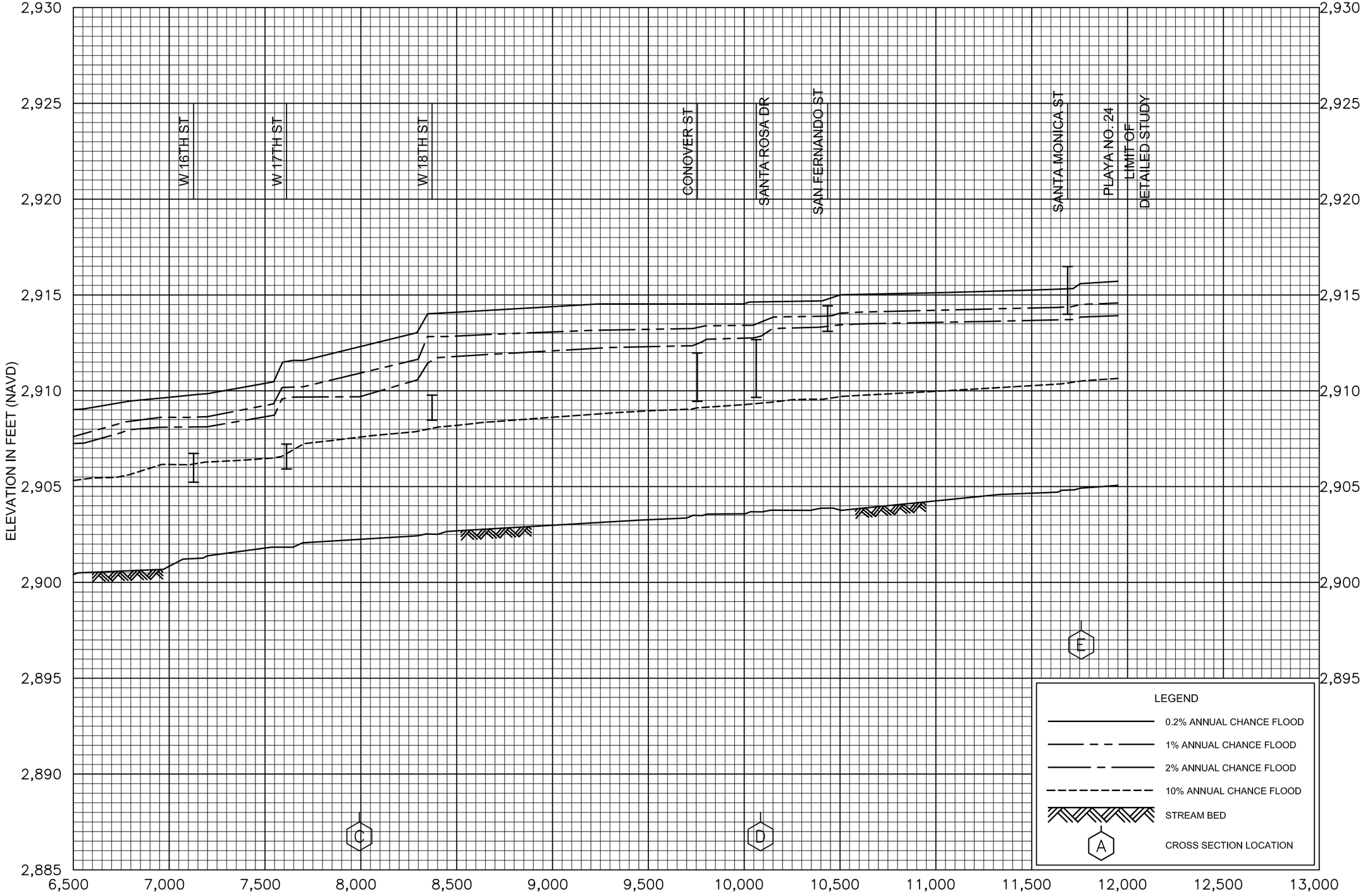
WEST SIDE DRAINAGE CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX

AND INCORPORATED AREAS

30P



FLOOD PROFILES

WEST SIDE DRAINAGE CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

ECTOR COUNTY, TX
AND INCORPORATED AREAS

31P

APPENDIX VI
GEOLOGY REPORT

ITEMS INCLUDED IN THIS APPENDIX:

- Table VI.A.1 – Major Geologic Formations
- Table VI.A.4 – Waste Management Area Subsurface Conditions
- Table VI.B.3.b – Unit Groundwater Detection Monitoring Systems
- Table VI.B.3.c – Groundwater Detection Monitoring Parameters
- Geologic & Hyrdrogeologic Report

Table VI.A.1. - Major Geologic Formations

Names Of Major Geologic Formation(s) Beneath The Facility	Lithology Of The Major Geologic Formation	Formation Thickness (Feet)	Depth To Top Of Formation	
			Feet/MSL(1)	Feet/BGS(2)
Recent Alluvium	Pleistocene-Recent. Windblown sand and silt, alluvium, and playa lake deposits of silt and clay.	0 to 40+	2,850	0 (where present)
Ogallala Formation	Pleistocene. Sandy silt, silty sand, sandstone, and bedded caliche.	10 to 40	2,850 to 2,810	0
Antlers Formation	Cretaceous. Sandy silt, silty sand, and sand with some gravel.	50 to 70	2,800 to 2,780	10 to 40
Chinle Formation	Triassic. Clay and silty sand.	600 to 1,000	2,730	96 to 106

(1) MSL: Mean Sea Level

MLGL: Mean Low-tide Gulf Level

(2) BGS: Below Grade Surface

Table VI.A.4 - Waste Management Area Subsurface Conditions

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit*	Plasticity Index*	Percent Passing#200 Sieve	Permeability*	Percent Porosity*
B-1	4.5-6.0	I	SC	28	16	35.6	**	**
B-1	8.5-10.00	I	SM	Non-plastic	Non-plastic	27.5	**	**
B-2	6.5-7.5	I	SC	50	26	46.7	**	**
B-2	35.0-35.4	V	SC-SM	14	4	35.1	**	**
B-2	40.0-40.5	V	SM	Non-plastic	Non-plastic	30.6	**	**
B-3	9.0-9.9	I	SM	Non-plastic	Non-plastic	14.5	**	**
B-3	15.0-16.0	II	SM	Non-plastic	Non-plastic	17.8	**	**
B-4	3.0-3.5	I	GC-GM	22	6	9.9	**	**
B-4	20.0-20.5	V	CH	62	33	51.2	**	**
B-5	3.7-5.2	I	SC	38	16	46.6	**	**
B-5	10.0-11.0	II	SM	32	6	25.1	**	**

*For the major soil strata encountered, record the minimum, maximum, and average values of these parameters as applicable.
**See Geology Report for permeability and porosity information.

Table VI.A.4 - Waste Management Area Subsurface Conditions

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit*	Plasticity Index*	Percent Passing#200 Sieve	Permeability*	Percent Porosity*
B-7	16.0-16.8	II	SM	65	19	13.8	**	**
B-7	20.0-20.8	II	SM	60	24	34.8	**	**
B-8	4.2-5.7	I	GM	37	9	13.1	**	**
B-8	6.5-7.5	I	SM	33	4	27.6	**	**
B-8	10.0-11.3	II	SM	34	2	29.0	**	**
B-9	4.0-5.5	I	SC	33	13	22.8	**	**
B-9	7.5-9.0	II	SM	Non-Plastic	Non-Plastic	18.5	**	**
B-9	15.0-16.2	II	SM	54	13	23.8	**	**
B-10	20.0-21.5	III	SM	39	13	30.5	**	**
B-11	4.5-6.0	I	SP-SM	Non-Plastic	Non-Plastic	8.8	**	**
B-11	15.0-16.5	II	SP-SM	68	19	8.7	**	**

Maximum depth: 40.5 feet below grade

2,730 feet above MSL

*For the major soil strata encountered, record the minimum, maximum, and average values of these parameters as applicable.
**See Geology Report for permeability and porosity information.

LARGE NUMBER OF WELLS -- SEE GROUNDWATER MONITORING INFORMATION ADDRESSED UNDER APPENDIX XI (COMPLIANCE PLAN)

Table VI.B.3.b. - Unit Groundwater Detection Monitoring Systems

Waste Management Unit/Area Name1				
Well Number(s)				
Hydrogeologic Unit Monitored				
Type (e.g., point of compliance, background, observation, etc.)				
Up or Down Gradient				
Casing Diameter and Material				
Screen Diameter and Material				
Screen Slot Size (in.)				
Top of Casing Elevation (Ft, MLGL or MSL)				
Grade or Surface Elevation (Ft, MLGL or MSL)				
Well Depth (Ft, Below Grade Surface *[BGS]*)				
Well Depth (Ft, Below Top of Casing *[BTOC]*)				
Screen Interval				
From(Ft, BGS)				
To(Ft, BGS)				
Screen Interval				
From(Ft, bTOC)				
To(Ft, bTOC)				
Facility Coordinates (e.g., lat./long. or company coordinates) (ex. 99° 99' 99"}				

[1]From Tables in Section V.
MSL: Mean Sea Level; *MLGL*: Mean Low-tide Gulf Level; *BGS*: Below Grade Surface; *BTOC*: Below Top of Casing

LARGE NUMBER OF WELLS -- SEE GROUNDWATER MONITORING INFORMATION ADDRESSED UNDER APPENDIX XI (COMPLIANCE PLAN)

Permit No. 50290

Permittee: Flint Hills Resources Odessa, LLC

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area _____

Well No(s): _____

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]

1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

GEOLOGIC AND HYDROGEOLOGIC REPORT

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
2400 South Grandview Avenue
Odessa, Texas 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 February 2026

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Texas P.E. No. 89396, F-15202
Signed electronically on 2/2/26

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Note: Portions of this Geologic and Hydrogeologic Report are taken from the Geologic and Hydrogeologic Report prepared by Arcadis G&M for Huntsman Polymers Corporation and included in the 2003 and 2015 Renewal Applications. Information used from this source was verified by SQ Environmental, LLC.

TABLE OF CONTENTS

Section			Page
1	**INTRODUCTION**		**1-1**
	1.1	BACKGROUND AND PURPOSE	1-1
	1.2	SITE DESCRIPTION	1-1
2	**GEOLOGY AND TOPOGRAPHY**		**2-1**
	2.1	REGIONAL STRATIGRAPHY	2-1
	2.2	ACTIVE GEOLOGIC PROCESS	2-2
		2.2.1 Faults	2-2
		2.2.2 Subsidence	2-2
		2.2.3 Erosion	2-2
		2.2.4 Wetlands	2-2
	2.3	REGIONAL AQUIFERS	2-2
		2.3.1 Geologic Conditions	2-2
		2.3.2 Hydrogeologic Conditions	2-3
		2.3.3 Recharge	2-3
		2.3.4 Production and Use	2-3
3	**REGIONAL PHYSIOGRAPHY AND TOPOGRAPHY**		**3-1**
	3.1	TOPOGRAPHY	3-1
	3.2	SURFACE DRAINAGE	3-1
	3.3	SURFACE WATER FEATURES	3-1
4	**SITE GEOLOGY AND HYDROGEOLOGY**		**4-1**
	4.1	SITE STRATIGRAPHY	4-1
	4.2	SITE HYDROGEOLOGY	4-2
5	**WASTE MANAGEMENT AREA SUBSURFACE CONDITIONS**		**5-1**
	5.1	REGULATORY OVERVIEW	5-1
	5.2	GROUNDWATER MONITORING	5-2
		5.2.1 GWCA-A	5-2
		5.2.2 GWCA-B	5-2
		5.2.3 GWCA-C	5-2
		5.2.4 GWCA-D	5-2
		5.2.5 GWCA-E	5-3
		5.2.6 GWCA-F	5-3
		5.2.7 GWCA-G	5-3
		5.2.8 Monahans Draw	5-3
6	**REFERENCES**		**6-1**

LIST OF TABLES AND FIGURES

Figure 1-1 Site Location Map 1-2

APPENDICIES

APPENDIX A **REGIONAL GEOLOGIC CROSS SECTIONS**
APPENDIX B **REGIONAL GEOLOGIC MAPS**
APPENDIX C **SITE SPECIFIC GEOLOGIC CROSS SECTIONS**
APPENDIX D **MONITOR WELL CONSTRUCTION LOGS**

1 INTRODUCTION

Information contained in this section was taken from the Geologic and Hydrogeologic Report prepared by Arcadis G&M for Huntsman Polymers Corporation and included in the 2003 Renewal Application (Huntsman, 2003) and information from SQ Environmental, LLC (SQE) in the 2015 Renewal Application (SQE, 2015). In this document, Texas Commission on Environmental Quality (TCEQ) is used to refer to TCEQ and the predecessor agencies the Texas Water Commission (or TWC) and the Texas Natural Resource Conservation Commission (or TNRCC).

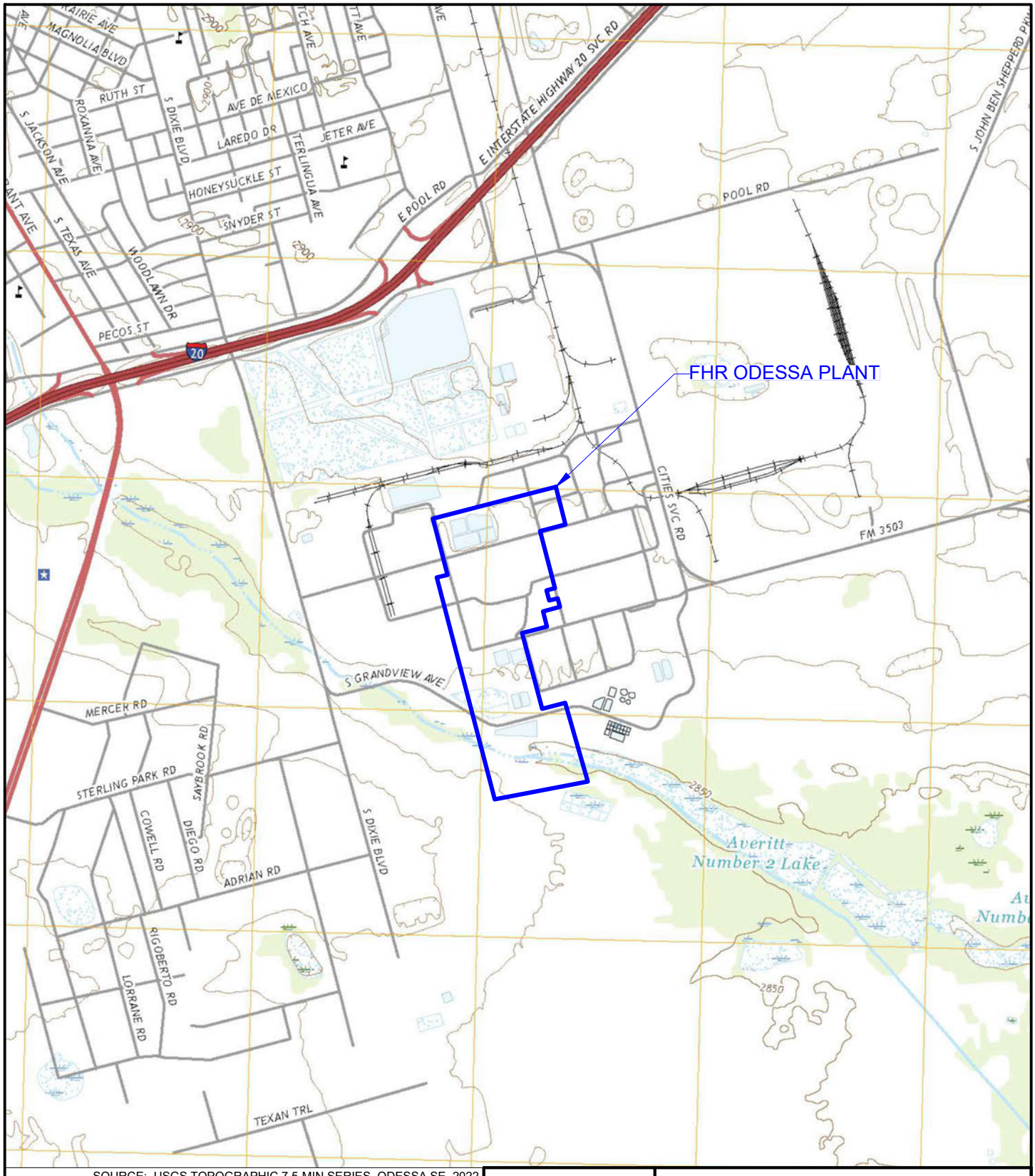
1.1 BACKGROUND AND PURPOSE

This report was prepared to present information pertaining to the Flint Hills Resources Odessa, LLC (FHR) facility's geology and hydrogeology-related conditions.

Information provided within this report has been provided to the TCEQ as part of assessments and investigations conducted in conjunction with Resource Conservation and Recovery Act (RCRA) Facility Investigations and other programs. This report includes: information pertaining to any active geologic process at or within the surrounding vicinity of the site; descriptions of regional physiography and topography; regional geology and hydrogeology, site specific geology and hydrogeology; and regional and site specific cross sections that represent subsurface sediments beneath and surrounding the facility. References to site investigations conducted within areas of hazardous waste management units and areas with affected groundwater are addressed within this report.

1.2 SITE DESCRIPTION

FHR formerly operated a petrochemical manufacturing complex near Odessa, Texas at the location shown on **Figure 1-1**. The facility was formerly used for the production of ethylene and propylene, polyethylene and polypropylene as raw materials. Operations at the facility were shut down in 2009. The facility is located at 2400 South Grandview, Odessa, Ector County, Texas.



SOURCE: USGS TOPOGRAPHIC 7.5-MIN SERIES, ODESSA SE, 2022

N

TEXAS

0 1000 2000

SCALE IN FEET

SQ Environmental, LLC

FIGURE 1-1

FACILITY LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 2000 FT	FEB 2026	1039.005.001

2 GEOLOGY AND TOPOGRAPHY

Information contained in this section was taken from the Geologic and Hydrogeologic Report prepared by Arcadis G&M for Huntsman Polymers Corporation and included in the 2003 Renewal Application (Huntsman, 2003) and information from SQE in the 2015 Renewal Application (SQE, 2015).

2.1 REGIONAL STRATIGRAPHY

The Odessa Plant is located near the southern end of the physiographic region known as the Texas High Plains. The High Plains is a flat plateau marked by numerous small depressions, or playas. The landscape is broken by a predominant westward-facing escarpment, known as the Concho Bluff (Knowles, 1952). The sediments that mantle this surface are Quaternary windblown sand and silt, alluvium, and playa lake deposits of silt and clay (Appendix C).

Underlying the windblown materials is the Ogallala Formation of Tertiary age, which is a principal aquifer north of Odessa where the unit is thicker. The Ogallala was formed from fluvial elastic materials eroded from the southern Rocky Mountains during the Laramide orogeny. The Ogallala generally consists of gravel, sand, silt and clay. The Ogallala sediments have been cemented by calcium carbonate (caliche) in many areas, forming lenses or layers of sandstone. A prominent bed of this material forms the "caprock" of the High Plains Region. Rainfall is the predominant factor in recharge to the Ogallala Aquifer, however the Cretaceous Trinity Sand also leaks upward into the Ogallala due to the hydraulic pressure on the Trinity Formation.

The Cretaceous Trinity Sand occurs below the Ogallala Formation and lies unconformably on the Triassic Dockum Group sediments. These fluvial sediments consist of fine-grained to medium-grained sand and sandstone with minor amounts of caliche and clay or shale (Walker, 1979) and can be up to 125 feet in thickness. In some places the Trinity is strongly cemented and appears as quartzite, forming erosion-resistant ledges along the Concho Bluff. The sands that form the Trinity group become younger northward. The Trinity forms the deepest fresh water-bearing unit in this area, yielding more water of acceptable quality than any other water-bearing unit in Ector County. The relatively thin saturated thickness and low permeability allow for only moderate amounts of water to be pumped from individual wells. Water well capacities range from a few gallons per minute (gpm) near the Concho Bluff to about 300 gpm to the north and northeast of Odessa (Knowles, 1952).

Below the Trinity Group at a depth of approximately 120 feet lie the Triassic deposits of the Dockum Group, locally known as "redbeds" (See Appendix A for regional cross-section maps). The upper member of this group is the Chinle Formation, which is typically a thick red shale with interbedded sandstone and conglomerates. The Chinle Formation was deposited in fluvial or lacustrine environments during the Triassic period. Deposition of the Cretaceous Trinity Sand and Tertiary Ogallala occurred in shallow seas, lakes and runoff mainly from the Rocky Mountains. Regional cross- sections provided in Appendix A provide structural information during this geologic timeframe. This thick shale acts as an aquitard, however, there is some water in the interbedded sandstone and conglomeritic zones of this formation. The water from the interbedded layers of the Dockum Group is highly mineralized and not of sufficient quality for human consumption.

2.2 ACTIVE GEOLOGIC PROCESS

2.2.1 Faults

There is no evidence of active faulting in the plant vicinity, based on information contained in former Injection Well Permit applications for the facility.

2.2.2 Subsidence

Subsidence is not a concern to waste containment or migration in this area. No documented subsidence cases in the vicinity of the facility are known to exist. There are no known areas of active karstification or collapse in Ector County, Texas.

2.2.3 Erosion

Several inactive units, including three post-closure care units, are located within the 100-year flood plain of Monahans Draw. Information related to potential for erosion is contained in the Engineering Report included within this Renewal Application.

2.2.4 Wetlands

There are no wetlands within the property boundary of the facility.

2.3 REGIONAL AQUIFERS

There are two regional aquifers extending into the FHR property, the Ogallala aquifer and the underlying Antlers (Trinity Group) aquifer. Both aquifers are capable of producing water of acceptable quality for domestic use; however, most of the domestic and residential production in the area of the FHR facility is out of the Antlers aquifer.

2.3.1 Geologic Conditions

An upper layer of windblown sand, silt, and clay of Quaternary age represent the surficial geologic expression in the region of West Texas, including the FHR Odessa facility. The Quaternary sediments vary from about 4 to 10 feet in thickness, where present. Below the Quaternary Alluvium is the Ogallala Formation. The Tertiary Ogallala is comprised of fluvial elastic materials eroded from the Rocky Mountains during the Laramide orogeny. Generally, the Ogallala consists of a variety of gravel, sand, silt and clay. Ogallala sediments have been cemented by calcium carbonate known as "caliche" in many areas, forming lenses or layers of lithified rock. The Ogallala varies from 0-60 feet in thickness and is a major aquifer north of Odessa.

The Ogallala overlies the Cretaceous Trinity Sand. The Trinity Sand consists of fluvial and marine deposits of fine to medium grained sand and sandstone with minor amounts of caliche, clay and shale. The Trinity Sand represents the deepest fresh water bearing unit in the surrounding area. It is approximately 75 feet thick.

Sediments of the Triassic Dockum Group lie unconformably below the Trinity Sand. The upper unit of the Dockum Group, locally known as "redbeds," is the Chinle Formation. The Chinle is composed of approximately 600 feet of red and reddish- brown clay and shale. The Chinle redbeds form a thick aquitard below the Trinity Sand, which retards the downward migration of water. Thin sandstone beds appear locally. Underlying the Chinle is the Santa Rosa Sandstone Formation. The Santa Rosa is up to 200 feet thick in this area and consists of sandstone and some clay and contains moderate to highly mineralized

water. Although the water in the Santa Rosa is of poor quality, it is used in some areas of Ector County for domestic and livestock use. Underlying the Santa Rosa are the varicolored shales and clays of the Tecovas Formation.

2.3.2 Hydrogeologic Conditions

There are two hydrogeologic units providing groundwater to municipalities and individuals in this region. They are the Ogallala and the underlying Trinity formations. However, in some instances, the boundary between the Ogallala deposits and the underlying Trinity is not clearly defined. The regional flow of the Ogallala is to the south-southeast. The Ogallala formation is the predominant water-bearing unit north of the FHR facility, primarily used for agricultural and municipal water supply.

The regional flow of the Trinity (Antlers) is also in a south-southeast direction. The Antlers aquifer is under slight artesian pressure that results in upward leaking into the Ogallala Formation providing some recharge to that aquifer (Knowles, 1952).

The principal source of fresh water in the area-surrounding the FHR facility is the Antlers aquifer, of the Trinity Sand Group. Water from the Antlers aquifer is used in this area for industrial, domestic, and agricultural (livestock) uses. Water quality has historically been good in the area southeast of Odessa, except in a few scattered areas. Localized areas of poor water quality have been known to exist in the immediate vicinity of the Monahans Draw. Chlorides in the Antlers were measured to exceed 13,000 milligrams per liter (mg/L). Potential sources of the poor-quality water include natural discharge of saline waters from underlying units (Reed, 1980), effluent from the City of Odessa wastewater treatment plant (Reed, 1981), and releases from the industrial complex located north of the draw.

2.3.3 Recharge

The Ogallala is primarily recharged from precipitation infiltration, surface water body infiltration, and by underflow from adjacent water-bearing units (Mount, et al, 1967). Recharge to the Antlers generally occurs by three mechanisms: 1) Infiltrating precipitation that falls upon exposed units, 2) groundwater migrating vertically from overlying unconsolidated sediments, and 3) water infiltrating from surface water bodies (Mount et al, 1967 and Walker, 1979).

2.3.4 Production and Use

As discussed above, the quality of water in the Antlers has historically been generally good in the area southeast of Odessa, except in a few scattered areas. There were several old water supply wells present on or near the FHR property. Based upon sounded depths of approximately one hundred feet, the wells are screened in at least the Lower Antlers and possibly the Upper Antlers and the overlying saturated portion of the Ogallala. The original purpose for the wells was to supply fresh water make-up for plant supply. Historical data (Reed, 1980) indicate the quality of water obtained from the wells was quite variable with chloride concentrations in Water Well 16 (WW-16) fluctuating between 116 to 1,100 mg/l between 1964 and 1979, and sulfate concentrations fluctuating between 210 to 1,100 mg/l between 1964 and 1979. These wells were plugged and abandoned in December 1997.

3 REGIONAL PHYSIOGRAPHY AND TOPOGRAPHY

Information contained in this section was taken from the Geologic and Hydrogeologic Report prepared by Arcadis G&M for Huntsman Polymers Corporation and included in the 2003 Renewal Application (Huntsman, 2003) and information from SQE in the 2015 Renewal Application (SQE, 2015).

3.1 TOPOGRAPHY

Ector County is located within the southern part of the High Plains physiographic region (Knowles, 1952 and Raiz, 1957). Surface topography of the southern High Plains varies from gently sloping featureless plains, to steep-walled river valleys and canyons, to broad shallow valleys and draws. Drainage patterns throughout Ector County exhibit poorly developed drainage with a wide, shallow valley (Mount et al, 1967).

Surface elevations throughout the upland portions of Ector County range from about 2,850 feet above mean sea level (msl) to approximately 3,300 ft msl. Ector County is located within the Colorado River and Pecos River drainage basins. The surface water drainage divide occurs along the Concho Bluff escarpment. Surface water in the area of Ector County that includes the City of Odessa and the FHR facility ultimately drains to the Colorado River and its tributaries. Surface topography at the FHR facility ranges from about 2,880 ft msl in the northeastern part to 2,850 ft msl in the southwestern part of the facility along Monahans Draw.

3.2 SURFACE DRAINAGE

The primary surface water drainage way in the area of the FHR facility is Monahans Draw which flows along the facility's southwestern property line. Monahans Draw drains in an east-northeast direction and eventually discharges into Midland Draw, located in Midland County. Monahans Draw is an intermittent stream. Water only flows in the draw during heavy rainfall events.

3.3 SURFACE WATER FEATURES

There are no naturally occurring surface water features within the boundaries of the FHR Facility.

4 SITE GEOLOGY AND HYDROGEOLOGY

Information contained in this section was taken from the Geologic and Hydrogeologic Report prepared by Arcadis G&M for Huntsman Polymers Corporation and included in the 2003 Renewal Application (Huntsman, 2003) and information from SQE in the 2015 Renewal Application (SQE, 2015).

4.1 SITE STRATIGRAPHY

Similarly to the regional geology discussed above, the local site geology at the FHR Odessa facility is underlain by an upper layer of windblown sand, and a thin section of the water-bearing Ogallala Formation (Barnes, 1976). Underlying the Tertiary Ogallala is a well-cemented sandstone/siltstone unit, which may be the Cretaceous Fredericksburg Group. Underlying the sandstone is the water-bearing Antlers Formation, which consists of low permeability clays and silts. The Antlers is underlain by the Triassic Chinle Formation, the oldest geologic unit encountered in site investigations. The Chinle is a massive red shale/clay unit. For the purposes of this Geology Report, the subsurface has been divided into numbered lithologic units because upper and lower contacts of each of the formal stratigraphic units named above are not known with certainty, and because these lithologic units most accurately define the aquifer units present in this area.

Lithologic Unit I (see cross-sections A-A' and B-B' in Appendix C) is the shallowest of these units, consisting of Ogallala Formation combined with a thin veneer of overlying windblown sands. Lithologic Unit I is found throughout most the site. Unit I has been replaced by an elongate, linear belt of alluvium associated with present day Monahans Draw in the southern portion of the site. Further east of the site, the Ogallala Formation is overlain or partly replaced by sand and clay of the playa deposit located adjacent to the former FHR East Plant Process Area. The playa deposits are included, along with the windblown material, as part of Unit I. The Ogallala is generally composed of alternating beds of gray to pink to white, poorly to well graded, very fine to fine-grained sandy silt, silty sand, sandstone, and bedded caliche and caliche nodules of up to 1/4-inch diameter.

The caliche, and perhaps some of the carbonate sandstone sediments, are the result of secondary deposition of calcium carbonate from migrating groundwater. Unit I appears present site-wide in the former plant area, except along the Monahans Draw, which eroded into the caliche and deposited fluvial sands and clays.

Lithologic Unit II consists of a very fine to medium-grained, well-graded, well cemented, pink to yellow sandstone. When present, Lithologic Unit II ranges in thickness from approximately 2 to 15 feet thick. This uppermost sandstone is generally absent in the southwest corner of the West Plant. Unit II contains laterally discontinuous thin beds of very fine to fine-grained sand, sandy-silts and siltstone. Zones of high permeability were historically encountered in Unit II, which resulted in the loss of drilling fluid circulation during the drilling of some of the observation wells. These discontinuous zones are noted on the logs of wells MW-40-88, MW-41-88 and MW-55-89 (Appendix D). MW-41-88 and MW-55-89 were plugged and abandoned after approval with the most recent 2015/2016 renewal. The high permeability zones generally occur in the lower portion of Unit II.

Lithologic Unit III consists of both consolidated and unconsolidated water-bearing sediments of the Antlers Formation. Lithologic Unit III was observed to be as thick as 50 to 70 feet. The unconsolidated sediments are comprised of interbedded sandy silt, silty sand, and sand with some gravel. The sandy materials are very fine to fine- grained and vary from white to yellowish-brown in color. The more lithified portions of Unit III are composed of well-cemented pink, yellow, and orange siltstone, sandstone, and conglomerate. Lithologic Unit III was found to be present in all borings completed below Lithologic Unit II, except for MW-54-89 and MW-55-89. These wells are located near the former FHR east property boundary, and were

plugged and abandoned after approval with the most recent 2015/2016 renewal. In this area, well cemented calcareous sandstone, similar to Unit IV (described below) was encountered at the projected depth of Unit III.

Lithologic Unit IV consists of the lower part of the Antlers and is comprised of a poorly to well-cemented sandstone with clay layers. The top of the unit, where present, was encountered as shallow as 40 to 60 feet below grade beneath the site.

At the base of Unit IV, a red and gray clay and silty clay forms the top of Lithologic Unit V, which is believed to be part of the Chinle Formation. This unit was encountered in former wells MW-48-89, MW-52-89 and MW-55-89 at depths ranging from 96 to 106 feet.

A sixth lithologic unit, the recent alluvium, appears to be present only in the vicinity of the Monahans Draw, in the Southwest part of the facility. In this area, Units I and II appear to be missing and this interval is instead occupied by a unit composed of conglomerate, sand, silt and clay. The unit is not easily distinguished from Unit I, as the material appears to be reworked Ogallala and or Cretaceous sediments. Indications that a separate unit exists include the absence of sandstone (Unit II). The alluvial unit is likely to have been deposited by ancestral Monahans Draws. This unit, which is not expected to be laterally extensive, is likely an elongated deposit that follows the course of Monahans Draw. For reporting purposes to regulatory agencies, the water bearing units are divided into two aquifers based on hydraulic connection, the Ogallala and underlying Antlers.

4.2 SITE HYDROGEOLOGY

The beds encountered in this investigation can be divided into three distinct hydrologic units: 1) the shallow Unit I Ogallala and associated cover sands, 2) the Unit II aquitard, a sandstone unit tentatively identified as the Base of the Ogallala or a part of the Fredericksburg, and 3) the deep Units Antlers. The hydrologic characteristics of these three units are discussed in this section.

Unit I Shallow Zone Aquifer/Ogallala

The shallow zone/Ogallala is an unconfined aquifer. The total thickness of the unit at the FHR facility ranges from approximately 16 to 47 feet (Appendix C). The saturated thickness decreases from west to east across the FHR property. In general, the saturated thickness is approximately 5 to 12 feet across the FHR property. The saturated thickness of Unit I varies seasonally and is affected by both the pumping of nearby wells completed in the underlying Antlers aquifer and by recharge.

Two important properties of a water table aquifer such as the Ogallala are its ability to store and to transmit water. These two properties are referred to as the storativity and transmissivity, or alternatively, the hydraulic conductivity of the aquifer. The hydraulic conductivity of the Ogallala was calculated using water level data obtained from slug tests completed in wells screened in the Ogallala underlying the FHR property.

A field determination of storativity requires drawdown data from a well capable of being continuously pumped, and at least one observation well in which the effects of pumping can be measured; neither was readily available within the scope of the project. Based upon previous studies of the Ogallala in the region (Cronin, 1961) the storativity of the Ogallala is estimated at 0.15.

Unit II Aquitard

The Unit II stratum appears to have characteristics of an "aquitard",or a geologic unit of relatively low permeability that is generally not capable of supporting withdrawals by wells. Unit II is described as an aquitard because of its well-cemented lithology and apparent low porosity and hydraulic conductivity,

compared to the units above and below. No monitoring wells were installed in this unit, because of poor water production capacity. The hydraulic characteristics of the aquitard have not been directly measured. The hydraulic character of the sandstone was qualitatively evaluated to identify if the unit might be a hydrologic barrier to vertical ground water flow between saturated sediments occurring above (Ogallala Unit I) and below (Antlers, Unit III).

During pumping tests on wells completed below Unit II, the water levels in wells completed in Unit I were measured. The pumping tests were conducted as part of the Groundwater Quality Assessment (Addendum to the Supplemental Solid Waste Management Unit Investigation) in June 1993.

It has been concluded that Unit II does not form a complete barrier to vertical water movement between Units I and III, based on:

- The potentiometric surfaces of units I and III have virtually identical shapes and elevations (see potentiometric surface maps in Appendix XI of this renewal application),
- Short-term water-level fluctuations in wells completed in the two units at the same location track each other closely (see potentiometric surface maps in Appendix XI of this renewal application); and
- Water in the Antlers has been affected by constituents that have migrated across unit II (see groundwater plume maps in Appendix XI of this renewal application).

Unit III-IV Aquifers/Antlers

The entire thickness of this unit is saturated at the plant site. Thickness of the Antlers, as defined by former wells MW-48-89, MW-52-89 and MW-55-89, is approximately 50 to 70 feet. Water levels in wells screened in the Antlers range from approximately 10 to 35 feet below ground surface, and the top of the unit is generally approximately 40 feet below ground surface. The Antlers is a relatively transmissive aquifer compared to the Ogallala in the vicinity of the plant. The transmissivity and hydraulic conductivity of the Antlers, as determined from pumping tests performed in this study, are presented in table 11.4.

Because the pumping tests performed during this study were single well tests, a storativity value could not be obtained from the data. Regional studies (Cronin, 1961; Walker, 1979) indicate storativity values for the Antlers in Ector County range from 0.07 to 0.15.

Unit V Aquitard/Chinle

The Chinle Formation of the Dockum Group is known to occur as an aerially extensive unit throughout the region. The unit is composed of clay and shale of relatively low permeability. The Chinle is apparently present beneath the Antlers at the FHR facility, based on drill holes (former wells MW-48-89, MW-52-89 and MW-55-89) completed below 95 feet where red and gray clays characteristic of the unit were encountered.

5 WASTE MANAGEMENT AREA SUBSURFACE CONDITIONS

The Odessa facility was operated as a petrochemical manufacturing complex near Odessa, Texas until 2009. In the past, the facility produced ethylene and propylene as petrochemical products, as well as intermediates and polyethylene and polypropylene resins as products. The major feedstocks for this production included ethane and propane. The manufacturing operations at the facility were shut down and decommissioned in 2009. FHR redeveloped the property into a terminal facility which operated from March 2012 through July 2013. There is currently no activity at the site.

5.1 REGULATORY OVERVIEW

On 25 March 1994, the TCEQ issued a Compliance Plan (CP-50290) for the Odessa facility which was then owned by Rexene. The Compliance Plan required Rexene to conform to corrective action and compliance monitoring obligations for releases of hazardous constituents from the RCRA-regulated units and solid waste management units (SWMUs) that were identified in the Compliance Plan. The Compliance Plan established a total of seven groundwater control areas (GWCAs) within the facility to recover and monitor affected groundwater.

The Compliance Plan was renewed in 2005, amended in 2007 when Huntsman sold the facility to FHR, and renewed again in the 2015/2016 permit renewal. Semi-annual groundwater monitoring specified in the most recent Compliance Plan is ongoing.

Under the most recent Compliance Plan, corrective action systems and/or compliance monitoring are required for GWCAs A through F. Corrective actions have historically included groundwater extraction and treatment. Following a period of groundwater extraction and treatment, it was believed that the groundwater plumes would be stable and/or decreasing in the absence of pumping. In a letter sent to FHR dated 15 December 2008, written approval for the discontinuation of groundwater extraction and treatment was provided by the TCEQ and corrective actions were replaced by Monitored Natural Attenuation (MNA).

On 24 April 2009, the *Corrective Measures Implementation (CMI) Work Plan for Monitored Natural Attenuation (MNA)* (Weston, 2009) was prepared and submitted to the TCEQ. The CMI Work Plan for MNA included a Tier 2 Screening Level Ecological Risk Assessment (SLERA) prepared in accordance with Texas Risk Reduction Program (TRRP) Guidance. The 2009 SLERA demonstrated that the conditions anticipated during the MNA period would not result in an unacceptable ecological risk.

The TCEQ provided comments to the CMI Work Plan for MNA in a letter dated 24 July 2009 and requested additional information, including the preparation of a Non-aqueous Phase Liquids (NAPL) Management Plan (Weston, 2009b) in accordance with TRRP Guidance. FHR prepared a Response to Comments letter dated 24 September 2009. The Tier 2 SLERA was approved by the TCEQ in a letter dated 8 October 2009; the Response to Comments was approved in a letter dated 23 November 2009; and the NAPL Management Plan was approved in a letter dated 22 January 2010. The recovery system was turned off on 25 March 2009 and MNA was implemented in accordance with the approved work plan.

MNA has now been on-going for over 15 years. In 2015, FHR initiated the renewal process for the Odessa Plant's Industrial Hazardous Waste Permit (Permit No. 50290) and associated Compliance Plan. As part of the renewal, an updated CMI Work Plan was prepared and submitted providing additional details for the implementation of MNA at the Odessa Plant. The final version dated 20 November 2015 was approved by TCEQ through the issuance of the Permit. In addition, a 2020 MNA Evaluation Report and 2024 Updated MNA Evaluation Memorandum were submitted to the TCEQ, both stating that MNA is continuing to work and is an effective remedy for the FHR Odessa Plant. In 2020, FHR prepared an MNA Evaluation Report dated 14 July 2020. The report provided a detailed evaluation of MNA within each Groundwater Control

Area (GWCA) and concluded that MNA continued to be an appropriate corrective action for the FHR Odessa Plant and has resulted in stable and/or declining benzene concentrations in groundwater at the FHR Odessa Plant. Following the submittal of the 2023-2024 Annual Compliance Report, TCEQ requested additional information regarding MNA. Specifically, Mann-Kendall trend analyses were requested for each GWCA. FHR prepared a response dated 9 January 2024, which provided additional information and included a statistical evaluation of data using the Mann-Kendall trend analysis. SQE and FHR provided an additional MNA Evaluation Memorandum dated 19 July 2024 showing that MNA continued to be an appropriate corrective action for the FHR Odessa Plant. The TCEQ approved the continued application of MNA in a letter dated 25 October 2024. Since the approval of the CMI Work Plan for MNA, FHR has been implementing corrective actions described in this document, which includes semi-annual monitoring, which is conducted in April and October of each year. Annual reports are submitted to the TCEQ by 21 July each year.

5.2 GROUNDWATER MONITORING

Potentiometric maps and plume maps from the most recent annual compliance reports are included within the renewal application in Appendix XI. A brief summary of each GWCA is provided in the following sections. A more in-depth description of each of the GWCAs is provided in Appendix XI of this renewal application.

5.2.1 GWCA-A

GWCA-A is located in the West Plant portion of the FHR facility and includes Monahans Draw. Affected groundwater in GWCA-A likely originated from leaking underground flare lines and waste management activities in this general area. The flare lines are currently inactive. Small areas of LNAPL are present in the central portion of GWCA-A.

5.2.2 GWCA-B

GWCA-B is located north of GWCA-A and covers the area of the closed Olefin Oil/Water Separator at the West Plant. Affected groundwater is likely commingled from releases associated with the Olefin Oil/Water Separator as well as other historical sources such the Styrene Flare Line and/or other up-gradient sources. No free-phase hydrocarbons were reported in wells monitored in GWCA-B for the 2024-2025 Annual Compliance Report (October 2024 and April 2025). The only constituent of concern as listed in the most recent Compliance Plan is benzene.

5.2.3 GWCA-C

GWCA-C is located in an abandoned section of the West Plant, known as the closed adipic acid area, near the northwest property boundary. Affected groundwater in this area is likely derived from a historical pond that is reported to have been located in the vicinity. No free-phase hydrocarbons were reported in the most recent Annual Compliance Report. The only constituent of concern, as listed in the most recent Compliance Plan, is benzene.

5.2.4 GWCA-D

GWCA-D encompasses the Styrene Unit of the West Plant. The Styrene Unit was shut down and decommissioned in 2000, prior to FHR taking ownership of the site. The unit is on the southern property boundary immediately north of the former Shell facility. Affected groundwater in this area is likely derived from a clay pipe process sewer that ran east-west across the Styrene Unit. The sewer is currently out of service and dry.

5.2.5 GWCA-E

GWCA-E is located in the Polyethylene Unit in the western portion of the East Plant. Affected groundwater in this area is likely derived from reactor wash overruns. The constituent of concern, as listed in the most recent Compliance Plan, are xylenes.

5.2.6 GWCA-F

There are no corrective action units in GWCA-F. The Corrective Action Program is proposed to be discontinued as part of this renewal application.

5.2.7 GWCA-G

There are no corrective action units in GWCA-G. The Corrective Action Program was proposed to be discontinued as part of the 2015 CMI Work Plan, and was subsequently discontinued with the issuance of the 2016 RCRA Hazardous Waste Permit.

5.2.8 Monahans Draw

Monahans Draw is an intermittent stream located in the southern portion of the West Plant and within GWCA-A. Surface water samples are collected from five selected locations within Monahans Draw on a semi-annual basis (S-1, S-5, S-6, S-9, and McKinney Park) and are included in each Compliance Report. The McKinney Park sample location is located outside the property boundary, approximately 1.25 miles upstream from the property boundary near US Interstate 20.

6 REFERENCES

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APPENDIX A

REGIONAL GEOLOGIC CROSS SECTIONS

Note: Regional Geologic Cross Section of Ector County taken from Ground-Water Resources of Ector County, Texas, Bulletin 5210, Texas Board of Water Engineers, December 1952.

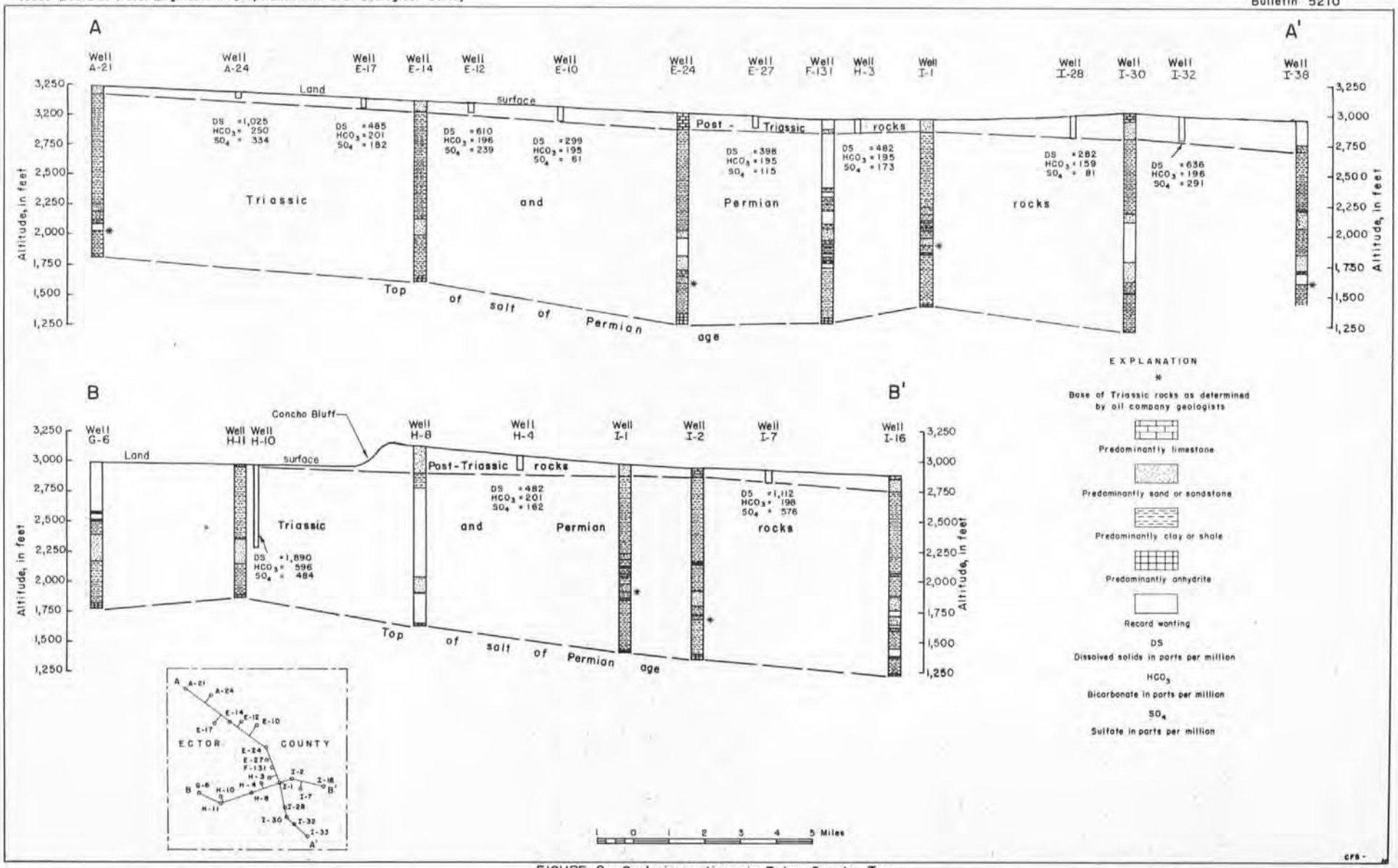


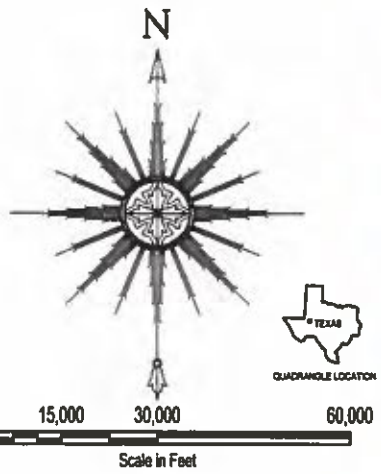
FIGURE 2.- Geologic sections in Ector County, Tex.

Figure taken from Ground-Water Resources of Ector County, Texas, Bulletin 5210, Texas Board of Water Engineers, December 1952.

APPENDIX B

REGIONAL GEOLOGIC MAPS

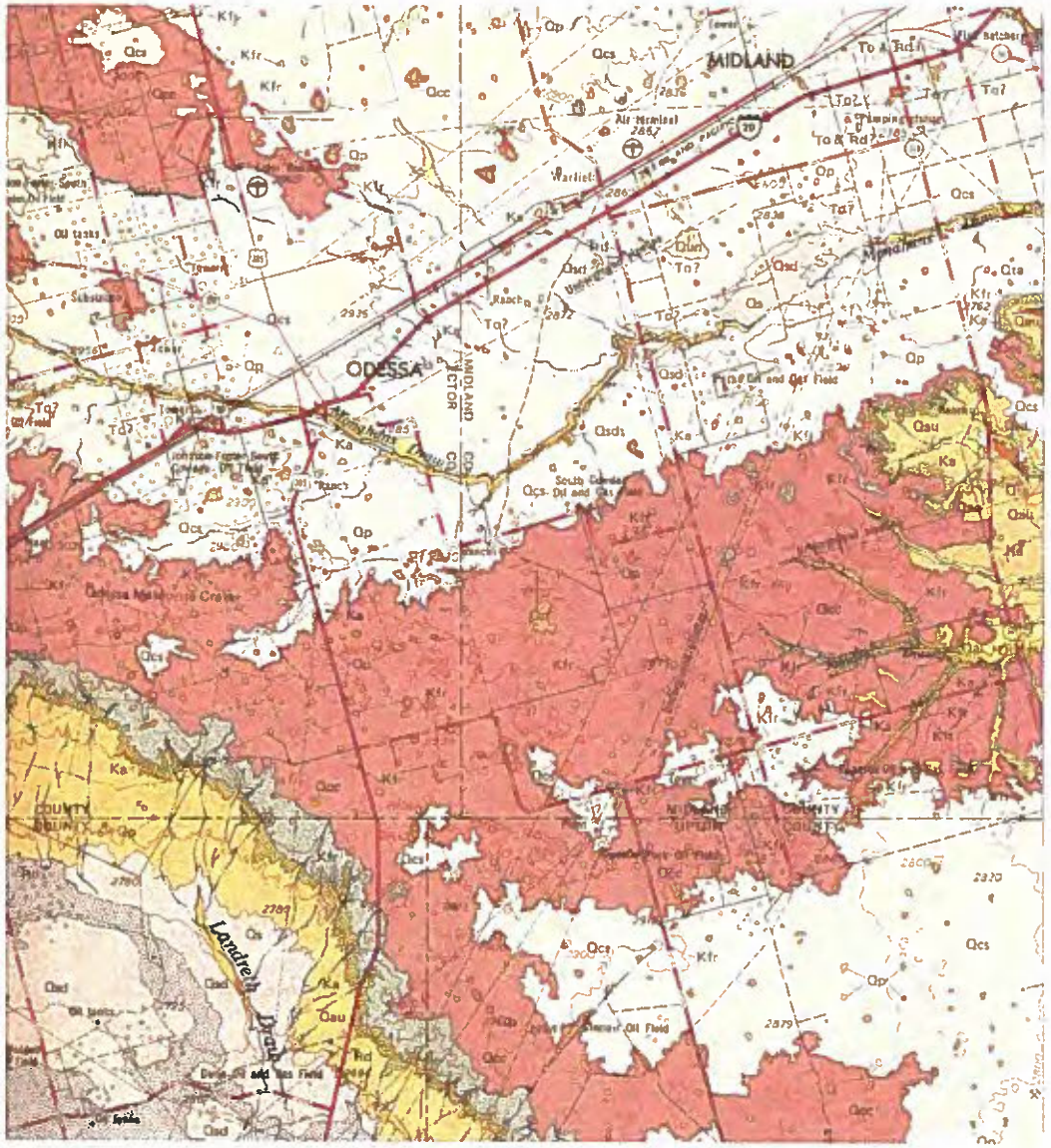
Note: Regional Geologic Map taken from Geologic and Hydrogeologic Report prepared by Arcadis G&M and included in the 2003 Renewal Application.

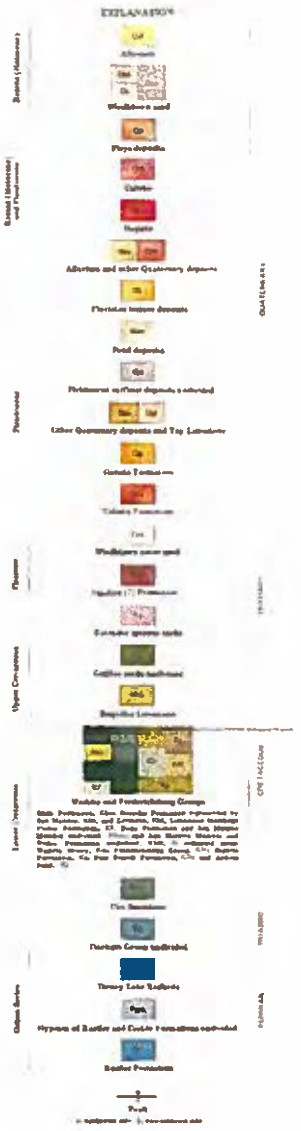


Source: Portions of Geological Atlas Of Texas, Pecos Sheet, Scale 1:250,000, Published By The University Of Texas At Austin, Bureau Of Economic Geology, C.G. Groat, Acting Director. Published 1976. Base Map Prepared By The Army Map Service (AJSX), Corps Of Engineers, U.S. Army, Washington, D. C. Compiled In 1954 By Photogrammetric Methods. Horizontal And Vertical Control By USC&GS, USGS And CE. Aerial Photography 1953-54. Photography Field Annotated, 1954.

Geologic Mapping Mostly By G.K. Eifler, Jr., Bureau Of Economic Geology, The University Of Texas At Austin, With Contributions Gratefully Acknowledged From Shell Development Company, Cities Service Petroleum Company, And Sources Shown On Index Of Geologic Mapping. Geology Compiled On High-Altitude Aerial Photographs By G.K. Eifler, Jr. Map Scribed By J.W. Macon. Geologic Mapping Reviewed By J.B. Brown, West Texas Geological Society, Geologic Atlas Committee.

Contour Interval 100 Feet With Supplementary Contours At 50 Foot Intervals. Transverse Mercator Projection. 1975 Magnetic Declination For This Sheet Varies From 10°20' For The Center Of The West Edge To 9°45' For The Center Of The East Edge.





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16 September 2003	MT814125.dwg	\AutoCAD\DWG\Huntsman\MT000814.001	B. Kolb	S. Hall	A. Schmidt

Huntsman Polymers Corporation
Part B – Compliance Plan Application Geology Report

Regional Geologic Map

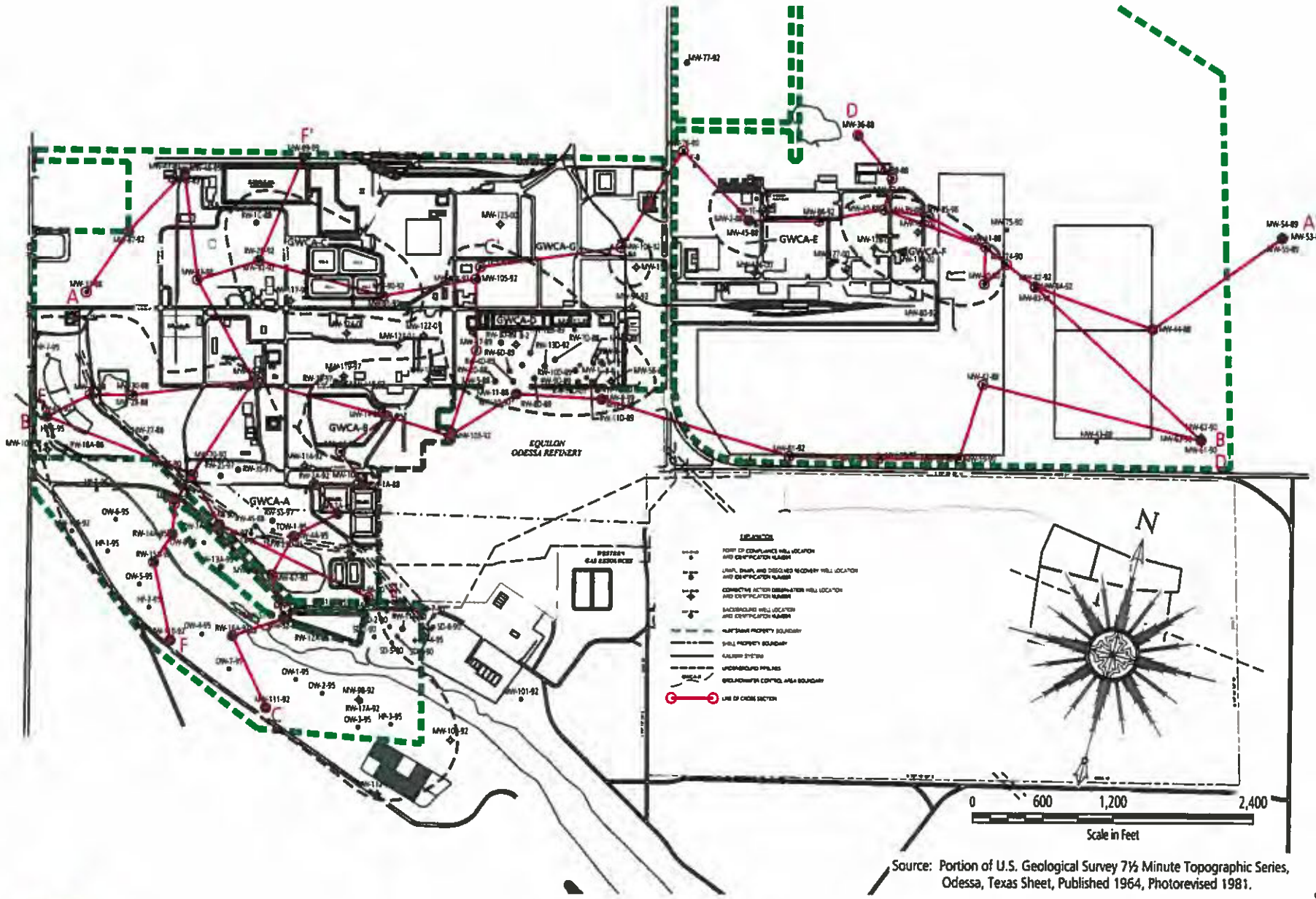
Odessa, Ector County, Texas

Technical Review	Unique Number
S. Tischer	43-069-01932
Project Number	**Appendix**
MT000814.0001	B

Note: This Regional Geologic Map taken from the Geologic and Hydrogeologic Report prepared by Arcadis G&M and included in the 2003 Renewal Application.

APPENDIX C

SITE SPECIFIC GEOLOGIC CROSS SECTIONS



Source: Portion of U.S. Geological Survey 7½ Minute Topographic Series, Odessa, Texas Sheet, Published 1964, Photorevised 1981.

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16 September 2003	MT814124.dwg	\AutoCAD\DWG\Huntsman\MT000814.001	B. Kolb	S. Hall	A. Schmidt

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Part B – Compliance Plan Application Geology Report

All Monitor Wells And Cross Section Index Map

Odessa, Ector County, Texas

Technical Review	Unique Number
S. Tischer	43-069-01931

Project Number	Figure
MT000814.0001	2

DRAWING NUMBER 449844-B8

APPRV. BY

PROJ. CHK VC 6/16/93

DRAFT CHK CDS 6/16/93

DRAFT BY JEA 1/25/93

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Do Not Scale This Drawing

WEST

A

EAST

A'

ELEV. (FT. MSL)

2880
2860
2840
2820
2800
2780
2760
2740

MW-32-88
MW-87-92
MW-48-89
MW-33-88
MW-92-92
MW-91-92
SB-5
MW-104-92
MW-13-88
MW-106-92
MW-76-90
MW-2-88
MW-86-92
MW-40-88
SB-8
MW-80-92
MW-41-88
MW-74-90
MW-84-92
MW-44-88
MW-55-89

LITHOLOGIC UNIT I
SILTY SAND, SANDY SILT, SAND AND CALICHE

ZONE OF HIGH PERMEABILITY

LITHOLOGIC UNIT II
SANDSTONE

SANDY CLAY
CLAYEY SAND
41.5'
SANDY SILT
CLAYEY SAND
45.9'
SILT
49.7'
54.0'
33.5'
SILTY SAND
SANDSTONE
SANDY GRAVEL
62.2'
36.7'
SAND
SAND-STONE
LIMESTONE
SILTY SAND
57.0'
59.1'
SANDY SILT
59.0'
LOOSE SAND
70.0'

LITHOLOGIC UNIT IV
SANDSTONE, SILTSTONE AND LIMESTONE WITH GRAVEL AND CLAY LENSES

SANDY SILTSTONE (LAMINATED)

LITHOLOGIC UNIT IV
SANDSTONE, SILTSTONE WITH CLAY LENSES

CLAY
CLAY
109.7'

LITHOLOGIC UNIT III
SAND AND SILTY SAND WITH GRAVEL AND CLAY LENSES

LITHOLOGIC UNIT V
"CHINLE"

115.0'
103.0'

20
10
0
400
800

SCALE IN FEET
VERTICAL EXAGGERATION = 40

EXPLANATION

WELL
WATER LEVEL ELEVATION (OCTOBER 1992)
SCREENED INTERVAL
GAMMA LOG
45.0' TOTAL DEPTH OF WELL OR BORING
LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

NOTE: SEE FIGURE 14 FOR CROSS-SECTION LOCATION

FIGURE 15
LITHOLOGIC CROSS-SECTION A-A'

PREPARED FOR

REXENE CORPORATION
ODESSA, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWING NUMBER 449844-B9

APPRV. BY

PROJ. CHK VC 6/6/93

DRAFT CHK KJS 6/11/93

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WEST

B

EAST

B'

RW-6A-90 MW-64-90

MW-31-88

MW-28-88

MW-50-89

MW-14-88

MW-15-88

MW-103-92

MW-10-90

MW-8-99 MW-9-88

B-11

MW-81-92

MW-78-92

MW-59-90

MW-42-88

SB-9

MW-61-90

ELEVATION (FT. MSL)

2880

2860

2840

2820

2800

2780

2760

2740

RECENT ALLUMIUM

SANDY SILT

SANDY CLAY

CLAY

21.0'

SILTY SAND

38.0'

40.5'

SAND

SANDSTONE

SILTY SAND

SANDY SILT

LITHOLOGIC UNIT I
SILTY SAND, SANDY SILT, SAND, CALICHE

LITHOLOGIC UNIT II

SILTY SAND

SANDSTONE

50.1'

54.0'

SANDSTONE/BRECCIA

SILTY SAND

63.0'

SANDY GRAVEL

60.7'

SANDY SILT/ SILTY SAND

SANDY SILT

SAND

SILTY SAND

SANDY SILT

SANDSTONE

GRAVEL

GRAVELLY SAND

SANDY SILT

52.0'

SHELLSTONE

LITHOLOGIC UNIT III
SAND AND SILTY SAND WITH CLAY LENSES

LITHOLOGIC UNIT IV
SANDSTONE

CLAY

73.5'

SILTSTONE

LITHOLOGIC UNIT V
"CHINLE"

115.0'

20

10

0 400 800

SCALE IN FEET
VERTICAL EXAGGERATION = 40

EXPLANATION

WELL

WATER LEVEL ELEVATION (OCTOBER 1992)

SCREENED INTERVAL

GAMMA LOG

45.0' TOTAL DEPTH OF WELL OR BORING

LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

FIGURE 16
LITHOLOGIC CROSS-SECTION B-B'

PREPARED FOR

REXENE CORPORATION
ODESSA, TEXAS

NOTE: SEE FIGURE 14 FOR CROSS-SECTION LOCATION

INTERNATIONAL TECHNOLOGY CORPORATION

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BY	JEA	VC	
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REVISED 2/25/93

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SOUTHWEST

C

NORTHEAST

C'

ELEVATION (FT.MSL)

2880
2860
2840
2820
2800
2780
2760

MW-111-92
RW-16A-92
MW-52-89
MW-67-90
RW-4A-95
RW-3A-95
RW-2A-92
RW-1A-88
MW-16-88
MW-15-88
MW-103-92
MW-57-89
SB-5
MW-104-92
MW-13-88

MONAHANS DRAW

LANDFILL

RECENT ALLUVIUM

SANDY SILT
SILTY SAND
SANDSTONE
SAND
SANDSTONE/ SAND

18.9'
22.0'
20.0'
35.0'
54.0'
49.7'
62.0'
100.0'

LITHOLOGIC UNIT I
SILTY SAND, SANDY SILT, SAND, CALICHE

LITHOLOGIC UNIT II
SANDSTONE AND SILTSTONE

LITHOLOGIC UNIT III
SAND AND SILTY SAND WITH CLAY LENSES

LITHOLOGIC UNIT IV
SANDSTONE

LITHOLOGIC UNIT V
"CHINLE"

?

20
10
0
200
400

SCALE IN FEET
VERTICAL EXAGGERATION = 20

EXPLANATION

WELL
WATER LEVEL ELEVATION (OCTOBER 1992)
SCREENED INTERVAL
GAMMA LOG
45.0' TOTAL DEPTH OF WELL OR BORING
LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

NOTE: SEE FIGURE 14 FOR CROSS-SECTION LOCATION

FIGURE 17
LITHOLOGIC CROSS-SECTION C-C'

PREPARED FOR

REXENE CORPORATION
ODESSA, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

NORTHWEST

D

SOUTHEAST

D'

MW-36-88
WW-9
MW-38-88
MW-40-88
MW-85-92
MW-41-88
MW-60-90
MW-74-90
MW-84-92
SB-9
MW-61-90

ELEVATION (FT.MSL)

2880
2860
2840
2820
2800
2780
2760

LITHOLOGIC UNIT I
SILTY SAND, SANDY SILT, SAND AND CALICHE

SANDSTONE
ZONE OF HIGH PERMEABILITY
SAND
SANDSTONE
SAND
SANDY SILT
SILTY SAND
57.0'
?
60.5'
CLAY
59.0'
SAND
52.0'
SHELLSTONE
CLAY?
70.0'
SANDY GRAVEL
GRAVELLY CLAY
LAMINATED SAND AND SILT
LITHOLOGIC UNIT IV
SANDSTONE, SILTSTONE, AND LIMESTONE WITH GRAVEL AND CLAY LENSES
LITHOLOGIC UNIT III
SAND AND SILTY SAND, WITH CLAY LENSES
LAMINATED SAND AND SILT
SILTSTONE
100.0'
113.3'
LITHOLOGIC UNIT V
"CHINLE"
115.0'

EXPLANATION

- WELL
- WATER LEVEL ELEVATION (OCTOBER 1992)
- SCREENED INTERVAL
- GAMMA LOG
- 45.0' TOTAL DEPTH OF WELL OR BORING
- —— LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

20
10
0
200
400
SCALE IN FEET
VERTICAL EXAGGERATION = 20

NOTE: SEE FIGURE 14 FOR CROSS-SECTION LOCATION

FIGURE 18
LITHOLOGIC CROSS-SECTION D-D'
PREPARED FOR
REXENE CORPORATION
ODESSA, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

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	2/12/93	6/14/93	6/14/93		

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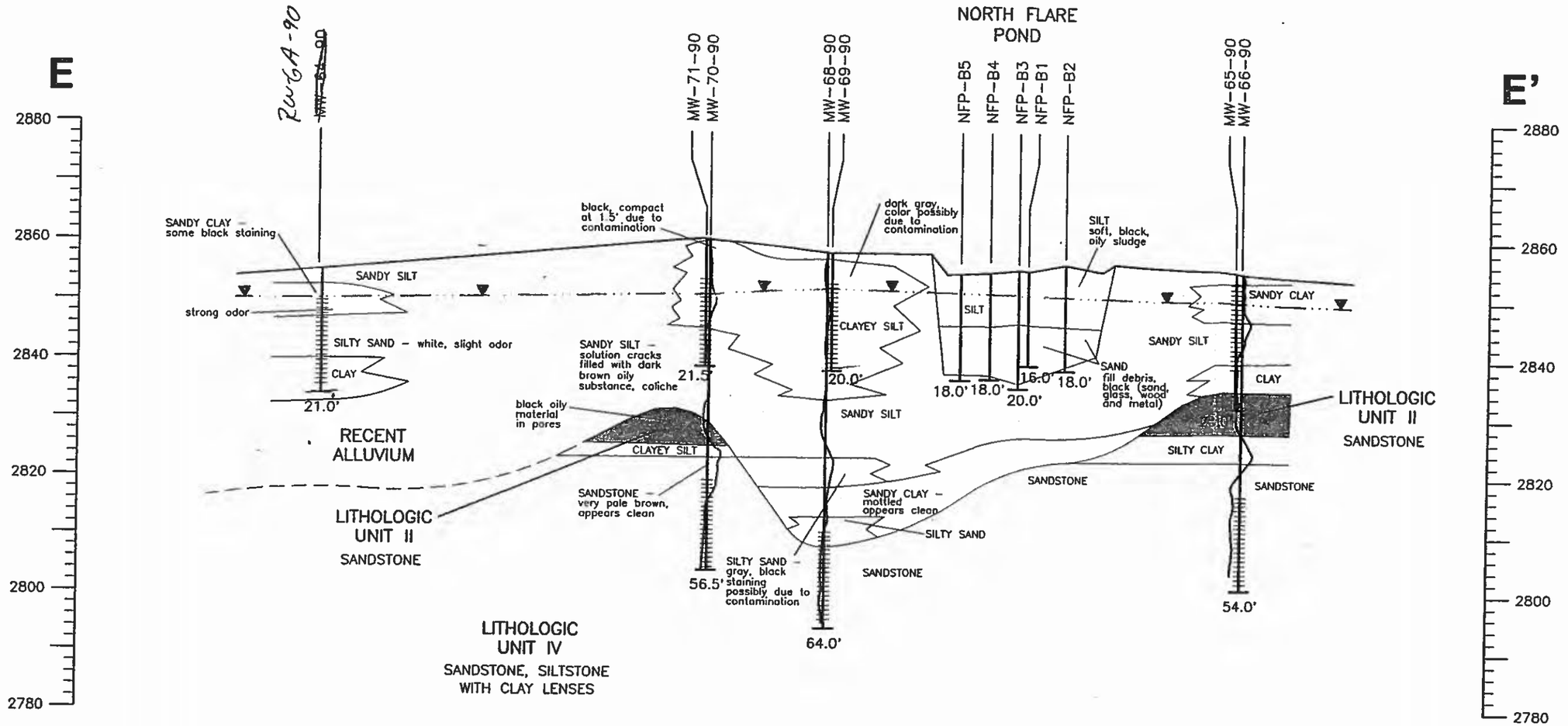
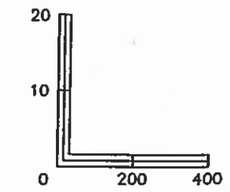


EXPLANATION

- WELL
- WATER LEVEL ELEVATION (OCTOBER 1992)
- SCREENED INTERVAL
- GAMMA LOG
- 45.0' TOTAL DEPTH OF WELL OR BORING
- LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)



SCALE IN FEET
VERTICAL EXAGGERATION = 20

NOTE: SEE FIGURE 14 FOR CROSS-SECTION LOCATION

FIGURE 19
LITHOLOGIC CROSS-SECTION E-E'
PREPARED FOR
REXENE CORPORATION
ODESSA, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

DRAWING NUMBER 449844-B13

	DRAFT	PROJ.	APPRV.
BY	JEA	JC	
CHK	2/13/93	2/14/93	

SOUTH

F

NORTH

F'

ELEVATION (FT.MSL)

2880
2860
2840
2820
2800
2780

MW-110-92
Rev 1 MW-90-92
Rev 1 MW-95-92
MW-115-92
LF-B22
LF-B21
MW-70-90
STP-B1
MW-50-89
MW-33-88
MW-92-92
MW-34-88
MW-89-92 99

LITHOLOGIC UNIT I
SAND, SILTY SAND, SANDY SILT AND CALICHE

SANDY CLAY

LITHOLOGIC UNIT II
SANDSTONE

MONAHANS DRAW

CLAYEY SAND

GRAVELLY, SANDY SILT

SANDSTONE

SILTY SANDSTONE

SANDY GRAVEL

CLAYEY SAND

LITHOLOGIC UNIT I
SAND, SILTY SAND, SANDY SILT AND CALICHE

23.5'
18.5'
18.7'
24.1'
25.0'
25.0'
41.5'
56.5'

RECENT ALLUVIUM
SAND, SILTY SAND, SANDY SILT WITH GRAVEL AND CLAY LENSES

LITHOLOGIC UNIT IV
SANDSTONE WITH SAND, SILT AND CLAY LENSES

20 10 0 200 400
SCALE IN FEET
VERTICAL EXAGGERATION = 20

EXPLANATION

WELL
WATER LEVEL ELEVATION (OCTOBER 1992)
SCREENED INTERVAL
GAMMA LOG
45.0' TOTAL DEPTH OF WELL OR BORING
LITHOLOGIC CONTACTS (DASHED WHERE INFERRED)

NOTE: SEE FIGURE 14 FOR CROSS-SECTION LOCATION

FIGURE 20
LITHOLOGIC CROSS-SECTION F-F'
PREPARED FOR
REXENE CORPORATION
ODESSA, TEXAS

INTERNATIONAL TECHNOLOGY CORPORATION

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APPENDIX D

MONITOR WELL CONSTRUCTION LOGS

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL

B-2

DRILLING AND SAMPLING INFORMATION

Boring Location: N. OF STYRENE PLT. CONTROL ROOM
Surface Elev.(ft): 2866.85
Total Depth(ft.): 27.25
Logged By: P. GOODSON
Date Started: 10/30/92
Drilled By: J. LANDEROS GPI
Date Completed: 10/30/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

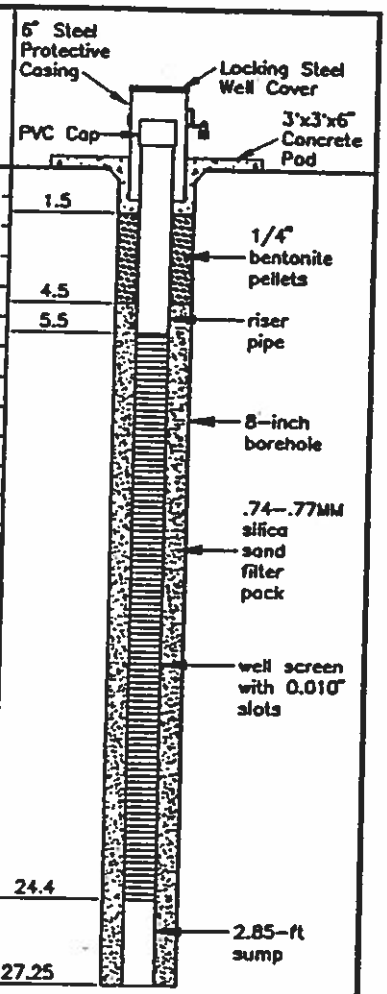
Sampling Method: DID NOT SAMPLE

Notes: REPLACED EXISTING 2" PVC CASING WELL WITH 4" FIBERGLASS

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2868.74 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 5.5 Type: FIBERGLASS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 5.5-24.4 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 4.5-27.25
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
CARBONATE SAND - carbonate sand sized particles; fine to coarse grained; loose; some minor fine sand; minor well cemented nodules; reddish brown						sm		0
CALICHE - carbonate mud; compact; minor fine grained sand; minor banding at 5.3 to 5.4 feet grading into same as above; damp; pink to buff						ml		1.5
CARBONATE SAND - carbonate sand sized particles; loose; minor sand; minor cemented nodules; dry; pink to brown						sm		4.5
CALICHE - carbonate mud; massive; compact; better cemented than above; damp; hydrocarbon odor; pink to tan						ml		5
- sandstone at 16 to 16.2 feet; hard; well cemented; 20-30% fine to medium sand								10
SAND - fine to coarse grained; quartz, and carbonate sand; fairly loose; poorly graded; wet; hydrocarbon odor; pink						sp		15
CALICHE - fairly compact; minor fine grained sand; damp; strong hydrocarbon odor; pink to white						ml		20
- sandstone at 25 feet; hard; dry; pink								24.4
TOTAL DEPTH = 27.25 FEET								25
								27.25
								30
								35
								40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 11/16/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A104 Sheet 1 of 1

Monitor Well Installation

Client: _____ Job No.: _____ Date Drilled: 2/18/95 Well No.: 3-9

Site: _____ Elevation: GL 2964.57 Top of PVC Casing 2965.35

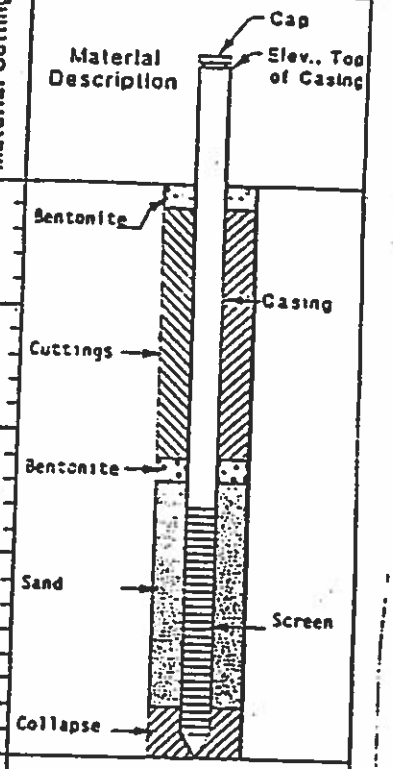
Total Depth: 23 feet Casing Size & Type: 2-inch Flush-joint Threaded Schedule 40 PVC Screen Size: .010-inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
5			CALICHE, soft, dry, tan, no odor.
			CALICHE, similar to above with gravels.
			CALICHE, hard (gravely), dry, tan to pink, crystalline calcite deposition in fissures.
10	SM		SAND, uniform fine, loose, dry, light brown, carbonate in composition, odor.
15	SP		SAND, similar to above, consolidated at 14.0, contaminated, strong hydrocarbon odor, Draeger 12+ ppm, explosimeter 80 LFL, moist.
	SP		SAND, uniform fine, loose, damp brown (moisture?), explosimeter 50 LFL. Strong hydrocarbon odor. Grades to calcite at 19.9 feet.
20	SP		SANDSTONE, hard, saturated, deposit brown, contaminated, calcareous cement.
25			Total Depth = 23.0 feet

Completion Data

Material Setting | Material Description



INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: _____ Job No.: _____ Date Drilled: 3/18/86 Well No.: B-10

Site: _____ Elevation: GL 2966.14 Top of PVC Casing 2966.82

Total Depth: 25.5 feet Casing Size & Type: 2-inch Flush-joint Threaded Schedule 40 PVC Screen Size: .010-inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
0–5	SM		SAND, fine to medium, loose, dry, tan, some minor calcareous cementation.
5–10	SP		SAND, similar to above, minor quartz grains.
10–15	SP		SAND, similar to above.
15	SM		SAND, increased calichification.
	SM		SAND, similar to above.
	SM		SAND, similar to above, slight increase in moisture.
20–25	CL		CLAY, low plasticity, very hard, compact, dry, light brown, minor black dendritic mineralization, minor fine sand.
25			SANDSTONE, hard, damp, white, well cemented (carbonate).
			Total Depth = 25.5 feet

Completion Data

Material Setting

Material Description

Cap

Elev., Top of Casing

Bentonite

Cuttings

Casing

Bentonite

Sand

Screen

Collapse

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: El Paso Products Company Job No.: 446058 Date Drilled: 3/26/86 Well No.: MW-1

Site: Odessa, Tx Elevation: GL 2864.79 Top of PVC Casing Approx. 2865.77

Total Depth: 50 feet Casing Size & Type: 2-inch Flush-joint Threaded Schedule 40 PVC Screen Size: .010-inch Millslot

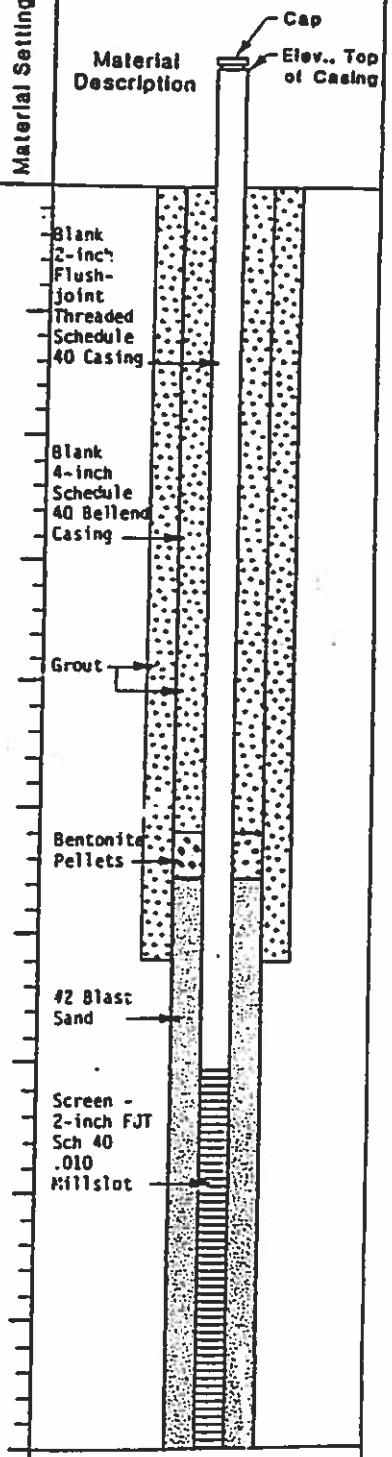
Comments: Surface casing to 31 feet 4-inch schedule 40 bell end PVC

Depth	Symbol	Stratigraphy	Sample Description
0–5	ML		CALICHE, nonplastic, soft, fairly loose, dry, light tan, minor fine sand.
5–15	ML		CARBONATE SAND, caliche in sand sized particles, 10-20% very fine to fine sand, fairly loose, damp, tan, minor fragments of same, fairly well cemented, fragments of hard, pink to tan sandstone, slight hydrocarbon odor.
15–20	SM		SILTY SAND, 50% carbonate in sand sized particles, 50% very fine to medium sand, fairly compact, wet, light brown, strong hydrocarbon.
20–22	ML/MH		CLAYEY SILT, moderately plastic, soft, fairly loose, saturated, pink to tan, minor fine to medium sand. Hydrocarbon.
22–23	LS		LIMESTONE, hard, dry, pink, black dendritic mineralization, minor sand.
23–25	ML		CARBONATE SAND, nonplastic caliche in sand sized particles, 5-10% very fine sand, loose wet, brown, strong HC odor.
25–30	ML		SILT TO SILTSTONE, carbonate silt, non-plastic, loose to well cemented, wet, brown, strong hydrocarbon odor.
			SANDSTONE, hard, dry, pink, splitspoon refusal.
30–35	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% nonplastic carbonate fines, fairly loose, saturated light tan, slight odor grades to below, becoming well graded, very fine to medium, minor carbonate fine loose, saturated, buff color, slight hydrocarbon odor.
35–40	SW		SAND, very well graded, very fine to coarse, some gravel, very loose (flowing), saturated, light tan, minor carbonate fines, slight odor. similar to above with 5-10% gravel to 1 cm, still flowing, slight odor. with Gravel, very well graded, very fine to coarse, 25-30% gravel to 1 cm., very loose, saturated, lt. tan, minor carbonate fines, slight odor.
40–45	CL/ML		SILTY CLAY, slightly plastic, soft, compact, damp, grading downward into Silt, fairly compact, dry, white to light gray to mustard.
45–50	ML		SANDY SILT, 60-75% carbonate sand sized particles, 25-40% sand, uniform, fine, fairly compact, wet, yellow orange, minor clay? Strong odor.
50			TOTAL DEPTH 50 FEET

Completion Data

Material Setting

Material Description



INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

INTERNATIONAL TECHNOLOGY CORPORATION

Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/7-21/88 Well No.: MW2-90

Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 52.2 FEET Casing Size & Type: 4-inch I.D. Sch. 40 PVC Screen Size: .010-inch

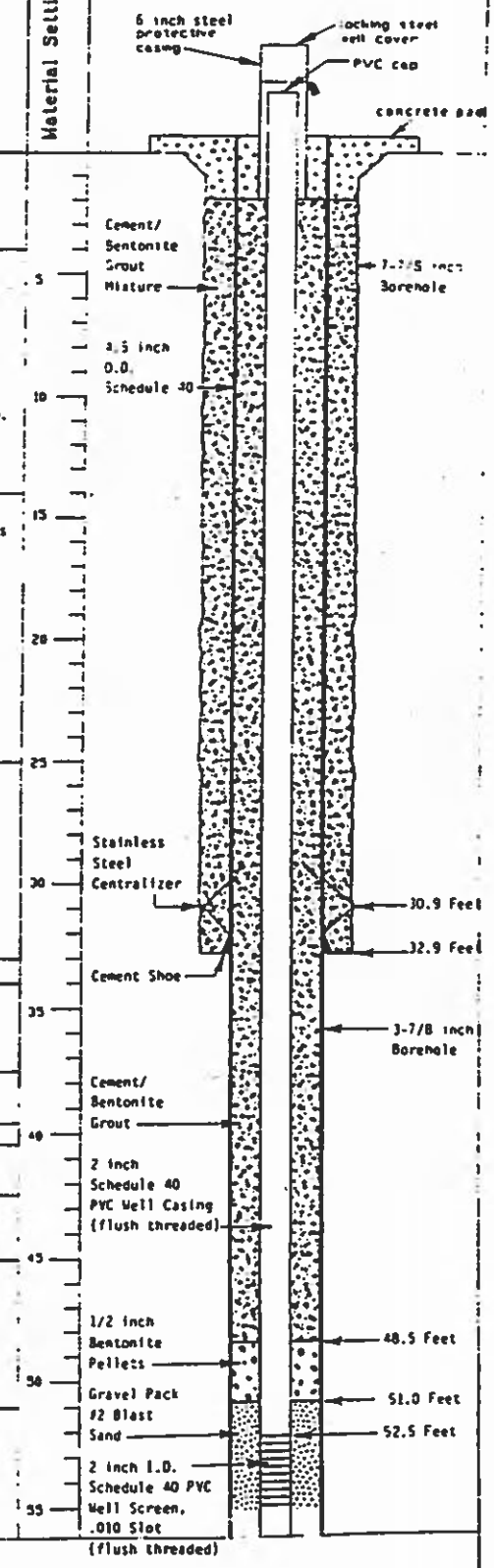
Comments: 7-7/8 inch mud rotary for surface casing, 3-7/8 inch mud rotary to long string.

Depth	Symbol	Stratigraphy	Sample Description
	ML		SANDY SILT, non-plastic, very stiff, damp, up to approximately 20% very fine to fine sand, dark brown.
	ML		SANDY SILT, non-plastic, very stiff, damp, 10-20% very fine to fine sand, white very fine sandstone fragments, dark brown.
5	SW		SAND, well graded, very fine to coarse, dense, damp, some fragments up to 1/4 inch, well cemented, strong odor, tan, organic vapor content = 250 ppm.
	SW		SAND, well graded, very fine to coarse, predominately very fine to fine, very dense, damp, minor silt, strong odor, tan to pink, organic vapor content = 270 ppm.
10	SW		SAND, similar to above, tan to pink, organic vapor content = 240 ppm.
15	SM		SILTY SAND, poorly graded, very fine to fine, damp, silty, calcareous nodules, strong odor, pink, organic vapor content = 210 ppm.
20	SM		SILTY SAND, poorly graded, very fine to fine, damp, silty, strong odor, pink.
	SM		SILTY SAND, poorly graded, very fine to fine, damp, silty, strong odor, pink.
25	SP		SAND, uniform, very fine, loose, wet-saturated minor fragments of cemented same, rainbow on H_2O, pink, organic vapor content = 380 ppm.
	SP		SAND, uniform, very fine, dense, saturated, odor, pink.
30	SP		SAND, similar to above with well cemented layers, organic vapor content = 200 ppm.
35	SM		SANDSTONE, very hard drilling at 33.0 feet, very fine to fine, minor medium, moderately cemented, massive, strong odor, dark pink, organic vapor content = 150-200 ppm.
			SLIGHTLY SILTY SAND, poorly graded, very fine to fine, dense, saturated, approximately 10% fines, very poorly cemented massive, crumbly, strong odor, dark pink, organic vapor content = 20-30 ppm.
40			SANDSTONE, very fine to fine, moderately cemented, wet, massive, odor, light pink.
			SANDY SILTSTONE, hard, massive, 10-20% very fine to fine sand, odor, can scratch with fingernail, pink, organic vapor content = 25 ppm.
45			SANDSTONE, very fine to fine, hard, fairly well cemented, massive, odor, slightly more coarse at base, pink.
	SM		SANDSTONE, very well graded, very fine to coarse sand, fine gravel, well cemented, massive, more coarse down, vuggy at base, slight odor, light yellow to white.
50	SM		SILTY SAND, poorly graded, very fine to fine, dense to poorly cemented, wet to saturated, 5-20% fines, odor, pink to gray at base, organic vapor content = 7-10 ppm.
	SM		SILTY SAND, poorly graded, very fine to fine, dense to poorly cemented, saturated, 5-10% fines, gray.
55			GRAVELLY SAND, very well graded, very fine to coarse, with gravel to 1/4 inch, gravel is black, angular grains, saturated, gray to black.

Completion Data

Material Setting

Material Description



DRAWING NO.: 446226-A16

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

INTERNATIONAL TECHNOLOGY CORPORATION

Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/7-21/88 Well No.: MW2-88

Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 62.2 FEET Casing Size & Type: _____ Screen Size: _____

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
60	GM		SANDY GRAVEL, well graded, fine to medium, gravel to 1/4 inch, sand very fine to coarse, 10-20%, very dense, saturated, black, organic vapor content = 7-15 ppm.
			TOTAL DEPTH = 62.1 FEET

Completion Data

Material Setting / Material Description

- Stainless Steel Centralizer — 57.2 Feet
- PVC Wash Valve — 61.7 Feet
- Total Depth of Hole — 62.2 Feet

DRAWING NO.: 446226-A16

INTERNATIONAL TECHNOLOGY CORPORATION

Client: EXXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/11-18/88 Well No.: MW3-88

Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 58 FEET Casing Size & Type: 4-inch I.D. Fiberglass Screen Size: .010-inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
5	ML		SANDY SILT, 10-20% very fine sand, fragments of well cemented same, pink.
	ML		SANDY SILT, non-plastic, very fine to fine sand, 10-20%, calcareous nodules, fragments of well cemented same, pink.
10	ML		SANDY SILT, non-plastic, very fine to fine, 10-20% very fine to fine sand, calcareous nodules, pink.
15	SM		SILTY SAND, poorly graded, very fine to fine, 10-20% non plastic fines, calcareous nodules, many sandstone fragments, pink.
20			SANDSTONE, poorly graded, very fine to fine, poorly cemented to well cemented, some calcareous nodules, light pink to white.
			SANDSTONE, poorly graded, very fine to fine, poorly cemented to well cemented, calcareous nodules.
	ML		SANDY SILT, soft drilling, non-plastic, 10-20% very fine sand, white.
25			SANDSTONE, poorly graded, very fine to fine, hard, well cemented.
			SANDSTONE, very fine to fine, some medium, minor gravel, hard, well cemented, vuggy, some layers of poorly cemented very fine to fine sand, pink.
	SP		SANDSTONE, well graded, very fine to coarse, some gravel, vuggy.
			SAND, very fine to fine, poorly cemented.
30			SANDSTONE, very fine to fine, some nodules, minor gravel, massive, well cemented.
			SANDSTONE, well graded, very fine to coarse, minor gravel, predominately very fine to fine, massive, pink.
35			SANDSTONE, well graded, very fine to coarse, 5-10% fine gravel, minor horizontal bedding, well to moderately cemented, vuggy, pink.
			SANDY SILTSTONE, moderately hard, up to 10% very fine sand, yellow, grades into below.
			CONGLOMERATE, sand very fine to coarse, gravel to 1/2-inch, some silt to clay as matrix in voids, oxidized, vuggy, sandstone fragments.
40			INTERBEDDED CONGLOMERATE AND SANDY SILT, conglomerate, orange to black fragments, some gravel.
	SM		SILTY SAND, well graded, very fine to moderate, some fine gravel, yellow brown.
45	ML		SANDY SILT, non-plastic, 20-30% very fine to fine sand, soft, white.
	SP		SAND, poorly graded, very fine to fine, partially cemented, oxidized fragments of well cemented sandstone.
50	SP/SM		SAND, well graded, very fine to fine, some medium, partially cemented, white to pink to orange.
55			

Completion Data

Material Setting

Material Description

- 6 inch steel protective casing
- locking steel well cover
- PVC cap
- concrete pad
- Cement/Bentonite Grout Mixture
- 12-1/4 inch Borehole
- 8-5/8 inch O.D. Schedule 40 PVC Bellend
- Steel Centralizer — 23.5 Feet
- 25.5 Feet
- Cement Shoe
- 7-7/8 inch Borehole
- Cement/Bentonite Grout
- 4 inch I.D. Fiberglass Well Casing (threaded)
- 38.2 Feet
- 1/2 inch Bentonite Pellets
- 41.1 Feet
- 42.2 Feet
- Gravel Pack #2 Blast Sand
- 4 inch I.D. Fiberglass Well Screen .010 Slot
- Stainless Steel Centralizer — 51.0 Feet

DRAWING NO.: 446226-A17

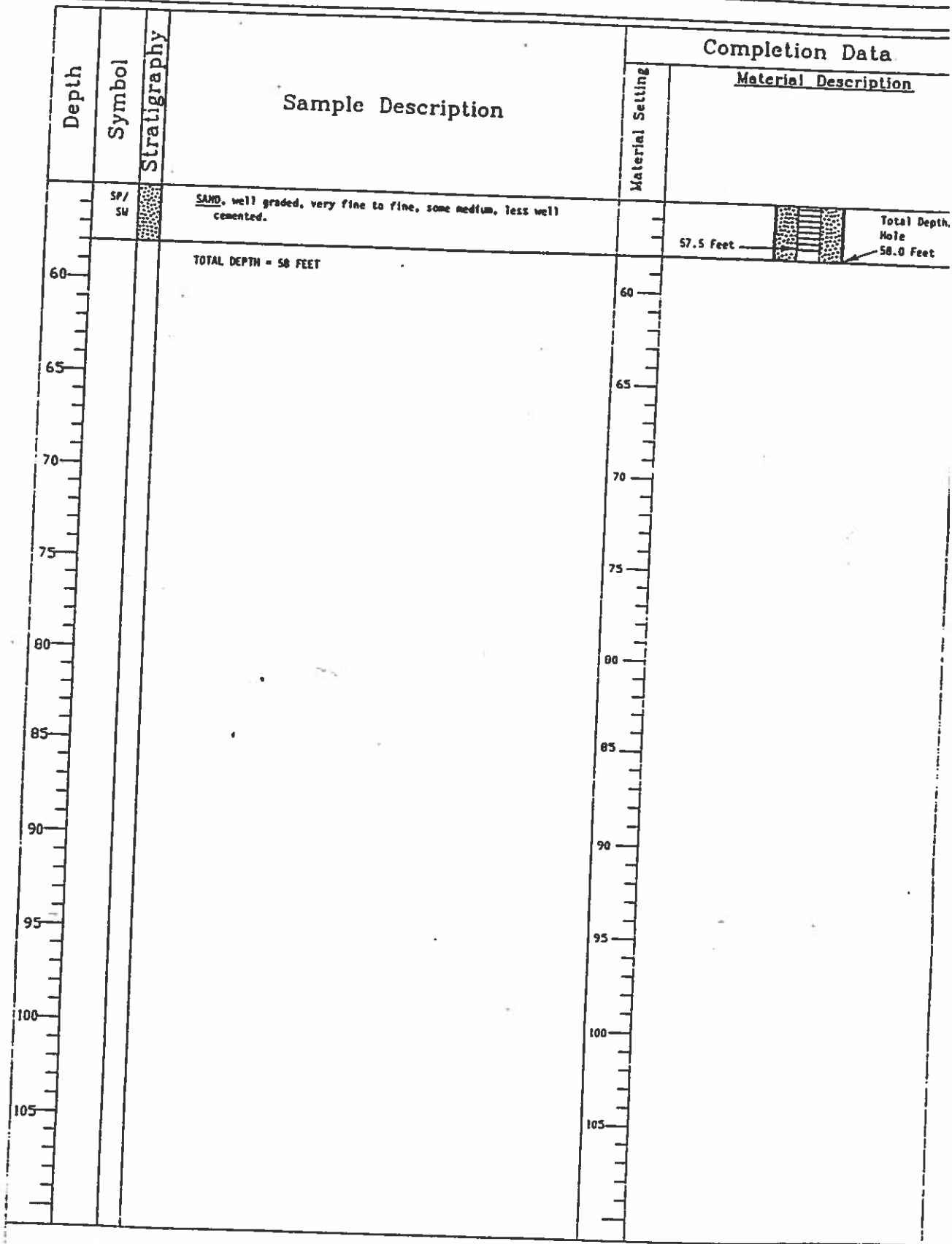
INTERNATIONAL TECHNOLOGY CORPORATION

Client: HEXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/11-18/88 Well No.: MW3-88

Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 58 FEET Casing Size & Type: _____ Screen Size: _____

Comments: _____



Completion Data

Material Description

Material Setting

57.5 Feet

Total Depth, Hole 58.0 Feet

60 65 70 75 80 85 90 95 100 105

DRAWING NO.: 446226-A17

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

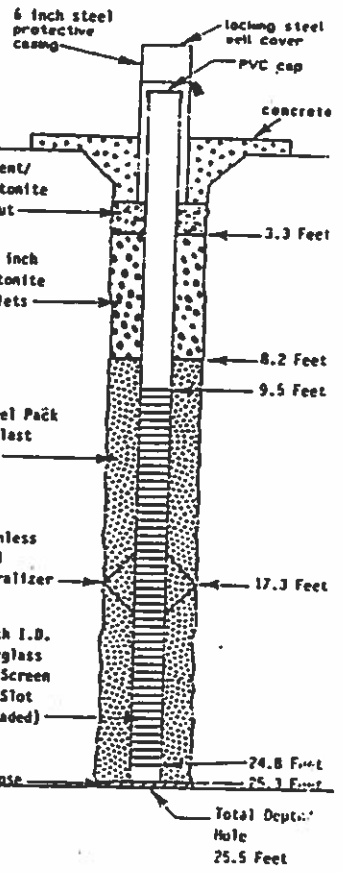
Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/12/88 Well No.: MW4-8
Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____
Total Depth: 25.5 FEET Casing Size & Type: 4-inch I.D. Fiberglass Screen Size: .010-inch
Comments: _____

Depth FT	Symbol	Stratigraphy	Sample Description
0–5	ML		SANDY SILT, 10-20% very fine sand, fragments of well cemented same, pink.
5–10	ML		SANDY SILT, non-plastic, very fine to fine sand 10-20%, calcareous nodules, fragments of same well cemented, pink.
10–15	ML		SANDY SILT, similar to above.
15–20	SM		SILTY SAND, poorly graded, very fine to fine, 10-20% non-plastic fines, calcareous nodules, many sandstone fragments, pink.
20–25			SANDSTONE, poorly graded, cemented to well cemented, calcareous nodules, light pink to white.
25–30	ML		SANDY SILT, softer drilling, non-plastic, 10-20% very fine sand, white.
25–30			SANDSTONE, poorly graded, very fine to fine, hard, well cemented.
			TOTAL DEPTH = 25.5 FT

Completion Data

Material Setting

Material Description



DRAWING NO.: 446226-A18

INTERNATIONAL TECHNOLOGY CORPORATION

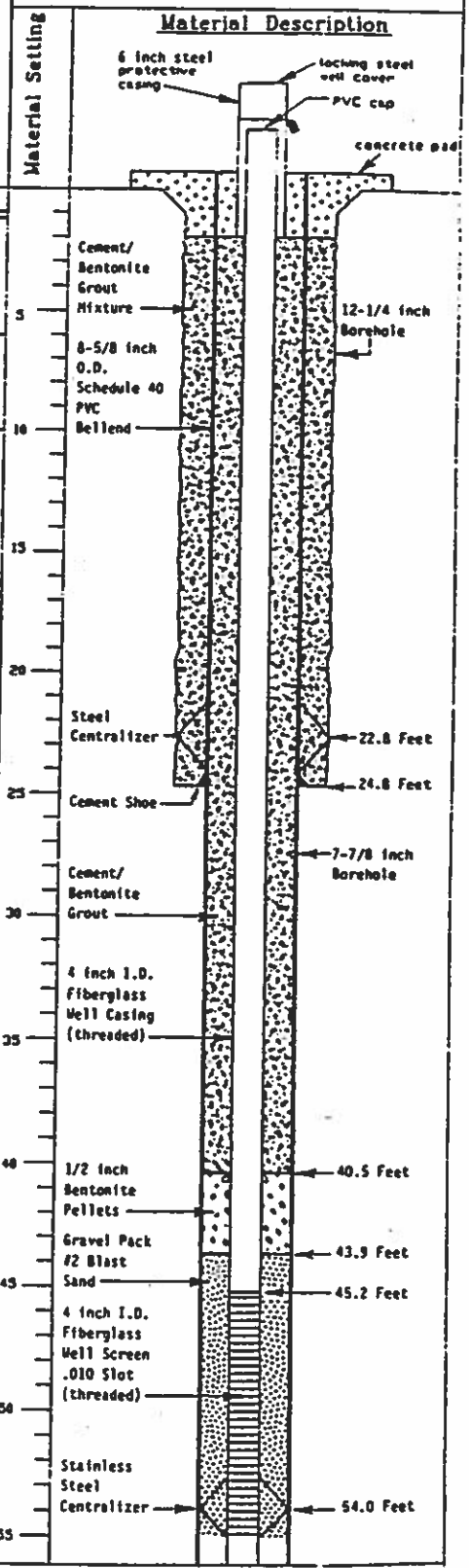
Monitor Well Installation

Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/13-19/88 Well No.: MW5-88
Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____
Total Depth: 61.0 FEET Casing Size & Type: 4-inch I.D. Fiberglass Screen Size: .010-inch
Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
0	SP		SAND, very fine, some calcareous nodules, pink to buff.
			SANDSTONE, very fine to fine, hard, pink.
5	SM		SILTY SAND, poorly graded very fine to fine, 5-10% fragments, sandstone fragments.
			SANDSTONE, very fine to fine, hard, well cemented, pink.
10			
	SP		SAND & POORLY CEMENTED SANDSTONE, poorly graded, very fine to fine, dense, strong hydrocarbon odor, dark gray.
15			SAND, poorly graded, very fine to fine, dense, some poorly cemented, strong hydrocarbon odor, dark gray.
20			
			SANDSTONE, very hard, gray, pink and white.
	ML		SANDY SILT, non-plastic, 20-30% very fine sand, gray.
25			SANDSTONE, well graded, very fine to medium, some coarse and some gravel, very hard, well cemented, small vugs, pink.
			SILTSTONE, 10-20% very fine sand, pink.
	ML		SANDY SILT, non-plastic, firm, 10-20% very fine to fine sand fragments of fairly well cemented sand, pink.
30			SANDSTONE, very fine to fine, well cemented, yellow.
			GRAVELLY SANDSTONE, very well graded, very fine to coarse, 5-10% gravel, vuggy, massive.
	ML		NO RECOVERY TO 34.0 FEET.
35			SANDY SILT, non-plastic, soft, 20-30% very fine to fine sand, yellow-brown.
			SANDSTONE, coarse grained, partially oxidized.
40	ML		SANDY SILT, non-plastic, soft, 20-30% very fine sand, yellow-brown.
45	SM		SLIGHTLY SILTY SAND, poorly graded, very fine to fine, 5-10% fines, fragments of partially cemented sand, white.
50	SM		SLIGHTLY SILTY SAND, poorly graded, very fine to fine, 5-10% fines, white.
55			

Completion Data

Material Setting

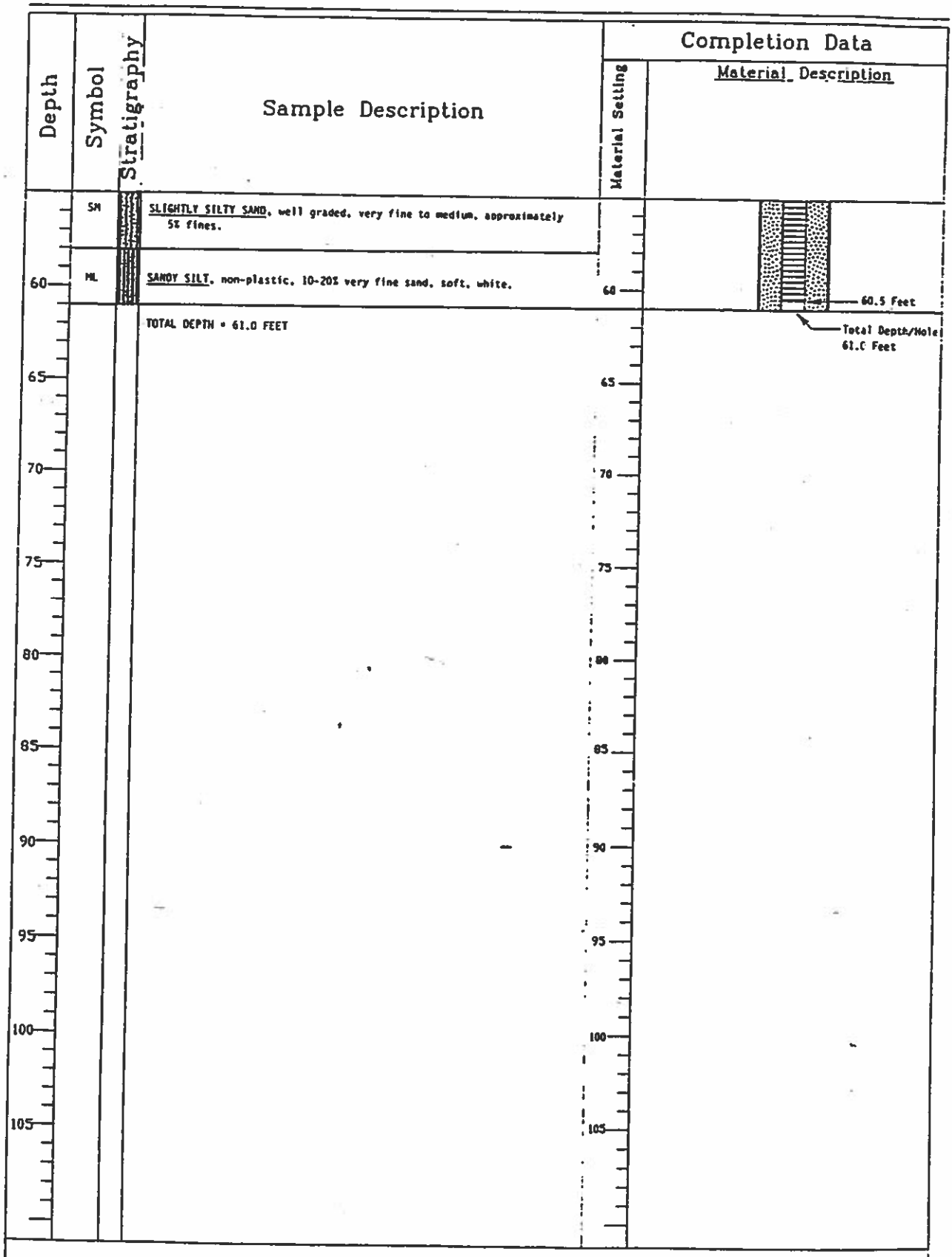


DRAWING NO.: 446226-A19

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/13-19/88 Well No.: MW5-88
Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____
Total Depth: 61.0 FEET Casing Size & Type: _____ Screen Size: _____
Comments: _____



DRAWING NO.: 446226-A19

INTERNATIONAL TECHNOLOGY CORPORATION

WELL LOG

MW-8-99

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NO: MT000562.0003
CLIENT NAME: HUNTSMAN CORPORATION
PROJECT NAME: MW-8-88 WELL REPLACEMENT
SITE LOCATION: ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS
DRILLING CO: LARIAT DRILLING CO.
DRILLING METHOD: AIR ROTARY
SAMPLE METHOD: GRAB
DATE BEGUN: 5/24/99 DATE COMPLETED: 5/26/99
DRILLER: R.B. DAVIS ELEVATION (SURF.): -
LOGGER: D. McNEESE ELEVATION (T.O.C.): -

STATIC WATER LEVEL: - MEAS. PT.: - DATE: -
HOLE SIZE(S): 12-1/4", 7-7/8" TOTAL DEPTH: 65.0' PLUG-BACK DEPTH: 63.0'
SURFACE COMPLETION: 3'x3'x6" Concrete Pad w/Locking Well Protector

	TYPES	DEPTHS
GROUT TYPE:	Cement/Bentonite	Surface to -43.0'
SEAL TYPE:	Bentonite Pellets	-43.0' to -46.0'
SCREEN PACK:	16/30 Sand	-46.0' to -65.0'
CASING TYPE:	8-58" Diameter Sch. 40 Bell End PVC	Surface to -27.0'
	4" Diameter Fiberglass Well Casing	2.0' to -48.0'
WELL SCREEN:	4" Diameter Fiberglass, 0.010" slots	-48.0' to -63.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING (ppm)	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0		GRAB							ML: SANDY SILT – non-plastic; dry; 10-20% very fine sand, with some fragments; well cemented; calcareous nodules; pinkish. – harder drilling at 4.0 feet with more sandstone fragments.	
5		GRAB					ML			
		GRAB								
-10		GRAB					SM		SM: SILTY SAND – poorly graded; very fine to fine; 20-30% non-plastic fines; fragments of cemented sand; pink.	
		GRAB							SANDSTONE – poorly graded; very fine to fine; fairly well cemented; pink.	
-15		GRAB					ML		ML: SANDY SILT – non-plastic; 20-30% very fine to fine sand; thin (approximately 1 inch) beds of pink sandstone. – drilling slow, probably due to increase in clay content; white.	
		GRAB								
-20		GRAB					SM		SM: SILTY SAND – poorly graded; very fine to fine; compact; 10-20% non-plastic fines; strong hydrocarbon odor; gray.	
		GRAB					ML		ML: SANDY SILT – non-plastic; 10-20% very fine to fine sand; white.	
		GRAB							SANDSTONE – well cemented; very fine to fine; pink.	
-25		GRAB					SM		SM: SILTY SAND – poorly graded; very fine to fine; dense; 15-25% non-plastic fines; minor calcareous nodules, pink.	
		GRAB							SANDSTONE – poorly graded; very fine to fine; fairly well cemented; some medium and coarse.	
-30		GRAB							SANDSTONE – very fine to fine; very poorly cemented; black grains throughout; minor beds of same; well cemented; pink. (from cuttings).	

WELL LOG

WELL NO.: MW-8-99

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NO: MT000562.0003
CLIENT NAME: HUNTSMAN CORPORATION
PROJECT NAME: MW-8-88 WELL REPLACEMENT
SITE LOCATION: ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS
DRILLING CO: LARIAT DRILLING CO.
DRILLING METHOD: AIR ROTARY
SAMPLE METHOD: GRAB
DATE BEGUN: 5/24/99 DATE COMPLETED: 5/26/99
DRILLER: R.B. DAVIS ELEVATION (SURF.): -
LOGGER: D. McNEESE ELEVATION (T.O.C.): -

STATIC WATER LEVEL: - MEAS. PT.: - DATE: -
HOLE SIZE(S): 12-1/4", 7-7/8" TOTAL DEPTH: 65.0' PLUG-BACK DEPTH: 63.0'
SURFACE COMPLETION: 3'x3'x6" Concrete Pad w/Locking Well Protector

	TYPES	DEPTHS
GROUT TYPE:	Cement/Bentonite	Surface to -43.0'
SEAL TYPE:	Bentonite Pellets	-43.0' to -46.0'
SCREEN PACK:	16/30 Sand	-46.0' to -65.0'
CASING TYPE:	8-58" Diameter Sch. 40 Bell End PVC	Surface to -27.0'
	4" Diameter Fiberglass Well Casing	2.0' to -48.0'
WELL SCREEN:	4" Diameter Fiberglass, 0.010" slots	-48.0' to -63.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING (ppm)	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
-35		GRAB							SANDSTONE – poorly graded; very fine to medium, well cemented; hard; many black, angular grains.	
		GRAB					SM		SM: SILTY SAND – poorly graded; very fine to fine; compact; 20-30% fines; yellow brown.	
40		GRAB							SANDSTONE/BRECCIA – well cemented fragments; very fine to fine; some yellow brown SILTY CLAY fragments; pink, yellow, orange.	
		GRAB							SM: SILTY SAND – poorly graded; very fine to fine; compact; 10-20% fines; some fragments of well cemented same; white and yellow brown.	
-45		GRAB								
		GRAB								
-50		GRAB					SM			
		GRAB								
-55		GRAB								
		GRAB								
-60		GRAB								
		GRAB								
-65										

WELL LOG

WELL NO.: MW-9-99

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NO: MT000562.0003
CLIENT NAME: HUNTSMAN CORPORATION
PROJECT NAME: MW-9-88 WELL REPLACEMENT
SITE LOCATION: ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS
DRILLING CO: LARIAT DRILLING CO.
DRILLING METHOD: AIR ROTARY
SAMPLE METHOD: GRAB
DATE BEGUN: 5/26/99 DATE COMPLETED: 5/26/99
DRILLER: R.B. DAVIS ELEVATION (SURF.): -
LOGGER: D. McNEESE ELEVATION (T.O.C.): -

STATIC WATER LEVEL: - MEAS. PT.: - DATE: -
HOLE SIZE(S): 7-7/8" TOTAL DEPTH: 28.0' PLUG-BACK DEPTH: 27.0'
SURFACE COMPLETION: 3'x3'x6" Concrete Pad w/Locking Well Protector

	TYPES	DEPTHS
GROUT TYPE:	Cement/Bentonite	Surface to -7.0'
SEAL TYPE:	Bentonite Pellets	-7.0' to -10.0'
SCREEN PACK:	16/30 Sand	-10.0' to -28.0'
CASING TYPE:	4" Diameter Fiberglass Well Casing	2.0' to -12.0'
	—	—
	—	—
WELL SCREEN:	4" Diameter Fiberglass, 0.010" slots	-12.0' to -27.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING (ppm)	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0		GRAB					ML		ML: SANDY SILTY – non-plastic; 10-20% very fine sand; fragments of cemented same; calcareous nodules; pink. At 5', harder drilling, increase in cemented fragments.	
-5		GRAB								
		GRAB					SM		SM: SILTY SAND – poorly graded; very fine to fine; 20-30% non-plastic fines; fragments of cemented same; pink.	
-10		GRAB							SANDSTONE – poorly graded; fairly well cemented.	
		GRAB					ML		ML: SANDY SILTY – non-plastic; 20-30% very fine to fine sand; thin (1") beds of sandstone; white. At 16', drilling slow, probably due to increase in clay content; white.	
-15		GRAB								
		GRAB					SM		SM: SILTY SAND – poorly graded; very fine to fine; compact; 10-25% non-plastic fines; strong hydrocarbon odor, gray. At 20', very fine to fine; compact; 10-25% non-plastic fines; strong hydrocarbon odor; gray.	
-20		GRAB								
		GRAB					ML		ML: SANDY SILTY – white.	
-25		GRAB					SM		SM: SILTY SAND – poorly graded, very fine to fine; dense; 15-25% silt; pink.	

MONITOR WELL INSTALLATION

WELL NO.: MW-10-90

CLIENT: REXENE PRODUCTS COMPANY JOB NO.: 446415 SHEET 1 OF 2

SITE: ODESSA, TEXAS DATE: START 11/7/90 FINISH 11/8/90

GEOLOGIST: STEVE PULLEN DRILLER: BILL HOUSTON TOTAL DEPTH : 50.1 FEET

ELEVATION: PAD N/A CASING N/A CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS SCREEN SIZE: 0.010 INCH

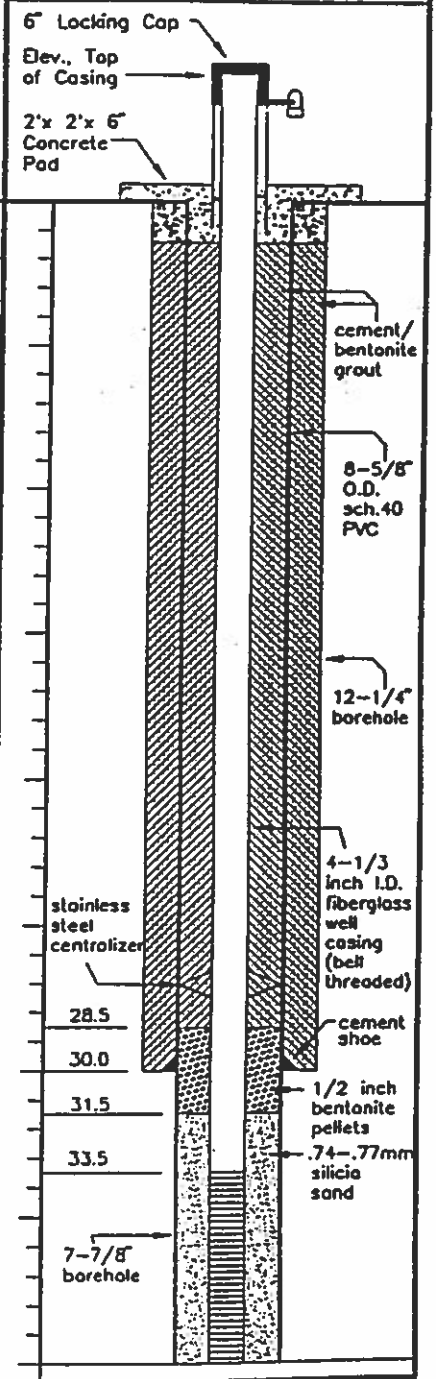
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, AND WITH A 750 CFM AIR COMPRESSOR

SAMPLING METHODS: CORE 35 TO 40. HAMMER A SPLIT SPOON EVERY 5 FEET THEREAFTER TO TOTAL DEPTH

COMMENTS: UPPER 35 FEET OF BOREHOLE DRILLED AS MW-10-88 ON 6-7-88.

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
		sp		SAND – pinkish, very fine to fine, some fines, calcareous nodules
5		sm		SILTY SAND – pinkish, very fine to fine grained sand, poorly graded, 10–20% fines, some fragments of cemented, sand, calcareous nodules
				light brown, 20–30% fines, many calcareous nodules
10				SANDSTONE – pink, very fine to fine, hard, well cemented
		sm		SILTY SAND – gray, very fine to fine, poorly graded, 10–20% fines, cemeted frogments, strong Hydrocarbon odor
15				–gray and pink, well cemented frogments
20		ml		SANDY SILT – white, non-plastic, soft, 10–25% very fine to fine sand, some clay
		sm		INTERBEDDED SILTY SAND & SANDSTONE – pink and black, very fine to fine, 20–30% fines, well cemented, very fine to fine sandstone
25				SANDSTONE – pink, very fine to fine, well cemented, hard
				GRAVELLY SANDSTONE – pink, well graded, very fine to coarse, with fine gravel, hard, moderately cemented, vuggy (from core)
		ml		SANDY SILT – white to pink, non-plastic to low plasticity, stiff, 10–20% very fine sand, 1 ppm Hnu (grab sample)
30				SANDSTONE – very fine to fine, well cemented, hard, poor circulation 29.5 – 35.0 feet
				Completion circulation loss at 35.0 feet. Bit fell 35.0–35.5 feet
35	60			SHELL STONE – light grey, fine to coarse shell fragments 20% medium sand, carbonate cemented, highly porous
				SANDSTONE – brownish yellow, fine grained sand moderately cemented by carbonate cement uniform, appears porous
40	48			

COMPLETION DATA



DRAWN BY	MMH	1/11/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A29

MONITOR WELL INSTALLATION

WELL NO.: MW-10-90

CLIENT: REXENE PRODUCTS COMPANY JOB NO.: 446415 SHEET 2 OF 2

SITE: ODESSA, TEXAS DATE: START 11/7/90 FINISH 11/8/90

GEOLOGIST: STEVE PULLEN DRILLER: BILL HOUSTON TOTAL DEPTH : 50.1 FEET

ELEVATION: PAD N/A CASING N/A CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS SCREEN SIZE: 0.010 INCH

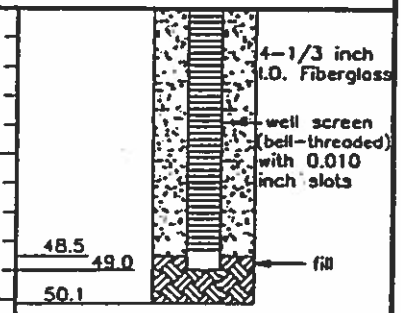
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, AND WITH A 750 CFM AIR COMPRESSOR

SAMPLING METHODS: CORE 35 TO 40, HAMMER A SPLIT SPOON EVERY 5 FEET, THEREAFTER TO TOTAL DEPTH

COMMENTS: UPPER 35 FEET OF BOREHOLE DRILLED AS MW-10-88 ON 6-7-88.

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	48 / 48			– white, very fine grained with many thin mud laminations, apparent micro porosity, very dense some horizons stained by iron oxide
50				TOTAL DEPTH = 50.1 FEET
55				
60				
65				
70				
75				
80				

COMPLETION DATA



DRAWN BY	MMH	1/11/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A29

Monitor Well Installation

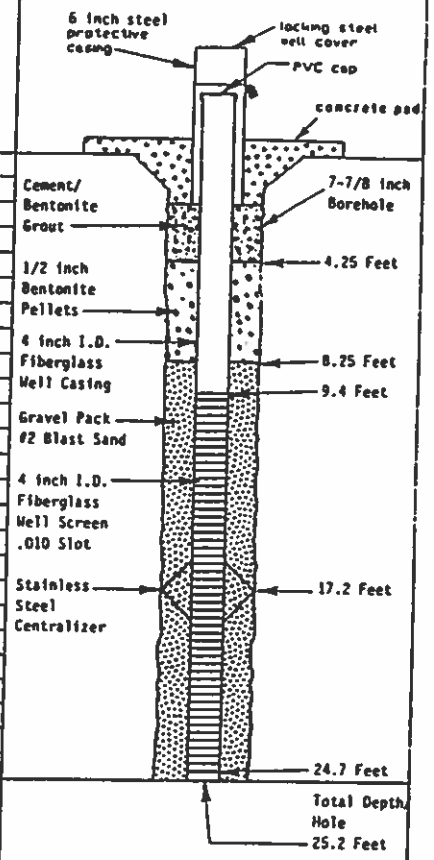
Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 6/9/88 Well No.: MW11-88
Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____
Total Depth: 25.2 FEET Casing Size & Type: 4-inch I.D. Fiberglass Screen Size: .010-inch
Comments: _____

Depth FT	Symbol	Stratigraphy	Sample Description
0	SP		SAND, very fine to fine, some fines, calcareous nodules, pink.
	SM		SILTY SAND, poorly graded, very fine to fine, 10-20% fines, some fragments of cemented same, calcareous nodules, pink.
5	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% fines, many calcareous nodules, light brown.
	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% fines, calcareous nodules, light brown.
10			SANDSTONE, very fine to fine, hard, well cemented, pink.
	SM		SILTY SAND, poorly graded, very fine to fine, 10-20% fines, fragments of cemented same, strong hydrocarbon odor, gray.
15	SM		SILTY SAND, poorly graded, very fine to fine, 10-20% fines, fragments of well cemented gray and pink same.
	ML		SAND/ SILT, non-plastic, soft, 10-25%, very fine to fine, sand, some clay, white.
20	SP/ SM		INTERBEDDED SILTY SAND AND SANDSTONE, very fine to fine, 20-30% fines, well cemented pink and black very fine to fine sandstone, pink.
25			SANDSTONE, very fine to fine, well cemented, hard, pink.
			TOTAL DEPTH = 25.0 FEET

Completion Data

Material Setting

Material Description



DRAWING NO.: 446226-A25

INTERNATIONAL TECHNOLOGY CORPORATION

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/18/88 Well No.: MW-13-8

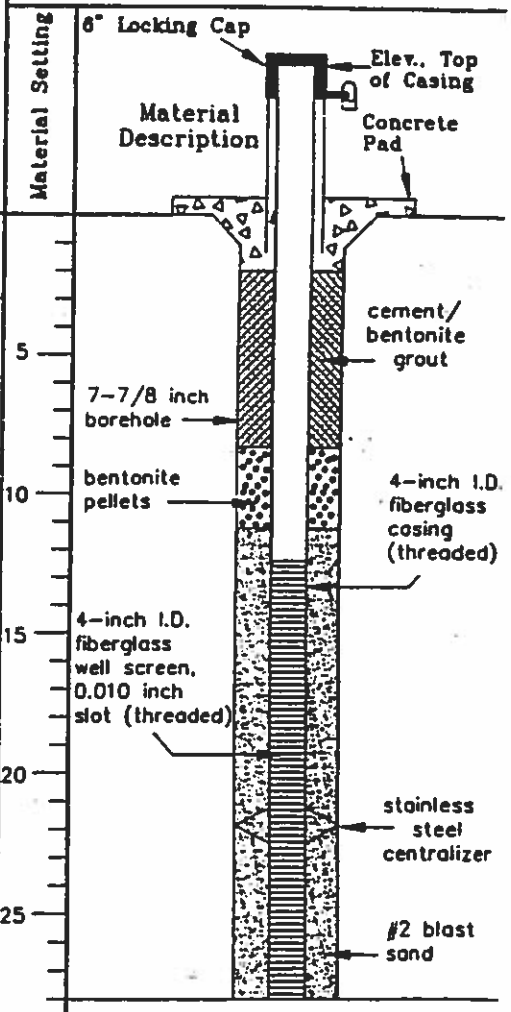
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2868.65 Top of PVC Casing 2870.94

Total Depth: 28.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 inch

Comments: DRILLING BY MUD ROTARY. SPLIT SPOON (3'X 3') SAMPLES: 10-12 FT., 20-20.5 FT.

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, loose, reddish brown, poorly graded, very fine to fine sand, 30-40% silt
5			SANDSTONE, very dense, light gray, poorly graded, very fine to fine sand, well cemented
			SANDSTONE, medium dense, light gray, poorly graded, very fine to fine sand, poorly cemented, trace silty sand
10	SM		SILTY SAND, loose, light gray, poorly graded, very fine to fine sand, 20-30% silt, fragments of poorly cemented sandstone, calcareous nodules
15			
			SANDSTONE, loose to medium dense, light gray, poorly cemented
20	SP		SAND, loose, light reddish brown, poorly graded, very fine to fine, moist
25			SANDSTONE, dense, light gray, well cemented, very fine to fine sand
	SP		SAND, loose, light gray, poorly graded, very fine to fine, sandstone fragments
			SANDSTONE, very dense, light gray, well cemented, very fine to fine sand
30			TOTAL DEPTH = 28.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW13

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/31/88 Well No.: MW-14-6

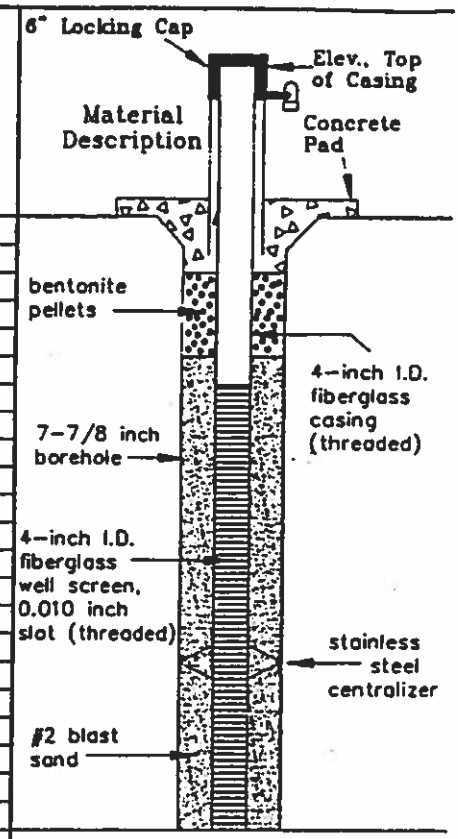
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2862.68 Top of PVC Casing 2864.98

Total Depth: 22.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH

Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES: 3-3.5 FT., 8-10 FT., 13-15 FT., 18-20 F

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	ML		SANDY SILT, medium stiff, light reddish brown, non-plastic, dry, 10-20% very fine to fine sand, fragments pf cemented sandy silt, dark gray oily staining at 2-4 feet
10	ML		SANDY SILT, soft, light reddish brown, non-plastic, dry, 10-20% very fine to fine sand fragments of cemented sandy silt, silty sand seams
15	ML		SANDY SILT, soft, light reddish brown, non-plastic, moist, 10-20% very fine to fine sand, fragments of cemented sandy silt
20	SP		SAND, loose, reddish brown, poorly graded, very fine to fine, moist
			SANDSTONE, very hard, well cemented, gray
			TOTAL DEPTH = 22.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW14

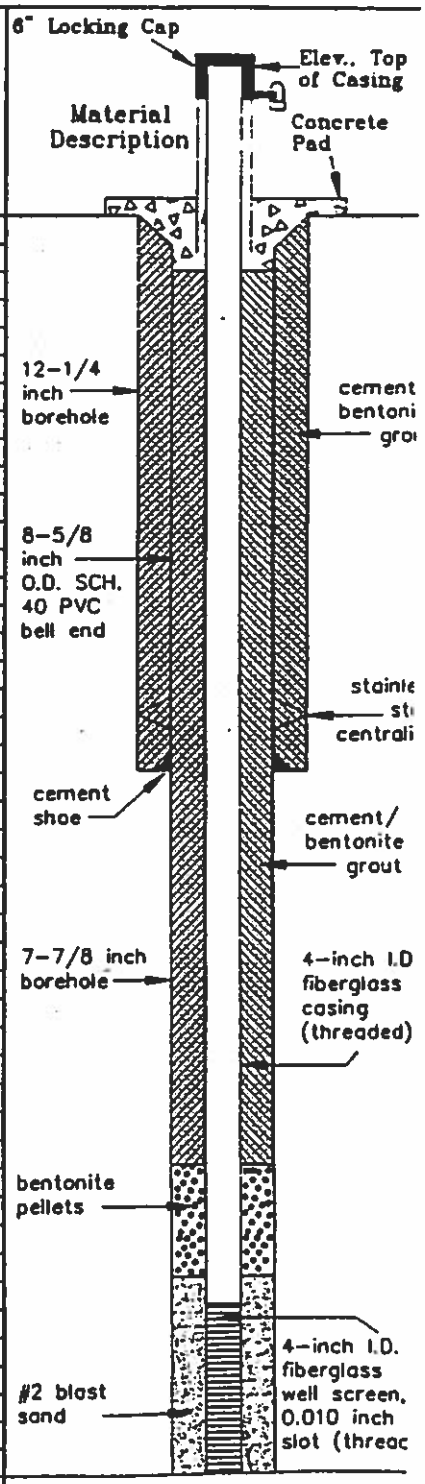
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/11-12/88 Well No.: MW-15-
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2862.50 Top of PVC Casing 2864.72
Total Depth: 54.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INC
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FT., 2-1/8" N X CORE: 20-25 FT., 30-35 FT.

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	ML		SANDY SILT, non-plastic, soft, 20-30% very fine to fine sand, dark reddish brown
5	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% silt, fragments of partially cemented sandy silt, light reddish brown
15	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% silt, fragments of partially cemented sandy silt, gray
20			SANDSTONE, poorly graded, very fine to fine, very hard, well cemented, variegated
30			SANDSTONE, poorly graded, very fine to fine, very hard, well cemented, variegated
35			SILTY SAND, poorly graded, very fine to fine, 20-30% silt, yellow-brown
45			

Completion Data



DRAWN BY	MMH	1/6/89	CHECKED BY	AMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/11-12/88 Well No.: MW-15-88 p.2
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2862.50 Top of PVC Casing 2864.72
Total Depth: 54.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FT., 2-1/8" N X CORE: 20-25 FT., 30-35 FT.

Depth in Feet	Symbol	Stratigraphy	Sample Description
50	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% silt, fragments of partially cemented silty sand, yellow-brown
55			TOTAL DEPTH = 54.0 FEET

Completion Data

Material Setting	Material Description
50	stainless steel centralizer; 4-inch I.D. fiberglass well screen, 0.010 inch slot (threaded); #2 blast sand
55	

DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MWP2

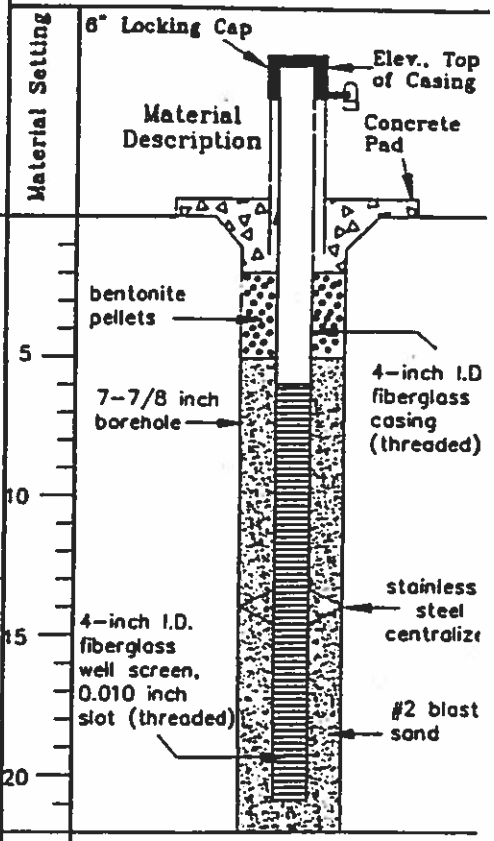
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/14/88 Well No.: MW-22
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2857.56 Top of PVC Casing 2859.91
Total Depth: 22.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INC
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, poorly graded, very fine to fine sand, 20-30% silt, some sandstone fragments, slight odor, dark gray
10			
15	SM		SILTY SAND, poorly graded, very fine to fine, 30-40% silt, some sandstone fragments, light gray
20	ML		SANDY SILT, non-plastic, stiff, 10-20% very fine sand, light gray
			TOTAL DEPTH = 22.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW

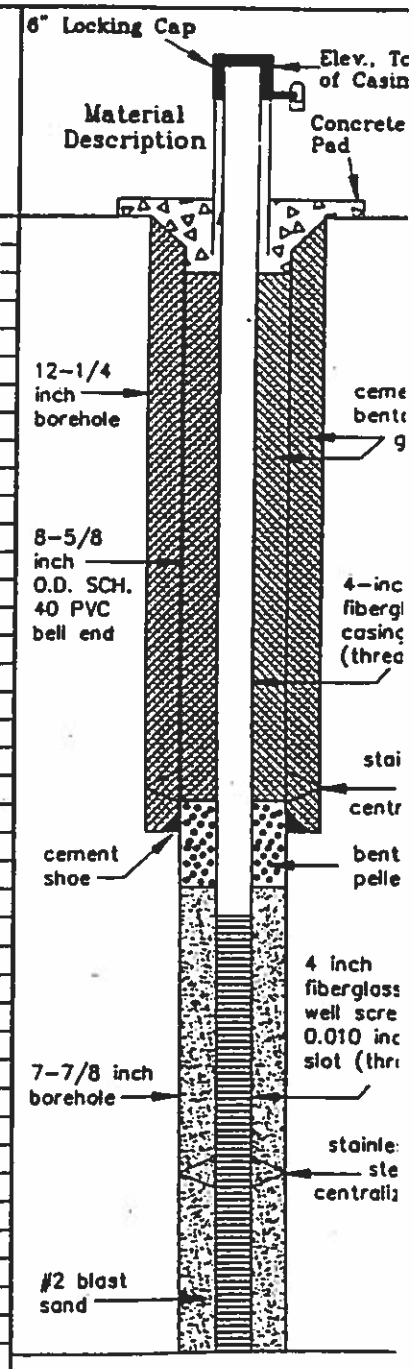
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/14-17/88 Well No.: MW-
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2863.01 Top of PVC Casing 2865.0
Total Depth: 40.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES: 10-11.5 FT., 20-20.5 FT., 30-30.5 FT., AND 40-40.5 FT.

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	ML		SANDY SILT, non-plastic, 20-30% very fine to fine sand, fragments of well cemented sandy silt, calcareous nodules, reddish brown
15	ML		SANDY SILT, non-plasti, 20-30% very fine to fine sand, fragments of well cemented sandy silt, light gray
20	SM		SILTY SAND, poorly graded, very fine to fine, 30-40% silt, trace coarse sand and fine gravel, gray
30	SP		SAND AND SANDSTONE, poorly graded, very fine to fine, loose to poorly cemented, reddish brown
35	SP		SAND AND SANDSTONE, poorly graded, very fine to fine, loose to poorly cemented, reddish brown
40	SM		SILTY SAND, loose to poorly cemented, poorly graded, very fine to fine, 20-30% silt, light gray
			TOTAL DEPTH = 40.5 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	AMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-1

INTERNATIONAL TECHNOLOGY CORPORATION

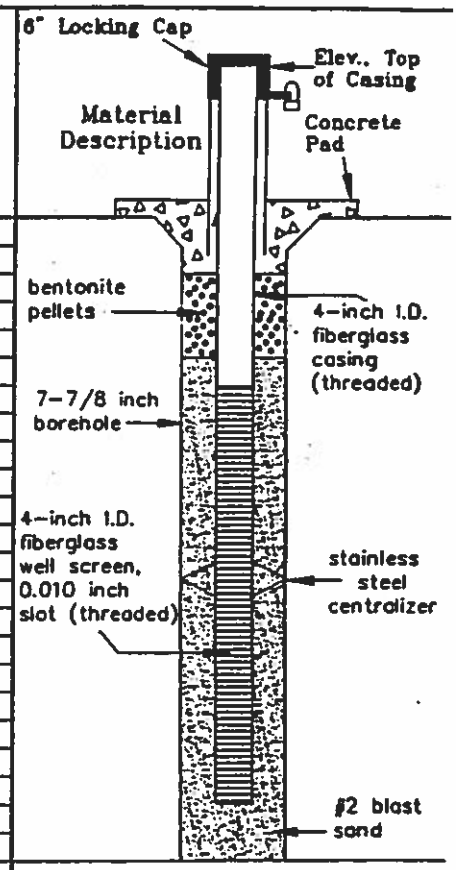
Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/10/88 Well No.: MW-27-88
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2861.61 Top of PVC Casing 2863.82
Total Depth: 23.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, poorly graded, very fine to fine, dense, dry to wet, 10-20% fines, calcareous nodules, many sandstone fragments, beige
	ML		SANDY SILT, non-plastic, hard, damp, 20-30% very fine to fine sand, calcareous nodules, slight odor, gray
10	SM		SILTY SAND, poorly graded, very fine to fine, dense, 10-20% fines, many cemented fragments of dark gray and black sandstone, dark gray, strong odor
15			SILTY SAND, uniform, very fine, very dense, many black and beige sandstone fragments, light gray, odor increasing silt
20			SANDSTONE, very fine to fine, hard, moderately cemented, staining at top, gray to black, clean at 23 feet
			TOTAL DEPTH = 23.0 FEET

Completion Data

Material Setting



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW27

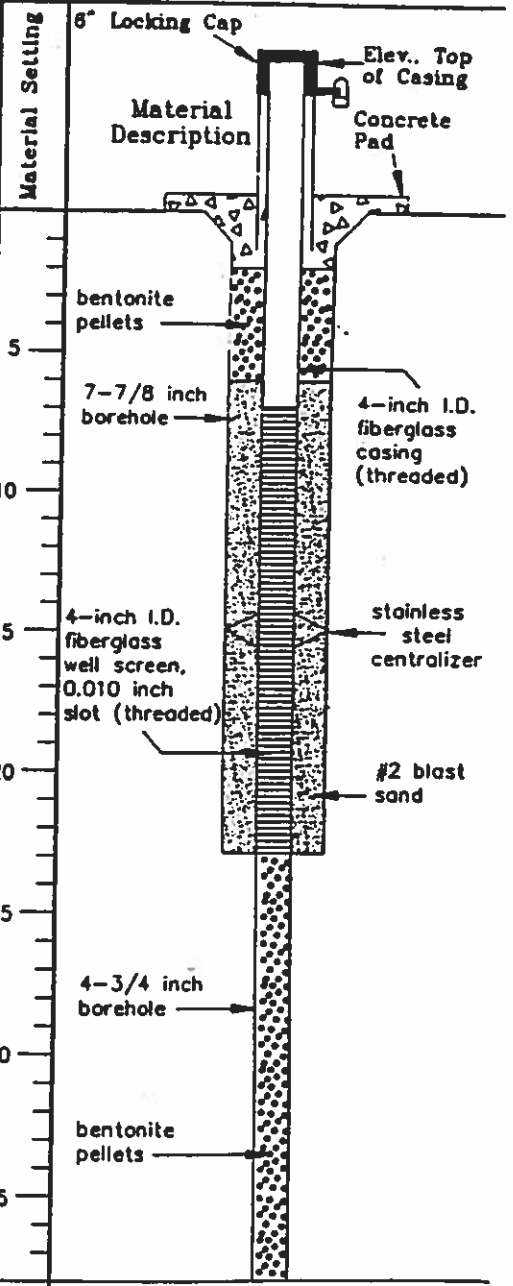
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/6/88 Well No.: MW-31-8
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2863.31 Top of PVC Casing 2865.43
Total Depth: 38.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, poorly graded, very fine to fine, very dense, dry, many calcareous nodules, sandstone fragments, beige
10			
15	ML		SANDY SILT, low plasticity, soft, very fine to fine sand, calcareous nodules, "sticky", white
15	SM		SILTY SAND, gap graded, very fine, fine, and coarse sand, fine gravel, very dense, sandstone fragments, beige, organic vapor reading = 0 ppm
20			SILTY SAND, well graded, very fine to coarse, predominantly very fine to fine, very dense, trace gravel, beige
25	ML		SANDY SILT, non-plastic, very stiff, very fine to fine sand, yellow brown, organic vapor reading = 0 ppm
30	SM		SILTY SAND, well graded, very fine to coarse, minor gravel, all coarser fraction is sandstone fragments, beige to brown, organic vapor reading = 0 ppm
35			SILTY SAND, poorly graded, very fine to fine, 20-30% silt, variegated yellow brown, purple and pink, organic vapor reading = 0 ppm
			TOTAL DEPTH = 38.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW31

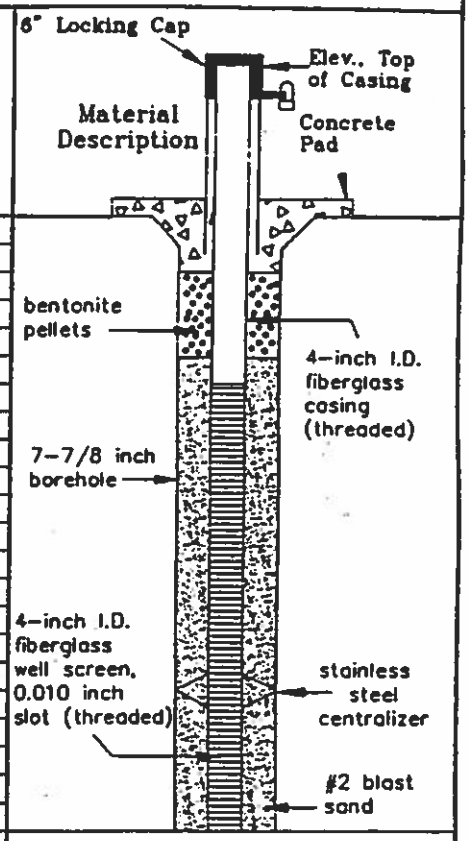
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/4/88 Well No.: MW-32-88
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2865.21 Top of PVC Casing 2867.27
Total Depth: 22.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	ML		SANDY SILT, low plasticity to non-plastic, very hard, dry, 10-20% very fine sand, calcareous nodules, cemented layers, white, organic vapor reading = 0 ppm
10	SM		SILTY SAND, uniform, very fine, very dense, 10-20% fines, calcareous nodules, cemented fragments, beige, organic vapor reading = 0 ppm
	ML		SANDY SILT, non-plastic, very dense, 20-30% very fine to fine sand, white
15	SM		SILTY SAND, poorly graded, very fine to fine, 20-30% fines, cemented fragments, calcareous nodules, beige, increasing silt content to base, organic vapor reading = 0 ppm
	ML		SANDY SILT, non-plastic, very dense, 10-20% very fine to fine sand, white
20			SANDSTONE, very fine to fine, very hard, well cemented, dark pink, organic vapor reading = 0 ppm
			TOTAL DEPTH = 22.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW32

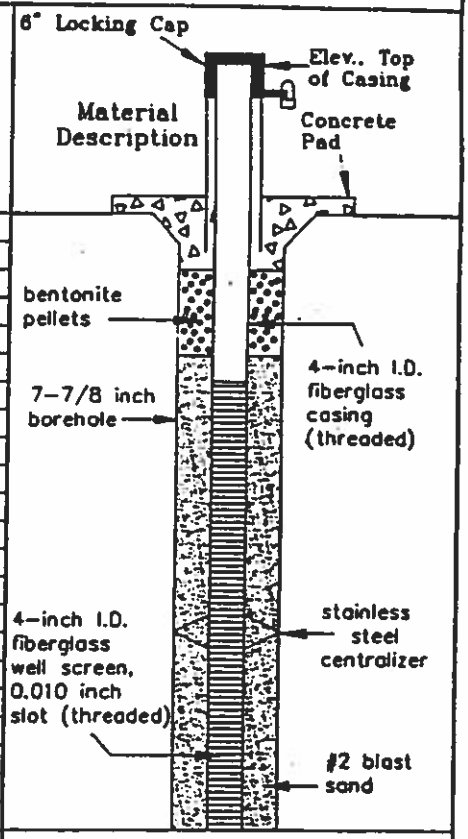
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/18/88 Well No.: MW-33-88
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2867.19 Top of PVC Casing 2869.43
Total Depth: 22.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, poorly graded, very fine to fine, loose to dense, dry, calcareous nodules, brown, hard streak at 4.0–4.1 feet
5	ML		SANDY SILT, low plasticity, stiff, 20–30% very fine to fine sand, calcareous nodules, brown SANDY SILT, similar to above, white
	SM		SILTY SAND, uniform, very fine, 30–40% fines, calcareous nodules, sandstone fragments to 1 inch, beige, organic vapor reading = 0 ppm
10	SW		SAND, well graded, very fine to coarse, predominately very fine to fine, very dense, many sandstone fragments and cemented layers, light gray
15	SM		SILTY SAND, well graded, very fine to coarse, 20–30% silt, many sandstone fragments, light gray SILTY SAND, poorly graded, very fine to fine, 20–30% silt, light gray, organic vapor reading = 0 ppm
20			SANDSTONE, very fine to fine, very hard, well cemented, light gray and reddish brown
			TOTAL DEPTH = 22.0 FEET

Completion Data



DRAWN BY	M M H	1/6/89	CHECKED BY	MJR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW33

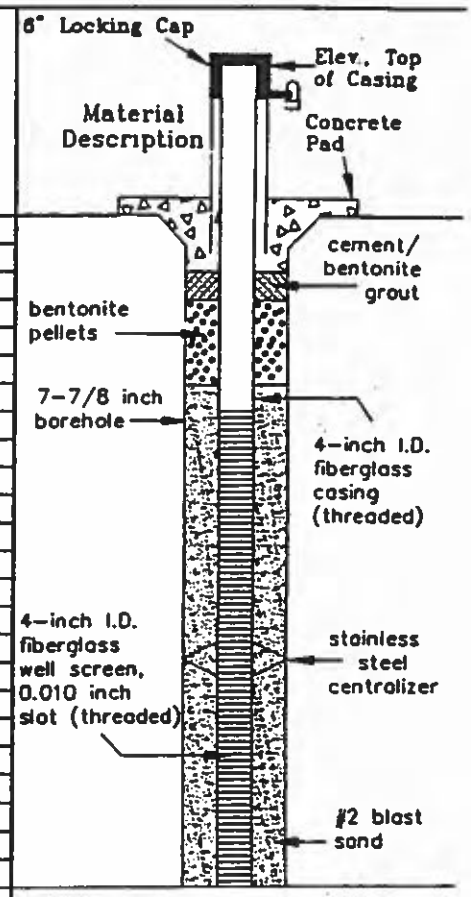
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/21/88 Well No.: MW-36-88
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2864.32 Top of PVC Casing 2866.62
Total Depth: 24.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, poorly graded, very fine to fine, dense, dry, minor calcareous nodules, 20-30% silt, beige, organic vapor reading = 0 ppm
10	SM		SILTY SAND, poorly graded, very fine to fine, dense, wet to saturated, calcareous nodules, minor sandstone fragments, beige and pink, organic vapor reading = 0 ppm
15	SP		SAND, poorly graded, very fine to fine, very dense, sandstone fragments, minor fines, some silty layers, pink, organic vapor reading = 0 ppm, grades into below
20	SM		SILTY SAND, poorly graded, very fine to fine, dense, 10-20% fines, sandstone fragments, beige, organic vapor reading = 0 ppm
	ML		SANDY SILT, non-plastic, firm to stiff, 10-20% very fine to fine sand, white
			SANDSTONE, poorly graded, very fine to fine, hard to very hard at 23 feet, variegated
			TOTAL DEPTH = 24.0 FEET

Completion Data



DRAWN BY MMH 1/6/89 CHECKED BY AMR 5-16-89 APPROVED BY KCP 5/16/89 DRAWING NUMBER 446182-MW36

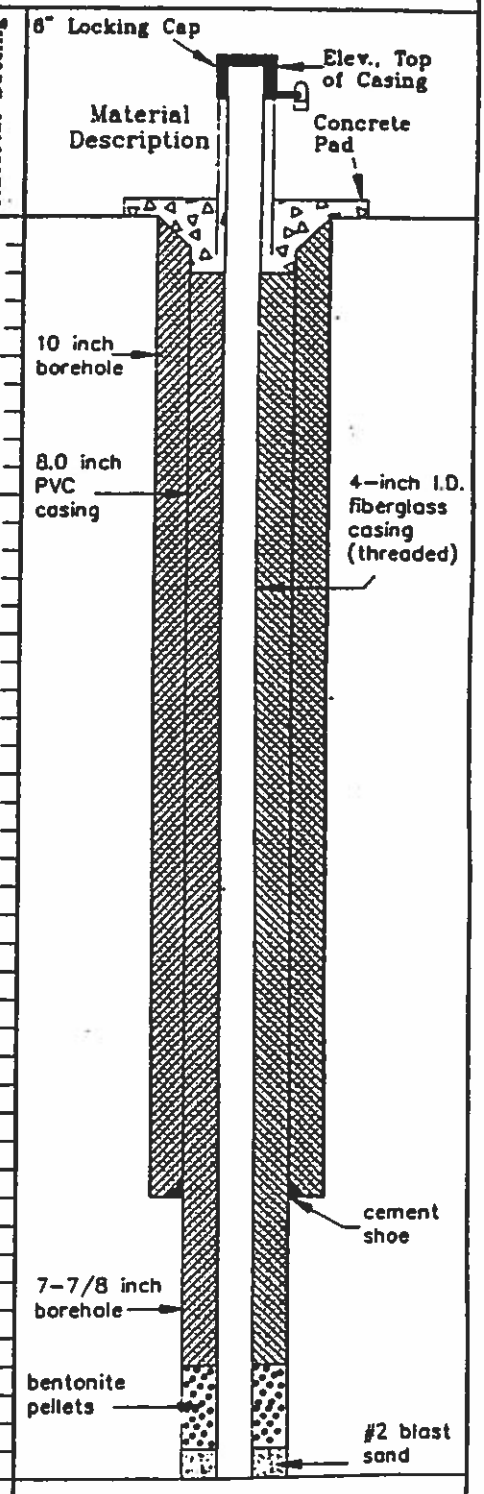
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/20-21/88 Well No.: MW-38-88
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2870.31 Top of PVC Casing 2872.61
Total Depth: 60.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0 - 15	SM		SILTY SAND, loose, light brown, well graded, medium-coarse sand and fine gravel, dry, 20-40% silt organic vapor reading = 0.2 ppm SILTY SAND, loose to poorly cemented, light reddish brown, poorly graded, very fine to fine sand, fragments of cemented sand, 20-40% silt, organic vapor reading = 0.2 ppm
15 - 30	SP		SAND, loose to poorly cemented, light reddish brown, poorly graded, very fine to fine, trace silt organic vapor reading = 0.2 ppm SAND, loose to poorly cemented, light reddish brown, poorly graded, very fine to fine, moist organic vapor reading = 0.2 ppm
30 - 35			SANDSTONE, well cemented, variegated, poorly graded, very fine to fine sand, hard
35 - 40	SM		SILTY SAND, light gray, poorly graded, very fine to fine sand, 30-50% silt SANDSTONE, well cemented, variegated, poorly graded, very fine to fine sand, hard, trace coase sand and fine gravel
40 - 45	ML		SANDY SILT, light reddish brown, non-plastic, 30-40% very fine to fine sand SANDSTONE, hard, variegated, well cemented

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW38

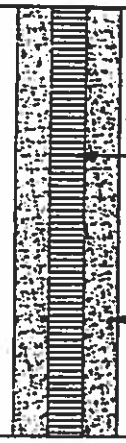
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/20-21/88 Well No.: MW-38-88 p.2
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2870.31 Top of PVC Casing 2872.61
Total Depth: 60.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
50	SP		SAND, loose, reddish brown, poorly graded, very fine to fine, 10-20% silt, trace coarse sand and fine gravel organic vapor reading = 0.2 ppm
55	SP		SAND, poorly cemented, yellowish brown, poorly graded, very fine to fine sand organic vapor reading = 0.2 ppm
60			SAND, poorly cemented, yellowish brown, very fine to fine, 20-30% coarse sand and fine gravel, high oxidation staining
			TOTAL DEPTH = 60.5 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW38P2

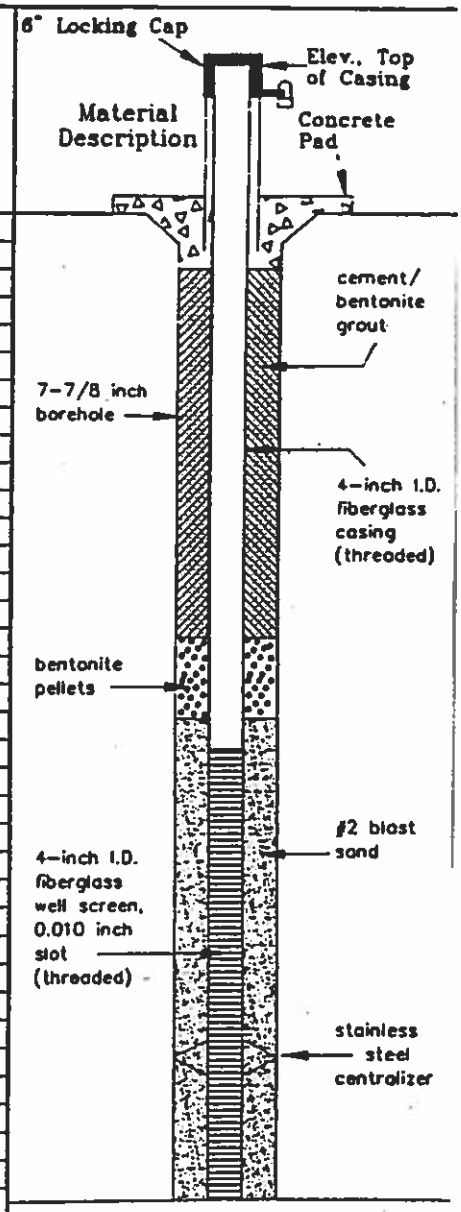
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/27/88 Well No.: MW-39-88
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2872.11 Top of PVC Casing 2874.44
Total Depth: 35.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, loose, reddish brown, poorly graded, very fine to fine sand, 20-30% silt, fragments of cemented silty sand, dry
5	ML		SANDY SILT, soft, light reddish brown, non-plastic, 20-40% very fine to fine sand, fragments of cemented sandy silt, dry
10			SANDY SILT, soft, light gray, non-plastic, 20-40% very fine to fine sand, fragments of cemented sandy silt, moist
15	SM		SILTY SAND, loose, dark gray, poorly graded, very fine to fine sand, 20-40% silt, fragments of cemented silty sand, moist
20			SILTY SAND, loose, dark gray, poorly graded, very fine to fine sand, 20-40% silt, fragments of cemented silty sand, moist
25	SP		SAND, loose to medium, dense, light reddish brown, poorly graded, very fine to fine sand, moist, trace silt
			SANDSTONE, very dense, reddish brown, poorly graded, very fine to fine sand, well cemented
30	SP		SAND, loose, reddish brown, poorly graded, very fine to fine sand, moist
35			SANDSTONE, very dense, light gray, poorly graded, very fine to fine sand, well cemented
			TOTAL DEPTH = 35.5 FEET
40			
45			

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW39

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/26-11/2/88 Well No.: MW-40-88

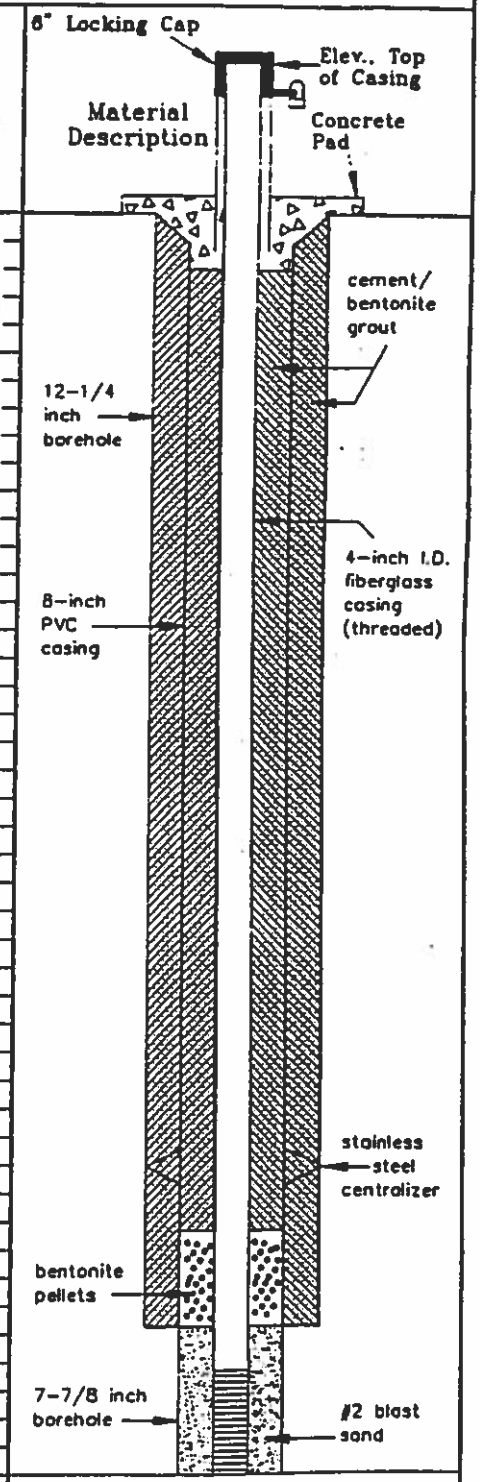
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2872.22 Top of PVC Casing 2874.57

Total Depth: 57.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH

Comments: DRILLED BY MUD ROTARY TO 42.0 FT., AIR ROTARY TO TOTAL DEPTH, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, loose, reddish brown, poorly graded, very fine to fine sand, dry, 20–30% silt, fragments of cemented silty sand
5	ML		SANDY SILT, soft, reddish brown, non-plastic, dry, 20–40% very fine to fine sand, fragments of cemented sandy silt
10	ML		SANDY SILT, soft, light gray, non-plastic, moist, 20–30% very fine to fine sand, fragments of cemented sandy silt, organic vapor reading = 52.0 ppm
15	SM		SILTY SAND, loose, dark gray, poorly graded, very fine to fine sand, moist, 20–40% silt, fragments of cemented silty sand, organic vapor reading = 70 ppm organic vapor reading = 32 ppm
20	SM		SILTY SAND, loose, dark gray, poorly graded, very fine to fine sand, moist, 20–40% silt, fragments of cemented silty sand, organic vapor reading = 5.4 ppm
25	SP		SAND, loose to medium dense, light reddish brown, poorly graded, very fine to fine sand, moist, trace of silt, organic vapor reading = 20 ppm
30	SP		SANDSTONE, hard, reddish brown, very fine to fine sand, well cemented
35	SP		SAND, loose, reddish brown, poorly graded, very fine to fine sand, moist, dark gray mottling organic vapor reading = 0.0 ppm
40	ML		SANDSTONE, hard, light gray, well graded, very fine to coarse sand, fine gravel, well cemented
40	ML		SANDY SILT, soft, reddish brown, non-plastic, moist, 20–30% sand, organic vapor reading = 0 ppm
40	SP		SANDSTONE, hard, light gray, poorly graded, very fine to fine sand, well cemented
45	SP		SAND/SANDSTONE, loose to poorly cemented, yellow brown, poorly graded, very fine to fine sand, circulation loss at 42 feet

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW40

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/26-11/2/88 Well No.: MW-40-88 D
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2872.22 Top of PVC Casing 2874.57
Total Depth: 57.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY TO 42.0 FT., AIR ROTARY TO TOTAL DEPTH. SPLIT SPOON (3" x 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
50	SW		SAND, loose to well cemented, variegated, well graded, very fine to coarse sand, moist, organic vapor reading = 1.2 ppm
55	SM		SILTY SAND, loose, gray, well graded, very fine to coarse sand, some fine gravel, 20-30% silt, moist to wet SILTY SAND, loose, gray, well graded, very fine to coarse sand, some fine gravel, 20-30% silt, moist to wet organic vapor reading = 0.6 ppm
			TOTAL DEPTH = 57.0 FEET

Completion Data

Material Setting	Material Description
50	#2 blast sand
	stainless steel centralizer
55	4-inch I.D. fiberglass well screen 0.010 inch slot (threaded)

DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW40P

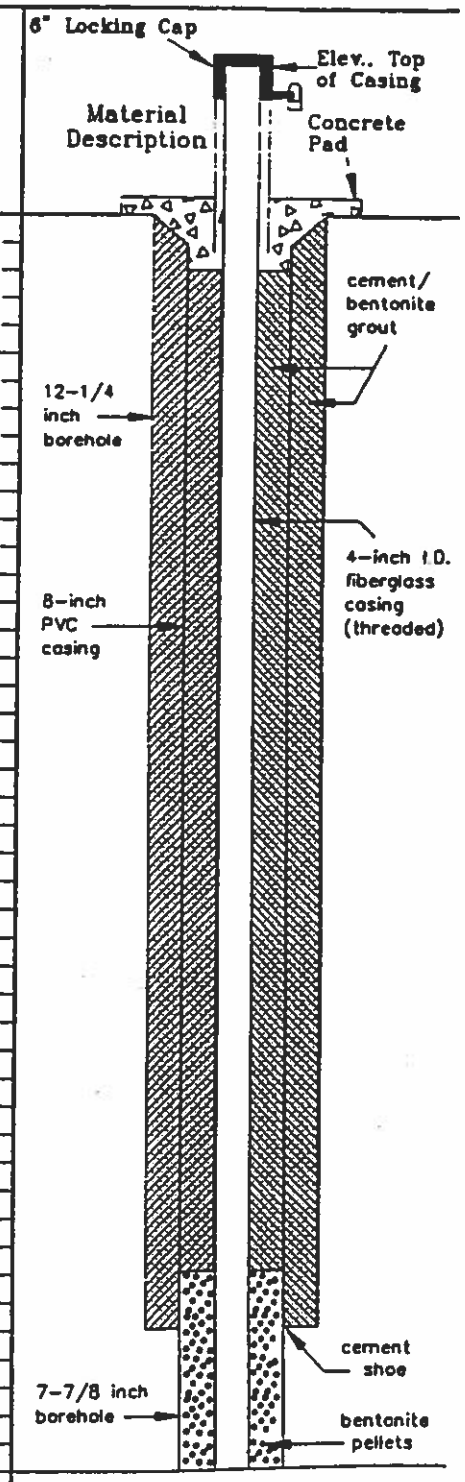
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/19-11/1/88 Well No.: MW-41-8
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2873.99 Top of PVC Casing 2876.13
Total Depth: 70.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY TO 47.0 FT., AIR ROTARY TO TOTAL DEPTH, SPLIT SPOON (3" x 3')
SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	ML		SANDY SILT, dark reddish brown, non-plastic silt, 20-30% very fine to fine sand
5	SM		SILTY SAND, loose to poorly cemented, light reddish brown, poorly graded, very fine to fine sand, dry, 20-40% silt organic vapor reading = 0.6 ppm
15	SP		SAND, loose, reddish brown, poorly graded, very fine to fine sand, trace silt, moist organic vapor reading = 0.4 ppm
25			SAND, loose, light reddish brown, poorly graded, very fine to fine sand, moist, fragments of cemented sand organic vapor reading = 0.4 ppm
40			SANDSTONE, light gray, poorly graded, very fine to fine sand, very hard, well cemented
40	SP		SAND, light reddish brown, poorly graded, very fine to fine sand, trace silt and fine gravel
40			SANDSTONE, very hard, light reddish brown-gray, well cemented, very fine to fine sand, trace coarse sand and fine gravel. loss of circulation at 44.0 feet

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	MR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW41

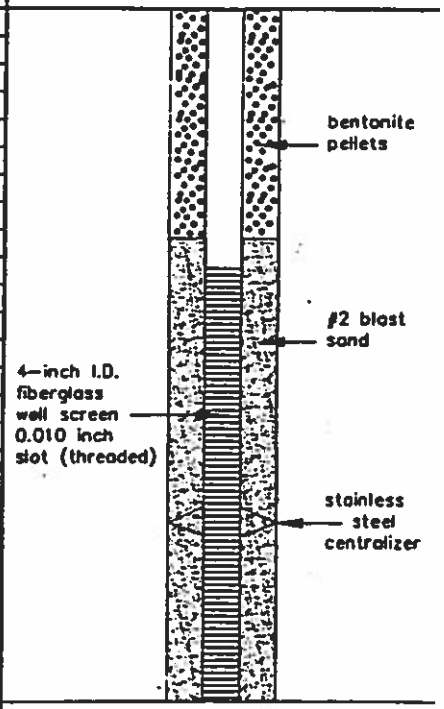
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/19-11/1/88 Well No.: MW-41-88 P.
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2873.99 Top of PVC Casing 2876.13
Total Depth: 70.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY TO 47.0 FT., AIR ROTARY TO TOTAL DEPTH, SPLIT SPOON (3" X 3')
SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
50			SANDSTONE, very hark, light reddish brown to light gray, well cemented, very fine to fine sand, trace coarse sand and fine gravel
55	ML		SANDY SILT, brownish yellow, non-plastic, dry to moist, 20-40% very fine to fine sand, organic vapor reading = 0.4 ppm
60	SP		SAND, loose, light gray, poorly graded, very fine to fine sand, trace silt
65			SAND, loose, light gray, poorly graded, very fine to fine sand, wet, trace silt organic vapor reading = 0.8 ppm
70			TOTAL DEPTH = 70.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW41P

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10-03-88 Well No.: MW-42-88

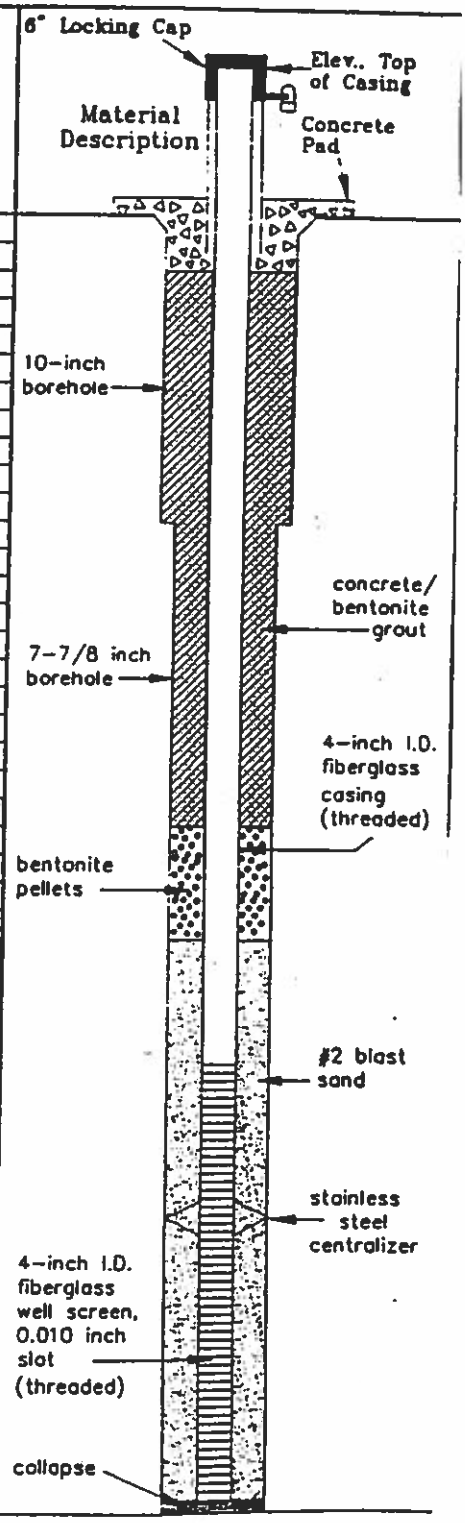
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2882.23 Top of PVC Casing 2884.52

Total Depth: 46.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH

Comments: DRILLED AND SAMPLED USING 10-INCH HOLLOW STEM AUGERS TO 11-FEET AND 7-7/8 INCH HOLLOW STEM AUGERS TO 46.5-FEET. BOREHOLE REDRILLED BY MUD ROTARY PRIOR TO SETTING WELL.

Depth in Feet	Symbol	Stratigraphy	Sample Description
0 - 15	ML		Sandy Silt, low plasticity, very hard, damp, 10-20% very fine sand, calcareous nodules, brown to beige organic vapor reading = 0 ppm
10 - 15	SM		Silty Sand, uniform, very fine, very dense, 10-20% fines, many calcareous nodules and sandstone fragments, partially cemented layers, light pink organic vapor reading = 0 ppm
15 - 30	SP		Sand, uniform, very fine, medium dense, dry, reddish yellow organic vapor reading = 0 ppm Sand, uniform, very fine, very dense, damp, many cemented fragments, reddish yellow
30 - 45	SM		Silty Sand, uniform, very fine, very dense, damp, many cemented fragments, calcareous nodules, 10-20% fines, reddish yellow Silty Sand, uniform, very fine, very dense, saturated, some cemented fragments, reddish yellow organic vapor reading = 0 ppm Sandstone at 46.5 feet, very hard
45			TOTAL DEPTH = 46.5 FEET

Completion Data



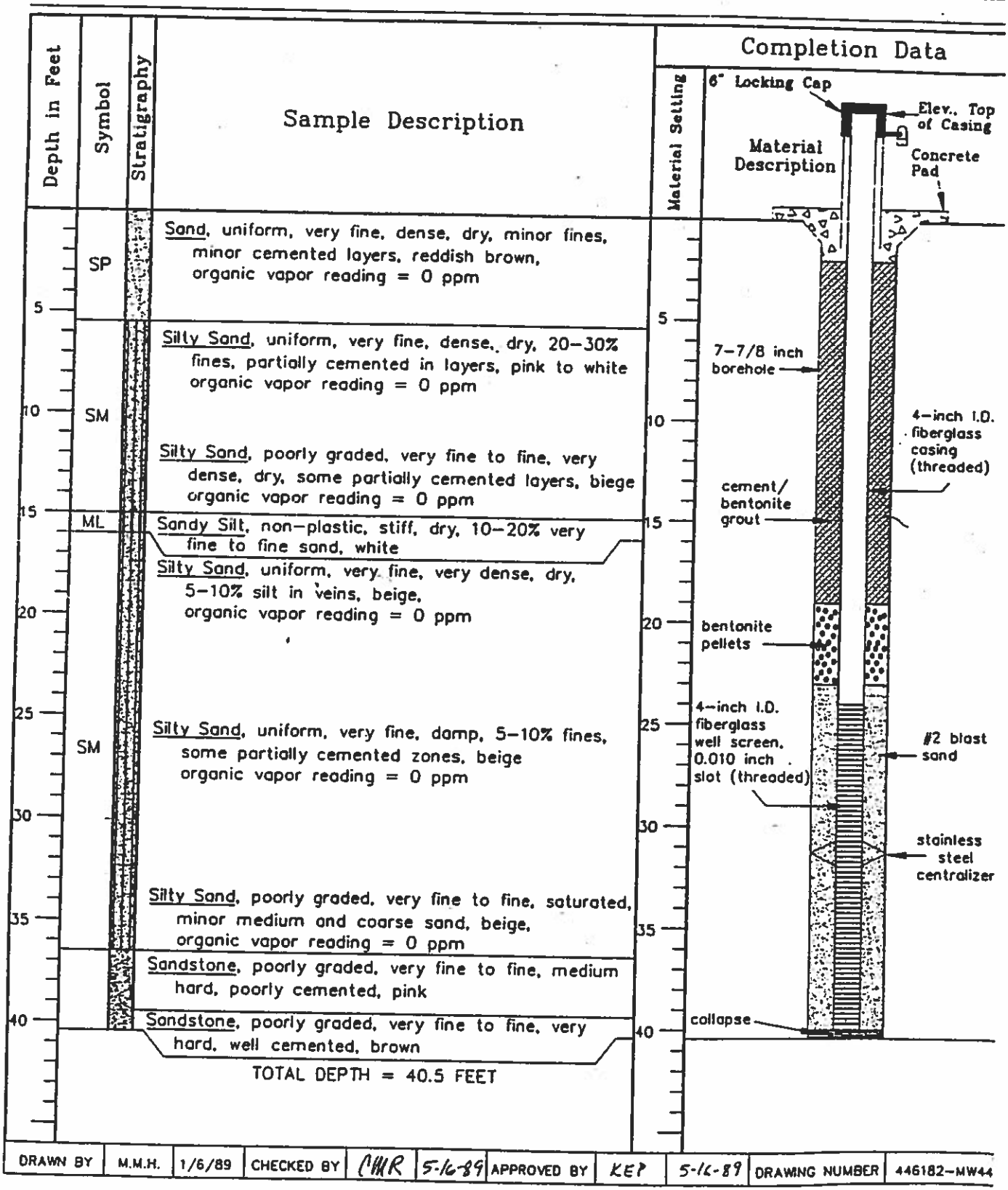
DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW42

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10-26-88 Well No.: MW-44-
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2873.13 Top of PVC Casing 2875.23
Total Depth: 40.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INC
Comments: DRILLED BY MUD ROTARY. SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SP		Sand, uniform, very fine, dense, dry, minor fines, minor cemented layers, reddish brown, organic vapor reading = 0 ppm
10	SM		Silty Sand, uniform, very fine, dense, dry, 20–30% fines, partially cemented in layers, pink to white organic vapor reading = 0 ppm
			Silty Sand, poorly graded, very fine to fine, very dense, dry, some partially cemented layers, biege organic vapor reading = 0 ppm
15	ML		Sandy Silt, non-plastic, stiff, dry, 10–20% very fine to fine sand, white
20	SM		Silty Sand, uniform, very fine, very dense, dry, 5–10% silt in veins, beige, organic vapor reading = 0 ppm
25			Silty Sand, uniform, very fine, damp, 5–10% fines, some partially cemented zones, beige organic vapor reading = 0 ppm
30			
35			Silty Sand, poorly graded, very fine to fine, saturated, minor medium and coarse sand, beige, organic vapor reading = 0 ppm
			Sandstone, poorly graded, very fine to fine, medium hard, poorly cemented, pink
40			Sandstone, poorly graded, very fine to fine, very hard, well cemented, brown
			TOTAL DEPTH = 40.5 FEET



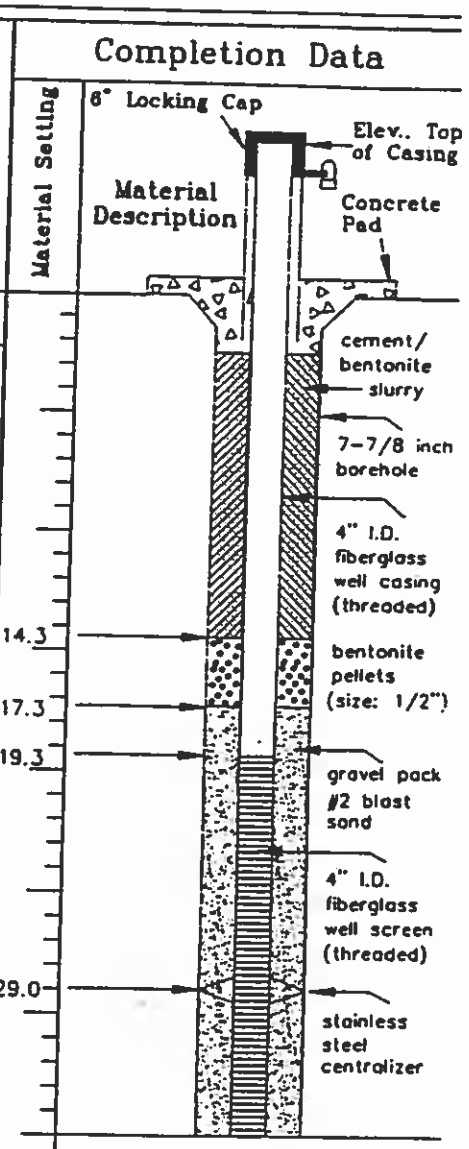
DRAWN BY	M.M.H.	1/6/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW44

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446365 Date Drilled: 11/8-9/88 Well No.: MW-45-8
Site: ODESSA, TX - EAST PLANT Elevation: Pad 2873.96 Top of PVC Casing 2873.98
Total Depth: 35.0 FEET Casing Size & Type: 4" I.D. FIBERGLASS Screen Size: 0.010-INCH
Comments: DRILLED BY AIR ROTARY, SPLIT SPOON (1.5" X 3'), SAMPLES EVERY 5 FEET

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, reddish-brown, loose, poorly graded, very fine to fine sand, 20-30% silt
5	ML		SANDY SILT, light reddish-brown, soft to medium stiff, non-plastic silt, dry, 20-40% very fine to fine sand, fragments of cemented same. organic vapor content = 0.6 PPM
10			
15	SP		SAND, reddish-brown, loose, poorly graded, very fine to fine sand, moist, trace fine gravel and silt. organic vapor content = 0.6-0.7 PPM
20			
25	SP		SAND, reddish-brown, loose, poorly graded, very fine to fine sand, wet to moist. organic vapor content = 0.4 PPM
30			
35			SANDSTONE, very hard, well cemented
			TOTAL DEPTH = 35.0 FEET
40			



DRAWN BY	M.M.H.	3/14/89	CHECKED BY	CMR	6-9-89	APPROVED BY	AEB	6-9-89	DRAWING NUMBER	446365-MW45

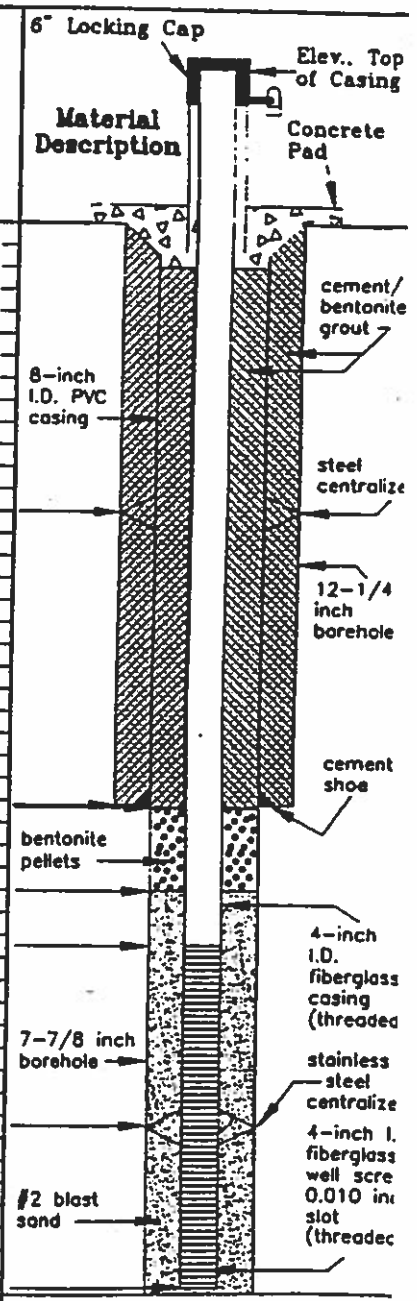
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/8-9/89 Well No.: MW-47-I
Site: ODESSA, TEXAS - WEST PLANT Elevation: Pad 2868.81 Top of PVC Casing 2870.84
Total Depth: 48.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH
Comments: DRILLED BY MUD ROTARY, 3-INCH X 2-FOOT PITCHER BARREL SAMPLES AT 5-FOOT INTERVALS, NX CORE THRU SANDSTONE INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, reddish-brown, loose, very fine to fine sand, 20-30% fines, some sandstone fragments
5	SM		SILTY SAND, pink, very fine to fine sand, 20-40% silt, no odor, moist, some sandstone fragments, loose
10	SM		color change and decrease in silt content SILTY SAND, pink and white, very fine to fine sand, loose with some poorly cemented fragments, 20-30% silt, moist, no odor
15			SANDSTONE, pinkish-white, moderately to well cemented, very fine to fine sand, no odor, moist to dry
	SM		SILTY SAND, pinkish-white, loose, very fine to fine sand, 20-40% silt, no odor, moist to dry, some sandstone fragments
20			SANDSTONE, varigated, well cemented, well graded, very fine sand to fine gravel, dry
			SANDSTONE, varigated, poorly to moderately cemented, well graded, no odor, very fine to coarse sand, some fine gravel
25			SANDSTONE, varigated, well cemented, well graded, very fine to coarse sand and fine gravel
30			SANDSTONE, varigated, well cemented, well graded, very fine to coarse sand and fine gravel, vuggy, some black staining, no odor
35			
40	CL		SANDY CLAY, white, hard (4.0 TSF), moist, no odor, clay with 20-30% very fine to fine sand, brownish-red to gray staining, non to low plasticity
45	CL		SANDY CLAY, brownish-yellow, hard (4.5 TSF), moist to dry, no odor, clay with 10-30% very fine to fine sand, non to low plasticity, brown oxidation stains
50			TOTAL DEPTH 48.0 FEET
55			

Completion Data



DRAWN BY	M.M.H.	3/27/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW47

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/8-14/89 Well No.: MW-48-89

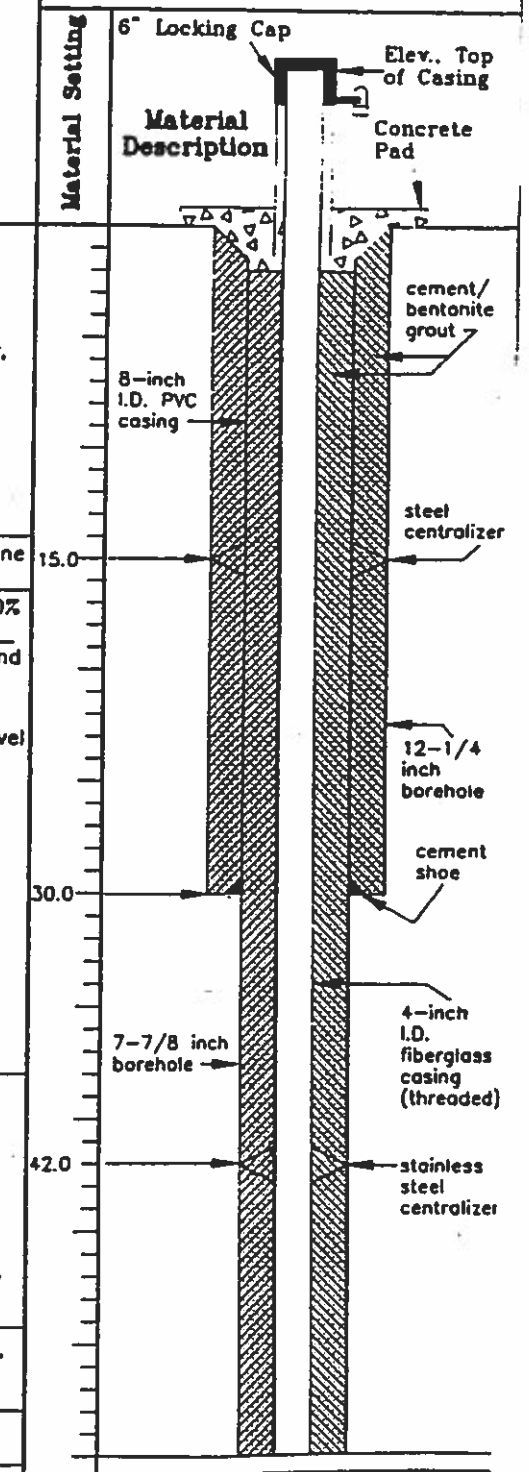
Site: ODESSA, TEXAS - WEST PLANT Elevation: Pad 2868.66 Top of PVC Casing 2870.65

Total Depth: 109.7 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH

Comments: DRILLED BY MUD ROTARY, 3-INCH X 2-FOOT PITCHER BARREL SAMPLES AT 5-FOOT INTERVALS, NX CORE THRU SANDSTONE INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, reddish-brown, loose, very fine to fine sand, 20-30% fines, some sandstone fragments
5	SM		SILTY SAND, pink, very fine to fine sand, 20-40% silt, no odor, moist, some sandstone fragments, loose
10	SM		color change and decrease in silt content SILTY SAND, pink and white, very fine to fine sand, loose with some poorly cemented fragments, 20-30% silt, moist, no odor
15			SANDSTONE, pinkish-white, moderately to well cemented, very fine to fine sand, no odor, moist to dry
	SM		SILTY SAND, pinkish-white, loose, very fine to fine sand, 20-40% silt, no odor, moist to dry, some sandstone fragments
20			SANDSTONE, varigated, well cemented, well graded, very fine sand to fine gravel, dry
			SANDSTONE, varigated, poorly to moderately cemented, well graded, no odor, very fine to coarse sand, some fine gravel
25			SANDSTONE, varigated, well cemented, well graded, very fine to coarse sand and fine gravel
30			SANDSTONE, varigated, well cemented, well graded, very fine to coarse sand and fine gravel, vuggy, some black staining, no odor
35			
40	CL		SANDY CLAY, white, hard (4.0 TSF), moist, no odor, clay with 20-30% very fine to fine sand, brownish-red to gray staining, non to low plasticity
45	CL		SANDY CLAY, brownish-yellow, hard (4.5 TSF), moist to dry, no odor, clay with 10-30% very fine to fine sand, non to low plasticity, brown oxidation stains
0	SC		CLAYEY SAND, white, very stiff (3.5 TSF), dry to moist, no odor, very fine to fine sand, 10-20% fines, some light brown oxidation stains, some poorly cemented fragments
55			SANDSTONE, yellow, hard, very fine to fine sand, some medium, well cemented, no odor

Completion Data



DRAWN BY	M.M.H.	3/27/89	CHECKED BY	MR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW48

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/8-14/89 Well No.: MW-48-89 P2

Site: ODESSA, TEXAS - WEST PLANT Elevation: Pad 2868.66 Top of PVC Casing 2870.65

Total Depth: 109.7 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH

Comments: DRILLED BY MUD ROTARY, 3-INCH X 2-FOOT PITCHER BARREL @ SAMPLES AT 5-FOOT INTERVALS, NX CORE THRU SANDSTONE INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
60			SANDSTONE, yellow, hard, very fine to fine sand, some medium, well cemented, no odor
65			SANDSTONE, hard, very fine to fine sand, some medium, well cemented, no odor
			SANDSTONE, hard, very fine to fine sand, some medium, well cemented, no odor
70			SANDSTONE, varigated, moderate to well cemented, well graded, very fine sand to fine gravel, intermittent light gray clay seams (~2-4")
75			
80			
	CH		CLAY, light gray, medium to high plasticity, no odor, trace very fine sand and silt
85			
90			SANDSTONE, very pale brown, well cemented, poorly graded, very fine to fine sand, some medium sand, slightly vuggy
95			
100	CH		CLAY, light gray, medium to high plasticity, no odor, trace very fine sand
			SANDSTONE, very pale brown, well cemented, very fine to fine sand, some medium sand, poorly graded
5			
	CH		CLAY, white, medium to high plasticty, no odor color change at ~108.5 feet
110			CLAY, dark red, medium to high plasticity, no odor, dry, trace silt
			TOTAL DEPTH 109.7 FEET

Completion Data

Material Setting	Material Description
	cement/bentonite grout
	7-7/8 inch borehole
	4-inch I.D. fiberglass casing (threaded)
82.0	bentonite pellets
86.0	4-inch I.D fiberglass well screer 0.010 inch slot (threaded)
89.34	
	stainless steel centralizer
97.5	
	#2 blast sand
104.8	
105.0	
109.7	

DRAWN BY	M.M.H.	3/29/89	CHECKED BY	MR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW48P2

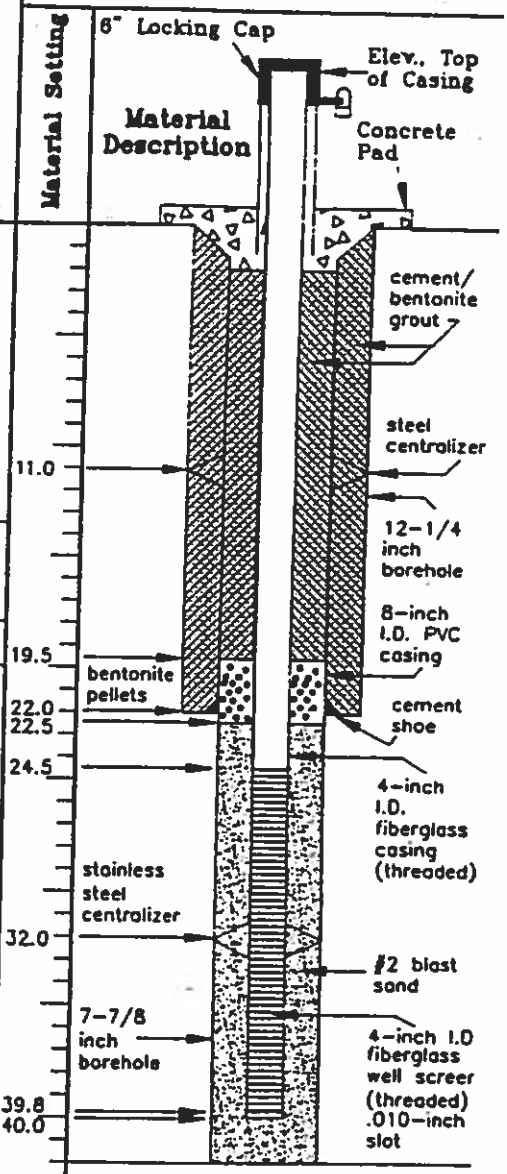
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/16-17/89 Well No.: MW-50-89
Site: ODESSA, TEXAS – WEST PLANT Elevation: Pad 2863.71 Top of PVC Casing 2865.66
Total Depth: 42.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH
Comments: DRILLED BY MUD ROTARY, 3-INCH X 2-FOOT PITCHER BARREL® SAMPLES AT 5-FOOT INTERVALS, NX CORE THRU SANDSTONE INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0			no sample obtainable
5	SM		SILTY SAND, white, very fine to fine sand, 20–40% silt, no odor, some poorly cemented fragments
10			
15			SANDSTONE, very pale brown, well cemented, very fine to fine sand, with some dark gray staining, slight odor, highly fractured
20	SP		SAND, white, very fine to fine sand, trace silt
			SANDSTONE, very pale brown, well cemented, hard, very fine to fine sand, some fine gravel and some vugs, dark gray stains, no odor
25			SANDSTONE, varigated, well cemented, hard, vuggy, well graded, fine sand to fine gravel, highly stained (black), no odor
			gradational change to:
30			SANDSTONE, white, well cemented, hard, poorly graded, very fine to fine sand, no odor, moderate staining (black)
			color change to:
35			SANDSTONE, very pale brown, well cemented, hard, poorly graded, very fine to fine sand, no odor, light to moderate staining (black)
			color change to:
40			SANDSTONE, well cemented, hard, poorly graded, very fine to fine sand, some medium, no odor, light staining
			TOTAL DEPTH = 42.0 FEET
45			
50			
55			

Completion Data



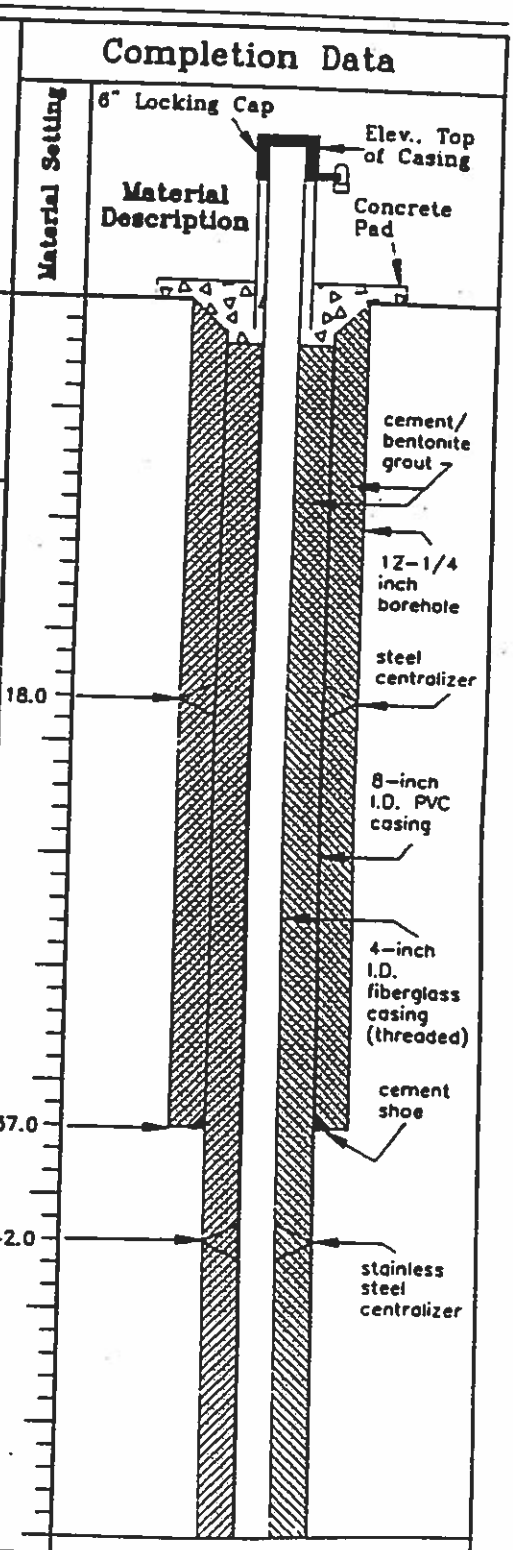
DRAWN BY	M.M.H.	3/29/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW50

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/17-18/89 Well No.: MW-52-39
Site: ODESSA, TEXAS - WEST PLANT Elevation: Pad 2851.78 Top of PVC Casing 2853.79
Total Depth: 100.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH
Comments: DRILLED BY MUD ROTARY

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	ML		SANDY SILT, green-gray, very stiff (3.0 TSF), moist to dry, 20-30% very fine to fine sand, some calcareous nodules, faint odor
10	SM		SILTY SAND, green-gray, hard (4.0 TSF), moist, very fine to fine sand, 20-40% silt, faint odor
20	SW		SAND, green-gray, very stiff, moist, well graded, very fine sand to fine gravel, faint odor, dark gray staining
25	SP		SAND, olive, very fine to fine sand, poorly graded, strong odor, loose, dark gray staining
30	SP		SANDSTONE/SAND, olive-yellow, poorly cemented, poorly graded, very fine to fine sand, highly stained, some gravel, strong odor, moist
35			SANDSTONE/SAND, similar to above, strong odor, dry, dark gray staining
40			SANDSTONE, pale brown, poor to moderately cemented, poorly graded, very fine to fine sand, no odor, some very thin clay seams
45			SANDSTONE, pale brown, poor to moderately cemented, poorly graded, very fine to fine sand, no odor, wet to saturated, very thin clay seams
55			SANDSTONE, pale brown, moderately cemented, very fine to fine sand, poorly graded, no odor, with thin clay seams



DRAWN BY	M.M.H.	3/29/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW52

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/17-18/89 Well No.: MW-52-89
Site: ODESSA, TEXAS - WEST PLANT Elevation: Pad 2851.78 Top of PVC Casing 2853.79
Total Depth: 100.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH
Comments: DRILLED BY MUD ROTARY

Depth in Feet	Symbol	Stratigraphy	Sample Description
60			
65			SANDSTONE, pale brown, moderately cemented, very fine to fine sand, poorly graded, no odor, very thin clay seams
70			
75			SANDSTONE, pale brown, moderately to well cemented, poorly graded, very fine to fine sand, decrease in clay seams
80			
85			SANDSTONE, pale brown, moderately cemented, poorly graded, very fine to fine sand, trace gravel
90			
95	CH		CLAY, light gray, hard, moist, medium to high plasticity, no odor, some yellow-brown staining color change at 98.0 feet CLAY, dark red, medium to high plasticity, no odor, dry, hard (4.5 TSF)
100			TOTAL DEPTH = 100.0 FEET

Completion Data

Material Setting	Material Description
71.3	cement/bentonite grout
75.2	7-7/8 inch borehole
77.6	bentonite pellets
86.5	#2 blast sand
93.8	stainless steel centralizer
94.0	4-inch I.D. fiberglass well screen .010-inch slotted (threaded)

DRAWN BY	M.M.H.	3/30/89	CHECKED BY	CMR	5/16/89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW52F2

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/7/89 Well No.: MW-53-89

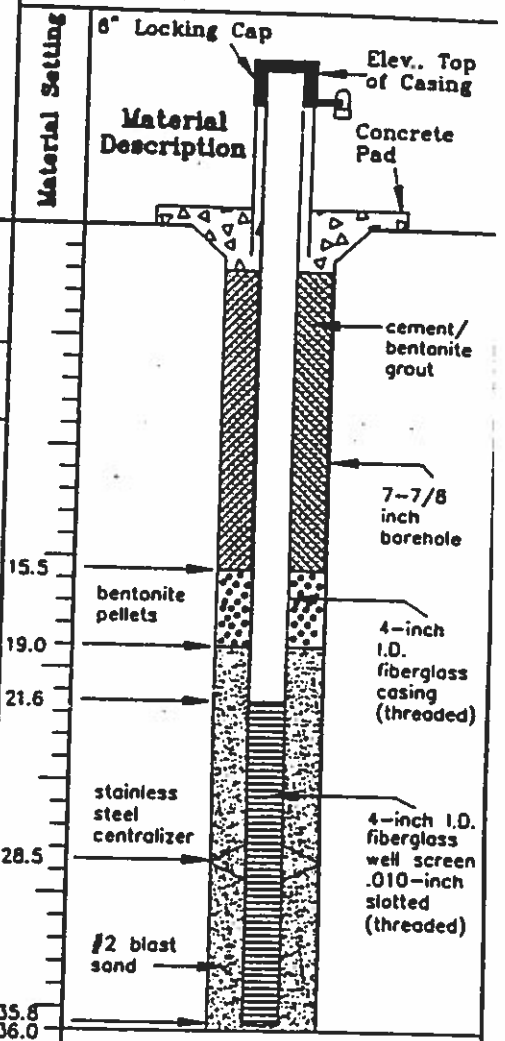
Site: ODESSA, TEXAS - EAST PLANT Elevation: Pad 2869.38 Top of PVC Casing 2871.49

Total Depth: 36.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH

Comments: DRILLED BY AIR ROTARY

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, uniform, very fine, loose to compact, dry to moist, roots, orange-brown
5	SM		SILTY SAND, uniform, very fine, dense, partially cemented, 20-30% fines, calcareous nodules, sandstone fragments, light pink
10	ML/SM		SANDY SILT, non-plastic, hard, 20-30% very fine to fine sand, many cemented fragments, caliche, light pink
15			SANDY SILT/SILTY SAND, non-plastic, hard, approximately 50% very fine to fine sand and 50% silt, poorly cemented, many cemented fragments, light pink
20			
25	SM		SILTY SAND, uniform, very fine, very dense, partially cemented, minor calcareous nodules and veinlets, pink
30	ML		SANDY SILT, non-plastic, very hard, 20-30% very fine, partially cemented, white
35			SANDY SILTSTONE, very hard, well cemented, 20-30% very fine sand, minor fine gravel, white to light pink, many solution vugs
			TOTAL DEPTH = 36.0 FEET
40			
45			
55			

Completion Data



DRAWN BY	M.M.H	3/30/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW53

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/5-6/89 Well No.: MW-54-89
Site: ODESSA, TEXAS - EAST PLANT Elevation: Pad 2869.33 Top of PVC Casing 2871.62
Total Depth: 55.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH
Comments: DRILLED BY AIR ROTARY

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, uniform, very fine, loose to compact, dry to moist, roots, orange-brown
10	SM		SILTY SAND, uniform, very fine, dense, partially cemented, 20-30% fines, calcareous nodules, sandstone fragments, light pink
15	ML/SM		SANDY SILT, non-plastic, hard, 20-30% very fine to fine sand, many cemented fragments, caliche, light pink SANDY SILT/SILTY SAND, non-plastic, hard, approximately 50% very fine to fine sand and 50% silt, poorly cemented, many cemented fragments, light pink
20			
25	SM		SILTY SAND, uniform, very fine, very dense, partially cemented, minor calcareous nodules and veinlets, pink
30	ML		SANDY SILT, non-plastic, very hard, 20-30% very fine, partially cemented, white
35			SANDY SILTSTONE, very hard, well cemented, 20-30% very fine sand, minor to fine gravel, white to light pink, many solution vugs
40			ALTERNATING SANDY SILTSTONE AND SANDSTONE, 1-3 inch layers, siltstone is similar to above, sandstone is very fine to fine grained, some medium and coarse, sandstone is vuggy, oil predominately with some fine horizontal bedding, orange-brown and white
45			SOLUTION CAVITY SANDSTONE, very fine to coarse, fine gravel, hard, well cemented, many vugs, orange-brown SANDSTONE, very fine to fine, some medium and coarse, very hard, well cemented, fine horizontal bedding, some vugs, white
50			SOLUTION CAVITY SANDSTONE, very fine to fine grained, some medium, hard, moderately cemented, massive to slightly bedded, fractured, orange-brown
55			TOTAL DEPTH = 55.0 FEET

Completion Data

Material Setting / Material Description

- 6" Locking Cap
- Elev., Top of Casing
- Concrete Pad
- cement/bentonite grout
- 12-1/4 inch borehole
- 8-inch I.D. PVC casing
- steel centralizer
- 26.0
- 4-inch I.D. fiberglass casing (threaded)
- 33.56
- 36.0
- 37.15
- bentonite pellets
- 39.4
- #2 blast sand
- 45.9
- stainless steel centralizer
- 4-inch I.D. fiberglass well screen .010-inch slotted (threaded)
- 54.9

DRAWN BY	M.M.	3/20/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEF	5-16-89	DRAWING NUMBER	446182-MW54

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/2-4/89 Well No.: MW-55-89

Site: ODESSA, TEXAS - EAST PLANT Elevation: Pad 2869.16 Top of PVC Casing 2871.41

Total Depth: 103.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH

Comments: DRILLED BY MUD ROTARY. WELL DRILLED BY AIR ROTARY.

SAMPLES AT 5 FOOT INTERVALS. (3" X 3') SPLIT SPOON TO 35-FEET. NX CORE:35-76 FEET. GRAB SAMPLES: 76-103 FEET.

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, uniform, very fine, loose to compact, dry to moist, roots, orange-brown
10	SM		SILTY SAND, uniform, very fine, dense, partially cemented, 20-30% fines, calcareous nodules, sandstone fragments, light pink
15	ML/SM		SANDY SILT, non-plastic, hard, 20-30% very fine to fine sand, many cemented fragments, caliche, light pink SANDY SILT/SILTY SAND, non-plastic, hard, approximately 50% very fine to fine sand and 50% silt, poorly cemented, many cemented fragments, light pink
25	SM		SILTY SAND, uniform, very fine, very dense, partially cemented, minor calcareous nodules and veinlets, pink
30	ML		SANDY SILT, non-plastic, very hard, 20-30% very fine, partially cemented, white
35			SANDY SILTSTONE, very hard, well cemented, 20-30% very fine sand, minor to fine gravel, white to light pink, many solution vugs
40			ALTERNATING SANDY SILTSTONE AND SANDSTONE, 1-3 inch layers, siltstone is similar to above, sandstone is very fine to fine grained, some medium and coarse, sandstone is vuggy, all predominately with some fine horizontal bedding, orange-brown and white
45			SOLUTION CAVITY SANDSTONE, very fine to coarse, fine gravel, hard, well cemented, many vugs, orange-brown SANDSTONE, very fine to fine, some medium and coarse, very hard, well cemented, fine horizontal bedding, some vugs, white SOLUTION CAVITY
55			SANDSTONE, very fine to fine grained, some medium, hard, moderately cemented, massive to slightly bedded, fractured, orange-brown

Completion Data

Material Setting	Material Description
26.25	6" Locking Cap
36.25	Elev., Top of Casing
38.0	Concrete Pad
39.75	cement/bentonite grout
46.0	12-1/4 inch borehole
	8-inch I.D. PVC casing
	steel centralizer
	4-inch I.D. fiberglass casing (threaded)
	cement shoe
	stainless steel centralizer
	bentonite pellets
	7-7/8 inch borehole
	cement/bentonite grout

DRAWN BY	M.M.H.	3/20/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW55

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

nt: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 3/2-4/89 Well No.: MW-55-89 D

Site: ODESSA, TEXAS - EAST PLANT Elevation: Pad 2869.16 Top of PVC Casing 2871.41

Total Depth: 103.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010-INCH

Comments: DRILLED BY MUD ROTARY. WELL DRILLED BY AIR ROTARY.

SAMPLES AT 5 FOOT INTERVALS. (3" X 5') SPLIT SPOON TO 35-FEET. NX CORE: 35-76 FEET. GRAB SAMPLES: 76-103 FEET.

Depth in Feet	Symbol	Stratigraphy	Sample Description
60			SANDSTONE, predominately very fine to fine grained, some medium, hard, moderately cemented, massive to finely bedded, some bedding at approximately 30°, some slightly coarser zones, slightly fractured to fractured, orange-brown
65	SM		SILTY SAND, poorly graded, very fine to fine, dense, 20-30% fines, some is partially cemented, yellow-brown
			SANDSTONE, very fine to fine, some medium, hard, moderately cemented, massive, fractured, orange-brown olive-brown at 68.0 feet
			pale brown to yellow-brown at 70.7 feet
			SANDY SILTSTONE, poorly cemented, medium soft, very fine to fine sand, yellow-brown
75			SANDSTONE, very fine to fine grained, hard, well cemented, thin horizontal bedding, pale brown to white
80			SANDSTONE, very fine to fine grained, some medium, hard, moderately cemented, high iron content, dark orange-brown, lighter at 85.0 feet
85			white at 88.0 feet
90			
95			SANDSTONE, very fine to fine grained, hard, moderately cemented, minor medium sand and fine gravel, brown with white layers to 1-foot thick
100	CL		SANDY CLAY, low plasticity, stiff, 20-30% very fine to fine sand, some cemented fragments, yellow-brown
	CH		CLAY, highly plastic, very stiff to hard, damp, gray
			CLAY, highly plastic, very stiff to hard, minor very fine sand, gray veins and veinlets, dark red
			TOTAL DEPTH = 103.0 FEET

Completion Data

Material Setting	Material Description
	cement/bentonite grout
	7-7/8 inch borehole
75.0	bentonite pellets
79.75	4-inch I.D. fiberglass well screen 0.010 inch slot (threaded)
82.3	#2 blast sand
90.0	stainless steel centralizer
	5-5/8 inch borehole
98.0	bentonite pellets

DRAWN BY	M.M.H.	3/22/89	CHECKED BY	CMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-MW55P2

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Well No.: MW-56-

Client: REXENE Job No.: 446415 Date Drilled: 4/26/89 Sheet · of ·

Site: ODESSA, TEXAS Elevation: Pad 2865.32 Top of PVC Casing 2867.76

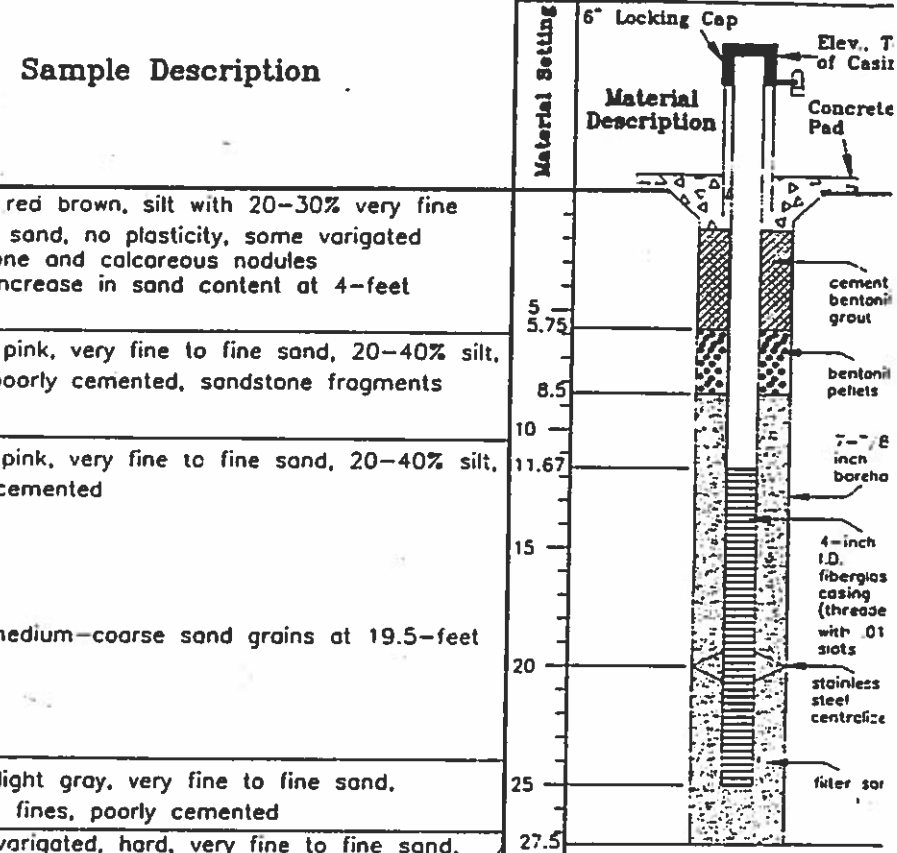
Total Depth: 27.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH

Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

Depth in Feet	Symbol	Stratigraphy	Sample Description
0–5	ML		SANDY SILT, red brown, silt with 20–30% very fine to fine sand, no plasticity, some varigated sandstone and calcareous nodules some increase in sand content at 4-feet
5–10	SM		SILTY SAND, pink, very fine to fine sand, 20–40% silt, some poorly cemented, sandstone fragments
10–15	SM		SILTY SAND, pink, very fine to fine sand, 20–40% silt, poorly cemented
15–20	SM		some medium–coarse sand grains at 19.5-feet
20–25	SM		SILTY SAND, light gray, very fine to fine sand, 20–40% fines, poorly cemented
25–27.5	SP		SANDSTONE, varigated, hard, very fine to fine sand, some medium, moderately to very well cemented
27.5–45			TOTAL DEPTH = 27.5 FEET

Completion Data

Material Setting	Material Description
5	
5.75	
8.5	
10	
11.67	
15	
20	
25	
27.5	



DRAWN BY	JEA	6/2/89	CHECKED BY		APPROVED BY		DRAWING NUMBER	446415-A4

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Well No.: MW-57-

Client: REXENE Job No.: 446415 Date Drilled: 5/2/89 Sheet ' of '

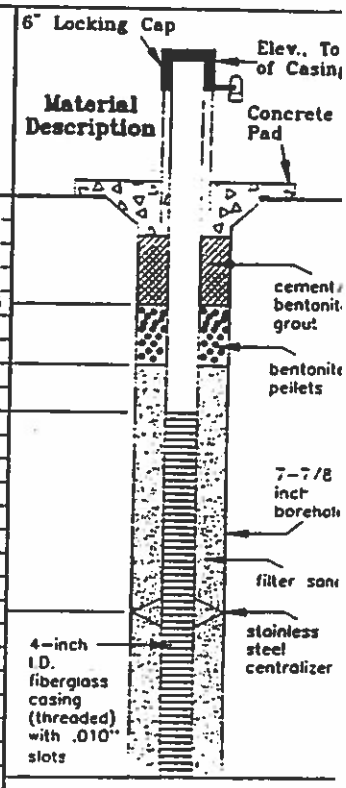
Site: ODESSA, TEXAS Elevation: Pad 2866.11 Top of PVC Casing 2868.53

Total Depth: 24.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH

Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	ML		SAND SILT, red brown, silt with 20-40% very fine to fine sand, some sandstone fragments
5	SM		SILTY SAND, pink, very fine to fine sand with 20-40% silt, some sandstone fragments
10			
15	SP		SAND, pink, very fine to fine sand, poorly cemented, trace silt, poorly graded
20	SM		SILTY SAND, light gray, very fine to fine sand, poorly cemented with 20-40% silt
25	SP		SAND, variated, very hard, very fine to fine sand, some medium, moderately well cemented
30			TOTAL DEPTH = 24.5 FEET
35			
40			
45			

Completion Data



DRAWN BY	JEA	6/1/89	CHECKED BY		APPROVED BY		DRAWING NUMBER	446415-A3

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
SITE: ODESSA, TEXAS
GEOLOGIST: STEVE PULLEN DRILLER: BILL HOUSTON
ELEVATION: PAD 2875.15 CASING 2877.26 CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

JOB NO.: 446844 WELL NO.: MW-59-90
DATE: START 8/27/90 FINISH 8/29/90 SHEET 1 OF 2
TOTAL DEPTH : 72.5 FEET
SCREEN SIZE: 0.010 INCH

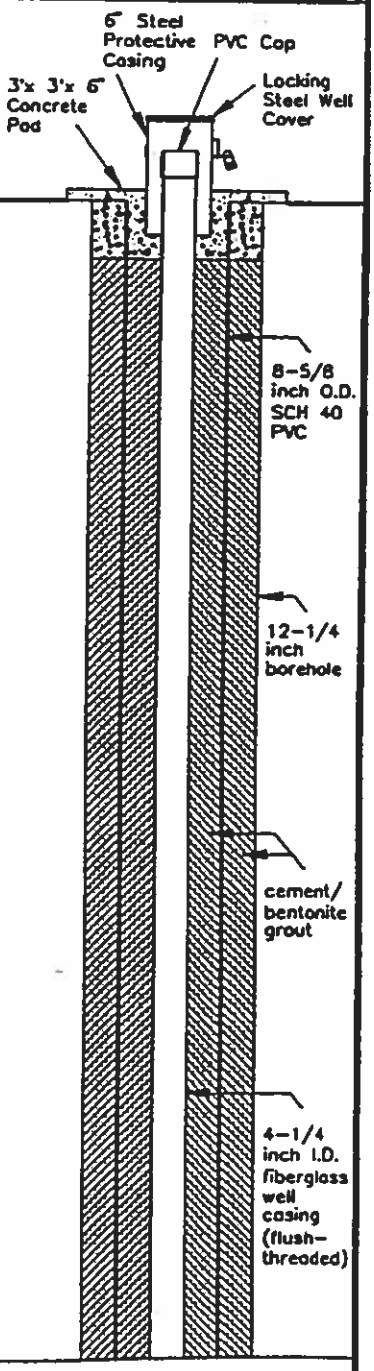
DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/20		0.0	gm		SAND AND GRAVEL – dark grayish brown, fine to medium grained sand, gravel sized caliche fragments, dry
				sm		
5	60/22		0.0			SILTY SAND – pinkish white (5YR 8/2), very hard, dense, growth rings, dry, calcite crystals, caliche – intermittent layers of hard and soft carbonate precipitation – fragments of cemented sand, very stiff, dry, no odor, very high percentage of carbonate precipitation
10	60/36		0.0	sp		SAND – pink (5YR 7/4), change of color noticed by the driller at 10', from cream to pink – at 10', the percentage of carbonate precipitation decreases and percentage of fine grained sand increases, dry
15	36/34					SANDSTONE – uniform, fine to angular (?) grained sand, very stiff, porous, many solution cavities, and carbonate precipitation discoloration, dry, medium cementation
20	60/36		0.0			– very fine to fine grained sand, moderate cementation, few solution cavities, dry to damp, some cavities in carbonate precipitation
25	60/36		0.0			– moist
30	60/12		0.0			– driller suggests that the moisture starts at approximately 28'
35	60/39		0.0			– very hard (crystalline), very high degree of cementation
40	60/49					

GEOPHYSICAL LOGS

GR (CPS)
SP (MV)
RES (OHMS)
0 10 20 30 40 50

GAMMA LOG
RESISTENCE LOG
SP LOG

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A24

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: MW-59-90

SITE: ODESSA, TEXAS — DATE: START 8/27/90 FINISH 8/29/90 — SHEET 2 OF 2

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 72.5 FEET

ELEVATION: PAD 2875.15 CASING 2877.26 — CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	60 / 39		0.0			– very dense (>4.5 tons/sq.ft.), carbonate cemented
50	42 / 22		0.0	gw		GRAVEL – widely graded, .5–5mm cobbles many shell fragments, very dense, poorly cemented, porous – very fast drilling starting at 48'
55	60 / 30		0.0			SANDSTONE – pink, uniform, 30% silt, very fine grained sand, dense (3.5 tons/sq.ft.), saturated, vuggy porosity, moderately cemented
60	60 / 0					
65	60 / 30		0.0	sw		GRAVELLY SAND – well graded, silt to small cobbles, loose, shell fragments, non-cemented, saturated – 30% shell fragments
70	60 / 12					
	24 / 12		0.0	cl		CLAY – light yellowish brown (2.5YR 6/4), moderately plastic, very stiff (3.5 tons/sq.ft.)
75						
80						TOTAL DEPTH = 72.5 FEET

GEOPHYSICAL LOGS

GR (CPS) ——— SP (MV) ——— RES (OHMS) ———

0 10 20 30 40 50

GAMMA LOG

RESISTENCE LOG

SP LOG

COMPLETION DATA

42.0	7-7/8 inch borehole
50.5	stainless steel centralizer
52.0	
55.0	1/2-inch bentonite pellets
56.5	
	4-1/4 inch I.D. fiberglass well screen (0.010 inch slots)
71.5	.74-.77mm silica sand
72.0	

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A24

MONITOR WELL INSTALLATION

WELL NO.: MW-60-90

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — SHEET 1 OF 1

SITE: ODESSA, TEXAS — DATE: START 8/29/90 FINISH 8/30/90

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 40.0 FEET

ELEVATION: PAD 2873.60 CASING 2875.85 CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: NX CORE BARREL USING FILTERED COMPRESSED AIR

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	0/0					
5	36/2		0.0	sm		SILTY SAND – reddish brown, poorly graded, 30% silt, fine to medium grained sand, varing degree of carbonate cementation, dry
	24/3		0.0			– pinkish white
	36/7	MW-60-9.5'	0.0			
10	24/12		0.0			
	36/32					SILTY SANDSTONE – pinkish white, poorly graded, 30% silt, fine grained sand, very well cemented, dry, no odor, caliche
15	60/5		0.0			
20	36/5		0.0			– very dense, high degree of cementation
	24/18			sm		SILTY SAND – pink (5YR 7/4), uniform, 10% silt, 90% very fine to fine grained sand, very loose (non-cemented), dry
25	60/60		0.0			– compact (2.5 tons/sq.ft.), slightly cemented, damp
30	60/55	MW-60-33'	0.7			– 40% silt – gray, color change at 32'
35	60/60					SANDSTONE – pinkish white, uniform, 10% silt, fine grained sand, very dense (>4.5 tons/sq.ft.), damp – driller suggests harder drilling at 37'
40						TOTAL DEPTH = 40.0 FEET

GEOPHYSICAL LOGS: GAMMA (CPS) 0 10 20 30 40 50 — GAMMA LOG

COMPLETION DATA:

- 6" Steel Protective Casing
- PVC Cap
- Locking Steel Well Cover
- 3'x 3'x 6" Concrete Pad
- 4-1/4 inch I.D. fiberglass well casing (flush-threaded)
- 7-7/8 inch borehole
- cement/bentonite grout
- 19.0
- 22.5
- 3/8-inch bentonite pellets
- 23.8
- 4-1/4 inch I.D. fiberglass well screen (0.010 inch slots)
- 38.8
- 39.3
- .74-.77mm silica sand

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A25

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: MW-61-90
SITE: ODESSA, TEXAS — DATE: START 9/6/90 — FINISH 9/14/90 — SHEET 1 OF 3
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH: 115.0 FEET
ELEVATION: PAD 2870.02 — CASING 2872.09 — CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0–5	60 / 36	MW-61-8'	0.0	sm		SILTY SAND – reddish brown, uniform, 20% silt, very fine grained sand, loose, dry – pinkish white, stiff (1.5 tons/sq.ft.), poorly cemented
5–10	60 / 28		0.0	sm		SILTY SAND – pinkish white, uniform, 20% silt, very fine to fine grained sand, dense (4.0 tons/sq.ft.), moderately cemented, dry,. no odor, caliche
10–15	60 / 30		0.0	sm		SILTY SAND – pinkish white, uniform, 20% silt, very fine to fine grained sand, loose, dry
15–20	60 / 5		0.0	sm		SILTY SAND – pinkish white, dense (>4.5 tons/sq.ft.), well cemented with carbonate precipitation, dry, caliche – uniform, 20% silt, very fine grained, very dense (>4.5 tons/sq.ft.), damp in horizons, dendritic block growths in damp zones
20–25	60 / 60		0.0	sm		SILTY SAND – pinkish white, uniform, 20% silt, very fine grained sand, poorly cemented, damp
25–30	60 / 35		0.0			– varies pinkish white to white, fine grained sand, density varies continuously from stiff (1.0 ton/sq.ft.) to very dense (4.5 tons/sq.ft.)
30–35	60 / 60	MW-61-34'	0.0			
35–40	60 / 60		0.0			– softer silty sand from 37' to 38'

GEOPHYSICAL LOGS: GR (CPS), SP (MV), RES (OHMS); 0 10 20 30 40 50; GAMMA LOG; SP LOG; RESISTENCE LOG

COMPLETION DATA: 6" Steel Protective Casing; PVC Cap; Locking Steel Well Cover; 3'x 3'x 6" Concrete Pad; 8-5/8 inch O.D. SCH 40 PVC; 12-1/4 inch borehole; cement/bentonite grout; 4-1/4 inch I.D. fiberglass well casing (flush-threaded); 34.0; carbon steel centralizer; 39.0

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A26

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: MW-61-90

SITE: ODESSA, TEXAS — DATE: START 9/6/90 FINISH 9/14/90 — SHEET 2 OF 3

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 115.0 FEET

ELEVATION: PAD 2870.02 CASING 2872.09 — CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	60 / 60		0.0			SANDSTONE – pinkish white (7.5YR 8/2), approximately 1' bed of fine or coarse grained sediments, few solution cavities, very dense, fine grained sand matrix, layers with mixture of coarse grained sands, granuals, small pebbles and considerable shell fragments, generally impermeable – begin to loose circulation of thin drilling fluid
50	60 / 52		0.0			SHELLSTONE – beds of fine or fine to coarse shell fragments and sand, with small pebbles, very dense, well cemented, possibly some porosity
55	60 / 60		0.0			SANDSTONE – reddish yellow (7.5YR 6/8), pinkish white, gravelly sandstone, thin laminations, approximately 15% dip, (direction unknown) – thin beds of varying partical size, small pebbles with sand to silt – thickened drilling mud contained loss – strong brown, color varies from strong brown to reddish yellow, very dense, fine to medium grained sand – light brown, saturated at 55' – uniform
60	60 / 54		0.0			
65	60 / 58		0.0			– very fine to fine grained sand
70	60 / 52		0.0			
75	60 / 60		0.0			
80	60 / 35					

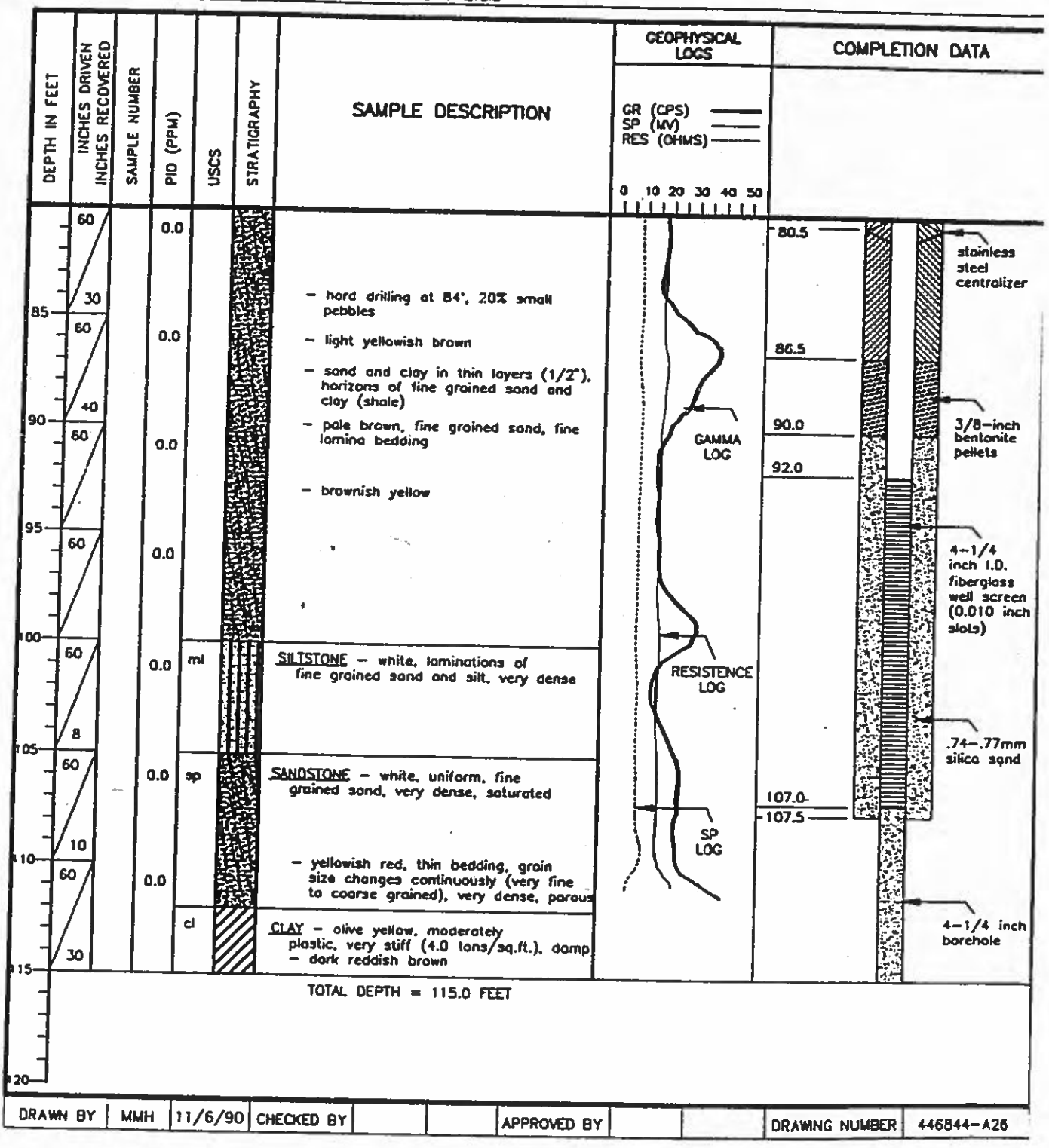
GEOPHYSICAL LOGS: GR (CPS), SP (MV), RES (OHMS); 0 10 20 30 40 50; GAMMA LOG; RESISTENCE LOG; SP LOG

COMPLETION DATA: 7-7/8 inch borehole

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A26

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — WELL NO.: MW-61-90
SITE: ODESSA, TEXAS — JOB NO.: 446844 — SHEET 3 OF 3
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 9/8/90 FINISH 9/14/90
ELEVATION: PAD 2870.02 CASING 2872.09 — CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS — TOTAL DEPTH : 115.0 FEET — SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSC
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A26

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
WELL NO.: MW-62-90
SITE: ODESSA, TEXAS
JOB NO.: 446844
SHEET 1 OF 2
GEOLOGIST: STEVE PULLEN
DRILLER: BILL HOUSTON
DATE: START 9/11/90 FINISH 9/19/90
ELEVATION: PAD 2870.07 CASING 2872.35
TOTAL DEPTH : 72.0 FEET
CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS
SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0						
5	60/36		0.0	sm		SILTY SAND – reddish brown, uniform, 20% silt, very fine grained sand, loose, dry – pinkish white, stiff (1.5 tons/sq.ft.), poorly cemented
	60/28		0.0			
10	60/30		0.0	sm		SILTY SAND – pinkish white, uniform, 20% silt, very fine to fine grained sand, dense (4.0 tons/sq.ft.), moderately cemented, dry, no odor, caliche
15	60/5		0.0	sm		SILTY SAND – pinkish white, uniform, 20% silt, very fine to fine grained sand, loose, dry
20	60/60		0.0	sm		SILTY SAND – pinkish white, dense (>4.5 tons/sq.ft.), well cemented with carbonate precipitation, dry, caliche – uniform, 20% silt, very fine grained, damp in horizons, dendritic black growths in damp zones
25	60/35		0.0	sm		SILTY SAND – pinkish white, uniform, 20% silt, very fine grained sand, poorly cemented, damp
30	60/60		0.0			– varies pinkish white to white, fine grained sand, density varies continuously from stiff (1.0 tons/sq.ft.) to very dense (>4.5 tons/sq.ft.)
35	60/60		0.0			– softer silty sand from 37' to 38'
40	60					

GEOPHYSICAL LOGS
GR (CPS)
SP (MV)
RES (OHMS)
0 10 20 30 40 50
GAMMA LOG
SP LOG
RESISTENCE LOG

COMPLETION DATA
6" Steel Protective Casing
PVC Cap
Locking Steel Well Cover
2'x 2'x 6" Concrete Pad
8-5/8 inch O.D. SCH 40 PVC
12-1/4 inch borehole
cement/ bentonite grout
4-1/4 inch I.D. fiberglass well casing (flush-threaded)
34.0
carbon steel centralizer
39.0

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A27

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
WELL NO.: MW-62-90
SITE: ODESSA, TEXAS
JOB NO.: 446844
SHEET 2 OF 2
GEOLOGIST: STEVE PULLEN
DRILLER: BILL HOUSTON
DATE: START 9/11/90 FINISH 9/19/90
ELEVATION: PAD 2870.07 CASING 2872.35
TOTAL DEPTH : 72.0 FEET
CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS
SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	60 / 60		0.0			SANDSTONE – pinkish white (7.5YR 8/2), approximately 1' bed of fine or coarse grained sediments, few solution cavities, very dense, fine grained sand matrix, layers with mixture of coarse grained sands, granuals, small pebbles and considerable shell fragments, generally impermeable – begin to loose circulation of thin drilling fluid
50	60 / 52		0.0			SHELLSTONE – beds of fine or fine to coarse shell fragments and sand with small pebbles, very dense, well cemented, possibly some porosity
55	60 / 60		0.0			SANDSTONE – reddish yellow (7.5YR 6/8), pinkish white, gravelly sandstone, thin laminations, approximately 15% dip (direction unknown) – thin beds of varying particle size, small pebbles with sand to silt – thickened drilling mud contained loss
60	60 / 54		0.0			– strong brown, color varies from strong brown to reddish yellow, very dense, fine to medium grained sand – light brown, saturated at 55' – uniform, very fine to medium grained sand
65	60 / 58		0.0			– very fine to fine grained sand
70	60 / 52		0.0			
75						
80						

TOTAL DEPTH = 72.0 FEET

GEOPHYSICAL LOGS

GR (CPS)
SP (MV)
RES (OHMS)
0 10 20 30 40 50

GAMMA LOG
RESISTENCE LOG
SP LOG

COMPLETION DATA

48.5
49.5
52.5
54.5
69.5
70.0

7-7/8 inch borehole
stainless steel centralizer
3/8 inch bentonite pellets
4-1/4 inch I.D. fiberglass well screen (0.010 inch slots)
.74-.77mm silica sand

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A27

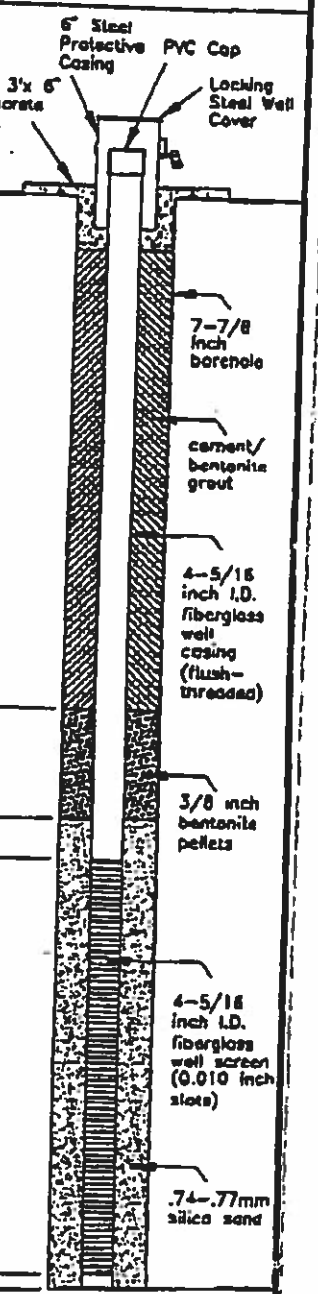
MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — WELL NO.: MW-63-90
SITE: ODESSA, TEXAS — JOB NO.: 446844 — SHEET 1 OF 2
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 9/10/90 FINISH 9/10/90
ELEVATION: PAD 2869.79 CASING 2871.81 — CASING SIZE & TYPE: 4-5/16 I.D. FIBERGLASS — TOTAL DEPTH : 40.5 FEET
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR — SCREEN SIZE: 0.010 INCH
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	60 / 36		0.0	sm		SILTY SAND - reddish brown, uniform, 20% silt, very fine grained sand, loose, dry - pinkish white, stiff (1.5 tons/sq.ft.), poorly cemented
5	60 / 28		0.0			
10	60 / 30		0.0	sm		SILTY SAND - pinkish white, uniform, 20% silt, very fine to fine grained sand, dense (4.0 tons/sq.ft.), moderately cemented, dry, no odor, caliche
15	60 / 5		0.0	sm		SILTY SAND - pinkish white, uniform, 20% silt, very fine to fine grained sand, loose, dry
20	60 / 60		0.0	sm		SILTY SAND - pinkish white, dense (>4.5 tons/sq.ft.), well cemented with carbonate precipitation, dry, caliche - uniform, 20% silt, very fine grained, damp in horizons, dendritic black growths in damp zones
25	60 / 35		0.0	sm		SILTY SAND - pinkish white, uniform, 20% silt, very fine grained sand, poorly cemented, damp
30	60 / 60		0.0			- varies pinkish white to white, fine grained sand, density varies from stiff (1.0 ton/sq.ft.) to very dense (>4.5 tons/sq.ft.)
35	60 / 60		0.0			- softer silty sand from 37' to 38'
40	60					

GEOPHYSICAL LOGS: 0 10 20 30 40 50 — LOGS NOT AVAILABLE

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A28

INTERNATIONAL TECHNOLOGY CORPORATION

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — WELL NO.: MW-63-90

SITE: ODESSA, TEXAS — JOB NO.: 446844 — SHEET 2 OF 2

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 9/10/90 FINISH 9/10/90

ELEVATION: PAD 2889.79 CASING 2871.81 — CASING SIZE & TYPE: 4-5/16 I.D. FIBERGLASS — TOTAL DEPTH : 40.5 FEET

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR — SCREEN SIZE: 0.010 INCH

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION	GEOPHYSICAL LOGS (0 10 20 30 40 50)	COMPLETION DATA
						TOTAL DEPTH = 40.5 FEET		

45 50 55 60 65 70 75 80

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A28

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
WELL NO.: MW-66-90
SITE: ODESSA, TEXAS
JOB NO.: 446844
SHEET 1 OF 2
DATE: START 9/24/90 FINISH 9/24/90
GEOLOGIST: STEVE PULLEN DRILLER: BILL HOUSTON
TOTAL DEPTH : 54.0 FEET
ELEVATION: PAD 2854.77 CASING 2856.69 CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESS
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/20		0.3	ml		SANDY SILT – very pale brown (10YR 7/3), nonplastic, loose, damp, road fill
	24/18		8.5	cl		SANDY CLAY – very dark grayish brown (10YR 3/2), moderately plastic, compact, damp, road fill – some black staining – high percentage of caliche fragments
5	24/20		0.0			
	24/12		0.0			– very dark gray (10YR 3/1), moist, no caliche fragments, strong odor
	24/22		0.0	ml		SANDY SILT – nonplastic, loose, saturated, strong odor
10	24/20		0.0	ml		SANDY SILT – white, nonplastic, compact, saturated, slight odor, high percentage carbonate precipitation, caliche – drilling is soft between 13' and 15'
	24/0					
15	60/5			cl		CLAY – drilling penetration rate fluctuates in the 15 to 20' interval – poor recovery in core barrel, material is too soft – 4 inches of clay inside the core barrel
20	60/45					SANDSTONE – white, fine grained, very dense, moderately well cemented – few small dark spots at 21 to 21.5' possibly stains from hydrocarbon, moderate odor – saturated
25	60/30			cl		SILTY CLAY – brownish yellow (10YR 6/8), driller suggests clay starts at approximately 28' – moderately plastic, 30% silt, dense (4.0 tons/sq.ft.), moist – drilling gets very hard at 30.5'
30	42/36					SANDSTONE – color varies from pale brown to brownish yellow, uniform, fine to medium grained sand, very dense (4.0 tons/sq.ft.) – laminated, fine to medium grained sand with a few very thin clay seams, generally dense (4.0 tons/sq.ft.), saturated
35	60/60					
40						

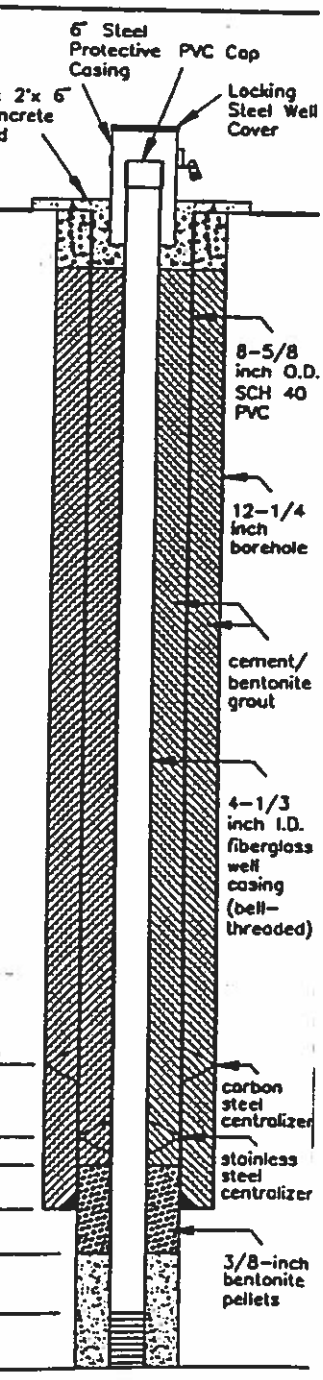
GEOPHYSICAL LOGS

GR (CPS) ——
SP (MV) ——
RES (OHMS) ——

0 10 20 30 40 50

GAMMA LOG
RESISTENCE LOG
SP LOG

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A31

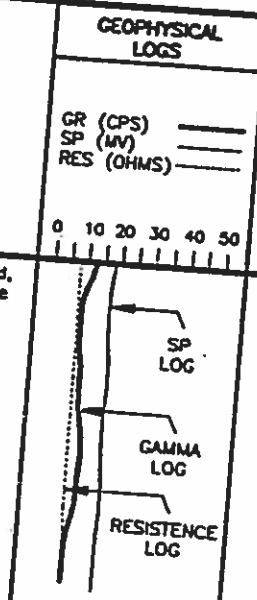
INTERNATIONAL TECHNOLOGY CORPORATION

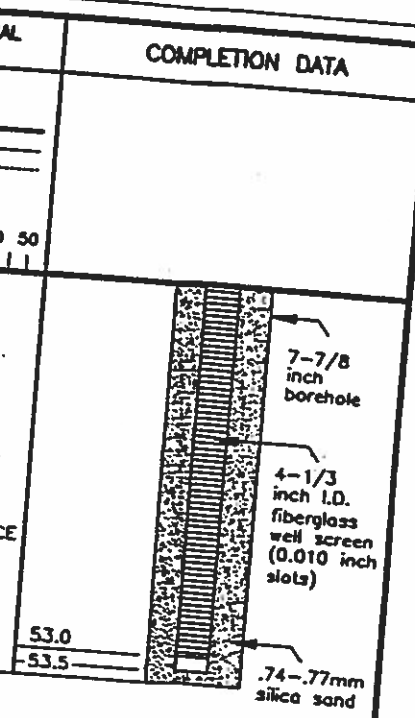
MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
SITE: ODESSA, TEXAS — JOB NO.: 446844 — WELL NO.: MW-66-90
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 9/24/90 — SHEET 2 OF 2
ELEVATION: PAD 2854.77 — CASING 2856.69 — TOTAL DEPTH : 54.0 FEET — FINISH 9/24/90
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR — SCREEN SIZE: 0.010 INCH
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	60 / 56					- white, fine to very fine grained sand, laminated bedding planes, very dense (>4.5 tons/sq.ft.)
50	60 / 60					- pale brown, thin zones of weaker cementation
55	60 / 42					
60	40					
65						
70						
75						
80						

TOTAL DEPTH = 54.0 FEET





DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A31

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: MW-67-90

SITE: ODESSA, TEXAS — DATE: START 10/1/90 FINISH 10/2/90 — SHEET 1 OF 2

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 62.0 FEET

ELEVATION: PAD 2857.85 CASING 2859.89 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/18	MW-67-1'	0.0			SANDY SILT – brownish tan, nonplastic, 30% fine grained sand, loose, damp, layers of catalyst beads, some large gravel, road fill
	24/20		0.1	ml		– mottled tan, brown, olive, percentage of sand varies, compact, fill material
5	24/12	MW-67-5'	0.0			– black, small percentage of tarry material
	24/20					– saturated at 6'
10	24/15		0.0			– 30% fine grained sand, moist
15	24/22		0.0			– gray
20	60/24		0.0			– olive, moderate odor – tan
25	24/5					– mottled, 20% fine grained sand, density varies
30	60/6					– poor recovery, mostly sandstone with little clay – driller suggests alternating layers
35	60/6					SANDSTONE – tan to white, uniform, fine grained sand, very dense, moderately cemented, laminated
40						

GEOPHYSICAL LOGS

GR (CPS) ——
SP (MV) ——
RES (OHMS) ——

0 10 20 30 40 50

GAMMA LOG

SP LOG

RESISTENCE LOG

COMPLETION DATA

6" Steel Protective Casing

PVC Cap

Locking Steel Well Cover

2'x 2'x 6" Concrete Pad

8-5/8 inch O.D. SCH 40 PVC

12-1/4 inch borehole

cement/ bentonite grout

4-1/3 inch I.D. fiberglass well casing (bell-threaded)

carbon steel centralizer

stls. steel centralizer

37.0

38.5

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A32

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: MW-67-90

SITE: ODESSA, TEXAS — DATE: START 10/1/90 FINISH 10/2/90 — SHEET 2 OF 2

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 62.0 FEET

ELEVATION: PAD 2857.85 CASING 2859.89 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	36 / 8	0.0				– very pale brown (10YR 7/4), fine to medium grained sand, dense, saturated, laminated with varying dip angles, appears uncontaminated
	60 / 58					
50	60	0.0				– brownish yellow and very pale brown
	45 / 60					– large percentage of dark minerals – medium to large grained sand
55		0.0				
	60 / 55					– light gray, very fine grained sand, hard drilling
60						

GEOPHYSICAL LOGS: GR (CPS) —— SP (MV) —— RES (OHMS) ——

0 10 20 30 40 50

GAMMA LOG

SP LOG

RESISTENCE LOG

COMPLETION DATA

42.0

43.5

45.5

60.5

61.0

3/8-inch bentonite pellets

7-7/8 inch borehole

4-1/3 inch I.D. fiberglass well screen (0.010 inch slots)

.74-.77mm silica sand

TOTAL DEPTH = 62.0 FEET

65 70 75 80

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A32

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — WELL NO.: MW-68-90
SITE: ODESSA, TEXAS — JOB NO.: 446844 — SHEET 1 OF 2
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 10/3/90 FINISH 10/4/90
ELEVATION: PAD 2858.12 CASING 2858.57 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — TOTAL DEPTH : 64.0 FEET
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR — SCREEN SIZE: 0.010 INCH
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	18/12	MW-68-1'	0.0	ml		SANDY SILT – tan, nonplastic, 30% sand, compact, damp, road fill
			6.5	ml		
	24/18		0.0			CLAYEY SILT – dark brown, nonplastic, 40% clay, compact, damp, moderate odor
						– tan at 3'
5	24/24	MW-68-5'	13.0			– dark gray, 30% clay, color possibly due to contamination
	24/16		64.0			– saturated at approximately 7'
	24/22	MW-68-7'	215			
10						
15	24/18		302			– black, moist
20	18/16		76			– gray, damp
25	18/16		90	ml		– driller suggests soft drilling at 24'
						SANDY SILT – dark gray, nonplastic, 40% fine grained sand, compact, damp, moderate odor
30	60/0					
35	24/18		357	sm		SILTY SAND – gray black, uniform, 30% silt, fine grained sand, moist, compact but staining possibly due to contamination
40						

GEOPHYSICAL LOGS: GR (CPS), SP (MV), RES (OHMS); 0 10 20 30 40 50; SP LOG; GAMMA LOG; 39.0

COMPLETION DATA: 6" Steel Protective Casing; PVC Cap; Locking Steel Well Cover; 3'x 3'x 6" Concrete Pad; 8-5/8 inch O.D. SCH 40 PVC; 12-1/4 inch borehole; cement/ bentonite grout; 4-1/3 inch I.D. fiberglass well casing (bell-threaded); carbon steel centralizer

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A33

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: MW-68-90
SITE: ODESSA, TEXAS — DATE: START 10/3/90 FINISH 10/4/90 — SHEET 2 OF 2
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 64.0 FEET
ELEVATION: PAD 2858.12 CASING 2858.57 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	18/16		5.7	cl		SANDY CLAY – mottled yellowish brown and white, nonplastic, 35% fine grained sand, stiff, moist, no odor, appears clean – harder drilling at 42'
	18/18			sm		SILTY SAND – light tan, uniform, 30% silt, fine grained sand, compact, moist – driller suggests sandstone at 48'
50	60		0.0			SANDSTONE – tan, uniform, very fine to fine grained sand, moderately cemented, few bedding planes with a very shallow dip angle
55	60		0.0			
	60					– sand is fine to medium grained with few small pebbles from 57.5' to 59'
60	58					– few thin clay seams (1/2"), very fine to fine grained sand
	48					
	10					
65						TOTAL DEPTH = 64.0 FEET
70						
75						
80						

GEOPHYSICAL LOGS: GR (CPS), SP (MV), RES (OHMS) — 0 10 20 30 40 50 — SP LOG, GAMMA LOG, RESISTENCE LOG

COMPLETION DATA: 41.5, 42.5, 44.0, 45.5, 47.5, 62.5, 63.0 — stainless steel centralizer; 3/8-inch bentonite pellets; 7-7/8 inch borehole; 4-1/3 inch I.D. fiberglass well screen (0.010 inch slots); .74-.77mm silica sand

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A33

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — WELL NO.: MW-70-90
SITE: ODESSA, TEXAS — JOB NO.: 446844 — SHEET 1 OF 2
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 10/10/90 FINISH 10/11/90
ELEVATION: PAD 2860.73 CASING 2862.95 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — TOTAL DEPTH : 56.5 FEET — SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSO
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/20	MW-70-1'	27	ml		SANDY SILT – brown, nonplastic, 30% fine grained sand, loose, dry
	24/18		75			– black, compact at 1.5' due to contamination, damp
5	24/12	MW-70-5'	4.0			– color possibly due to contamination
	24/18	MW-70-7.5'				– gray
						– mottled dark gray and light gray, saturated at 7.5'
10	24/24		424			– black, highly contaminated
15	24/24		246	ml		SANDY SILT – very pale brown (10YR 8/3), nonplastic, 30% fine grained sand, compact, saturated, high percentage of carbonate precipitation, solution cracks filled with dark brown oily substance, caliche
20	12/12		55			– high percentage of clay in this zone
25	10/8					– light pale brown, very dense
30	60/40		261			– hard drilling at 28.5'
						SANDSTONE – dark gray, uniform, very fine to fine grained sand, dense, moderately cemented, saturated, black oily material in pores
35	60/40			ml		CLAYEY SILT – very pale brown, moderate plasticity, 45% clay, very stiff, damp
			2.0			SANDSTONE – very pale brown, uniform, very fine grained sand, very dense, damp, appears clean
40						

GEOPHYSICAL LOGS: GR (CPS), SP (MV), RES (OHMS); 0 10 20 30 40 50; GAMMA LOG; RESISTENCE LOG; SP LOG

COMPLETION DATA: 6" Steel Protective Casing; PVC Cap; Locking Steel Well Cover; 2'x 2'x 6" Concrete Pad; 8-5/8 inch O.D. SCH 40 PVC; 12-1/4 inch borehole; cement/ bentonite grout; 4-1/3 inch I.D. fiberglass well casing (bell-threaded); carbon steel centralizer; stainless steel centralizer; 1/2-inch bentonite pellets

32.0
35.0
36.0
37.0
39.0

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A35

MONITOR WELL INSTALLATION

WELL NO.: MW-70-90

CLIENT: REXENE PRODUCTS COMPANY JOB NO.: 446844 SHEET 2 OF 2

SITE: ODESSA, TEXAS DATE: START 10/10/90 FINISH 10/11/90

GEOLOGIST: STEVE PULLEN DRILLER: BILL HOUSTON TOTAL DEPTH : 56.5 FEET

ELEVATION: PAD 2860.73 CASING 2862.95 CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	60 / 60		0.0			– very fine to fine grained sand, moderately cemented, saturated
	60 / 60					– very high percentage of clay in a very fine grained matrix
50	60 / 60		0.0			– light yellowish brown, fine to medium grained sand
	60 / 60					– pale yellowish brown, medium grained sand, very dense
55	60		0.0			

TOTAL DEPTH = 56.5 FEET

GEOPHYSICAL LOGS

GR (CPS) ——— SP (MV) ——— RES (OHMS) ———

0 10 20 30 40 50

SP LOG

RESISTENCE LOG

GAMMA LOG

COMPLETION DATA

41.0

56.0

7-7/8 inch borehole

4-1/3 inch I.D. fiberglass well screen (0.010 inch slots)

.74-.77mm silica sand

60 65 70 75 80

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A35

MONITOR WELL INSTALLATION

WELL NO.: MW-73-90

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — SHEET 1 OF 1

SITE: ODESSA, TEXAS — DATE: START 10/18/90 FINISH 10/18/90

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 21.0 FEET

ELEVATION: PAD 2852.65 CASING 2854.59 CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER

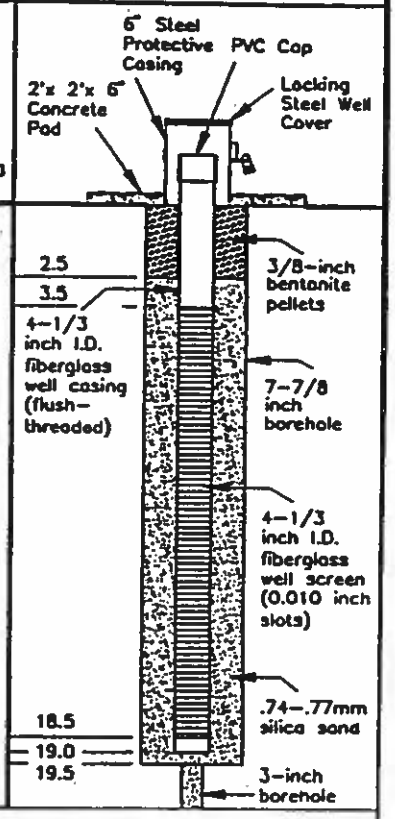
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/20	MW-73-1'	0.0	sm		SILTY SAND – pink, uniform, 40% silt, fine grained sand, loose, damp
	24/20		0.1	cl		SILTY CLAY – brown, moderate plasticity, compact, damp
5	24/22	MW-73-5'	2.2	ml		SANDY SILT – brown, nonplastic; 30% fine grained sand, compact, damp – light gray – saturated at 5.5'
10	24/22		10.5	sm		SILTY SAND – light gray, uniform, 40% silt, fine grained sand, compact, moist
15	24/22		5.7			– black, color is possibly due to contaminate staining –' light gray
20	24/20		2.7	ml		CLAYEY SILT – light gray, nonplastic, 40% clay, compact, moist

TOTAL DEPTH = 21.0 FEET

GEOPHYSICAL LOGS: 0 . 10 20 30 40 50 — LOGS NOT AVAILABLE

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A38

MONITOR WELL INSTALLATION

WELL NO.: MW-74-90

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — SHEET 1 OF 2

SITE: ODESSA, TEXAS — DATE: START 10/28/90 FINISH 10/31/90

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 59.0 FEET

ELEVATION: PAD 2873.58 CASING 2875.74 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 5.5X6 DUPLEX MUD PUMP, AND WITH A 375 CFM AIR COMPRESSOR

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/6		0.0	ml		SANDY SILT – dark brown, nonplastic, compact, damp, 20% very fine grained sand, few caliche fragments
	24/16		0.0	ml		CLAYEY SILT – pink, nonplastic, compact, damp, 30% clay, moderate percentage of carbonate precipitation
5	24/18		0.0	sm		SILTY SAND – white, 30% silt, many hard limestone fragments, loose, dry, caliche – well weathered, organics, solution cavities, very stiff
	60/45		0.0			
10	60/56		0.0			LIMESTONE – white, horizontal fractures with deposits of calcite crystals, slightly weathered, very hard, dry
15	60/24					– pink, few solution cavities, moderately weathered, 20% fine grained sand
20	60/48		0.0			SANDSTONE – pink, few solution cavities, very hard, fine grained sand with carbonate cement, damp
25	60/60		0.0			– fewer solution cavities, few calcite crystals – drilling penetration rate decreases at 26.5' (harder lithology)
30	60/60					– secondary porosity
35	60/60		0.0			SANDSTONE – white, very hard, medium grained sand, damp
40	60					– shell hash, crystalline, nonpermeable aquitard starting at 37'

GEOPHYSICAL LOGS: GR (CPS), SP (MV), RES (OHMS); 0 10 20 30 40 50; GAMMA LOG; SP LOG; RESISTENCE LOG

COMPLETION DATA: 6" Steel Protective Casing; PVC Cap; Locking Steel Well Cover; 2'x 2'x 6" Concrete Pad; 8-5/8 inch O.D. SCH 40 PVC; 12-1/4 inch borehole; cement/bentonite grout; 4-1/3 inch I.D. fiberglass well casing (bell-threaded); carbon steel centralizer; stls. steel centralizer; 3/8-inch bentonite pellets; 33.5; 36.0; 38.5

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A39

INTERNATIONAL TECHNOLOGY CORPORATION

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
SITE: ODESSA, TEXAS
WELL NO.: MW-74-90
GEOLOGIST: STEVE PULLEN
DRILLER: BILL HOUSTON
JOB NO.: 446844
DATE: START 10/28/90
SHEET 2 OF 2
FINISH 10/31/90
ELEVATION: PAD 2873.58 CASING 2875.74
CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS
TOTAL DEPTH : 59.0 FEET
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 5.5X6 DUPLEX MUD PUMP, AND WITH A 375 CFM AIR COMPRESSOR
SCREEN SIZE: 0.010 INCH
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
45	48 / 48		0.0			SANDSTONE - pink, fine grained sand, very well cemented by carbonate cement, friable, porous
	60 / 60		0.0			LIMESTONE - white, high percentage fine grained sand, shell fragments, very dense, nonpermeable - fossiliferous, altering layers of fine and coarse shell fragments - porosity varies continuously - drilling penetration rate increases at 47' - at 48' the shell fragments are very small and poorly cemented, very porous - high percentage fine grained sand
50	60 / 60					
	60 / 60		3.2			SANDSTONE - yellow, fine to medium grained sand, moderately cemented, dense, laminated, shallow dip angles, appears permeable
55	60 / 60					CLAY - very pale brown, nonplastic, very dense (shale 5"), thick, damp, impermeable
	60		0.0	cl		SANDSTONE - yellow, medium grained sand, very dense, moderately cemented, laminated with few iron oxide rich laminations, apparently permeable - dark reddish brown, at 58.5' sandstone is very dark colored apparently due to iron oxide staining
60						TOTAL DEPTH = 59.0 FEET
65						
70						
75						
80						

GEOPHYSICAL LOGS

GR (CPS)
SP (MV)
RES (OHMS)

0 10 20 30 40 50

GAMMA LOG
RESISTENCE LOG
SP LOG

COMPLETION DATA

42.0
57.0
57.5

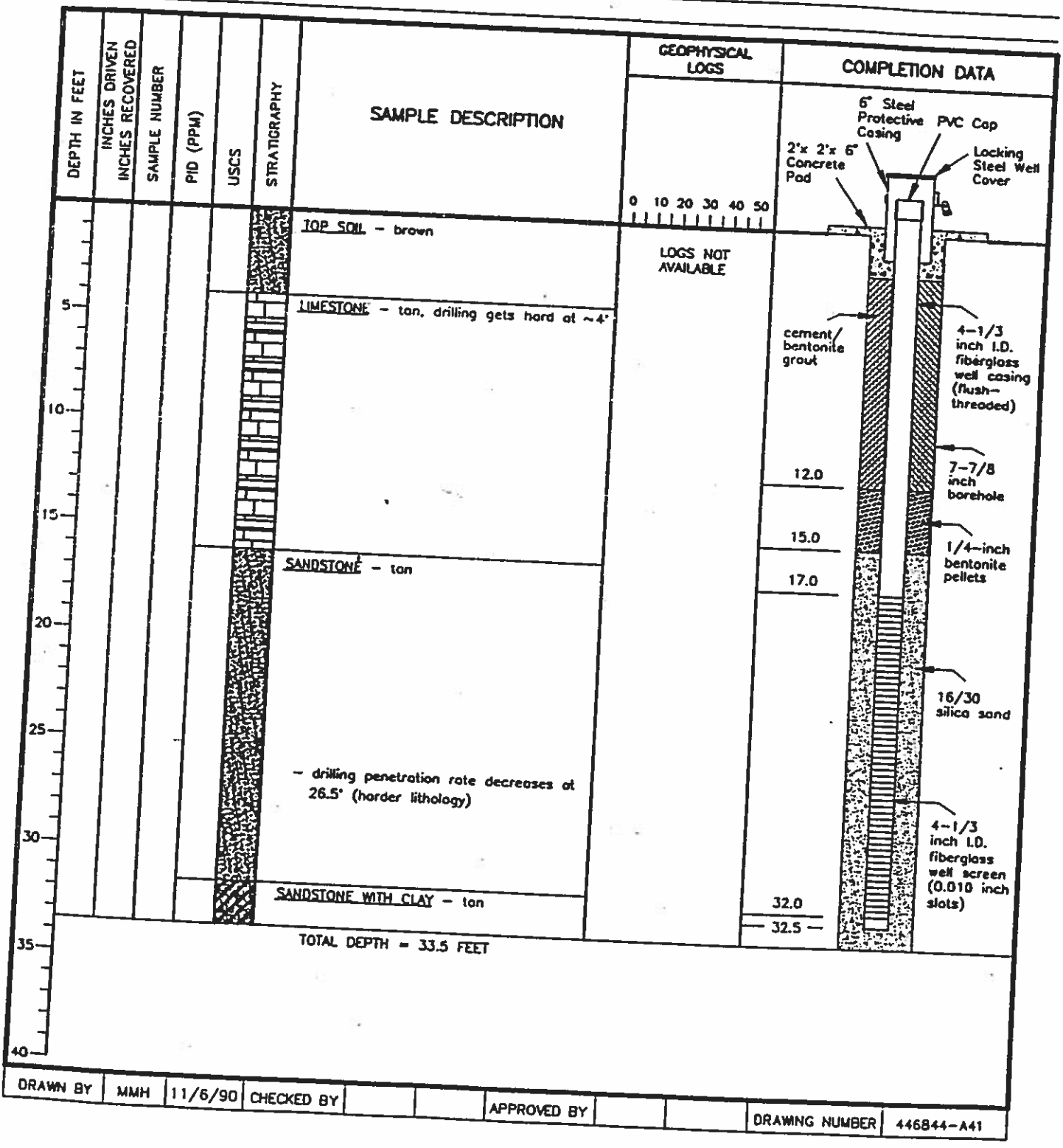
7-7/8 inch borehole
4-1/3 inch I.D. fiberglass well screen (0.010 inch slots)
.74-.77mm silica sand

DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A39

INTERNATIONAL TECHNOLOGY CORPORATION

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
SITE: ODESSA, TEXAS
JOB NO.: 446844
WELL NO.: MW-76-90
SHEET 1 OF 1
GEOLOGIST: STEVE PULLEN
DRILLER: BILL HOUSTON
DATE: START 11/27/90 FINISH 11/27/90
ELEVATION: PAD 2870.85 CASING 2872.85
TOTAL DEPTH : 33.5 FEET
CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY AND 4.5 X 5 DUPLEX MUD PUMP
SCREEN SIZE: 0.010 INCH
SAMPLING METHODS: COLLECT CUTTINGS EVERY 2 FEET
COMMENTS:



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A41

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-77-92

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF GRANDVIEW AVE. SURFACE ELEV.(FT): 2870.37
Logged By: M. WILSON TOTAL DEPTH(FT.): 32.5
Drilled By: A. HINOJOSA GPI Date Started: 6/3/92 Date Completed: 6/3/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

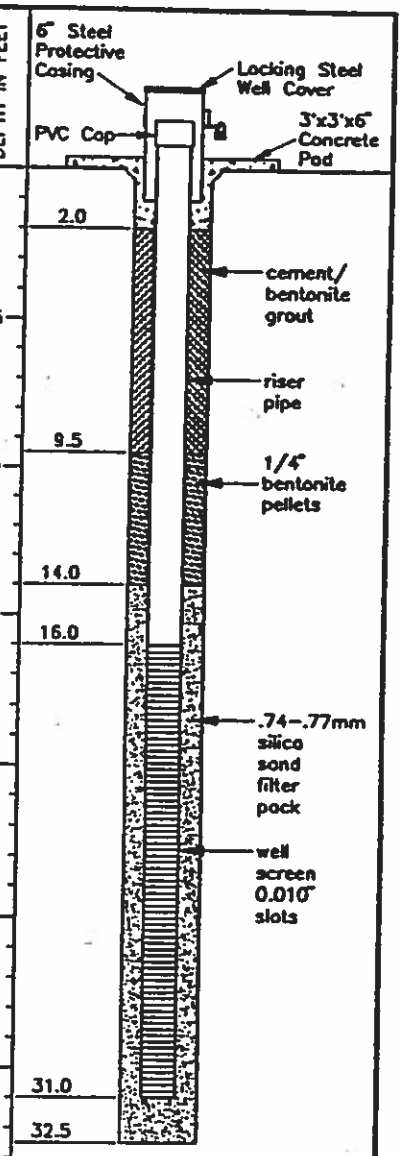
Sampling Method: 2' X 3" SPLIT SPOON WITH 140-LB HAMMER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2872.80 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 16 Type: FIBERGLASS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 16.0-31.0 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 14.0-32.5
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine to fine grained; roots; dark brown; damp			24	8		sm		0
SANDY SILT - slightly plastic; some fine grained sand; friable and crumbly; well caichified; poorly graded; loose; roots; pink; dry			24	24		ml		2.0
SAND - 50% very fine to medium grained sand; 50% silt; less caliche; light brown			24	24				5
- 100% fine to medium grained uniform sand; poorly graded; subrounded; caliche nodules; iron staining and carbonate cement along fractures; pink slightly damp			24	24		sp		9.5
- sandstone lense; dense			24	24				10
- sandstone nodules			24	24				
- saturated			24	24				14.0
			24	24				15
			24	24				16.0
			24	24				
- loose; poorly graded; carbonate cement; moist			12	12				20
- dense sandstone nodules slow drilling process			12	12				
			12	12				25
			12	12				
			12	12				30
SANDSTONE - 20 to 30% caliche; fine grained sand; carbonate cemented; poorly graded; dense; white						sp		31.0
TOTAL DEPTH = 32.5 FEET								32.5
								35
								40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A14 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS

Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-78-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF E. PLANT ALONG GRANDVIEW AVE. SURFACE ELEV.(FT): 2874.52

TOTAL DEPTH(FT.): 60.7

Logged By: M. WILSON Date Started: 6/4/92

Drilled By: A. HINOJOSA GPI Date Completed: 6/8/92

Drill Rig Type: MOBILE B-61

Drilling Method: 8" HOLLOW STEM AUGERS AND AIR ROTARY

Sampling Method: 2" X 3" SPLIT TUBE

Notes: –

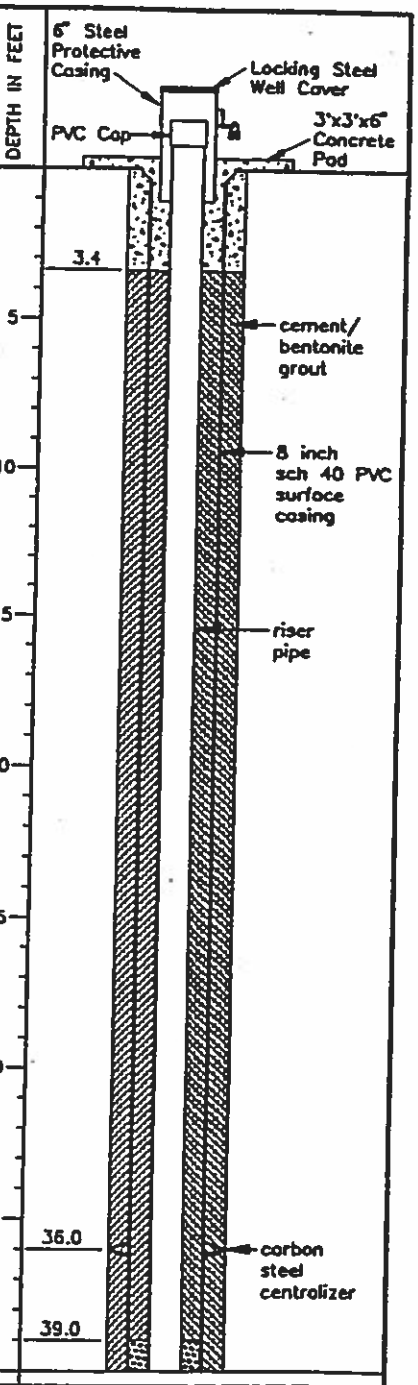
WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2876.97 Ref. Datum: MSL

1. Surf Casing–I.D.(in.): 8 Depth(ft.): 41.3 Type: SCH 40 PVC
   Centralizers–Type: STEEL Depths(ft.): 36
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 45.7 Type: FIBERGLASS
   Centralizers–Type: ST. STL. Depths(ft.): 44
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 45.7–60.7 Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 44.7–60.7
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG
SILTY SAND – cover soil; rootlets; brown – caliche nodules		24		0.0	sm	
SAND – fine to medium grained; loose; poorly graded; poorly consolidated; weakly cemented; caliche nodules; pink		24		0.0	sp	
		24		0.0		
– very loose; abundant cobble sized caliche nodules		24	0.0	0.0		
		12/24		0.0		
		12/12		0.0		
		12/12	0.0			
– less caliche nodules		12/12		0.0		
		24		0.0		
		12/12		0.0		
– frequent dense well carbonate cemented sandstone nodules (possibly sandstone lense)		12/12				
– 3 inch layer of sandstone						
– cleaner; uniformly graded; no caliche						
– slightly moist		24	0.0	0.0		
		19/24		0.0		
		24				
		24	0.0	0.0		
		24				
– very moist		24		0.0		
– saturated		24				
		24				
		20/24		0.0		
		24				
SANDSTONE – fine to medium grained; dense; poorly graded; well cemented; several solution cavities; white					sp	
SAND – fine to medium grained; poorly graded; pink					sp	
		6/6	0.1	0.0		
SANDSTONE – white; dense		48			sp	

DEPTH IN FEET: 5, 10, 15, 20, 25, 30, 35, 40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A15 Sheet 1 of 2

Client: REXENE Project Location: ODESSA, TEXAS

Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-78-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF E. PLANT ALONG GRANDVIEW AVE. SURFACE ELEV.(FT): 2874.52
TOTAL DEPTH(FT.): 60.7
Logged By: M. WILSON Date Started: 6/4/92
Drilled By: A. HINOJOSA GPI Date Completed: 6/8/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGERS AND AIR ROTARY

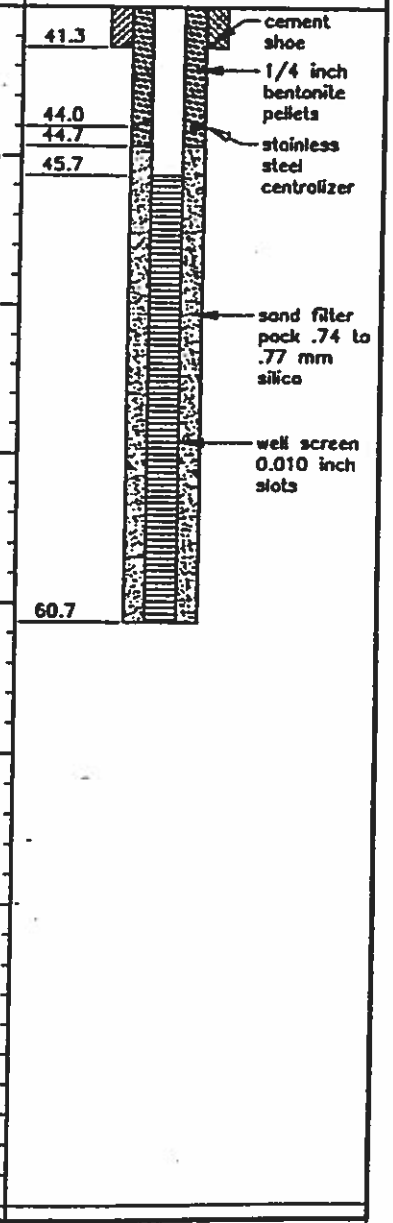
Sampling Method: 2" X 3" SPLIT TUBE

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2876.97 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 41.3 Type: SCH 40 PVC
   Centralizers-Type: STEEL Depths(ft.): 36
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 45.7 Type: FIBERGLASS
   Centralizers-Type: ST. STL. Depths(ft.): 44
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 45.7-60.7 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 44.7-60.7
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND - fine to medium grained; poorly graded; pink		42			sp		
SANDSTONE - fine to medium grained; dense; well cemented with carbonate; numerous chert nodules; white		24 / 8	0.0	0.0	sp		
SANDY GRAVEL - 40% medium grained to very coarse sand; some clay clasts; loose; well graded; conglomeritic in places; clasts consist of chert, sandstone and clay; pink; saturated					gw		
- poorly cemented		12 / 12	0.0				
		12 / 12	0.0				
TOTAL DEPTH = 60.7 FEET							



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A15 Sheet 2 of 2

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-80-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF EAST PLANT
SURFACE ELEV.(FT): 2878.44
TOTAL DEPTH(FT.): 42.1
Logged By: M. WILSON
Date Started: 6/9/92
Drilled By: A. HINOJOSA GPI
Date Completed: 6/10/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGERS AND AIR ROTARY

Sampling Method: 2" X 3" SPLIT SPOON AND 5' X 3" CORE BARREL

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2880.92 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 21.4 Type: FIBERGLASS
Centralizers–Type: ST. STL. Depths(ft.): 19.4
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 21.4–36.5 Slot Size(in.): .010
Centralizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 20.6–36.7
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – cover soil; caliche nodules; rootlets; brown			24/24	0.0	0.0	sm		
SAND – fine to medium grained; loose; poorly graded; crumbly; numerous caliche nodules; pink; dry			24/24		0.0	sp		
– well calichified; dark brown silty sand nodules			24/16	0.2	0.0			5
– better consolidated; fewer caliche nodules			24/24		0.0			
– clean; loose; very few caliche nodules; some well cemented sand nodules			24/18		0.0			
– slightly moist			12/12	0.2	0.0			10
– numerous well cemented sand chunks			12/12		0.0			
– hard			24/24	0.2	0.0			15
SANDSTONE – 0.3 foot layer of well graded, fine grained sand to pebble sized chert clasts; well cemented; white			24/24		0.0			
– medium grained uniform sand; well rounded; hard; dense; moderately well cemented; pink; moist			12/12		0.0			
			60/	0.2	0.0	sp		20
			60/60	0.2	0.0			25
– saturated			60/52	0.0	0.0			30
– extremely hard			35/		0.0			35
– alternating layers of pink and hard, dense, white			24/20		0.0	sp		40
SILTY SANDSTONE – fine to medium grained; 10 to 15% fines; dense; well cemented; white								

6" Steel Protective Casing
Locking Steel Well Cover
PVC Cap
3'x3'x6" Concrete Pad
6.0
cement/ bentonite grout
riser pipe
17.5
1/4 inch bentonite pellets
19.4
stainless steel centralizer
20.6
21.4
sand filter pack .74 to .77 mm silica
well screen 0.010 inch slots
36.5
36.7
collapse

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A17 Sheet 1 of 2

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-80-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF EAST PLANT
SURFACE ELEV.(FT): 2878.44
TOTAL DEPTH(FT.): 42.1
Logged By: M. WILSON
Date Started: 6/9/92
Drilled By: A. HINOJOSA GPI
Date Completed: 6/10/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGERS AND AIR ROTARY

Sampling Method: 2" X 3" SPLIT SPOON AND 5' X 3" CORE BARREL

Notes: --

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2880.92 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 21.4 Type: FIBERGLASS
Centralizers-Type: ST. STL. Depths(ft.): 19.4
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 21.4-36.5 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 20.6-36.7
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
- a few small pink sandstone lenses							
TOTAL DEPTH = 42.1 FEET							42.1

45
50
55
60
65
70
75
80

IT INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A17 Sheet 2 of 2

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-81-92

DRILLING AND SAMPLING INFORMATION

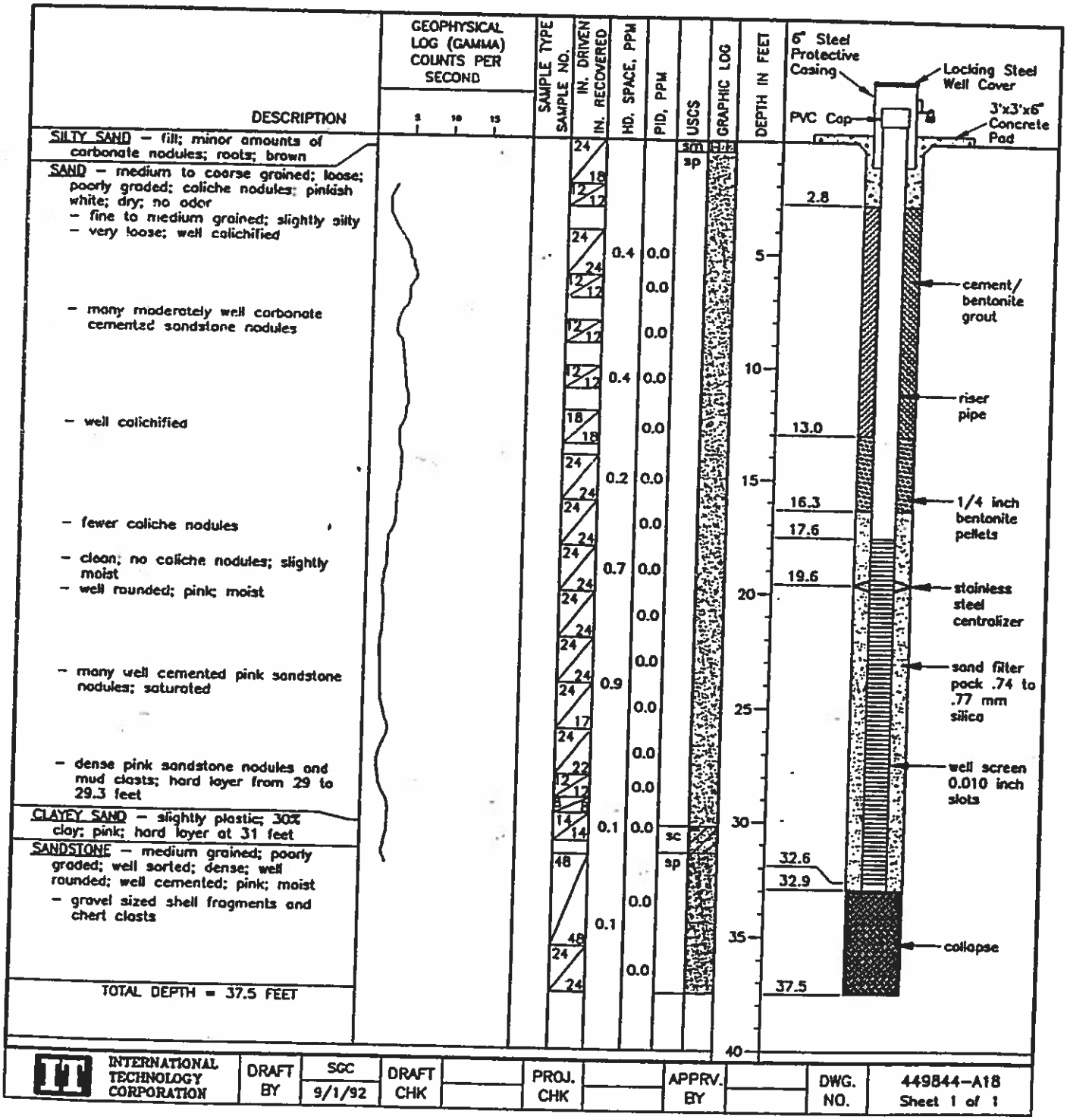
Boring Location: SOUTH OF E. PLANT ALONG GRANDVIEW AVE.
SURFACE ELEV.(FT): 2872.37
TOTAL DEPTH(FT.): 37.5
Logged By: M. WILSON
Date Started: 6/15/92
Drilled By: A. HINOJOSA GPI
Date Completed: 6/16/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGERS AND AIR ROTARY

Sampling Method: 2" X 3" SPLIT SPOON AND 5' X 3" CORE BARREL

Notes: –

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2874.92 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 17.6 Type: FIBERGLASS
   Centralizers-Type: – Depths(ft.): –
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 17.6-32.6 Slot Size(in.): .010
   Centralizers-Type: ST. STL. Depths(ft.): 19.6
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 16.3-32.9
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A18 Sheet 1 of 1

Client: REXENE | Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM | Project Number: 449844

MONITORING WELL MW-84-92

DRILLING AND SAMPLING INFORMATION

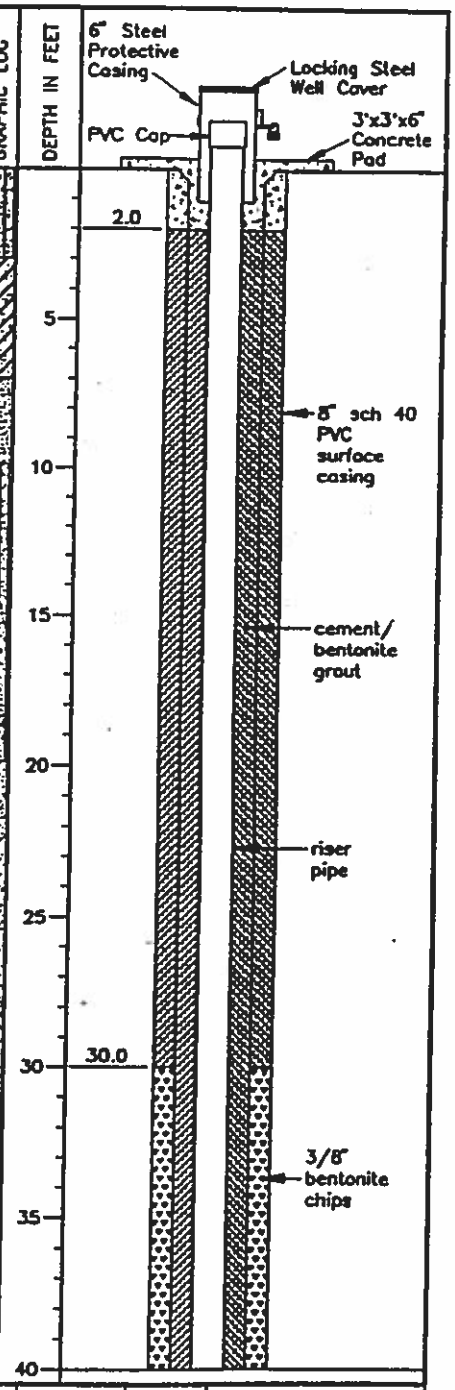
Boring Location: E OF EAST PLANT NR WW-18 | SURFACE ELEV.(FT): 2872.50
TOTAL DEPTH(FT.): 114.0
Logged By: M. WILSON | Date Started: 6/22/92
Drilled By: J. LANDEROS GPI | Date Completed: 6/30/92
Drill Rig Type: MOBILE B-61
Drilling Method: MUD ROTARY AND AIR ROTARY WITH 7 7/8" TRICONE ROCK BIT
Sampling Method: NO SAMPLING UNTIL 53 FEET, 2' X 3" SPLIT SPOON TO 77 FEET, 5' X 3" CORE BARREL TO 114 FEET
Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2874.92 | Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8 | Depth(ft.): 44.1 | Type: SCH 40 PVC
   Centralizers–Type: – | Depths(ft.): –
2. Riser Pipe–I.D.(in.): 4 | Depth(ft.): 98.1 | Type: FIBERGLASS
   Centralizers–Type: ST STEEL | Depths(ft.): 96.1
3. Screen Dia.(in.): 4 | Type: FIBERGLASS
   Depth Interval(ft.): 98.1–113.1 | Slot Size(in.): .010
   Centralizers–Type: – | Depths(ft.): –
4. Filter Pack Type: SILICA SAND | Depth Interval(ft.): 94.1–113.25
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – fine to medium grained sand; 10 to 20% silt; poorly graded; roots; dark brown	sm		0
SANDY CLAY – moderately plastic; 20 to 30% medium grained sand; many caliche nodules; pink – 60% caliche nodules	cl		5
SAND – fine to med. grained; loose; poorly graded; many caliche nodules; pink; dry – extensive caliche nodules and carbonate cement	sp		10
SILTY SAND – fine to medium grained; 10 to 20% silt; compact; poorly graded; well sorted; weakly cemented caliche nodules; pink; dry – clean; no caliche – roots	sm		15
SAND – fine to medium grained; poorly graded; many roots; dry; pink – slightly moist – better consolidated; some calcite precipitation in fractures	sp		20 25 30
SANDSTONE – fine to very coarse grained; 50% chert gravel; very dense; very hard; well cemented; many solution cavities; white; saturated	sw		35 40

GEOPHYSICAL LOG (GAMMA) COUNTS PER SECOND: 5, 10, 15
SAMPLE TYPE | SAMPLE NO. | IN. DRIVEN | IN. RECOVERED | HD SPACE, PPM | PID, PPM



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A21 Sheet 1 of 3

Client: REXENE

Project Name: 1992 DRILLING PROGRAM

Project Location: ODESSA, TEXAS

Project Number: 449844

MONITORING WELL MW-84

DRILLING AND SAMPLING INFORMATION

Boring Location: E OF EAST PLANT NR WW-18

Logged By: M. WILSON

Drilled By: J. LANDEROS GPI

Drill Rig Type: MOBILE B-61

Drilling Method: MUD ROTARY AND AIR ROTARY WITH 7 7/8" TRICONE ROCK BIT

Sampling Method: NO SAMPLING UNTIL 53 FEET, 2' X 3" SPLIT SPOON TO 77 FEET, 5' X 3" CORE BARREL TO 114 FEET

Notes: –

SURFACE ELEV.(FT): 2872.50

TOTAL DEPTH(FT.): 114.0

Date Started: 6/22/92

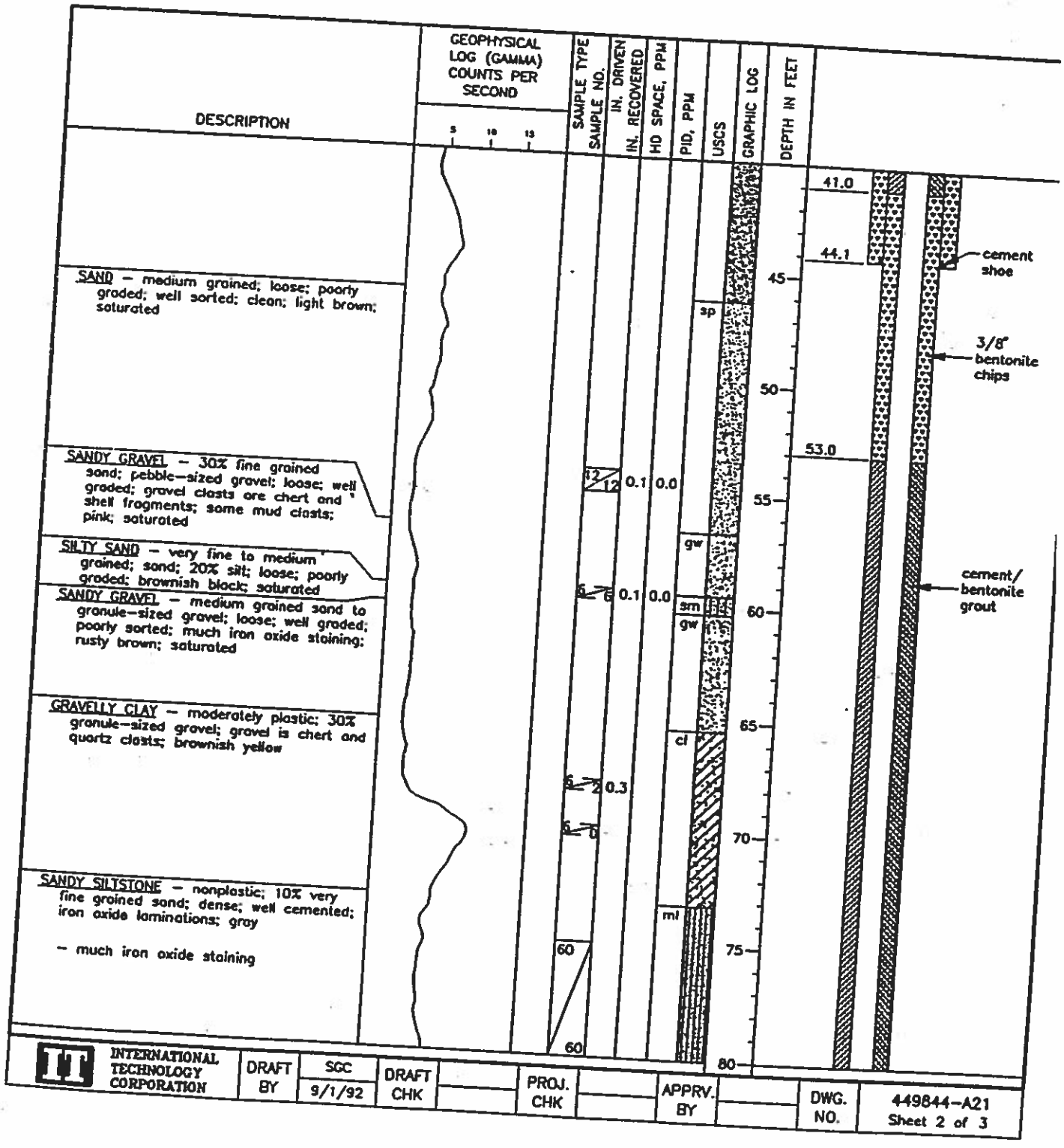
Date Completed: 6/30/92

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2874.92

Ref. Datum: MSL

1. Surf Casing–I.D.(in.): 8
   Depth(ft.): 44.1 Type: SCH 40
   Centralizers–Type: –
   Depths(ft.): –
2. Riser Pipe–I.D.(in.): 4
   Depth(ft.): 98.1 Type: FIBERGL
   Centralizers–Type: ST STEEL Depths(ft.): 96.1
3. Screen Dia.(in.): 4
   Type: FIBERGLASS
   Depth Interval(ft.): 98.1–113.1 Slot Size(in.): .010
   Centralizers–Type: –
   Depths(ft.): –
4. Filter Pack Type: SILICA SAND
   Depth Interval(ft.): 94.1–113.25
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844–A21 Sheet 2 of 3

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-B4-92

DRILLING AND SAMPLING INFORMATION

Boring Location: E OF EAST PLANT NR WW-18
SURFACE ELEV.(FT): 2872.50
TOTAL DEPTH(FT.): 114.0
Logged By: M. WILSON
Date Started: 6/22/92
Drilled By: J. LANDEROS GPI
Date Completed: 6/30/92
Drill Rig Type: MOBILE B-61
Drilling Method: MUD ROTARY AND AIR ROTARY WITH 7 7/8" TRICONE ROCK BIT
Sampling Method: NO SAMPLING UNTIL 53 FEET, 2" X 3" SPLIT SPOON TO 77 FEET, 5" X 3" CORE BARREL TO 114 FEET
Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2874.92 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8 Depth(ft.): 44.1 Type: SCH 40 PVC
   Centralizers–Type: – Depths(ft.): –
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 98.1 Type: FIBERGLASS
   Centralizers–Type: ST STEEL Depths(ft.): 96.1
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 98.1–113.1 Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 94.1–113.25
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) COUNTS PER SECOND (5, 10, 15)	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SANDSTONE – very fine to fine grained sand; 30% silt; dense; well sorted; poorly graded; well cemented; iron oxide stained; gray; saturated			60 / 47			sm		81.0
SANDSTONE – 100% medium grained sand; dense; well sorted; poorly graded; well rounded; fractured; clean; moderately well cemented; gray; saturated			60 / 48	0.1	0.0	sp		85
			48 / 36					90
– much iron oxide staining			60 / 42	0.0	0.0			94.1
SANDSTONE – medium to coarse grained; moderately well sorted; weakly cemented; subangular to angular; poorly graded; iron oxide staining; fractured; white			48 / 42			sp		95
– well cemented; much iron oxide staining			32 / 32	0.0	0.0			96.1
– extremely well cemented; complete iron oxide staining; appears brown			40 / 40					98.1
SANDY CLAY – highly plastic; 40% fine to coarse grained sand; light gray			12 / 12	0.0	0.0	ch		100
CLAY – moderately plastic; dark red						cl		105
TOTAL DEPTH = 114.0 FEET								110
								113.1
								113.3
								114.0
								115
								120

cement bentonite grout
1/4" bentonite pellets
stainless steel centralizer
.74–.77mm silica sand filter pack
well screen 0.010" slots
collapse

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A21 Sheet 3 of 3

WELL LOG

ELEVATION
GROUND LEVEL TO BE SURVEYED
MEASURING POINT T.O.C.
WATER LEVEL 29.91' B.T.O.C.

DRILLING
COMPANY LARIAT DRILLING
METHOD AIR ROTARY

PERSONNEL
DRILLER
LOGGER H. McCONNELL

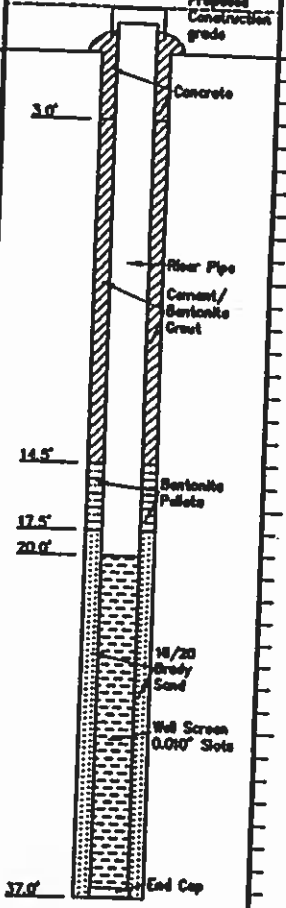
CASING 4-inch diameter fiberglass blank
4-inch diameter fiberglass screen
0.010 slotted screen
COMPLETION Flush-mount protective well cover
CEMENT Portland cement with 5% Bentonite

DEPTH	INCHES DRIVEN / INCHES RECOVERED	HEAD SPACE (PPM)	PID READING (PPM)	U.S.C.S.	SYMBOL	LITHOLOGY DESCRIPTION
0	24	0.0	0.0	SM		SILTY SAND – cover soil; fine to medium grained sand; 30% silt; loose; well graded; many caliche nodules; well calichified [sic] brown; slightly moist
	24		0.0			
	24	0.0	0.0			– less caliche; reddish brown
	24		0.0			
	24		0.0			
	24		0.0			
10	24	0.3				SAND – fine to medium grained; loose; poorly graded; moderately well sorted; many caliche nodules; pink; dry
	36		0.0			– moderately well cemented with carbonate
	32	0.5				–caliche filled fractures
	24		0.0			
	0					
	36		0.0			
20	9					
	24	0.3	0.0	SP		– few caliche nodules; slightly moist
	24					
	36		0.0			– clean; no caliche nodules
	24	0.8				
	36		0.0			– moist
	24					– saturated
	36		0.0			– very compact and dense
30	24	0.0				
	36		0.0			
	24					
	36		0.0			– crumbly; some very hard, dense layers
	18					
40						SANDSTONE – very hard and dense
						TOTAL DEPTH = 37.0 FEET
50						

Sample description information was obtained from log of well MW-85-92 placed by International Technology Corporation.

COMPLETION

Note: Bolt-down well cover was set with sackcrete, but pad was not poured. Surface cement will be completed when new plant driveway is constructed.



DATE: 3/19/96 – 3/20/96

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij company

CLIENT REXENE CORPORATION
PROJECT REPLACEMENT OF WELL MW-85-92 MT0420.001
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO. MW-85-96

MT420001.DWG

Client: REXENE

Project Name: 1992 DRILLING PROGRAM Project Location: ODESSA, TEXAS
Project Number: 449844

MONITORING WELL MW-

DRILLING AND SAMPLING INFORMATION

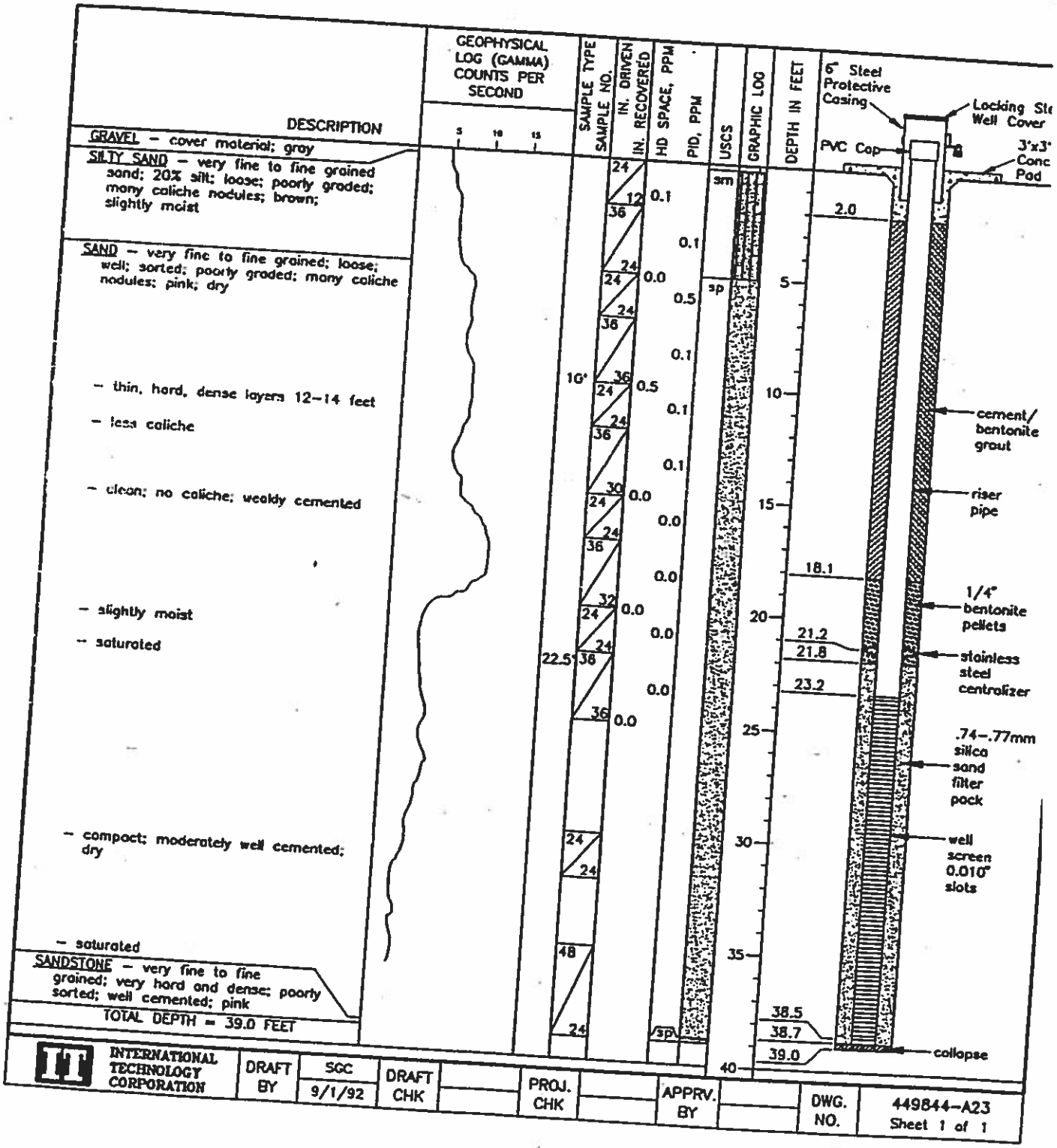
Boring Location: SOUTH OF COMPRESSOR BLDG. SURFACE ELEV.(FT): 2874.88
Logged By: M. WILSON TOTAL DEPTH(FT.): 39.0
Drilled By: J. LANDEROS GPI Date Started: 7/6/92 Date Completed: 7/6/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2877.21 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 23.2 Type: FIBER
Centralizers-Type: ST. STL Depths(ft.): 21.2
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 23.2-38.5 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 21.8-38.7
Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A23 Sheet 1 of 1

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-87-9

DRILLING AND SAMPLING INFORMATION

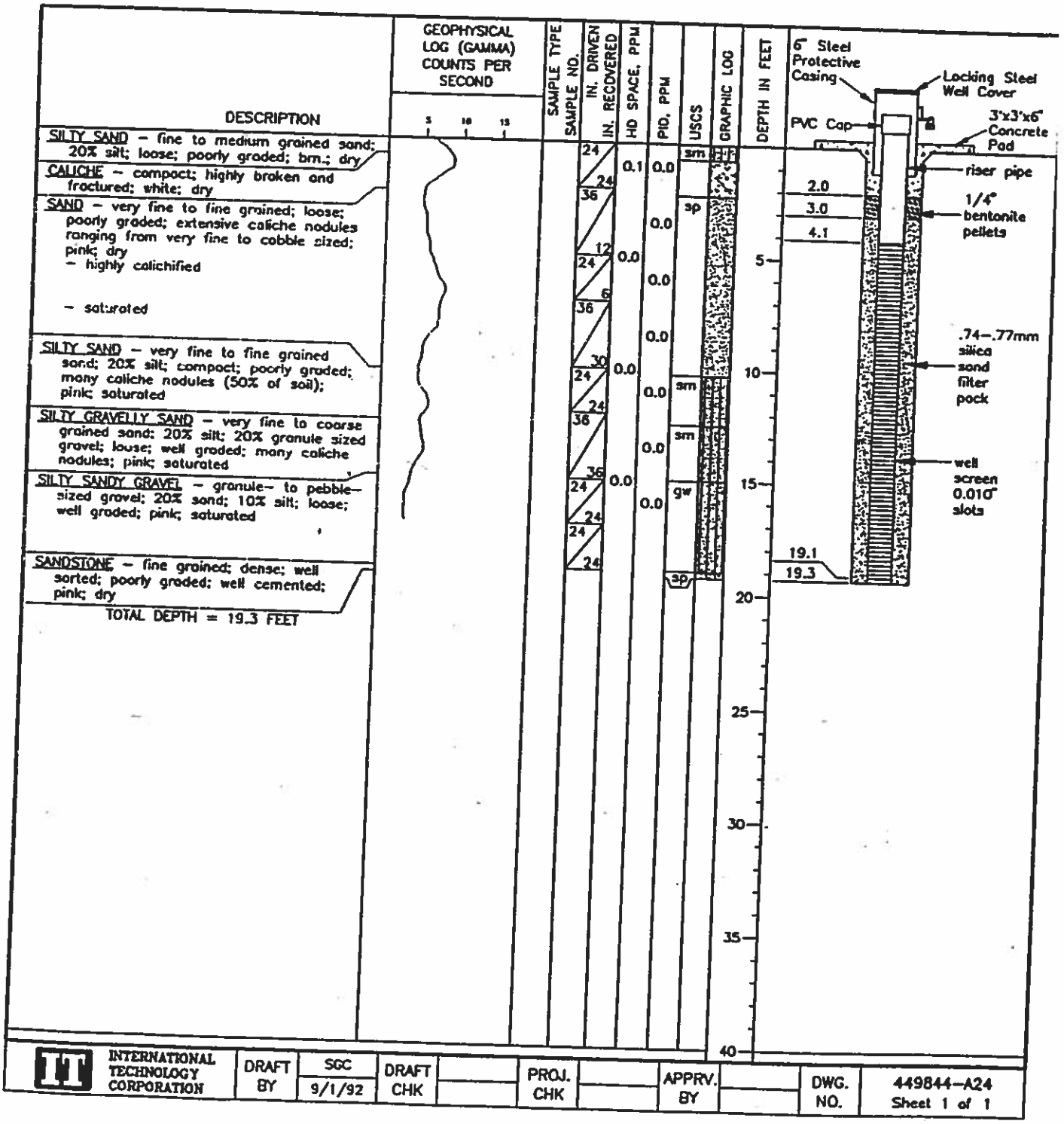
Boring Location: ALONG FENCE SW OF BIG 3
SURFACE ELEV.(FT): 2867.33
Logged By: M. WILSON
TOTAL DEPTH(FT.): 19.3
Drilled By: J. LANDEROS GPI
Date Started: 7/7/92
Date Completed: 7/7/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2869.67 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 4.1 Type: FIBERGLASS
   Centralizers-Type: -. Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 4.1-19.1 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 3.0-19.3
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A24 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-88-92

DRILLING AND SAMPLING INFORMATION

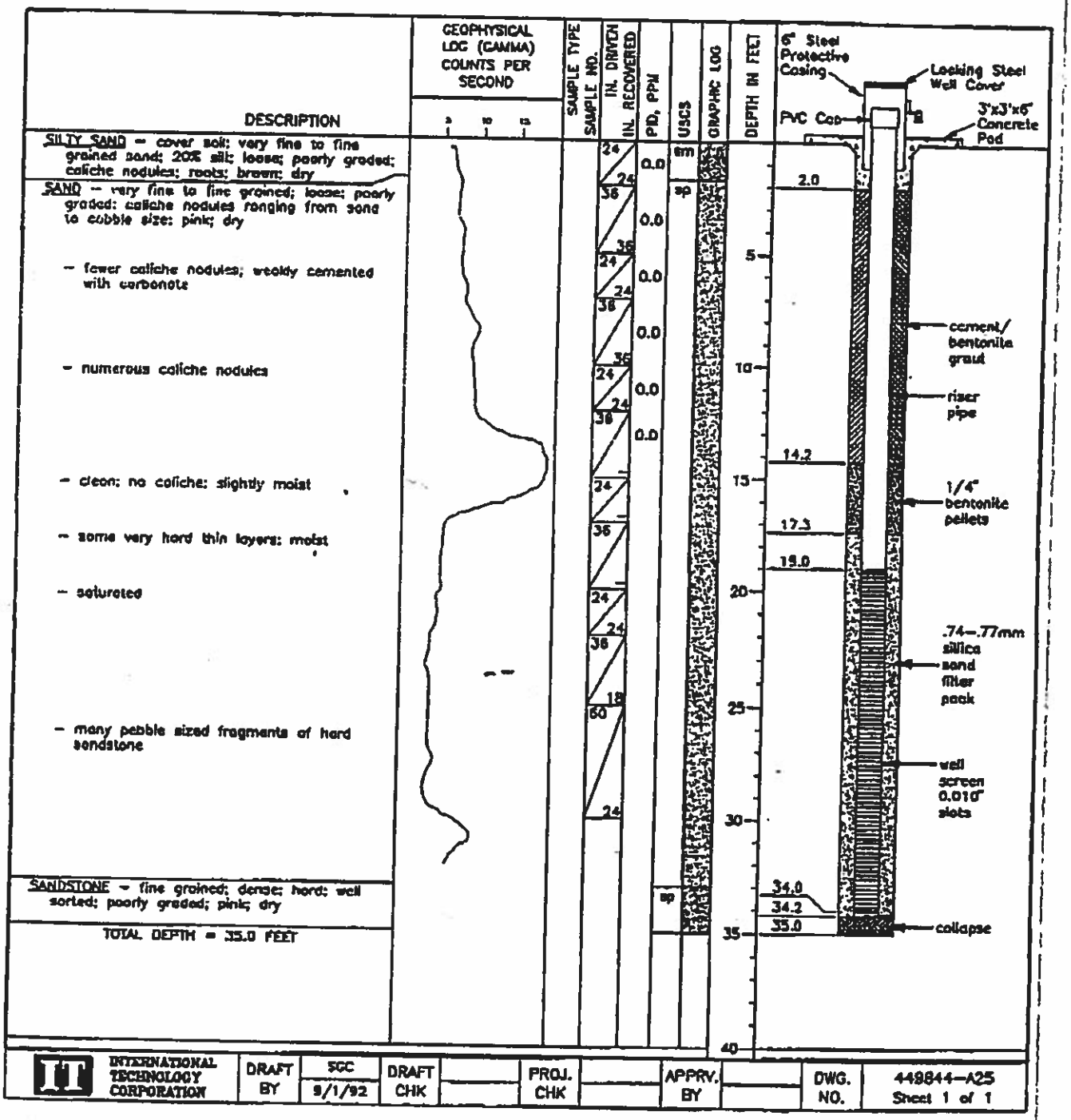
Boring Location: N WEST PLANT NR RR TRACKS SURFACE ELEV.(FT): 2877.59
Logged By: M. WILSON TOTAL DEPTH(FT.): 35.0
Drilled By: J. LANDEROS CPI Date Started: 7/7/92
Drill Rig Type: MOBILE B-61 Date Completed: 7/7/92
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2879.99 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 19.0 Type: FIBERGLASS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 19.0-34.0 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 17.3-34.2
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SCC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A25 Sheet 1 of 1

WELL LOG

WELL NO.
MW-89-99

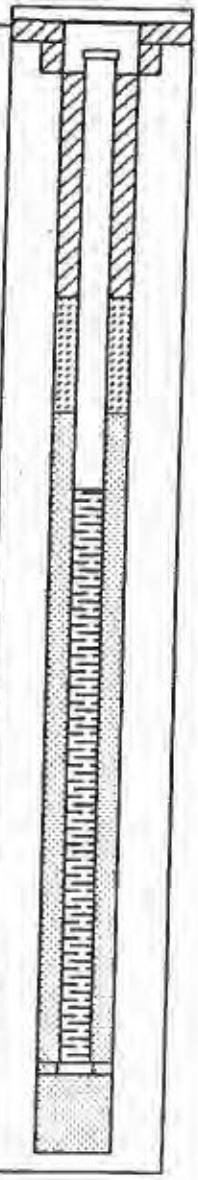
ARCADIS
1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NO: MT000562.0002
CLIENT NAME: HUNTSMAN CORPORATION
PROJECT NAME: MW-89-92 WELL REPLACEMENT
SITE LOCATION: ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS
DRILLING CO: LARIAT DRILLING CO.
DRILLING METHOD: AIR ROTARY
SAMPLE METHOD: GRAB
DATE BEGUN: 5/27/99 DATE COMPLETED: 5/27/99
DRILLER: R.B. DAVIS ELEVATION (SURF.): -
LOGGER: D. McNEESE ELEVATION (T.O.C.): -

STATIC WATER LEVEL: - MEAS. PT.: - DATE: -
HOLE SIZE(S): 7-7/8" TOTAL DEPTH: 29.0' PLUG-BACK DEPTH: 27.0'
SURFACE COMPLETION: 3'x3'x6" Concrete Pad w/Locking Well Vault

	TYPES	DEPTHS
GROUT TYPE:	Cement/Bentonite	Surface to -7.0'
SEAL TYPE:	Bentonite Pellets	-7.0' to -10.0'
SCREEN PACK:	16/30 Sand	-10.0' to -29.0'
CASING TYPE:	4" Diameter Fiberglass Well Casing	-0.5' to -12.0'
	—	—
	—	—
WELL SCREEN:	4" Diameter Fiberglass, 0.010" slots	-12.0' to -27.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING (ppm)	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0		GRAB					SM		SM: SILTY SAND – very fine to fine grained sand; some 30% silt; loose; poorly graded; brown rusty red splotches; moist. At 3', 25% silt; dense; compact; weakly cemented; caliche nodules; pink; dry. At 6', very fine to medium grained sand; moderately well sorted; many caliche nodules. At 9', some thin dense hard calichified layers.	
-5		GRAB								
		GRAB								
-10		GRAB					SP		SP: SAND – fine to medium grained; loose; moderately well sorted; poorly graded; caliche nodules; pink; moist. At 15', saturated. At 16', clean; no caliche; some dense hard sandstone nodules. At 19', many sandstone nodules. At 21', many large blobs of silty sand.	
-15		GRAB								
		GRAB								
-20		GRAB								
		GRAB					SM		SM: SILTY SAND – 30% silt; pink; saturated.	
-25		GRAB					SW		SW: SANDSTONE – fine to medium grained; dense; compact; well graded; pink; dry.	
		GRAB								



Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-90-92

DRILLING AND SAMPLING INFORMATION

Boring Location: E OF BRINE POND SURFACE ELEV.(FT): 2868.23
N OF 7TH ST TOTAL DEPTH(FT.): 21.5
Logged By: M. WILSON Date Started: 7/9/92
Drilled By: J. LANDEROS Date Completed: 7/9/92
GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

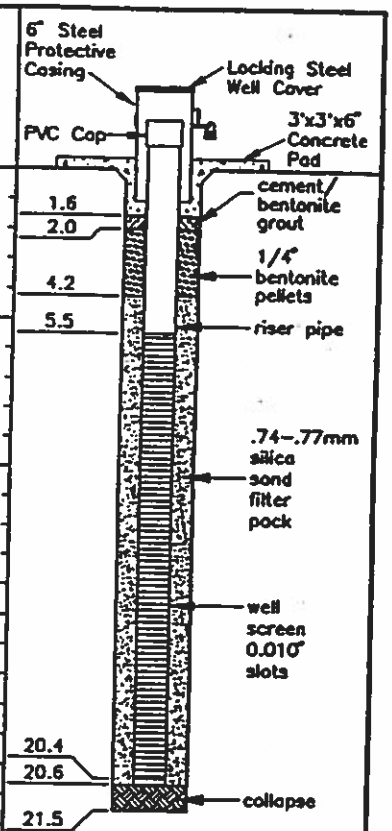
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2870.34 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 5.5 Type: FIBERGLASS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 5.5-20.4 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 4.2-20.6
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND - fine to medium grained; loose; poorly graded; caliche nodules; pink; dry		24/24	0.0	0.5	sp		
SILTY SAND - very fine to fine grained sand; 10% silt; poorly graded; many caliche nodules; dark brown; slightly moist		36/30		0.0	sm		
SILTY SAND - very fine to coarse grained sand; loose; well graded; extensive caliche nodules (50% of sample) up to cobble-sized; pink; slightly moist		24/24	0.0	0.1	sw		5
- some hard chunks of sandstone; some calcite precipitation in fractures; moist		36/30		0.0			
- much calcite precipitation		24/24	0.5	0.0			10
- saturated		36/24		0.0			
- less caliche		24/24	0.0	0.0			15
		36/24		0.0			
SANDSTONE - fine to medium grained sand; 20% silt; dense; compact; poorly graded; moderately well cemented; pink; dry		1/-		0.0	sp		20
SILTY SANDSTONE - fine grained; 40% silt; dense; compact; poorly graded; calcite precipitation; pink; moist		18/-		0.0	sm		
TOTAL DEPTH = 21.5 FEET							25 30 35 40



IT INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A27 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS

Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-91-92

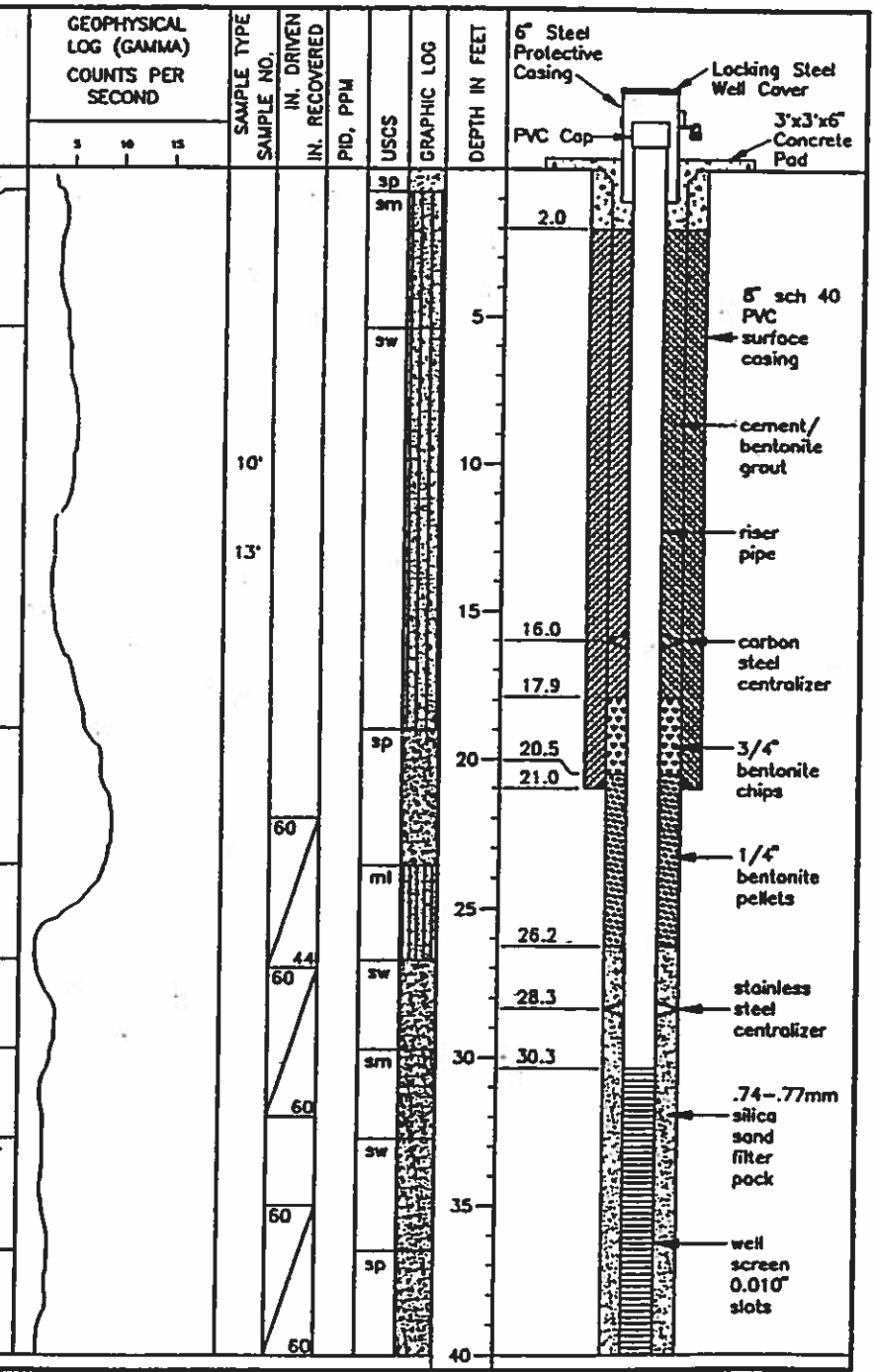
DRILLING AND SAMPLING INFORMATION

Boring Location: E OF BRINE POND SURFACE ELEV.(FT): 2868.27
N OF 7TH ST TOTAL DEPTH(FT.): 50.0
Logged By: M. WILSON Date Started: 7/10/92
Drilled By: J. LANDEROS Date Completed: 7/11/92
GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS AND MUD ROTARY WITH 6" TRICONE ROCK BIT
Sampling Method: NO SAMPLING UNTIL 22 FEET, 5' X 3" CORE BARREL TO 50.0 FEET
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.):2870.49 Ref. Datum:MSL
1. Surf Casing-I.D.(in.):8 Depth(ft.): 21.0 Type: SCH 40 PVC
Centralizers-Type: STEEL Depths(ft.): 16.0
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 30.3 Type: FIBERGLASS
Centralizers-Type: ST STEEL Depths(ft.): 28.3
3. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.):30.3-45.6 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type:SILICA SAND Depth Interval(ft.):26.2-45.9
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) COUNTS PER SECOND (5, 10, 15)	SAMPLE TYPE / SAMPLE NO. / IN. DRIVEN / IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND - fine to medium grained; loose; poorly graded; caliche nodules; pink; dry				sp		
SILTY SAND - very fine to fine grained sand; 10% silt; poorly graded; many caliche nodules; dark brown; slightly moist				sm		
SILTY SAND - very fine to coarse grained sand; loose; well graded; extensive caliche (50% of sample) up to cobble sized; pink; slightly moist				sw		5
- some hard chunks of sandstone; some calcite precipitation in fractures; moist		10"				10
- much calcite precipitation		13"				
- saturated						15
- less caliche						
SANDSTONE - fine to medium grained sand; 20% silt; dense; compact; poorly graded; moderately well cemented; pink; dry				sp		20
- very fine to fine grained sand; well sorted; hard; well cemented		60				
SANDY SILTSTONE - 10 to 20% fine grained sand; dense; hard; well cemented; pink				ml		25
SANDSTONE - medium to coarse grained sand; 20% chert and shell fragment gravel; well graded; very dense; very hard; well cemented; calcite precipitation in fractures; fining upwards; pink		44 60		sw		
SILTY SANDSTONE - very fine to fine grained sand; 20% silt; 10% gravel; dense; well graded; hard; moderately well cemented; iron oxide laminations; yellow		60		sm		30
SANDSTONE - medium grained sand to pebble-sized gravel; 40% gravel; dense; well graded; hard; well cemented; gravel clasts are chert and shell fragments; many solution cavities; pink		60		sw		35
SANDSTONE - very fine to fine grained sand; poorly graded; iron oxide laminations; hard; dense; well cemented; yellow		60		sp		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A28 Sheet 1 of 2

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

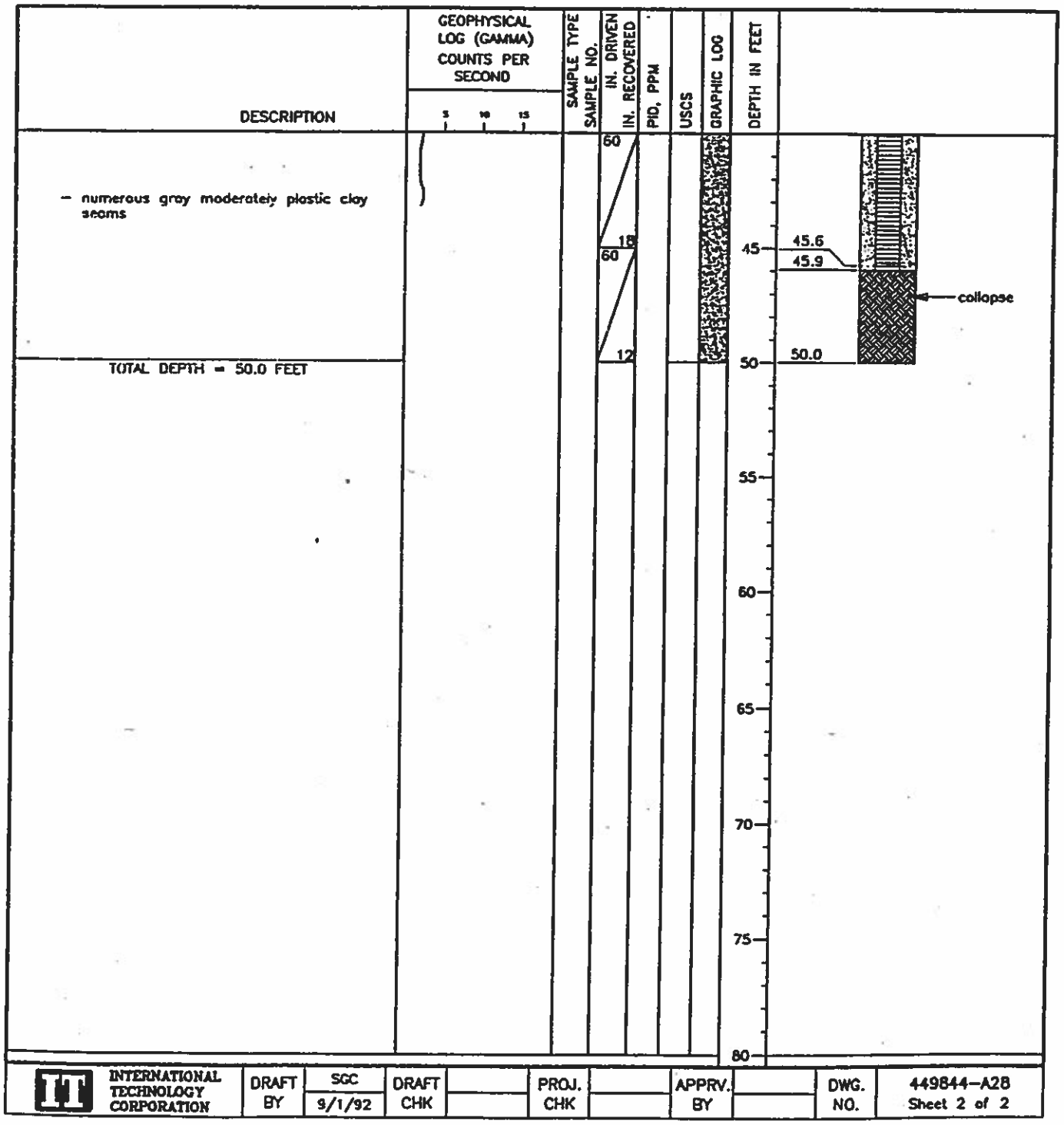
MONITORING WELL MW-91-92

DRILLING AND SAMPLING INFORMATION

Boring Location: E OF BRINE POND SURFACE ELEV.(FT): 2868.27
N OF 7TH ST TOTAL DEPTH(FT.): 50.0
Logged By: M. WILSON Date Started: 7/10/92
Drilled By: J. LANDEROS Date Completed: 7/11/92
GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS AND MUD ROTARY WITH 6" TRICONE ROCK BIT
Sampling Method: NO SAMPLING UNTIL 22 FEET, 5' X 3" CORE BARREL TO 50.0 FEET
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2870.49 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 21.0 Type: SCH 40 PVC
   Centralizers-Type: STEEL Depths(ft.): 16.0
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 30.3 Type: FIBERGLASS
   Centralizers-Type: ST STEEL Depths(ft.): 28.3
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 30.3-45.6 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 26.2-45.9
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A28 Sheet 2 of 2

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-92-92

DRILLING AND SAMPLING INFORMATION

Boring Location: W OF BRINE PONDS
N OF 7TH ST
Logged By: M. WILSON
Drilled By: J. LANDEROS
GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

SURFACE ELEV.(FT): 2866.39
TOTAL DEPTH(FT.): 45.0
Date Started: 7/13/92
Date Completed: 7/14/92

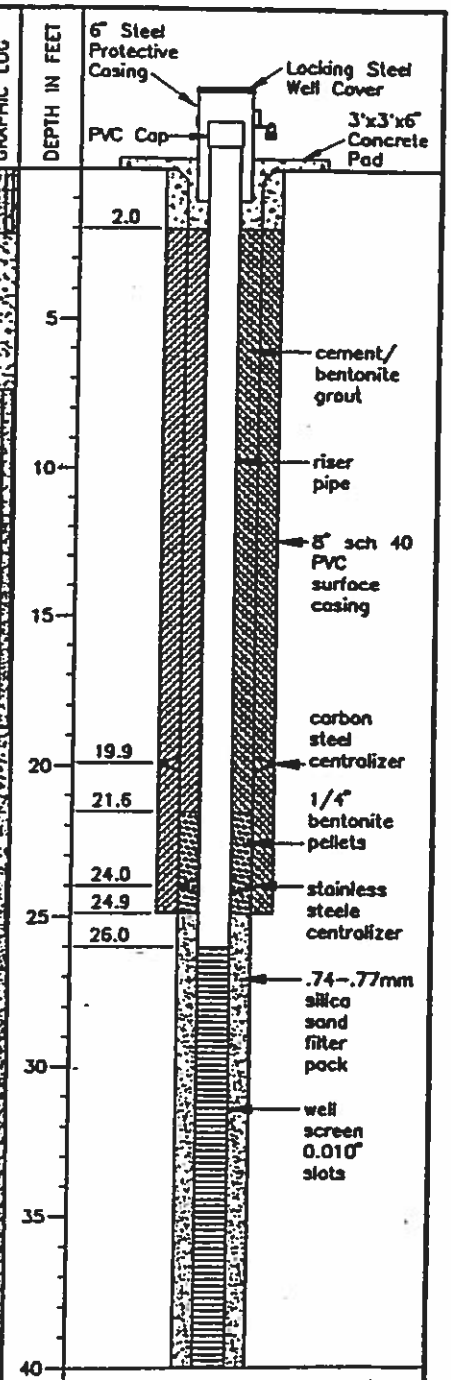
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2869.24 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 24.9 Type: SCH 40 PVC
   Centralizers-Type: STEEL Depths(ft.): 19.9
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 26.0 Type: FIBERGLASS
   Centralizers-Type: S.STL Depths(ft.): 24.0
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 26.0-41.2 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 24.9-41.5
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) COUNTS PER SECOND (5, 10, 15)	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY SILT - slightly plastic; 20% very fine grained sand; compact; dark red; moist			24/24	0.1	0.0	ml		
CALICHE - dense; hard; fractured; pink; dry;			36/12	4.1	0.0			
			24/24		0.0			5
SILTY SAND - fine to medium grained sand; 20% silt; loose; well graded; many caliche nodules; pink; saturated			24/24		0.5	sm		
- gray			36/24	19.4	0.1			10
SILTY SANDSTONE - very fine to fine grained sand; 20% silt; dense; poorly sorted; hard; moderately well cemented; patches of gray stains; dry; white; hydrocarbon odor			24/24	19.4	4.5	sm		
			36/30	45	3.3			15
- very strong hydrocarbon odor			24/24	11.1	4.5			
			36/30	188	5.6	gw		20
SANDY GRAVEL - 30% sand; loose; well graded; granule to pebble sized; well rounded grains; pink; saturated			24/18	155	6.2			
- clayey lense from 20 to 21 feet			36/36	36.7	4.4			
- thin well cemented layers of gravel (conglomerates)			12/12	11.3	4.4	sm		25
SILTY SAND - nonplastic; very fine grained sand; 30% silt; poorly graded; brown; dark brown and black discoloration; slightly moist; hydrocarbon odor			48/48	29.3	0.0	sw		
SANDSTONE - medium grained to pebble gravel sized; dense; well graded sand; hard; well cemented; grains are quartz, chert and shell fragments; white with brown specks; black stains; saturated; slight hydrocarbon odor			60/48	1.6	0.0			30
CLAYEY SAND - slightly plastic; very fine to fine grained sand with small coarse fraction; 30% clay; dense; poorly graded; hard; moderately well cemented; slightly moist; tan			60/36	3.5	0.0	sc		
- nonplastic; very fine to fine grained sand; 10% clay; compact; white; dry				0.8	0.0			35
SANDSTONE - fine to medium grained sand; poorly graded; hard; well cemented; fining upwards; white; some iron oxide stain; dry			60/60	0.8	0.0	sp		
- harder at 38 feet				0.6	0.0			40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A29 Sheet 1 of 2

Client: REXENE Project Location: ODESSA, TEXAS

Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-92-92

DRILLING AND SAMPLING INFORMATION

Boring Location: W OF BRINE PONDS N OF 7TH ST
SURFACE ELEV.(FT): 2866.39
TOTAL DEPTH(FT.): 45.0
Logged By: M. WILSON
Date Started: 7/13/92
Drilled By: J. LANDEROS GPI
Date Completed: 7/14/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2869.24 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 24.9 Type: SCH 40 PVC
   Centralizers-Type: STEEL Depths(ft.): 19.9
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 26.0 Type: FIBERGLASS
   Centralizers-Type: S.St Depths(ft.): 24.0
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 26.0-41.2 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 24.9-41.5
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) COUNTS PER SECOND (5, 10, 15)	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY SILT - nonplastic; 20% very fine to fine grained sand; compact; few caliche nodules; red; dry			60	0.0	0.0	ml		0
					0.0			45
TOTAL DEPTH = 45.0 FEET								

41.2
41.5
collapse
45.0

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A29 Sheet 2 of 2

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-94-9

DRILLING AND SAMPLING INFORMATION

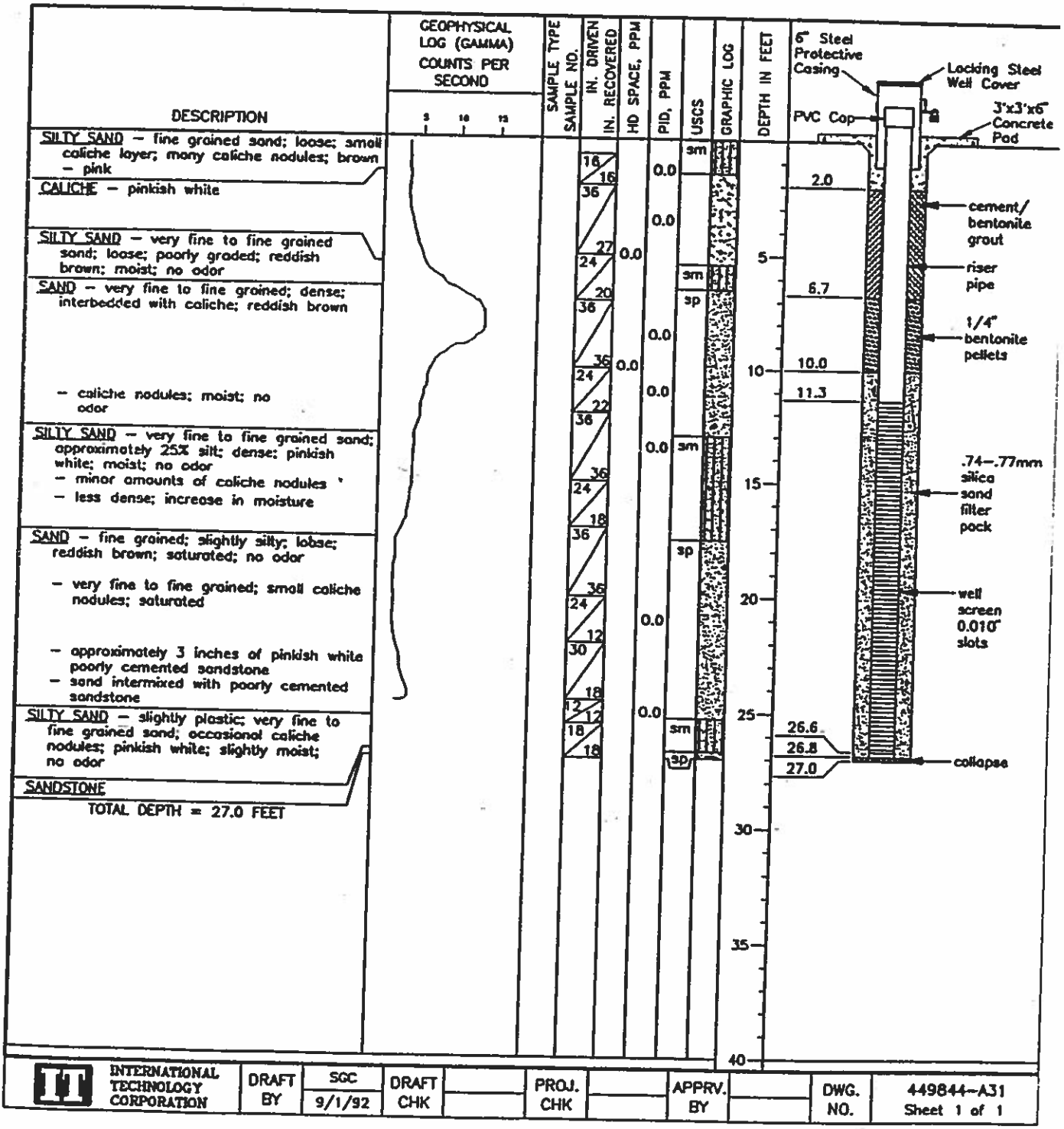
Boring Location: WEST OF WEST WAREHOUSE
SURFACE ELEV.(FT): 2870.50
TOTAL DEPTH(FT.): 27.0
Logged By: V. CRNICH
Date Started: 7/20/92
Drilled By: A. HINOJOSA GPI
Date Completed: 7/21/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2872.88 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 11.3 Type: FIBERGLASS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 11.3-26.6 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 10.0-26.8
Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A31 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-98-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF MONOHANS DRAW
Surface Elev.(ft): 2850.90
Total Depth(ft.): 50.5
Logged By: M. WILSON
Drilled By: J. LANDEROS GPI
Date Started: 7/23/92
Date Completed: 7/27/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

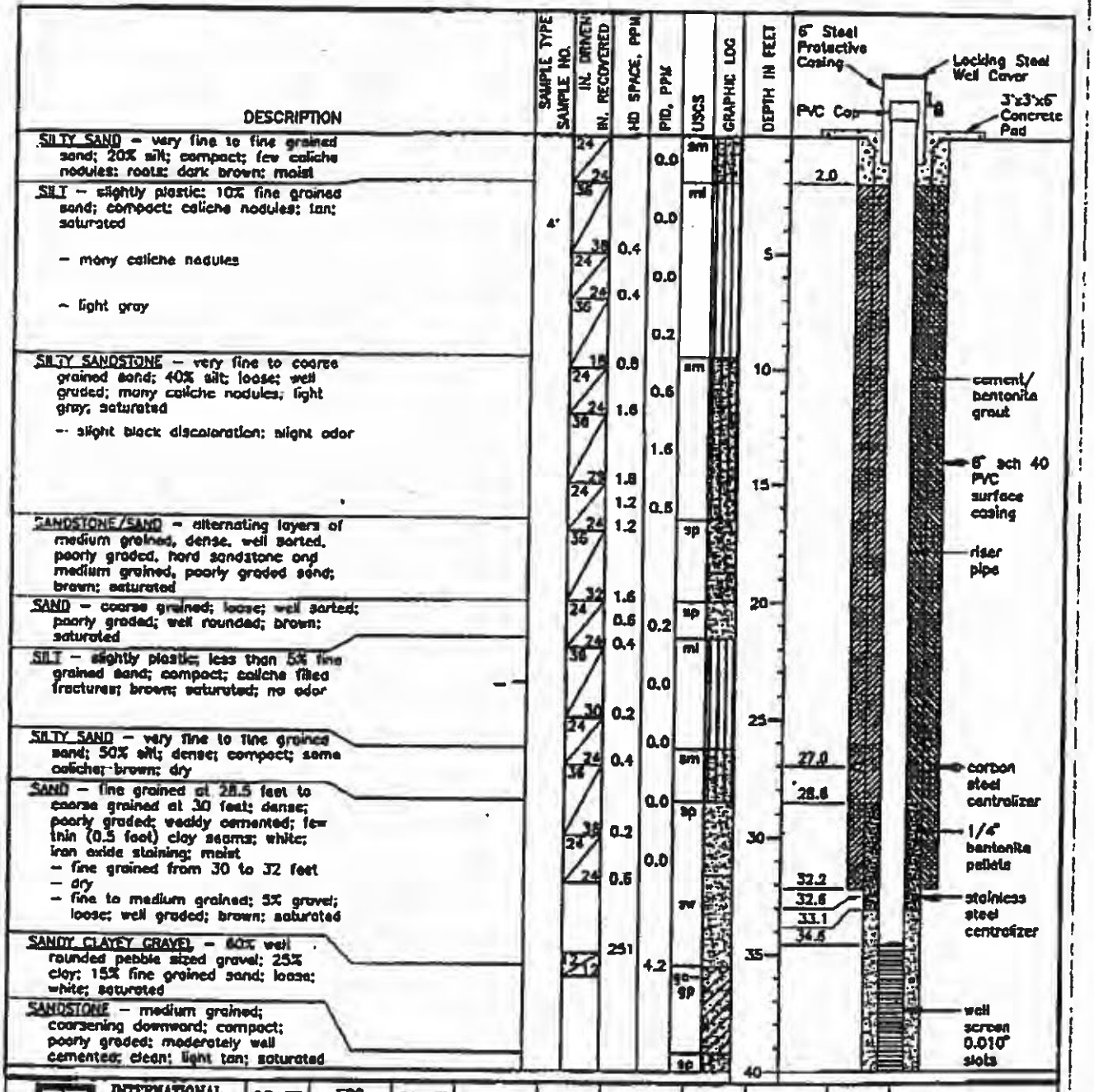
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2853.36 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8 Depth(ft.): 32.15 Type: Sch 40 PVC
   Centralizers–Type: STEEL Depths(ft.): 27.0
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 34.6 Type: FIBERGLASS
   Centralizers–Type: ST. STL. Depths(ft.): 32.6
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 34.6–49.4 Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 33.1–49.6
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	Sample Type / Sample No.	In. Driven / In. Recovered	HD Space, PPM	PID, PPM	USCS	Graphic Log	Depth in Feet
SILTY SAND – very fine to fine grained sand; 20% silt; compact; few caliche nodules; roots; dark brown; moist	4"	24/24		0.0	sm		
SILT – slightly plastic; 10% fine grained sand; compact; caliche nodules; tan; saturated		36/24		0.0	ml		
– many caliche nodules		36/24	0.4	0.0			5
– light gray		36/24	0.4	0.0			
SILTY SANDSTONE – very fine to coarse grained sand; 40% silt; loose; well graded; many caliche nodules; light gray; saturated		18/24	0.8	0.2	sm		
– slight black discoloration; slight odor		36/24	1.6	0.6			10
		23/24	1.8	1.6			
SANDSTONE/SAND – alternating layers of medium grained, dense, well sorted, poorly graded, hard sandstone and medium grained, poorly graded sand; brown; saturated		36/24	1.2	0.8	sp		15
SAND – coarse grained; loose; well sorted; poorly graded; well rounded; brown; saturated		32/24	1.6	0.2	sp		
SILT – slightly plastic; less than 5% fine grained sand; compact; caliche filled fractures; brown; saturated; no odor		36/24	0.6 / 0.4	0.0	ml		20
SILTY SAND – very fine to fine grained sand; 50% silt; dense; compact; some caliche; brown; dry		30/24	0.2	0.0			
SAND – fine grained at 28.5 feet to coarse grained at 30 feet; dense; poorly graded; weakly cemented; few thin (0.5 foot) clay seams; white; iron oxide staining; moist – fine grained from 30 to 32 feet – dry – fine to medium grained; 5% gravel; loose; well graded; brown; saturated		36/24	0.4	0.0	sm		25
		24/24	0.2	0.0	sp		
		36/24	0.4	0.0			30
		38/24	0.2	0.0	sw		
		24/24	0.6				
SANDY CLAYEY GRAVEL – 60% well rounded pebble sized gravel; 25% clay; 15% fine grained sand; loose; white; saturated		12/12	251	4.2	gc gp		35
SANDSTONE – medium grained; coarsening downward; compact; poorly graded; moderately well cemented; clean; light tan; saturated					sp		40



IT INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A35 Sheet 1 of 2

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-9B-92

DRILLING AND SAMPLING INFORMATION

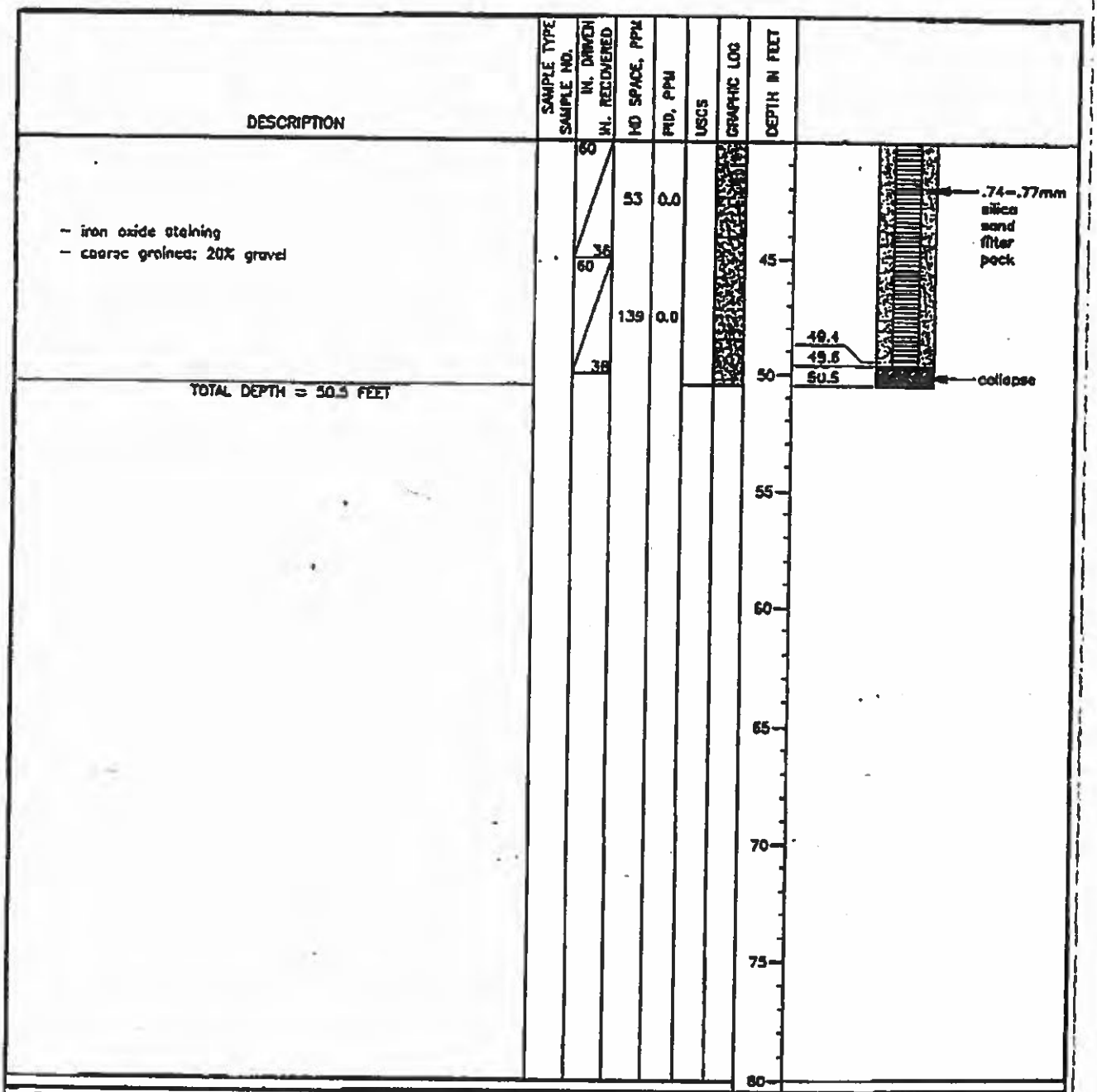
Boring Location: SOUTH OF MONUMENTS DRAW
Logged By: M. WILSON
Drilled By: J. CANDEROS GPI
SURFACE ELEV.(FT): 2850.90
TOTAL DEPTH(FT.): 50.5
Date Started: 7/23/92
Date Completed: 7/27/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2853.38 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 32.15 Type: Sch 40 PVC
   Centralizers-Type: STEEL Depths(ft.): 27.0
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 34.6 Type: FIBERGLASS
   Centralizers-Type: ST. STL. Depths(ft.): 32.6
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 34.6-49.4 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 33.1-49.6
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A35 Sheet 2 of 2

Client: REXENE Project Location: ODESSA, TEXAS

Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-100-92

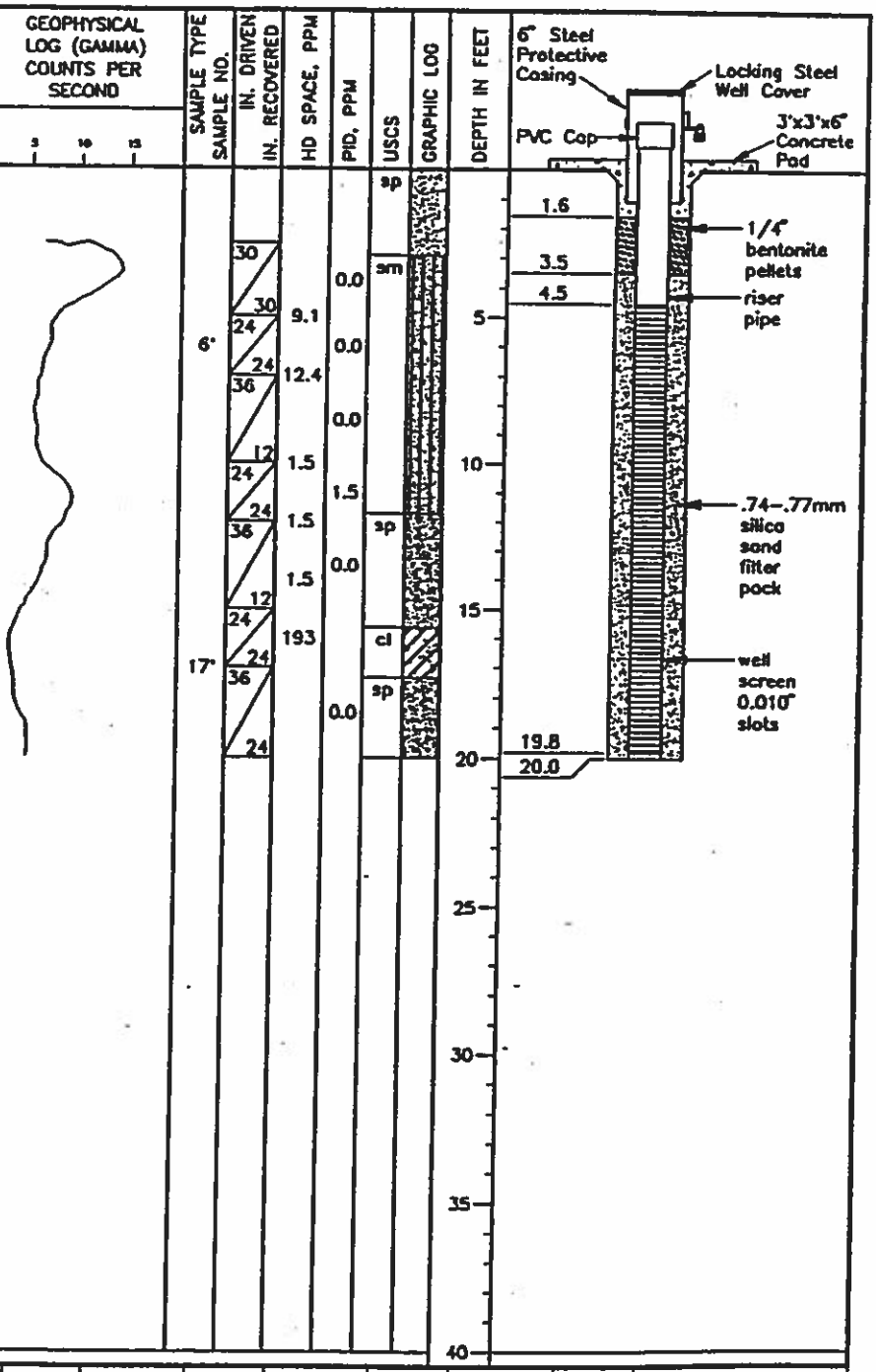
DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF MONOHANS DRAW
SURFACE ELEV.(FT): 2852.11
TOTAL DEPTH(FT.): 20.0
Logged By: M. WILSON
Date Started: 7/25/92
Drilled By: J. LANDEROS GPI
Date Completed: 7/25/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGER AND MUD ROTARY WITH 7 7/8" TRI-CONE BIT
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON AND 5' X 3" CORE BARREL
Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2854.19 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 4.5 Type: FIBERGLASS
Centrolizers–Type: – Depths(ft.): –
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 4.5–19.8 Slot Size(in.): .010
Centrolizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 3.5–20.0
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) COUNTS PER SECOND (5, 10, 15)	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND – fine to medium grained; loose; poorly graded; carbonate precipitation; pink; dry						sp		
SILTY SAND – very fine to fine grained sand; 25% silt; loose; poorly graded; caliche nodules; carbonate precipitation; pink; moist		6"	30/30, 24/24	9.1	0.0	sm		
– black carbon stains of rootlets; saturated			36/12	12.4	0.0			
– compact; many caliche nodules			24/24	1.5	0.0			
– gray; slight hydrocarbon odor			36/12	1.5	1.5	sp		
SANDSTONE – fine to medium grained; poorly graded; fractured; individual pieces are dense and hard; dark gray; saturated; slight hydrocarbon odor			24/24	1.5	0.0			
GRAVELLY CLAY – moderately plastic; 40% granule to cobble sized gravel; gray; saturated; black staining at 16.5 feet		17"	36/12	1.5		cl		
SANDSTONE – very fine to fine grained; dense; poorly graded; extremely hard; silicified; reddish brown			24/24	193		sp		
TOTAL DEPTH = 20.0 FEET			36/24		0.0			



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A37 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-102-92

DRILLING AND SAMPLING INFORMATION

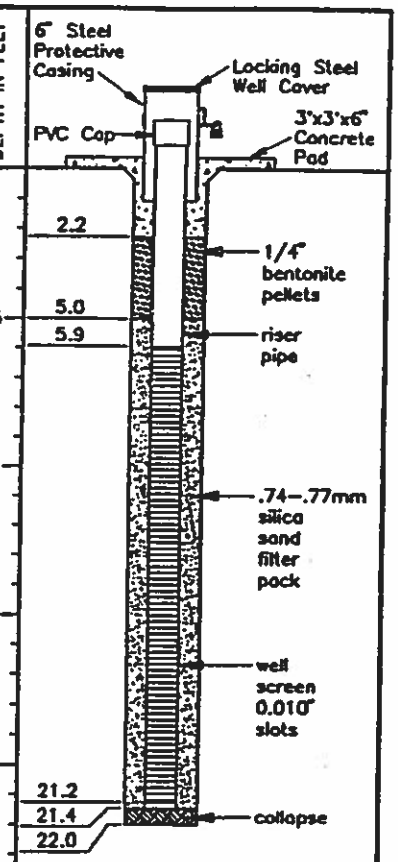
Boring Location: SOUTH OF MONOHANS DRAW
SURFACE ELEV.(FT): 2851.11
TOTAL DEPTH(FT.): 22.0
Logged By: M. WILSON
Date Started: 7/29/92
Drilled By: J. LANDEROS GPI
Date Completed: 7/29/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS, REAMED WITH 10-INCH HOLLOW STEM AUGERS
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2853.40 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 5.9 Type: FIBERGLASS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 5.9-21.2 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 5.0-21.4
Conc. Pad Size: 3'x3'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY SILT - slightly plastic; 20% fine grained sand; many roots; dark brown; moist - saturated at 0.5 feet; no hydrocarbon or hydrogen sulfide odor	1"	24/24 36/0	284	0.0	ml		
SANDY CLAY - moderately plastic; 30% very fine to fine grained sand; white; saturated; no hydrocarbon or hydrogen sulfide odor		24/4	135	0.0	cl		5
- 50% very fine to fine grained sand		36/24	137	0.0			
CLAYEY SAND - very fine to medium grained sand; 20% clay; well graded; weakly cemented; calcite precipitation; white; saturated		24/24		0.0	sc		10
SAND - fine to medium grained sand; poorly graded; weakly cemented; caliche nodules; light brown; saturated		24/36	102.3	0.0	sp		
- clean		30/24	13.5	0.0			15
- medium grained; red		24/36	126	0.0			
		24					20
TOTAL DEPTH = 22.0 FEET							25
							30
							35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A39 Sheet 1 of 1

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-103-92

DRILLING AND SAMPLING INFORMATION

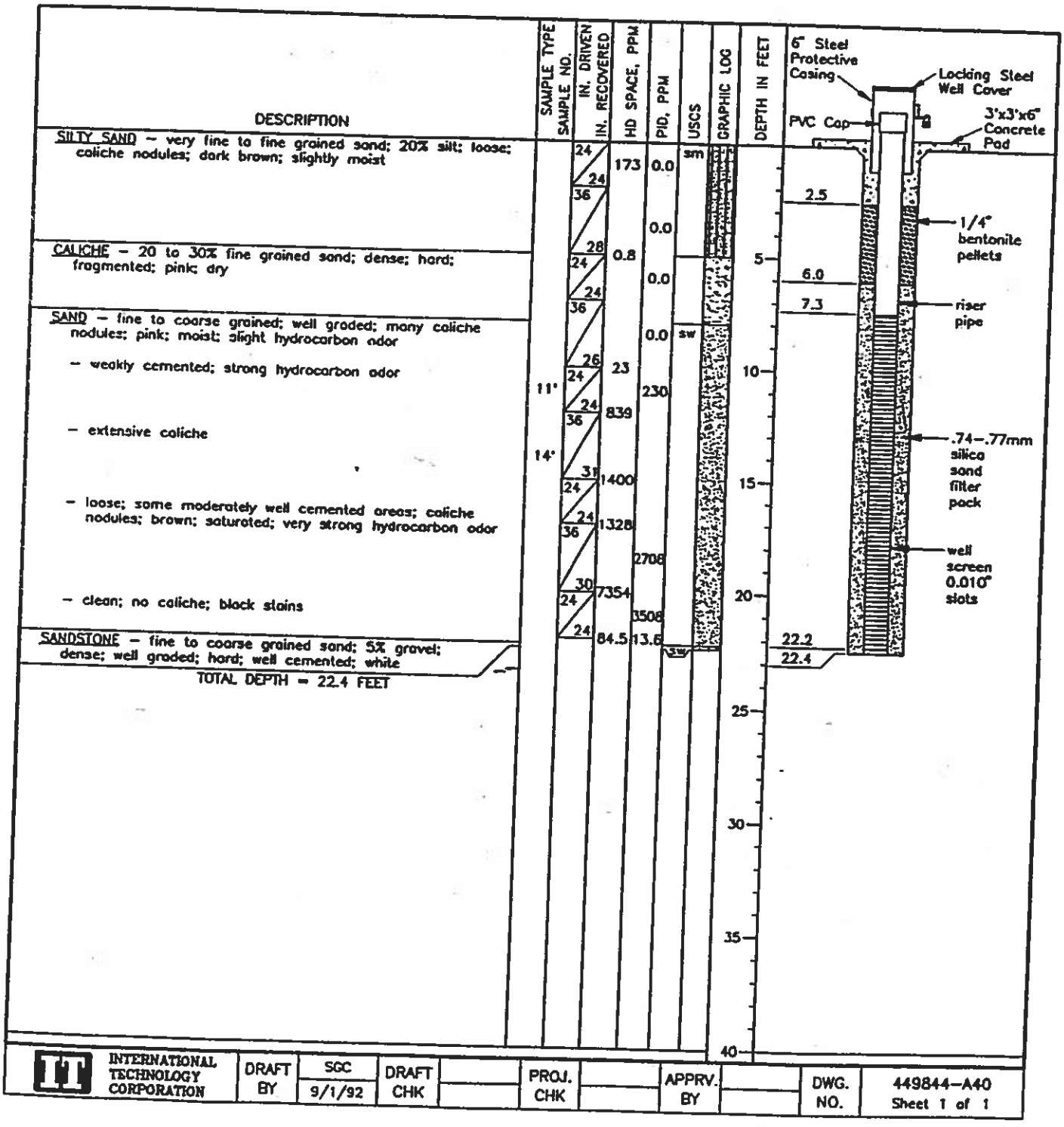
Boring Location: WEST OF SHELL REFINERY
Logged By: M. WILSON
Drilled By: J. LANDEROS GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS
SURFACE ELEV.(FT): 2861.82
TOTAL DEPTH(FT.): 22.4
Date Started: 7/29/92
Date Completed: 8/5/92

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLERS

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2863.89 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 7.3 Type: FIBERGLASS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 7.3-22.2 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 6.0-22.4
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A40 Sheet 1 of 1

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

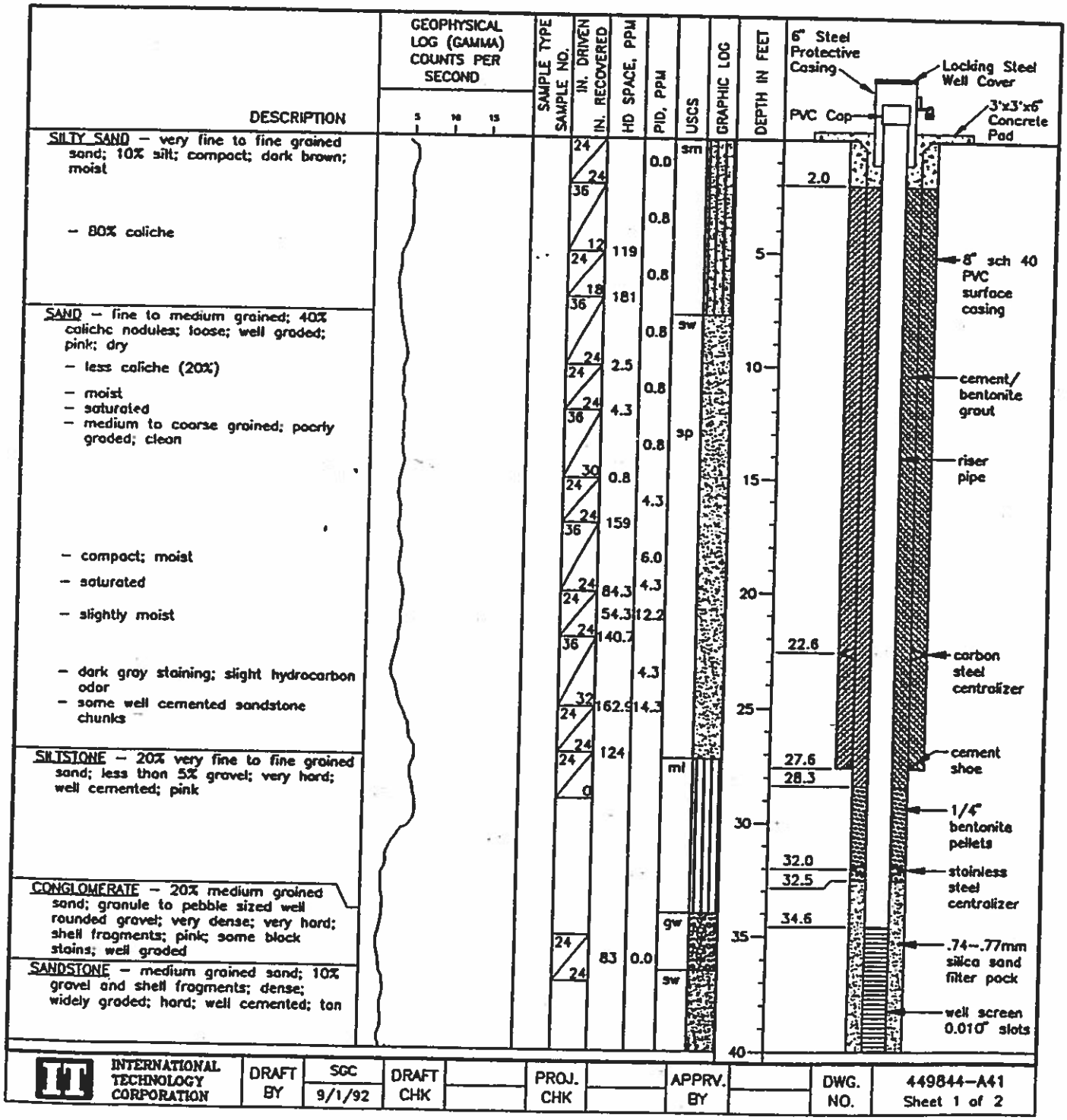
MONITORING WELL MW-104-92

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF WASHDOWN PAD
SURFACE ELEV.(FT): 2868.21
TOTAL DEPTH(FT.): 49.7
Logged By: M. WILSON
Date Started: 8/6/92
Drilled By: J. LANDEROS GPI
Date Completed: 8/7/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS AND MUD ROTARY WITH 7 7/8" TRI-CONE ROCK BIT
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER AND 5' X 3" CORE BARREL
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2870.76
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 27.6 Type: SCH 40 PVC
   Centralizers-Type: STEEL Depths(ft.): 22.6
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 34.6 Type: FIBERGLASS
   Centralizers-Type: ST. STL. Depths(ft.): 32.0
3. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 34.6-49.5 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 32.5-49.7
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A41 Sheet 1 of 2

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: T992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-105-92

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF WASHDOWN PAD
SURFACE ELEV.(FT): 2868.25
TOTAL DEPTH(FT.): 28.3
Logged By: M. WILSON
Date Started: 8/8/92
Drilled By: J. LANDEROS GPI
Date Completed: 8/8/92
Drill Rig Type: MOBILE B-61
Drilling Method: MUD ROTARY WITH 7 7/8" TRI-CONE ROCK BIT

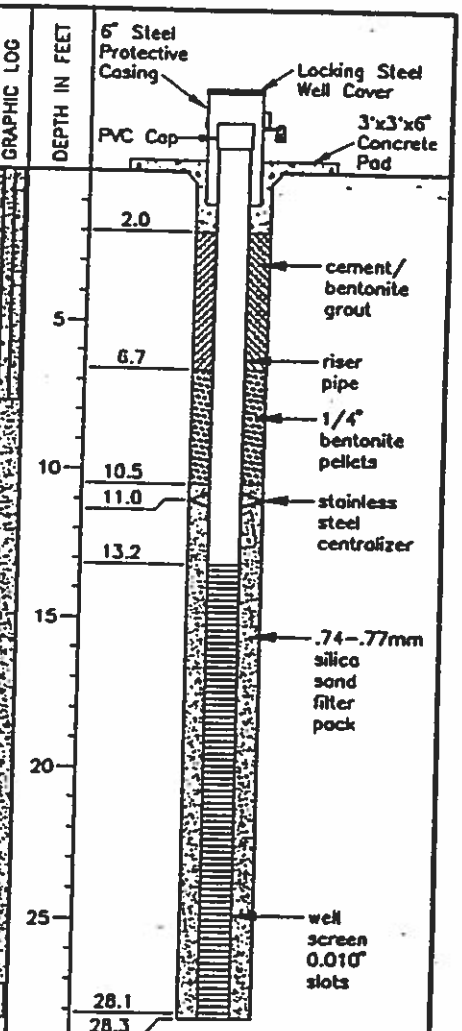
Sampling Method: NO SAMPLES TAKEN

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2870.66 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 13.2 Type: FIBERGLASS
   Centralizers-Type: S.STL Depths(ft.): 11.0
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 13.2-28.1 Slot Size(in.): .010
   Centralizers-Type: ST. STL. Depths(ft.): 11.0
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 10.5-28.3
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO. / IN. DRIVEN / IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine to fine grained sand; 10% silt; compact; dark brown; moist			sm		0
- 80% caliche					2.0
SAND - fine to medium grained; 40% caliche nodules; loose; well graded; pink; dry			sw		5
- less caliche (20%)					6.7
- moist					10
- saturated					10.5
- medium to coarse grained; poorly graded; clean			sp		11.0
					13.2
- compact; moist					15
- saturated					20
- slightly moist					25
- dark gray staining; slight hydrocarbon odor					
- some well cemented sandstone chunks					
SILTSTONE - 20% very fine to fine grained sand; less than 5% gravel; very hard; well cemented; pink			ml		28.1
TOTAL DEPTH = 28.3 FEET					28.3
					30
					35
					40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A42 Sheet 1 of 1

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-106-92

DRILLING AND SAMPLING INFORMATION

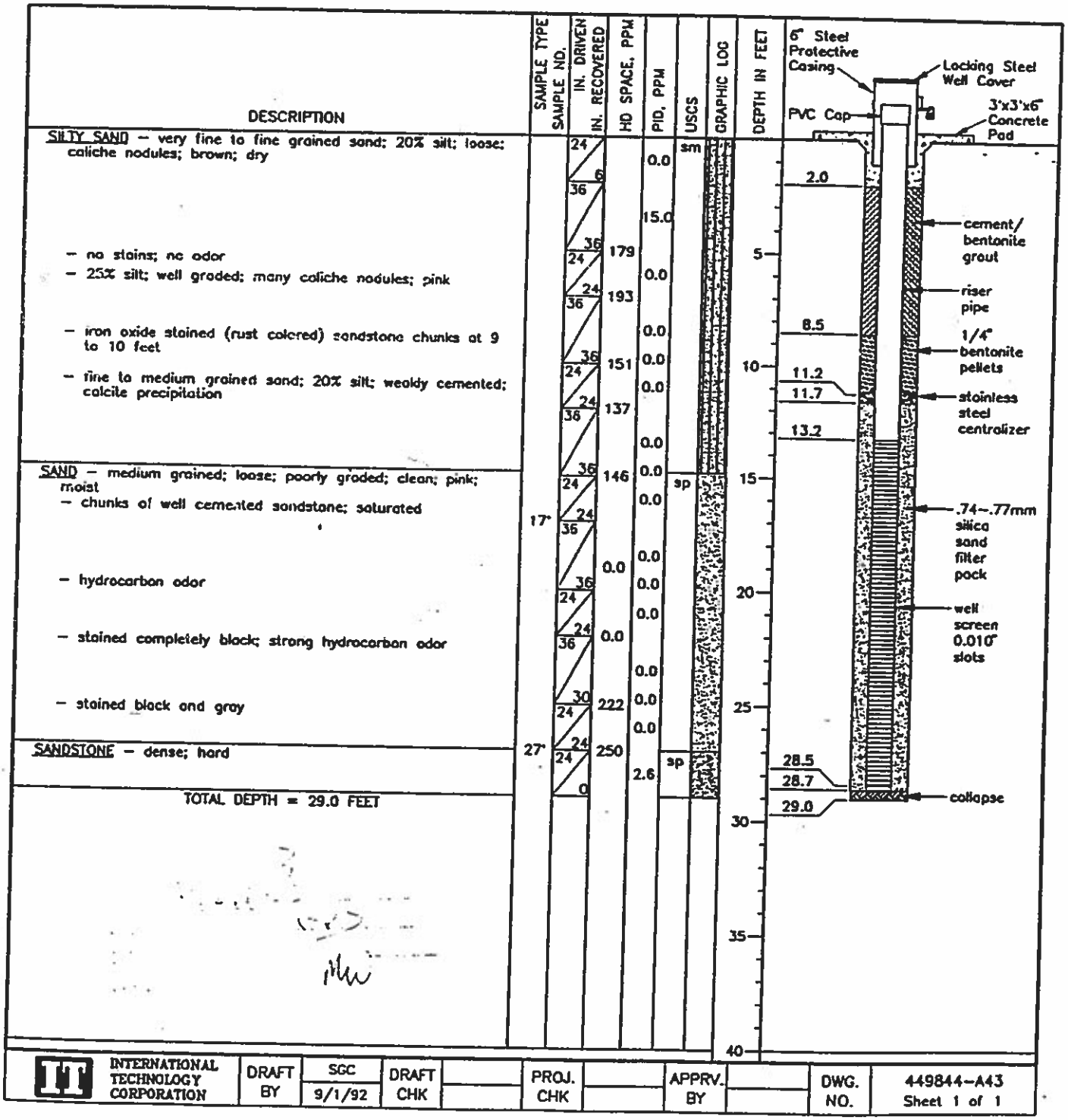
Boring Location: SE CORNER OF R&D OIL/WATER SEPARATOR
SURFACE ELEV.(FT): 2871.28
TOTAL DEPTH(FT.): 29.0
Logged By: M. WILSON
Date Started: 8/9/92
Drilled By: J. LANDEROS GPI
Date Completed: 8/9/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2873.57 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 13.2 Type: FIBERGLASS
Centralizers–Type: ST. STL. Depths(ft.): 11.2
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 13.2–28.5 Slot Size(in.): .010
Centralizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 11.7–28.7
Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A43 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: T392 DRILLING PROGRAM Project Number: 449844

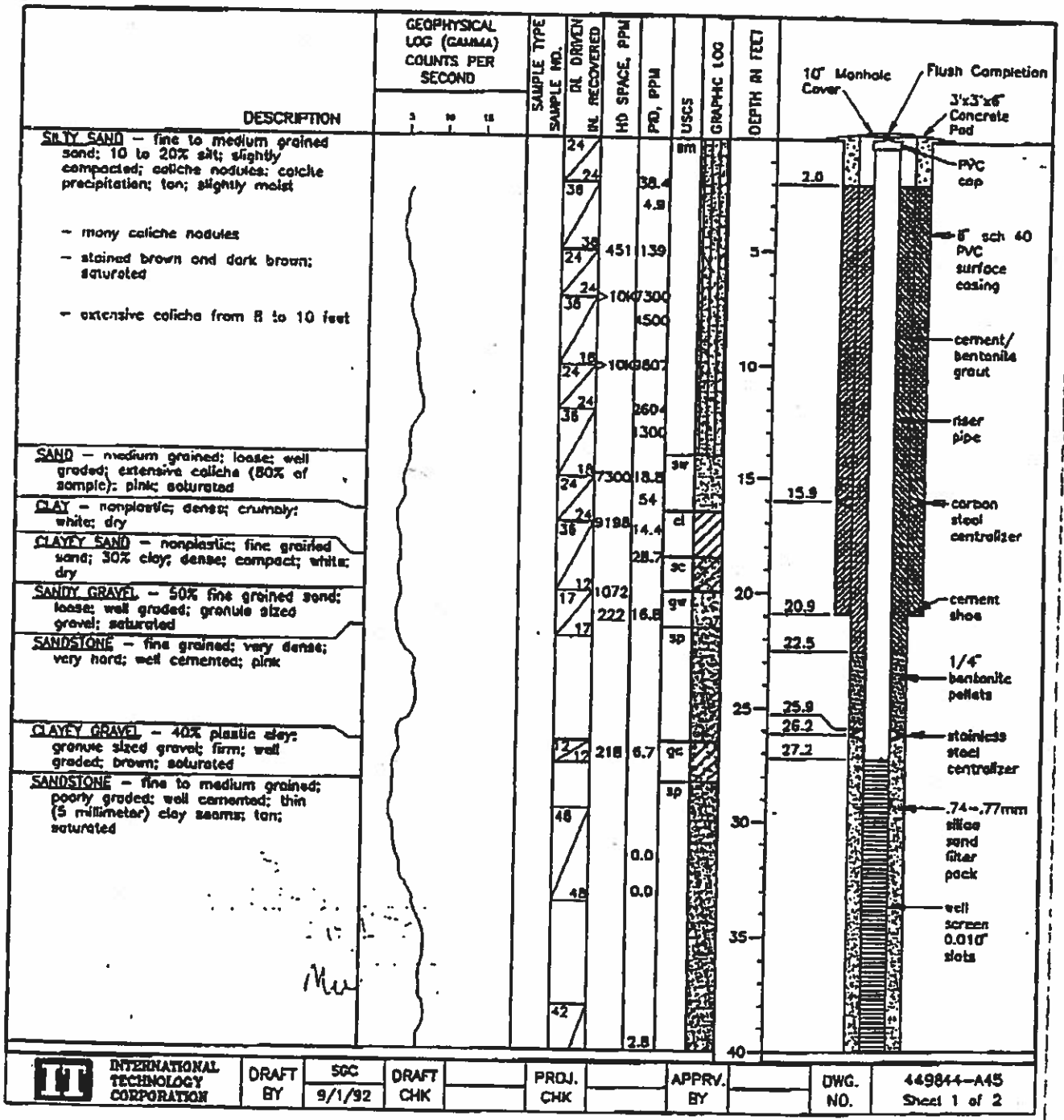
MONITORING WELL MW-108-92

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF BRINE POND OE-4 SURFACE ELEV.(FT): 2860.79
TOTAL DEPTH(FT.): 42.3
Logged By: M. WILSON Date Started: 8/11/92
Drilled By: J. LANDEROS GPI Date Completed: 8/12/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS AND MUD ROTARY WITH 7 7/8" TRI-CONE ROCK BIT
Sampling Method: 5' X 3" CONTINUOUS SPLIT SAMPLER AND 5' X 3" CORE BARREL
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2860.48 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 20.9 Type: Sch 40 PVC
Centralizers-Type: STEEL Depths(ft.): 15.9
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 27.2 Type: FIBERGLASS
Centralizers-Type: ST. STL Depths(ft.): 26.2
3. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 27.2-42.1 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: SILICA SAND Depth Interval(ft.): 25.9-42.3
Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A45 Sheet 1 of 2

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-110-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHWEST OF MONAHANS DRAW
SURFACE ELEV.(FT): 2858.37
Logged By: M. WILSON
TOTAL DEPTH(FT.): 23.5
Drilled By: A. GEBBERT GPI
Date Started: 9/22/92
Date Completed: 9/23/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGER

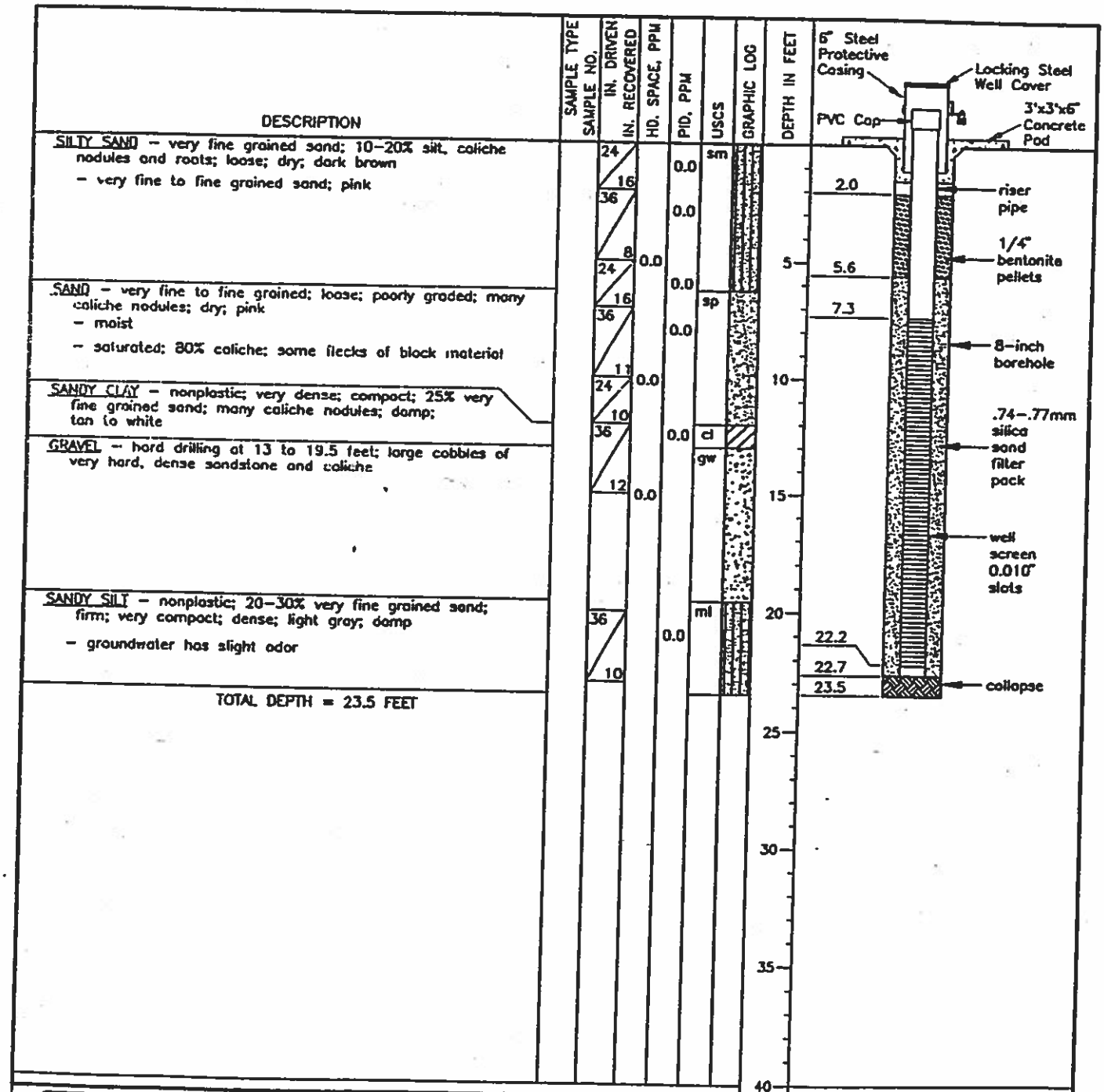
Sampling Method: 5'X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2860.97 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 7.3 Type: FIBERGLASS
Centralizers–Type: – Depths(ft.): –
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 7.3–22.2 Slot Size(in.): .010
Centralizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 5.6–22.7
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – very fine grained sand; 10–20% silt, caliche nodules and roots; loose; dry; dark brown			24	16		0.0	sm		0
– very fine to fine grained sand; pink			36	8	0.0	0.0			
SAND – very fine to fine grained; loose; poorly graded; many caliche nodules; dry; pink			24	16		0.0	sp		5
– moist			36	11		0.0			
– saturated; 80% caliche; some flecks of black material			24	10	0.0				
SANDY CLAY – nonplastic; very dense; compact; 25% very fine grained sand; many caliche nodules; damp; tan to white			36	12		0.0	cl		10
GRAVEL – hard drilling at 13 to 19.5 feet; large cobbles of very hard, dense sandstone and caliche					0.0		gw		15
SANDY SILT – nonplastic; 20–30% very fine grained sand; firm; very compact; dense; light gray; damp			36	10		0.0	ml		20
– groundwater has slight odor									25
TOTAL DEPTH = 23.5 FEET									30
									35
									40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 10/28/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A87 Sheet 1 of 1

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL MW-111-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHWEST OF MONAHANS DRAW
SURFACE ELEV.(FT): 2859.30
TOTAL DEPTH(FT.): 22.0
Logged By: M. WILSON
Date Started: 9/28/92
Drilled By: J. LANDEROS GPI
Date Completed: 9/28/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGER

Sampling Method: 5'X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2861.73 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 5.2 Type: FIBERGLASS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 5.2-19.7 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 4.1-20.4
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine to fine grained sand; 10% silt; loose; many caliche nodules and roots; dry; brown		30		0.0	sm		
- caliche; very hard and dense; pink		20					
SAND - very fine to medium grained; loose; poorly graded; many caliche nodules; calcite precipitation; dry; pink		30		0.0	sp		
		26	0.0				
		24		0.0			5
		22					
		36		0.0			
-- moist		12	0.0				
		24		0.0			10
SANDY SILT - nonplastic; 20-30% very fine grained sand; loose; saturated; light gray		22			ml		
- dense and compact		36		0.0			
SANDSTONE -- fine to very coarse grained; dense; hard; well graded; carbonate cement; shell fragments; saturated; tan		30	0.0				15
SANDY SILT - moderately plastic; 30% fine grained sand; compact; saturated; pink		36			sw		
SANDSTONE - fine to very coarse grained; dense; hard; fractured; well graded; carbonate cement; 30% loose medium grained sand; shell fragments, saturated; pink		6	0.0				
- very coarse grained		24			ml		
		24			sw		20
SAND - medium grained; dense; compact; uniformly graded; saturated; light brown		24		0.0			
		18			sp		
TOTAL DEPTH = 22.0 FEET							25 30 35 40

6" Steel Protective Casing
Locking Steel Well Cover
PVC Cap
3'x3'x6" Concrete Pad
1.5
1/4" bentonite pellets
4.1
5.2
riser pipe
8-inch borehole
.74-.77mm silica sand filter pack
well screen 0.010" slots
19.7
20.4
22.0
collapse

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 10/28/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A88 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-112-92

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHWEST OF MONAHANS DRAW
Logged By: M. WILSON
Drilled By: J. LANDEROS GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGER
SURFACE ELEV.(FT): 2855.72
TOTAL DEPTH(FT.): 17.5
Date Started: 9/29/92
Date Completed: 9/30/92

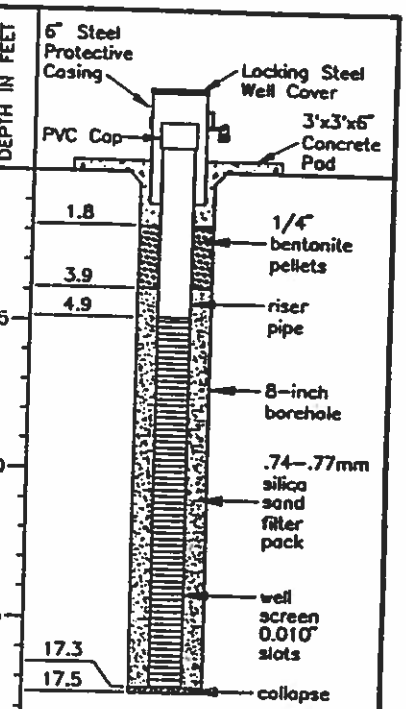
Sampling Method: 5'X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2858.26 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 4.9 Type: FIBERGLASS
   Centralizers–Type: – Depths(ft.): –
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 4.9–17.3 Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 3.9–17.3
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – very fine grained sand; 10% silt; caliche nodules and roots; loose; dry; dark brown		24/12		0.0	sm		
SAND – very fine to medium grained; loose; poorly graded; calcite precipitation; many caliche nodules; dry; pink		36/10		0.0	sp		
– hard; dense		24/22		0.0			
– small caliche nodules		36/25	0.0	0.0			
– many large caliche nodules		24/22		0.0			
– saturated		36/29	0.0	0.0			
SANDY SILT – slightly plastic; 10% very fine grained sand; compact; many caliche nodules; saturated; light tan		24/20		0.0	ml		
– 20–30% very fine grained sand			0.1				
SANDSTONE – very fine to very coarse grained; hard; dense; well graded; well cemented; shell fragments; pink					sw		
TOTAL DEPTH = 17.5 FEET							



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 10/28/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A89 Sheet 1 of 1

Client: REXENE | Project Location: ODESSA, TEXAS

Project Name: 1992 DRILLING PROGRAM | Project Number: 449844

MONITORING WELL MW-114-92

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF BRINE PONDS | SURFACE ELEV.(FT): 2861.63

TOTAL DEPTH(FT.): 20.0

Logged By: M. WILSON | Date Started: 10/2/92

Drilled By: J. LANDEROS GPI | Date Completed: 10/2/92

Drill Rig Type: MOBILE B-61

Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5'X 3" CONTINUOUS SPLIT SPOON SAMPLER

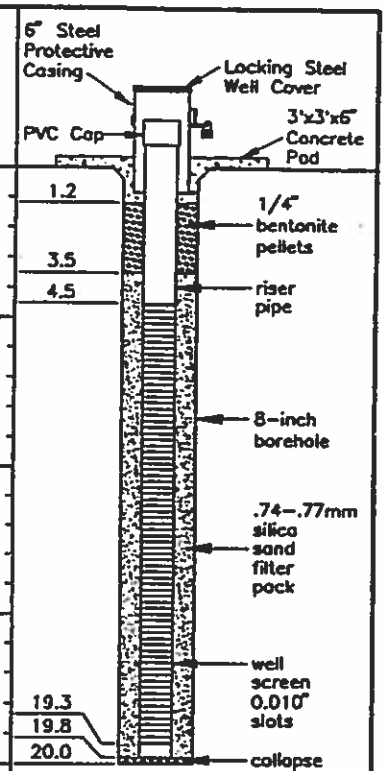
Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2864.03 | Ref. Datum: MSL

1. Riser Pipe–I.D.(in.): 4 | Depth(ft.): 4.5 | Type: FIBERGLASS
   Centralizers–Type: – | Depths(ft.): –
2. Screen Dia.(in.): 4 | Type: FIBERGLASS
   Depth Interval(ft.): 4.5–19.3 | Slot Size(in.): .010
   Centralizers–Type: – | Depths(ft.): –
3. Filter Pack Type: SILICA SAND | Depth Interval(ft.): 3.5–19.8
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – very fine grained sand; 10–20% silt; caliche nodules; loose; dry; dark brown			24		2.5	sm		
			13					
			36		14.3			
– many large caliche nodules; saturated			10	47.7				
			24		21.0			
SAND – fine to medium grained; loose; poorly graded; caliche nodules; gray–green staining; saturated			6			sp		
			36		47			
– strong odor; black stains			8	185				
– hard; fractured; yellowish–brown syrupy fluid			36		8778	sp		
SANDSTONE – very fine to medium grained; hard; moderately well cemented; poorly graded; carbonate cement; brown syrupy fluid in pores; saturated; strong odor; beige			34		786			
			24					
SAND AND GRAVEL – fine to very coarse grained sand; fining downwards from pebble gravel at 15 feet to dense compact, fine grained sand at 17 feet; from 17 to 18 feet same sequence; loose; well graded; saturated; tan			24	10372		gw		
			36		7284			
SANDY SILT – nonplastic; compact; dense; 10–20% very fine grained sand; dark gray and olive stains; damp; strong odor; beige			24		538	ml		
TOTAL DEPTH = 20.0 FEET								



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 10/28/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A91 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL MW-115-92

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF DIXIE BLVD
SURFACE ELEV.(FT): 2855.63
TOTAL DEPTH(FT.): 25.0
Logged By: M. WILSON
Date Started: 10/5/92
Drilled By: J. LANDEROS GPI
Date Completed: 10/5/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8" HOLLOW STEM AUGER

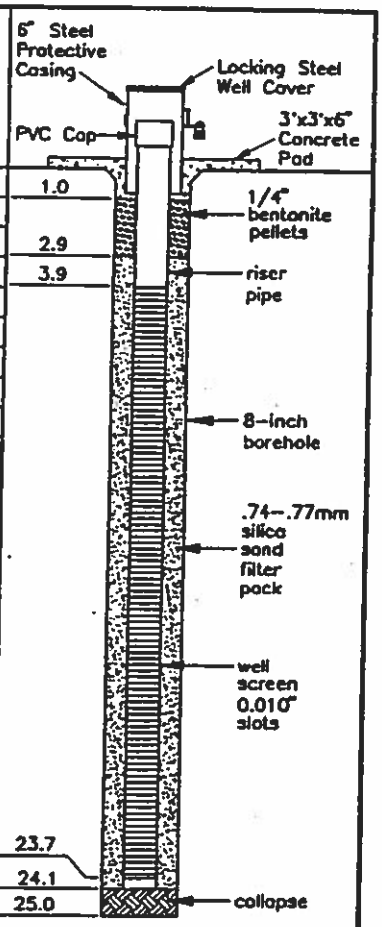
Sampling Method: 5'X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2857.99 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 3.9 Type: FIBERGLASS
Centralizers–Type: – Depths(ft.): –
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 3.9–23.7 Slot Size(in.): .010
Centralizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 2.9–24.1
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – very fine to fine grained sand; 10–20% silt; loose; roots; dry; dark brown; moist at 1 foot			24/24		0.2	sm		
SAND – fine to medium grained; loose; poorly graded; calcite precipitation; moist; pink			36/26		0.2	sp		
– red			24/24		0.5			
– saturated			36/18	1.3	0.2			
– dark gray stains; hydrogen sulfide (rotten egg) odor; clean sand; no calcite precipitation			30/30		24.8			
CLAYEY SAND – fine to medium grained sand; 20–30% clay; compact; saturated; hydrogen sulfide odor; light gray			30/30	39	8.8	sc		
CLAYEY GRAVELLY SAND – fine to medium grained sand; 20–30% clay; 10% pebble–sized gravel; compact; saturated; hydrogen sulfide odor; light gray			24/24		105	gc		
CLAYEY SAND – fine to medium grained sand; 30–40% clay; very dense; compact; damp; light gray			36/36	34	52	sc		
SAND – medium grained; very dense; compact; poorly graded; 5% pebble–sized gravel; saturated; light gray			24/24		12.3	sp		
SILTY SAND – fine to medium grained sand; 10% silt; dense; compact; patches of gray stains; saturated; red			36/12		1.3	sm		
– no silt; 100% sand					1.3			
TOTAL DEPTH = 25.0 FEET								



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 10/28/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844–A92 Sheet 1 of 1

Eco-Southwest Enviromental Corp..

WELL DIAGRAM

Sheet 1 of 1

Client: Rexene Project Location: Alessis, TX Well ID: [illegible] / MW-116-96
Project Name: GWSA-6 Project Number: 99517.005 Well Type: MONITORING

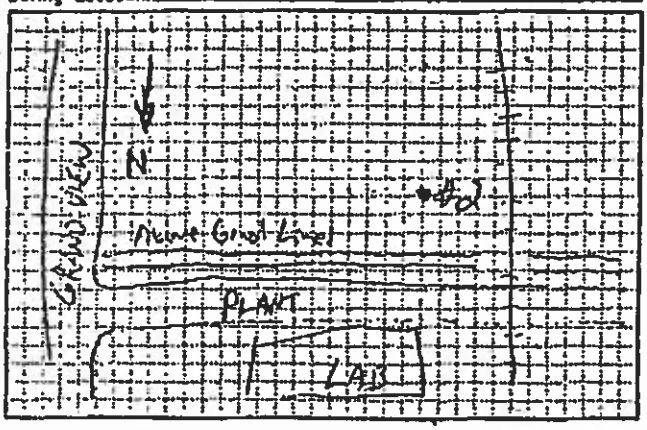
DRILLING AND SAMPLING INFORMATION

Surface Elev.(Ft): _____ Total Depth(Ft): 28.5' BGL
Start Date: 10/8/96 Finish Date: 10/8/96
Drilled By: J. Longerot (GPI)
Logged By: R. TARVER (ECO-SW)
Drill Rig Type: CME 55
Drilling Method: Hollow STEM AUGER

Borehole Diameter: 6¼" OD Auger, Overdrilled w/ 11" OD
Sampling Method: 5' Split Spoon

Water Level(s): 17.5' first visible

Boring Location:



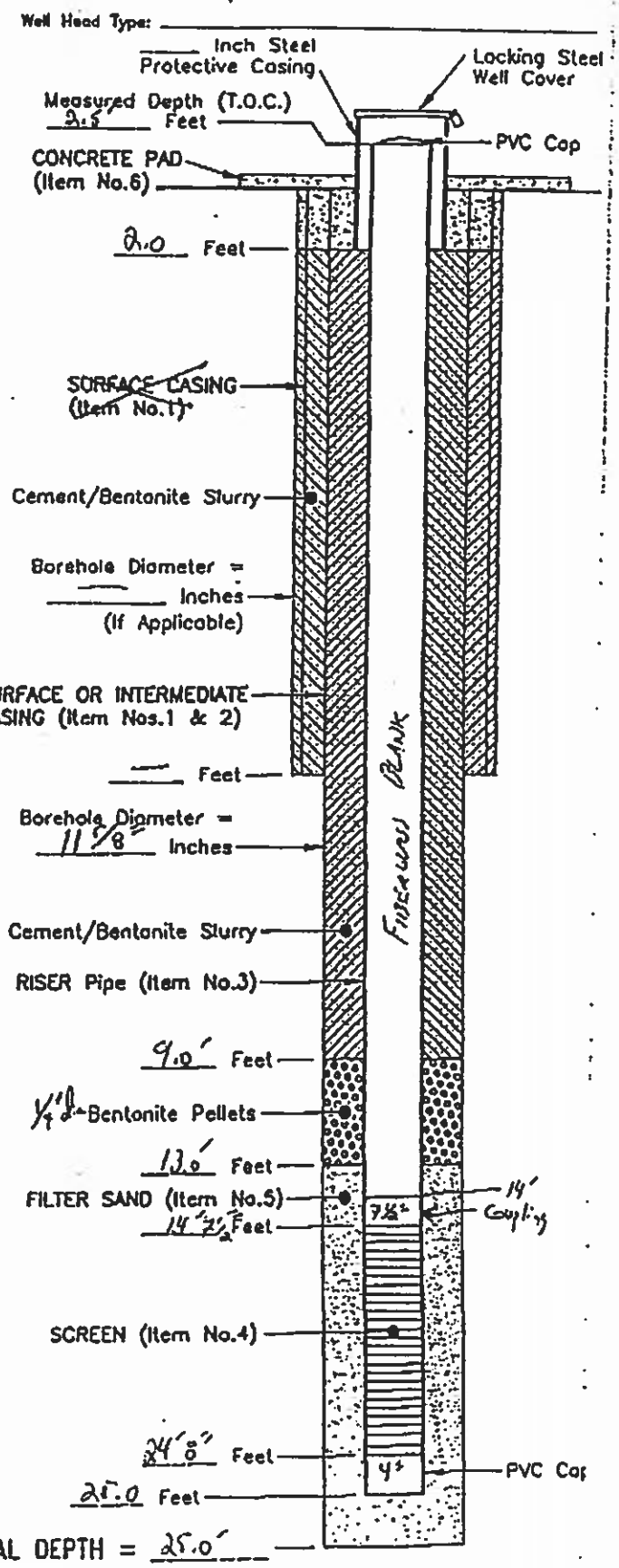
Notes: _____

NOTE: All depths are from ground surface.

WELL COMPLETION DATA

Elev-Top of Casing(ft.): _____ Ref. Datum: _____
1. Surf Casing-I.D.(in.): N/A Depth(ft.): — Type: —
Centralizers-Type: — Depths(ft.): —
2. Int Casing-I.D.(in.): N/A Depth(ft.): — Type: —
Centralizers-Type: — Depths(ft.): —
3. Riser Pipe-I.D.(in.): 4" Depth(ft.): +3.15 Type: Fiberglass
Centralizers-Type: — Depths(ft.): —
4. Screen Dia.(in.): 4" Type: Fiberglass
Depth Interval(ft.): 14-25' Slot Size(in.): 0.01"
Centralizers-Type: — Depths(ft.): —
5. Filter Pack Type: 20/40 Silica Sand Depth Interval(ft.): 14'-25'
6. Conc. Pad Size: 3 x 3 x 6"

NOTES:
A. Draw in centralizers
B. Sketch in any collapse
C. Please add any additional information needed



Eco-Southwest Enviromental Corp..

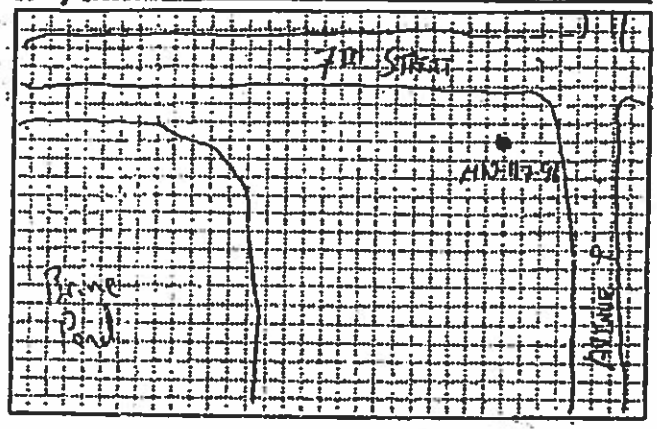
WELL DIAGRAM

Sheet 1 of

Client: Rexene Project Location: Odessa, Tx Well ID: MW-117-96
Project Name: GWKA-C Project Number: 9977-004 Well Type: Monitoring

DRILLING AND SAMPLING INFORMATION

Surface Elev.(Ft): _____ Total Depth(Ft): 22.0'
Start Date: 10/9/96 Finish Date: 10/9/96
Drilled By: Jim Landreneau (ECE)
Logged By: Kitty Tarver (Eco-SW)
Drill Rig Type: CME-55
Drilling Method: 6 5/8" Hollow Stem Auger Pilot Hole w/ Continuous Sampling Overcore w/ 11 5/8" HSA
Borehole Diameter: 11 5/8"
Sampling Method: Continuous 5' Split Spoons
Water Level(s): _____
Boring Location:



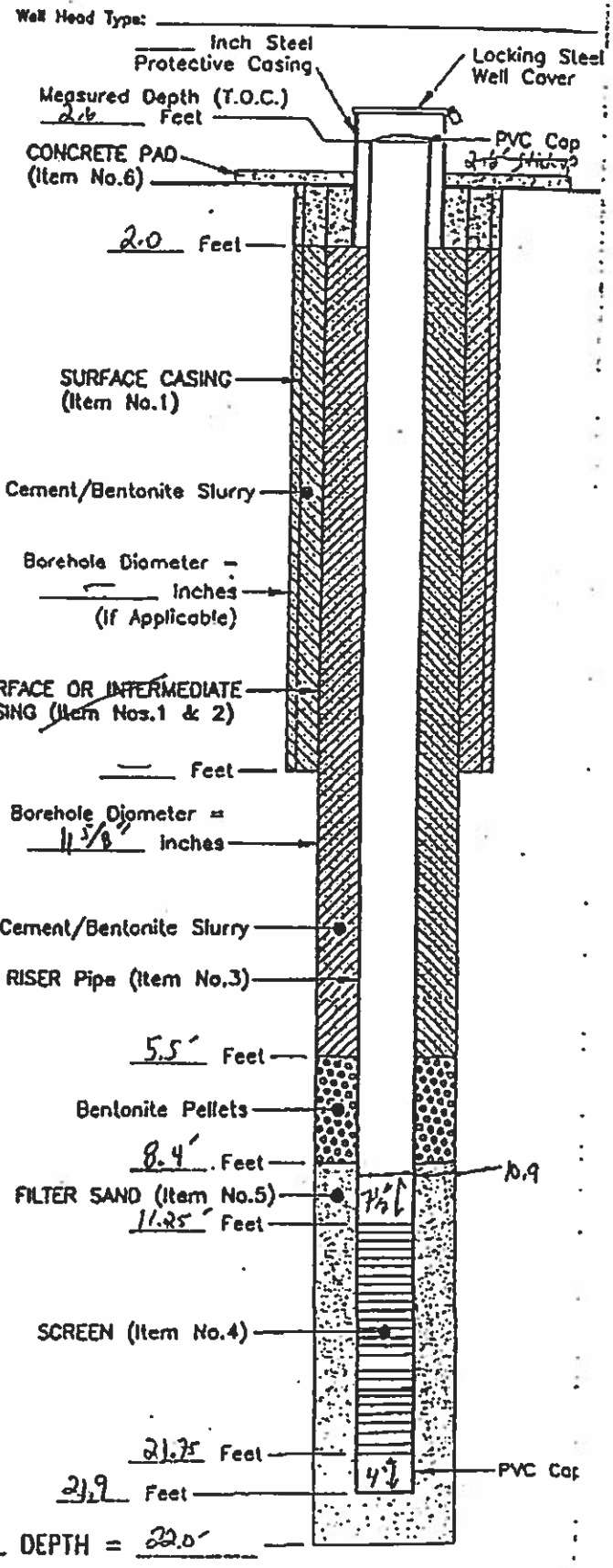
Notes: _____

NOTE: All depths are from ground surface.

WELL COMPLETION DATA

Elev-Top of Casing(ft.): _____ Ref. Datum: _____
1. Surf Casing-I.D.(in.): N/A Depth(ft.): — Type: —
Centralizers-Type: — Depths(ft.): —
2. Int Casing-I.D.(in.): N/A Depth(ft.): — Type: —
Centralizers-Type: — Depths(ft.): —
3. Riser Pipe-I.D.(in.): 4" Depth(ft.): +2.6-10.9' Type: Fiberglass
Centralizers-Type: — Depths(ft.): —
4. Screen Dia.(in.): 4" Type: Fiberglass
Depth Interval(ft.): 11.75-21.75' Slot Size(in.): 0.010
Centralizers-Type: — Depths(ft.): —
5. Filter Pack Type: 20/40 Silica Sand Depth Interval(ft.): 22.0-10.75'
6. Conc. Pad Size: 3'x3'x6"

NOTES:
A. Draw in centralizers
B. Sketch in any collapse
C. Please add any additional information needed



WELL LOG

ELEVATION
GROUND LEVEL NA
MEASURING POINT Top of Casing
WATER LEVEL 12.02' B.M.P.

...LLING
...PANY CCI Environmental
...THOD Hollow Stem Auger

PERSONNEL
DRILLER Z. Rutlin
LOGGER R. Shoemaker

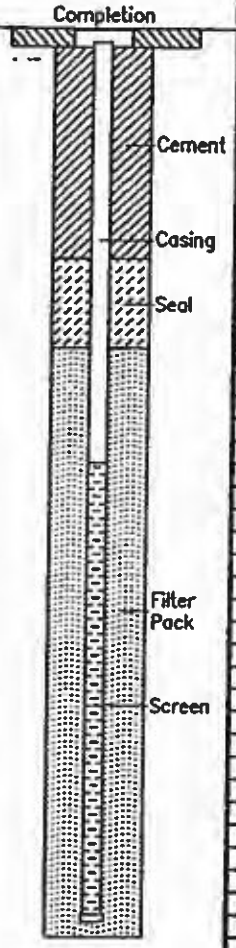
CASING 4" DIA. FIBERGLASS BLANK
4" DIA. FIBERGLASS WELL SCREEN, 0.010 SLOT

COMPLETION GROUT
¼" BENTONITE PELLETS
NO. 2 BLAST SAND FILTER PACK

CEMENT PORTLAND CEMENT

DEPTH	SYMBOL	TYPE	SAMPLED	RECOVERED	ANALYZED	SAMPLE LOG
0						Utility Check – No sample. (SILT/SAND/CALICHE mix)
5		CORE				SILT/SAND, yellowish red, (5YR 5/8), well sorted, very fine grained, rounded, unconsolidated, loose.
		CORE				CALICHE, buff, cream, silty, soft, slightly moist, some clear quartz grained sand, well rounded.
		CORE				CALICHE, buff, cream, silty, soft, slightly moist, some clear quartz grained sand, well rounded.
10		CORE				SAND/SILT, white, (5YR 8/1), poorly sorted, very fine to fine grained, subrounded, unconsolidated, loose, small CALICHE, soft.
		CORE				SAND/SILT, white, (5YR 8/1), poorly sorted, very fine to fine grained, subrounded, unconsolidated, loose, some CALICHE, soft. Wet at 12½' B.G.S.
15		CORE				SAND/SILT, white, (5YR 8/1), poorly sorted, very fine to fine grained, subrounded, unconsolidated, loose, soft, gray stained from 14.0' to 15.0' B.G.S. SAND/SILT, very pale brown, (10YR 7/3), poorly sorted, very fine grained, subrounded, unconsolidated, wet.
		CORE				SAND/SILT, very pale brown, (10YR 7/3), poorly sorted, very fine grained, subrounded, unconsolidated, wet.
		CORE				SAND/SILT, light gray, (10YR 7/2), poorly, soft, fine to very fine grained, subrounded, unconsolidated, abundant clear quartz, small clay matrix, moderately plastic, wet.
20						Total Depth = 20.0' B.G.S. Wet at 12½' B.G.S.
25						
30						

COMPLETION



DEPTH: 0, 5, 10, 15, 20, 25, 30

DATE: 5/28/97

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT FACILITY 37 WELL INSTALLATION
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

MT0485.001

WELL NO. MW-118-97

WELL LOG

ELEVATION
GROUND LEVEL NA
MEASURING POINT Top of Casing
WATER LEVEL 13.58' B.M.P.

DRILLING
COMPANY CCI Environmental
METHOD Hollow Stem Auger

PERSONNEL
DRILLER Z. Ruffin
LOGGER R. Shoemaker

CASING 4" DIA. FIBERGLASS BLANK
4" DIA. FIBERGLASS WELL SCREEN, 0.010 SLOT

COMPLETION GROUT
¼" BENTONITE PELLETS
NO. 2 BLAST SAND FILTER PACK

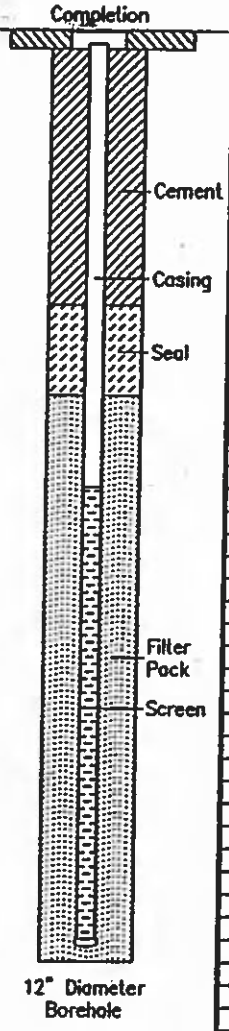
CEMENT PORTLAND CEMENT

LITHOLOGY

SAMPLE LOG

DEPTH	SYMBOL	TYPE	SAMPLED	RECOVERED	ANALYZED	
0						Utility Check – No sample.
5		CORE				SILTY SAND, yellowish red, (5YR 4/6), poorly sorted, very fine to fine grained, rounded, unconsolidated, loose.
		CORE				CALICHE, cream, buff, soft to firm, moist, silty, abundant clear, round quartz grains.
		CORE				CALICHE, cream, buff, soft to firm, moist, silty, abundant clear, round quartz grains.
10		CORE				SILT, very pale brown, (10YR 7/3), poorly sorted, subrounded, some CALICHE, firm, wet.
		CORE				SILT, very pale brown, (10YR 7/3), poorly sorted, subrounded, some CALICHE, firm, wet.
		CORE				SAND/SILT, very pale brown, (10YR 8/3), poorly sorted, very fine to fine grained, subrounded, abundant clear, well rounded quartz grains, wet, loose.
15		CORE				SILT, very pale brown, (10YR 7/3), poorly sorted, subrounded, some CALICHE, firm, wet, firm.
		CORE				SILT, very pale brown, (10YR 7/3), poorly sorted, subrounded, some CALICHE, firm, wet.
20		CORE				SILT, very pale brown, (10YR 7/3), poorly sorted, subrounded, some CALICHE, firm, wet.
						Total Depth = 20.0' B.G.S. Wet at 12.0' B.G.S.
25						
30						

COMPLETION



DEPTH: 0, 5, 10, 15, 20, 25, 30

DATE: 5/28/97

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT FACILITY 37 WELL INSTALLATION
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

MT0485.001

WELL NO. MW-119-97

WELL LOG

WELL NO. MW-120-99

ARCADIS
1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000615.0001
CLIENT NAME: HUNTSMAN CORPORATION
PROJECT NAME: DRAW WELL INSTALLATION
SITE LOCATION: ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS
DRILLING CO: LARIAT DRILLING CO.
DRILLING METHOD: AIR ROTARY
SAMPLING METHOD: SHOVEL
DATE BEGUN: 11/29/99 DATE COMPLETED: 11/29/99
DRILLER: R.B. DAVIS ELEVATION (SURF.): —
LOGGER: D. McNEESE ELEVATION (T.O.C.): —
FILE NAME: MW-120-99.DAT UNIQUE NUMBER: 43-069-01517

STATIC WATER LEVEL: — MEAS. PT.: — DATE: —
HOLE SIZE(S): 7-7/8" TOTAL DEPTH: 25.0'
SURFACE COMPLETION: 3' x 3' x 6" Concrete Pad with Locking Well Box

	TYPES	DEPTHS
GROUT TYPE:	Neat Cement	Surface to -1.0'
SEAL TYPE:	Bentonite Pellets	-1.0' to -3.0'
SCREEN PACK:	20/40 Sand	-3.0' to -25.0'
CASING TYPE:	4" Diameter Fiberglass Well Casing	3.0' to -5.0'
	—	—
	—	—
WELL SCREEN:	4" Diameter Fiberglass, 0.010" slots	-5.0' to -25.0'
PLUG BACK:		

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0		SHOVEL							Pre-dug – no sample.	
-5		SHOVEL							SILTY CALICHE: tuff, moist; some CLAY and SILT.	
-10		SHOVEL							SILTY SAND: with SILTY CALICHE, wet.	
-15		SHOVEL							SILTY SAND: wet, no odor.	
-20		SHOVEL							SAND: orange/red color.	
-25										

WELL LOG

WELL NO. MW-121-01

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Choate Drilling
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 03/09/01 DATE COMPLETED: 03/09/01
DRILLER: Dusty Choate ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-121-01.DAT UNIQUE NUMBER: 43-069-01672

STATIC WATER LEVEL: 13.84' MEAS. PT.: —
HOLE SIZE(S): 7 7/8"
SURFACE COMPLETION:

DATE: 03/09/01
TOTAL DEPTH: -23.0'

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -8.0'
SEAL TYPE:	Bentonite	-8.0' to -10.0'
SCREEN PACK:	16/30	-10.0' to -23.0'
CASING TYPE:	4" dia. fiberglass	Surface to -12.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-12.0' to -22.0'
PLUG BACK:		—

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									BACKFILL: Concrete Backfill	
-10		Split Spoon			18"	0			SAND: 5YR 6/6, red yellow, very fine grain to fine grain, rounded, loose, fair sorted, some silt, dry	
		Split Spoon			10"	0				
		Core				0			CALICHE: 5YR 7/6, yellow red, very firm to hard, chalky, dry.	
-15		Core				Wet				
		Shovel							CALICHE: 5YR 7/6, red yellow, hard, 20% sand, wet, dark gray stain.	
-20									T.D. @ 23'	

WELL LOG

WELL NO.
MW-122-01

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Choate Drilling
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 03/16/01 DATE COMPLETED: 03/16/01
DRILLER: Dusty Choate ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-122-01.DAT UNIQUE NUMBER: 43-069-01673

STATIC WATER LEVEL: — MEAS. PT.: — DATE: 03/16/01
HOLE SIZE(S): 7 7/8" TOTAL DEPTH: -23.0'
SURFACE COMPLETION:

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -8.0'
SEAL TYPE:	Bentonite	-8.0' to -10.0'
SCREEN PACK:	16/30	-10.0' to -23.0'
CASING TYPE:	4" dia. fiberglass	Surface to -12.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-12.0' to.-22.0'
PLUG BACK:		-22.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									BACKFILL: Concrete Backfill	
-10		Shovel				0			CALICHE: 5YR 8/3, pink, 10% SAND, light gray stain, moderate odor.	
		Core			12"	294			CALICHE: light gray to gray, chalky, strong odor, gray stain.	
		Split Spoon			24"	OR			CALICHE: light gray to gray stain to dark gray stain, strong odor.	
-15										
-20									SAND: 5YR 8/4 pink, w/20% to 30% CALICHE, trace stain, slight odor. TD @ 23'	

WELL LOG

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

WELL NO. MW-123-01

Page 1 of 1

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Choate Drilling
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 03/12/01 DATE COMPLETED: 03/12/01
DRILLER: Dusty Choate ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-123.01.DAT UNIQUE NUMBER: 43-069-01674

STATIC WATER LEVEL: — MEAS. PT.: —
HOLE SIZE(S): 7 7/8"
SURFACE COMPLETION:

DATE: 03/12/01
TOTAL DEPTH: -21.0'

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -6.5'
SEAL TYPE:	Bentonite	-6.5' to -8.5'
SCREEN PACK:	16/30	-8.5' to -21.0'
CASING TYPE:	4" dia. fiberglass	Surface to -10.5'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-10.5' to -20.5'
PLUG BACK:		-20.5

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									BACKFILL: Concrete Backfill	
-5										
-10		Shovel				3.9			CALICHE: 5YR 8/4, pink, very hard, chalky, trace SAND, dry.	
									CALICHE: 5YR 8/4, pink to 7/1, gray stain, slight odor.	
-15		Core				59			CALICHE: 5YR 8/4, pink to 7/1, gray, strong odor, saturated.	
									CALICHE: 5YR 7/1 gray, heavy stain, strong odor, wet TD @ 21'	
-20										

WELL LOG

WELL NO.
MW-124-01

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Choate Drilling
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 03/12/01 DATE COMPLETED: 03/12/01
DRILLER: Dusty Choate ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-124-01.DAT UNIQUE NUMBER: 43-069-01675

STATIC WATER LEVEL: — MEAS. PT.: —
HOLE SIZE(S): 7 7/8"
SURFACE COMPLETION:

DATE: 03/12/01
TOTAL DEPTH: -21.0'

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -5.0'
SEAL TYPE:	Bentonite	-5.0' TO -7.0'
SCREEN PACK:	16/30	-7.0' TO -21.0'
CASING TYPE:	4" dia. fiberglass	Surface to -9.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-9.0' to -19.0'
PLUG BACK:		-19.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									BACKFILL: Concrete Backfill	
-5										
-10		Split-Spoon			18"	415			CALICHE: 5YR 8/4, pink, chalky, some SAND, trace gray stain, strong odor.	
		Split-Spoon			18"	OR			CALICHE: 5YR 8/4, pink to 7/1, gray, chalky, strong odor, moderate stain, wet @13.5'.	
-15									CALICHE: 5YR 8/4, pink to 7/1, gray, moderate odor, heavy stain.	
		Shovel							CALICHE: 5YR 7/1 gray, trace stain, TD @ 21'	
-20										

WELL LOG

WELL NO. MW-125-00

Page 1 of 1

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Lariat
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Shovel
DATE BEGUN: 10/18/00 DATE COMPLETED: 10/18/00
DRILLER: Joe Chapman ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-125-00.DAT UNIQUE NUMBER: 43-069-01676

STATIC WATER LEVEL: — MEAS. PT.: —
HOLE SIZE(S): 7 7/8"
SURFACE COMPLETION:
DATE: 10*/18/00
TOTAL DEPTH: -36.0'

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -15.0'
SEAL TYPE:	Bentonite	-15.0' to -18.0'
SCREEN PACK:	20/40	-18.0' to -36.0'
CASING TYPE:	4" dia. fiberglass	Surface to -20.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-20.0' to -35.0'
PLUG BACK:		-35.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									SAND: predug, SAND & CALICHE	
-5		Split Spoon			12"	19.2			SAND: 10 YR 5/3 brown, very fine grain, silty, loose, trace CALICHE, rounded, dry, moderate odor.	
		Split Spoon			12"	45			CALICHE: 10 YR 8/4 very pale brown, chalky, hard, silty, moderate odor, dry.	
-10		Split Spoon			15"	3			CALICHE: 7.5 YR 8/3 pink, chalky, firm, some silty, moderate odor, dry.	
		Split Spoon			15"	1.2				
		Split Spoon			14"	1.2				
-15		Split Spoon			15"	0.7			SAND: 7.5 YR 7/6 red yellow, very fine grain, loose, rounded to sub rounded, slightly silty, dry slight odor.	
		Split Spoon								
-20		Shovel				0			SAND: 5 YR 7/6 red yellow, very fine, grain, rounded, loose, moist. let well sit 30 min. no water @ 25'.	
		Shovel				1.2				
-25		Shovel				1.2			SAND: 5 YR 7/6 red yellow, very fine grain, rounded, loose, moist.	
		Shovel								
-30									T.D. @ 36'	
-35										

WELL LOG

WELL NO.
MW-126-00
Page 1 of 1

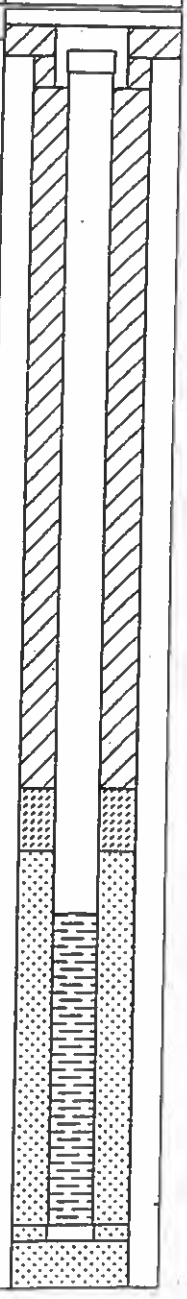
ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Lariat
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 10/11/00 DATE COMPLETED: 10/11/00
DRILLER: Joe Chapman ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-126-00.DAT UNIQUE NUMBER: 43-069-01677

STATIC WATER LEVEL: — MEAS. PT.: — DATE: 10/11/00
HOLE SIZE(S): 7 7/8" TOTAL DEPTH: 40.0'
SURFACE COMPLETION:

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -24.0'
SEAL TYPE:	Bentonite	-24.0' to -26.0'
SCREEN PACK:	20/40	-26.0' top -40.0'
CASING TYPE:	4" dia. fiberglass	Surface to -24.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-28.0' to -38.0'
PLUG BACK:		38.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION
0							SM		SAND: handdug, SAND & CALICHE mix,
-5		Split Spoon			24"	0			SAND: 5 YR 7/6 red yellow, very fine grain, rounded to subrounded, loose, fairly well sorted, dry.
		Split Spoon			18"	0			
-10									SAND: 5 YR 8/3 pink, very fine grain, firm to hard some CALICHE with LIMESTONE nodules, dry.
		Core				0			SAND: 2.5 YR 7/4 light red brown, very fine grain, firm to hard, consolidated, brittle, rounded to subrounded, dry.
-15		Core				0			
		Core			8 ft.	0			
		Core				0			
-20		Core				0			
		Shovel				0			SAND: 5 YR 6/6 red yellow, very fine grain, loose, rounded, unconsolidated, dry.
-25		Shovel				0			
		Shovel				0			
		Split Spoon			18"	0			SAND: 5 YR 6/8 red yellow, very fine grain, firm, rounded to subrounded, slightly damp.
-30		Split Spoon			16"	0			CALICHE: very sandy, hard, dry
		Split Spoon			14"	.3			SAND: 7.5 YR 7/3 pink, very fine to fine grain, trace GRAVEL, unconsolidated, rounded to subrounded, trace angular, moist, trace gray stain, moderate odor.
-5									SAND: 7.5 YR 7/6 red yellow, very fine grain, loose, subrounded, moist, slight odor. T.D. 40'
-40									



WELL LOG

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

WELL NO. MW-127-0(

Page 1 of 1

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Lariat
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 10/10/00 DATE COMPLETED: 10/10/00
DRILLER: Joe Chapman ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-127-00.DAT UNIQUE NUMBER: 43-069-01678

STATIC WATER LEVEL: -33.05' MEAS. PT.: T.O.C.
HOLE SIZE(S): 7 7/8"
SURFACE COMPLETION:

DATE: 10/1
TOTAL DEPTH: 40.0

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -24.0'
SEAL TYPE:	Bentonite	-24.0' to -27.0'
SCREEN PACK:	20/40	-27.0' top -40.0'
CASING TYPE:	4" dia. fiberglass	Surface to -28.0'
CENTRALIZERS:	—	—
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	-28.0' to -38.0'
PLUG BACK:		38.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0	Hand				24"		SM		SAND: handdug for utilites, SAND & CALICHE mix,	
-5	Split Spoon				18"		SM		SAND: 5 YR 6/8 red yellow, very fine grain, subrounded, loose, fair sorted, dry.	
	Split Spoon				4"	NR			CALICHE: 5 YR 8/3 pink, some SILTY SAND innerbedded, some silicous layers, hard.	
-10										
-15						0			SAND: 5 YR 7/3 pink, very fine grain, subrounded, very hard, consolidated, dry, some CALICHE cementation	
	Core			6'		0	SM			
-20						0				
						0	SM		SAND: 5 YR 7/3 pink, very fine grain, subrounded, hard.	
-25	Core					0			no recovery, drilled with bit collected sample off shovel.	
	Split Spoon					NR				
	Split Spoon					0			SAND: 2.5 YR 7/6 light red, very fine grain, rounded to subrounded, unconsolidated, moist. caught off shovel.	
-30	Split Spoon									
	Split Spoon					0	SM			
-35									no sample drilled to T.D. @ 40'	
-40										

WELL LOG

WELL NO.
MW-128-00
Page 1 of 1

ARCADIS
1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Lariat
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 10/16/00 DATE COMPLETED: 10/16/00
DRILLER: Joe Chapman ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-128-00.DAT UNIQUE NUMBER: 43-069-01679

STATIC WATER LEVEL: -36.93' MEAS. PT.: T.O.C. DATE: —
HOLE SIZE(S): 7 7/8" TOTAL DEPTH: -45.0'
SURFACE COMPLETION:

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -28.0'
SEAL TYPE:	Bentonite	-28.0' to -30.0'
SCREEN PACK:	20/40	-30.0' top -45.0'
CASING TYPE:	4" dia. fiberglass	Surface to -32.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	32.0' to -42.0'
PLUG BACK:		-42.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									SAND: handdug for utilites, SAND & CALICHE.	
-5		Split Spoon			24"	0	SM		SAND: 7.5 YR 8/3 pink, very fine grain, loose unconsolidated, slightly silty, subrounded, dry, trace black stain, trace CALICHE.	
		Split Spoon			24"	1.9	SM		SAND: 7.8 YR 8/4 pink, very fine grain, loose, unconsolidated, rounded to subrounded, dry.	
-10		Split Spoon			24"	0			SAND: 7.5 YR 6/6 red yellow, very fine grain, loose, unconsolidated, rounded, dry.	
		Split Spoon			24"	0	SM			
-15		Split Spoon			24"	0				
		Core				0	SM		SAND: 7.5 YR 7/4 pink, very fine grain, firm, unconsolidated, rounded to subrounded, silty.	
		Core				0				
-20		Core			10"	0	SM		SAND: 7.5 YR 6/6 red yellow, very fine to fine grain, hard, consolidated, very silicous.	
		Core				0			SAND: 7.5 YR 7/4 pink, very fine grain, unconsolidated, rounded to subrounded.	
		Core				0	SM		SAND: 7.5 YR 8/3 pink, very fine grain, chalky, rounded, silty, dry, some CALICHE.	
-25		Core				2.3			SAND: 7.5 YR 7/4 pink, very fine grain, unconsolidated, loose, some silt, trace consolidated, firm, rounded to subrounded, dry.	
		Core				3.4				
-30		Core			8"	1.1				
		Core				0.4				
-35		Split Spoon				0.9			SAND: 7.5 YR 7/3 pink, very fine grain, unconsolidated, loose, trace LIMESTONE, dry.	
		Shovel				0.3				
		Shovel				0.4			CALICHE: 7.5 YR 8/1 white, chalky, hard, some SAND, trace LIMESTONE, dry.	
-40									not sampled T.D. @ 45'	
-45										

WELL LOG

WELL NO. MW-129-00

Page 1 of 1

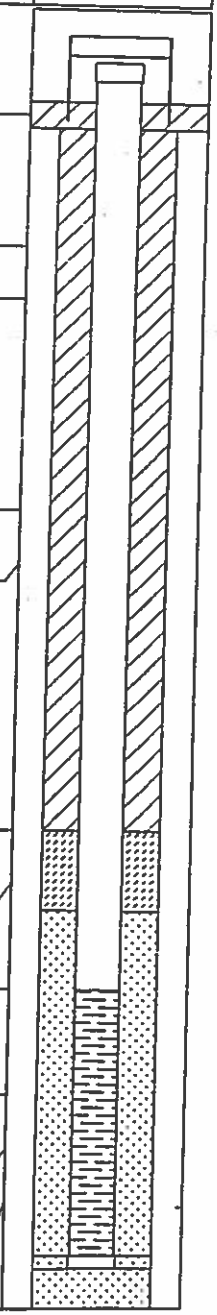
ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Lariat
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 10/13/00 DATE COMPLETED: 10/13/00
DRILLER: Joe Chapman ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-129-00.DAT UNIQUE NUMBER: 43-069-01680

STATIC WATER LEVEL: -37.30 MEAS. PT.: T.O.C. DATE: 10/17/00
HOLE SIZE(S): 7 7/8" TOTAL DEPTH: -45.0'
SURFACE COMPLETION:

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -27.0'
SEAL TYPE:	Bentonite	-27.0' to -30.0'
SCREEN PACK:	20/40	-30.0' top -45.0'
CASING TYPE:	4" dia. fiberglass	Surface to -33.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	33.0' to -43.0'
PLUG BACK:		-43.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									SAND: handdug for utilites, SAND & CALICHE.	
-5		Split Spoon				0			SAND: 5 YR 7/6 red yellow, very fine grain, firm, trace CALICHE, dry.	
		Split Spoon			24"	0.1			SAND: 5 YR 7/4 pink, very fine grain, loose, unconsolidated, dry.	
-10		Split Spoon			24"	0.2				
		Split Spoon			24"	0.3				
-15		Core				1.2			CALICHE: light tan to light pink, very silicous, 10% QUARTZITE, sand grain, subangular, slight odor.	
		Core				0.1			SAND: 5 YR 7/4 pink, very fine grain, loose, subrounded, dry, some thin silicous layers, dry.	
-20		Core			10"	0.1				
		Core				0.2				
-25		Core				0.4				
		Core				1.8				
		Core				0.8			SAND: 5 YR 7/3 pink, very fine grain, firm, some hard subrounded layers, trace LIMESTONE nodules, dry.	
-30		Core			8"	0.5			SAND: 5 YR 7/2 pinkish gray, very fine grain, firm, unconsolidated, moderate gray stain, trace odor, dry, subrounded.	
		Core				0.1				
-35		Split Spoon			10"	0.1			SAND: 5 YR 7/2 to 7/3, very fine grain, firm, unconsolidated, dry, trace staining, trace odor, slightly damp.	
		Shovel				0				
		Shovel				0			CALICHE: 10 YR 7/2 light gray, ver hard, silicous, 20% QUARTZITE sand grains, chalky.	
-40		Shovel				0			SAND: 10YR 8/3 very pale brown, very fine grain, firm, consolidated to unconsolidated, 20% CALICHE, hard, saturated at 42', strong water flow.	
-45									not sampled T.D. @ 45'	



WELL LOG

WELL NO.
MW-130-00

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

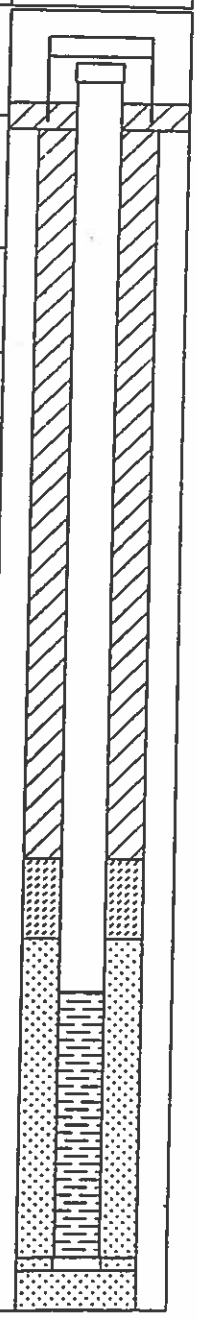
PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Lariat
DRILLING METHOD: Air Rotary
SAMPLING METHOD: Split Spoon, Core
DATE BEGUN: 10/12/00 DATE COMPLETED: 10/13/00
DRILLER: Joe Chapman ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: MW-130-00.DAT UNIQUE NUMBER: 43-069-01681

STATIC WATER LEVEL: -37.02' MEAS. PT.: T.O.C. DATE: 10/17/00
HOLE SIZE(S): 7 7/8" TOTAL DEPTH: -45.0'
SURFACE COMPLETION:

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -28.0'
SEAL TYPE:	Bentonite	-28.0' to -31.0'
SCREEN PACK:	20/40	-31.0' to -45.0'
CASING TYPE:	4" dia. fiberglass	Surface to -33.0'
	—	—
CENTRALIZERS:		
WELL SCREEN:	4" dia. Fiberglass w/0.010" slots	33.0' to -43.0'
PLUG BACK:		-43.0'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION
0									SAND: handdug for utilites, SAND & CALICHE.
-5		Split Spoon			10"	0			SAND: 5 YR 7/3 pink, very fine grain, firm, slightly consolidated with CALICHE cement, dry, trace black speckled stain.
		Split Spoon			10"	0			
-10		Split Spoon			10"	0			SAND: 5 YR 7/6 red yellow, very fine grain, loose, firm, some CALICHE layers with very silicous hard lenses.
		Shovel				0			
		Shovel				0			
-15		Core				0			SAND: 5 YR 7/8 red yellow, very fine grain, firm, CALICHE bedded, dry.
		Core			10"	0.3			
-20		Core				0			
		Core				0			
		Core				0			SAND: 5 YR 6/8 red yellow, very fine grain, well sorted, loose, firm.
-25		Split Spoon			NR	0			SAND: 5 YR 6/4 light red brown, very fine grain, hard, very dense silicous layers.
-30		Split Spoon			NR	0.2			
		Split Spoon			10"	0.2			SAND: 5 YR 7/6 red yellow, very fine grain, loose, subrounded, slightly damp.
		Shovel				0			
-35		Shovel				0			
		Shovel				0			
		Shovel				0.3			CALICHE: 5 YR 8/2 pink white, chalky, dry, 10% SAND 5 YR 7/6 red yellow, moist (let well sit overnight)
-40		Shovel							CALICHE: water level @ -35.20' light pink, chalky, hard, 10% SAND, wet, making water while drilling T.D. @ 45'
		Shovel							
-45		Shovel							

WELL INSTALLATION



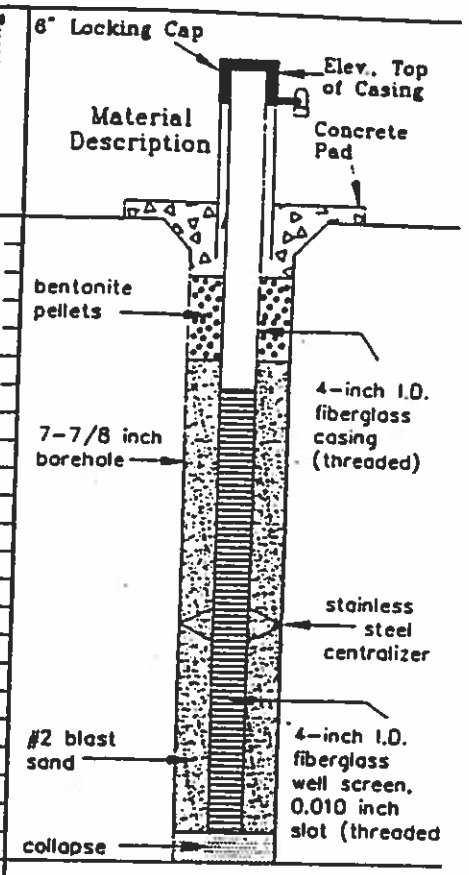
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/11/88 Well No.: RW-1A-88
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2861.17 Top of PVC Casing 2863.15
Total Depth: 23.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, poorly graded, very fine to fine, very dense, 10-20% fines, calcareous nodules, sandstone fragments, beige
10	SM		SILTY SAND, uniform, very fine, dense, 20-30% fines, minor calcareous nodules, dark brown and beige, strong odor at 8 feet, organic vapor reading = 3.0-10.0 ppm
15	SP		SAND, poorly graded, very fine to fine, dense, many cemented fragments; beige, odor, organic vapor reading = 5 ppm SAND, uniform, very fine, dense, very clean, pink
20	ML		SANDY SILT, non-plastic, very stiff, damp, 20-30% very fine to fine sand, calcareous nodules
			SANDSTONE, very fine to fine, very hard, well cemented
25			TOTAL DEPTH = 23.0 FEET

Completion Data



DRAWN BY | CHECKED BY MMP | APPROVED BY KCB

Client: REXENE
Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM
Project Number: 449844

MONITORING WELL RW-2A-92

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF OB-1, BRINE POND
SURFACE ELEV.(FT): 2860.25
TOTAL DEPTH(FT.): 20.0
Logged By: M. WILSON
Date Started: 10/1/92
Drilled By: J. LANDEROS, GPI
Date Completed: 10/1/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10" HOLLOW STEM AUGER

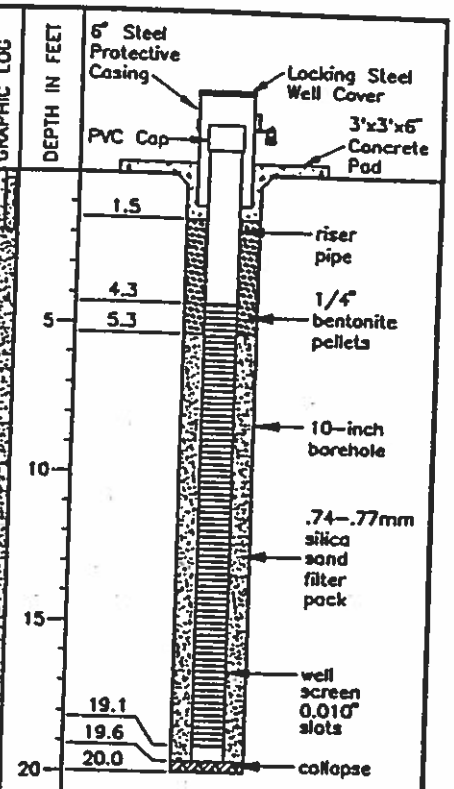
Sampling Method: 5'X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2862.67 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 4.3 Type: FIBERGLASS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 4.3-19.1 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 5.3-19.6
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	HD. SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine to fine grained sand; 10-20% silt; caliche nodules; loose; moist; brown			24	16		32.3	sm		0
SAND - fine to medium grained sand; loose; poorly graded; caliche nodules; ashes; broken glass; rusted metal; dry; black (landfill debris); strong hydrocarbon odor			36	22		10707	sp		
- saturated; free phase hydrocarbon			24	6	10990	10968			5
			36	8	10800	10537			
- base of landfill material at 15 feet			24	0					10
SANDY SILT - nonplastic; 10-20% very fine grained sand; caliche nodules; compact; saturated; beige			36	10	10950	8778			
GRAVELLY SANDY SILT - nonplastic; hard; moderately well cemented; compact; 20% very fine grained sand; 20% pebble-sized gravel; saturated; beige			24	24	3618	754	ml		15
SANDY GRAVEL - pebble-sized gravel; 40% medium grained sand; well sorted; moderately well cemented; saturated; beige						106	ml		
TOTAL DEPTH = 20.0 FEET						250	gp		20
									25
									30
									35
									40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 10/28/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A90 Sheet 1 of 1

WELL LOG

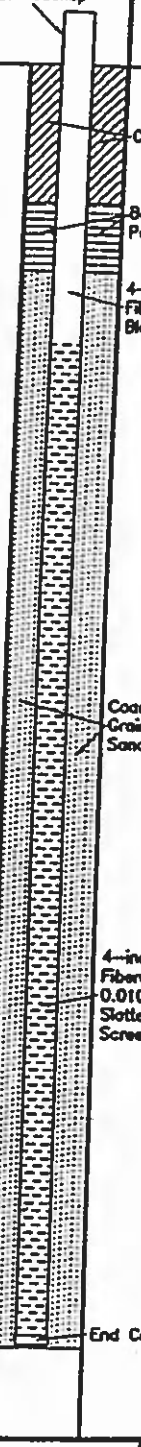
ELEVATION
GROUND LEVEL
MEASURING POINT 2.7' A.G.L.
WATER LEVEL 11.84' B.M.P.
LING
MPANY CCI
METHOD Hollow Stem Auger

PERSONNEL
DRILLER Z. Ruffin
LOGGER H. McConnell

CASING 4-inch diameter fiberglass blank
4-inch diameter fiberglass 0.010 slotted screen
COMPLETION Above-ground protective well casing
CEMENT Portland cement

DEPTH	RECOVERY	USCS	BLOW COUNTS	VAPOR READING	LITHOLOGY — SAMPLE LOG
0					0.00'–8.00' Sandy Silt – Medium stiff, light reddish brown, nonplastic, damp, fragments of cemented sandy silt, calcareous nodules, 20–30% very fine to fine sand
					0.00'–18.00' information was obtained from Monitor Well Installation Form for MW-19-88 well place by International Technology Corporation.
10					8.00'–13.00' Sandstone – Very dense, light gray, poorly graded, very fine to fine
15					13.00'–18.00' Sand – Loose, dark gray, poorly graded, very fine to fine, fragments of well cemented sand, trace silt, strong hydrocarbon odor
					17.00'–19.00' Slow drilling, no rig chatter, smooth slow drilling 18.50' Driller suggests formation is softer than above; thick cuttings circulated to surface
20	2/12		106 25		19.00'–20.00' Sandy Clay – Black to gray and gray with black inclusions, carbonate-cemented (?) sand, very fine to medium grained, moderately hard, trace gravel
	5.5/12		70		21.00'–21.50' Gravelly Sand – Black, mixture of gold rounded fine grained sandstone and loose fine grained sand and very coarse grained sand and gravel, slough contained gravel up to 1 cm diameter
25	3/12		34 55		24.00'–25.00' Sand – Black to olive green, fine grained sand with some rounded fine grained sandstone fragments
					26.00'–28.00' Slow drilling, smooth
	5.5/24		11 31 50		28.00'–30.00' Silty Sand – Gold to gray with areas of black, fine grained sand with 30% silt, moderately well cemented. Total Depth = 28.00'

COMPLETION



HOLE SIZE

DEPTH

TE: 10/24/95

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT GWCA-A WELL INSTALLATION MT0381.005
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO.
RW-3A-95

WELL LOG

ELEVATION
Ground Level
Measuring Point 2.5' A.G.L.
Water Level

DRILLING
Company C.C.I. Environmental Drilling
Method Hollow Stem Auger

PERSONNEL
Driller
Logger

CASING 4-inch diameter fiberglass flush threaded

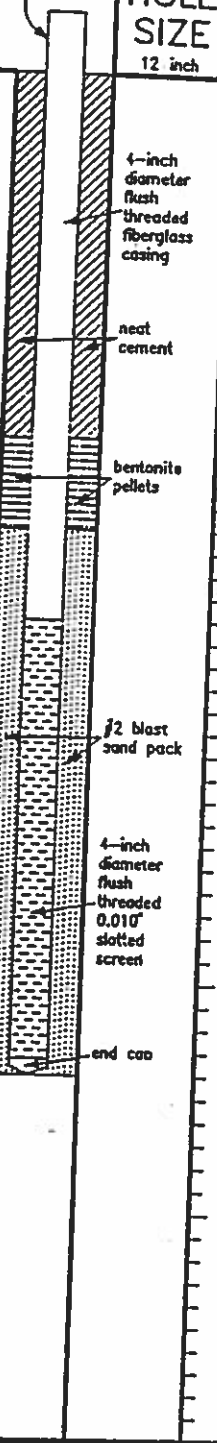
COMPLETION 4-inch diameter fiberglass flush threaded 0.010" slotted screen

CEMENT Neat cement

SAMPLE LOG

DEPTH	SYMBOL	RECOVERY	VAPOR READING	LITHOLOGY
0.0'–4.0'				SANDY SILT, very stiff, dry to wet, calcareous nodules, beige.
4.0'–8.0'				SANDY SILT, stiff, calcareous nodules, odor, dark gray.
8.0'–17.2'			1–8 ppm	SANDY SILT, stiff, 10–20% very fine sand, calcareous nodules, strong odor, dark gray.
17.2'–22.0'				SLIGHTLY SILTY SAND, uniform, very fine, dense, minor sandstone fragments and calcareous nodules, slightly silty in layers, gray and light gray.
Total Depth = 22.0 feet				

COMPLETION



HOLE SIZE 12 inch

DEPTH: 5, 10, 15, 20, 25

DATE: 1/25/95

GERAGHTY & MILLER, INC.
Environmental Services

CLIENT REXENE CORPORATION
PROJECT PILOT STUDY MT0352.001
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO. RW-4A-95

MT35201C.DWG

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/18/88 Well No.: RW-SA-88

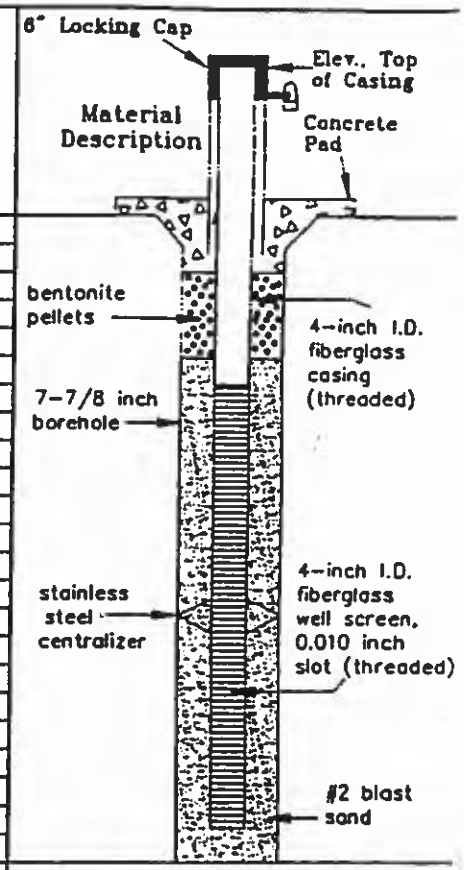
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2856.97 Top of PVC Casing 2859.23

Total Depth: 23.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH

Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, poorly graded, very fine to fine, dense, dry, sandstone fragments, beige
5	SM		SILTY SAND, poorly graded, very fine to fine, medium dense, gray
5	ML		SANDY SILT, non-plastic, soft, 10-20% very fine sand, very light gray
10	SM		SILTY SAND, poorly graded, very fine to fine, medium dense, wet, 10-20% fines, black staining, odor, light gray
10	ML		SANDY SILT, non-plastic, stiff, 20-30% very fine sand, "sticky", light gray, increasing sand downward
15	SW		SAND, well graded, very fine to coarse, minor gravel, very dense, some silt clasts, gravel is rounded sandstone fragments, light gray to gray
20	SM		SILTY SAND, well graded, very fine to coarse, 20-30% silt, very dense, minor fine quartz gravel light olive gray
20	SM		SILTY SAND, uniform, very fine, very dense, 10-20% fines, yellow brown
25			TOTAL DEPTH 23.0 FEET

Completion Data



MONITOR WELL INSTALLATION

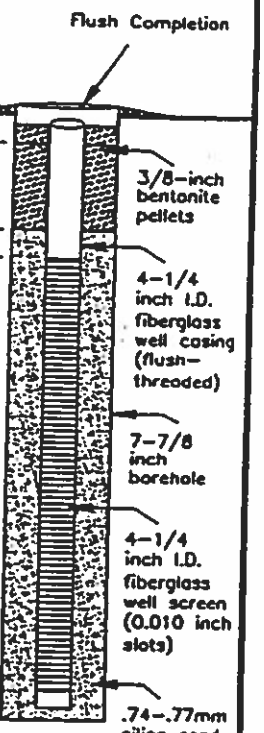
CLIENT: REXENE PRODUCTS COMPANY — WELL NO.: RW-6A-90
SITE: ODESSA, TEXAS — JOB NO.: 446844 — SHEET 1 OF 1
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — DATE: START 9/21/90 FINISH 9/21/90
ELEVATION: PAD 2854.82 CASING 2855.46 — CASING SIZE & TYPE: 4-1/4 I.D. FIBERGLASS — TOTAL DEPTH : 21.0 FEET — SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSO
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/20	MW-64-1'	0.3	ml		SANDY SILT – very pale brown (10YR 7/3), nonplastic, loose, damp, road fill
	24/18		8.5	cl		SANDY CLAY – very dark grayish brown (10YR 3/2), moderately plastic, compact, damp, road fill – some black staining – high percentage of caliche fragments
5	24/20	MW-64-5'	0.0			
	24/12	MW-64-7.5'	0.0			– very dark gray (10YR 3/1), moist, no caliche fragments, strong odor
	24/22		0.0	ml		SANDY SILT – nonplastic, loose, saturated, strong odor
10	24/20		0.0	ml		SANDY SILT – white, nonplastic, compact, saturated, slight odor, high percentage carbonate precipitation, caliche – drilling is soft between 13' and 15'
	24/0					
15	60/5			cl		CLAY – drilling penetration rate fluctuates in the 15 to 20' interval – poor recovery in core barrel, material is too soft – 4 inches of clay inside the core barrel
20						
25						
30						
35						
40						

TOTAL DEPTH = 21.0 FEET

GEOPHYSICAL LOGS: 0 10 20 30 40 50 — LOGS NOT AVAILABLE

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A29

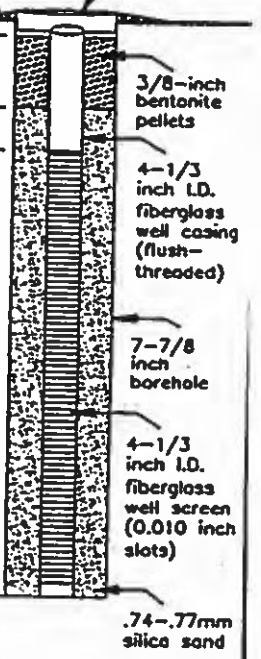
MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY
WELL NO.: RW-7A-90
SITE: ODESSA, TEXAS
JOB NO.: 446844
SHEET 1 OF 1
GEOLOGIST: STEVE PULLEN
DRILLER: BILL HOUSTON
DATE: START 10/5/90 FINISH 10/5/90
TOTAL DEPTH : 20.0 FEET
ELEVATION: PAD 2858.35 CASING 2858.75
CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS
SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRESSO
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER, NX CORE BARREL IN HARD MATERIAL
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	18/12		0.0	ml		SANDY SILT – tan, nonplastic, 30% sand, compact, damp, road fill
	24/18		6.5	ml		CLAYEY SILT – dark brown, nonplastic, 40% clay, compact, damp, moderate odor
	24/24		0.0			– tan at 3'
5	24/16		13.0			– dark gray, 30% clay, color possibly due to contamination
	24/22		64.0			– saturated at approximately 7'
10			215			
15	24/18		302			– black, moist
20						TOTAL DEPTH = 20.0 FEET
25						
30						
35						
40						

GEOPHYSICAL LOGS: 0 10 20 30 40 50 — LOGS NOT AVAILABLE

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A34

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL RW-8A-92

DRILLING AND SAMPLING INFORMATION

Boring Location: ALONG SW BOUNDARY FENCE
SURFACE ELEV.(FT): 2858.89
TOTAL DEPTH(FT.): 40.0
Logged By: M. WILSON
Date Started: 8/10/92
Drilled By: J. LANDEROS GPI
Date Completed: 8/11/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

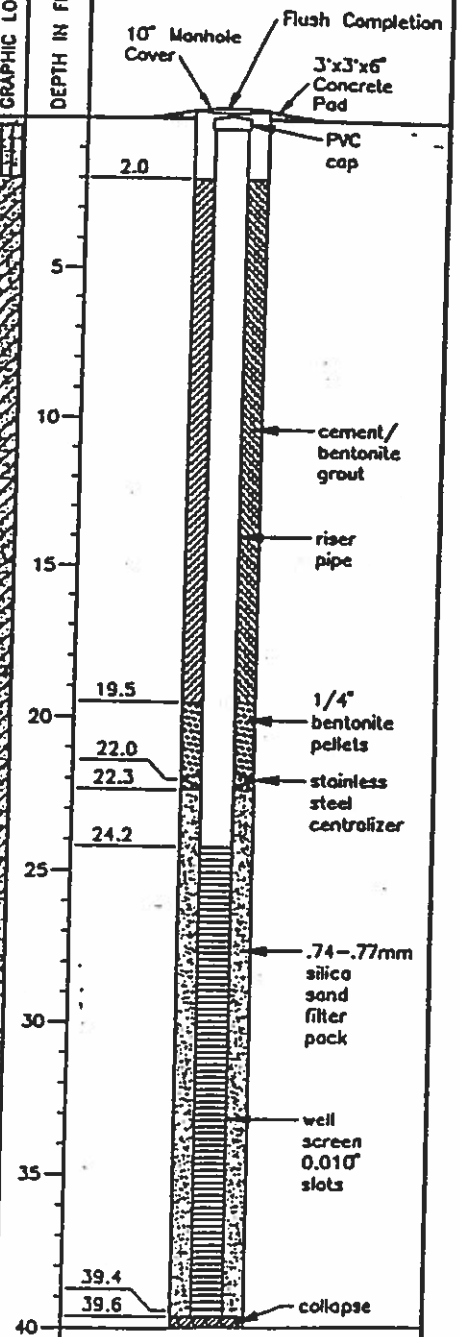
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2858.38 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.2 Type: FIBERGLASS
Centralizers-Type: ST. STL. Depths(ft.): 22.0
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 24.2-39.4 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 22.3-39.6
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
GRAVEL - cover; pink		24 / 24	81	23.3	sm		
SILTY SAND - very fine to fine grained sand; 25% silt; loose; caliche nodules; pink; dry		36 / 24		92	sc		
CLAYEY SAND - slightly plastic; very fine grained sand; 30% clay; firm; brown; saturated; slight hydrogen sulfide odor		30 / 24	83	4.6			5
- black stains		24 / 36	88	0.9			
- stained completely black		36 / 24	62	182			10
- 10% clay; crumbly; many caliche nodules		10 / 36	941	102			
- 50% clay; firm		36 / 24		72			15
- 25% clay; compact; caliche nodules; dark gray staining; very strong hydrogen sulfide odor		24 / 36	880	508			
- black		32 / 24	329	54			20
		24 / 36	753	137			
SAND - fine to medium grained; loose; poorly graded; original color indeterminate due to heavy black staining; saturated; pungent hydrogen sulfide odor		36 / 24	174	200			
		12 / 36	44	322	sp		25
- compact; firm; gray, black and olive staining		36 / 24	359	132			
- weakly cemented		24 / 36	328	219			
- loose; dark gray staining		36 / 24	895	149			30
		24 / 36	206	115			
SILTY SAND - fine to medium grained sand; 40% silt; poorly graded; weakly cemented; tan; dry				470			
- alternating layers of sand and silt				420			
				362			35
				319			
				189	sm		
TOTAL DEPTH = 40.0 FEET				82			40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A44 Sheet 1 of 1

MONITOR WELL INSTALLATION

CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: RW-9A-9

SITE: ODESSA, TEXAS — DATE: START 9/24/90 — SHEET 1 OF — FINISH 9/24/90

GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 23.0 FEET

ELEVATION: PAD 2854.75 CASING 2856.41 CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH

DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRES

SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER

COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/20	MW-65-1'	18.2	ml		SANDY SILT - light yellowish brown (10YR 6/4), nonplastic, loose, damp, moderate odor
	24/22		6.8	cl		SANDY CLAY - very dark gray (10YR 3/1), moderately plastic, dense (4.0 tons/sq.ft.), color is possibly due to staining
			12.6	cl		
5	24/18		0.0	sm		SANDY SILT - nonplastic, loose, saturated, dark color, oil sheen
						SILTY SAND - brown (10YR 5/3), uniform, 30% silt, fine grained sand, medium grained caliche fragments, loose, saturated
10	24/22		0.0			- greenish gray (6GY 5/1), very fine to fine grained sand, high percentage carbonate precipitation, color is possibly due to staining
15	24/20		7.3			- slight odor
						- harder drilling at 18.5'
20	36/6					SANDSTONE - greenish gray, uniform, fine grained sand, dense, saturated, color is possibly due to staining
25						
30						
35						
40						

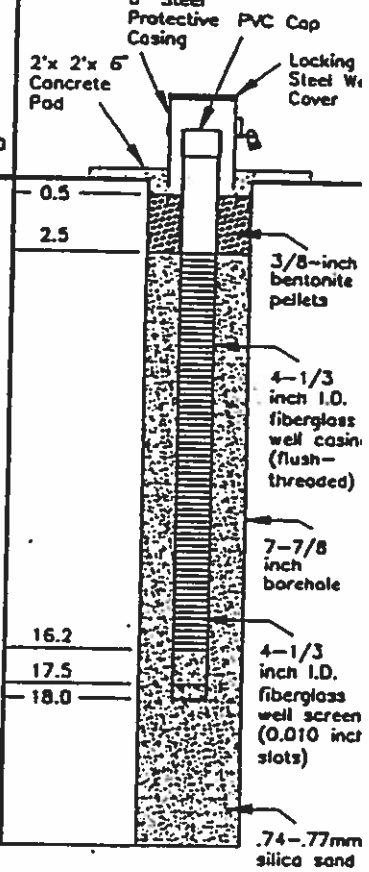
TOTAL DEPTH = 23.0 FEET

GEOPHYSICAL LOGS

0 10 20 30 40 50

LOGS NOT AVAILABLE

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A30

WELL LOG

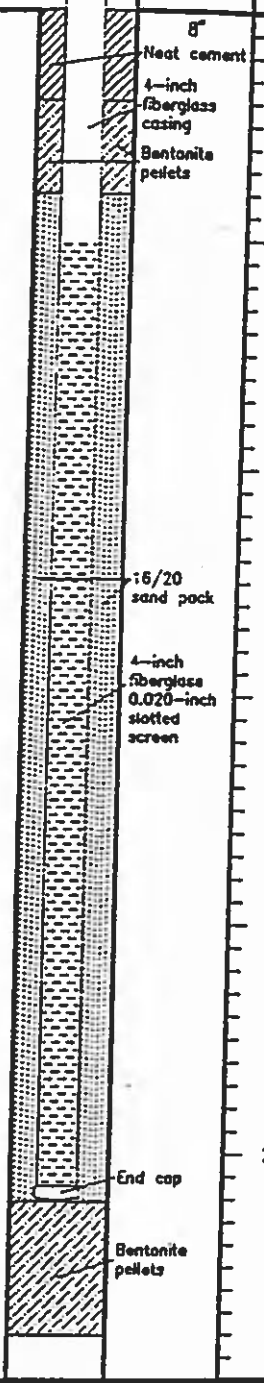
ELEVATION
GROUND LEVEL
MEASURING POINT 2.5' AGL
WATER LEVEL 10' BMP
DRILLING
COMPANY CCI
METHOD Hollow Stem Auger

PERSONNEL
DRILLER J. Barr
LOGGER R. Shoemaker

CASING 4-inch diameter fiberglass
COMPLETION 4-inch diameter fiberglass 0.020" slotted screen
CEMENT Neat cement

SAMPLE LOG

DEPTH	U.S.C.S. SYMBOL	RECOVERY	LITHOLOGY
			0.0'–4.0' Hand dug by Rexene crew. Silty sand, cream, buff, loose.
5		2.0'	4.0'–6.0' Silty clay, silty, buff, light brown, very fine grained, loose, subrounded, moist.
		2.0'	6.0'–8.0' Silty clay, silty, light brown, buff, cream, very fine grained, soft, calcareous.
		1.5'	8.0'–10.0' Silty clay, buff, cream, very silty–sandy, wet, medium plasticity.
10		1.5'	10.0'–12.0' Silty clay, gray, light gray, some white, silty–sandy, heavy staining, septic odor, wet.
		1.5'	12.0'–14.0' Silt, very light gray, gray, some white, moist, non-plastic; sand–loose, very fine grained.
15		1.5'	14.0'–16.0' Sand, gravel, light gray, clear, fine grained, well sorted; gravel <1/8 inch, subrounded, trace of caliche, wet.
		0.5'	16.0'–17.0' As above.
			17.0'–18.0' Silty sand, some clay, very light gray, gray, wet, slight odor.
		1.0'	18.0'–20.0' Sand, gray, gray–green, very fine to fine grained, rounded, trace of gravel, <1/16 inch; 19.5'–20.0' heavy black staine, trace of white silty clay.
20		1.5'	20.0'–22.0' Silty sand, dark gray, black, very fine grained, rounded to sub–rounded, moist, loose.
		1.0'	22.0'–24.0' Silty sand, some sand and clay, light gray, gray–green, cream; clay–cream, silty.
25		1.0'	24.0'–26.0' Sand, black, dark gray, fine grained, wet, some sandstone, brown, red–brown, hard, trace of gold.
		0.5'	26.0'–29.0' Silty clay, silty, yellow–tan, gold, very light gray, cream, some staining, dark gray.
			No return. Total Depth = 29.0 feet



DATE: 6/20/95–6/21/95

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT GWCA A TEST WELL INSTALLATION MT0381.001
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO. RW-10A-95

MT38101C.DWG
Page 1 of 1

43-069-00105

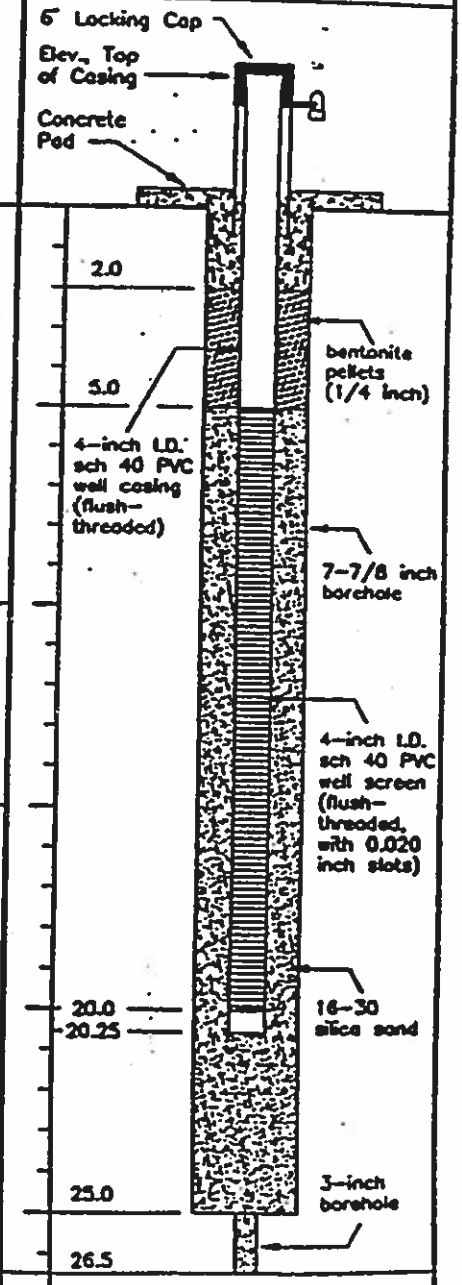
INTERNATIONAL TECHNOLOGY CORPORATION

MONITOR WELL INSTALLATION

Client: REXENE PRODUCTS CO. Job No.: 446839 Date Drilled: 11/14/90 Well No.: RW-11A-90
Site: SOUTH DIXIE WRP - ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____ Sheet 1 of 1
Total Depth: 26.5 FEET Casing Size & Type: 4-INCH I.D. SCH 40 PVC Screen Size: 0.020 INCH
Comments: DRILLING METHOD: MOBILE DRILL B61, DRILLING MUD ROTARY
SAMPLING METHOD: HAMMER A 2-FOOT SPLIT SPOON IN UNCONSOLIDATED MATERIAL, ROTATE A CONVENTIONAL CORE BARREL IN CONSOLIDATED MATERIAL

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	PID (ppm)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
0	24/18	0.0	sm		SILTY SAND - brown, uniform, very fine grained sand, 30% silt, compact (2.0 tons/sq.ft.), damp, organics (roots), (fill?)
	24/18	0.0			- light brown, precipitated calcite crystals, loose
5	24/20	0.0			- saturated at approximately 5'
10	24/18	0.0	sm		- drilling penetration rate decreases at 9', driller suggests clay
					CLAYEY SILTY SAND - light brown, widely graded, 10% clay, 20% silt, 70% very fine grained sand, compact, spturated, no odor, few calcite crystals
15	24/18	21.0	sm		SILTY SAND - light gray, uniform, 40% silt, very fine grained sand, compact, moist
					- cuttings suggests more large sand and gravel, starting at approximately 18'
20	12/10	10.0			- mottled light olive brown with light gray and strong brown, graded, 40% silt, 40% fine grained sand, fine to medium gravel, few large limestone nodules, compact, saturated
					- drilling penetration rate decreases at 24'
25	18/12	0.0	cl		SILTY CLAY - yellow, nonplastic, 40% silt, very stiff (4.0 tons/sq.ft.), damp, no odor, (aquitard?)
30					TOTAL DEPTH = 26.5 FEET

COMPLETION DATA



DRAWN BY	MMH	11/30/90	CHECKED BY	AEB	1-23-91	APPROVED BY	AEB	1-23-91	DRAWING NUMBER	446839-A06

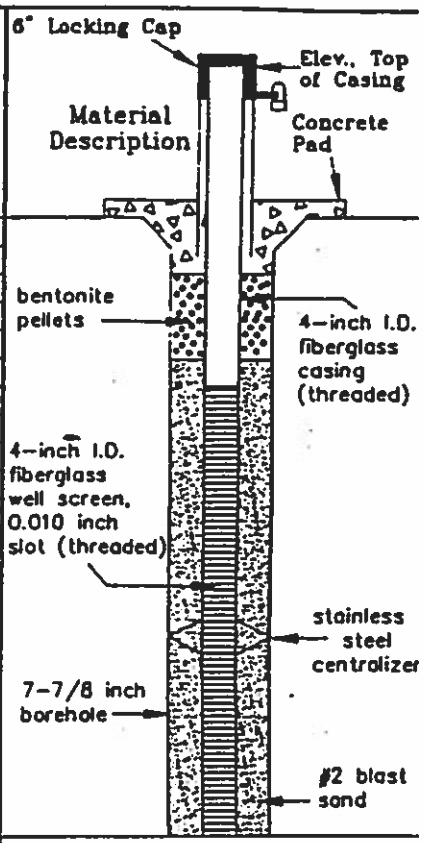
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/19/88 Well No.: RW-12A
Site: ODESSA, TX – WEST PLANT Elevation: Pad 2853.75 Top of PVC Casing 2856.06
Total Depth: 22.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INC
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SLIGHTLY SILTY SAND, uniform, very fine, dense, some calcareous nodules, light pink to beige
			SILTY SAND, uniform, very fine, dense, 10–20% silt, gray
	SP		SAND, uniform, very fine, medium dense, saturated, minor fines, odor, light gray, organic vapor reading = 4.0–5.4 ppm
10			slight increase in fines
	SM		SILTY SAND, well graded, very fine to coarse, predominately very fine to fine, 10–20% silt, minor gravel, odor, organic vapor reading = 2.0 ppm
15			
20			SILTY SAND, poorly graded, very fine to fine, 10–20% silt, some medium and coarse sand, gray mottles black, odor, organic vapor reading = 4 ppm
			TOTAL DEPTH = 22.0 FEET

Completion Data



WELL LOG

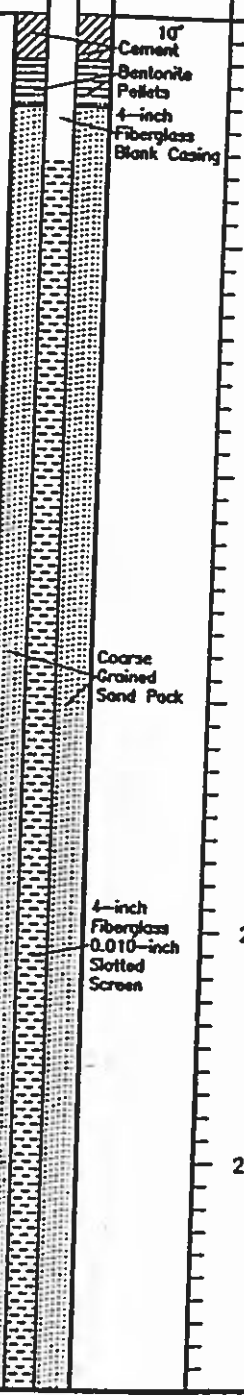
ELEVATION
GROUND LEVEL
MEASURING POINT 2.8' A.G.L.
WATER LEVEL 7.45' B.M.P.
DRILLING COMPANY CCI
METHOD Hollow Stem Auger

PERSONNEL
DRILLER Z. Ruffin
LOGGER H. McConnell

CASING 4-inch diameter fiberglass blank
4-inch diameter fiberglass 0.010 slotted screen
COMPLETION Above-ground protective well casing
CEMENT Portland cement

DEPTH	RECOVERY*	USCS	BLOW COUNTS	VAPOR READING	LITHOLOGY — SAMPLE LOG
0	20/24			0.0	0.00'–4.00' Silty Sand – Pink (7.5YR 7/4), uniform, 40% silt, fine grained sand, compact, damp, no odor, high percentage of carbonate precipitation – little black staining at 3.50'
	20/24			14	
5	18/24			102	4.00'–10.00' Silty Sand – Black, high percentage of carbonate precipitation at 4.00', caliche – saturated at 5.00'
10	20/24			407	10.00'–11.00' Gravelly Sand – Tan, 20% coarse gravel, fine grained sand, loose, saturated, strong odor
					11.00'–15.00' Silty Sand – Uniform, 40% silt, fine grained sand, compact, saturated – harder drilling at 13.00' – drilling mud turns black at 14.00'
15	20/24			21	15.00'–19.00' Sandy Silt – Black nonplastic, compact, damp – brown greenish gray, high percentage of crystalline material at 17.00'
20	16/24			0.0	19.00'–21.00' Silty Clay – Black, moderate plasticity, moist – light greenish gray
	21/24		6 27 34 50		Previous Total Depth = 21.50' 21.00'–23.00' Silty Sand – Light gray to black goldish green to black; interlayered blacks, golds and grays; fine grained sand with some silt; dense; tight
25	11/11		28 50		24.00'–25.00' Silty Sand – Black to gray, medium grained sand with little silt, trace rounded sandstone chips
	12/12		29 43		26.00'–27.00' Sand – Black to gray with olive green inclusions, trace sandstone fragments, rounded

COMPLETION



HOLE SIZE

DEPTH

DATE: 10/16/95

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij company

CLIENT REXENE CORPORATION
PROJECT GWCA-A WELL INSTALLATION MT0381.005
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO. RW-13A-95

MT38105K.DWG

WELL LOG

ELEVATION
GROUND LEVEL
MEASURING POINT 2.8' A.G.L.
WATER LEVEL 7.45' B.M.P.
DRILLING
COMPANY CCI
METHOD Hollow Stem Auger

PERSONNEL
DRILLER Z. Ruffin
LOGGER H. McConnell

CASING 4-inch diameter fiberglass blank
4-inch diameter fiberglass 0.010 slotted screen
COMPLETION Above-ground protective well casing
CEMENT Portland cement

DEPTH	RECOVERY	USCS	BLOW COUNTS	VAPOR READING	LITHOLOGY SAMPLE LOG	COMPLETION	HOLE SIZE	DEPTH
35	24/24		8 18 32 40		30.00'-30.50' Sandy Clay - Black to gold to white, clay with some fine grained sand 30.50'-32.00' Clay - Gold with white swirls, mostly hard and dry, moist areas very plastic, overall - gold with black stringers		10" End Cap	35
	17/18		8 27 50		33.00'-34.50' Clay - Gold to rust to white intermixed, clay with trace very fine grained sand, dry, hard			
40	6/6		50		37.00'-38.00' Drillers suggest a change of lithology (out of clay) 38.00'-38.50' Clayey Sand - Gold to gray, fine grained sand with some clay, more like sandstone, firm, compact Total Depth = 38.00'			40
45					0.00'-21.00' description was obtained from International Technology Corporation Monitoring Well Installation Form for MW-72-90 well.			45
50								50
55								55

DATE: 10/16/95

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT GWCA-A WELL INSTALLATION MT0381.005
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO. RW-13A-95

WELL LOG

ELEVATION
GROUND LEVEL
MEASURING POINT 2.5' A.G.L.
WATER LEVEL 4.00' B.M.P.
DRILLING
COMPANY CCI
METHOD Mud Rotary

PERSONNEL
DRILLER Z. Ruffin
LOGGER H. McConnell

CASING 4-inch diameter fiberglass blank
4-inch diameter fiberglass 0.010 slotted screen
COMPLETION Above-ground protective well casing
CEMENT Portland cement

DEPTH	RECOVERY"	USCS	BLOW COUNTS	VAPOR READING	LITHOLOGY — SAMPLE LOG
5	24/24			21.8	0.00'–7.25' Silty Sand – Very fine to fine grained sand; 30% silt; compact; brown; very moist
	30/36				– light gray; saturated; strong hydrocarbon odor
	24/24			122	– dark gray (gray color due to contamination)
	30/36			99	– very fine to medium grained sand; 20% silt; well graded; many caliche nodules; light gray
10	24/24			93.6	7.25'–14.25' Sand – Fine to medium grained; compact; well graded; many caliche nodules; light gray; saturated
	30/36			15	– clean; no caliche
	24/24			24.4	– coarsening downwards 12 to 14.5 feet
15					– coarse grained; dark gray
	24/24			7.8	14.25'–19.00' Silty Sand – Very fine to medium grained sand; 20% silt; dense; compact; well graded dark gray with black splotches; saturated
					Original Total Depth = 19.0'
20					20.00'–22.00' Clayey Sand – Very fine to fine grained sand; with some black clay (Grab Sample)
					23.00' Sand – Black fine grained sand with a trace of clay; chips of black sandstone; well sorted; subangular (Grab Sample)
25	6/6		50		25.00'–26.00' Sandstone and Clay – Fine grained sandstone; black with a little gold clay nodules; trace of rounded pink gravels (Grab Sample)
					26.00'–26.50' Sand – Fine grained; black to gold; trace of rounded sandstone fragments; gold clay present (believed to be from up-hole)
					27.00' Sand – Fine grained sand and sandstone; black; hard; slow drilling (Grab Sample)
					29.00'–30.00' Sandstone – Black; moderately hard; well sorted; slow drilling; trace of pink coarse grained sand and gravels; rounded to subrounded; moderately well sorted (Grab Sample)

COMPLETION	HOLE SIZE	DEPTH
2.5' stickup		
	10" Cement	
	Bentonite Pellets	
	4-inch Fiberglass Blank Casing	5
		10
	Coarse Grained Sand Pack	15
	4-inch Fiberglass 0.010-inch Slotted Screen	20
		25

TE: 10/19/95

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT GWCA-A WELL INSTALLATION MT0381.005
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

WELL NO. RW-14A-95

MT38105LDWG

WELL LOG

ELEVATION
GROUND LEVEL
MEASURING POINT 2.5' A.G.L.
WATER LEVEL 4.00' B.M.P.
DRILLING
COMPANY CCI
METHOD Mud Rotary

PERSONNEL
DRILLER Z. Ruffin
LOGGER H. McConnell

CASING 4-inch diameter fiberglass blank
4-inch diameter fiberglass 0.010 slotted screen
COMPLETION Above-ground protective well casing
CEMENT Portland cement

SAMPLE LOG

DEPTH	RECOVERY	USCS	BLOW COUNTS	VAPOR READING	LITHOLOGY
35	6/6		100		30.00'–31.00' Sandstone – Fine grained; black to gray; angular, trace of chips of gold, sandy clay; moderately well cemented (Grab Sample) 31.00'–32.00' Sandstone – Fine grained; black to gray; poor to well cemented (Grab Sample) 32.00'–33.00' Sandstone – Fine grained; black to gray; trace of coarse grained sand to gravel (chert); whitish pink (Grab Sample) 33.00'–34.00' Sandstone – Fine grained; black to gray; trace of coarse grained sand to gravel (chert); whitish pink (Grab Sample) 34.00'–35.00' Sandstone – Fine grained; black to gold; with higher clay content; poorly cemented (Grab Sample) 35.00'–35.50' Sand – Fine grained; steel blue to yellowish green; interbedded blue and yellow; trace of silt; loose; sacrosic Total Depth = 35.00'

0.00'–19.00' information was obtained from log of MW-95-92 well placed by International Technology Corporation.

COMPLETION	HOLE SIZE	DEPTH
	10"	35
End Cap		40
		45
		50
		55

10/19/95

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton Company

CLIENT REXENE CORPORATION
PROJECT GWCA-A WELL INSTALLATION
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

MT0381.005

WELL NO. RW-14A-95

MG

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL RW-15A

DRILLING AND SAMPLING INFORMATION

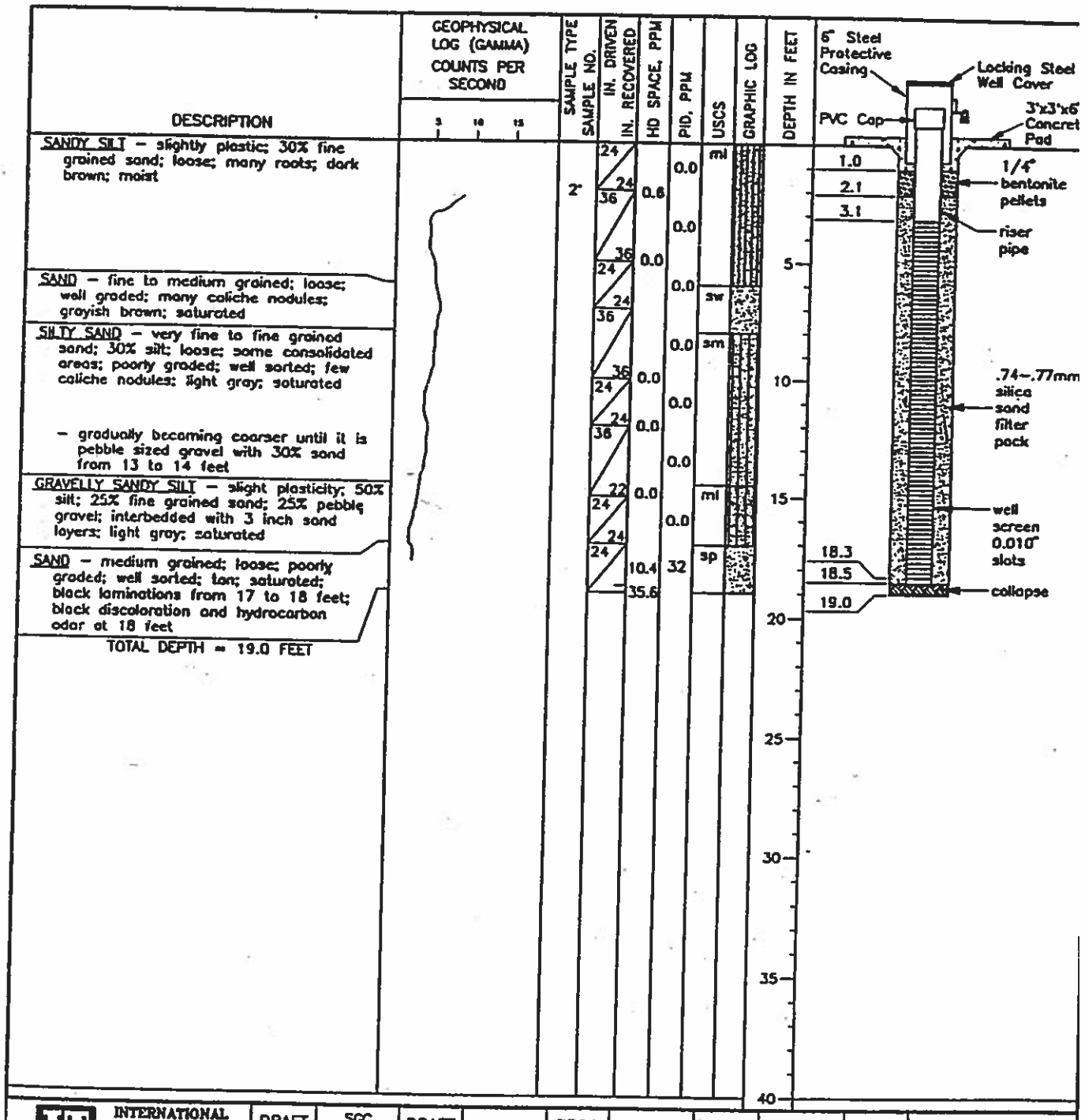
Boring Location: SOUTH OF MONOHANS DRAW
Logged By: M. WILSON
Drilled By: J. LANDEROS GPI
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS
SURFACE ELEV.(FT): 2850.43
TOTAL DEPTH(FT.): 19.0
Date Started: 7/22/92
Date Completed: 7/22/92

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 2852.43 Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 4 Depth(ft.): 3.1 Type: FIBERGLAS
   Centralizers–Type: – Depths(ft.): –
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 3.1–18.3 Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 2.1–18.5
   Conc. Pad Size: 3'x3'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844–A33 Sheet 1 of 1

Client: REXENE Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM Project Number: 449844

MONITORING WELL RW-16A

DRILLING AND SAMPLING INFORMATION

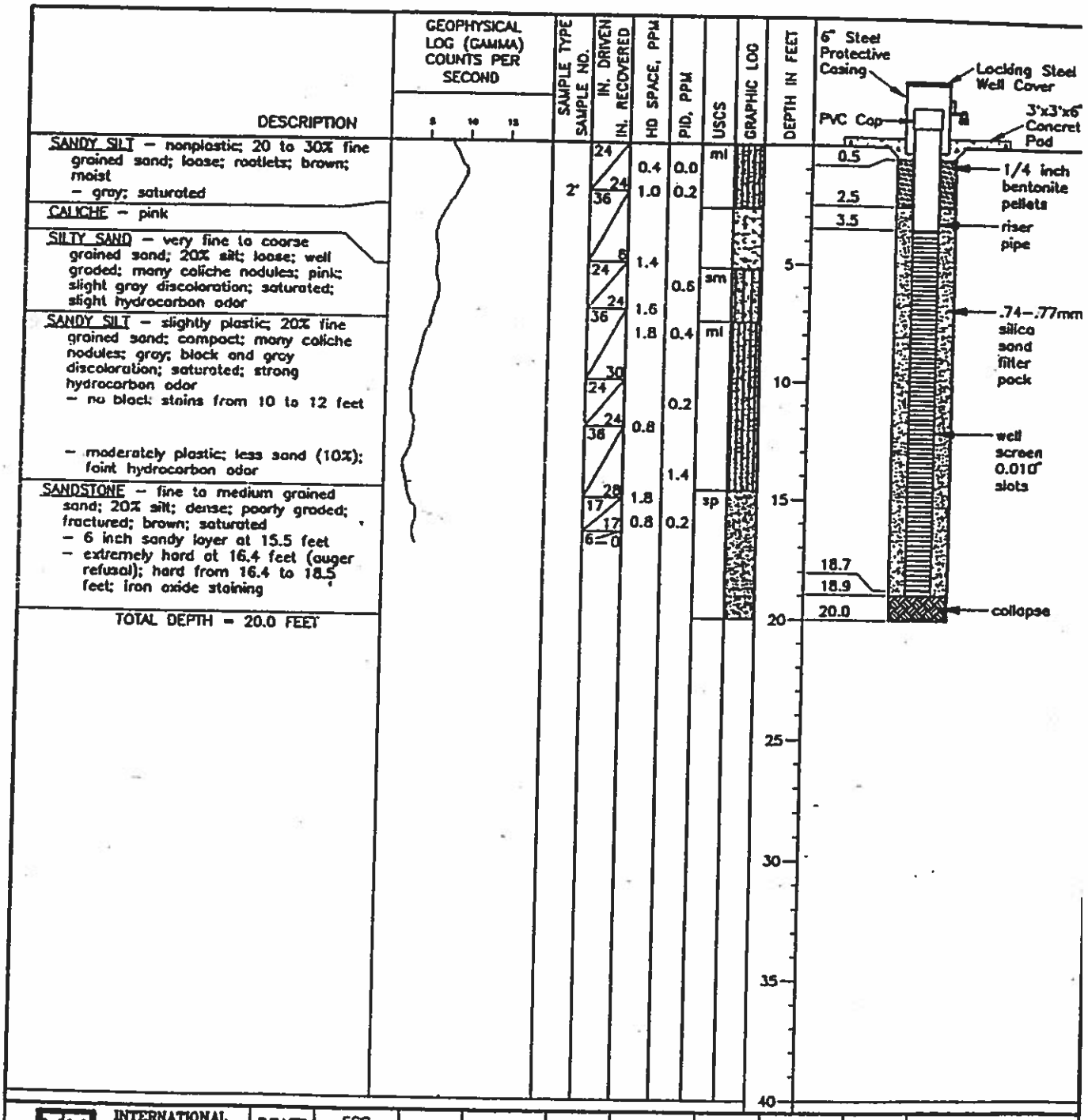
Boring Location: SOUTH OF MONOHANS DRAW
SURFACE ELEV.(FT): 2851.01
TOTAL DEPTH(FT.): 20.0
Logged By: M. WILSON
Date Started: 7/23/92
Drilled By: J. LANDEROS GPI
Date Completed: 7/23/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGER AND AIR ROTARY WITH 7 7/8" TRI-CONE ROCK BIT
Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2853.29 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 3.5 Type: FIBERGLAS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 3.5-18.7 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 2.5-18.9
Conc. Pad Size: 3'x3'x6"

Notes: -

DESCRIPTION
SANDY SILT - nonplastic; 20 to 30% fine grained sand; loose; rootlets; brown; moist
- gray; saturated
CALICHE - pink
SILTY SAND - very fine to coarse grained sand; 20% silt; loose; well graded; many caliche nodules; pink; slight gray discoloration; saturated; slight hydrocarbon odor
SANDY SILT - slightly plastic; 20% fine grained sand; compact; many caliche nodules; gray; black and gray discoloration; saturated; strong hydrocarbon odor
- no black stains from 10 to 12 feet
- moderately plastic; less sand (10%); faint hydrocarbon odor
SANDSTONE - fine to medium grained sand; 20% silt; dense; poorly graded; fractured; brown; saturated
- 6 inch sandy layer at 15.5 feet
- extremely hard at 16.4 feet (auger refusal); hard from 16.4 to 18.5 feet; iron oxide staining
TOTAL DEPTH = 20.0 FEET



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A34 Sheet 1 of 1

Client: REXENE | Project Location: ODESSA, TEXAS
Project Name: 1992 DRILLING PROGRAM | Project Number: 449844

MONITORING WELL RW-17A

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF MONOHANS DRAW | SURFACE ELEV.(FT): 2850.98
Logged By: M. WILSON | TOTAL DEPTH(FT.): 20.0
Drilled By: J. LANDEROS GPI | Date Started: 7/24/92 | Date Completed: 7/24/92
Drill Rig Type: MOBILE B-61
Drilling Method: MUD ROTARY WITH 7 7/8" TRI-CONE ROCK BIT

Sampling Method: NO SAMPLES TAKEN

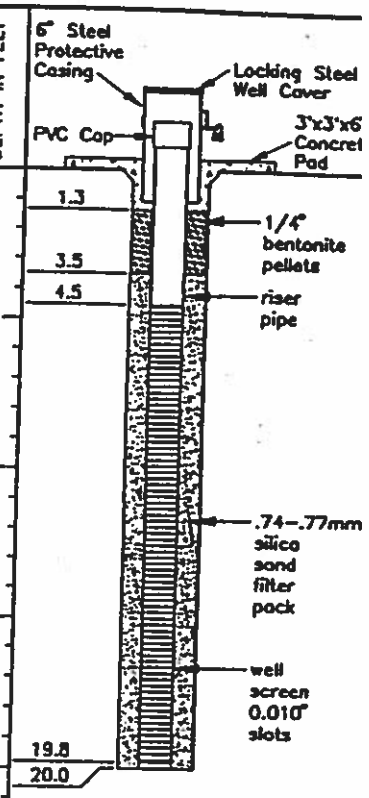
Notes: –

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2853.12 | Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 | Depth(ft.): 4.5 | Type: FIBERGLA
   Centralizers-Type: – | Depths(ft.): –
2. Screen Dia.(in.): 4 | Type: FIBERGLASS
   Depth Interval(ft.): 4.5–19.8 | Slot Size(in.): .010
   Centralizers-Type: – | Depths(ft.): –
3. Filter Pack Type: SILICA SAND | Depth Interval(ft.): 3.5–20.0
   Conc. Pad Size: 3'x3'x6"

DESCRIPTION	USCS
SILTY SAND – very fine to fine grained sand; 20% silt; compact; few caliche nodules; roots; dark brown; moist	sm
SILT – slightly plastic; 10% fine grained sand; compact; caliche nodules; tan; saturated	ml
– many caliche nodules	
– light gray	
SILTY SANDSTONE – very fine to coarse grained sand; 40% silt; loose; well graded; many caliche nodules; light gray; saturated	sm
– slight black discoloration; slight odor	
SANDSTONE/SAND – alternating layers of medium grained, dense, well sorted, poorly graded, hard sandstone and medium grained, poorly graded sand; brown; saturated	sp
TOTAL DEPTH = 20.0 FEET	

SAMPLE TYPE | SAMPLE NO. | IN. DRIVEN | IN. RECOVERED | PID, PPM | GRAPHIC LOG | DEPTH IN FEET



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A36 Sheet 1 of 1

INTERNATIONAL TECHNOLOGY CORPORATION

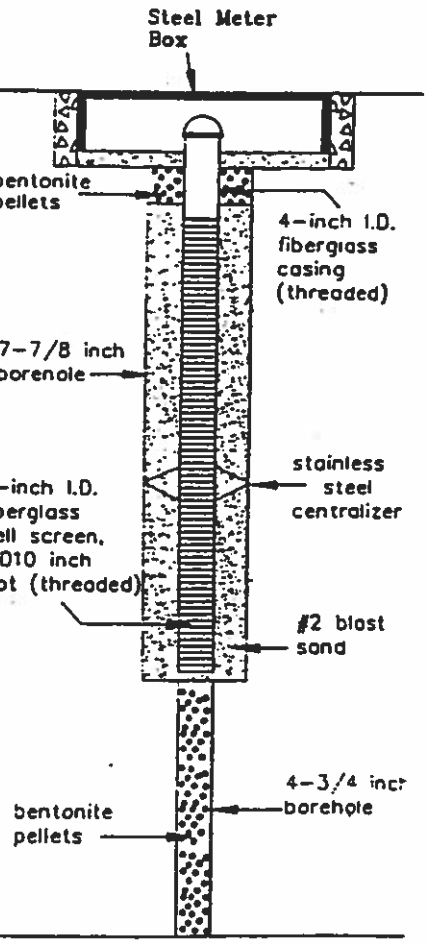
Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/5/88 Well No.: RW-18A-8
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2856.09 Top of PVC Casing 2856.33
Total Depth: 30.5 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 10 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, FILL, poorly graded, very fine to fine, very dense, many calcareous nodules, sandstone frogments, some polyethylene or polypropylene beads, slight odor
10	SM		SLIGHTLY SILTY SAND, uniform, very fine, dense, saturated, gray, with some blue gray mottling, organic vapor reading = 0 ppm
15	SM		
20	SM		SLIGHTLY SILTY SAND, uniform, very fine, dense, saturated, minor cemented fragments, slight odor, gray, organic vapor reading = 0 ppm
25	SM		
30	SW		GRAVELLY SAND, well graded, very fine to coarse, 5-10% fine gravel, losing drilling fluid, dark gray, organic vapor reading = 0 ppm
			TOTAL DEPTH = 30.0 FEET

Material Setting

Completion Data



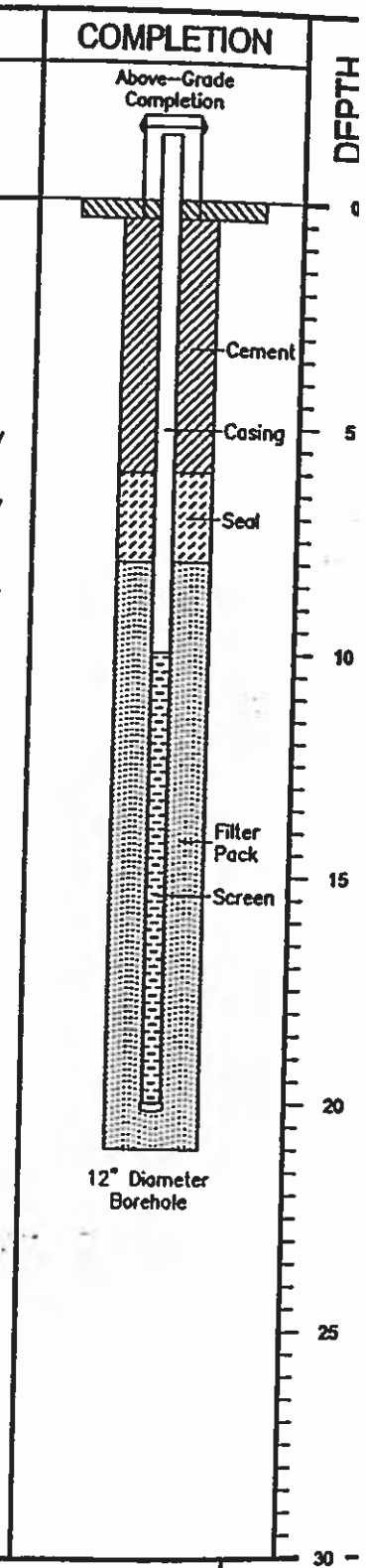
WELL LOG

ELEVATION
GROUND LEVEL NA
MEASURING POINT Top of Casing
WATER LEVEL 14.66 B.M.P.
DRILLING
COMPANY CCI Environmental
METHOD Hollow Stem Auger

PERSONNEL
DRILLER Z. Rufin
LOGGER R. Shoemaker

CASING 4" DIA. FIBERGLASS BLANK
4" DIA. FIBERGLASS WELL SCREEN, 0.010 SLOT
COMPLETION GROUT
¼" BENTONITE PELLETS
NO. 2 BLAST SAND FILTER PACK
CEMENT PORTLAND CEMENT

DEPTH	SYMBOL	TYPE	SAMPLED	RECOVERED	ANALYZED	SAMPLE LOG
0						Utility Check – No sample. (SILT/SAND/CALICHE mix)
5		CORE				SILT, yellowish red, (5YR 5/6), poorly sorted, very fine grained, subrounded, unconsolidated, loose. CALICHE, buff, light tan, cream, silty, firm, slightly sandy, rounded, clear, slightly moist, some odor.
		CORE				CALICHE, buff, light tan, cream, silty, firm, slightly sandy, rounded, clear, slightly moist, some odor.
		CORE				CALICHE, buff, light tan, cream, silty, firm, slightly sandy, rounded, clear, slightly moist, some odor.
10		CORE				SANDY LIMESTONE, reddish yellow, (7/6), poorly sorted, subangular, very hard, strong odor.
		CORE				Wet at 12.0' or 13.0'. Could not get core return. Estimated by cuttings from augers.
		CORE				SILTY SAND, gray stained, very fine grained, poorly sorted, wet with product, very strong odor.
15		DRILL				Drilled from 15.0' to 21.0' B.G.S. No coring due to presence of hydrocarbon.
20						Grab samples. SILT/SAND, very pale brown, (10YR 8/2), poorly, subrounded, loose, clay matrix, moderately plastic, wet.
						Total Depth = 21.0' B.G.S.
25						
30						



DATE: 5/22/97

GERAGHTY & MILLER, INC.
Environmental Services
A Halliburton company

CLIENT REXENE CORPORATION
PROJECT FACILITY 37 WELL INSTALLATION
LOCATION ODESSA, TEXAS FACILITY
ECTOR COUNTY, TEXAS

MT0485.001

WELL NO. RW-1B-97

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/17/88 Well No.: RW-1C-88

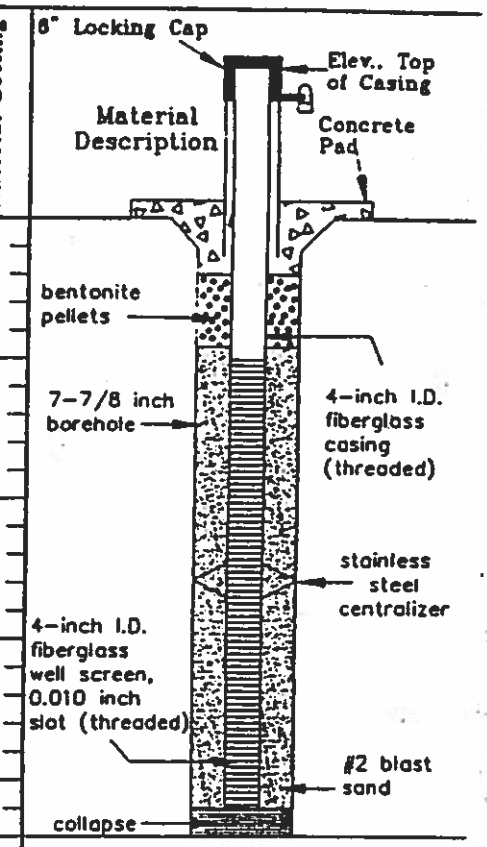
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2868.22 Top of PVC Casing 2870.24

Total Depth: 22.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.010 INCH

Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 18 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
5	SM		SILTY SAND, poorly graded, very fine to fine, very dense, dry, calcareous nodules, many sandstone fragments and well cemented layers, beige
10	ML		SANDY SILT, non-plastic, stiff, very fine to fine sand, white
15	SM		SLIGHTLY SILTY SAND, uniform, very fine, dense, approximate 5% silt, cemented fragments and layers, odor, light pink to beige
20	SM		SILTY SAND, uniform, very fine, very dense, 10-20% silt, cemented fragments, beige, organic vapor reading = 2 ppm
			SANDSTONE, very fine to fine, very hard, pink
			TOTAL DEPTH = 22.0 FEET

Completion Data



Client: REXENE

Project Name: 1992 DRILLING PROGRAM Project Location: ODESSA, TEXAS
Project Number: 449844

MONITORING WELL RW-2C-

DRILLING AND SAMPLING INFORMATION

Boring Location: W OF BRINE POND N OF 7TH ST
SURFACE ELEV.(FT): 2867.39
Logged By: M. WILSON
TOTAL DEPTH(FT.): 20.0
Drilled By: J. LANDEROS GPI
Date Started: 7/14/92
Date Completed: 7/15/92
Drill Rig Type: MOBILE B-61
Drilling Method: 8-INCH HOLLOW STEM AUGERS

Sampling Method: 5' X 3" CONTINUOUS SPLIT SPOON SAMPLER

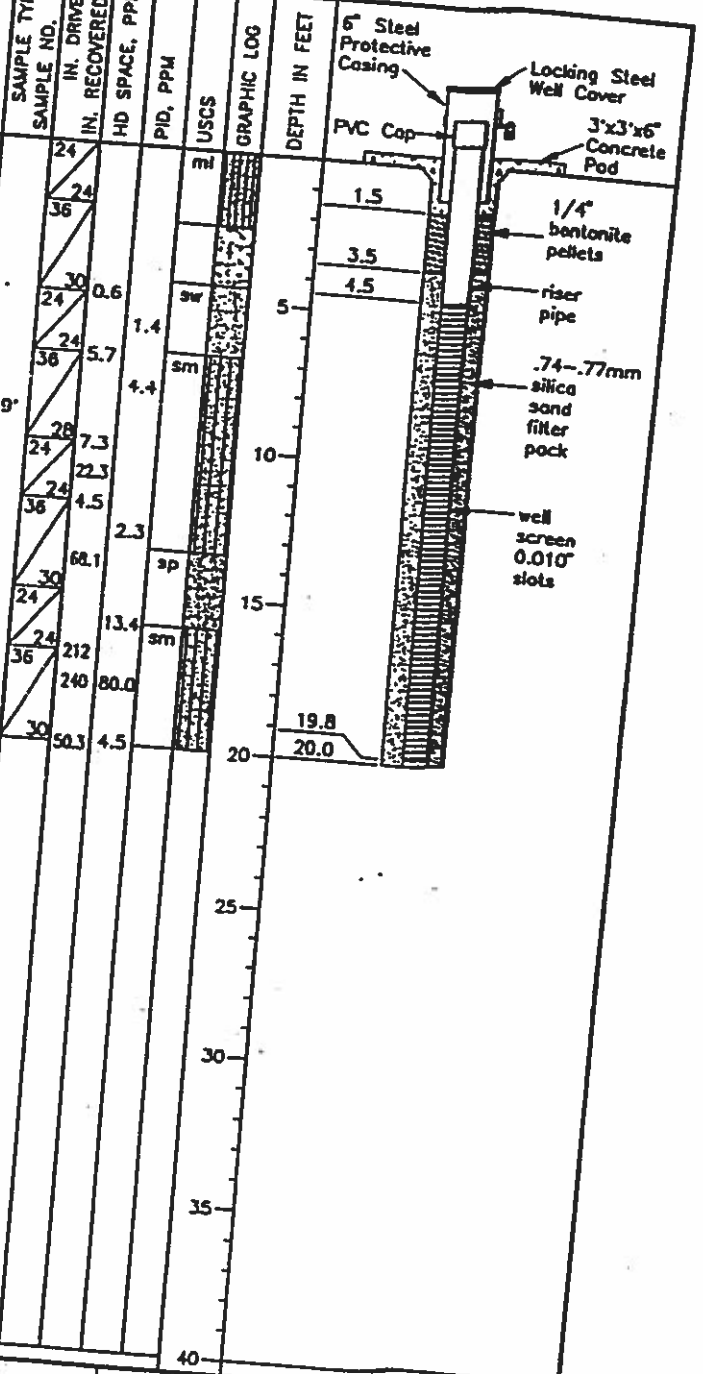
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2869.41 Ref. Datum: MSL

1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 4.5 Type: FIBERGLASS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
   Depth Interval(ft.): 4.5-19.75 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 3.5-20.0
   Conc. Pad Size: 3'x3'x6"

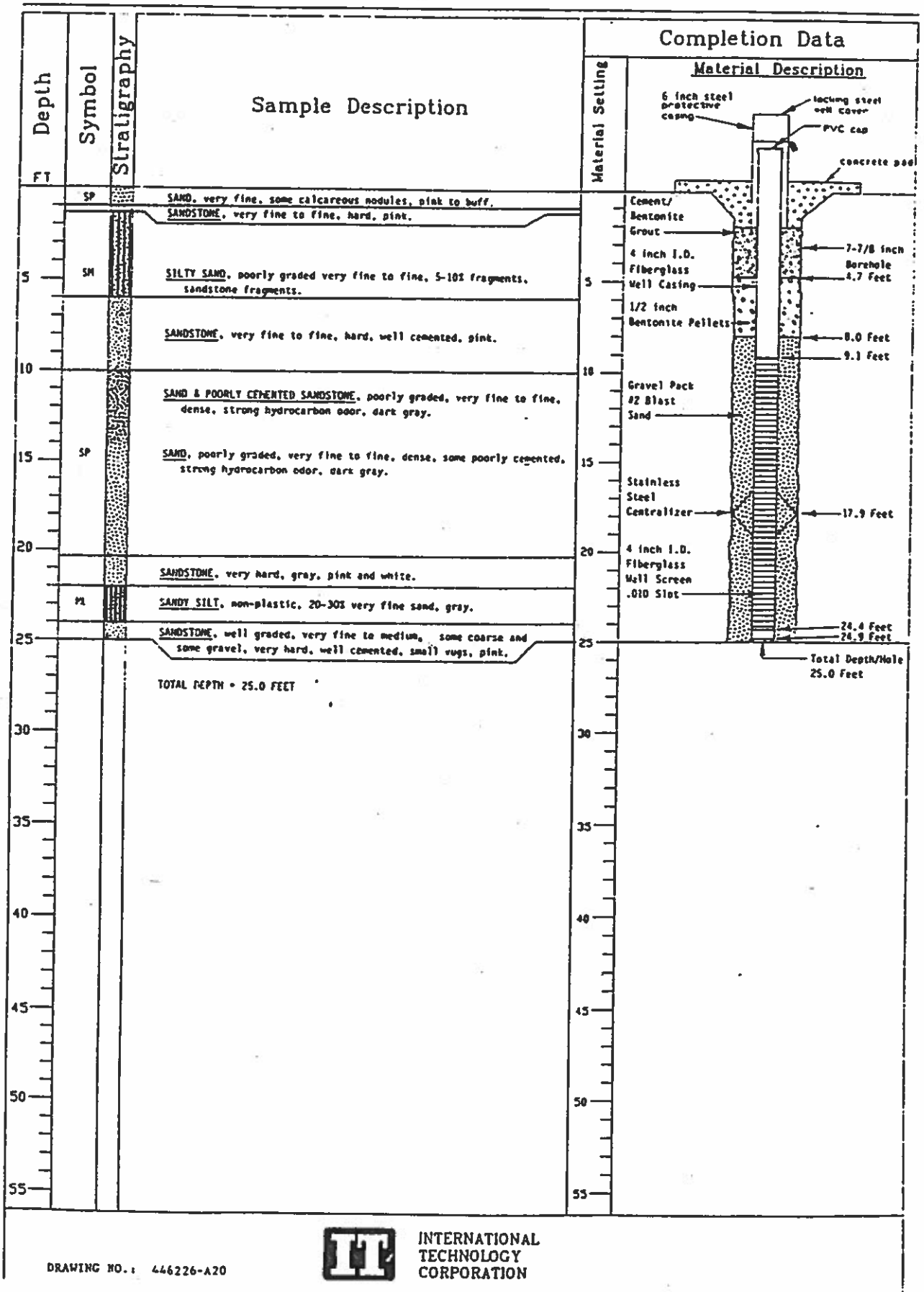
DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	HD SPACE, PPM	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY SILT - slightly plastic; 20% very fine grained sand; compact; dark red; moist			24	24			ml		
CALICHE - dense; hard; fractured; pink; dry			36	30	0.6				
SAND - fine to coarse grained; loose; well graded; many caliche nodules (60% of sample); pink; slightly moist			24	24		1.4	sw		
SILTY SAND - very fine to fine grained sand; 20% silt; weakly cemented; caliche nodules; pink; moist			36	24	5.7				
- saturated						4.4	sm		
- gray discoloration									
- strong hydrocarbon odor		9'	28	24	7.3				
- dark gray discoloration					22.3				
SANDSTONE - fine to medium grained sand; dense; poorly graded; compact; white; saturated; strong hydrocarbon odor			24	36	4.5				
SILTY SAND - very fine to fine grained sand; 20% silt; loose; poorly graded; white; saturated			30	24	68.1	2.3	sp		
- alternating layers of sand and sandstone (each about 1/2 foot thick); gray discoloration; strong hydrocarbon odor			24	36	212	13.4	sm		
TOTAL DEPTH = 20.0 FEET		18'			240	80.0			
			30	50.3	4.5				



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 9/1/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A30 Sheet 1 of 1

Monitor Well Installation

Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/14/88 Well No.: RW-2D-88
Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____
Total Depth: 25.0 FEET Casing Size & Type: 4-inch I.D. Fiberglass Screen Size: .010-inch
Comments: _____



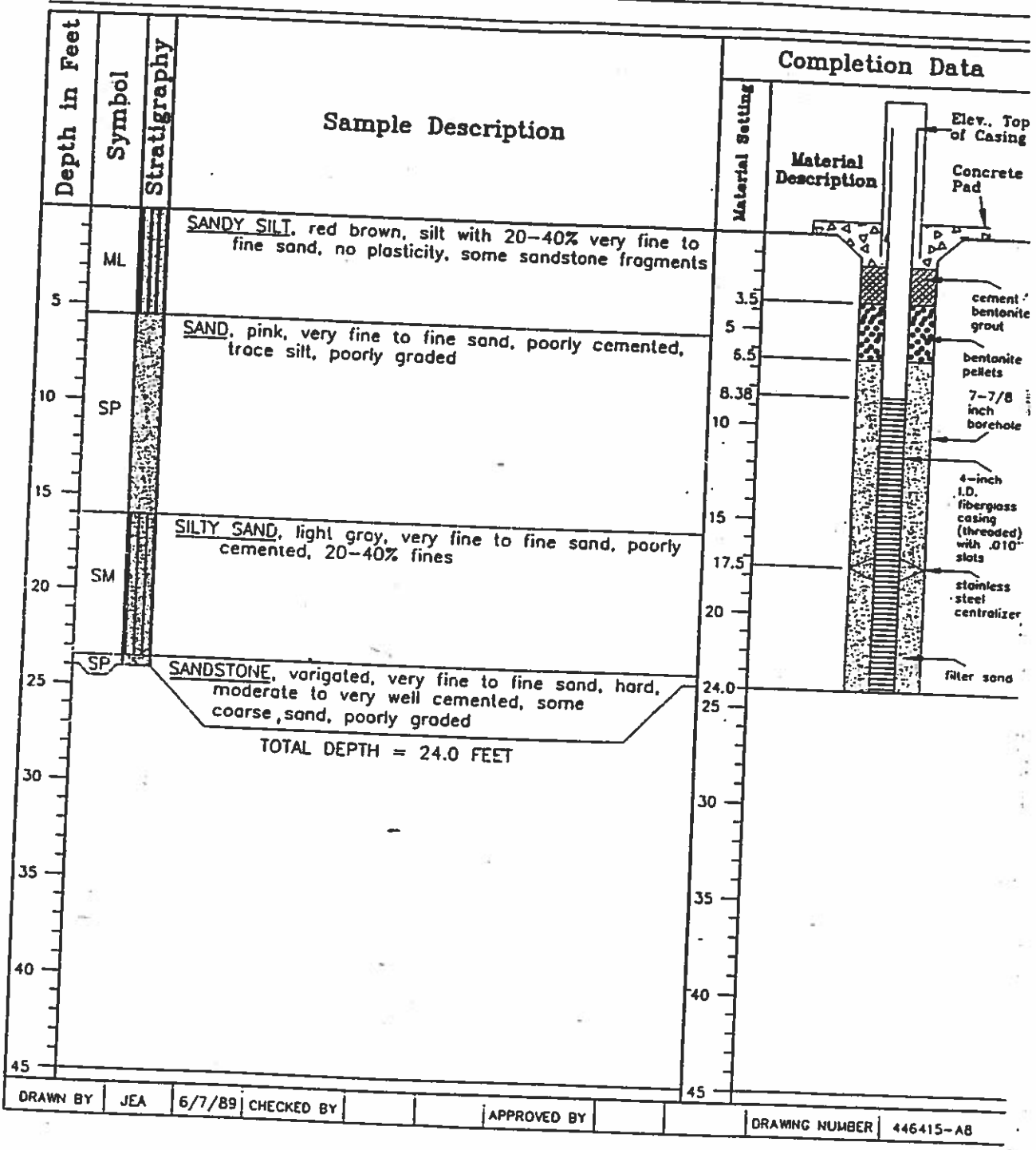
DRAWING NO.: 446226-A20

INTERNATIONAL TECHNOLOGY CORPORATION

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/28/89 Well No.: RW-3D-8
Site: ODESSA, TEXAS Elevation: Pad 2866.66 Top of PVC Casing 2868.99 Sheet 1 of
Total Depth: 24.0 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH
Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

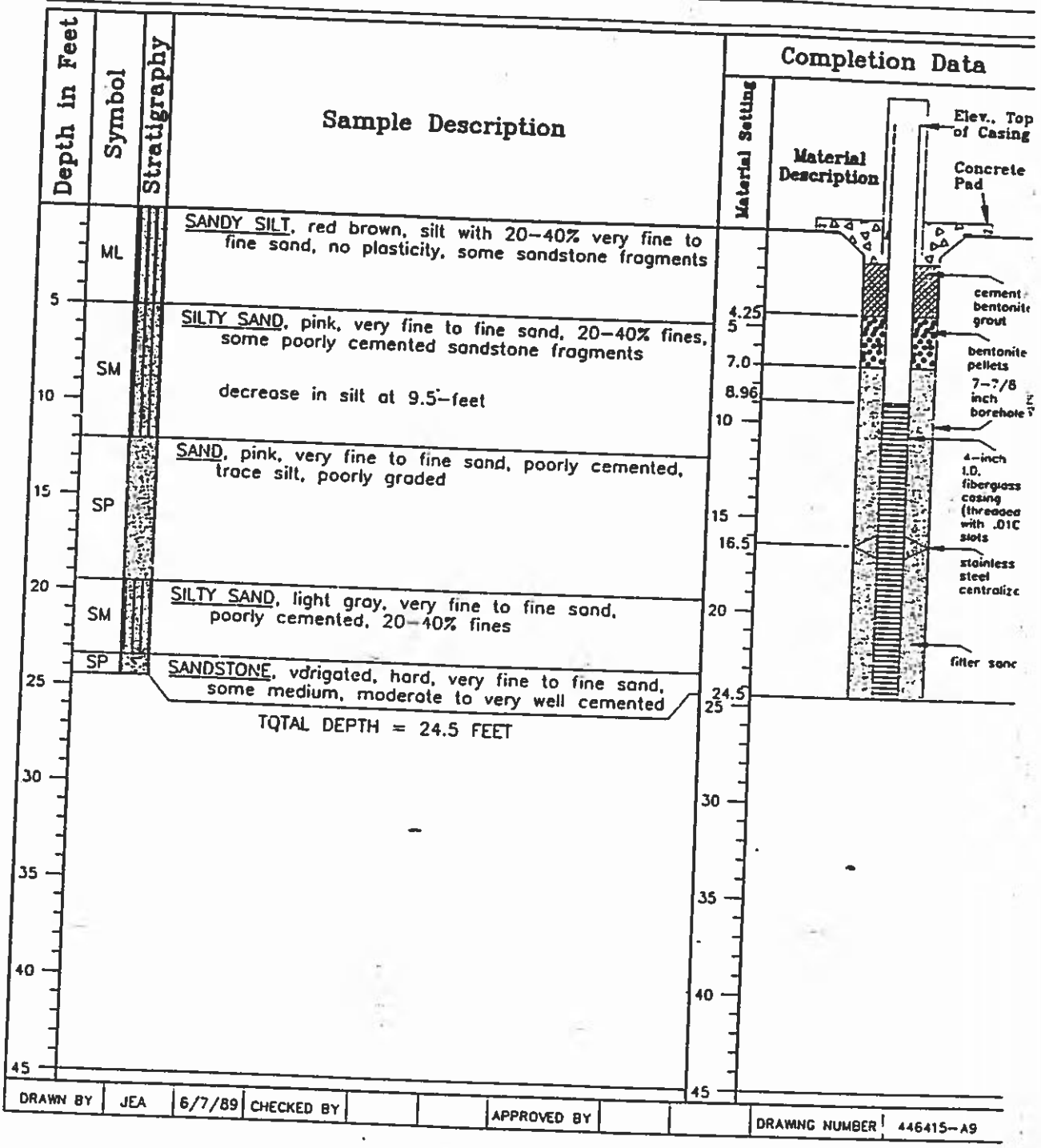


DRAWN BY	JEA	6/7/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A8

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 5/1/89 Well No.: RW-4D-8
Site: ODESSA, TEXAS Elevation: Pad 2864.89 Top of PVC Casing 2867.67 Sheet 1 of
Total Depth: 24.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH
Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

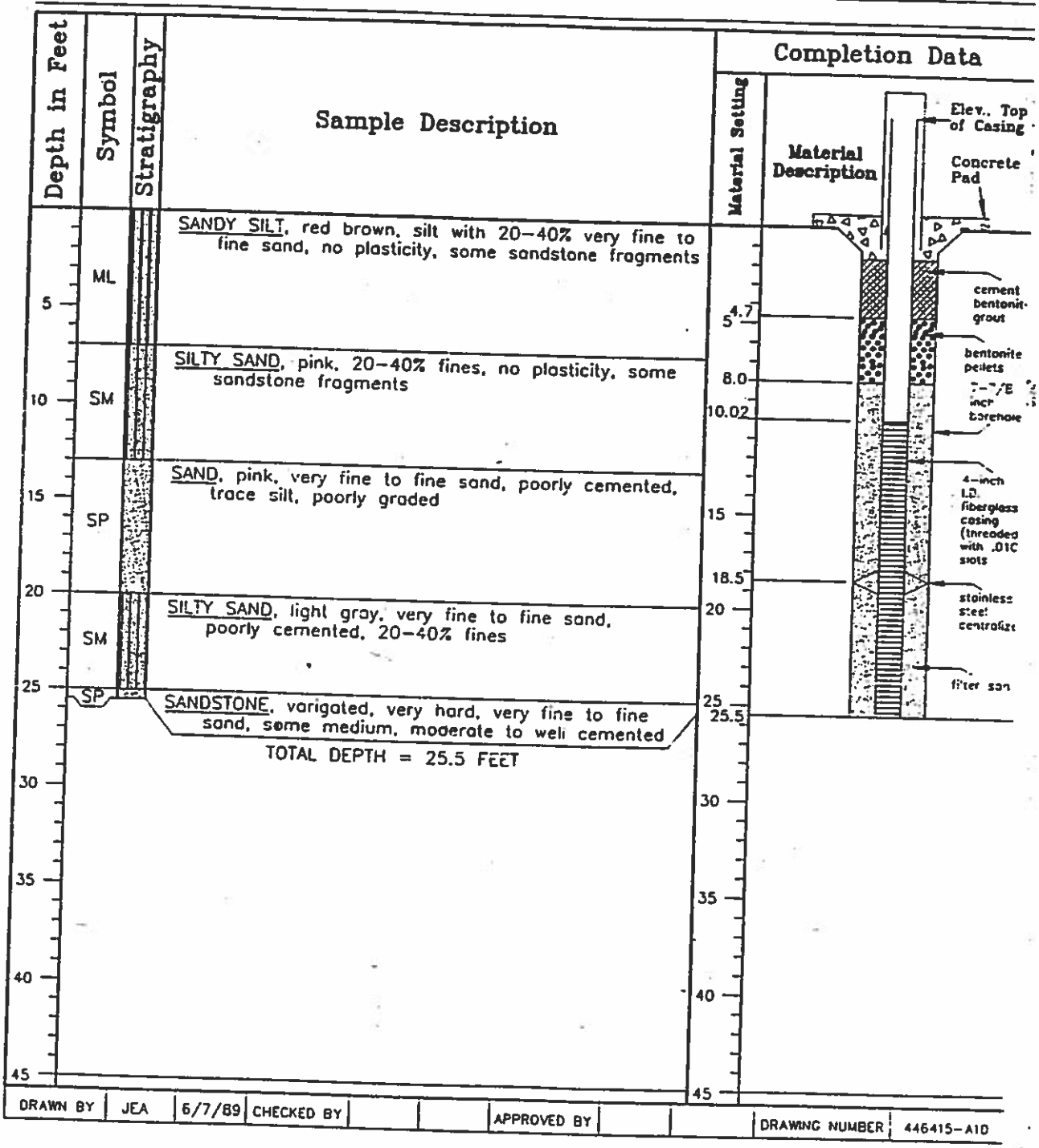


DRAWN BY	JEA	6/7/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A9

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/30/89 Well No.: RW-5D-89
Site: ODESSA, TEXAS Elevation: Pad 2865.48 Top of PVC Casing 2867.76 Sheet ___ of ___
Total Depth: 25.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH
Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

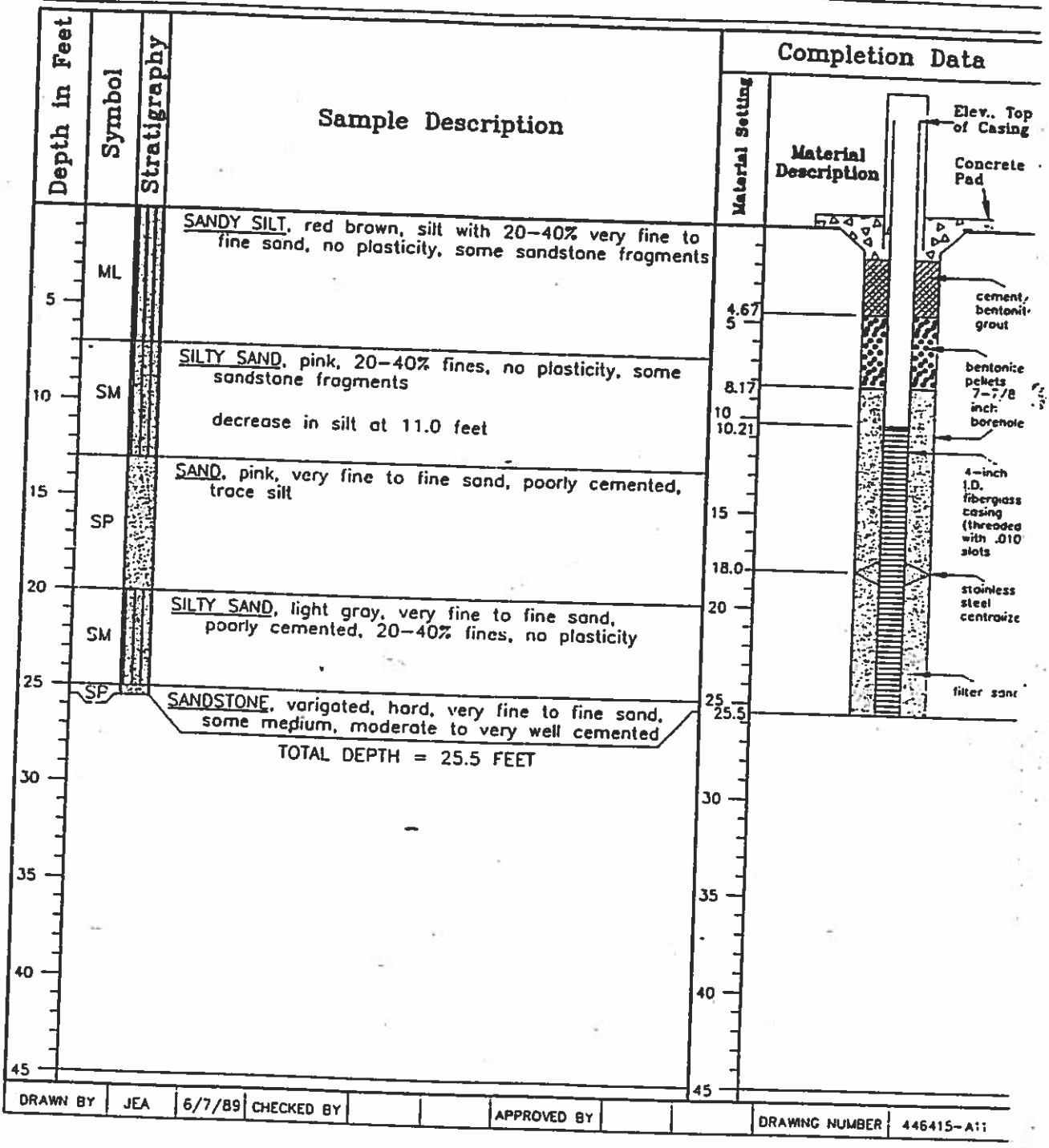


DRAWN BY	JEA	6/7/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A1D

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/29/89 Well No.: RW-6D-89
Site: ODESSA, TEXAS Elevation: Pad 2865.51 Top of PVC Casing 2867.72 Sheet 1 of 1
Total Depth: 25.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH
Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT



DRAWN BY	JEA	6/7/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A11

Monitor Well Installation

Client: REXENE PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/15/88 Well No.: RW-7D-88

Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 24.0 FEET Casing Size. & Type: 4-inch I.D. Fiberglass Screen Size: .010-inch

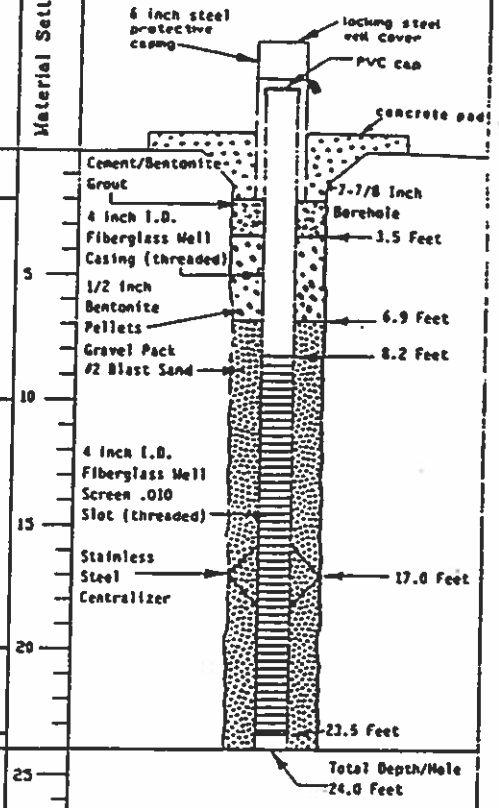
Comments: _____

Depth FT	Symbol	Stratigraphy	Sample Description
0	SM		SILTY SAND, poorly graded, very fine to fine, 10-20% fines, sandstone fragments, dark brown.
5	ML		SANDY SILT, non-plastic, 20-30% very fine to fine sand, caliche nodules, pink.
10	SM		SILTY SAND, poorly graded, 20-30% fines, poorly cemented, pink sandstone fragments, pink. Decreasing fines.
15			
20			SANDSTONE WITH SILTY SAND, hard, well cemented, very fine to fine, silty sand non-plastic, poorly graded, very fine to fine, pink.
22.5			SANDSTONE, very hard, well cemented, very fine to medium, pink and red.
25			TOTAL DEPTH = 24.0 FEET
30			
35			
40			
45			
50			
55			

Completion Data

Material Setting

Material Description



DRAWING NO.: 446226-A21

INTERNATIONAL TECHNOLOGY CORPORATION

INTERNATIONAL TECHNOLOGY CORPORATION

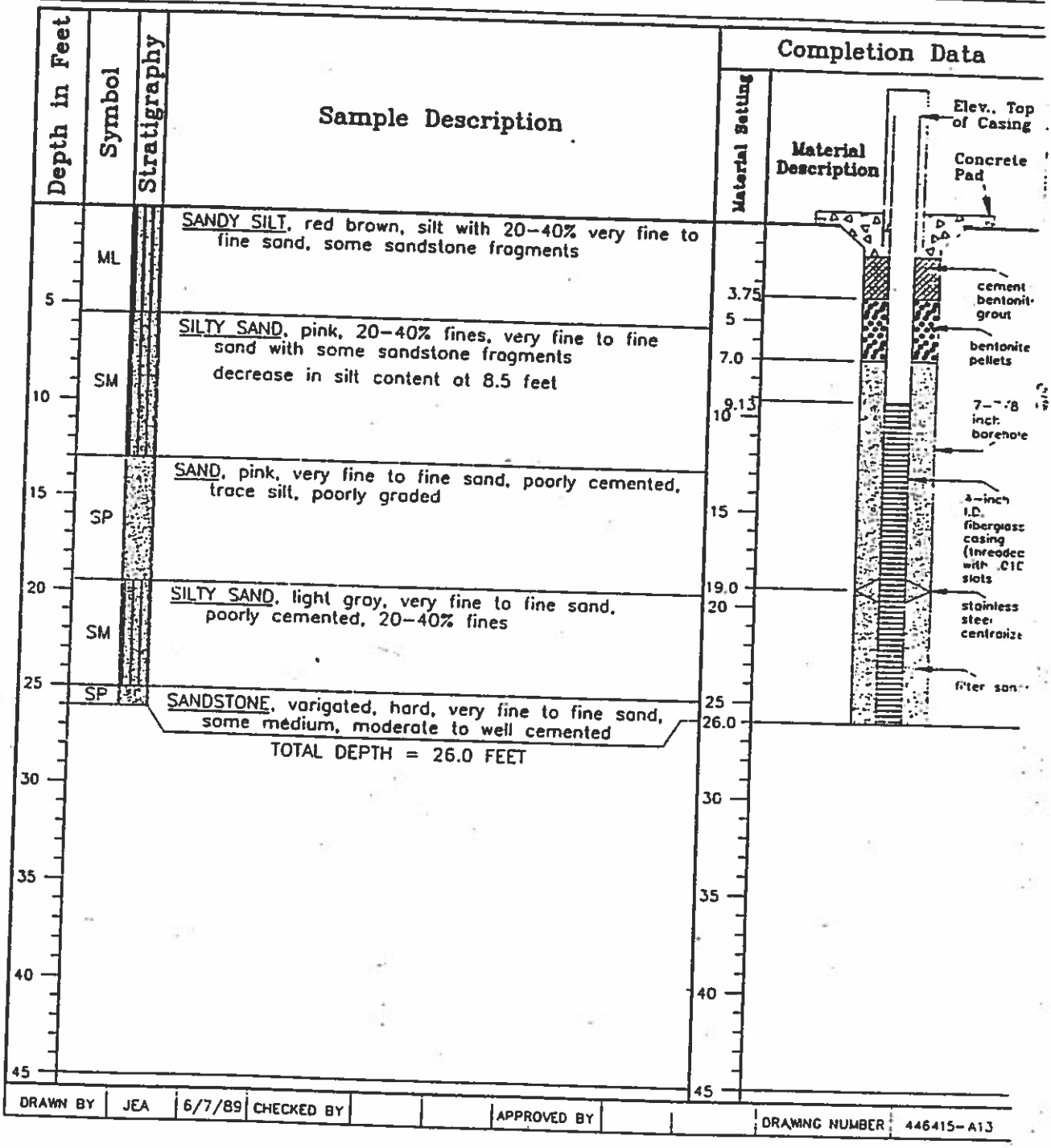
Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/29/89 Well No.: RW-8D-8S

Site: ODESSA, TEXAS Elevation: Pad 2865.24 Top of PVC Casing 2867.45 Sheet ___ of ___

Total Depth: 26.0 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH

Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT



DRAWN BY	JEA	6/7/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A13

INTERNATIONAL TECHNOLOGY CORPORATION

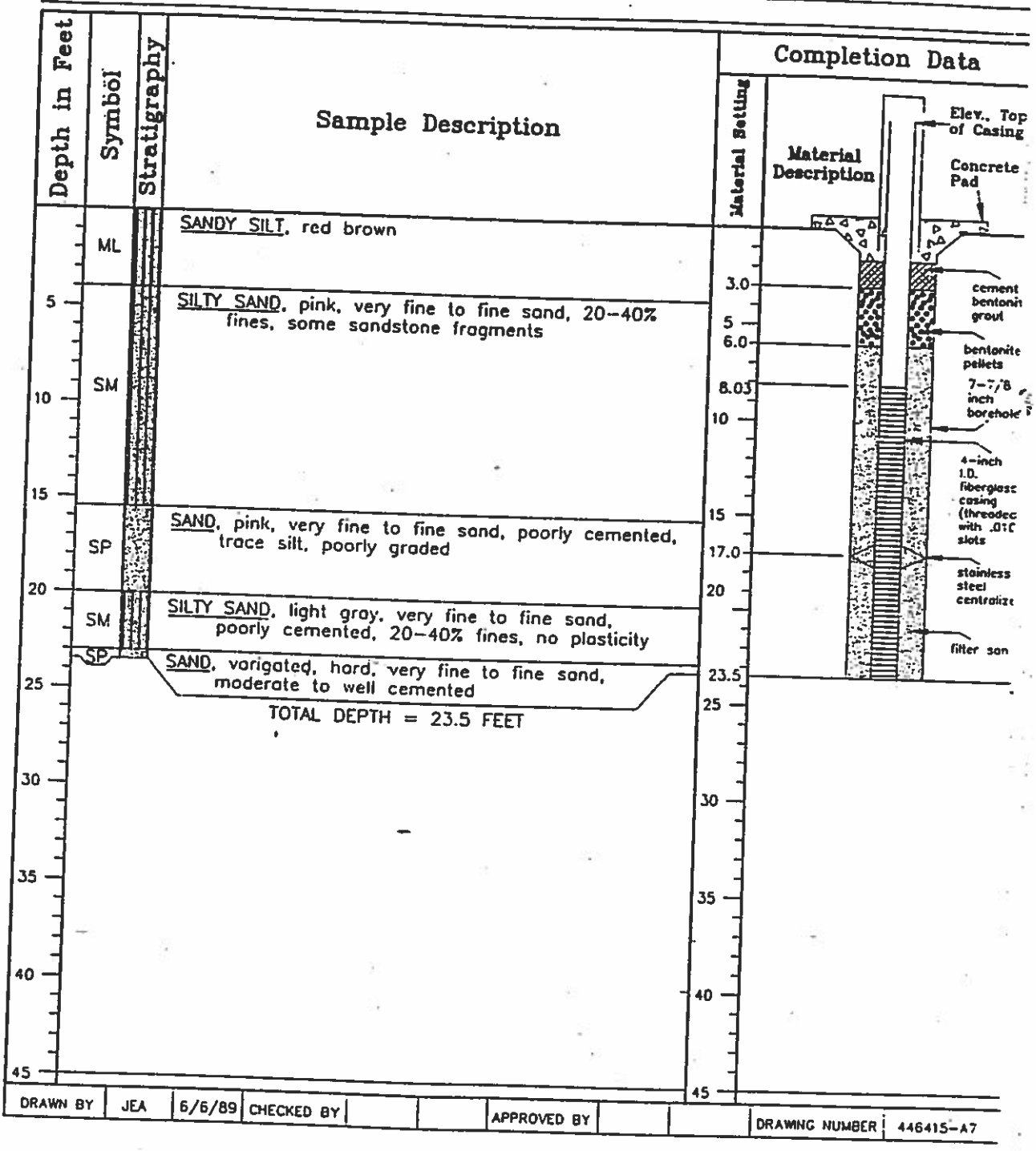
Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 5/2/89 Well No.: RW-9D-89

Site: ODESSA, TEXAS Elevation: Pad 2865.87 Top of PVC Casing 2868.44 Sheet 1 of -

Total Depth: 23.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH

Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

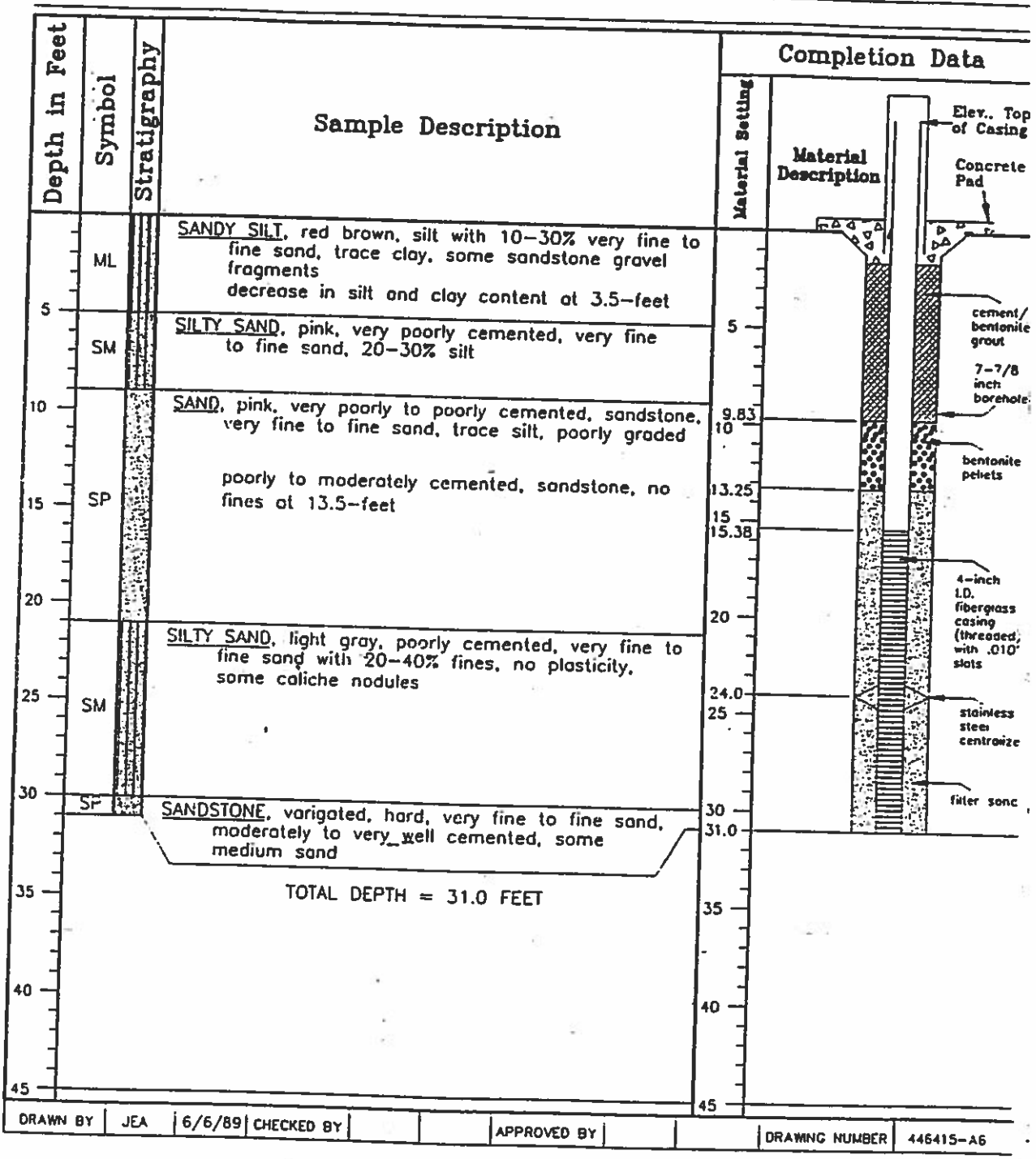


DRAWN BY	JEA	6/6/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A7

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/27/89 Well No.: RW-10D-8
Site: ODESSA, TEXAS Elevation: Pad 2865.37 Top of PVC Casing 2867.6
Total Depth: 31.0 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INC
Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT



DRAWN BY	JEA	6/6/89	CHECKED BY			APPROVED BY		DRAWING NUMBER	446415-A6

INTERNATIONAL TECHNOLOGY CORPORATION

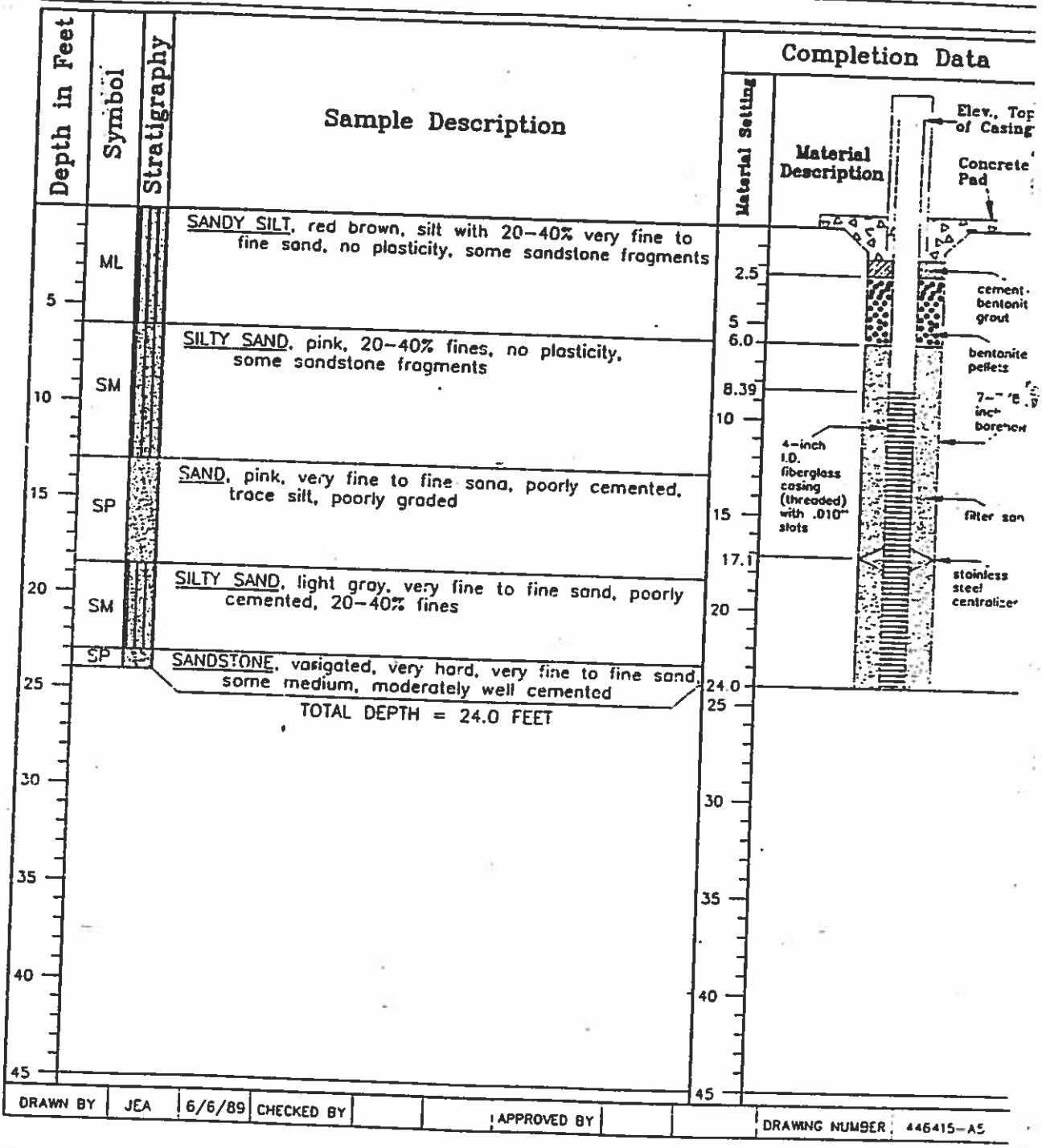
Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/25/89 Well No.: RW-11D-89

Site: ODESSA, TEXAS Elevation: Pad 2864.71 Top of PVC Casing 2867.[illegible]

Total Depth: 24.0-FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .0[illegible]-INCH

Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT

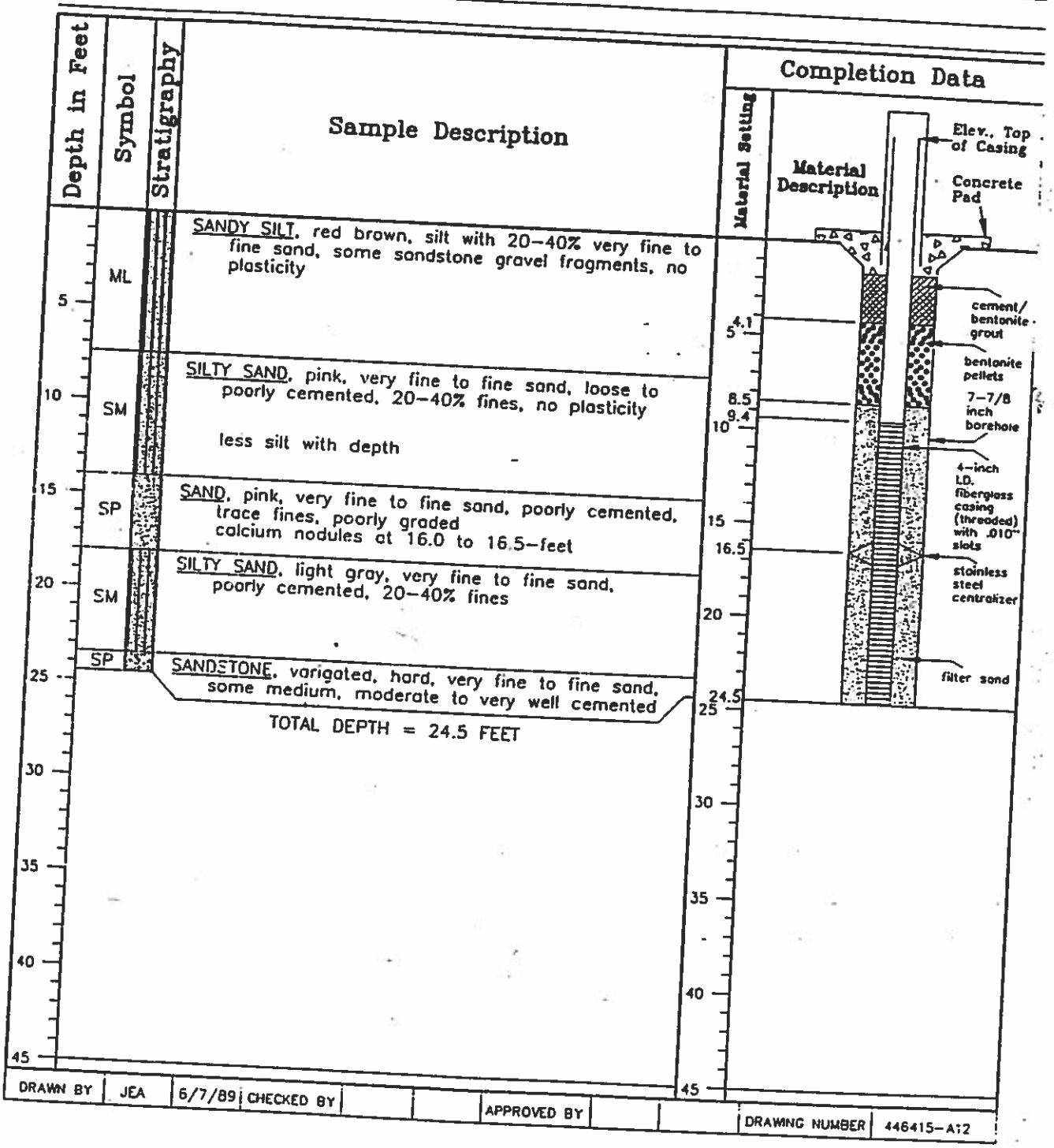


DRAWN BY	JEA	6/6/89	CHECKED BY		APPROVED BY		DRAWING NUMBER	446415-A5

INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE Job No.: 446415 Date Drilled: 4/28/89 Well No.: RW-12D-89
Site: ODESSA, TEXAS Elevation: Pad 2866.14 Top of PVC Casing 2868.73 Sheet 1 of 1
Total Depth: 24.5 FEET Casing Size & Type: 4" I.D. SCH 40 F.G. Screen Size: .010-INCH
Comments: DRILLED BY MUD ROTARY 7-7/8-INCH BIT



DRAWN BY	JEA	6/7/89	CHECKED BY			APPROVED BY			DRAWING NUMBER	446415-A12

Client: REXENE
Project Name: 1992 DRILLING PROGRAM
Project Location: ODESSA, TEXAS
Project Number: 449844

MONITORING WELL RW-13D-

DRILLING AND SAMPLING INFORMATION

Boring Location: N. OF OFF-GAS COMPRESSOR, STYRENE PLANT
Logged By: M. WILSON
Drilled By: J. LANDEROS GPI
Drill Rig Type: MOBILE B-61
Drilling Method: MUD ROTARY WITH 7 7/8-INCH ROCK BIT
Sampling Method: DID NOT SAMPLE

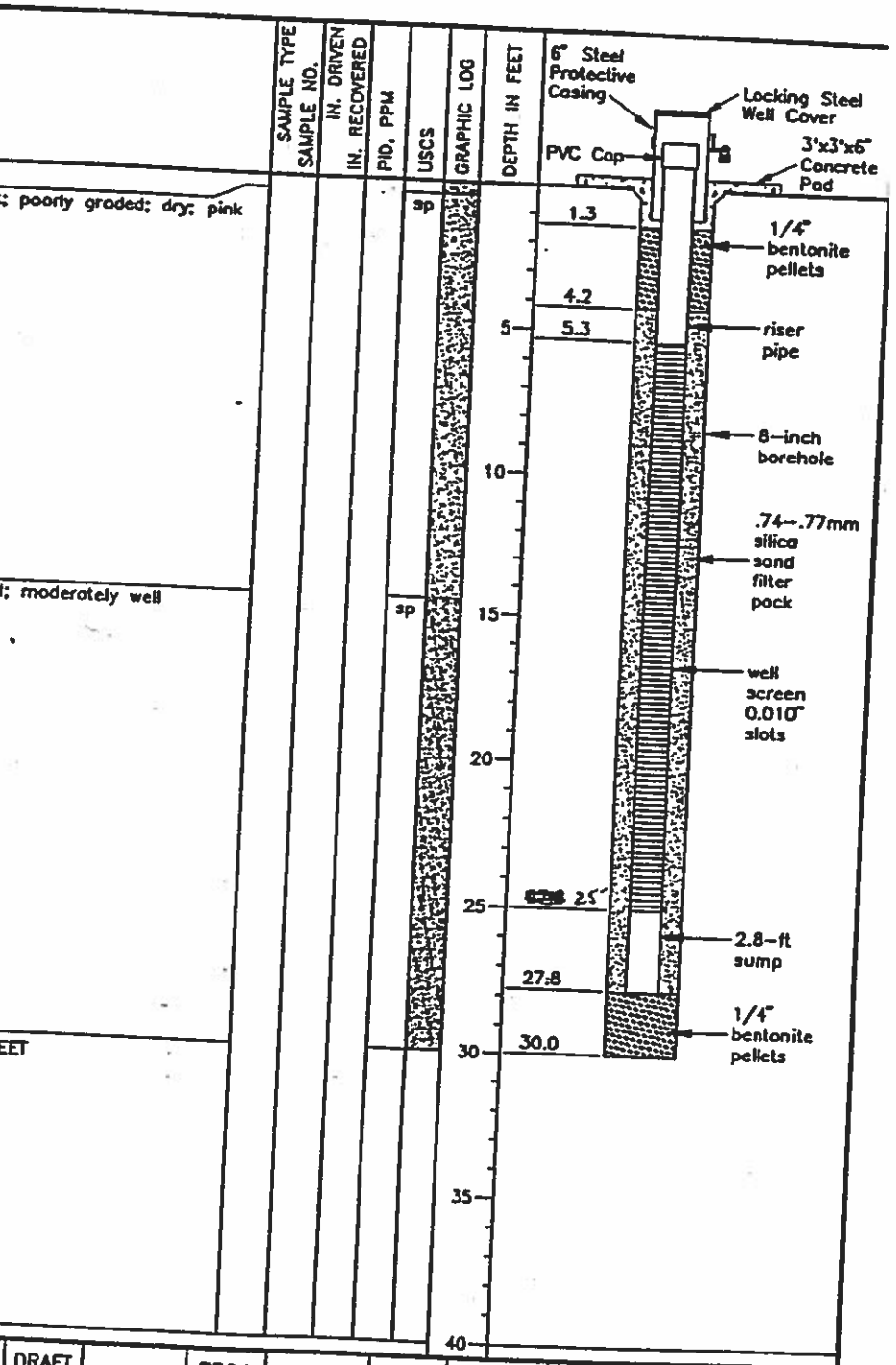
SURFACE ELEV.(FT): 2866.22
TOTAL DEPTH(FT.): 30.0
Date Started: 10/21/92
Date Completed: 11/4/92

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 2867.73 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 5.3 Type: FIBERGLASS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: FIBERGLASS
Depth Interval(ft.): 5.3-25.0 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: SILICA SAND Depth Interval(ft.): 4.2-27.8
Conc. Pad Size: 3'x3'x6"

Notes: FIRST DRILLED ON 10/21/92. REDRILLED ON 11/4/92 WITH 8-INCH AUGERS BECAUSE CASING BROKE AT 9 FEET BELOW GROUND

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	PID, PPM	USCS	GRAPHIC LOG	DEPTH IN FEET
SANDY GRAVEL - cover material; pink								
SAND - fine to medium grained; compact; poorly graded; dry; pink						sp		0
								1.3
								4.2
								5.3
								5
								10
SANDSTONE - fine to medium grained; hard; moderately well cemented; pink						sp		15
- very hard and dense								20
								25
								27.8
TOTAL DEPTH = 30.0 FEET								30
								35
								40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	CMR 11/16/92	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	449844-A105 Sheet 1 of 1

WELL LOG

WELL NO.
RW-14D-01
Page 1 of 1

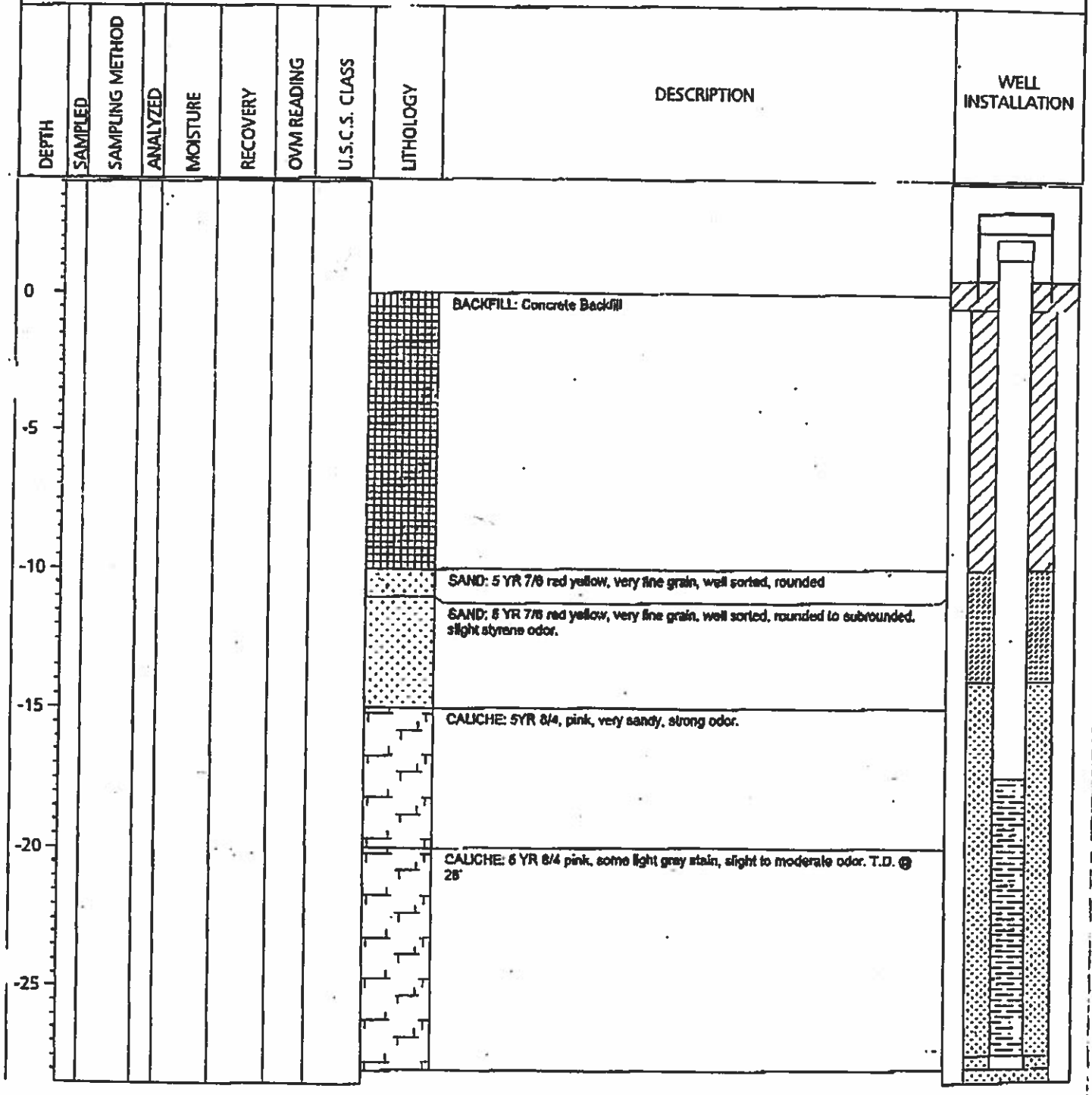
ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Choate Drilling
DRILLING METHOD: Air Rotary
SAMPLING METHOD: —
DATE BEGUN: 3/13/01 DATE COMPLETED: 3/13/01
DRILLER: Dusty Choate ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: RW-14D-01.DAT UNIQUE NUMBER: 43-069-01682

STATIC WATER LEVEL: — MEAS. PT.: —
HOLE SIZE(S): 8 1/2"
SURFACE COMPLETION:

DATE: 3/13/01
TOTAL DEPTH: -28.0'

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -10'
SEAL TYPE:	Bentonite	-10.0' to -14.0'
SCREEN PACK:	16/30	-14.0' to -28.0'
CASING TYPE:	6" dia. fiberglass	Surface to -17.5'
	—	—
CENTRALIZERS:		
WELL SCREEN:	6" dia. Fiberglass w/0.010" slots	-17.5' to -27.5'
PLUG BACK:		-27.5'



WELL LOG

WELL NO. RW-15D-01

ARCADIS 1030 Andrews Highway Suite 120, Midland, TX 79701-3872 Tel: 915/699-1381 Fax: 915/699-1978

PROJECT NUMBER: MT000657.0001
CLIENT NAME: Huntsman Polymers Corporation
PROJECT NAME: Huntsman Pipeline Area Assessment
SITE LOCATION: Huntsman Odessa Facility
Ector County, Texas
DRILLING CO: Choate Drilling
DRILLING METHOD: Air Rotary
SAMPLING METHOD: —
DATE BEGUN: 3/13/01 DATE COMPLETED: 3/13/01
DRILLER: Dusty Choate ELEVATION (SURF.): —
LOGGER: D. McNeese ELEVATION (T.O.C.): —
FILE NAME: RW-15D-01.DAT UNIQUE NUMBER: 43-069-01683

STATIC WATER LEVEL: — MEAS. PT.: —
HOLE SIZE(S): 8 1/2"
SURFACE COMPLETION:

DATE: 3/13/01
TOTAL DEPTH: -30.0'

	TYPES	DEPTHS
GROUT TYPE:	Portland	Surface to -12'
SEAL TYPE:	Bentonite	-12.0' to -15.0'
SCREEN PACK:	16/30	-15.0' to -30.0'
CASING TYPE:	6" dia. fiberglass	Surface to -17.5'
	—	—
CENTRALIZERS:		
WELL SCREEN:	6" dia. Fiberglass w/0.010" slots	-17.5' to -27.5'
PLUG BACK:		-27.5'

DEPTH	SAMPLED	SAMPLING METHOD	ANALYZED	MOISTURE	RECOVERY	OVM READING	U.S.C.S. CLASS	LITHOLOGY	DESCRIPTION	WELL INSTALLATION
0									BACKFILL: Concrete Backfill	
-5										
-10									SAND: 5 YR 7/6 red yellow, very fine grain, loose well sorted, subrounded.	
-15									CALICHE: 5 YR 8/4, pink, with interbedded sands.	
-20									CALICHE: 5 YR 8/4 pink, moderate odor, moderate stain.	
-25									CALICHE: 5 YR 8/4 pink, very hard, chalky, interbedded sand, some very hard silicous layers.	
-30									not sampled T.D. @ 30'.	

INTERNATIONAL TECHNOLOGY CORPORATION

Client: ACHEME PRODUCTS COMPANY Job No.: 446226 Date Drilled: 4/5-6/88 Well No.: RW-1E-88

Site: ODESSA, TEXAS Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 34.3 FEET Casing Size & Type: 4-inch ID Fiberglass Screen Size: .010-inch

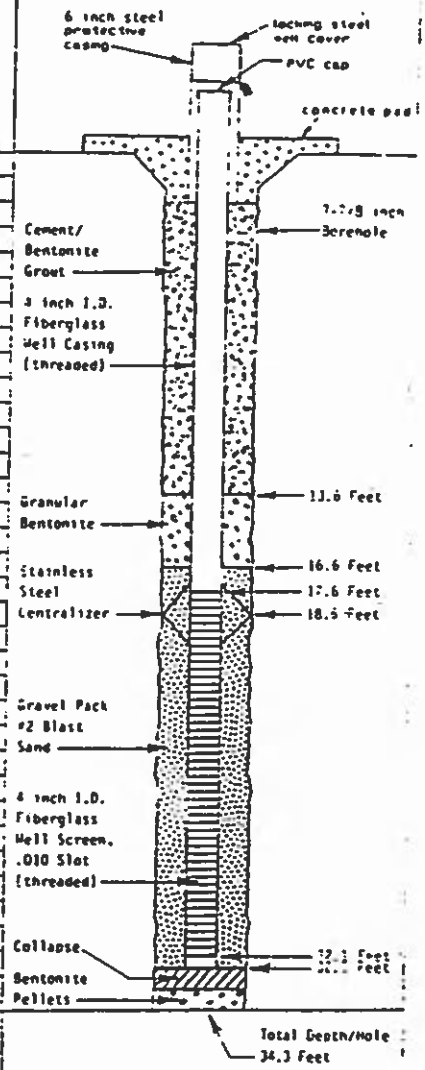
Comments: Mud Rotary, 7-7/8 inch augers to 19 feet, 3-3/4 inch drag bit - air rotary to 34.3 feet; reamed - mud rotary to 7-7/8 inch to total depth

Depth FT	Symbol	Stratigraphy	Sample Description
	ML		SANDY SILT, non-plastic, very stiff, damp, up to approximately 20% very fine to fine sand, dark brown.
	ML		SANDY SILT, non-plastic, very stiff, damp, 10-20% very fine to fine sand, white very fine sandstone fragments, dark brown.
5	SW		SAND, well graded, very fine to coarse, dense, damp, some fragments up to 1/4 inch, well cemented, strong odor, tan, organic vapor content = 250 ppm.
	SW		SAND, well graded, very fine to coarse, predominately very fine to fine, very dense, damp, minor silt, strong odor, tan to pink, organic vapor content = 270 ppm.
10	SW		SAND, similar to above, tan to pink, organic vapor content = 240 ppm.
15	SM		SILTY SAND, poorly graded, very fine to fine, damp, silty, calcareous nodules, strong odor, pink, organic vapor content = 210 ppm.
	SM		SILTY SAND, poorly graded, very fine to fine, damp, silty, strong odor, pink.
20	SM		SILTY SAND, poorly graded, very fine to fine, damp, silty, strong odor, pink.
25	SP		SAND, uniform, very fine, loose, wet-saturated minor fragments of cemented sand, rainbow on H_2O, pink, organic vapor content = 380 ppm.
	SP		SAND, uniform, very fine, dense, saturated, odor, pink.
30	SP		SAND, similar to above with well cemented layers, organic vapor content = 200 ppm.
			SANDSTONE, very hard drilling at 33.0 feet, very fine to fine, minor medium, moderately cemented, massive, strong odor, dark pink.
35			TOTAL DEPTH = 34.3 FEET
40			
45			
50			
55			

Completion Data

Material Description

Material Setting



DRAWING NO.: 446226-A15

INTERNATIONAL TECHNOLOGY CORPORATION

MONITOR WELL INSTALLATION

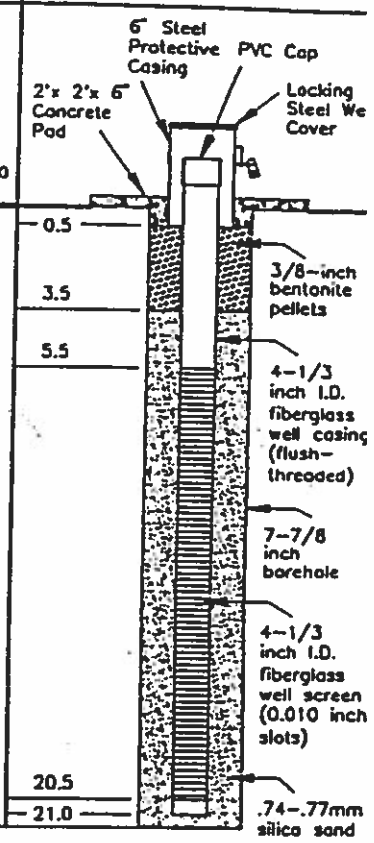
CLIENT: REXENE PRODUCTS COMPANY — JOB NO.: 446844 — WELL NO.: RW-1S-
SITE: ODESSA, TEXAS — DATE: START 10/12/90 FINISH 10/12/90 — SHEET 1 OF
GEOLOGIST: STEVE PULLEN — DRILLER: BILL HOUSTON — TOTAL DEPTH : 21.5 FEET
ELEVATION: PAD 2860.57 CASING 2862.71 — CASING SIZE & TYPE: 4-1/3 I.D. FIBERGLASS — SCREEN SIZE: 0.010 INCH
DRILLING METHODS: MOBILE DRILL B-61, TOP HEAD ROTARY, 140 LB. HAMMER, 4X5 DUPLEX MUD PUMP, AND WITH A 350 CFM AIR COMPRES
SAMPLING METHODS: USING 3-3/8 INCH I.D. HOLLOW STEM AUGER WITH SPLIT SPOON SAMPLER
COMMENTS: PID READINGS FROM HEADSPACE ANALYSIS

DEPTH IN FEET	INCHES DRIVEN / INCHES RECOVERED	SAMPLE NUMBER	PID (PPM)	USCS	STRATIGRAPHY	SAMPLE DESCRIPTION
5	24/20		27	ml		SANDY SILT – brown, nonplastic, 30% fine grained sand, loose, dry
	24/18		75			– black, compact at 1.5' due to contamination, damp
	24/12		4.0			– color possibly due to contamination
	24/18					– gray
10	24/24		424			– mottled dark gray and light gray, saturated at 7.5'
						– black, highly contaminated
15	24/24		246	ml		SANDY SILT – very pale brown (10YR 8/3), nonplastic, 30% fine grained sand, compact, saturated, high percentage of carbonate precipitation, solution cracks filled with dark brown oily substance, caliche
20	12/12		55			– high percentage of clay in this zone

TOTAL DEPTH = 21.5 FEET

GEOPHYSICAL LOGS: 0 10 20 30 40 50 — LOGS NOT AVAILABLE

COMPLETION DATA



DRAWN BY	MMH	11/6/90	CHECKED BY			APPROVED BY			DRAWING NUMBER	446844-A36

Project Name: FACILITY 44
Project Location: ODESSA, TEXAS
Project Number: 99700.002

RECOVERY WELL RW

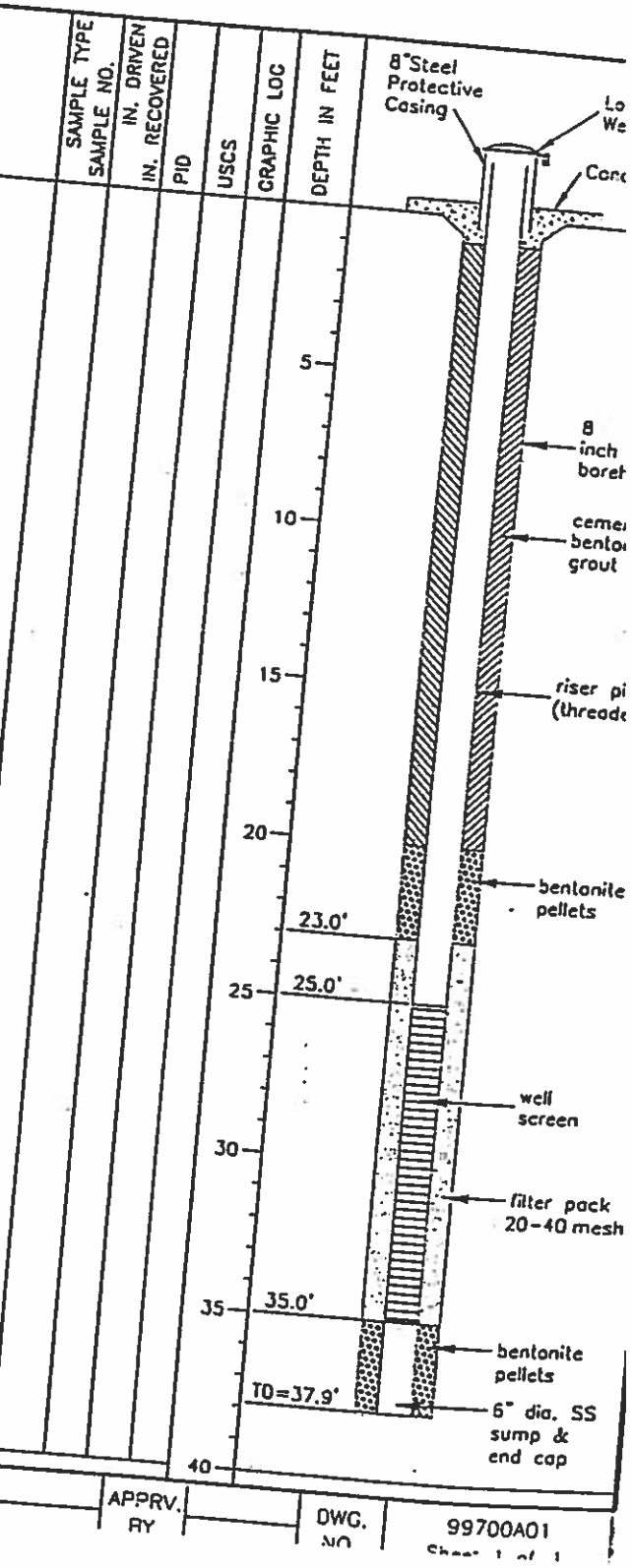
DRILLING AND SAMPLING INFORMATION

Boring Location: ODESSA, TEXAS
SURFACE ELEV.(FT): –
TOTAL DEPTH(FT.): 37.9'
Logged By: R. TARVER
Drilled By: AMADOR HINAJOSA
Date Started: DEC. 11, 1997
Date Completed: DEC. 11, 1997
Drill Rig Type: MOBILE DRILL B-61
Drilling Method: MUD ROTARY USING POLYMER DRILLING MUD
Sampling Method: NO SAMPLES COLLECTED
Notes: –

WELL COMPLETION DATA

Elev-Top of Casing(ft.): –
Ref. Datum: U
1. Riser Pipe-I.D.(in.): 6
Depth(ft.): 25.0' Typ
Centralizers-Type: –
Depths(ft.): –
2. Screen Dia.(in.): 6
Type: Sch 40 S.St. Wi
Depth Interval(ft.): 25' – 35'
Slot Size(in.): .010
Centralizers-Type: –
Depths(ft.): –
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 23'
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
See Boring Log for Monitoring Well MW-71-90 for lithology.								
TOTAL DEPTH = 37.9 FEET								



ECO-SW	DRAFT BY	JEA 1/24/98	DRAFT CHK		PROJ. CHK		APPRV. RY		DWG. NO	99700A01

WELL LOG

ELEVATION
GROUND LEVEL NA
MEASURING POINT 3.5' A. M. P.
WATER LEVEL NA

DRILLING
COMPANY Lariat Drilling Co.
METHOD Air Rotary

PERSONNEL
DRILLER NA
LOGGER R. Shoemaker

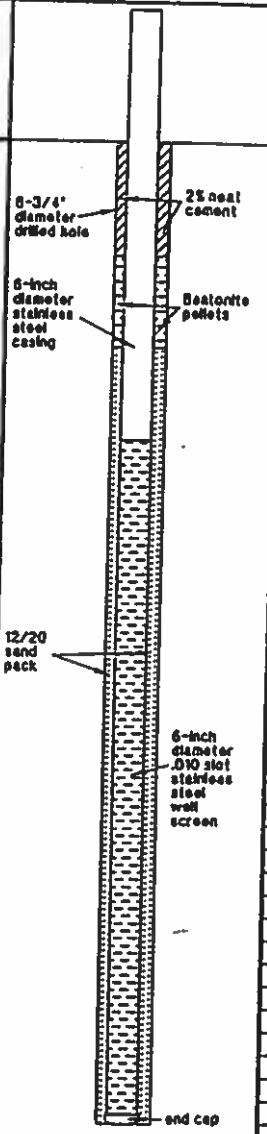
CASING 6-inch diameter, stainless steel well casing (6½' to 3½' above surface). 6-inch diameter, 0.0 slot stainless steel well screen (21½' to 6½')

COMPLETION Bentonite (4½' to 2½')
12/20 sand (21½' to 4½')

CEMENT 2% neat cement (2½' to surface)

DEPTH	SYMBOL	VAPOR READING (PPM)	LITHOLOGY — SAMPLE LOG
0		0	SILTY SAND, poorly graded, very fine to fine grained, medium dense, 20-30% silt, calcareous nodules, brown.
5		0	SANDY SILT, non-plastic, firm, 10-20% very fine to fine grained sand, many calcareous nodules, beige, "plastic" odor at 8.0 feet.
10		5.3	SANDY SILT, non-plastic, firm to cemented, 20-30% very fine to fine grained sand, many calcareous nodules, cemented fragments and layers, light brown, odor.
15		220	SILTY SAND, poorly graded, very fine to fine grained, dense, saturated, 20-30% silt, some sandstone fragments, strong odor, dark gray.
			SILTY SAND, similar to above, light gray.
20			SILTY SAND, well graded, very fine to medium grained, 10-20% silt, trace coarse sand, odor, light brown.
25			

COMPLETION



DEPTH

DATE:	3-4-97
CLIENT	REXENE CORPORATION
PROJECT	MW-26-88 WELL REPLACEMENT
LOCATION	ODESSA, TEXAS FACILITY ECTOR COUNTY, TEXAS
	MT0399.015
WELL NO.	RW-3S-97

GERAGHTY & MILLER, INC.
Environmental Services
A Heidemij company

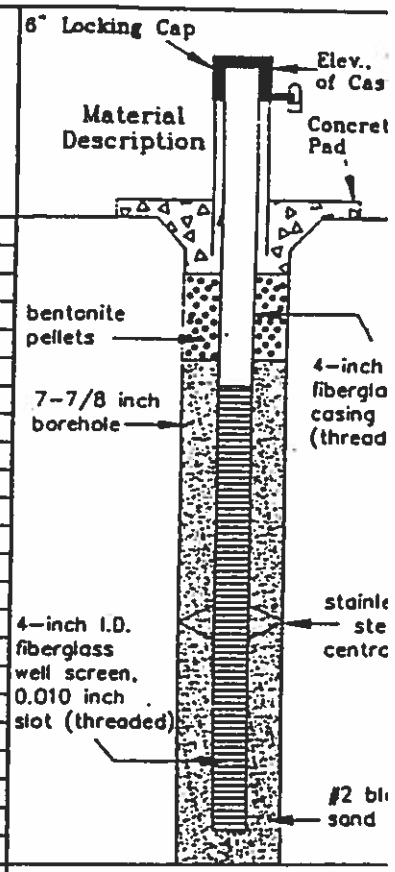
INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation

Client: REXENE PRODUCTS CO. Job No.: 446182 Date Drilled: 10/12/88 Well No.: RW
Site: ODESSA, TX - WEST PLANT Elevation: Pad 2857.64 Top of PVC Casing 285
Total Depth: 23.0 FEET Casing Size & Type: 4-INCH I.D. FIBERGLASS Screen Size: 0.01
Comments: DRILLED BY MUD ROTARY, SPLIT SPOON (3" X 3') SAMPLES AT 5 FOOT INTERVALS

Depth in Feet	Symbol	Stratigraphy	Sample Description
0	SP		SAND, and fill, poorly graded, very fine to fine, some gravel, wood, grass, calcareous nodules, brown
5	SM		SILTY SAND, poorly graded, very fine to fine, dense, oily appearance, very dark brown and black
			SILTY SAND, poorly graded, very fine to fine, very dense, calcareous nodules, many sandstone fragments, beige
10			SILTY SAND, uniform, very fine, dense, 30-40% silt, minor coarse sand and black sandstone fragments, gray
15	ML		SANDY SILT, non-plastic, hard, 10-20% very fine sand, "balling up" bit, gray to white
20			SANDY SILT, non-plastic, stiff, 30-40% very fine sand, faster drilling, light gray
			SANDSTONE, at 23.0 feet
			TOTAL DEPTH = 23.0 FEET

Completion Data



DRAWN BY	M.M.H.	1/6/89	CHECKED BY	AMR	5-16-89	APPROVED BY	KEP	5-16-89	DRAWING NUMBER	446182-M

Client: HUNTSMAN
Project Name: AREA MW 25
Project Location: ODESSA, TEXAS
Project Number: 99700.002

RECOVERY WELL RW-5S-97

DRILLING AND SAMPLING INFORMATION

Boring Location: ODESSA, TEXAS
SURFACE ELEV.(FT): –
TOTAL DEPTH(FT.): 38.9'
Logged By: R. TARVER
Date Started: DEC. 10, 1997
Drilled By: AMADOE HINOJOSA
Date Completed: DEC. 10, 1997

Drill Rig Type: MOBILE DRILL B-61
Drilling Method: MUD ROTARY USING POLYMER DRILLING MUD

Sampling Method: –

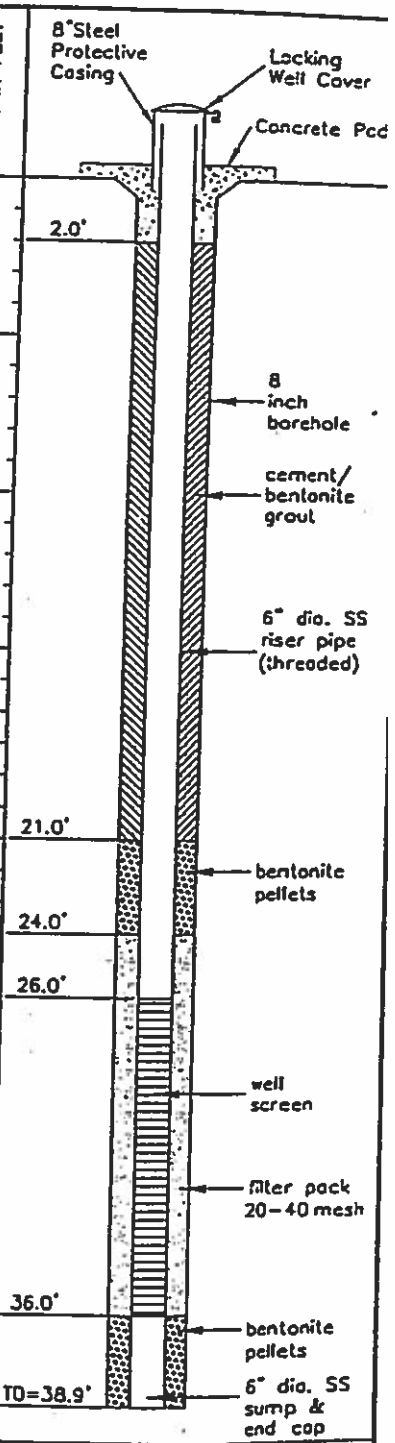
Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): –
Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 6
Depth(ft.): 26.0' Type: 316 S.Stl.
Centralizers–Type: –
Depths(ft.): –
2. Screen Dia.(in.): 6
Type: Sch 40 S.Stl.Wire Wrapped
Depth Interval(ft.): 26.0'–36.0' Slot Size(in.): .010
Centralizers–Type: –
Depths(ft.): –
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 24.0'–36.0'
Conc. Pad Size: 3'x3'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED
Hand dug to 5 feet.		
SILTY SAND, fine to medium-grained, damp, gray, very slight hydrocarbon odor		12/22
		24/24
– sharp color change at 8.5 feet, damp, dark gray, strong hydrocarbon odor		24/24
– slight mottling at 11.9 feet with darker staining, no liquid hydrocarbon present, strong hydrocarbon odor		24/20
– 12.0 to 13.3 feet, mottling more pronounced, strong odor, with 1% gravel moist		24/24
– wet at 13.3 feet with sharp color change to light tan, damp below 13.3 feet		24/18
– wet at 14.0 to 14.3 feet.		
SILTY SAND, medium to fine grained, compact, clarified high tan, moderately sorted, less than 1% caliche pellets, dry		24/24
– 18.3 feet, black staining present which is present in sample		24/18
– 20.2 feet, wet, staining, increasingly moist with depth, sample 35 to 45% stained		24/12
SILTY SAND, fine to medium grained, light gray and reddish tan mottling, moist, less black staining than above, very compact, hard		
– split spoon refusal at 24.5 feet		
– very hard at 25 feet		
SILTY SAND, fine to medium grained, dark gray, scattered calic..... tam....., hydrocarbon present, slight odor		10/6
– very strong odor, 2-inch thick caliche layer at 28.4 feet		10/10
– saturated with hydrocarbon		
– 30.9 feet, hard light gray caliche layer		10/10
– abundant hydrocarbon staining		
– very hard drilling from 32.8 feet to 36.0 feet		8/8
SILTY CLAYEY SAND, light reddish brown, damp, scattered caliche nodule less than 1-inch diameter, staining present only in fractures		16/12
– 38.0 feet, dry, no staining present		
TOTAL DEPTH = 39.6 FEET		

PID | USCS | GRAPHIC LOG | DEPTH IN FEET



ECO-SW	DRAFT BY	JEA 1/29/98	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	99700A02 Sheet 1 of 1

APPENDIX VII
CLOSURE AND POST-CLOSURE

ITEMS INCLUDED IN THIS APPENDIX:

- Table VII.D – Unit Post-Closure Cost Estimate
- Table VII.E.2 – Permitted Unit Post-Closure Cost Summary
- Post-Closure Care Plan

Table VII.D. - Unit Post-Closure Cost Estimate

Task	Cost
Name of permitted unit: Facility 37 - Olefin Oil/Water Separator	
Verbal description of task: Monthly inspections of the unit and completion of the Post-Closure Care Checklist estimated at 1 hr/month for 12 months/yr. Labor cost is $75/hr	$900
Verbal description of task: Annual Cap Maintenance	$3,390
Verbal description of task: Groundwater monitoring for this unit is managed under the Compliance Plan for which separate financial assurance is maintained.	--
Verbal description of task: This unit is closed via cap and cover. No leachate collection system was installed; therefore, no leachate disposal charges will be incurred.	--
Other tasks: Certified closed on 18 December 1998. Remaining post-closure care period is 3 years	--
Other tasks:	
Subtotal	$4,290
Contingency (10% minimum)	$429
Year(s) of Post-Closure	3
Total Unit Closure Cost (Annual Cost X Years of Post-Closure) Year 2025	$14,157

The estimates listed above were derived from the following sources:

-The 2014 Renewal Application rates were used for continued Post-Closure Care, however they were adjusted for inflation in July 2025 using the following:
US Bureau of Labor Statistics, Consumer Price Index Inflation. bls.gov/data/inflation_calculator.htm

-After running through the inflation adjustment, costs were rounded up to the nearest $10.

Table VII.D. - Unit Post-Closure Cost Estimate

Task	Cost
Name of permitted unit: Facility 38 - Styrene/Butadiene Oil/Water Separator	
Verbal description of task: Monthly inspections of the unit and completion of the Post-Closure Care Checklist estimated at 1 hr/month for 12 months/yr. Labor cost is $75/hr	$900
Verbal description of task: Annual Cap Maintenance	$3,390
Verbal description of task: Groundwater monitoring for this unit is managed under the Compliance Plan for which separate financial assurance is maintained.	--
Verbal description of task: This unit is closed via cap and cover. No leachate collection system was installed; therefore, no leachate disposal charges will be incurred.	--
Other tasks: Certified closed on 18 December 1998. Remaining post-closure care period is 3 years	--
Other tasks:	
Subtotal	$4,290
Contingency (10% minimum)	$429
Year(s) of Post-Closure	3
Total Unit Closure Cost (Annual Cost X Years of Post-Closure) Year 2025	$14,157

The estimates listed above were derived from the following sources:

-The 2014 Renewal Application rates were used for continued Post-Closure Care, however they were adjusted for inflation in July 2025 using the following:
US Bureau of Labor Statistics, Consumer Price Index Inflation. bls.gov/data/inflation_calculator.htm

-After running through the inflation adjustment, costs were rounded up to the nearest $10.

Table VII.D. - Unit Post-Closure Cost Estimate

Task	Cost
Name of permitted unit: Facility 63 - Gulf Seal Ponds	
Verbal description of task: Monthly inspections of the unit and completion of the Post-Closure Care Checklist estimated at 1 hr/month for 12 months/yr. Labor cost is $75/hr	$900
Verbal description of task: Annual Cap Maintenance	$7,460
Verbal description of task: Groundwater monitoring for this unit is managed under the Compliance Plan for which separate financial assurance is maintained.	--
Verbal description of task: This unit is closed via cap and cover. No leachate collection system was installed; therefore, no leachate disposal charges will be incurred.	--
Other tasks: Certified closed on 28 November 2000. Remaining post-closure care period is 5 years	--
Other tasks:	
Subtotal	$8,360
Contingency (10% minimum)	$836
Year(s) of Post-Closure	5
Total Unit Closure Cost (Annual Cost X Years of Post-Closure) Year 2025	$45,980

The estimates listed above were derived from the following sources:

-The 2014 Renewal Application rates were used for continued Post-Closure Care, however they were adjusted for inflation in July 2025 using the following:
US Bureau of Labor Statistics, Consumer Price Index Inflation. bls.gov/data/inflation_calculator.htm

-After running through the inflation adjustment, costs were rounded up to the nearest $10.

Table VII.D. - Unit Post-Closure Cost Estimate

Task	Cost
Name of permitted unit: Facility 67 - South Flare Ponds	
Verbal description of task: Monthly inspections of the unit and completion of the Post-Closure Care Checklist estimated at 1 hr/month for 12 months/yr. Labor cost is $75/hr	$900
Verbal description of task: Annual Cap Maintenance	$7,460
Verbal description of task: Groundwater monitoring for this unit is managed under the Compliance Plan for which separate financial assurance is maintained.	--
Verbal description of task: This unit is closed via cap and cover. No leachate collection system was installed; therefore, no leachate disposal charges will be incurred.	--
Other tasks: Certified closed on 18 December 1998. Remaining post-closure care period is 3 years	--
Other tasks:	
Subtotal	$8,360
Contingency (10% minimum)	$836
Year(s) of Post-Closure	3
Total Unit Closure Cost (Annual Cost X Years of Post-Closure) Year 2025	$27,588

The estimates listed above were derived from the following sources:

-The 2014 Renewal Application rates were used for continued Post-Closure Care, however they were adjusted for inflation in July 2025 using the following:
US Bureau of Labor Statistics, Consumer Price Index Inflation. bls.gov/data/inflation_calculator.htm

-After running through the inflation adjustment, costs were rounded up to the nearest $10.

Table VII.D. - Unit Post-Closure Cost Estimate

Task	Cost
Name of permitted unit: Facility 68 - South Storage Pond	
Verbal description of task: Monthly inspections of the unit and completion of the Post-Closure Care Checklist estimated at 1 hr/month for 12 months/yr. Labor cost is $75/hr	$900
Verbal description of task: Annual Cap Maintenance	$7,460
Verbal description of task: Groundwater monitoring for this unit is managed under the Compliance Plan for which separate financial assurance is maintained.	--
Verbal description of task: This unit was closed by installing a double-liner leachate collection system and repermitting the unit as a brine storage pond under the Railroad Commission of Texas. No disposal chargers will be incurred.	--
Other tasks: Certified closed on 14 October 1999. Remaining post-closure care period is 4 years	--
Other tasks:	
Subtotal	$8,360
Contingency (10% minimum)	$836
Year(s) of Post-Closure	4
Total Unit Closure Cost (Annual Cost X Years of Post-Closure) Year 2025	$36,784

The estimates listed above were derived from the following sources:

-The 2014 Renewal Application rates were used for continued Post-Closure Care, however they were adjusted for inflation in July 2025 using the following:
US Bureau of Labor Statistics, Consumer Price Index Inflation. bls.gov/data/inflation_calculator.htm

-After running through the inflation adjustment, costs were rounded up to the nearest $10.

Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

Existing Unit Post-Closure Cost Estimate	
Unit	Cost
NOR No. 37 - Olefin Oil/Water Separator	$14,157
NOR No. 38 - Styrene/Butadiene Oil/Water Separator	$14,157
NOR No. 63 - Gulf Seal Ponds	$45,980
NOR No. 67 - South Flare Ponds	$27,588
NOR No. 68 - South Storage Pond	$36,784
Total Existing Unit Post-Closure Cost Estimate[1]	$138,666

Proposed Unit Post-Closure Cost Estimate	
Unit	Cost
Total Proposed Unit Post-Closure Cost Estimate	

1. As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

The estimates listed above were derived from the following sources:
-The 2014 Renewal Application rates were used for continued Post-Closure Care, however they were adjusted for inflation in July 2025 using the following:
US Bureau of Labor Statistics, Consumer Price Index Inflation. bls.gov/data/inflation_calculator.htm

POST-CLOSURE CARE PLAN

FLINT HILLS RESOURCES ODESSA, LLC
2400 SOUTH GRANDVIEW AVENUE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
2400 South Grandview Avenue
Odessa, Texas 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 February 2026

Quintin K. McNulty, PE
Texas PE. No. 90396, F-15202
Signed electronically on 2/3/26

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

TABLE OF CONTENTS

Section **Page**

1 INTRODUCTION 1-1

2 FACILITY PERSONNEL CONTACTS 2-1

3 POST-CLOSURE CARE UNITS 3-1

3.1 OLEFIN OIL/WATER SEPARATOR (NOR UNIT NO. 37) 3-1
3.1.1 Description of Unit 3-1
3.1.2 Description of Demolition and Cover 3-1
3.2 STYRENE/BUTADIENE OIL/WATER SEPARATOR (NOR UNIT NO. 38) 3-2
3.2.1 Description of Unit 3-2
3.2.2 Description of Demolition and Cover 3-2
3.3 GULF SEAL PONDS (NOR UNIT NO. 63) 3-2
3.3.1 Description of Unit 3-2
3.3.2 Description of Demolition and Cover 3-3
3.4 SOUTH FLARE POND (NOR UNIT NO. 67) 3-3
3.4.1 Description of Unit 3-3
3.4.2 Description of Demolition and Cover 3-4
3.5 SOUTH STORAGE POND (NOR UNIT NO. 68) 3-4
3.5.1 Description of Unit 3-4
3.5.2 Description of Closure and Conversion to Brine Service 3-4

4 INSPECTION AND MAINTENANCE PROCEDURES 4-1

4.1 FREQUENCY OF INSPECTION 4-1
4.2 SOIL COVER 4-1
4.3 CAP LINERS AND GEOMEMBRANES 4-1
4.4 CONCRETE CAPS 4-1
4.5 GROUNDWATER MONITORING AND RECOVERY SYSTEMS 4-2

LIST OF TABLES AND FIGURES

Figure 3-1 Post Closure Care Unit Location Map 3-5

Figure 3-2 Olefin Oil/Water Separator (NOR Unit No. 37) Cover System and Cap 3-6

Figure 3-3 Styrene Oil/Water Separator (NOR Unit No. 38) Cover System and Cap 3-7

Figure 3-4 Gulf Seals Pond (NOR Unit No. 63) Cover System and Cap 3-8

Figure 3-5 South Flare Pond (NOR Unit No. 67) Cover System and Cap 3-9

Figure 3-6 South Storage Pond (NOR Unit No. 68) Cover System and Cap 3-10

Figure 4-1 Example of Post Closure Facility Inspection Form 4-3

1 INTRODUCTION

This Post-Closure Care Plan has been prepared to fulfill the requirements of Title 40, Code of Federal Regulations, Chapter 264 (40 CFR 264) Subpart G and Title 30 Texas Administrative Code, Subchapter 335.174.

Specifically, the plan addresses the requirements of 40 CFR 264.118, which specifies that the plan:

- Be written (264.118(a)).
- Address each unit subject to post-closure care under 261.118 (264.118(b)).
- Include a description of planned monitoring activities and frequency of the monitoring activities (264.118(b)(1)).
- Include a description of planned maintenance activities and frequencies of the maintenance activities (264.118(b)(2)).
- Include the name, address, and phone number of the person or office to contact about the facility during the post closure care period (264.118(b)(3)).

Subject to the protocols of 264.118(d), Flint Hills Resources Odessa, LLC (FHR) will submit a written notification of or request for a permit modification to authorize a change in the approved post-closure plan in accordance with applicable requirements.

2 FACILITY PERSONNEL CONTACTS

To satisfy the requirements of 264.118(b)(3), FHR has appointed the following office to serve as the facility contact. Any questions about hazardous waste disposal or about any of the units under post-closure care should be directed to:

Neal Melchionni
Senior Project Manager, Remediation Services
Flint Hills Resources, LP
133 Peachtree St NE
Atlanta, GA 30303
Tel (O): (316) 828-1556
Tel (C): (609) 602-8209
Email: [redacted]

3 POST-CLOSURE CARE UNITS

Post-closure care units include the following units listed on its Notice of Registration (NOR) with the Texas Commission on Environmental Quality (TCEQ): 37, 38, 63, 67, and 68. For the purposes of this report, the term NOR Unit No. and Facility No. are used interchangeably. A map depicting the locations of each of these units is provided as **Figure 3-1**. Background information for each of the post-closure care units is provided in the subsections that follow.

3.1 OLEFIN OIL/WATER SEPARATOR (NOR UNIT NO. 37)

3.1.1 Description of Unit

The Olefin Oil/Water Separator (Facility 37) was in the central portion of the West Plant and consisted of a below-grade, reinforced concrete structure approximately 76 feet (ft) long, 26 ft wide, and 10 ft deep. The Olefin Oil/Water Separator was used from approximately 1961 to 1993 and was used to manage wastewater generated from the production of ethylene and propylene from natural gas liquids. All waste residue was removed and the concrete structure was cleaned in August 1993.

A Phase 1 Closure Plan for Facility 37 was submitted to the TCEQ on September 5, 1995. The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. The first set of soil samples were collected in October 1995. Following a meeting with TCEQ to discuss results, Huntsman collected additional samples in February and April 1996.

A Phase 2 Closure Plan and Report for this unit was submitted to the TCEQ in July 1996. That report showed that the impacts to soils from the facility had been delineated and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. The report was approved by the TCEQ, with modification, on April 4, 1997. The modification concerned performance standards for the proposed cap and cover to be installed once the unit was demolished and backfilled.

A Final Report for this unit was submitted on October 9, 1998. The TCEQ approved the Final Report and Certification of Closure on December 18, 1998.

3.1.2 Description of Demolition and Cover

Philip Environmental began closure activities on April 14, 1997. Wall demolition was accomplished using a track hoe with a hydraulic hammer attachment. The center wall of the pit was demolished to the bottom of the pit, then a ramp was cut into the west outside wall to allow the track hoe access to the pit floor. From inside the pit, the west, north and south outside walls were demolished to approximately 3 ft below grade. All the demolished concrete was left inside the pit.

During backfilling operations, a total of about 650 cubic yards of construction debris and rip rap were hauled in to fill the pit to a level of about 4 ft below grade. Approximately 300 cubic yards of soil were hauled in to bring the site level with grade. Approximately 200 cubic yards of caliche were hauled in on top of the soil to provide a base for the geotextile liner.

Approximately 4,563 square feet (ft^2) of Clay-Max liner were installed over the pit in 15-ft wide sheets. The liner was installed along the east-west axis of the pit (the long axis}, and the sheets were overlapped about 1 ft to provide coverage of the entire pit, and extended 3 ft beyond the edges of original pit. The final cap consisted of about 400 cubic yards of caliche crowned in the center and sloped to provide rainfall runoff. Closure activities were completed April 21, 1997, and a diagram of the final closure, with cap, is provided as **Figure 3-2**.

3.2 STYRENE/BUTADIENE OIL/WATER SEPARATOR (NOR UNIT NO. 38)

3.2.1 Description of Unit

The Styrene/Butadiene Oil/Water Separator (Facility 38) was in the eastern portion of the West Plant. The oil/water separator was a below-grade, reinforced concrete structure approximately 76 ft long, 26 ft wide and 10 ft deep.

From 1958 to 1990, the Styrene/Butadiene Oil/Water Separator was used to transfer and manage process wastewater generated from the production of styrene and butadiene. Operation of the unit ended in 1990. All residual wastes were removed, and the concrete structure was cleaned in August 1990.

A Phase 1 Closure Plan for Facility 38 was submitted to the TCEQ on September 5, 1995. The unit was investigated for impacts concurrently with the RCRA Facility Investigation. The first set of soil samples were collected in October 1995. Following a meeting with TCEQ to discuss results, additional samples were collected in February 1996.

A Phase 2 Closure Plan and Report for this unit was submitted to the TCEQ in August 1996. That report showed the impacts to soils from the facility had been delineated, and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. The report was approved by the TCEQ, with modification, on April 10, 1997. The modification concerned performance standards for the proposed cap and cover to be installed once the unit was demolished and backfilled.

A Final Report for this unit was submitted on June 18, 1997. The TCEQ approved the Final Report and Certification of Closure on December 18, 1998.

3.2.2 Description of Demolition and Cover

Philip Environmental began closure activities on April 22, 1997. Wall demolition was accomplished using a track hoe with a hydraulic hammer attachment. The center wall of the pit was demolished to the bottom of the pit, then a ramp was cut into the east outside wall to allow the track hoe access to the pit floor. From inside the pit, the west, north and south outside walls were demolished to approximately 3 ft below grade. All the demolished concrete was left inside the pit.

During backfilling operations, a total of about 650 cubic yards of construction debris and rip rap were hauled in to fill the pit to a level of about 4 ft below grade. Approximately 300 cubic yards of soil were hauled in to bring the site level with grade. Approximately 200 cubic yards of caliche were hauled in on top of the soil to provide a base for the geotextile liner.

Approximately 4,536 ft^2 of Clay-Max liner were installed over the pit in 15-ft wide sheets. The liner was installed along the east-west axis of the pit (the long axis), and the sheets were overlapped about 1 ft to provide coverage of the entire pit, and were extended 3 ft beyond the edges of original pit. The final cap consisted of about 400 cubic yards of caliche crowned in the center and sloped to provide rainfall runoff. Closure activities were completed April 29, 1997, and a diagram of the final closure, with cap, is included as **Figure 3-3**.

3.3 GULF SEAL PONDS (NOR UNIT NO. 63)

3.3.1 Description of Unit

The Gulf Seal Ponds (Facility 63) were in the southwestern portion of the West Plant. Facility 63 consisted of two lined surface impoundments with a total capacity of about 1,073,680 gallons. The unit was originally excavated to about 3 ft below grade and the excavated soils were used to construct the earthen berms around the facility.

The unit provided surge capacity for the wastewater treatment system. The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. Data from investigations conducted in September and October 1996 were used to delineate impacts.

A Phase 2 Closure Plan and Report was submitted to the TCEQ June 25, 1997, and the TCEQ approved it on June 14, 2000. Huntsman submitted an amended closure plan on November 15, 2000, that was verbally approved by TCEQ on November 16, 2000, and formally approved on November 28, 2000. Huntsman submitted the Closure Certification Report on January 31, 2001, and the TCEQ approved it in correspondence dated February 9, 2001. The TCEQ approved the deed certification on March 19, 2001.

3.3.2 Description of Demolition and Cover

Closure activities began on November 27, 2000. After removal of all appurtenances, the sludge that resided in the west impoundment was transferred to the east impoundment in batches and stabilized with fly ash and with soil from the berms. Stabilized sludge was distributed across both impoundments and shaped to facilitate storm water runoff. A 2-ft cover of soil was placed over the stabilized sludge to provide a base for the geomembrane. The geomembrane was equivalent to 2 ft of clay and was placed over the areal extent of the original facility. The geomembrane was covered with 9 inches of base grade caliche and the rolled and compacted caliche was covered with rock and gravel. The outer border of the unit was covered with a 20-ft wide band of 3-inch minus rock and the inside of the unit was covered with gravel sized 1-inch or less. Work was completed on January 9, 2001. A diagram of the final closure with cap, is included as **Figure 3-4**.

3.4 SOUTH FLARE POND (NOR UNIT NO. 67)

3.4.1 Description of Unit

The South Flare Pond (Facility 67) was in the southwestern portion of the West Plant. Facility 67 was an unlined surface impoundment with a capacity of about 1,280,680 gallons. It occupied a surface area of about 47,850 ft^2. The unit was originally excavated to about 4 ft below grade and the excavated soils were believed to have been used to construct the 3 ft high earthen berms around the facility.

The unit provided temporary storage for storm water runoff from Huntsman's West Plant and provided surge capacity for the Wastewater Treater (Facility 64). It was also used for temporary storage of wastewater solids removed from the Gulf Seal Ponds.

The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. Data from investigations conducted in September and October 1990 and in October 1995 were used to delineate impacts, along with samples collected in February and October 1996 (during the RFI).

A *Closure Plan and Report for Facility 67* was submitted to the TCEQ on January 22, 1997. That report showed that the impacts to soils from the facility have been delineated, and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. An *Addendum to Closure Plan and Report, Facility 67- South Flare Pond* was submitted on April 7, 1997. The report and addendum were approved by the TCEQ on November 4, 1997. Unit closure began on 2 December 27, 1997.

A Final Report for this unit was submitted on June 18, 1997. The TCEQ approved the Final Report and Certification of Closure on December 18, 1998.

3.4.2 Description of Demolition and Cover

Closure activities began on December 27, 1997. The impoundment was back-filled with debris and soils according to the *Addendum.* About 2,500 cubic yards of concrete debris were placed in the northwest corner of the impoundment. The debris was followed with 7300 cubic yards of caliche that covered the debris and the remaining impoundment. Following filling and compaction of debris and soil, the site was contoured to a 2.5% slope to shed most of the rainfall -to the southeast. Following contouring, the site was rolled for further compaction and to establish a smooth base for liner installation.

The contractor began laying geosynthetic membrane on December 31, 1997. A bentonite liner equivalent to 2 ft of clay was spread over the entire impoundment and extended 5 ft past the perimeter of the unit. The bentonite membrane was then key-seated into a 24-inch trench along the east, west and south edges of the unit. An additional 5 ft of liner was installed along the northern edge of the unit then rolled back before covering.

A 9-inch cover of base grade caliche was placed on top of the membrane, then rolled and compacted, and a 3 to 4 inch layer of crushed rock was spread over the site to minimize erosion. All work was completed by January 6, 1998. A diagram of the final closure, with cap, is included as **Figure 3-5**.

3.5 SOUTH STORAGE POND (NOR UNIT NO. 68)

3.5.1 Description of Unit

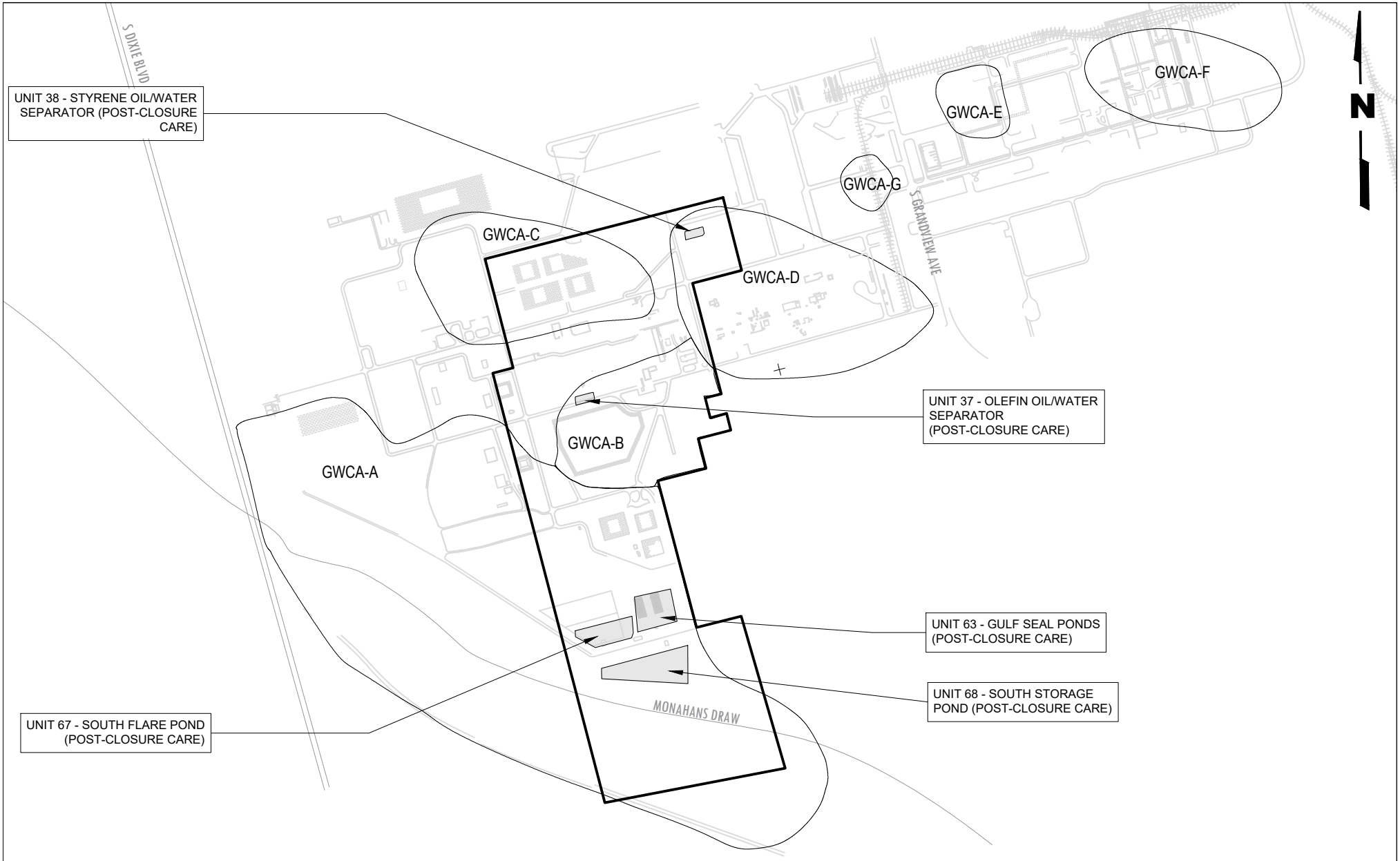
The South Storage Pond (Facility 68) is located in the southwestern portion of the West Plant. Facility 68 was a lined surface impoundment constructed with a capacity of about 3,494,000 gallons and an aerial extent of about 115,000 ft^2. The unit was originally excavated to about 2 ft below grade and the excavated soils were used to construct the 7-ft high earthen berms around the facility. The unit provided surge capacity for the complex wastewater treating system.

The unit was investigated for impacts to the environment concurrently with the RCRA Facility Investigation. Data from investigations conducted in October 1996 were used to delineate impacts.

A *Phase II Closure Plan and Report for Facility 68* was submitted to the TCEQ in June 1997. That report showed that the impacts to soils from the facility have been delineated, and that the risks to human health and the environment (as demonstrated by a risk assessment) were acceptable. This report was approved by the TCEQ on March 23, 1998. One option proposed in the closure plan was to close the facility as a hazardous waste surface impoundment, reline the unit with a double-liner/leachate collection system, and re-permit the impoundment under The Railroad Commission of Texas (RRC) as a brine storage pond for use in the plant's cavern well LPG storage system. Huntsman began to re-line Facility 68 on January 20, 1998, and completed the task on February 10, 1998. Huntsman submitted a closure certification report in September 1999, and it was approved on October 14, 1999.

3.5.2 Description of Closure and Conversion to Brine Service

Closure activities began on January 20, 1998. Closure involved removing sections of the 40 mil high-density polyethylene (HDPE) liner installed in 1991, installing leak detection trenches and piping and relining the unit with a bottom liner of 40-mil HDPE, a 16 ounce geotextile and a top liner of 60-mil HDPE. Together, these structures formed a double-liner system with leachate collection. All work was complete by February 10, 1998. On February 12, 1998, the TRRC issued a permit to operate this unit as a brine pond. A diagram of the system is included as **Figure 3-6**.



LEGEND

APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT

APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)

RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM (POST-CLOSURE CARE)

0 500 1,000

SCALE IN FEET

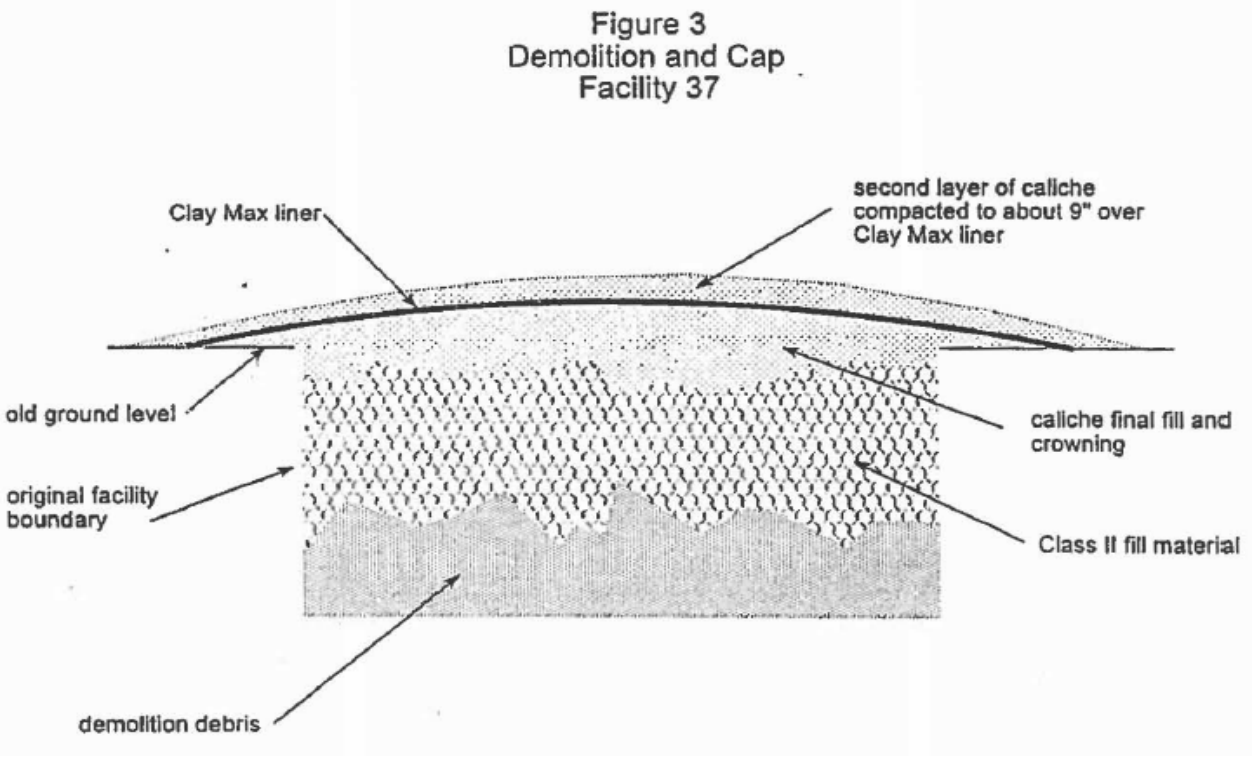
FIGURE 3-1

POST CLOSURE CARE UNIT LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

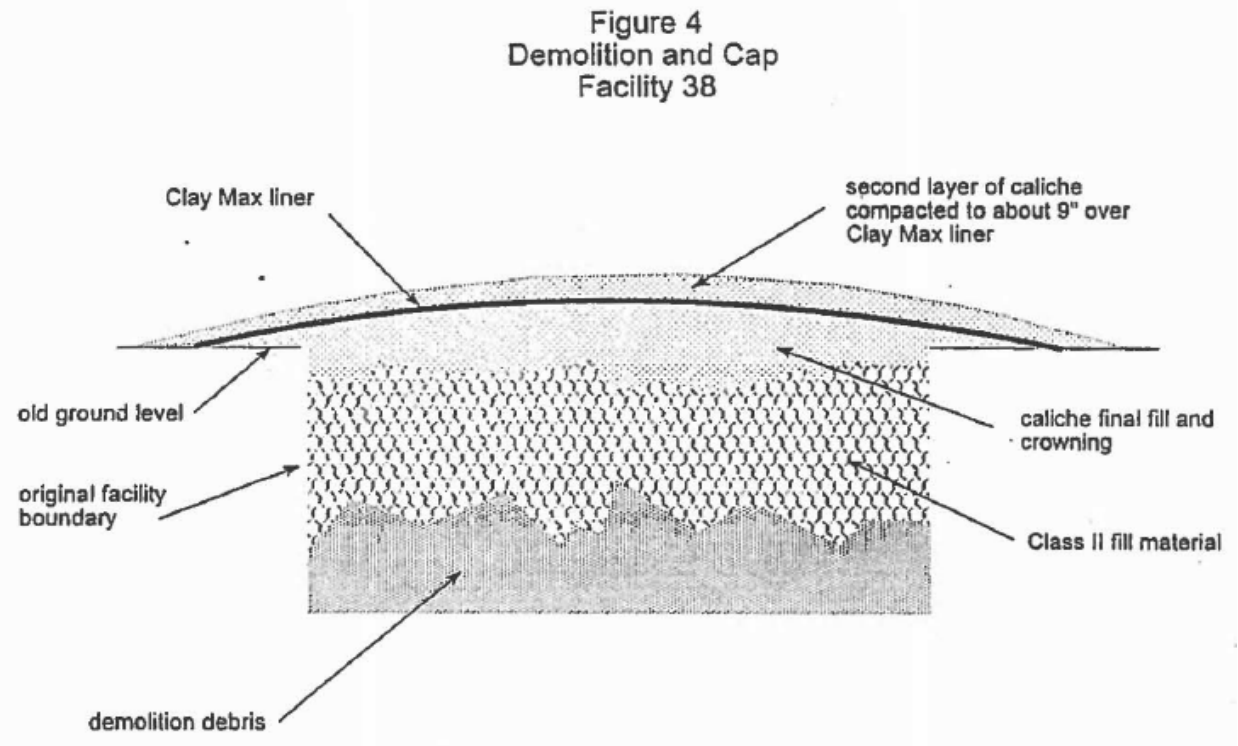
SCALE:	DATE:	PN:
1 IN = 1,000 FT	FEB 2026	1039.005.001

Figure 3-2
Olefin Oil/Water Separator (NOR Unit No. 37) Cover System and Cap



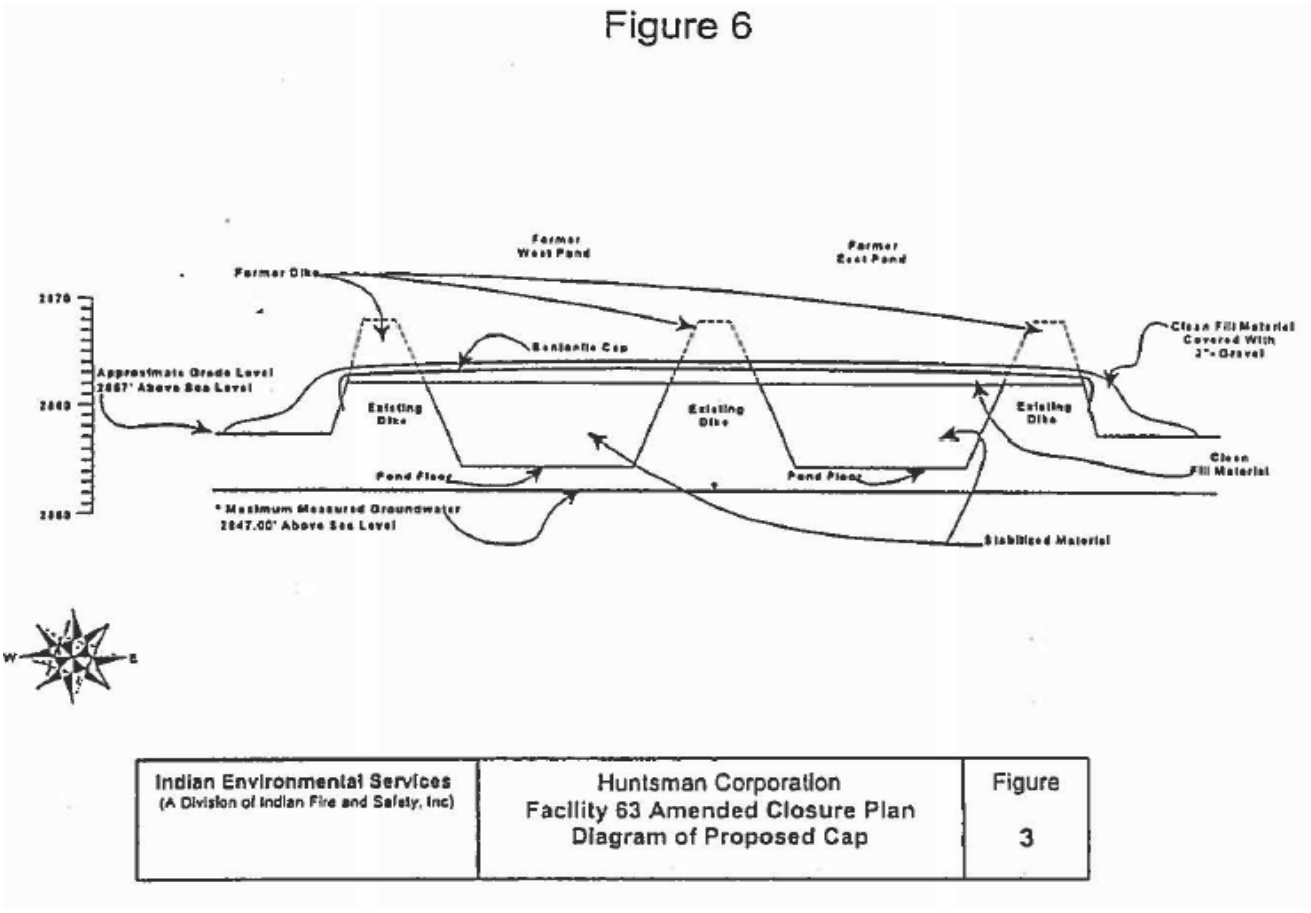
Note: This figure is taken from the Post-Closure Care Plan prepared by Huntsman and included in the 2003 and 2015/2016 Renewal Applications.

Figure 3-3
Styrene Oil/Water Separator (NOR Unit No. 38) Cover System and Cap



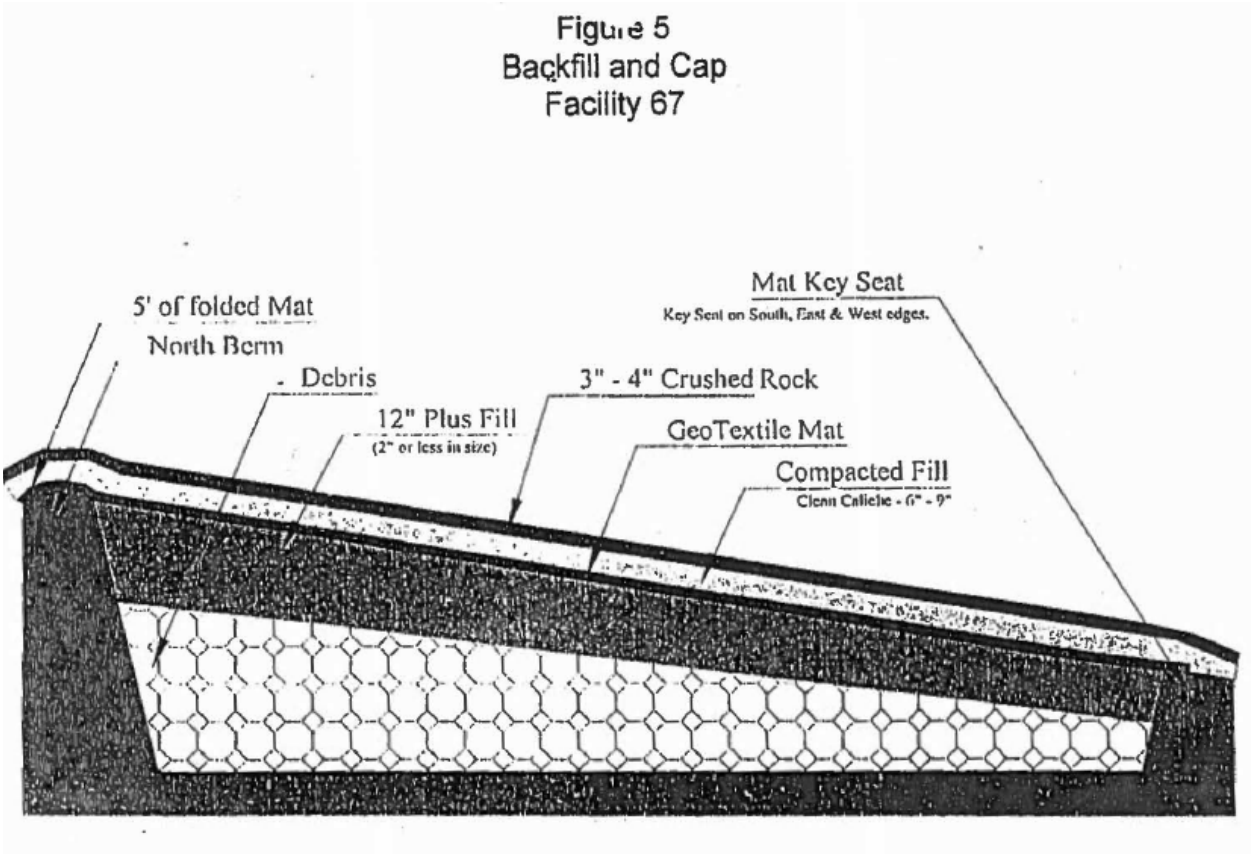
Note: This figure is taken from the Post-Closure Care Plan prepared by Huntsman and included in the 2003 and 2015/2016 Renewal Applications.

Figure 3-4
Gulf Seals Pond (NOR Unit No. 63) Cover System and Cap



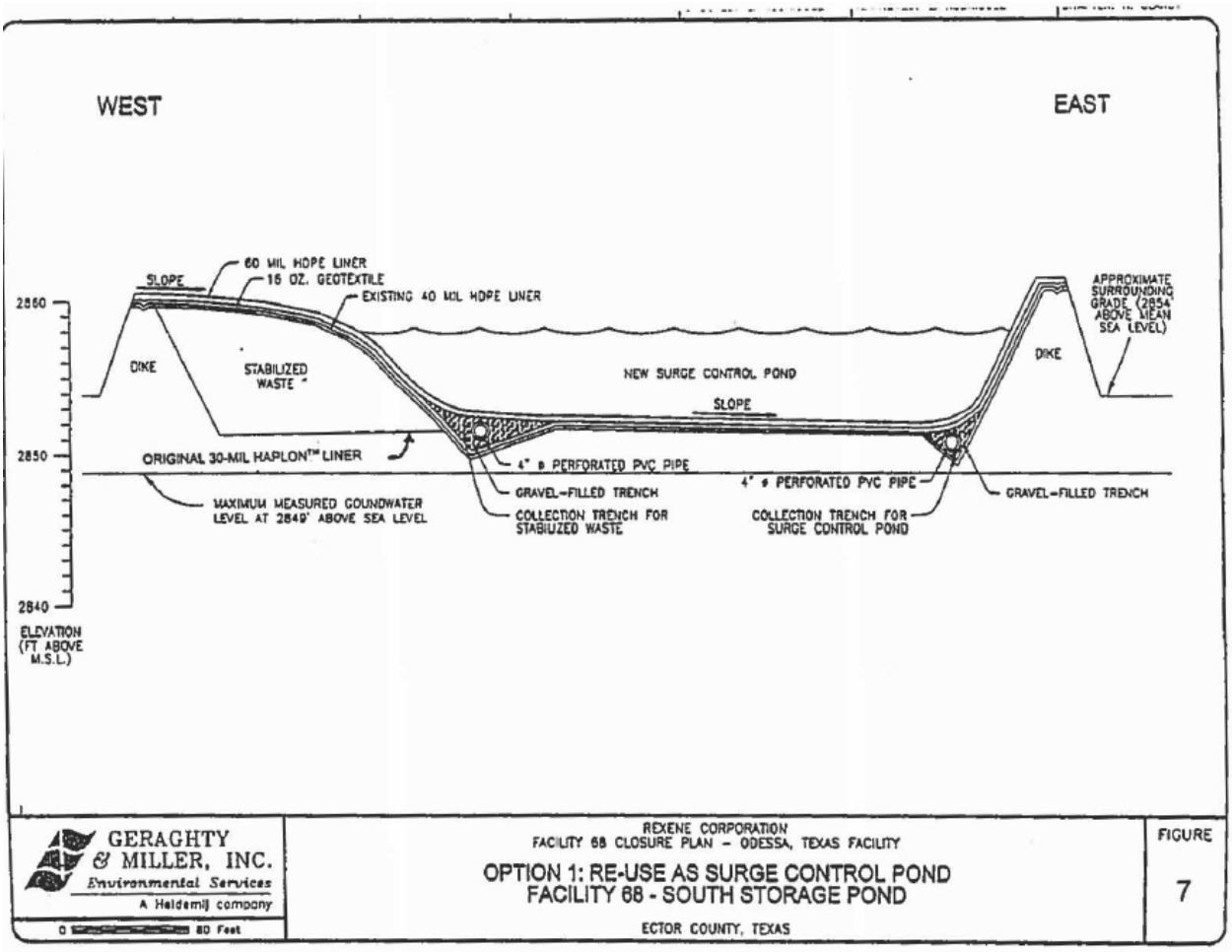
Note: This figure is taken from the Post-Closure Care Plan prepared by Huntsman and included in the 2003 and 2015/2016 Renewal Applications.

Figure 3-5
South Flare Pond (NOR Unit No. 67) Cover System and Cap



Note: This figure is taken from the Post-Closure Care Plan prepared by Huntsman and included in the 2003 and 2015/2016 Renewal Applications.

Figure 3-6
South Storage Pond (NOR Unit No. 68) Cover System and Cap



Note: This figure is taken from the Post-Closure Care Plan prepared by Huntsman and included in the 2003 and 2015/2016 Renewal Applications.

4 INSPECTION AND MAINTENANCE PROCEDURES

The following sections outline the inspection and maintenance procedures to be taken for NOR units subject to post-closure care at the FHR facility in Odessa, Texas.

4.1 FREQUENCY OF INSPECTION

At least once per month, each of the units that are subject to post-closure care under this plan will be inspected (Facility 37, 38, 63, 67, and 68). The inspector will complete a Post-Closure Facility Inspection Checklist for each unit and will sign and date the checklist. An example of a checklist is included as **Figure 4-1**. The checklist will be made part of the operating record of the facility and kept available for inspection for three years.

4.2 SOIL COVER

Each unit that has a soil cover will be inspected for wind and water erosion, and for any disturbance that may be caused by vehicular traffic. Any disturbances will be noted on the checklist and will be corrected by appropriate maintenance activities.

Appropriate maintenance activities include re-grading the soil, re-compacting the soil, adding additional soil to the unit, any combination of these items, or any other means necessary to restore the soil cover to its original utility.

The result of any maintenance activities will be noted on the next month's checklist.

4.3 CAP LINERS AND GEOMEMBRANES

Each unit that has a liner or geomembrane will be inspected for holes, tears, or abrasions in the liner or membrane that could affect its integrity. Any conditions that could affect the integrity of the liner or geomembrane will be noted on the checklist and will be corrected by appropriate maintenance activities.

Appropriate maintenance activities for the liner include covering the affected area with an additional geomembrane patch (if the original material is a geomembrane), or patching the liner with a heat-sealed or appropriately glued patch (if the original material is a liner, e.g., HDPE) or any other means necessary to return the liner or geomembrane to its original utility.

The result of any maintenance activities will be noted on the next month's checklist.

4.4 CONCRETE CAPS

Any concrete cap installed as part of post-closure care will be inspected monthly for evidence of cracks, settling, or any other loss of integrity. Any conditions that could affect the integrity of the concrete cap will be noted on the checklist and will be corrected by appropriate maintenance activities.

Appropriate maintenance activities include patching cracks with a sealant or pouring additional concrete to remedy settling or any other means necessary to return the concrete cap to its original utility.

The result of any maintenance activities will be noted on the next month's checklist.

4.5 GROUNDWATER MONITORING AND RECOVERY SYSTEMS

Groundwater monitoring and corrective action systems are included in the Compliance Plan section of the permit. All post-closure care requirements for groundwater and groundwater monitoring systems are contained in the permit. No additional requirements are included under the Post-Closure Care Plan.

Figure 4-1
Example of Post Closure Facility Inspection Form

Date/Time:	
Name of Inspector:	

MAINTENANCE

Describe in the space below the results of any maintenance activity performed since the last inspection.

37	Olefin Oil/Water Separator	
38	Styrene/Butadiene Oil/Water Separator	
63	Gulf Seal Ponds	
67	South Flare Pond	
68	South Storage Pond	

COVER/CAP/DIKES/BERMS

Describe in the space below any erosion, gouging, cracking, etc.

37	Olefin Oil/Water Separator	
38	Styrene/Butadiene Oil/Water Separator	
63	Gulf Seal Ponds	
67	South Flare Pond	
68	South Storage Pond	

LINER

For covered liners, describe any areas of exposed liner and the condition of liner. For lined surface impoundments and other exposed liners, describe holes, tears, cracks or evidence of weathering.

37	Olefin Oil/Water Separator	
38	Styrene/Butadiene Oil/Water Separator	
63	Gulf Seal Ponds	
67	South Flare Pond	
68	South Storage Pond	

FLUID RECOVERY

Describe any fluid recover from leak detection systems.

RECOMMENDATIONS

Describe any recommended maintenance.

37	Olefin Oil/Water Separator	
38	Styrene/Butadiene Oil/Water Separator	
63	Gulf Seal Ponds	
67	South Flare Pond	
68	South Storage Pond	

APPENDIX VIII
FINANCIAL ASSURANCE

ITEMS INCLUDED IN THIS APPENDIX:

- Financial Disclosure Cover Letter (pg 1)
- Trust Agreement (pgs 2-10)
- Bond (pgs 11-13)
- Supplemental Agreement (pgs 14-26)
- Notice of Trust Agent Change (pgs 27-28)

FLINT HILLS
resources

February 10, 2026

Mr. Robert Patton, Jr.
Manager, Industrial and Hazardous Waste Permits Section
Texas Commission on Environmental Quality
Building F, MC 130
12100 Park 35 Circle
Austin, Texas 78753

Re: Financial Disclosure Letter for Flint Hills Resources Odessa, LLC
Permit Renewal
Hazardous Waste Permit No. 50290 / Compliance Plan No.
Industrial Solid Waste Registration No. 30142
EPA ID No. TXD980626014
RN 101867554 ; CN 604038646

Dear Mr. Patton:

This letter is furnished to you in response to financial disclosure requirements as applicable under Texas Health and Safety Code Section 361.085 and Title 30, Texas Administrative Code (30 TAC), Section 305.50 to provide assurance that Flint Hills Resources Odessa, LLC has sufficient financial resources.

In keeping with the above law and rule requirements I hereby certify that Flint Hills Resources Odessa, LLC is adequately capitalized and has sufficient financial resources to operate, close, provide post-closure care for and perform corrective action for the above-referenced facility in a safe manner, and in compliance with the permit and all applicable rules.

Flint Hills Resources Odessa, LLC currently provides, as financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet Flint Hills Resources Odessa, LLC's financial assurance obligations the following :

-Trust Agreement, Surety Bond

I am authorized to make these statements on behalf of Flint Hills Resources Odessa, LLC. I understand that the TCEQ may request additional information as part of their review.

Sincerely,

Kevin Deutsch
Treasurer
Flint Hills Resources Odessa, LLC

Figure: 30 TAC §37.301(a)

TRUST AGREEMENT

TRUST AGREEMENT, the "Agreement," entered into as of September 23rd, 2016 by and between Flint Hills Resources Odessa, LLC, a Delaware limited liability company, the "Grantor," and Wells Fargo Bank, National Association, a national bank, the "Trustee."

Whereas, the Texas Commission on Environmental Quality, "TCEQ," an agency of the State of Texas, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a facility(ies) shall provide assurance that funds will be available when needed for closure, post closure, or corrective action of the facility.

Whereas, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facility(ies) identified herein,

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A (on Schedule A, for each facility list the permit number, name, physical and mailing addresses, and the current cost estimate, or portions thereof, for which financial assurance is demonstrated by this Agreement. Identify for each current cost estimate the amount designated for closure, post closure, or corrective action).

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of TCEQ. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee

pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by TCEQ.

Section 4. Payment from the Fund. The Trustee shall make payments from the Fund as the TCEQ executive director shall direct, in writing, to provide for the payment of the costs of closure, post closure, or corrective action of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the TCEQ executive director from the Fund for closure, post closure, or corrective action expenditures in such amounts as the TCEQ executive director shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the TCEQ executive director specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), shall not be acquired or held unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services

rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuations. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the TCEQ executive director a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the TCEQ executive director shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the TCEQ executive director, and the present Trustee by certified mail ten days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the TCEQ executive director to the Trustee shall be in writing, signed by the executive director or the executive director's designee, and the Trustee

shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or TCEQ hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or TCEQ, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the TCEQ executive director, by certified mail within ten days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the TCEQ executive director, or by the Trustee and the TCEQ executive director if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the TCEQ executive director, or by the Trustee and the TCEQ executive director if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the TCEQ executive director issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of Texas.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording

of this Agreement is identical to the wording specified in 30 Texas Administrative Code §37.301(a) as such regulations were constituted on the date first above written.

Flint Hills Resources Odessa, LLC, as Grantor

By _____ Treasurer

Attest: _____

(Title) TREASURY ANALYST

(Seal) NO SEAL

Wells Fargo Bank, National Association, as Trustee

By _____ (Title) Vice. President

Attest: Gloria Gutierrez

(Title)

(Seal) No Seal.

Schedule A
Identification of Facilities and Cost Estimates

Permit Number:	Hazardous Waste Permit 50290
Owners:	Flint Hills Resources Odessa, LLC REXTAC, LLC
Physical Address:	2400 S. Grandview Ave. Odessa, TX 79766
Mailing Address:	2400 S. Grandview Ave. Odessa, TX 79766

Current Cost Estimates:

Closure:	Not Applicable
Post-Closure:	$402,240.00
Compliance Plan:	$677,000.00

Schedule B
Establishment of Fund

This is purely a standby trust which is presently unfunded.

Exhibit A
Designated Individuals to Provide Instructions to the Trustee

Curtis Zachman
Name

Treasurer
Title

Nic Fielden
Name

Treasury Analyst
Title

Launa Shirley
Name

Treasury Analyst
Title

PERFORMANCE BOND

Date bond executed: July 20, 2018.

Effective date: July 20, 2018.

Principal: (legal name and business address of owner or operator)
Flint Hills Resources Odessa, LLC

2400 S. Grandview Ave., Odessa, TX 79766.

Type of organization: (insert "individual," "joint venture," "partnership," or "corporation") LLC.

State of incorporation: Delaware.

Surety(ies): (name(s) and business address(es))
Federal Insurance Company

202B Hall's Mill Road, Whitehouse Station, NJ 08889.

Permit number, name, physical and mailing addresses, and closure, post closure, or corrective action amounts(s) for each facility guaranteed by this bond

SWR No. 30142, Flint Hills Resources Odessa, LLC - 2400 S. Grandview Ave., Odessa, TX 79766
2400 S. Grandview Ave., Odessa, TX 79766, Closure: N/A, Post-Closure: $402,240.00, Corrective Action: $677,000.00
Total penal sum of bond: $ 1,079,240.00.

Surety's bond number: 82467554.

Know All Persons By These Presents, That We, the Principal and Surety(ies) hereto are firmly bound to the Texas Commission on Environmental Quality, hereinafter called TCEQ, in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the appropriate program area, to comply with permit requirements in order to own or operate each facility identified above, and

Whereas said Principal is required to provide financial assurance for closure, post closure, or corrective action as a condition of the permit or other applicable requirements, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, therefore, the conditions of this obligation are such that if the Principal shall faithfully perform closure, post closure, or corrective action, whenever required to do so, of each facility for which this bond guarantees closure or post closure in accordance with the closure plan or post closure plan and other applicable requirements of the permit, or perform corrective action in accordance with the permit or other applicable requirements as may be amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the Principal shall provide alternate financial assurance, as specified in 30 Texas Administrative Code, Chapter 37 (relating to Financial Assurance) and obtain the TCEQ executive director's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the TCEQ executive director from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by the TCEQ executive director that the Principal has been found in violation of the closure, post closure, or corrective action requirements for a facility for which this bond guarantees performance of closure, post closure, or corrective action, the Surety(ies) shall either perform closure, post closure, or corrective action in accordance with the closure plan or post closure plan and other applicable requirements of the permit, or perform corrective action in accordance with the permit or other applicable requirements, or place the amount guaranteed for the facility in the standby trust fund as directed by the TCEQ executive director.

Upon notification by the TCEQ executive director that the Principal has failed to provide alternate financial assurance, as specified in 30 Texas Administrative Code, Chapter 37, and obtain written approval of such assurance from the TCEQ executive director during the 90 days following receipt by both the Principal and the TCEQ executive director of a notice of cancellation of the bond, the Surety (ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund.

The surety(ies) hereby waive(s) notification of amendments to closure plans or post closure plans and other applicable requirements of the permit, or permits requiring corrective action or other applicable requirements for corrective action, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the TCEQ executive director provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the TCEQ executive director, as evidenced by the return receipts.

The principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the TCEQ executive director.

(The following paragraph is an optional rider that may be included but is not required.)

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new closure, post closure, or corrective action amount, provided that the penal sum does not increase by more than 20 percent in any one year, and no decrease in the penal sum takes place without the written permission of the TCEQ executive director.

In Witness Whereof, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording on this surety bond is identical to the wording specified in 30 Texas Administrative Code §37.321 as such regulation was constituted on the date this bond was executed.

Flint Hills Resources Odessa, LLC

Principal

(Signature(s))_____

(Name(s))_____

(Title(s))_____

(Corporate seal)

(Corporate Surety(ies))

(Name and address)
Federal Insurance Company, 202B Hall's Mill Road, Whitehouse Station, NJ 08889

State of Incorporation: Indiana

Liability limit: $ 1,079,240.00

(Signature(s))_____

(Name(s) and title(s)) Wayne G. McVaugh, Attorney-in-Fact

(Corporate seal)

(For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.)

Bond premium: $ 2,051.00

SUPPLEMENTAL AGREEMENT

This Supplemental Agreement dated as of August 24th, 2016 (the "Supplement") is executed by and between Flint Hills Resources Odessa, LLC, a Delaware limited liability company (the "Grantor"), and Wells Fargo Bank, National Association, a national banking association (the "Trustee"), and relates to the Standby Trust Agreement executed by the Grantor and the Trustee as of August 24th, 2016 (the "Trust Agreement"), a copy of which is attached hereto as Exhibit A. Capitalized terms used herein but not defined herein shall have the meanings given to them in the Trust Agreement, but for definitional purposes only.

Recitals.

(a) The Trust Agreement is in the form of trust agreement required by the Texas Commission on Environmental Quality ("TCEQ"), an agency of the State of Texas. Concurrently with the execution of this Supplement, the Grantor and the Trustee are executing the Trust Agreement.

(b) This Supplement serves to clarify certain provisions of the Trust Agreement by establishing additional terms of agreement between the Grantor and the Trustee, but is not intended to diminish or contradict the terms or conditions of the Trust Agreement.

(c) The Trustee would be unwilling to enter into the Trust Agreement unless and until the Grantor first entered into this Supplement.

Agreements.

Section 1. No Duty to Confirm Compliance.

The Trustee shall have no duty to determine if the Grantor is complying with the requirements set forth by the regulations of the TCEQ that the Trust Agreement is based on.

Section 2. Investment.

The Grantor shall execute an Investment Objective Form substantially in the form of Exhibit B to this Supplement. In the absence of delivery of a properly executed Investment Objective, the Trustee shall hold the funds uninvested. The Trustee shall have no responsibility or liability for any loss which may result from any investment or sale of investment made pursuant to this Supplement or any other actions or omissions of the Trustee, other than for gross negligence or willful misconduct. The Trustee is hereby authorized, in making or disposing of any investment permitted by the Trust Agreement or this Supplement, to deal with itself (in its individual capacity) or with any one or more of its affiliates, whether it or any such affiliate is acting as agent of the Trustee or for any third person or dealing as principal for its own account.

Section 3. Tax Reporting.

(a) Tax Reporting. All interest or other taxable income earned from the investment of the Fund in any tax year shall be taxable to Grantor.

(b) Certification of Tax Identification Number. The Grantor shall provide the Trustee with a certified tax identification number by furnishing appropriate form W-9 or W-8 and other forms and documents that the Trustee may reasonably request. The Grantor understands that

if such tax reporting documentation is not so certified to the Trustee, the Trustee may be required by the Internal Revenue Code of 1986, as amended, to withhold a portion of any interest or other income earned on the investment of monies or other property held by the Trustee pursuant to the Trust Agreement.

(c) Liability; Indemnification. To the extent that the Trustee becomes liable for the payment of any taxes in respect of income derived from the investment of the Fund, the Escrow Agent shall satisfy such liability to the extent possible from the Fund. The Grantor shall indemnify, defend and hold the Trustee harmless from and against any tax, late payment, interest, penalty or other cost or expense that may be assessed against the Trustee on or with respect to the Fund and the investment thereof unless such tax, late payment, interest, penalty or other expense was directly caused by the gross negligence or willful misconduct of the Trustee. The indemnification provided by this Section 3(c) is in addition to the indemnification provided in Section 7and shall survive the resignation or removal of the Trustee and the termination of this Supplement and the Trust Agreement.

Section 4. Compensation of the Trustee.

The Trustee shall receive compensation and expense reimbursements for its services hereunder in accordance with the exhibit attached hereto as Exhibit C, which shall be borne by Grantor as per Section 9 and Section 12 of the Trust Agreement.

Section 5. Security Procedure For Funds Transfers.

The Trustee shall confirm each funds transfer instruction received in the name of the Grantor by means of the security procedure selected by the Grantor and communicated to the Trustee through a signed certificate in the form of Exhibit D attached hereto, which upon receipt by the Trustee shall become a part of this Supplement. Once delivered to the Trustee, Exhibit D may be revised or rescinded only by a writing signed by an authorized representative of the Grantor. Such revisions or rescissions shall be effective only after actual receipt and following such period of time as may be necessary to afford the Trustee a reasonable opportunity to act on it. If a revised Exhibit D or a rescission of an existing Exhibit D is delivered to the Trustee by an entity that is a successor-in-interest to such the Grantor, such document shall be accompanied by additional documentation satisfactory to the Trustee showing that such entity has succeeded to the rights and responsibilities of the Grantor under this Supplement and the Trust Agreement.

The Grantor understands that the Trustee's inability to receive or confirm funds transfer instructions pursuant to the security procedure selected by the Grantor may result in a delay in accomplishing such funds transfer, and agrees that the Trustee shall not be liable for any loss caused by any such delay.

Section 6. Additional Powers and Trustee Duties.

In addition to Section [8] of the Trust Agreement, without in any way limiting the powers and discretion conferred upon the Trustee by the other provisions of this Supplement or by law, the Trustee is expressly authorized and empowered:

(a) The Trustee is not a party to, is not bound by, and has no duty to inquire into any agreement other than the Trust Agreement and this Supplement. The Trustee shall have no implied duties beyond the express duties set forth in the Trust Agreement and this Supplement.

(b) The Trustee, in acting hereunder, may assume the genuineness of any written notice, request, waiver, consent, certificate, receipt, authorization, power of attorney, or other paper or document which the Trustee in good faith believes to be genuine and what it purports to be.

(c) In no event shall the Trustee be liable, directly or indirectly, for any (i) damages or expenses arising out of the its services hereunder, provided that the Trustee acts in good faith, as per Section [18] of the Trust Agreement, or (ii) special, indirect, or consequential losses or damages of any kind whatsoever (including without limitation lost profits), even if the Trustee has been advised of the possibility of such damages and regardless of the form of action.

(d) Under no circumstances shall the Trustee be expected or required to risk or advance its own funds in the performance of its duties or the exercise of its rights under the Trust Agreement or this Supplement.

Section 7. Immunity and Indemnification of Trustee.

The immunity and indemnification provisions of Section [18] of the Trust Agreement shall survive the termination of the Trust Agreement and this Supplement and, with respect to claims arising in connection with Trustee's duties while acting as such, the resignation or removal of the Trustee.

Section 8. Merger or Consolidation.

Any corporation or association into which the Trustee may be converted or merged, or with which it may be consolidated, or to which it may sell or transfer all or substantially all of its corporate trust business and assets as a whole or substantially as a whole, or any corporation or association resulting from any such conversion, sale, merger, consolidation or transfer to which the Trustee is a party, shall be and become the successor Trustee under the Trust Agreement and shall have and succeed to the rights, powers, duties, immunities and privileges as its predecessor, without the execution or filing of any instrument or paper or the performance any further act.

Section 9. Force Majeure.

The Trustee shall not be responsible or liable for any failure or delay in the performance of its obligation under this Supplement arising out of or caused, directly or indirectly, by circumstances beyond its reasonable control, including, without limitation, acts of God; earthquakes; fire; flood; wars; acts of terrorism; civil or military disturbances; sabotage; epidemic; riots; interruptions, loss or malfunctions of utilities, computer (hardware or software) or communications services; accidents; labor disputes; acts of civil or military authority or governmental action; it being understood that the Trustee shall use commercially reasonable efforts which are consistent with accepted practices in the banking industry to resume performance as soon as reasonably practicable under the circumstances.

Section 10. Assignments; Transfers.

No assignment or transfer of any interests of the Grantor shall be recognized or given effect until TCEQ and the Trustee shall have received written notice of such assignment or transfer.

Section 11. Notices.

Any notice or other communication required or permitted to be delivered to any party under the Trust Agreement or this Supplement shall be in writing and shall be deemed properly delivered, given and received when delivered (by hand, by registered mail, by courier or express delivery service) or upon written confirmation of receipt (if sent via facsimile) to the address or facsimile telephone number set forth beneath the name of such party below (or to such other

address or facsimile telephone number as such party shall have specified in a written notice given to the other parties:

If to the Grantor:

Flint Hills Resources Odessa, LLC
4111 E. 37th St. N.
Wichita, KS 67220

Attn: Nic Fielden
Fax:

If to TCEQ:

Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711

Attn: Executive Director, MC109
Fax:

If to the Trustee:

Wells Fargo Bank, National Association
Corporate, Municipal and Escrow Solutions

Attn:
Email:

Section 12. Choice of Law.

This Supplement shall be administered, construed and enforced according to the laws of the State of Texas.

Section 13. Termination.

This Supplement shall terminate upon the termination of the Trust Agreement.

(*Signature page to follow.*)

IN WITNESS WHEREOF, the parties hereto have caused this Supplement be executed by their duly authorized officers on the day and year first set forth above.

Flint Hills Resources Odessa, LLC, as Grantor

By: Curtis Zachman

Its: Treasurer

Wells Fargo Bank, National Association, as Trustee

By:_____

Its:_____

IN WITNESS WHEREOF, the parties hereto have caused this Supplement be executed by their duly authorized officers on the day and year first set forth above.

Flint Hills Resources Odessa, LLC, as Grantor (EE)

By: Curtis Zachman

Its: Treasurer

Wells Fargo Bank, National Association, as Trustee

By: _____

Its: Vice President

EXHIBIT A

EXHIBIT B

Investment objective for discretionary accounts

Account information

Account Name:	TBD
Account Number(s):	TBD

Investment objective

Check one	Investment objective	Investment characteristics
☒	SHORT DURATION	• Focus on preservation of principal • Highly liquid • Reasonable risk-adjusted return
☐	FIXEDINCOME ONLY	• Focus on preservation of principal • Subject to some market fluctuations • Longer duration securities

The undersigned, an authorized representative of the company listed below, designates the investment objective, checked, above, as the investment objective for the account(s) described on this form.

This objective supersedes all prior designations, both written and oral, by the company, with respect to the investment objective for the account(s). Wells Fargo will rely on this form in the exercise of its investment discretion until it receives written notice amending or rescinding this designation.

Flint Hills Resources Odessa, LLC

Curtis Zachman, Treasurer

8-26-2016

Date

Wells Fargo Bank, National Association, as _____

Name and Title

Date

EXHIBIT C

Corporate Trust Services

Schedule of fees to provide trustee services

Flint Hills Resources, LP / Texas Commission on Environmental Quality
Standby Regulatory Trust

Acceptance fee	Waived

A one-time fee for our initial review of governing documents, account set-up and customary duties and responsibilities related to the closing. This fee is payable at closing.

Annual administration fee	$5,000.00

An annual fee for customary administrative services provided by the escrow agent, including daily routine account management; cash management transactions processing (including wire and check processing), disbursement of funds in accordance with the agreement, tax reporting for one entity, and providing account statements to the parties. The administration fee is payable annually in advance per escrow account established. The first installment of the administrative fee is payable at closing.

Out-of-pocket expenses	At cost

Out-of- pocket expenses will be billed as incurred at cost at the sole discretion of Wells Fargo.

Extraordinary services	Standard rate

The charges for performing services not contemplated at the time of execution of the governing documents or not specifically covered elsewhere in this schedule will be at Wells Fargo's rates for such services in effect at the time the expense is incurred. The review of complex tax forms, including by way of example but not limited to IRS Form W-8IMY, shall be considered extraordinary services.

Assumptions

This proposal is based upon the following assumptions with respect to the role of trustee:

- Number of escrow accounts to be established: One (1)
- Term of trust: Ongoing
- Number of tax reporting parties: One (1)
- Number of parties to the transaction: Three (3)
- Number of cash transactions (deposits/disbursements): One (1) deposit / Five (5) disbursements
- Fees quoted assume all transaction account balances will be held uninvested or invested in select Wells Fargo deposit products.
- Disbursements shall be made only to the parties specified in the agreement. Any payments to other parties are at the sole discretion and subject to the requirements of Wells Fargo and shall be considered extraordinary services.

Terms and conditions

- The recipient acknowledges and agrees that this proposal does not commit or bind Wells Fargo to enter into a contract or any other business arrangement, and that acceptance of the appointment described in this proposal is expressly conditioned on (1) compliance with the requirements of the USA Patriot Act of 2001, described below, (2) satisfactory completion of Wells Fargo's internal account acceptance procedures, (3) Wells Fargo's review of all applicable governing documents and its confirmation that all terms and conditions pertaining to its role are satisfactory to it and (4) execution of the governing documents by all applicable parties.
- Should this transaction fail to close or if Wells Fargo determines not to participate in the transaction, any acceptance fee and any legal fees and expenses may be due and payable.
- Legal counsel fees and expenses, any acceptance fee and any first year annual administrative fee are payable at closing.

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Corporate Trust Services
Schedule of fees to provide trustee services

Flint Hills Resources, LP / Texas Commission on Environmental Quality
Standby Regulatory Trust

- Any annual fee covers a full year or any part thereof and will not be prorated or refunded in a year of early termination.
- Should any of the assumptions, duties or responsibilities of Wells Fargo change, Wells Fargo reserves the right to affirm, modify or rescind this proposal.
- The fees described in this proposal are subject to periodic review and adjustment by Wells Fargo.
- Invoices outstanding for over 30 days are subject to a 1.5% per month late payment penalty.
- This fee proposal is good for 90 days.

Important information about identifying our customers

To help the government fight the funding of terrorism and money laundering activities, Federal law requires all financial institutions to obtain, verify, and record information that identifies each person (individual, corporation, partnership, trust, estate or other entity recognized as a legal person) for whom we open an account.

What this means for you: Before we open an account, we will ask for your name, address, date of birth (for individuals), TIN/EIN or other information that will allow us to identify you or your company. For individuals, this could mean identifying documents such as a driver's license. For a corporation, partnership, trust, estate or other entity recognized as a legal person, this could mean identifying documents such as a Certificate of Formation from the issuing state agency.

Dated: June 16, 2016
Revised: June 21, 2016

EXHIBIT D

Grantor certifies that the names, titles, telephone numbers, e-mail addresses and specimen signatures set forth in Parts I and II of this Exhibit D identify the persons authorized to provide direction and initiate or confirm transactions, including funds transfer instructions, on behalf of Grantor, and that the option checked in Part III of this Exhibit D is the security procedure selected by Grantor for use in verifying that a funds transfer instruction received by the Escrow Agent is that of Grantor.

Grantor has reviewed each of the security procedures and has determined that the option checked in Part III of this Exhibit D best meets its requirements; given the size, type and frequency of the instructions it will issue to the Escrow Agent. By selecting the security procedure specified in Part III of this Exhibit D, Grantor acknowledges that it has elected to not use the other security procedures described and agrees to be bound by any funds transfer instruction, whether or not authorized, issued in its name and accepted by the Escrow Agent in compliance with the particular security procedure chosen by Grantor.

NOTICE: The security procedure selected by Grantor will not be used to detect errors in the funds transfer instructions given by Grantor. If a funds transfer instruction describes the beneficiary of the payment inconsistently by name and account number, payment may be made on the basis of the account number even if it identifies a person different from the named beneficiary. If a funds transfer instruction describes a participating financial institution inconsistently by name and identification number, the identification number may be relied upon as the proper identification of the financial institution. Therefore, it is important that Grantor take such steps as it deems prudent to ensure that there are no such inconsistencies in the funds transfer instructions it sends to the Escrow Agent.

Part I

Name, Title, Telephone Number, Electronic Mail ("e-mail") Address and Specimen Signature for person(s) designated to provide direction, including but not limited to funds transfer instructions, and to otherwise act on behalf of Grantor

Name	Title	Telephone Number	E-mail Address	Specimen Signature
Curtis Zachman	Treasurer	(316)828-7671	[redacted]	
Nic Fielden	Treasury Analyst	(316)828-7179		
Launa Shirley	Treasury Analyst	(316)828-7552		

Part II

Name, Title, Telephone Number and E-mail Address for person(s) designated to confirm funds transfer instructions

Name	Title	Telephone Number	E-mail Address
Curtis Zachman	Treasurer	(316)828-7671	[redacted]
Nic Fielden	Treasury Analyst	(316)828-7179	
Launa Shirley	Treasury Analyst	(316)828-7552	
Curtis Gibson	Treasury Analyst	(316)828-7631	
Megan Appelhans	Treasury Analyst	(316)828-4749	

Part III

Means for delivery of instructions and/or confirmations

The security procedure to be used with respect to funds transfer instructions is checked below:

☐ *Option 1. Confirmation by telephone call-back*. The Escrow Agent shall confirm funds transfer instructions by telephone call-back to a person at the telephone number designated on Part II above. The person confirming the funds transfer instruction shall be a person other than the person from whom the funds transfer instruction was received, unless only one person is designated in both Parts I and II of this Exhibit D.

☐ CHECK box, if applicable:
If the Escrow Agent is unable to obtain confirmation by telephone call-back, the Escrow Agent may, at its discretion, confirm by e-mail, as described in Option 2.

☒ *Option 2. Confirmation by e-mail*. The Escrow Agent shall confirm funds transfer instructions by e-mail to a person at the e-mail address specified for such person in Part II of this Exhibit D. The person confirming the funds transfer instruction shall be a person other than the person from whom the funds transfer instruction was received, unless only one person is designated in both Parts I and II of this Exhibit D. Grantor understands the risks associated with communicating sensitive matters, including time sensitive matters, by e-mail. Grantor] further acknowledges that instructions and data sent by e-mail may be less confidential or secure than instructions or data transmitted by other methods. The Escrow Agent shall not be liable for any loss of the confidentiality of instructions and data prior to receipt by the Escrow Agent.

☒ CHECK box, if applicable:
If the Escrow Agent is unable to obtain confirmation by e-mail, the Escrow Agent may, at its discretion, confirm by telephone call-back, as described in Option 1.

☐ *Option 3. Delivery of funds transfer instructions by password protected file transfer system only - no confirmation*. The Escrow Agent offers the option to deliver funds transfer instructions through a password protected file transfer system. If Grantor wishes to use the password protected file transfer system, further instructions will be provided by the Escrow Agent. If Grantor chooses this Option 3, it agrees that no further confirmation of funds transfer instructions will be performed by the Escrow Agent.

☐ *Option 4. Delivery of funds transfer instructions by password protected file transfer system with confirmation*. Same as Option 3 above, but the Escrow Agent shall confirm funds transfer instructions by ☐ telephone call-back or ☐ e-mail (must check at least one, may check both) to a person at the telephone number or e-mail address designated on Part II above. By checking a box in the prior sentence, the party shall be deemed to have agreed to the terms of such confirmation option as more fully described in Option 1 and Option 2 above.

Dated this 24th day of August, 2016.

By _____
Name: Curtis Zachman
Title: Treasurer

Fielden, Nic W

From: [redacted]
Sent: Monday, May 16, 2022 11:32 AM
To: [redacted] Lenz, Arnold B; Fielden, Nic W
Subject: Flint Hills Resources Odessa LLC Standby Trust: Notice of Transfer
Attachments: Computershare Client Notification of Transfer.docx

Sent by an external sender

Hello,

Please see the attached notice. There is no action you need to take. Should you have any questions, please do not hesitate to ask.

Thank you,

Christy Magnuson
Assistant Vice President, Relationship Manager > Corporate Trust, US
M +1 612-402-8919

Please note my new email address: [redacted]

Wells Fargo has transferred ownership of substantially all of its domestic corporate trust business to Computershare Trust Company, N.A., and Computershare Delaware Trust Company. Please note that this email is being sent from Computershare or its affiliates using a Wells Fargo email system pursuant to a temporary arrangement. Wells Fargo is not responsible for and has no liability for the content of this email, or for the consequences of any actions taken on the basis of the information provided in this email. Wells Fargo is not liable to you or any other persons to whom this email may be forwarded or who may otherwise receive this email, in any way or for any damages of any kind or under any theory, arising from this email, or your or any other such person's access to or use of or reliance on the information or content contained in this email. The information or content contained in this email is not from Wells Fargo.

Computershare

NOTICE OF TRANSFER OF ROLES FROM WELLS FARGO BANK, NATIONAL ASSOCIATION TO COMPUTERSHARE TRUST COMPANY, NATIONAL ASSOCIATION

Wells Fargo Bank, National Association ("Wells Fargo Bank") acts as Trustee (the "Role" or "Roles") under the Flint Hills Resources Odessa LLC Standby Trust (the "Transaction" or "Transactions"). On March 23, 2021, Wells Fargo Bank announced that it had entered into a definitive agreement with Computershare Trust Company, National Association ("Computershare Trust Company"), Computershare Delaware Trust Company, National Association ("CDTC") and Computershare Limited (collectively, "Computershare") to sell substantially all of its Corporate Trust Services ("CTS") business. The sale to Computershare closed on November 1, 2021, and virtually all CTS employees of Wells Fargo Bank, along with most existing CTS systems, technology, and offices transferred to Computershare as part of the sale. This notice is to inform you that as of May 1, 2022, Wells Fargo Bank has formally transferred its Role(s) under the Transaction(s) to Computershare Trust Company.

Notice dated May 16, 2022.

APPENDIX IX
PRELIMINARY REVIEW – RELEASES FROM SWMUS AND CORRECTIVE ACTION

ITEMS INCLUDED IN THIS APPENDIX:

- Preliminary Review Facility Checklist
- Preliminary Review Unit Checklists
- I. Facility and SWMU Location Maps
- II. Wastes Managed
- III. Evidence of Release
- IV. Pollutant Dispersal Pathways

PRELIMINARY REVIEW

FORMER ODESSA PLANT
2400 S. GRANDVIEW AVE
ODESSA, TEXAS 79766

Prepared for:

FLINT HILLS RESOURCES ODESSA, LLC
3400 South Grandview Avenue
Odessa, TX 79766

Hazardous Waste Permit No. 50290 | SWR No. 30142 | RN101867554 | CN604038646

10 February 2026

SQ Environmental, LLC
PO Box 1991
Austin, Texas 78767-1991
(512) 900-7731
www.SQEnv.com

TABLE OF CONTENTS

Section **Page**

SUMMARY **S-1**

1 INTRODUCTION **1-1**

2 PRELIMINARY REVIEW CHECKLISTS **2-1**

APPENDICIES

Appendix I **Facility and SWMU Location Map**
Appendix II **Wastes Managed**
Appendix III **Evidence of Release**
Appendix IV **Pollutant Dispersal Pathways**

1 INTRODUCTION

The following materials are provided as part of the preliminary review for active and inactive units on the FHR-owned portion of the Odessa Plant. This section conforms to the requirements outlined in Section IX of the Part B renewal application. This Preliminary Review includes the following elements:

- Preliminary Review Facility Checklist
- Preliminary Review Unit Checklists
  - Appendix I – Facility and SWMU Location Map
  - Appendix II – Wastes Managed
  - Appendix III – Evidence of Release
  - Appendix IV – Pollutant Dispersal Pathways

Note information for units closed prior to FHR's ownership that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

2 PRELIMINARY REVIEW CHECKLISTS

Preliminary Review Facility Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Units:

1. RCRA Regulated Units:

NoR No.	Description	Status
23	Fouled Xylene Storage Tank	Closed
69	Container Storage Area	Closed

Note: Closure documentation for NOR No. 23 and 69 is provided in Appendix VI.

2. Solid Waste Management Units:

NoR No.	Description	Status
1	Wastewater Treatment Sludge Landfill	Inactive/Closed
2	Adipic Waste Pile	Inactive/Closed
3	Thermal Treatment Unit	Inactive/Closed
4	East Land Treatment Unit	Inactive/Closed
5	NSI Warehouse Storage	Inactive/Closed
6	Pilot Plant Incinerator	Inactive/Closed
7	West Plant Drum Storage Area	Inactive/Closed
8	Injection Well WDW 16 (Mize#1)	Inactive/Closed
9	Waste Pile Pad	Inactive/Closed
10	Waste Pile Pad	Active
11	Waste Container Storage Area	Inactive/Closure Pending
12	Copper Salt Surface Impoundment	Inactive/Closed
13	Copper Salt Surface Impoundment	Inactive/Closed
14	Copper Salt Waste Pile	Inactive/Closed
15	Phenolic Wastewater Treatment Tank	Inactive/Closed
16	Acid Storage Tank	Inactive/Closed
17	Landfill	Active
18	Olefin “C” Boiler	Inactive/Closed
19	Styrene DNBP Drum Storage Area	Inactive/Closed
20	Waste Oil Storage Tank	Inactive/Closed
24	Storage Tank V-911	Inactive/Closed
28	Storage Tank V-912	Inactive/Closed
29	Injection Well WDW-88 (Mize #2)	Inactive/Closed
30	Injection Well WDW-126 (Mize #3)	Inactive/Closed
31	Injection Well WDW-154 (Mize #4)	Inactive/Closed
32	HMDA Waste Pile	Inactive/Closed
35	Styrene Super Heater (Boiler)	Inactive/Closed
36	West Land Treatment Unit	Inactive/Closed

37	Olefin Oil/Water Separator	Post Closure Care
38	Styrene/Butadiene Oil/Water Separator	Post Closure Care
39	Adipic Acid Plant Incinerator	Inactive/Closed
40	Adipic Acid Plant Incinerator	Inactive/Closed
41	Adipic Acid Plant Incinerator	Inactive/Closed
44	Styrene Tar Pits	Inactive/Closed
45	Oil Storage Tank (Olefin Area)	Inactive/Closed
46	Styrene/Butadiene Oil Storage Tank	Inactive/Closed
47	Adipic Acid Plant Wastewater Tank	Inactive/Closed
48	Adipic Acid Outfall Pond	Inactive/Closed
49	Ammonia Oil/Water Separator	Inactive/Closed
50	HMD Wastewater Storage Tank	Inactive/Closed
51	Styrene Tar Storage Tank	Inactive/Closed
52	Copper Solvent Pit	Inactive/Closed
63	Gulf Seal Ponds	Post Closure Care
64	Wastewater Treatment Facility	Inactive/Closed
65	Injection Pond	Inactive/Closed
66	North Flare Pits	Inactive/Closed
67	South Flare Pond	Post Closure Care
68	South Storage Pond	Post Closure Care
70	Fouled Naptha Tank	Inactive/Closed
71	Tank	Inactive/Closed
72	R&D Sump	Active
73	Waste Treatment Unit – Butadiene Wastewater Lagoon	Inactive/Closed
74	“C” Boiler Horizontal Tank	Inactive/Closed
75	DOX Oil Tank	Inactive/Closed
76	Olefin “C” Boiler Storage Tank	Inactive/Closed
77	Injection Tank	Inactive
78	Wastewater Surge Tank	Active
79	Wastewater Surge Tank	Active
80	Wastewater Surge Tank	Active
81	Wastewater Surge Tank	Active
82	Injection Pond	Inactive/Closed
83	West Side Drainage Area	Inactive/Closed
84	Recovery Heptane Tank TK-45	Inactive/Closed
85	Container Storage at "C" Boiler Feed Prep	Inactive/Closed
86	Tank – Surface Dewater Pad at Old HMD Cooling Tower	Active
87	Container Storage Area (West of Frac. 69)	Active
88	Container Storage Area (North of Frac. 69)	Active
89	Groundwater Storage Tank – West	Active
90	Groundwater Storage Tank – East	Active
92	Modifier Sump	Inactive/Closed
93	Bundle Wash Pad Tank	Inactive/Closed
95	DOX Unit Wastewater/Oil Storage	Active
96	West Side Bundle Cleaning Area	Active
99	SRT Tar Storage	Active
100	Crude to Rail Container Storage Area	Active
101	Surface Tank	Active

II	Playa Lake Impoundment	Inactive/Closed
K	Filter Dump Sump	Inactive/Closed
Y	Sump at Sandblast Solvent Rinse Pad	Inactive/Closed

B. Reviewed Documents:

3. RCRA: Part A 2026 Renewal
   Part B 2026 Renewal
   Permit No. HW – 50290

4. CERCLA: Not Applicable

5. Inspection Reports: Not Applicable

6. Enforcement Actions: Not Applicable

7. Exposure Information: Not Applicable

8. Other Information: Investigation Reports, Assessment Reports, Closure Documents, Risk Assessment Reports, and Work Plans as follows:

- East Plant Drum Storage Area Closure Certification Report, August 1990;
- Foundation Investigation Ammonia Plant, September 1991;
- South Storage Pond Clean Closure Plan with Part B Permit Application, September 1991;
- Facility 22 Sodium Land-Spreading Area Sampling and Analysis Report, February 1993;
- Monahans Draw Investigation Report, June 1993;
- Facility 05 NSI Warehouse, July 1993;
- RCRA Facility Investigation Work Plan, June 1994;
- Soils Risk Assessment, July 1994;
- Facility 61Triethyl Aluminum Storage Tank, August 1994;
- Risk Assessment Report, September 1994;
- Pilot Plant Incinerator Closure Report, October 1995;
- Waste Removal Report - HMDA Waste from HMDA Waste Pile (Facility No. 32) - Adipic Acid Waste from Adipic Acid Pile (Facility 02), July 1996;
- Risk Assessment of Waste Material in Solid Waste Management Unit Facilities 01, 36, 44, and 66, July 1996;
- Facility 39 Adipic Acid Plan Incinerator (orphan) Closure Certification Report, October 1996;
- Waste Removal Report and Site Stabilization Report -Styrene Tar Pits (Facility No. 44), November 1996;
- RCRA Facility Investigation and Risk Assessments for Facility 04 -East Land Treatment Unit and Facility 10 - Bulk Storage Area, February 1997;
- Styrene, Butadiene, Oil/Water Separator Phase II Risk Based Plan and Report,

March 1997;

- South Storage Pond Phase II Closure Plan and Report, February 1998;
- Bulk Storage Area Risk Based Plan, August 1998;
- Facility 14 Copper Salt Waste Pile Closure Certification/Final Report, December 1999;
- Facility 07 West Drum Storage Area Phase II Closure Plan and Report, June 2000;
- Facility 24 Fouled Xylene Storage Tank (V-911) Closure Plan and Report, June 2000;
- Facility 63 Gulf Seal Ponds Phase II Closure Plan and Report, June 2000;
- Facility 65 Injection Pond Phase II Closure Plan and Report, June 2000;
- Facility 63 Modifications to Gulf Seal Ponds Phase II Closure Plan and Report, November 2000;
- Facility Y Sump at the Sandblast Solvent Rinse Pad Closure Plan and Report, November 2000;
- Facility 33 PCB Container Storage Building Closure Certification Report, March 2001;
- Facility 40 Adipic Acid Plan Incinerator (orphan) Closure Certification Report, March 2001;
- Facility 41 Adipic Acid Plan Incinerator (orphan) Closure Certification Report, March 2001;
- Facility 92 PE Modifier Sump, April 2002;and
- Facility 35 Styrene Super Heater, November 2002.
- Facility 23 Fouled Xylene Storage Tank V-2109 Closure Certification Letter Report, July 2009
- TCEQ Acceptance of Facility 23 Fouled Xylene Storage Tank V-2109 Closure Certification Letter Report, October 2009
- Corrective Measures Implementation Work Plan for Monitored Natural Attenuation, April 2009
- Facility 69 Container Storage Area Closure Certification Report, April 2010

C. Summary: See Unit Checklists

D. Recommended Action: No Further Action – See Unit Checklists

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Wastewater Treatment Sludge Landfill

B. NoR No: 1

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1962 to 1991

E. Wastes Managed: See Table 1 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: RFI conducted and unit closed under Risk Reduction Program by prior owner.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ in the following separate reports:

- RCRA Facility Investigation Work Plan, June 1994;
- Soils Risk Assessment, July 1994;
- Risk Assessment Report, September 1994;and
- Risk Assessment of Waste Material in Solid Waste Management Unit Facilities 01, 36, 44 and 66, July 1996.

H. Summary: Unit covered in Soil Risk Assessment and "Waste in Place" Risk Assessment, as referenced above. Closed as part of RFI Project 1 on 2/20/1996. The TCEQ approved the Waste-in-Place Risk Assessment on December 20, 1996. Proof of deed recordation for this unit was submitted to the TCEQ in a letter dated March 7, 1997 and the TCEQ approved the termination of corrective action on March 18, 1997.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Adipic Acid Waste Pile

B. NoR No: 2

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1966 to 1999

E. Wastes Managed: See Table 2 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: RFI conducted and unit closed under Risk Reduction Program

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under closure process :

- Waste Removal Report - HMDA Waste from HMDA Waste Pile (Facility No. 32) - Adipic Acid Waste from Adipic Acid Pile (Facility 02), July 1996.

H. Summary: Unit covered in Closure Report. TCEQ approved Closure Report October 10, 2000. Closure certification approved on 02/23/1999.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Thermal Treatment Unit

B. NoR No: 3

C. Description: Incineration

D. Dates of Operation: 1977 to 1988

E. Wastes Managed: See Table 3 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. A deed certification was recorded 1988. Unit closed in 1988. Certified closed by the TCEQ (formerly TNRCC) on 2/23/1999.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: East Land Treatment Unit

B. NoR No: 4

C. Description: Listed in 1991 Permit Application as a unit

D. Dates of Operation: 1977 to 1991

E. Wastes Managed: See Table 4 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release. The following report was competed and submitted for this unit:

- RCRA Facility Investigation and Risk Assessments for Facility 04 - East Land Treatment Unit and Facility 10- Bulk Storage Area, February 1997.

G. Pollutant Dispersal Pathways: See above report.

H. Summary: Certified closed by TCEQ (former TNRCC) on 10/21/1997. See above report reference.

I. Recommended Action: No further action warranted. Unit is closed.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: NSI Warehouse Storage

B. NoR No: 5

C. Description: 3000 square foot structure used for storage

D. Dates of Operation: 1987 to 1993

E. Wastes Managed: No waste managed; unit was closed in 1993.

F. Evidence of Release: No evidence of a release. Unit was closed in 1993.

G. Pollutant Dispersal Pathways: No evidences of a release

H. Summary: Certified closed by TCEQ (formerly TNRCC) on 7/26/1993

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Pilot Plant Incinerator

B. NoR No: 6

C. Description: Orphan Unit requiring no action under the VSI; later required to have closure documentation

D. Dates of Operation: 1978 to 1999

E. Wastes Managed: See Table 6 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. Deed certification was recorded in 1988. Certified closed by the TCEQ (formerly TNRCC) on 02/23/1999.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: West Plant Drum Storage Area

B. NoR No: 7

C. Description: Active in 1988, "Clean Closure" approved in 1989, Phase II Closure Plan Approved in 2000, Deed certification recorded in 2000

D. Dates of Operation: 07/28/87 to 2000

E. Wastes Managed: See Table 7 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. Certified closed by TCEQ on 8/30/2000. Deed certification recorded in 2000

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Well WDW 16 (Mize #1)

B. NoR No: 8

C. Description: UIC-permitted unit for deep well injection

D. Dates of Operation: 1987 to 2013

E. Wastes Managed: See Table 8 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit was closed as of 07/11/2013. A notice was placed on the deed in August, 2013.

I. Recommended Action: No further action warranted.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Waste Pile Pad

B. NoR No: 9

C. Description: Capacity = 222 cu. Yards; Active in 1988, Clean Closure Plan in 1994, Risk Plan in 1998, Certification Approved in 1999, Permit Mod to change financials in 02/15/2002

D. Dates of Operation: 02/14/90 to 1999

E. Wastes Managed: See Table 9 of Appendix II and NOR of Part A Application , Attachment F

F. Evidence of Release: No evidence of release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RFI Unit (SWMU) RRS2 Closure for soil. A notice was recorded on the deed. No post-closure care requirements. The following document was prepared and submitted to the TCEQ (formerly TNRCC):

- Soils Risk Assessment, July 1994

Closed as a Part B permitted hazardous unit on 02/10/1999. Reopened for Class 1 and 2 waste only.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Waste Pile Pad

B. NoR No: 10

C. Description: SWMU listed at a later date and addressed under the RFI Process

D. Dates of Operation: 1981 to 1997

E. Wastes Managed: See Table 10 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: RFI conducted and unit closed under Risk Reduction Program. The following report was prepared and submitted to the TCEQ (formerly TNRCC):

- RCRA Facility Investigation and Risk Assessments for Facility 04 - East Land Treatment Unit and Facility 10 - Bulk Storage Area, February 1997

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ under a separate report as referenced above.

H. Summary: Unit addressed under RFI Program and closed during 1996. No remedial action required as approved by TCEQ (formerly TNRCC) on 10/21/1997. Unit is no longer in service but is listed as Active on the NOR.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Waste Container Storage Area

B. NoR No: 11

C. Description: Inactive Unit - Initial service began on 8/16/93

D. Dates of Operation: 8/16/1993 to 1997

E. Wastes Managed: See Table 11 of Appendix II and NOR of Part A Application , Attachment F

F. Evidence of Release: No evidence of release indicated

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit is no longer in service but is listed as Active on the NOR.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Copper Salt Surface Impoundment

B. NOR No: 12

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation.

D. Dates of Operation: 1965 to 1999

E. Wastes Managed: See Table 12 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. Closure Plan for unit prepared during 1994 and approved by the TCEQ in 1999. Deed certification was recorded and accepted by TCEQ on 2/18/2000.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Copper Salt Surface Impoundment

B. NoR No: 13

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1956 to 1999

E. Wastes Managed: See Table 13 of Appendix II and NOR of Part A Application , Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. Closure Plan for unit prepared during 1994 and approved by the TCEQ during 1999. Deed certification was recorded was accepted by TCEQ on 2/18/2000.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Copper Salt Waste Pile

B. NoR No: 14

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1966 to 1999

E. Wastes Managed: See Table 14 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. Closure Plan for unit prepared in 1994 and approved by the TCEQ in 1999. Deed certification was recorded and accepted by TCEQ on 2/18/2000.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Phenolic Wastewater Treatment Tank

B. NoR No: 15

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1977 to 1993

E. Wastes Managed: See Table 15 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TNRCC) under the VSI. Closure Plan for unit prepared and approved by the TCEQ. The unit was closed and a deed certification was recorded which was accepted by TCEQ on 12/17/1993.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Acid Storage Tank

B. NoR No: 16

C. Description: Initially active in 1988, Inactive/Closed in 1991, Closure Certification approved in 1990, Interim Status Facility

D. Dates of Operation: 1987 to 1990

E. Wastes Managed: See Table 16 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: No further action required for unit by TCEQ (formerly TCEQ) under the VSI. Closure Plan for unit prepared and approved by the TCEQ in 1990. The unit was closed. A deed certification was recorded which was accepted by TCEQ on 11/21/1990.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.
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Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Landfill

B. NoR No: 17

C. Description: Originally active on 6/10/1976 as a Class II Landfill

D. Dates of Operation: 1964 to present date

E. Wastes Managed: See Table 17 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release. Solid, Non-hazardous Class II Landfill

G. Pollutant Dispersal Pathways: Not Applicable.

H. Summary: Solid, Non-hazardous Class II Landfill that will be closed as landfill. Current status is Active.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Olefin "C" Boiler

B. NoR No: 18

C. Description: Originally active in 1988, inactive in 2002, report submitted 01/2002, extension for closure in 2002. Closure approved on 10/16/2003.

D. Dates of Operation: 1987 to 2003

E. Wastes Managed: See Table 18 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of release.

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Original report was submitted to the TCEQ (formerly TNRCC) in 2001. An extension for closure was requested during 2002. Closure approved on 10/16/2003.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Styrene DNBP Drum Storage Area

B. NoR No: 19

C. Description: Unit closed outside corrective action

D. Dates of Operation: 07/28/1987 to 2003

E. Wastes Managed: See Table 19 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Closure report submitted to TCEQ (formerly TNRCC) in 2002. The unit was closed in 2003.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Waste Oil Storage Tank

B. NoR No: 20

C. Description: Inactive 1988, 1991, Certification for Closure approved 1993

D. Dates of Operation: 1987 to 1993

E. Wastes Managed: See Table 20 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Certification for closure of this Unit approved by the TCEQ in 1993.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Fouled Xylene Storage Tank V-2109

B. NoR No: 23

C. Description: Inactive 1988, 1991, Certification for Closure approved 1993

D. Dates of Operation: 1987 to 2009

E. Wastes Managed: See Table 20 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: A Closure Certification Letter Report dated 10/6/2009 was submitted to the TCEQ describing the closure activities for this tank. Closure activities were completed in general accordance with the agency-approved 9/15/2003 Closure Plan for Fouled Xylene Storage Tank V-2109 submitted with the 2003 renewal application. The TCEQ approved the Closure Certification Letter Report in a letter dated 10/27/2009. Closure information for this unit is included in Appendix VI of this Preliminary Review.

I. Recommended Action: No further action warranted

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Storage Tank V-911

B. NoR No: 24

C. Description: Inactive in 1988, "Clean Closure Plan" Approved in 1991, Closure Plan and Report approved in 2000, Deed Certification in 2000

D. Dates of Operation: 1988 to 2000

E. Wastes Managed: See Table 21 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: A "Clean Closure" plan was approved by the TCEQ (formerly TNRCC) on 6/12/1991. Certified closed by TNRCC 6/14/00. A deed certification was recorded which was approved by TCEQ on 11/07/2000.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Storage Tank V-912

B. NoR No: 28

C. Description: Inactive in 1988, "Clean Closure Plan" approved in 1992,Closure Plan Report approved in 2000

D. Dates of Operation: 1988 to 1992

E. Wastes Managed: See Table 22 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: "Clean Closure Plan" submitted to the TCEQ (formerly TNRCC) on May 21, 1992. The Closure Plan and Report were approved by the TCEQ on 6/14/2000.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.
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Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Well WDW-88 (Mize #2)

B. NoR No: 29

C. Description: Active in 1991; P&A on 08/02/2001

D. Dates of Operation: 1991 to 2001

E. Wastes Managed: See Table 23 of Appendix II and NOR of Part A Application , Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Injection Well WDW-88 underwent P&A on 8/02/2001; permit was revoked and unit was closed on 01/22/2002. A deed notice was recorded.

I. Recommended Action: No further action required

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Well WDW-126 (Mize #3)

B. NoR No: 30

C. Description: Active in 1991; P&A on 07/23/2001

D. Dates of Operation: 1991 to 2001

E. Wastes Managed: See Table 24 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Injection Well WDW-126 underwent P&A on 7/23/2001; permit was revoked and unit was closed on 01/22/2002. A deed notice was recorded.

I. Recommended Action: No further action required

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Well WDW-154 (Mize #4)

B. NoR No: 31

C. Description: Active in 1991; P&A on 07/13/2001

D. Dates of Operation: 1991 to 2001

E. Wastes Managed: See Table 25 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Well WDW-154 underwent P&A on 7/13/2001; permit was revoked and unit was closed on 01/22/2002. A deed notice was recorded.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: HMDA Waste Pile

B. NoR No: 32

C. Description: SWMU listed in 1991Permit and addressed under the RFI Process

D. Dates of Operation: 1974 to 1996

E. Wastes Managed: See Table 26 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release. Unit investigated as part of RFI Project 1. Unit closed under Risk Reduction Program. Summary report prepared for waste removal was submitted to the TCEQ (formerly TNRCC) that includes the following:

- Soils Risk Assessment, July 1994, and
- Waste Removal Report - HMDA Waste from HMDA Waste Pile (Facility No. 32) -Adipic Acid Waste from Adipic Acid Pile (Facility 02), July 1996.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated as referenced above and results presented to TCEQ under separate reports.

H. Summary: Unit covered in Soil Risk Assessment and closed on 3/18/2003.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Styrene Super Heater (Boiler)

B. NoR No: 35

C. Description: Unit Closed Outside of Corrective Action

D. Dates of Operation: 1978 to 2003

E. Wastes Managed: See Table 27 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not applicable

H. Summary: Closure Report Approved in 2003

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: West Land Treatment Unit.

B. NoR No: 36

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1978 to 1996

E. Wastes Managed: See Table 28 of Append ix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFI Project 2 conducted and unit closed under Risk Reduction Program. Risk assessment conducted and submitted to TCEQ (formerly TNRCC) in the following report:

- Risk Assessment of Waste Material in Solid Waste Management Unit Facilities O1, 36, 44, and 66, July 1996.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ under a separate report.

H. Summary: Unit covered as Risk Assessment as indicated in the above report. Unit certified closed by TCEQ (formerly TNRCC) on 12/20/1996.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Olefin Oil/Water Separator

B. NoR No: 37

C. Description: Interim Status, Active in 1991, Inactive in 1993, Closure in 1998, Deed Certification in 1999, Permit Mod for Closure on 7/19/1999

D. Dates of Operation: 1990 to 1998

E. Wastes Managed: See Table 29 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: See below.

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Waste was cleaned out and demolished concrete was left in place. Clay-net liner placed over unit. Final crown consists of caliche cover. The unit was closed under RRS3 Closure on 12/18/1998. Groundwater addressed under the Compliance Plan. Included in current Post Closure Care (PCC) Plan. Groundwater is monitored under the Compliance Plan.

I. Recommended Action: No further action warranted

**Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Styrene/Butadiene Oil/Water Separator

B. NoR No: 38

C. Description: Interim Status, Inactive in 1991, Closure in 1998, Certification in 1998, A deed certification was recorded in 1999,Permit Mod for Closure on 7/19/99,Permit Amend for PCC on 2/15/99

D. Dates of Operation: 02/06/1990 to 1998

E. Wastes Managed: See Table 30 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: See below

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Waste was cleaned out and demolished concrete was left in place. Clay-net liner placed over unit. Final crown consists of caliche cover. The unit was closed under RRS3 Closure on 12/18/1998. This unit is included in current Post Closure Care (PCC) Plan.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Adipic Acid Plant Incinerator

B. NoR No: 39

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1968 to 2000

E. Wastes Managed: See Table 31 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Closed in 2000 with a deed certification recorded. The deed certification was approved by the TCEQ (formerly TNRCC) on 11/07/2000.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Adipic Acid Plant Incinerator

B. NoR No: 40

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1968 to 2001

E. Wastes Managed: See Table 32 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Closed in 2000 and a deed certification was recorded. Closure Certification accepted by TCEQ (formerly TNRCC) on 4/24/2000. The document includes the following:

- Facility 40 Adipic Acid Incinerator (orphan) Closure Certification Report, March 2001

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Adipic Acid Plant Incinerator

B. NoR No: 41

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1968 to 2000

E. Wastes Managed: See Table 33 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Closed in 2000 and a deed certification was recorded. Closure certification accepted by the TCEQ (formerly the TNRCC) on 04/24/2000. The closure report includes the following documents:

- Facility 41 Adipic Acid Plan Incinerator (orphan) Closure Certification Report, March 2001.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Styrene Tar Pits

B. NoR No: 44

C. Description: SWMU listed in 1991Permit and addressed under the RFI Process

D. Dates of Operation: 1962 to 1996

E. Wastes Managed: See Table 34 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFI Project 1 conducted and unit closed under Risk Reduction Program.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ under a separate report that includes the following:

- Risk Assessment of Waste Material in Solid Waste Management Unit Facilities 01, 36, 44, and 66, July 1996.
- Waste Removal and Site Stabilization Report – Styrene Tar Pits (Facility NO. 44) submitted to TCEQ on May 29, 1997. This report was approved by the TCEQ on October 10, 2000.

H. Summary: Unit covered in Soil Risk Assessment and is closed.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Oil Storage Tank (Olefin Area)

B. NoR No: 45

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1991 to 1996

E. Wastes Managed: See Table 35 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFI Project No. 2 conducted and unit closed under Risk Reduction Program

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ under a separate report.

H. Summary: Unit covered in Soil Risk Assessment and certified closed by the TCEQ (formerly TNRCC) on 12/20/1996.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.
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Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Styrene/Butadiene Oil Storage Tank

B. NoR No: 46

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1991 to 1996

E. Wastes Managed: See Table 36 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFl Project No.2 conducted and unit closed under Risk Reduction Program.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI Project No. 1 and results presented to TCEQ under a separate report, Soils Risk Assessment. The TCEQ approved the Soils Risk Assessment on December 20, 1996.

H. Summary: Unit covered in Soil Risk Assessment and is closed.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Adipic Acid Plant Wastewater Tank

B. NoR No: 47

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1968 to 1999

E. Wastes Managed: See Table 37 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Closure Plan submitted to TCEQ (formerly TNRCC) on 12/13/1994 Closure Plan approved on 03/01/1999.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Adipic Acid Outfall Pond

B. NoR No: 48

C. Description: Inactive 12/01/1978

D. Dates of Operation: 1965 to 1978

E. Wastes Managed: See Table 38 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit status is Inactive.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Ammonia Oil/Water Separator

B. NoR No: 49

C. Description: SWMU added at a later date and addressed under the RFI Process

D. Dates of Operation: 1965 to 1997

E. Wastes Managed: See Table 39 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFI conducted and unit closed under Risk Reduction Program.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ under a separate report.

H. Summary: Facility 49 was added as RFI Project 5 in the RFI Work Plan Addendum. The RCRA Facility Investigation and Soils Risk Assessment for RFI Project 5 was submitted to TCEQ on December 22, 1997. On April 3, 2001, the TCEQ approved the RFI Report for Project 55. Deed recordation for these unit was submitted July 3, 2001 and accepted by the TCEQ on November 13, 2001.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: HMD Wastewater Storage Tank

B. NoR No: 50

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation.

D. Dates of Operation: 1968 to 1999

E. Wastes Managed: See Table 40 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Submitted a closure plan to the TCEQ (formerly TNRCC) for this unit in 1994. The Closure Plan was approved in 1999. The unit is closed.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Styrene Tar Storage Tank

B. NoR No: 51

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1968 to 1999

E. Wastes Managed: See Table 41 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Submitted a closure plan to the TCEQ (formerly TNRCC) for this unit in 1994. The Closure Plan was approved in 1999. The unit is closed.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Copper Solvent Pit

B. NoR No: 52

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation. Unit is Inactive.

D. Dates of Operation: 1958 to 1982

E. Wastes Managed: See Table 42 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: The unit status is Inactive.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Gulf Seal Ponds

B. NoR No: 63

C. Description: Interim Status, Inactive in 1991, Closure Certification in 2001, Deed Certification in 2001.

D. Dates of Operation: 1990 to 2001

E. Wastes Managed: See Table 43 of Appendix II and NOR of Part A Application, Attachment F. Previous waste was excavated and solidified, and placed back in the unit.

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Investigated as part of the RFI process, sludge was removed and stabilized and placed back in impoundment. Unit was certified closed by TCEQ (formerly TNRCC) on 2/09/2001, and is included in current PCC Plan

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Wastewater Treatment Facility

B. NoR No: 64

C. Description: Active in 1991, Closure Plan in 1995, Approved in 2000, deed certification recorded in 2000

D. Dates of Operation: 02/14/90 to 2000

E. Wastes Managed: See Table 44 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: The unit was closed on 10/10/2000.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Pond

B. NoR No: 65

C. Description: Interim Status, Active in 1991, Closure Certification in 2000, deed certification recorded in 2000, Permit Amend for PCC on 2/15/1999

D. Dates of Operation: 1990 to 2000

E. Wastes Managed: See Table 45 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Old liner material was removed, installed leak detection equipment, and the basin was relined. The unit was certified closed by TCEQ (formerly TNRCC) on 06/14/2000. Post Closure Care not required for this unit, and is not included in PCC in Part B Permit effective 3/01/2005.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: North Flare Ponds

B. NoR No: 66

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1958 to 1996

E. Wastes Managed: See Table 46 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFI Project No.1 conducted and unit closed under Risk Reduction Program as listed in the following documents:

- Risk Assessment Report, September 1994; and
- Risk Assessment of Waste Material in Solid Waste Management Unit Facilities 01, 36, 44, and 66, July 1996.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFl and results presented to TCEQ under a separate report.

H. Summary: Deed Recordation indicated in 1991 Permit Application. Unit covered in Soil Risk Assessment in the documents listed above. The unit was closed as a hazardous surface impoundment on 12/20/1996. The unit was reopened as a class 2 landfill and is current status is Active.

I. Recommended Action: No further action warranted

*Note information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: South Flare Pond

B. NoR No: 67

C. Description: Interim Status in 1991; Closure Certification in 1998; deed certification recorded in 1999; Permit Modification for Closure on 07/19/1999; Permit Amendment for PCC on 02/15/1999.

D. Dates of Operation: 02/14/1990 to 1998

E. Wastes Managed: See Table 47 of Appendix II and NOR of Part A Application, Attachment F. Managed Stormwater Runoff

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Deed Recordation indicated in 1991 Permit Application. Landfill Closure under RRS3 Closure on 12/15/1998. Site conditions addressed under RFI. lmpoundment was backfilled with debris and soils. A clay liner was placed over the unit and compacted. Unit is currently included in PCC Plan.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: South Storage Pond

B. NoR No: 68

C. Description: Interim Status, Closure Plan in 1998, Approved in 1999, Deed Certification in 1999

D. Dates of Operation: 02/14/1990 to 1999

E. Wastes Managed: See Table 48 of Appendix II and NOR of Part A Application, Attachment F. Surge capacity for waste water treatment system

F. Evidence of Release: Investigated as part of RFI process.

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Former wastewater retention pond that was investigated during RFI. The unit was closed for previous use, relined, and is now used as a TRRC approved brine pond. Unit is currently included in PCC Plan.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Container Storage Area

B. NoR No: 69

C. Description: Covered area; maximum capacity not to exceed 700 55-gallon drums; Active in 1991, Permitted HWMU, Permit Amend for 4 new Waste Streams on 10/1/2002, Permit Amend for 10 New and Removed 8 Waste Streams on 12/2/2002

D. Dates of Operation: 1991 to 2010

E. Wastes Managed: See table 49 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: None. A Closure Certification Letter Report dated 4/26/2010 was submitted to the TCEQ describing the closure procedures for this unit. Closure activities were completed in general accordance with the 9/10/2003 Closure Plan Container Storage Area – NOR 69 submitted with the 2003 renewal application. No releases were observed from the unit. The TCEQ approved the Closure Certification Letter Report in a letter dated 10/27/2009.

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit was closed in 2010.

I. Recommended Action: No further action warranted.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Fouled Naptha Tank

B. NoR No: 70

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1991 to 2000

E. Wastes Managed: See Table 50 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Letter Closure to TCEQ (formerly TNRCC) with change of service - 1999; closed in 2000; approved by TCEQ in 2000. The unit was reopened on 10/10/2000 for non-hazardous waste and is currently listed as an Active unit.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Tank

B. NoR No: 71

C. Description: Inactive 02/15/2000, storage bulking and/or transfer

D. Dates of Operation: 1991 to 2000; Inactive.

E. Wastes Managed: See Table 51 of Appendix II and NOR of Part A Application, Attachment F. Miscellaneous non-hazardous wastes

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit status is Inactive

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: R&D Sump

B. NoR No: 72

C. Description: SWMU added at a later date and addressed under the RF1 Process

D. Dates of Operation: 1991 to 1997

E. Wastes Managed: See Table 52 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: RFI Project No. 5 conducted at this unit closed under Risk Reduction Program as indicated with the following document:

- RCRA Facility Investigation and Risk Assessment for RFI Project 5, December 22, 1997.
- Approved Closed by TCEQ 12/22/97. Reactivated to manage nonhazardous wastewaters.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ (formerly TNRCC) under a separate report as indicated above.

H. Summary: Unit covered in RFI and Risk Assessment as referenced above. Unit status is currently listed as Active.

I. Recommended Action: No further action warranted.

Note:

1. In the 2005 Compliance Plan with the TCEQ, this unit was listed as a RCRA-regulated Unit subject to Compliance Monitoring. This unit is not believed to be a RCRA-permitted unit and should have been noted as a SWMU subject to the Corrective Action Program instead. This is noted in the 2014 renewal application.

2. Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Waste Treatment Unit- Butadiene Wastewater Lagoon

B. NoR No: 73

C. Description: Inactive Unit 02/15/2000

D. Dates of Operation: 1991 to 2000

E. Wastes Managed: See Table 53 of Appendix II and NOR of Part A Application, Attachment F. Manages Non-hazardous wastewater.

F. Evidence of Release: RFI Project No. 5 conducted at this unit closed under Risk Reduction Program as indicated with the following document:

- RCRA Facility Investigation and Risk Assessment for RFI Project 5, December 22, 1997.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ (formerly TNRCC) under a separate report as indicated above.

H. Summary: Unit covered in RFI and Risk Assessment as referenced above. Unit is closed.

I. Recommended Action: No further action warranted.

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: "C" Boiler Horizontal Tank

B. NoR No: 74

C. Description: Active on 03/30/95 - RCRA Permit Exempt W.W.T.

D. Dates of Operation: 1995 to 2004

E. Wastes Managed: See Table 54 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. Tank that is closed.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: DOX Oil Tank

B. NoR No: 75

C. Description: Active on 03/30/95 - RCRA Permit Exempt W.W.T.

D. Dates of Operation: 1991 to 2004

E. Wastes Managed: See Table 55 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. Tank that is closed.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Olefin "C" Boiler Storage Tank/Vertical Tank at “C” Boiler Feed Prep Area

B. NoR No: 76

C. Description: Unit closed outside of corrective action

D. Dates of Operation: 1995 to 2002

E. Wastes Managed: See Table 56 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Was RCRA permit exempt – WWT. Closed and closure report approved by TCEQ (formerly TNRCC) on 6/06/2002.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR’s ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Tank

B. NoR No: 77

C. Description: RCRA Permit Exempt W.W.T.; Inactive Unit

D. Dates of Operation: 1999 to 2004

E. Wastes Managed: See Table 57 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. that is no longer in operation and has an Inactive status.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Wastewater Surge Tank

B. NoR No: 78

C. Description: Active 03/30/95 - RCRA Permit Exempt W.W.T.

D. Dates of Operation: 1991 to present. Active Unit

E. Wastes Managed: See Table 58 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. Active Unit

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

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Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Wastewater Surge Tank

B. NoR No: 79

C. Description: RCRA Permit Exempt W.W.T.

D. Dates of Operation: 1995 to present; Active Unit

E. Wastes Managed: See Table 59 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. Tank. Active Unit.

I. Recommended Action: No further action required

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Wastewater Surge Tank

B. NoR No: 80

C. Description: RCRA Permit Exempt W.W.T.

D. Dates of Operation: 1995 to Present. Active Unit

E. Wastes Managed: See Table 60 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. Tank; Active Unit

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Wastewater Surge Tank

B. NoR No: 81

C. Description: RCRA Permit Exempt W.W.T

D. Dates of Operation: 1995 to Present. Active Unit

E. Wastes Managed: See Table 61 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Permit Exempt W.W.T. Tank. Active Unit.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Injection Well

B. NoR No: 82

C. Description: Ellenburger well that was never drilled, closed on 10/27/1999.

D. Dates of Operation: Not Applicable

E. Wastes Managed: See Table 62 of Appendix II and NOR of Part A Application, Attachment F. No wastes were managed; never drilled or operated.

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: UIC Permit; well was never drilled. Unit is closed.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: West Side Drainage Area

B. NoR No: 83

C. Description: SWMU added at a later date and addressed under the RFI Process

D. Dates of Operation: 1991 to 1997

E. Wastes Managed: See Table 63 of Appendix II and NOR of Part A Application, Attachment F. Stormwater runoff.

F. Evidence of Release: RFI Project No. 5 conducted at this unit and the unit was closed under Risk Reduction Program as indicated within the following documents that was presented to the TCEQ (formerly TNRCC):

   - RCRA Facility Investigation and Soils Risk Assessment for RFJ Project 5, December 22, 1997.

G. Pollutant Dispersal Pathways: Facility 83 was added as RFI Project 5 in the RFI Work Plan Addendum. The RCRA Facility Investigation and Soils Risk Assessment for RFI Project 5 was submitted to TCEQ on December 22, 1997. On April 3, 2001, the TCEQ approved the RFI Report for Project 55. Deed recordation for these unit was submitted July 3, 2001 and accepted by the TCEQ on November 13, 2001.

H. Summary: Unit covered in Soil Risk Assessment. Unit is closed.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Recovery Heptane Tank TK-45

B. NoR No: 84

C. Description: Unit closed outside of corrective action

D. Dates of Operation: 1992 to 2002

E. Wastes Managed: See Table 64 of Appendix II and NOR of Part A Application, Attachment F. Heptane process-related material

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit was certified closed by TCEQ (formerly TNRCC) on 2/01/2002.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Container Storage at "C" Boiler Feed Prep

B. NoR No: 85

C. Description: RCRA less than 90-day unit, RCRA Permit Exempt, Inactive

D. Dates of Operation: 1991 to 1999

E. Wastes Managed: See Table 65 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA less than 90-day unit, RCRA Permit Exempt. Certified closed by the TCEQ (formerly TNRCC) on 5/17/2004.

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Tank - Surface Dewater Pad at Old HMD Cooling Tower

B. NoR No: 86

C. Description: Active 2000 Class I, non-hazardous

D. Dates of Operation: 2000 to present

E. Wastes Managed: See Table 66 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Active, Class I, non-hazardous waste management unit

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Container Storage Area (West of Frac. 69)

B. NoR No: 87

C. Description: Active, 2000, RCRA Exempt less than 90-day unit. Active

D. Dates of Operation: 2000 to present

E. Wastes Managed: See Table 67 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Exempt, less than 90-day unit. Active

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

vEPA ID No: TXD980626014

A. Waste Management Unit: Container Storage Area (North of Frac. 69)

B. NoR No: 88

C. Description: Active in 2000, RCRA Exempt less than 90 day

D. Dates of Operation: 2000 to Present

E. Wastes Managed: See Table 68 of Append ix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Exempt, less than 90-day unit. Active

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Groundwater Storage Tank - West

B. NoR No: 89

C. Description: Groundwater recovery tank, RCRA Exempt, Less than 90 day

D. Dates of Operation: 2000 to present

E. Wastes Managed: See Table 69 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Groundwater recovery tank, RCRA Exempt, less than 90-day unit, Active

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Groundwater Storage Tank - East

B. NoR No: 90

C. Description: Groundwater recovery tank, RCRA Exempt, Less than 90 day

D. Dates of Operation: 2000 to Present

E. Wastes Managed: See Table 70 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Groundwater Recovery Tank, RCRA Exempt, Less than 90-day unit, Active

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Modifier Sump

B. NoR No: 92

C. Description: Unit closed outside of corrective action

D. Dates of Operation: 08/27/02 to 2002

E. Wastes Managed: See Table 71 of Appendix II and NOR of Part A Application, Attachment F

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Closure certification received from TCEQ (formerly TNRCC) on 6/06/2002.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Sub-surface Bundle Wash Pad Tank

B. NoR No: 93

C. Description: RCRA Exempt, less than 90 day Tank

D. Dates of Operation: 2000 to 2003

E. Wastes Managed: See Table 72 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: No evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: RCRA Exempt, less than 90-day unit. Unit is closed.

I. Recommended Action: No further action warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: DOX Unit Wastewater/Oil Storage Area

B. NoR No: 95

C. Description: Storage, bulking, and/or transfer offsite; active since 2007

D. Dates of Operation: 2007 to 2009 when plant was shut down.

E. Wastes Managed: See Table 73 of Appendix II and NOR of Part A Application, Attachment F. Hazardous wastewater and oil

F. Evidence of Release: There is no evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Active storage area

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: West Side Bundle Cleaning Area

B. NoR No: 96

C. Description: Storage, bulking, and/or transfer offsite; active since 2007

D. Dates of Operation: 2007 to 2009 when plant was shutdown.

E. Wastes Managed: See Table 74 of Appendix II and NOR of Part A Application, Attachment F.

F. Evidence of Release: There is no evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Active storage area

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: East Asbestos Bulk Storage Area

B. NoR No: 98

C. Description: This is a semi-trailer used to store asbestos prior to disposal

D. Dates of Operation: 2008 to 2009 when portions of the property (including this unit) were sold to Rextac.

E. Wastes Managed: See Table 75 of Appendix II and NOR of Part A Application, Attachment F. Insulation and other asbestos-containing materials.

F. Evidence of Release: There is no evidence of a release.

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Unit is on Rextac property and a request to the remove this unit has been submitted to the TCEQ. As of the date of the PRU application, this unit remained on the facility's NOR.

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: SRT Tar Storage Area

B. NoR No: 99

C. Description: This unit is used to manage containers for the collection of tars off of the SRT furnaces

D. Dates of Operation: 2008 to 2009 when plant was shutdown.

E. Wastes Managed: See Table 76 of Appendix II and NOR of Part A Application, Attachment F. SRT Tar Solid Waste

F. Evidence of Release: There is no evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Active container storage area

I. Recommended Action: No further action is warranted

*Note historic information for this unit that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of documents discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Crude to Rail Container Storage Area

B. NoR No: 100

C. Description: Storage, bulking, and/or transfer offsite; active since 2009

D. Dates of Operation: circa 2009 to 2014 when plant is scheduled for decommissioning.

E. Wastes Managed: See Table 77 of Appendix II and NOR of Part A Application, Attachment F. Oily wastes, brine diesel wastes, and high TPH soil and debris

F. Evidence of Release: There is no evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Active container storage area

I. Recommended Action: No further action is warranted

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Surface Tank

B. NoR No: 101

C. Description: Tank used to store petroleum-based sludge and water residue from underground pipeline that ruptured

D. Dates of Operation: circa 2009 to 2014 when plant is planned to be decommissioned.

E. Wastes Managed: See Table 78 of Appendix II and NOR of Part A Application, Attachment F. Non-hazardous petroleum-based sludge and water residues

F. Evidence of Release: There is no evidence of a release

G. Pollutant Dispersal Pathways: Not Applicable

H. Summary: Active Tank

I. Recommended Action: No further action is warranted

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Playa Lake lmpoundment

B. NoR No: II

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1991 to 1994

E. Wastes Managed: See Table 79 of Appendix II and NOR of Part A Application, Attachment F. Miscellaneous non-hazardous waste

F. Evidence of Release: RFI Project 3 conducted and unit closed under Risk Reduction Program as indicated within the following documents:

- RCRA Facility Investigations Projects I and 2, July 1996; and
- Soil Risk Assessment Report, July 1996.

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results are presented to TCEQ under a separate report. RCRA Facility Investigation – Projects 3 and 4 were submitted to the TCEQ on October 8, 1997 and approved by the TCEQ on February 10, 1999. TCEQ approved and accepted deed certifications on August 3, 1999.

H. Summary: Addressed under RFI and Risk Assessment listed above

I. Recommended Action: No further action is warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Filter Dump Sump

B. NoR No: K

C. Description: SWMU listed in 1991 Permit and addressed under the RFI Process

D. Dates of Operation: 1991 to 1994

E. Wastes Managed: See Table 80 of Appendix II and NOR of Part A Application, Attachment F. Miscellaneous non-hazardous solid waste filter media

F. Evidence of Release: RFI Project l conducted and unit closed under Risk Reduction Program as indicated by the following documents:

- RCRA Facility Investigations Projects 1 and 2, July 1996; and
- Soil Risk Assessment Report, July 1996

G. Pollutant Dispersal Pathways: Soil and groundwater pathways investigated under the RFI and results presented to TCEQ under a separate report. Remaining units in RFI Project 1 & 2 were approved by TCEQ on February 26, 2001. Deed recordation was submitted on April 16, 2001 and approved on April 24, 2001.

H. Summary: Unit covered in Soil Risk Assessment

I. Recommended Action: No further action warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

Preliminary Review Unit Checklist

Facility: Flint Hills Resources Odessa, LLC City: Odessa

ISW Reg No: 30142 Date: 02/10/2026

Permit No: HW – 50290 Reviewer: Neal Melchionni

EPA ID No: TXD980626014

A. Waste Management Unit: Sump at Sandblast Solvent Rinse Pad

B. NoR No: Y

C. Description: Orphan Unit requiring no action under the VSI, later required to have closure documentation

D. Dates of Operation: 1989 to 1991

E. Wastes Managed: See Table 81 of Appendix II and NOR of Part A Application, Attachment F. Rinse sand blast media, non-hazardous, solid wastes

F. Evidence of Release: Not Applicable

G. Pollutant Dispersal Pathways: Not Applicable

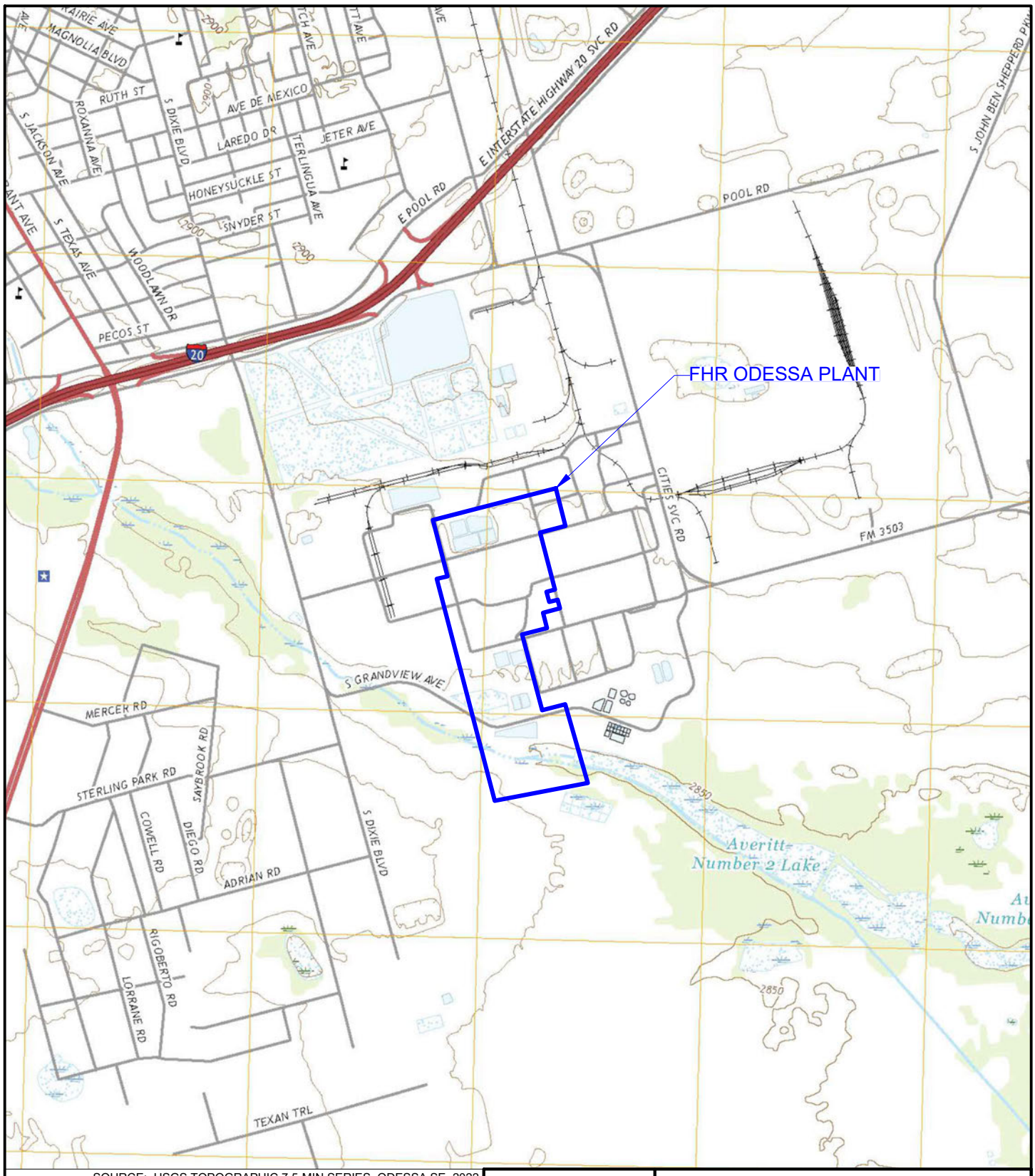
H. Summary: Closed in 2001 with deed certification recorded

I. Recommended Action: No further action is warranted

*Note information for this unit (closed prior to FHR's ownership) that is provided in this preliminary review is based on information in files FHR obtained from the prior owner. FHR is relying on TCEQ approval of the closures discussed in previous Hazardous Water Permit Renewal applications submitted by the prior owner for descriptions used in this preliminary review.

APPENDIX I

FACILITY AND SWMU LOCATION MAPS



SOURCE: USGS TOPOGRAPHIC 7.5-MIN SERIES, ODESSA SE, 2022

N

TEXAS

0 1000 2000

SCALE IN FEET

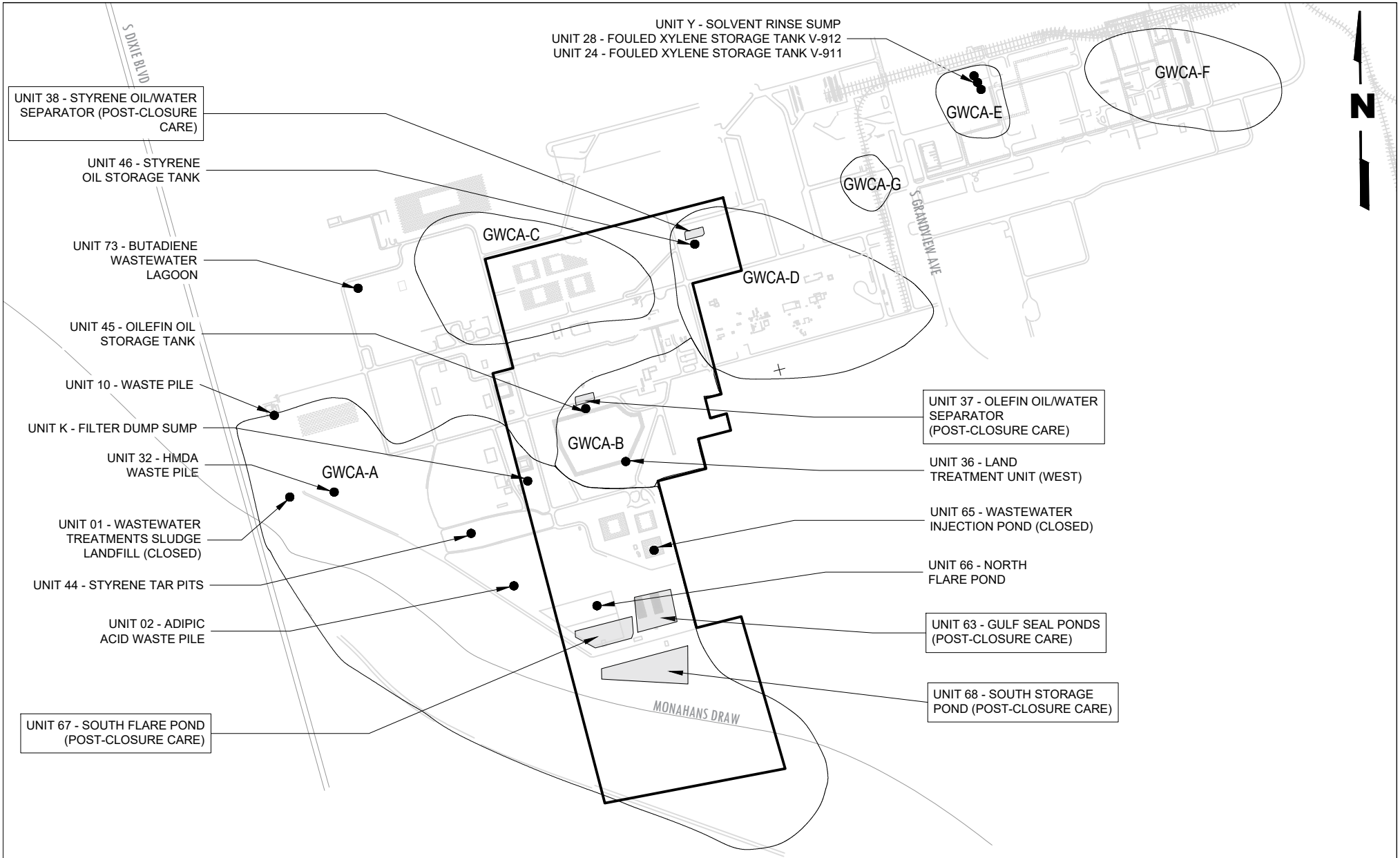
SQ Environmental, LLC

APPENDIX I-1

FACILITY LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 2000 FT	FEB 2026	1039.005.001



LEGEND

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM
- SOLID WASTE MANAGEMENT UNIT / AREA OF CONCERN (AOC)

0 500 1,000
SCALE IN FEET

APPENDIX I-2

SWMU LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 1,000 FT	FEB 2026	1039.005.001

APPENDIX II

WASTES MANAGED

Appendix II-1

II. Waste Managed: NOR 001 – Wastewater Treatment Sludge Landfill
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
General non-hazardous sludge*	1	N/A	149270	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-2

II. Waste Managed: NOR 002 – Adipic Waste Pile
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Adipic Wastes*	1	N/A	180530	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-3

II. Waste Managed: NOR 003 – Thermal Treatment Unit
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	1	N/A	180530	N/A
Miscellaneous non-hazardous wastes*	1	N/A	980230	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-4

II. Waste Managed: NOR 004 – East Land Treatment Unit
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	150870	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	150890	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	152880	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-5

II. Waste Managed: NOR 005 – NSI Warehouse Storage
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A - NO WASTES MANAGED AT THIS FACILITY – UNIT WAS CLOSED IN 1993				

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-6

II. Waste Managed: NOR 006 – Pilot Plant Incinerator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	103050	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	179460	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	179600	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	179850	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	180490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	979600	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-7

II. Waste Managed: NOR 007 – West Plant Drum Storage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	109410	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910100	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	974440	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110130	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910590	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	975930	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	151110	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	913040	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	977590	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	170490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	914210	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	982050	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	173170	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	916000	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	180490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	918140	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	277720	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	919140	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	277790	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	919730	N/A
Inorganic Catalyst Waste	H	D004, D008	5001393H	
		N/A	942370	N/A
Mixed Lab Packs, Hazardous	H	D001, F003, U031, U057, U161, and others	5002003H	See Appendix III of Preliminary Review Report
		N/A	972720	N/A
Asbestos solids and debris	1	N/A	60033111	N/A
	N/A	N/A	973170	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-8

II. Waste Managed: NOR 008 – Injection Well WDW 16 (Mize#1)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Non-hazardous wastewater, inorganic liquids	2	N/A	70121192	N/A
		N/A	108220	N/A
Surplus brine from underground LPG storage	2	N/A	70171132	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	108980	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	103050	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	901240	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	103870	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	907270	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	107270	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	908980	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-9

II. Waste Managed: NOR 009 – Waste Pile Pad
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Catalyst Waste, alkar catalyst, inorganic	2	N/A	20023932	N/A
Catalyst Waste, dehydrogenation catalyst, inorganic	2	N/A	20033932	N/A
$TiCl_3$/Mineral Oil Cont. Debris	H	D002, D003	4011301H	See Appendix III of Preliminary Review Report
Drilling mud, inorganic	H	D018	8008514H	See Appendix III of Preliminary Review Report
Cooling tower wood	I	N/A	80194881	N/A
Copper contaminated TPH soil and debris, organics	I	N/A	80343011	N/A
High TPH Molecular Sieve	I	N/A	80363101	N/A

N/A Not Applicable

Appendix II-10

II. Waste Managed: NOR 010 – Waste Pile Pad
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Construction debris, concrete, cement, debris	2	N/A	80103902	N/A
		N/A	370960	N/A
Plant Production Refuse- paper, cardboard, wrappings, food wastes, glass, aluminum foil, Styrofoam, food packaging, miscellaneous trash	2	N/A	80119012	N/A
Wood Debris	2	N/A	80514882	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	240870	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	276250	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-11

II. Waste Managed: NOR 011 – Waste Container Storage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	141350	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	907270	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	941350	N/A
Benzene Cont. Sludge	H	D001, D018	8029512H	See Appendix III of Preliminary Review Report
Organic sludge, heat exchanger bundle cleaning sludge	H	D001, D018	2011609H	See Appendix III of Preliminary Review Report

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-12

II. Waste Managed: NOR 012 – Copper Salt Surface Impoundment
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	174650	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-13

II. Waste Managed: NOR 013 – Copper Salt Surface Impoundment
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	174650	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-14

II. Waste Managed: NOR 014 – Copper Salt Waste Pile
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	174650	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-15

II. Waste Managed: NOR 015 – Phenolic Wastewater Treatment Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	108980	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-16

II. Waste Managed: NOR 016 – Acid Storage Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	901240	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-17

II. Waste Managed: NOR 017 – Landfill
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Inorganic solid filters or adsorbants	2	N/A	10053102	N/A
Sand blast grit, inorganic solids	2	N/A	60043192	N/A
General Plant Refuse, paper, wrappings, aluminum foil, etc.	2	N/A	80119012	N/A
Plant trash, composed of misc. trash and debris from offices and plant production	2	N/A	80339992	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	253230	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	277720	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	370960	N/A
Waste alkar catalyst	2	N/A	20023932	N/A
"C" boiler residue, ash, slag, inorganic	2	N/A	10063032	N/A
Asbestos solids and debris	2	N/A	60113112	N/A
Plant Office Refuse	2	N/A	80129032	N/A
		N/A	240870	N/A
		N/A	271350	N/A
		N/A	277790	N/A
		N/A	371980	N/A
Solid resins or polymerized organics, polyethylene wax	2	N/A	30064032	N/A
Non-halogenated organic solids, cracker coke	2	N/A	10094092	N/A
Ion exchange resin, solid resins or polymerized organics	2	N/A	70024032	N/A
Soil contaminated with organics, Low TPH soil and debris	2	N/A	80183012	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	249990	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	272140	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	280230	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	380570	N/A
Inorganic alkar catalyst waste	2	N/A	20033932	N/A
Solid resins or polymerized organics, Polyproylene waste	2	N/A	40014032	N/A
Lime sludge without metals	2	N/A	70045012	N/A
Spent carbon, vapor canister carbon	2	N/A	70134042	N/A
Inorganic drilling mud	2	N/A	80075142	N/A
Non-halogenated organic solids, slip, solid grease	2	N/A	80244092	N/A
Spent copper oxide catalyst	2	N/A	10243932	N/A
Sand and silt, inorganic sed or lagoon dragout	2	N/A	70095132	N/A
Solid resins or polymerized organics, scrap plastic	2	N/A	80214032	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	251450	N/A
Miscellaneous non	N/A	N/A	276250	N/A
Miscellaneous non	N/A	N/A	280380	N/A
Miscellaneous non	N/A	N/A	380580	N/A
Empty or crushed metal drums or containers, triple rinsed	2	N/A	60013082	N/A
Construction debris, cement, concrete	2	N/A	80103902	N/A
Molecular sieve, spent solid filters or adsorbents, inorganic	2	N/A	80233102	N/A
Miscellaneous non	N/A	N/A	251790	N/A
Miscellaneous non	N/A	N/A	276340	N/A
Miscellaneous non	N/A	N/A	282080	N/A
Miscellaneous non	N/A	N/A	382750	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-18

II. Waste Managed: NOR 018 – Olefin "C" Boiler
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	110130	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910100	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	914740	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910590	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	919730	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110690	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910690	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910020	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910960	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910030	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	914210	N/A
DOX Waste Oil	H	D001, D018	1016206H	See Appendix III of Preliminary Review Report
Flare Knockout Pot Sludge	H	D001, F003	4005606H	See Appendix III of Preliminary Review Report
Styrene waste oil	H	D001, D018	2006206H	See Appendix III of Preliminary Review Report
Used lubricating oils	I	N/A	60072061	N/A
Styrene waste oil, non-halogenated	H	D001, D018	2013203H	See Appendix III of Preliminary Review Report
Ignitable Wastes	H	D001	8013203H	See Appendix III of Preliminary Review Report
PE oil trappings/oil skimmings, waste oil	I	N/A	30012061	N/A
		N/A	910450	N/A
PE oil sludge	I	N/A	30026031	N/A
Spent naptha, non-halogenated solvent	H	D001	3003203H	See Appendix III of Preliminary Review Report
Organic Peroxides in Heptane	H	D001, D003	3004212H	See Appendix III of Preliminary Review Report
Antioxidant, non-halogenated solvent	H	D001	3005203H	See Appendix III of Preliminary Review Report
Paint thinner or petroleum distillates	I	N/A	30112111	N/A
Recovery Heptane	H	D001, D018	3012219H	See Appendix III of Preliminary Review Report
Spent Xylene	H	D001, F003	4003203H	See Appendix III of Preliminary Review Report

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-19

II. Waste Managed: NOR 019 – Styrene DNBP Drum Storage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Empty or crushed metal drums or containers, triple rinsed	2	N/A	60013082	N/A
DNBP contaminated waste, inorganic	H	P020	2007319H	See Appendix III of Preliminary Review Report

N/A Not Applicable

Appendix II-20

II. Waste Managed: NOR 020 – Waste Oil Storage Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	110130	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110690	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910100	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910450	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910590	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-21

II. Waste Managed: NOR 024 – Storage Tank V-911
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	910030	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-22

II. Waste Managed: NOR 028 – Storage Tank V-912
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	910030	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-23

II. Waste Managed: NOR 029 – Injection Well WDW-88 (Mize #2)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-24

II. Waste Managed: NOR 030 – Injection Well WDW-126 (Mize #3)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-25

II. Waste Managed: NOR 031 – Injection Well WDW-154 (Mize #4)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-26

II. Waste Managed: NOR 032 – HMDA Waste Pile
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*		N/A	152370	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-27

II. Waste Managed: NOR 035 – Styrene Super Heater (Boiler)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous waste*	N/A	N/A	110600	N/A
Resins, tar, or tarry sludge, dehydrogenated	1	N/A	20096061	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-28

II. Waste Managed: NOR 036 – West Land Treatment Unit
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	150870	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	150890	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	152880	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-29

II. Waste Managed: NOR 037 – Olefin Oil/Water Separator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Mixed Lab packs, hazardous	H	D001, F003, U031, U057, U161, and others (See NOR Part A, Attachment F)	5002003H	See Appendix III of Preliminary Review Report

Appendix II-30

II. Waste Managed: NOR 038 – Styrene/Butadiene Oil/Water Separator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	107270	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110130	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	152880	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-31

II. Waste Managed: NOR 039 – Adipic Acid Plant Incinerator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
HMD Wastewater*	N/A	N/A	110690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-32

II. Waste Managed: NOR 040 – Adipic Acid Plant Incinerator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes, HMD wastewater*	N/A	N/A	110690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-33

II. Waste Managed: NOR 041 – Adipic Acid Plant Incinerator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes, HMD wastewater*	N/A	N/A	110690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-34

II. Waste Managed: NOR 044 – Styrene Tar Pits
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	110600	N/A
Styrene tar remediation waste	1	N/A	20176061	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-35

II. Waste Managed: NOR 045 – Oil Storage Tank (Olefin Area)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	910690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-36

II. Waste Managed: NOR 046 – Styrene/Butadiene Oil Storage Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	910690	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-37

II. Waste Managed: NOR 047 – Adipic Acid Plant Wastewater Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Adipic acid wastewater	N/A	N/A	Not assigned	N/A

N/A Not Applicable

Appendix II-38

II. Waste Managed: NOR 048 – Adipic Acid Outfall Pond
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Adipic acid wastewater	N/A	N/A	Not assigned	N/A

N/A Not Applicable

Appendix II-39

II. Waste Managed: NOR 049 – Ammonia Oil/Water Separator
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	107270	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110690	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	150890	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-40

II. Waste Managed: NOR 050 – HMD Wastewater Storage Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
HMD wastewater	N/A	N/A	Not assigned	N/A

N/A Not Applicable

Appendix II-41

II. Waste Managed: NOR 051 – Styrene Tar Storage Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	110600	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-42

II. Waste Managed: NOR 052 – Copper Solvent Pit
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Spent cuprous ammonium acetate*	N/A	N/A	174650	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-43

II. Waste Managed: NOR 063 – Gulf Seal Ponds
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A- PREVIOUS WASTE WAS EXCAVATED AND SOLIDIFIED, AND PLACED BACK IN THE UNIT				

Appendix II-44

II. Waste Managed: NOR 064 – Wastewater Treatment Facility
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Contaminated Water Softener Sludge	H	D018	7007503H	See Appendix III of Preliminary Review Report
Lime sludge without metals	2	N/A	70035012	N/A
Lime sludge without metals	2	N/A	70045012	N/A
Inorganic liquids, Centrate, Lime	2	N/A	70051192	N/A
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-45

II. Waste Managed: NOR 065 – Injection Pond
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	949270	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-46

II. Waste Managed: NOR 066 – North Flare Pits
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Refinery waste/hydrofluoric tars	2	N/A	149270	N/A

N/A Not Applicable

Appendix II-47

II. Waste Managed: NOR 067 – South Flare Pond
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – MANAGED STORMWATER RUNOFF				

Appendix II-48

II. Waste Managed: NOR 068 – South Storage Pond
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – UNIT USED AS SURGE CAPACITY FOR WASTEWTER TREATMENT SYSTEM				

Appendix II-49

II. Waste Managed: NOR 069 – Container Storage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Sludge from propylene recycle K.O., inorganic catalyst waste	1	N/A	10033931	N/A
Cracked Gas Knockout Polymer	H	D018	1011403H	See Appendix III of Preliminary Review Report
Inorganic Amine skid filters, spent solids	1	N/A	10263101	N/A
Organic Peroxides in Heptane	H	D001, D003	3004212H	See Appendix III of Preliminary Review Report
Antiox and Acetone	H	D001, F003	3017203H	See Appendix III of Preliminary Review Report
Octene Filters	H	D001	3506310H	See Appendix III of Preliminary Review Report
Titanium trichloride catalyst, organic waste	H	D002, D003	4006697H	See Appendix III of Preliminary Review Report
Soil contaminated with organics	1	N/A	40123011	N/A
Mixed lab packs, non-hazardous	1	N/A	50040031	N/A
Haz. Sandblasting Grit	H	D006	6010319H	See Appendix III of Preliminary Review Report
Inorganic solid filters or adsorbents, oil contaminated	1	N/A	80013101	N/A
Process Water Filters	H	D018	8014310H	See Appendix III of Preliminary Review Report
Solid filters or adsorbents, molecular sieve	2	N/A	80233102	N/A
Fluorescent and Mercury Vapor Light Bulbs	H	D008, D009	8040388H	See Appendix III of Preliminary Review Report
Waste Oil from Pumps	H	D001, D008, D010, D018	8049206H	See Appendix III of Preliminary Review Report
Miscellaneous non-hazardous wastes*	N/A	N/A	110130	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	170490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	179600	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	271350	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	382750	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910960	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	919730	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	952880	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	975930	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	979850	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	982620	N/A
Feed Fractionator Filters, Hazardous	H	D018	1004310H	See Appendix III of Preliminary Review Report
Spent carbon, C4+ filter charcoal	1	N/A	10124041	N/A
SRT Tar	H	D018	1027606H	See Appendix III of Preliminary Review Report
Lithium Bromide Filters	H	D007	3010310H	See Appendix III of Preliminary Review Report
Lube Oil with Vinyl Acetate	H	D001	3018206H	See Appendix III of Preliminary Review Report
Octene/Hexane Debris	H	D001, F003	3507319H	See Appendix III of Preliminary Review Report
Sodium in Mineral Oil	H	D003	4007212H	See Appendix III of Preliminary Review Report
V-2500 Mixture	H	D001, F003	4014101H	See Appendix III of Preliminary Review Report
Flammable Organic Liquids	H	D001, D018, F002, F003, F005, U031, U057, U161	5005219H	See Appendix III of Preliminary Review Report
Spent carbon, charcoal filters	1	N/A	70154041	N/A
Oil Containing Hazardous Material	H	D018, F003	8002310H	See Appendix III of Preliminary Review Report
Mercury contaminated soil and debris	1	N/A	80163021	N/A

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Benzene Containing Soil & Debris	H	D018	8028301H	See Appendix III of Preliminary Review Report
Organic liquid, from unused polymer	1	N/A	80412191	N/A
High TPH vapor abatement carbon canisters, spent carbon	1	N/A	80504041	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	110490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	172620	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	179850	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	277720	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910020	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	913040	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	941350	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	970490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	976250	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	980230	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	983990	N/A
Feed fractioner filters, solids, absorbents	2	N/A	10053102	N/A
Solid resins or polymerized organics	1	N/A	10214031	N/A
Waste inorganic solids, Debris, PPE, plastic ground cover	2	N/A	10303192	N/A
Heptane/Organic Peroxide Filters	H	D001	3013310H	See Appendix III of Preliminary Review Report
Lithium Bromide Filters	H	D007	3019114H	See Appendix III of Preliminary Review Report
Surplus $TiCl_3$ Catalyst	H	D001, D002, D003	4002393H	See Appendix III of Preliminary Review Report
Sodium/Mineral Oil Containing Debris	H	D002, D003	4008310H	See Appendix III of Preliminary Review Report
Aluminum Alkyl in Mineral Oil	H	D003	4015212H	See Appendix III of Preliminary Review Report
Paint Waste, Liquid	H	D001, D005, D007, D008, D018, D035, F003, F005	6002209H	See Appendix III of Preliminary Review Report
Charcoal Filter Media Hazardous	H	D018	7016404H	See Appendix III of Preliminary Review Report
Mercury contaminated material	H	D009	8003302H	See Appendix III of Preliminary Review Report
Soil contaminated with organics, High TPH soil and debris	1	N/A	80173011	N/A
Benzene Containing Sludge	H	D001, D018	8029512H	See Appendix III of Preliminary Review Report
Unused Biocide	H	D002	8042108H	See Appendix III of Preliminary Review Report
Unused soap supplied by vendors but no longer wanted	2	N/A	80521142	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	141350	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	173170	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	180230	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	277790	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910030	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	914210	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	942370	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	972720	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	977590	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	980490	N/A
"C" boiler residue, ash, slag, inorganic waste	2	N/A	10063032	N/A
Propylene Recycle KO Liquid	H	D001, D003, F003	1023509H	See Appendix III of Preliminary Review Report
Heat exchanger bundle cleaning sludge, organic	H	D001, D018	2011609H	See Appendix III of Preliminary Review Report

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Non-aqueous Sludge	H	D001	3014609H	See Appendix III of Preliminary Review Report
Hexane Filters	H	D001	3500310H	See Appendix III of Preliminary Review Report
IPA/Heptane/Polymer	H	D001	4004606H	See Appendix III of Preliminary Review Report
$TiCl_3$/Mineral Oil Containing Debris	H	D002, D003	4010310H	See Appendix III of Preliminary Review Report
Waste Alkyl in Bullets	H	D003	4016205H	See Appendix III of Preliminary Review Report
Used lubricating oil	1	N/A	60072061	N/A
Soil and debris contaminated with inorganic caustic liquid and soda ash	1	N/A	70193021	N/A
Chromium Containing Soil & Debris	H	D007	8009302H	See Appendix III of Preliminary Review Report
Soil contaminated with organics, Low TPH soil and debris	2	N/A	80183012	N/A
Vapor Abatement Carbon	H	D018	8031404H	See Appendix III of Preliminary Review Report
Treatment chemicals, inorganic liquids	1	N/A	80441191	N/A
Lab packs of old chemicals, corrosive epoxy	H	D002	9004001H	See Appendix III of Preliminary Review Report
Miscellaneous non-hazardous wastes*	N/A	N/A	152060	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	174650	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	180490	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	280230	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910100	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	914740	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	949270	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	973340	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	979070	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	980790	N/A
Waste inorganic solids, arsenic contaminated material	1	N/A	10083191	N/A
Selas cracker oil- 3 phase mixture of LNAPL, DNAPL, and water	H	D001, D010, D018	1025205H	See Appendix III of Preliminary Review Report
PE oil sludge	1	N/A	30026031	N/A
Waste oil, blender grease with plastic pellets	1	N/A	30152061	N/A
Spent solid filters or adsorbents, Teal Filter/Fiber filter	1	N/A	35033101	N/A
Flare Knockout Pot Sludge	H	D001, F003	4005606H	See Appendix III of Preliminary Review Report
Soil & Debris, Xylene Product	H	D001, F003	4011301H	See Appendix III of Preliminary Review Report
Mixed Lab Packs, Hazardous	H	D001, F003, U031, U057, U161 and others	5002003H	See Appendix III of Preliminary Review Report
Ethylene glycol based antifreeze, used	1	N/A	60092961	N/A
Caustic Sludge	H	D002	7020110H	See Appendix III of Preliminary Review Report
Ignitable Wastes	H	D001	8013203H	See Appendix III of Preliminary Review Report
Mercury, Liquid	H	D009	8020117H	See Appendix III of Preliminary Review Report
Recovery NAPL	H	D001, D018	8035206H	See Appendix III of Preliminary Review Report
Oily sludge from cleanout of tanks and sumps, inorganic	1	N/A	80461191	N/A
Unused cleaning solvent, lab packs of old chemicals	H	U226	9005001H	See Appendix III of Preliminary Review Report

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	152370	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	179460	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	183140	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	283700	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910590	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	916000	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	950870	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	974440	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	979600	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	982050	N/A
Concentrated aqueous solution of organics, polymer resin	H	D001, D002, D018	1001207H	See Appendix III of Preliminary Review Report
Miscellaneous non-hazardous wastes*	N/A	N/A	103870	N/A
Waste oil	H	D001, D018	2018206H	
Waste inorganic solids	1	N/A	50063191	N/A
Toluene contaminated soil and debris, organic	H	D001, D018, F005	8025301H	See Appendix III of Preliminary Review Report
Solid resin or polymerized organics	1	N/A	10024031	N/A
Catalyst waste, Alumina from compressor oil absorber	1	N/A	20013931	N/A
Soil contaminated with organics, styrene soil and debris	H	D018	2020301H	See Appendix III of Preliminary Review Report
Spent carbon, ion exchange resin	H	U019, U239	5008404H	See Appendix III of Preliminary Review Report
Scrap plastic, lube oil contaminated, solid resins or polymerized organics	1	N/A	80264031	N/A
Catalyst waste, arsine reactor, inorganic	H	D004	1007393H	See Appendix III of Preliminary Review Report
Spent alkar catalyst waste	2	N/A	20023932	N/A
Soil contaminated with organics, DNBP	1	N/A	20213011	N/A
Inorganic solid filters or adsorbents, cooling tower filters	1	N/A	50123101	N/A
Soil contaminated with organics, benzene	H	U019	8032301H	See Appendix III of Preliminary Review Report
Inorganic sludge, Olefin sludge	H	D001, D018	1010519H	See Appendix III of Preliminary Review Report
Catalyst waste, inorganic, dehydrogenated	2	N/A	20033932	N/A
Styrene PEB filters, inorganic	1	N/A	20223101	N/A
Solid filters or adsorbents, inorganic	1	N/A	50143101	N/A
Soil contaminated with organics, copper, TPH	1	N/A	80343011	N/A
"C" boiler firebox residue, ash, slag, inorganic	H	D007, F003	1013303H	See Appendix III of Preliminary Review Report
Styrene process sewer solids, waste inorganic	H	D018	2005319H	See Appendix III of Preliminary Review Report
Solid filters or adsorbents, inorganic	H	D018	2023310H	See Appendix III of Preliminary Review Report
Reactive or polymerizable organic liquids	H	D001	5016212H	See Appendix III of Preliminary Review Report
High TPH molecular sieve, solid filters or adsorbents, inorganic	1	N/A	80363101	N/A
Soil contaminated with organics, Olefin soil and debris	H	D018	1018301H	See Appendix III of Preliminary Review Report
Inorganic DNBP contaminated debris	H	P020	2007319H	See Appendix III of Preliminary Review Report
Spent naptha, non-halogenated solvent	H	D001	3003203H	See Appendix III of Preliminary Review Report
Inorganic gases, hydrogen bromide	1	N/A	50177011	N/A
Transformer waste oil	1	N/A	80392061	N/A
PEB filters	1	N/A	10193101	N/A

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
DNBP contaminated soil and debris	H	P020	2008301H	See Appendix III of Preliminary Review Report
Antioxidant, non-halogenated solvent	H	D001	3005203H	See Appendix III of Preliminary Review Report
Empty or crushed metal drums or containers, triple rinsed	2	N/A	60013082	N/A
Soil contaminated with organics, xylene	H	F003	8045301H	See Appendix III of Preliminary Review Report
Polymer resin, solid resins, organic	H	D018	1020403H	See Appendix III of Preliminary Review Report
Organic sludge, heat exchanger bundle cleaning sludge	H	D001, D018	2010609H	See Appendix III of Preliminary Review Report
High flash naptha, paint thinner or petroleum distillates	I	N/A	30112111	N/A
Solid filters or adsorbents, automotive oil filters	I	N/A	60053101	N/A
Inorganic liquids tank and sump cleanout	H	D003	8047119H	See Appendix III of Preliminary Review Report
Red oil, waste oil	H	D001, D002, D018	1022206H	See Appendix III of Preliminary Review Report
Solid resins or polymerized organics, polystyrene	H	D001, D018	2012403H	See Appendix III of Preliminary Review Report
Peroxide Rinse Water	H	D001	3016207H	See Appendix III of Preliminary Review Report
Spent carbon canister filters	2	N/A	70134042	N/A
Concentrated aqueous organic solution, amine	2	N/A	80482072	N/A
Inorganic sediment or lagoon dragout with organics, sludge from cleanout of 2 rainwater tanks	H	D001, D002, D018	1028512H	See Appendix III of Preliminary Review Report
Solid filters or adsorbents, DNBP contaminated	I	N/A	20153101	N/A
Inorganic solid catalyst waste	H	D004, D008	5001393H	See Appendix III of Preliminary Review Report
Drilling mud, inorganic	H	D018	8008514H	See Appendix III of Preliminary Review Report
Organic, LinPlast 610P	1	N/A	90022071	N/A
Titanium dioxide slurry, inorganic sludge	2	N/A	10295192	N/A
High TPH vapor abatement carbon	1	N/A	20164041	N/A
Radioactive lab packs	H	D001-D043, F001-F012, F019-F028, F032, F034, F035, F037-F039,U001-012, U014-U039, U041-U053, U055-U064, U066-U099, U101-U103, U105-U138, U140-U174, U176-U194, U196, U197, U200-211, U213-U223, U225-U228, U234-U240, U243-U244, U246-U249, U271, U277-U280, U328, U353, U359, U364-U367, U372, U373, U376-U379, U381-U387, U389-U396, U400-U404, U407, U409-U411	5003009H	See Appendix III of Preliminary Review Report
Cooling Tower wood debris	1	N/A	80194881	N/A
Chlorinated surfactant, solvent, concentrated	H	D001, D039, D040	9003202H	See Appendix III of Preliminary Review Report

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-50

II. Waste Managed: NOR 070 – Fouled Naptha Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Paint thinner or petroleum distillates, high flash naptha	I	N/A	30112111	N/A
Miscellaneous non-hazardous wastes*	N/A	N/A	910020	N/A
Miscellaneous non-hazardous wastes	N/A	N/A	910030	N/A
Non-halogenated solvent, spent naptha	H	D001	3003203H	See Appendix III of Preliminary Review Report

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-51

II. Waste Managed: NOR 071 – Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – NON-HAZARDOUS WASTES MANAGED				

Appendix II-52

II. Waste Managed: NOR 072 – R&D Sump at Butadiene Wastewater Lagoon
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Miscellaneous non-hazardous wastes*	N/A	N/A	907270	N/A

N/A Not Applicable
* Previous Texas Waste Code; materials are no longer managed at unit.

Appendix II-53

II. Waste Managed: NOR 073 – Waste Treatment Unit – Butadiene Wastewater Lagoon
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – NON-HAZARDOUS WASTEWATER WAS MANAGED				

Appendix II-54

II. Waste Managed: NOR 074 – "C" Boiler Horizontal Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
DOX Waste Oil	H	D001, D018	1016206H	See Appendix III of Preliminary Review Report
Spent Xylene	H	D001, D003	4003203H	See Appendix III of Preliminary Review Report
Flare Knockout Pot Sludge	H	D001, F003	4005606H	See Appendix III of Preliminary Review Report
Organic Peroxides in Heptane	H	D001, D003	3004212H	See Appendix III of Preliminary Review Report
Recovery Heptane	H	D001, D018	3012219H	See Appendix III of Preliminary Review Report
Ignitable Wastes	H	D001	8013203H	See Appendix III of Preliminary Review Report
Antioxidant, non-halogenated solvent	H	D001	3005203H	See Appendix III of Preliminary Review Report
Spent naptha, non-halogenated solvent	H	D001	3003203H	See Appendix III of Preliminary Review Report
Waste oil, PE oil trappings/skimmings	1	N/A	30012061	N/A
PE oil sludge	1	N/A	30026031	N/A
Waste oil, lubricating oil	1	N/A	60072061	N/A
Paint thinner or petroleum distillates, high flash naptha	1	N/A	30112111	N/A

N/A Not Applicable

Appendix II-55

II. Waste Managed: NOR 075 – DOX Oil Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
DOX Waste Oil	H	D001, D018	1016206H	See Appendix III of Preliminary Review Report

Appendix II-56

II. Waste Managed: NOR 076 – Olefin "C" Boiler Storage Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
DOX Waste Oil	H	D001, D018	1016206H	See Appendix III of Preliminary Review Report
Non-halogenated solvent, spent naptha	H	D001	3003203H	See Appendix III of Preliminary Review Report
Organic Peroxides in Heptane	H	D001, D003	3004212H	See Appendix III of Preliminary Review Report
Antioxidant, non-halogenated solvent	H	D001	3005203H	See Appendix III of Preliminary Review Report
Spent Xylene	H	D001, F003	4003203H	See Appendix III of Preliminary Review Report
Flare Knockout Pot Sludge	H	D001, F003	4005606H	See Appendix III of Preliminary Review Report
Ignitable Wastes	H	D001	8013203H	See Appendix III of Preliminary Review Report
PE oil trappings/skimmings, waste oil	1	N/A	30012061	N/A
PE oil sludge	1	N/A	30026031	N/A
Waste oil, lubricating oil	1	N/A	60072061	N/A

N/A Not Applicable

Appendix II-57

II. Waste Managed: NOR 077 – Injection Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-58

II. Waste Managed: NOR 078 – Wastewater Surge Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-59

II. Waste Managed: NOR 079 – Wastewater Surge Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-60

II. Waste Managed: NOR 080 – Wastewater Surge Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-61

II. Waste Managed: NOR 081 – Wastewater Surge Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-62

II. Waste Managed: NOR 082 – Injection Pond
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A - NO WASTES MANAGED; NO DRILLING OR OPERATION OCCURRED				

Appendix II-63

II. Waste Managed: NOR 083 – West Side Drainage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – STORMWATER RUNOFF				

Appendix II-64

II. Waste Managed: NOR 084 – Recovery Heptane Tank TK-45
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Recovery Heptane	H	D001	3012219H	See Appendix III of Preliminary Review Report

Appendix II-65

II. Waste Managed: NOR 085 – Container Storage at "C" Boiler Feed Prep
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Flammable Organic Liquids	H	D001, D018, F002, F003, F005, U031, U057, U161	5005219H	See Appendix III of Preliminary Review Report
DOX Waste Oil	H	D001, D018	1016206H	See Appendix III of Preliminary Review Report
Styrene waste oil, non-halogenated solvent	H	D001, D018	2013203H	See Appendix III of Preliminary Review Report
Spent naptha, non-halogenated solvent	H	D001	3003203H	See Appendix III of Preliminary Review Report
Organic Peroxides in Heptane	H	D001, D003	3004212H	See Appendix III of Preliminary Review Report
Antioxidant, non-halogenated solvent	H	D001	3005203H	See Appendix III of Preliminary Review Report
Recovery Heptane	H	D001, D018	3012219H	See Appendix III of Preliminary Review Report
Spent Xylene	H	D001, F003	4003203H	See Appendix III of Preliminary Review Report
Flare Knockout Pot Sludge	H	D001, F003	4005606H	See Appendix III of Preliminary Review Report
Waste oil, lubricating oil	I	N/A	60072061	N/A
Paint thinner or petroleum distillates, high flash naptha	I	N/A	30112111	N/A
PE oil trappings/skimmings, waste oil	I	N/A	30012061	N/A

N/A Not Applicable

Appendix II-66

II. Waste Managed: NOR 086 – Tank – Surface Dewater Pad at Old HMD Cooling Tower
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Inorganic sediment or lagoon dragout, sand and silt	2	N/A	70095132	N/A
Misc. plant trash and debris	2	N/A	80339992	N/A
Lime sludge without metals	2	N/A	70035012	N/A
Lime sludge without metals	2	N/A	70045012	N/A
Spent carbon vapor canister filters	2	N/A	70134042	N/A
Inorganic drilling mud	2	N/A	80075142	N/A
Cooling tower wood debris	1	N/A	80194881	N/A
High TPH water softening sludge, lime	1	N/A	70145011	N/A
Spent carbon, charcoal filter media	1	N/A	70154041	N/A
Soil contaminated with organics, high TPH soil and debris	1	N/A	80173011	N/A
Soil contaminated with organics, Low TPH soil and debris	2	N/A	80183012	N/A

N/A Not Applicable

Appendix II-67

II. Waste Managed: NOR 087 – Container Storage Area (West of Frac. 69)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
PE oil sludge	1	N/A	30026031	N/A
V-2500 Mixture	H	D001, D003	4014101H	See Appendix III of Preliminary Review Report
Hazardous Wastewater	H	D001, D018, F003	7018119H	See Appendix III of Preliminary Review Report
Benzene Containing Sludge	H	D001, D018	8029512H	See Appendix III of Preliminary Review Report
Polymer resin, conc. Aqueous solution of organics	H	D001, D002, D018	1001207H	See Appendix III of Preliminary Review Report
Inorganic solid waste, catalyst	H	D004	1007393H	See Appendix III of Preliminary Review Report
Sludge, inorganic, sediment or lagoon dragout, drilling mud	H	D001, D002, D018	1028512H	See Appendix III of Preliminary Review Report
Catalyst waste, alumina from compressor absorber	1	N/A	20013931	N/A
Spent alkar catalyst waste, inorganic	2	N/A	20023932	N/A
Catalyst waste, inorganic dehydrogenation catalyst	2	N/A	20033932	N/A
Catalyst waste, process filter alumina	2	N/A	20043932	N/A
Soil contaminated with organics, DNBP	H	P020	2008301H	See Appendix III of Preliminary Review Report
Spent naptha, non-halogenated solvent	H	D001	3003203H	See Appendix III of Preliminary Review Report
Soil contaminated with organics, xylene	H	F003	8045301H	See Appendix III of Preliminary Review Report
Inorganic liquids, sump and tank cleanout	H	D003	8047119H	See Appendix III of Preliminary Review Report
Paint thinner or petroleum distillates, high flash naptha	1	N/A	30112111	N/A
Contaminated Water Softener Sludge	H	D018	7007503H	See Appendix III of Preliminary Review Report
Oil Containing Material, Hazardous	H	D018, F003	8002310H	See Appendix III of Preliminary Review Report
Vapor Abatement Carbon	H	D018	8031404H	See Appendix III of Preliminary Review Report
Recovery Heptane	H	D001, D018	3012219H	See Appendix III of Preliminary Review Report
Lime sludge without metals	1	N/A	70145011	N/A
Soil contaminated with inorganics, mercury	H	D009	8003302H	See Appendix III of Preliminary Review Report
Inorganic sludge, oil residue tank-sump cleanout	1	N/A	80461191	N/A
Spent Xylene	H	D001, F003	4003203H	See Appendix III of Preliminary Review Report
Spent charcoal filter media	1	N/A	70154041	N/A
Ignitable Wastes	H	D001	8013203H	See Appendix III of Preliminary Review Report
Waste Oil from Pumps	H	D001, D008, D010, D018	8049206H	See Appendix III of Preliminary Review Report
IPA contaminated soil and debris, organics	1	N/A	40123011	N/A
Charcoal Filter Media Hazardous	H	D018	7016404H	See Appendix III of Preliminary Review Report
Benzene Containing Soil & Debris	H	D018	8028301H	See Appendix III of Preliminary Review Report
Resins, tars, tarry sludge, waste from HMD tank cleanout	1	N/A	90076061	N/A

N/A Not Applicable

Appendix II-68

II. Waste Managed: NOR 088 – Container Storage Area (North of Frac. 69)
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Catalyst waste, inorganic solid, propylene recycle	1	N/A	10033931	N/A
Spent copper oxide catalyst, inorganic solid	2	N/A	10243932	N/A
Debris, PPE, plastic ground cover, etc, inorganic solids	2	N/A	10303192	N/A
PE oil sludge	1	N/A	30026031	N/A
$TiCl_3$/Mineral Oil Containing Debris	H	D001, F003	4011301H	See Appendix III of Preliminary Review Report
IPA contaminated soil and debris	1	N/A	40123011	N/A
Contaminated Water Softener Sludge	H	D018	7007503H	See Appendix III of Preliminary Review Report
Lime sludge without metals	1	N/A	70145011	N/A
Spent charcoal filter media	1	N/A	70154041	N/A
Charcoal Filter Media Hazardous	H	D018	7016404H	See Appendix III of Preliminary Review Report
Mercury contaminated material	H	D009	8003302H	See Appendix III of Preliminary Review Report
Chromium Containing Soil & Debris	H	D007	8009302H	See Appendix III of Preliminary Review Report
Mercury contaminated soil and debris	1	N/A	80163021	N/A
High TPH soil and debris	1	N/A	80173011	N/A
Benzene Containing Soil & Debris	H	D018	8028301H	See Appendix III of Preliminary Review Report
Benzene Containing Sludge	H	D001, D018	8029512H	See Appendix III of Preliminary Review Report
Vapor Abatement Carbon	H	D018	8031404H	See Appendix III of Preliminary Review Report
Fluorescent and Mercury vapor light bulbs	H	D008, D009	8040388H	See Appendix III of Preliminary Review Report
Arsine reactor catalyst waste, inorganic	H	D004	1007393H	See Appendix III of Preliminary Review Report
Inorganic sludge, sediment or lagoon dragout, drilling mud	H	D001, D002, D018	1028512H	See Appendix III of Preliminary Review Report
Catalyst waste, inorganic, alumina from compressor oil absorber	1	N/A	20013931	N/A
Spent alkar catalyst waste, inorganic	2	N/A	20023932	N/A
Catalyst waste, inorganic, dehydrogenation catalyst	2	N/A	20033932	N/A
Catalyst waste, inorganic, process filter alumina	2	N/A	20043932	N/A
DNBP contaminated soil and debris	H	P020	2008301H	See Appendix III of Preliminary Review Report
High TPH vapor abatement carbon	1	N/A	20164041	N/A
Soil contaminated with organics, DNBP	1	N/A	20213011	N/A
PE oil trappings/skimmings, waste oil	1	N/A	30012061	N/A
Vapor canister carbon, ion exchange resins	H	U019, U239	5008404H	See Appendix III of Preliminary Review Report
Lime sludge without metals	2	N/A	70045012	N/A
Cooling tower wood debris	1	N/A	80194881	N/A
Benzene contaminated soil and debris	H	U019	8032301H	See Appendix III of Preliminary Review Report
Copper contaminated TPH soil and debris	1	N/A	80343011	N/A
High TPH molecular sieve, solid filters and adsorbents	1	N/A	80363101	N/A

N/A Not Applicable

Appendix II-69

II. Waste Managed: NOR 089 – Groundwater Storage Tank – West
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Aqueous waste with low other toxic organics	H	D001, D018	8043102H	See Appendix III of Preliminary Review Report

Appendix II-70

II. Waste Managed: NOR 090 – Groundwater Storage Tank – East
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Aqueous waste with low other toxic organics	H	D001, D018	8043102H	See Appendix III of Preliminary Review Report

Appendix II-71

II. Waste Managed: NOR 092 – Modifier Sump
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Peroxide Rinse Water	H	D001	3016207H	See Appendix III of Preliminary Review Report
Lube Oil with Vinyl Acetate	H	D001	3018206H	See Appendix III of Preliminary Review Report

Appendix II-72

II. Waste Managed: NOR 093 – Bundle Wash Pad Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Organic sludge, heat exchanger bundle cleaning sludge	H	D001, D018	2011609H	See Appendix III of Preliminary Review Report
Inorganic liquid, wastewater	H	P020	7008119H	See Appendix III of Preliminary Review Report
Wastewater, inorganic liquids	2	N/A	70121192	N/A

N/A Not Applicable

Appendix II-73

II. Waste Managed: NOR 095 – DOX Unit Wastewater/Oil Storage
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Hazardous Wastewater	H	D018; F003	7018119H	See Appendix III of Preliminary Review Report
DOX Waste Oil	H	D001; D018	1016206H	See Appendix III of Preliminary Review Report

Appendix II-74

II. Waste Managed: NOR 096 – West Side Bundle Cleaning Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Oily Sludge	1	N/A	80461191	See Appendix III of Preliminary Review Report
Sludge with Benzene	H	D003; D018	1032101H	See Appendix III of Preliminary Review Report
Benzene contaminated soil	H	D018	8028301H	See Appendix III of Preliminary Review Report
Discarded Aerosol cans	H	D001	8058801H	See Appendix III of Preliminary Review Report
Benzene contaminated soils	H	D018	8059319H	See Appendix III of Preliminary Review Report
Benzene contaminated soils	H	D018	8029512H	See Appendix III of Preliminary Review Report
DOX Waste Oil	H	D001; D018	1016206H	See Appendix III of Preliminary Review Report
Ignitable Wastes	H	D001; D008; D040	8013203H	See Appendix III of Preliminary Review Report
Hazardous Wastewater	H	D018; F003	7018119H	See Appendix III of Preliminary Review Report
Insulation, soil, and wood	1	N/A	70213191	See Appendix III of Preliminary Review Report
Selas cracker oil	H	D001; D018	1025205H	See Appendix III of Preliminary Review Report
Waste generated from	H	D002	7022519H	See Appendix III of Preliminary Review Report
Vapor Abatement Carbon	H	D018	8031404H	See Appendix III of Preliminary Review Report
Molecular Sieve	2	N/A	80233102	See Appendix III of Preliminary Review Report
Sandblast Media	1	N/A	60123191	See Appendix III of Preliminary Review Report
High TPH water softening	1	N/A	70145011	See Appendix III of Preliminary Review Report
SRT Tar	H	D018	1027606H	See Appendix III of Preliminary Review Report
Filters and absorbents	H	D001; D002; D007; F003	8062310H	See Appendix III of Preliminary Review Report
Water collected in TK-45	H	D001; D018	7023119H	See Appendix III of Preliminary Review Report
Flammable organic liquids	H	D001; D018; F003	5005219H	See Appendix III of Preliminary Review Report
High Flash Naphtha	1	N/A	30112111	See Appendix III of Preliminary Review Report
Waste oil from pumps	H	D001; D008; D010; D018	8049206H	See Appendix III of Preliminary Review Report
Heavy Ends	H	D001	3501203H	See Appendix III of Preliminary Review Report
Water softener sludge	H	D018	7007503H	See Appendix III of Preliminary Review Report
Sludge	H	D001; D002; D003; D018	1028512H	See Appendix III of Preliminary Review Report

Wastewater	H	D001; D018; F003	8065113H	See Appendix III of Preliminary Review Report
Amine Skid Filters	1	N/A	10263101	See Appendix III of Preliminary Review Report
Spent Xylene	H	D001; F003	4003203H	See Appendix III of Preliminary Review Report
PE Sludge Oil	1	N/A	30026031	See Appendix III of Preliminary Review Report
Solid Catalyst	2	N/A	10353932	See Appendix III of Preliminary Review Report
Amber oil/Propylene	H	D001; D003; F003	1023509H	See Appendix III of Preliminary Review Report
Octene-affected sludge	H	D001; D018	3504609H	See Appendix III of Preliminary Review Report
Molecular Sieve	H	D018	8063310H	See Appendix III of Preliminary Review Report
Spent Charcoal Filter	1	N/A	70154041	See Appendix III of Preliminary Review Report
Process Water Filters	H	D018	8014310H	See Appendix III of Preliminary Review Report
V-2500 KO Pot Liquids	H	D001; F003	4014101H	See Appendix III of Preliminary Review Report
Polymer Resin	H	D001; D002; D018	1001207H	See Appendix III of Preliminary Review Report
Water Stripper Reboiler Tar	1	N/A	10214031	See Appendix III of Preliminary Review Report
Filter media	1	N/A	80613191	See Appendix III of Preliminary Review Report

N/A Not Applicable

Appendix II-75

II. Waste Managed: NOR 098 – East Asbestos Bulk Storage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Insulation and mastic	2	N/A	60113112	See Appendix III of Preliminary Review Report
Asbestos Insulation	1	N/A	60033111	See Appendix III of Preliminary Review Report

N/A Not Applicable

Appendix II-76

II. Waste Managed: NOR 099 – SRT Tar Storage
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
SRT Tar	H	D018	1027606H	See Appendix III of Preliminary Review Report

N/A Not Applicable

Appendix II-77

II. Waste Managed: NOR 100 – Crude to Rail Container Storage Area
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
High TPH Soil	1	N/A	80173011	See Appendix III of Preliminary Review Report
Oily Waste	H	D001; D018	9015301H	See Appendix III of Preliminary Review Report
Brine Diesel Waste	H	D018	9016102H	See Appendix III of Preliminary Review Report

N/A Not Applicable

Appendix II-78

II. Waste Managed: NOR 101 – Surface Tank
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
Aqueous waste	1	N/A	90191021	See Appendix III of Preliminary Review Report

N/A Not Applicable

II. Waste Managed: NOR II – Playa Lake Impoundment
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – MANAGED MISCELLANEOUS NON-HAZARDOUS SOLID WASTE				

N/A Not Applicable

Appendix II-80

II. Waste Managed: NOR K – Filter Dump Sump
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – MANAGED NON-HAZARDOUS SOLID WASTE FILTER MEDIA				

N/A Not Applicable

Appendix II-81

II. Waste Managed: NOR Y – Sump at Sandblast Solvent Rinse Pad
Flint Hills Resources Odessa, LLC
Odessa, TX

Solid Waste Managed in Unit	EPA Waste Class	EPA Hazard Codes	EPA or TX Waste Codes	Hazard Constituents listed in 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX
N/A – MANAGED RINSE SAND BLAST MEDIA, NON-HAZARDOUS SOLID WASTES				

N/A Not Applicable

Source	Parameter	Health	Safety	Risk
Appendix IX	Acenapthene	Carcinogenic properties of this compound in animals or humans are not known.	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Acenaphthylene	Carcinogenic properties of this compound in animals or humans are not known.	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Acetophenone	Acetophenone is an irritant, mutagen, and mildly toxic compound. In rabbits 0.77 mg produced severe eye irritation, but the action was mild. In mice, subcutaneous administration of this compound produced sleep; a dose of 330 mg/kg was lethal. No symptoms of severe toxicity, nor its carcinogenicity in humans has been reported	**Flashpoint:** 180°F (82°C) **Autoignation** Temperature: 1058°F (180°C) **Extinguishing Media:** dry chemical, foam, or CO_2 **Special Information:** Its reaction with strong oxidizer may be violent.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Acrolein	Acrolein is a highly toxic compound that can severely damage the eyes and respiratory system and burn the skin. Ingestion can cause acute gastrointestinal pain with pulmonary congestion.	**Flashpoint:** -0.5°F (-18°C) **Autoignation** Temperature: 435°F (234°C) **Extinguishing Media:** "alcohol" foam, dry chemical, or CO_2, use a	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994

Source	Parameter	Health	Safety	Risk
			water spray to keep the fire-exposed containers cool, to flush and dilute the spill, and to disperse the vapor. **Special Information:** Vapor forms an explosive mixture with air in the ranges 2.8 to 31 % of volume of air. **Incompatibilities & Reactivities:** Oxidizers, acids, alkalis, ammonia, amines (Note: Polymerizes readily unless inhibited--usually with hydroquinone. May form shock-sensitive peroxides over time.)	• Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Anthracene	Carcinogenicity of anthracene is not known. Its toxicity is very low. An intraperitoneal LD_{50} in mice is recorded as 430 mg/kg (NIOSH 1986)	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Antimony	The toxicity of antimony is low order. The symptoms of acute poisoning include weight loss, loss of hair, eosinophilia, and congestion of heart, liver, and kidney. The toxic routes are primarily inhalation of its dust or fumes and skin absorption. The oral toxicity is very low. The intraperitoreal LD_{50} value in rats is 100 mg/kg (NIOSH 1986)	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Arsenic	The fatal dose of in humans is 1 to 2 mg/kg body weight. All arsenic compounds are toxic, the toxicity varying with oxidation state of the metal and the	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk

Source	Parameter	Health	Safety	Risk
		solubilities. Arsenic is absorbed into the body through gastrointestinal route and inhalation. The acute symptoms include fever, gastrointestinal disturbances, irritation of the respiratory tract, ulceration of the nasal septum, and dermatitis. Chronic exposure can produce pigmentation of the skin, peripheral neuropathy, and degeneration of liver and kidneys. Arsenic is carcinogenic to humans. Ingestion by an oral route has caused an increased incidence of tumors in the liver, blood, and lungs.		Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Barium	Inhalation of Barium dust can cause irritation of the nose and upper respirator tract. Ingestion can cause severe hypokalemia. Ingestion of 4g of barium carbonate can be lethal to humans	No Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Benzene	Benzene is an acute as well as chronic toxicant. The acute toxic effects from inhalation, ingestion, and skin contact are low to moderate. Benzene is an irritant to the eyes, nose and respiratory tract. The chronic poisoning from benzene is much more severe that its acute toxicity. The target organs to acute and chronic poisoning are the blood, bone marrow, and central nervous system. Absorption of liquid benzene through the skin may be harmful.	**Flashpoint:** 12°F(-11°C) **UEL:** 8.0% **LEL:** 1.5% **Autoignition Temperature:** 928°F (498°C) **Flammability Classification:** Extremely Flammable Liquid **Extinguishing Media:** Agents approved for Class B hazards (e.g., dry chemical carbon dioxide, foam,	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
			steam) or water fog.	
Appendix VIII and IX	Benzo(b)fluroanthene	The acute oral toxicity data are not available. There is sufficient evidence on the carcinogenicity of this compound in animals. It produced tumors at the site of application. Cancers in lungs and skin have been observed in animals.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Benzo(j)fluoranthene	This compound is a cancer suspect agent. Animal studies present sufficient evidence on its carcinogenicity. It may cause tumors in lungs and skin.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Benzo(k)fluoranthene	This compound caused lung and skin cancers in animals. It produced tumors at the site of application. Its carcinogenicity in humans is not known.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Benzo(ghi)perylene	There is very little information available in literature on the toxicity of this compound. The compound has low oral toxicity. Based upon it structural similarities with other carcinogenic polynuclear aromatics, this compound is expected to show carcinogenic properties.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Appendix II-82 – Waste Managed
Appendix VIII and IX Constituents
Flint Hills Resources, LLP
Odessa, TX

Source	Parameter	Health	Safety	Risk
Appendix VIII and IX	Benzene(a)pyrene	The acute oral toxicity of this compound is low. This may be due to poor absorption of this compound by the gastrointestinal tract. Animal studies show sufficient evidence of its carcinogenicity by all routes of exposure affecting a variety of tissues, which include the lungs, skin, liver, kidney, and blood	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Chromium	Chromium metal does not exhibit toxicity. Exposure to the dust of chromite of ferrochrome alloys may cause lung diseases, including pneumoconiosis and pulmonary fibrosis. Occupational exposure t these compounds can produce skin ulceration, dermatitis, perforation of the nasal septum, and kidney damage.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Cadmium	Cadmium can enter the body through inhalation of its dust or fumes, or by ingestion. In humans, the acute toxic symptoms are nausea, vomiting, diarrhea, headache, abdominal pain, muscular ache, salivation, and shock. In addition, inhalation of its fumes or dust can cause cough, tightness of chest, respiratory distress, congestion in lungs, and bronchopneumonia. Cadmium is poison that is accumulated in the liver and kidneys.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Carbon Disulfide	This compound exhibits low toxicity in most experimental animals but has greater toxicity in humans. The primary route of exposure is inhalation of vapors. It may also enter the body through skin absorption. The toxic effect from single	Flashpoint- -22°F(-30°C) UEL: 50.0% LEL: 1.3% Autoignition Temperature: 1948°F (90°C)	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage

Source	Parameter	Health	Safety	Risk
		exposure is narcosis. Repeated exposure causes headache, dizziness, fatigue, nervousness, insomnia, psychosis, irritation, tremors, and loss of appetite, indigestion, and gastric disturbances. The oral LD_{50} value in rats is in the range of 300 mg/kg.	**Flammability Classification:** Flammable Liquid **Extinguishing Media:** Agents approved for Class B hazards (e.g., dry chemical). **Incompatibilities & Reactivities:** Strong oxidizers; chemically-active metals such as sodium, potassium & zinc; acides; rust; halogens; amines (Note: Vapors may be ignited by contact with ordinary light bulb.)	Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Chrysene	There is very little information published on the acute toxicity of chrysene. The oral toxicity of chrysene is expected to be low. Animal studies show sufficient evidence of carcinogenicity. It produced skin cancer at the site of application. Cancer-causing evidence in humans is not known.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Copper	The toxicity of metallic copper is very low. Inhalation of it dusts, fumes, or mists or that if its salts can cause adverse heal effects. Inhalation causes irritation of the eyes and mucous membranes, nasal perforation, cough, dry throat, muscle ache, chill, and metal fever. Skin contact can result in dermatitis.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Dibenz(a,h)anthracene	There is no report on this compounds oral toxicity. It may be highly toxic by intravenous administration. Its carcinogenic actions in animals are well established. Subcutaneous administration	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land

Source	Parameter	Health	Safety	Risk
		of this compound in mice resulted in tumors at the site of application.		Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	2,4-Dimethylpehneol	This compound is a corrosive substance with moderate to high toxicity. The acute poising effects are high in most animals. In humans, ingestion of 5 to 10g of solid can cause death. The toxic symptoms include nausea, vomiting, weakness, muscular pain, dark urine, cyanosis, tremor, convulsions, and kidney and liver damage. It is an irritant to the eyes, nose, and throat and can cause skin burn and dermatitis. Inhalation of its vapors or absorption of the solid solution or vapor through skin can produce similar toxic effects. LD_{50} value, oral for mice is 270 mg/kg. LC_{50} value for inhalation for mice is 177 mg/kg.	**Flashpoint-** 174°F(79°C) **UEL:** 8.6% **LEL:** 1.8% **Autoignition Temperature:** 1319°F (715°C) **Flammability Classification:** When heated, this compound produces flammable vapors that form explosive mixtures with air. **Extinguishing Media:** Agents approved for Class B hazards (e.g., dry chemical). **Incompatibilities & Reactivities:** Strong oxidizers, calcium hypochlorite, aluminum chloride, acids	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	2,4-Dinitrophenol	This compound is a severely acute toxicant, exhibiting high toxicity in animals by all routes of administration. It can be absorbed through the intact skin. The toxic effects are heavy sweating, nausea, vomiting, collapse, and lethal. Chronic effects include polyneuropathy, weight loss, cataract, and dermatitis.	**Flashpoint-** 174°F(79°C) **UEL:** 8.6% **LEL:** 1.8% **Autoignition Temperature:** 1319°F (715°C) **Flammability Classification:** When heated, this compound produces flammable vapors that form explosive mixtures with air.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
			Extinguishing Media: Agents approved for Class B hazards (e.g., dry chemical). **Incompatibilities & Reactivities:** Strong oxidizers, calcium hypochlorite, aluminum chloride, acids	
Appendix VIII	Dinoseb	This compound is highly toxic. The oral LD_{50} values in small laboratory animals were between 10 and 25 mg/kg.	Not Established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Ethyl benzene	The acute toxicity of ethyl benzene is low. Inhalation may result in coughing, dizziness, drowsiness, and headaches. Skin contact causes dry skin and redness. Eyes exhibit redness, pain and blurred vision.	Fire: Highly Flammable. No open flames, no sparks. Powder AFFFF, foam, and carbon dioxide. Explosion: Vapor/air mixtures are explosive. Closed system, ventilation, explosion-proof electrical equipment and lighting. Don not use compressed air for filling, discharging, or handling. In case of fire: keep drums, etc., cool by spraying water.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Fluoranthene	Fluoranthene exhibited mild oral and dermal toxicity in animals. An oral LD_{50} value in rats is reported as 2000 mg/kg. It may cause skin tumor at site of application. However, any carcinogenic action from this compound in animals is not known.	Not established.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994

Source	Parameter	Health	Safety	Risk
				• Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Fluorene	Acute toxicity in animals very low. Carcinogenicity of this compound in animals is not well established. It tested negative in a histidine reversion-Ames test.	Not established.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Fluorine	Fluorine is a severe irritant to the eyes, skin, and mucus membranes. Level of 5 ppm in air felt in the eyes. Exposure can cause respiratory distress and pulmonary edema. Chronic exposure can produce mottled enamel of teeth, calcification of ligaments, and injury to the lungs, liver, and kidney. Human toxicity data on fluorine are very limited.	Not established.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Indeno(1,2,3-*cd*)pyrene	Indeno(1,2,3-cd)pyrene causes lung cancer in animals, supported by sufficient evidence. Toxicity and carcinogenicity in humans is not known.	Not established.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VII and IX	Lead	Lead can be absorbed through the respiratory system. Causes irritation of the bronchia and lungs, acute exposure symptoms include metallic taste, chest and abdominal pain, and increased lead blood levels. Symptoms of lead poisoning include abdominal pain and spasms, nausea, vomiting, headache.	**Fire:** Not considered a fire hazard. Powder/dust is flammable when heated or exposed to flame. **Explosion:** Not an explosion hazard. **Extinguishing Media:** Use any means suitable for extinguishing the	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August

Source	Parameter	Health	Safety	Risk
		Acute poisoning can lead to muscle weakness, "lead line" on the gums, metallic taste, definite loss of appetite, insomnia, dizziness, high lead levels in blood and urine with shock, coma, and death in extreme cases. Lead can be absorbed through the skin with same symptoms as above. Short-term contact causes irritation, redness, and pain. Can be absorbed through the eye, with more local irritation or abrasion. Lead is cumulative poison and exposure to even small amounts can raise the body's content to toxic levels. Symptoms like above. Persons with pre-existing kidney, nerve, or circulatory disorders or with skin or eye problems may be more susceptible to lead poisoning. Carcinogenicity in humans has not been observed.	surrounding fire. Do not allow water runoff to enter drains or sewers. **Special Information:** In the event of fire, wear appropriate full protective clothing and breathing apparatus with full-face piece to protect from toxic lead fumes at elevated temperatures and demand or other positive pressure.	1998
Appendix VIII and IX	Mercury	Elemental mercury and its inorganic salts, as well as organomercury compounds, are all highly toxic substances. It is a severe inhalation hazard. Exposure to mercury vapors at high concentrations for a short period can cause bronchitis, pneumonitis, coughing, chest pain, respiratory distress, salivation, and diarrhea. Symptoms due to its effects on the central nervous system include tremor, insomnia, depression, and irritability. Exposure to mercury vapors of about 30 mg/m^3 for 4-hours produced damage in the kidneys, liver, lungs and brain. Elemental mercury absorbed through the lungs collects in the brain	Not established.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
		and oxidizes. Mercury (II) on the other hand accumulates in the kidneys. Mercury compounds vary in toxicity with solubility. Less soluble compounds are less toxic than more soluble mercuric salts.		
Appendix VIII	Methylene chloride	Methylene chloride is a low to moderately toxic compound, varying with the animal species. It is less toxic to small animals than humans. The toxic routes of exposure are inhalation of its vapors, ingestion, and absorption through the skin. Acute toxic symptoms include fatigue, weakness, headache, lightheadedness, euphoria, nausea, and sleep. High concentrations may produce narcosis. Mild effects may be felt in humans from an 8-hour exposure to 500 ppm of methylene chloride vapors. Oral intake of 15-20 mL of the liquid may be lethal to humans. Chronic exposure to this compound may lead to liver injury. Causes eye and skin irritation. Methylene chloride is carcinogenic to animals, and is a suspected human carcinogen, however evidence is inadequate.	Fire: noncombustible liquid. Explosive: reacts explosively with alkali metals and their alloys, and with powdered magnesium or aluminum. Ignition occurs with potassium *tert*-butoxide, forms explosive mixtures with nitrogen tetroxide. UEL: 23% LEL 13%	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Methyl ethyl ketone (MEK)	Inhalation of MEK causes irritation of the eyes and nose and headache. Exposure to 300 ppm for several hours may be irritating to humans. At high concentrations it is narcotic. Ingestion can cause dizziness and vomiting with serious ill effects from poisoning low. LD_{50} value, oral (rats) is 5,500 mg/kg.	Flash point: (closed cup) -6°C (21°F) UEL 12% LEL 1.8% Autoignition Temperature: 515.6°C (960°F) Extinguishing Agent: "alcohol	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
			foam", a water spray may be effective in absorbing the heat and diluting the material. **Explosive:** MEK forms explosive with air **Reactives:** may react explosively with strong oxidizers, ignites with potassium *tert*-butoxide	
Appendix IX	2-Methylnaphthalene			See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Naphthalene	Inhalation may cause irritation of the eyes, skin, and respiratory tract, and injury to the cornea. Other symptoms are headache, nausea, confusion, and excitement. Routes of exposure are inhalation, ingestion, and absorption through the skin. Organs that may be affected are the eyes, liver, kidney, blood, skin, and central nervous system. Most sever toxic symptoms through oral ingestion of large doses, may cause acute hemolytic anemia and hemoglobinuria. Other symptoms include gastrointestinal pain and kidney damage. Chronic exposure may affect the eyes, causing opacities of the lens and optical neuritis.	**Flash point:** 79°C (174°F) **UEL** 5.9% **LEL** 0.9% **Autoignition Temperature:** 526°C (979°C) **Explosive:** vapor forms explosive mixtures in the air **Reactives:** may react violently with strong oxidizers	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Nickel	Ingestion of nickel can cause hyperglycemia, depression of the central	Not established	See the following Reports submitted to TCEQ (formerly TNRCC)

Source	Parameter	Health	Safety	Risk
		hyperglycemia, depression of the central nervous system, myocardial weakness, and kidney damage. Oral toxicity of the metal is very low. Inhalation of nickel dust can cause irritation of nose and respiratory tract. Skin contact can lead to dermatitis and "nickel itch", a chronic eczema. Nickel and some of its compounds have been reported to cause lung cancer in expefimental animals. Inhalation of nickel dust can cause lung and sinus cancer with a latent period of 25 years in humans. Some nickel compounds are carcinogenic to humans.		• Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Phenanthrene	Acute oral toxicity is low, but more toxic than anthracene. It may cause tumor in the skin at site of application. The evidence of carcinogenicity in animals is inadequate.	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Phenol	The major hazard of phenol is its ability to penetrate the skin rapidly, particularly when liquid, causing severe injury which can be fatal. Strong corrosive effect on body tissue leaving chemical burns. Due to local anesthetizing properties, skin burns may be painless. Inhalation of vapor, dust, or mist may cause vomiting, difficulty swallowing, diarrhea, or loss of appetite, and may burn respiratory tract. Poison if ingested with symptoms of burning pain in mouth and throat, abdominal pain, nausea, vomiting,	Flash Point: 79°C (174°F) Autoignition Temperature: 715°C (1319°F) Fire: flammable limits in air vary with % by volume LEL: 1.3% UEL: 8.6% Reactives: Contact with strong oxidizers may cause fire	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
		headache, dizziness, muscular weakness, central nervous system effects, increase in heart rate, irregular breathing, coma, and possibly death. Acute exposure also associated with liver and kidney damage. Ingestion of 1 gram has been lethal in humans. Corrosive to skin and eyes. Chronic contact may cause symptoms of acute poisoning as well as eye and skin discoloration. People with pre-existing skin, liver, kidney, eye, or central nervous system, or pulmonary disorders may be more susceptible to its effects.	**Explosion**: Above flash point, mixtures are explosive with above. **Extinguishing Media**: water spray, dry chemical, alcohol foam, or carbon dioxide. Water used to keep exposed containers cool. **Special Information**: In the event of a fire, wear full protective clothing and gear, including NIOSH-approved self-contained breathing apparatus with full-face piece operated in pressure demand or other positive pressure mode.	
Appendix VIII	Potassium cyanide	Dangerous poison, toxicity comparable to sodium cyanide. Ingestion of 100-150 mg of this compound could be fatal to humans. Similar toxicity is observed when absorbed through the skin and eyes. At lower concentrations, symptoms include nausea, vomiting, headache, confusion, and muscle weakness. Injection of compound exhibited LD_{50} values in the range of 3-9 mg/kg, acute toxic effects were ataxia, respiratory stimulation, paralysis, and seizure. Cold temperature reduced toxicity on freshwater fish. Compound has caused reproductive damage in test animals.	Non-combustible solid. Liberates toxic HCN when in contact with acid. Powdered metals (magnesium, calcium, beryllium, boron, and aluminum) react to produce highly reactive potassium.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Pyrene	Inhalation of its vapors or ingestion caused irritation of the eyes, excitement, and muscle contraction in rats and mice. Oral LD_{50} in mice has been reported as 800 mg/kg. Experimental studies in animals do not give evidence of	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage

Source	Parameter	Health	Safety	Risk
		carcinogenicity. Pyrene tested negative to a histidine reversion-Ames test and other mutagenic tests.		Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Pyridine	Toxic effects include headache, dizziness, nervousness, nausea, insomnia, frequent urination, and abdominal pain. Target organs of the compound are the central nervous system, liver, kidneys, gastrointestinal tract, and skin. Routes of exposure are inhalation of vapors, ingestion and absorption of liquid through the skin. Chronic inhalation may cause kidney and liver damage, and stimulation of bone marrow to increase production of platelets. Low-level exposure (10 ppm) may produce chronic poisoning effects on the central nervous system. Skin contact may cause dermatitis. Vapor is irritant to eye, nose, and lungs.	**Flash Point:** 20°C (68°F) CC **Autoingnition Temperature:** 482°C (900°F) **Extinguishing Media:** dry chemical, "alcohol" foam, or CO_2, water may be used to keep fire exposed containers cool, to disperse the vapors, and to flush and dilute the spill **LEL:** 1.8% **UEL:** 12.4% Reactives: strong oxidizers, metal perchlorates form solvated salts that can explode when struck. Undergoes exothermic reactions with concentrated acids.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII	Silver	Silver dust is irritating to the eyes, nose, and respiratory tract. Toxicity of this metal is low by all routes of exposure. May cause argyria, blue-gray discoloration of the skin may occur in the conjunctiva of the eye, gum tissue, or nasal septum and may result from accumulation of silver in the body.	Not established	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Styrene	Irritant to the skin, eyes, and mucus membranes and is narcotic at high concentrations. Exposure to vapors may cause drowsiness, nausea, headache, fatigue, and dizziness in humans.	**Flash Point:** 31°C (88°F) CC **UEL** 6.8% **LEL:** 0.9% **Autolgnition Temperature:** 490°C	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land

Source	Parameter	Health	Safety	Risk
		Inhalation of 10,000 ppm for 30-60 minutes may be fatal to humans. Major route of exposure is inhalation, and skin absorption of the liquid is also significant. Carcinogenicity in humans is not known. May accumulate in body due to high solubility in fat. Tested positive in an EPA mutagenicity study, positive in a histidine reversion-Ames test. Limited evidence of carcinogenicity for both monomer and the polymer.	(914°F) **Extinguishing Media**: dry chemical, foam, CO_2, water spray to cool fire exposed containers, disperse the vapor, dilute the spill. **Explosives**: mixtures with air at 1.1 to 6.1% by volume. Exothermic reactions with concentrated acids. **Reactives**: polymerization is exothermic and reacts with strong oxidizers.	Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix VIII and IX	Toluene	Causes mild eye irritation. Prolonged repeated exposure to the skin can lead to dermatitis or irritation. Harmful when absorbed through the skin, cancer hazard can cause blood disorders. Inhalation causes headache, dizziness, drowsiness, nausea, and respiratory irritation. Acute toxicity is similar to benzene. Organs affected are the central nervous system, liver, kidneys and skin. Acute exposure can cause excitement, euphoria, hallucination, distorted perception, confusion, headache, and dizziness. At high concentrations can cause depression, drowsiness, and stupor. Inhalation of 10,000 ppm may cause death to humans from respiratory failure. Chronic effects are much less than benzene. Not know to cause bone marrow depression or anemia, animal tests showed no carcinogenic effects.	**Flash Point**: 4.4°C (40°F) CC **Autoignition Temperature**: 536°C (997°F) **Extinguishing Media**: dry chemical, foam, or CO_2, water spray to keep fire exposed containers cool. **Explosives**: forms explosive mixtures with air in the range of 1.4-6.7% by volume. Explodes with nitrogen tetroxide. Metal perchlorates form solvated salts with toluene that may explode on being struck. **Reactives**: reacts with concentrated nitric acid in the presence of concentrated sulfuric acid to form explosive notrotoluenes. Some of the nitrotoluenes are highly toxic.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
Appendix IX	Vinyl acetate	Glacial acetic acid is highly corrosive. Eye contact can produce mild to moderate irritation in humans. Contact with the skin may produce burns. Ingestion may cause corrosion of the mouth and gastrointestinal tract. Acute toxic effects are vomiting diarrhea, ulceration, or bleeding from intestines and circulatory collapse. Death may occur from high dose, 20-30 mL and toxic effects may be felt in humans from 0.1-0.2 mL. Glacial acetic acid is toxic to humans and animals by inhalation and skin contact.	**Flash Point:** 39°C (103°F) **Autoignition Temperature:** 463°C (867°F) NFPA 1986; 426°C (800°F) Meyer 1989 **LEL:** 4.0% **UEL:** 19.9% (200°F) **Extinguishing Media:** water spray, dry chemical, CO_2 or "alcohol" foam, usage of water spray to keep fire-exposed containers cool, and to flush and dilute the spill. **Reactives:** phosphorus isocyanate, potassium hydroxide, and sodium hydroxide. **Explosives:** reacts explosively with fluorides of chlorine and bromine, mixed with strong oxidizers like perchlorates, permanganates, chromium trioxide, nitric acid, ozone, and hydrogen peroxide. When warmed with ammonium nitrate may ignite.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998
Appendix IX	Xylene	Toxic properties of xylene isomers are similar to toluene or ethylbenzene. Target organs are the central nervous system, eyes, gastrointestinal tract, kidneys, liver, blood and skin, which, however, are affected only at high levels of exposure. Exposure may cause irritation of the eyes, nose, and throat, headache, dizziness, excitement, drowsiness, nausea, vomiting, abdominal	*o*-xylene **Flash Point:** 32°C (90°F) **Autoignition Temperature:** 463°C (867°F) **Extinguishing Media:** dry chemical, CO_2, foam; water spray to cool fire-exposed containers and disperse vapors.	See the following Reports submitted to TCEQ (formerly TNRCC) • Risk Assessment Report, September 1994 • Risk Assessment Report, July 1996 • RCRA Facility Investigation & Risk Assessment for Facility 04 – East Land Treatment Unit & Facility 10 – Bulk Storage Area, February 1994 • Bulk Storage Area Risk Based Plan, August 1998

Source	Parameter	Health	Safety	Risk
		pain, and dermatitis. Irritation at level of 200 ppm while 10,000 ppm for 6-8 hours may be fatal. Oral toxicity of xylene is low, however ingestion of a high dose can cause central nervous system depression, dizziness, nausea, vomiting, and abdominal pain. Oral LD50 in rats for xylene isomers are in the 5,000 mg/kg range. Major route of absorption is inhalation, skin is another route. Repeated exposures may cause accumulation in the blood.	UEL: 6.7% LEL: 0.9% Reactives: strong oxidizers *m*-xylene Flash Point: 27°C (81°F) Autoignition Temperature: 527°C (982°F) Extinguishing Media: dry chemical, CO_2, foam; water spray to cool fire-exposed containers and disperse vapors. UEL: 7.0% LEL: 1.1% Reactives: strong oxidizers *p*-xylene Flash Point: 27°C (81°F) Autoignition Temperature: 528°C (984°F) Extinguishing Media: dry chemical, CO_2, foam; water spray to cool fire-exposed containers and disperse vapors. UEL: 7.0% LEL: 1.1% Reactives: strong oxidizers	

APPENDIX III

EVIDENCE OF RELEASE

Appendix III – Evidence of Release

Information pertaining to releases from SWMUs addressed under the RFI are presented in RFI Reports previously submitted to the Texas Commission on Environmental Quality (TCEQ). Related impacts for SWMUs have been address under Risk Assessments for Soil. Groundwater conditions beneath the site are being addressed under a site-wide Corrective Action Monitoring Program that is addressed under the facility's Compliance Plan. The data from the monitoring program and the RFI reports have been previously reported to the TCEQ. Based upon these conditions, evidence of releases have been reported to the TCEQ and any impacts to the groundwater are being addressed under the facility's Compliance Plan.

APPENDIX IV

POLLUTANT DISPERSAL PATHWAYS

Appendix IV – Pollutant Dispersal Pathways

Pollutant Dispersal Pathways for SWMUs documented during the RFI process for this facility can be found with the RFI Reports and Risk Assessments conducted as part of the RFI Process. As described within Appendix III (Evidences of Releases), related impacts for SWMUs have been addressed under Risk Assessments for Soil. Groundwater conditions beneath the site are being addressed under a site-wide Corrective Action Monitoring Program that is addressed under the facility's Compliance Plan. The data generated from this program is reported to the TCEQ. Based upon the above reports, pollutant dispersal pathways have been reported to the TCEQ and any impacts to groundwater are being addressed under the facility's Compliance Plan.

APPENDIX X

This section is not applicable to the renewal application.

APPENDIX XI
COMPLIANCE PLAN

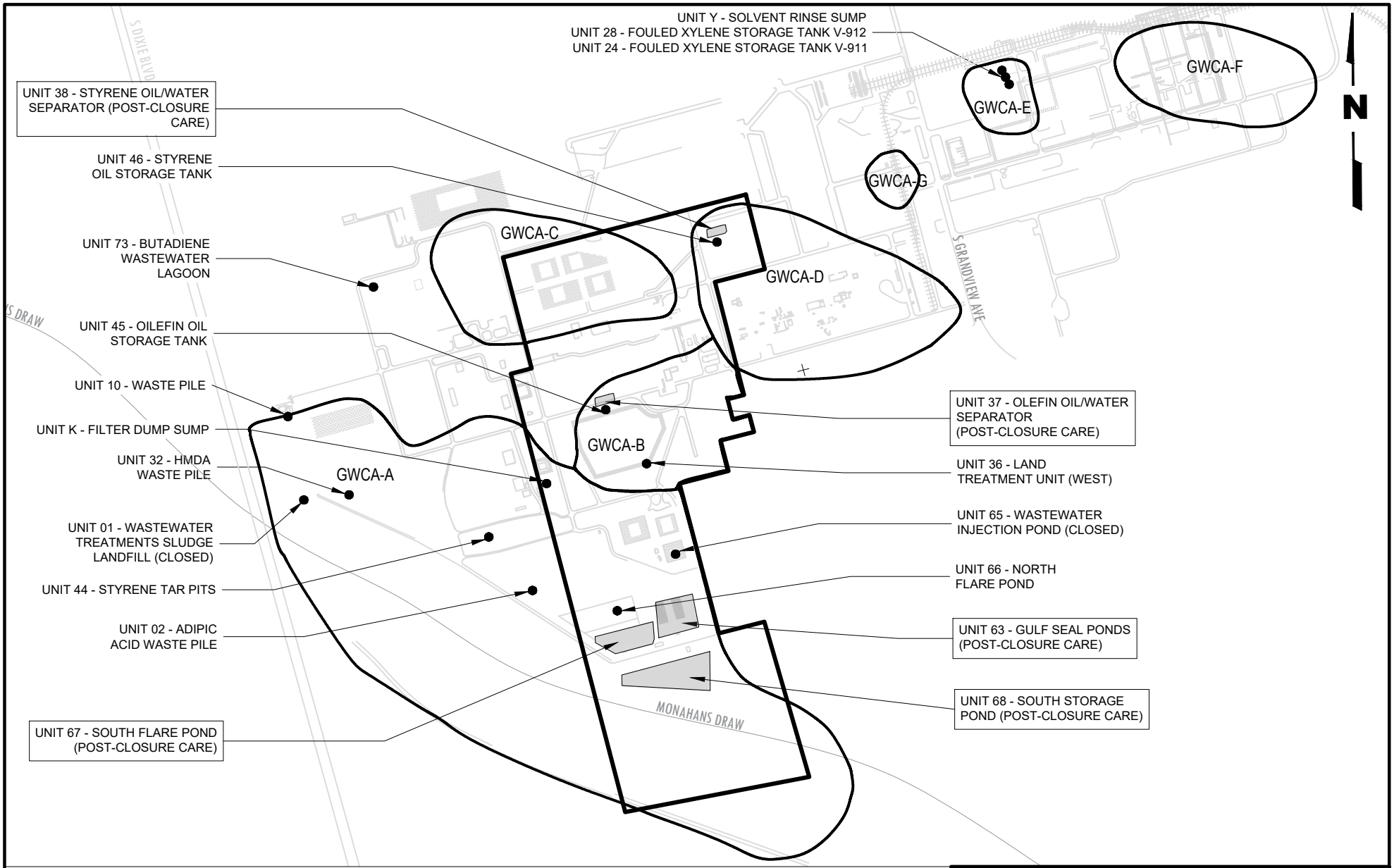
ITEMS INCLUDED IN THIS APPENDIX:

- CP Attachment A Sheet 1 of 5
- CP Attachment A Sheet 2 of 5
- CP Attachment A Sheet 3 of 5
- CP Attachment A Sheet 4 of 5
- CP Attachment A Sheet 5 of 5

- CP Table I – Waste Management Units and Areas Subject to Groundwater
- CP Table II – Solid Waste Management Units and or Areas of Concern
- CP Table III – CAP Table of Detected Hazardous Solid Waste Constituents
- CP Table III.A – CAP Table of Detected Hazardous Solid Waste Constituents
- CP Table IV – Table of Hazardous and Solid Waste
- CP Table IV.A – Table of Detected Hazardous Constituents
- CP Table V – Designation of Wells
- CP Table VI – Compliance Period for RCRA-Regulated Units
- CP Table VII – Reporting Requirements
- CP Table VIII – Compliance Schedule
- CP Table IX – Description of Uppermost Aquifer
- CP Table XI.A.1 – Facility History for Waste Management Units
- CP Table XI.E – General Information
- CP Table XI.E.1 – Corrective Action Program Cost Estimate
- CP Table XI.E.2.e – Groundwater Monitoring Cost Estimate
- CP Table XI.E.3 – Financial Assurance Summary

- Compliance Plan Document (Referred to as Corrective Measures Implementation [CMI] Work Plan)

- Field Plan



LEGEND

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM
- SOLID WASTE MANAGEMENT UNIT / AREA OF CONCERN (AOC)

0 500 1,000
SCALE IN FEET

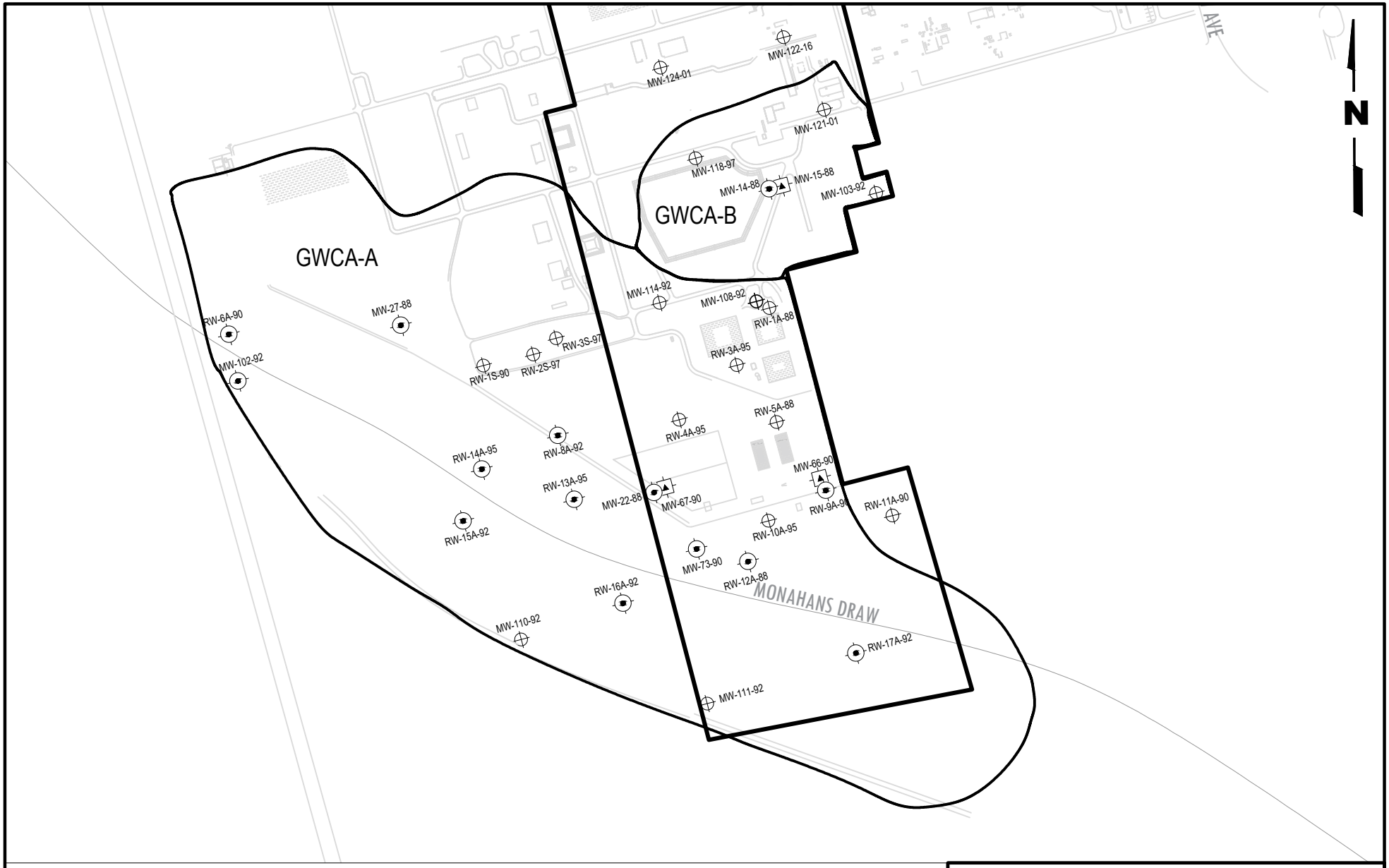
CP ATTACHMENT A

SHEET 1 OF 5

FACILITY SITE LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 1,000 FT	FEB 2026	1039.005.001



LEGEND

APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT

APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)

MW-22-88 POINT OF COMPLIANCE WELL OGALLALA

MW-67-90 POINT OF COMPLIANCE WELL ANTLERS

RW-4A-95 CORRECTIVE ACTION OBSERVATION WELL

0 350 700

SCALE IN FEET

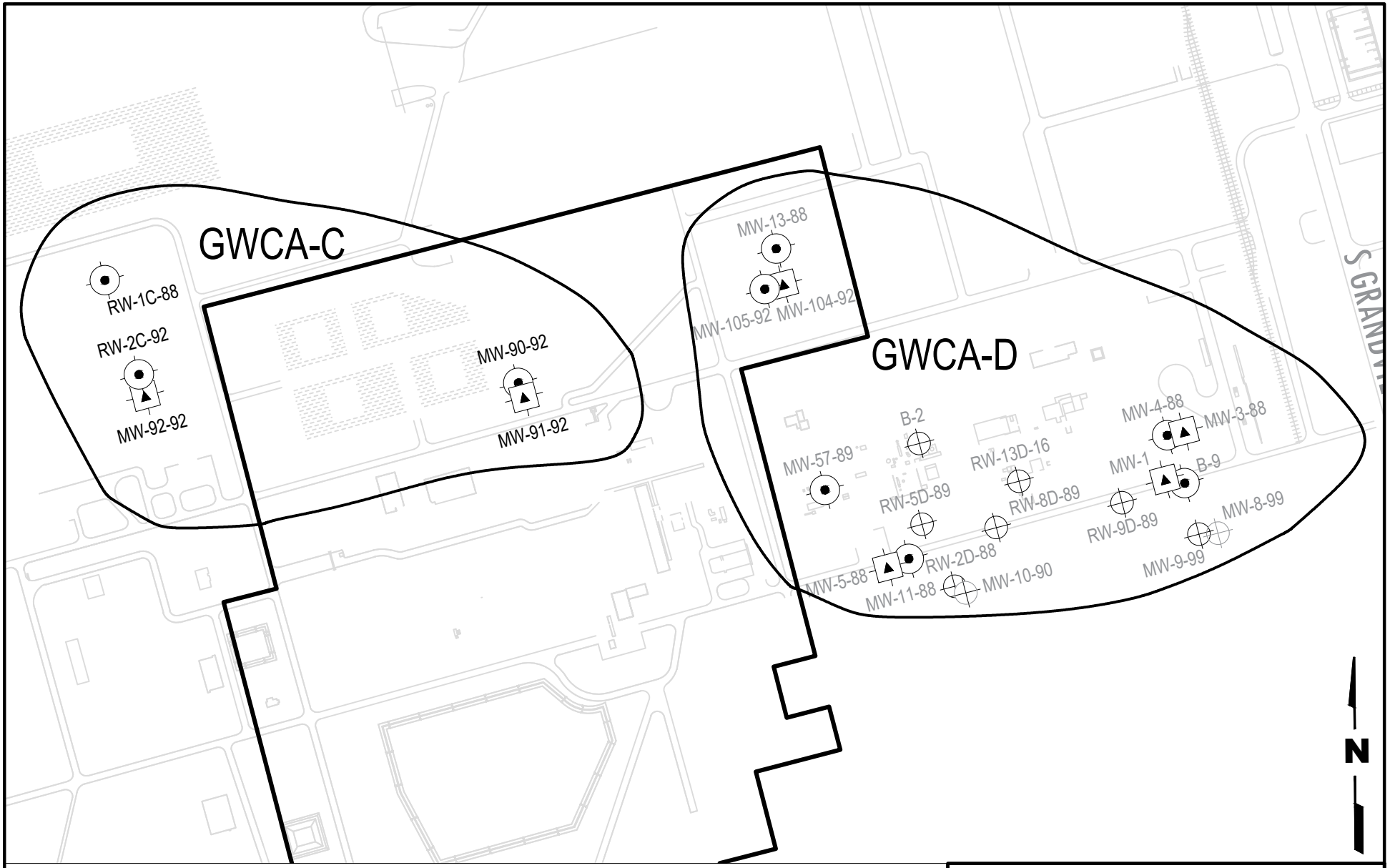
CP ATTACHMENT A

SHEET 2 OF 5

GWCA-A AND GWCA-B

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 700 FT	FEB 2026	1039.005.001



LEGEND

APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT

APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)

MW-22-88 POINT OF COMPLIANCE WELL OGALLALA

MW-67-90 POINT OF COMPLIANCE WELL ANTLERS

RW-4A-95 CORRECTIVE ACTION OBSERVATION WELL

0 200 400

SCALE IN FEET

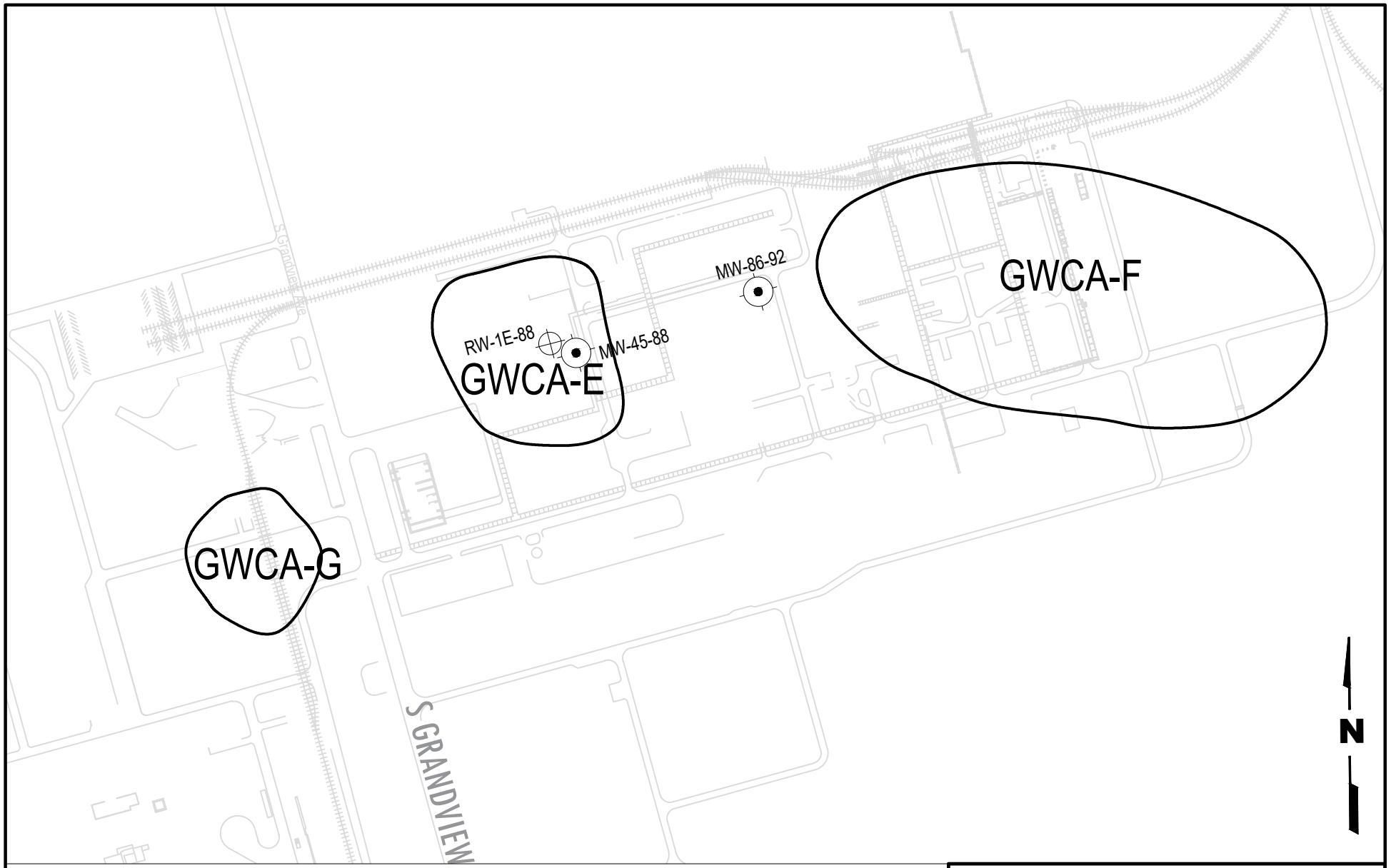
CP ATTACHMENT A

SHEET 3 OF 5

GWCA-C AND GWCA-D

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 400 FT	FEB 2026	1039.005.001



LEGEND

APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)

MW-22-88 POINT OF COMPLIANCE WELL OGALLALA

RW-4A-95 CORRECTIVE ACTION OBSERVATION WELL

0 200 400

SCALE IN FEET

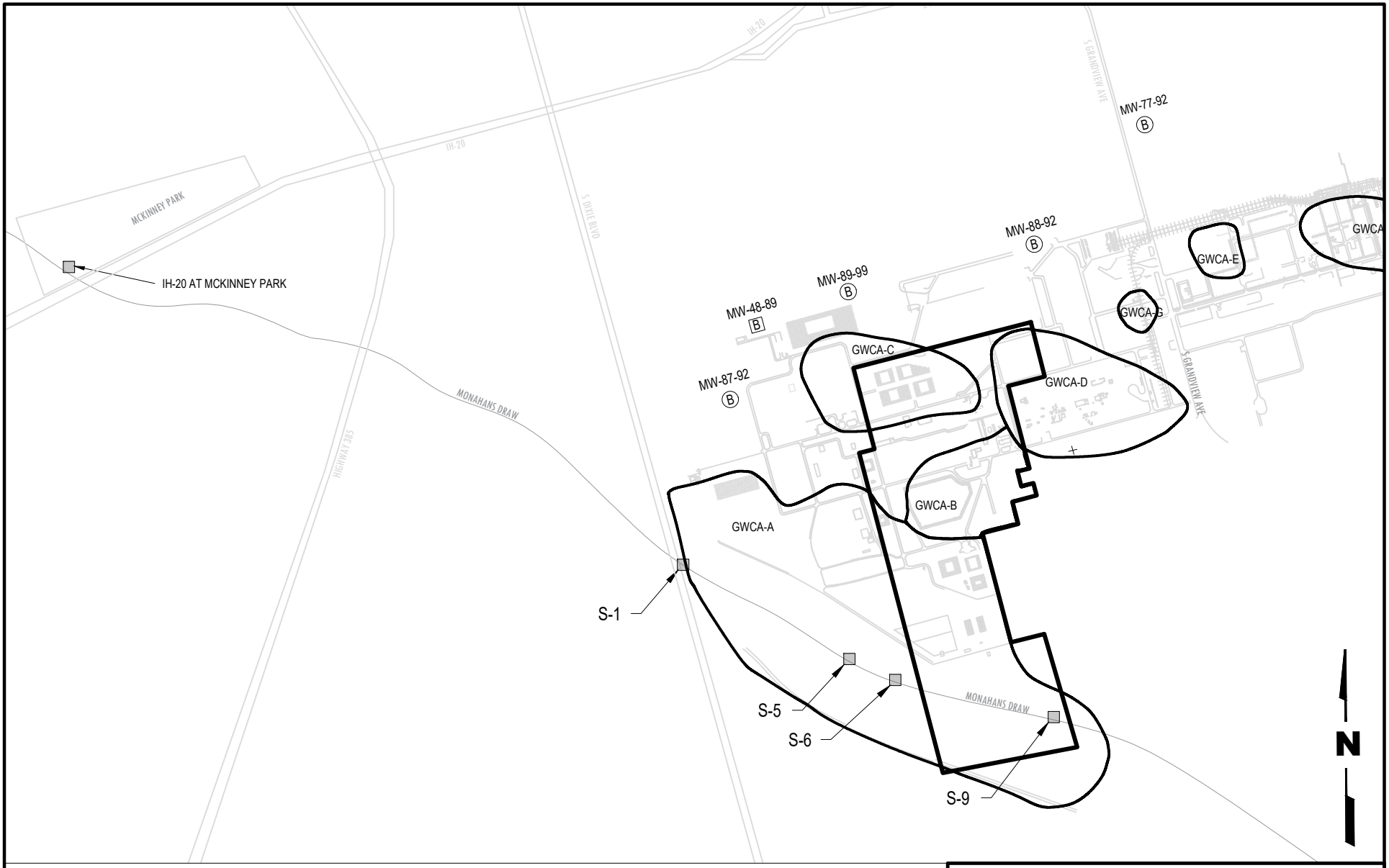
CP ATTACHMENT A

SHEET 4 OF 5

GWCA-E, GWCA-F, AND GWCA-G

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 400 FT	FEB 2026	1039.005.001



LEGEND

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- MONAHANS DRAW SURFACE WATER SAMPLE LOCATIONS
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- MW-87-92 (B) BACKGROUND WELL ANTLERS
- MW-48-89 (B) BACKGROUND WELL OGALLALA

0 700 1,400
SCALE IN FEET

CP ATTACHMENT A

SHEET 5 OF 5

MONAHANS DRAW SURFACE WATER SAMPLE LOCATIONS AND BACKGROUND WELL LOCATIONS

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 1,400 FT	FEB 2026	1039.005.001

CP Table I: Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring

A. Corrective Action[1] (30 TAC Section 335.166)

Unit Name	Notice of Registration (NOR) Number, if applicable
Reserved	

B. Compliance Monitoring[1] (30 TAC Section 335.165)

Unit Name	Notice of Registration (NOR) Number, if applicable
Reserved	

C. Corrective Action[2] (30 TAC Section 335.167)

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (SWMU or AOC)
GWCA-C		
1. Butadiene Wastewater Lagoon	73	SWMU
GWCA-E		
1. Fouled Xylene Storage Tank V-911	24	SWMU
2. Fouled Xylene Storage Tank V-912	28	SWMU
3. Solvent Rinse Sump	Y	SWMU

D. Alternative Corrective Action[3] (30 TAC Section 335.151)

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (RCRA-regulated unit, SWMU, or AOC)
GWCA-A		
1. Wastewater Treatment Sludge Landfill	01	SWMU
2. Gulf Seal Ponds	63	RCRA-regulated unit
3. Wastewater Injection Pond	65	SWMU
4. South Flare Pond	67	RCRA-regulated unit
5. South Storage Pond	68	RCRA-regulated unit
6. Adipic Acid Waste Pile	02	SWMU
7. HMDA Waste Pile	32	SWMU
8. Styrene Tar Pits	44	SWMU
9. North Flare Pond	66	SWMU
10. Waste Pile	10	SWMU
11. Filter Dump Sump	K	SWMU

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (RCRA-regulated unit, SWMU, or AOC)
GWCA-B		
1. Olefin Oil/Water Separator	37	RCRA-regulated unit
2. Land Treatment Unit (West)	36	SWMU
3. Olefin Oil Storage Tank	45	SWMU
GWCA-D		
1. Styrene Oil/Water Separator	38	RCRA-regulated unit
2. Styrene Oil Storage Tank	46	SWMU

E. Facility Operations Area (FOA)[4] (30 TAC Section 335.156 and Chapter 350 Subchapter G)

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (RCRA-regulated unit, SWMU, or AOC)
Reserved		

Footnotes:

1. Program applies to RCRA-regulated units only.

2. Program applies to releases from solid waste management units (SWMUs) and/or areas of concern (AOCs).

3. Program applies to commingled releases from a RCRA-regulated unit(s) and from one or more SWMUs and/or AOCs.

4. List the RCRA-regulated units, SWMUs, and/or AOCs which are located within the FOA boundary that are subject to Corrective Action.

   List the RCRA-regulated units, SWMUs, and/or AOCs which are located outside of the FOA boundary and are subject to Compliance Monitoring and/or Corrective Action separately in CP Table I.A., I.B., I.C., or I.D. as appropriate.

CP Table II: Solid Waste Management Units and/or Areas of Concern Addressed in Permit Section XI.H. for which Corrective Action Applies Pursuant to 30 TAC Section 335.167

Unit Name[3]	NOR Number, if applicable	SWMU or AOC	Affected Media[1]	Date Program Requirement and Remedy Standard Completed[2]
Wastewater Treatment Sludge Landfill	01	SWMU	Soil	3/18/1997 – RRS #3. Ongoing GW corrective action GWCA-A.
Adipic Acid Waste Pile	02	SWMU	Soil & GW	4/24/2001 – RRS #3. Ongoing GW corrective action GWCA-A.
Thermal Treatment Unit	03	SWMU	Not specified	2/3/1999 – NFA.
East Land Treatment Unit	04	SWMU	Soil	10/21/1997 – RRS #3.
NSI Warehouse	05	SWMU	Not specified	7/26/1993 – NFA.
Pilot Plant Incinerator	06	SWMU	Not specified	2/23/1999 – NFA.
West Drum Storage Area	07	SWMU	None	8/30/2000 – RRS #3.
Bulk Storage Area	09	SWMU	Soil	4/24/2001 – RRS #2.
Waste Pile Pad	10	SWMU	Soil	10/21/1997 – RRS #3. Ongoing GW corrective action GWCA-A.
Copper Salt Surface Impoundment	12	SWMU	Not specified	2/18/2000 – NFA.
Copper Salt Surface Impoundment	13	SWMU	Not specified	2/18/2000 – NFA.
Copper Salt Waste Pile	14	SWMU	Not specified	2/18/2000 – NFA.
Phenolic Wastewater Tank	15	SWMU	Not specified	12/17/1993 – NFA.
Waste Acid Tank	16	SWMU	Not specified	11/21/1990 – NFA.
Waste Oil Storage Tank	20	SWMU	Not specified	6/22/1993 – NFA.
Outfall Retention Pond	21	SWMU	None	8/3/1999 – RRS #2.
Sodium Landspreading Area	22	SWMU	Not specified	2/23/1999 – NFA.
Fouled Xylene Storage Tank	23	SWMU	None	10/27/2009 – RRS #1.
Fouled Xylene Storage Tank V-911	24	SWMU	None	11/7/2000 – RRS #2. Ongoing GW corrective action GWCA-E.
East Plant Drum Storage Area	25	SWMU	None	2/23/1999 – NFA.
Atactic Polypropylene Waste Landfill	27	SWMU	Soil	8/3/1999 – RRS #2.
Fouled Xylene Storage Tank V-912	28	SWMU	None	6/14/2000 – RRS #1. Ongoing GW corrective action GWCA-E.
HMDA Waste Pile	32	SWMU	Soil	1/18/1997 – RRS #3. Ongoing GW corrective action GWCA-A.
PCB Container Storage Building	33	SWMU	Not specified	3/19/2001 – NFA.
Land Treatment Unit (West)	36	SWMU	Soil	3/18/1997 – RRS #3. Ongoing GW corrective action GWCA-B.

Unit Name[3]	NOR Number, if applicable	SWMU or AOC	Affected Media[1]	Date Program Requirement and Remedy Standard Completed[2]
Olefin Oil/Water Separator	37	SWMU	Soil & GW	3/25/1999 – RRS #3. Ongoing GW corrective action GWCA-B.
Styrene/Butadiene Oil/Water Separator	38	SWMU	Soil & GW	3/25/1999 – RRS #3. Ongoing GW corrective action GWCA-D.
Adipic Acid Plant Incinerator	39	SWMU	Not specified	11/7/2000 – NFA.
Adipic Acid Plant Incinerator	40	SWMU	Not specified	4/24/2001 – NFA.
Adipic Acid Plant Incinerator	41	SWMU	Not specified	4/24/2001 – NFA.
Styrene Tar Pits	44	SWMU	Soil & GW	4/24/2001 – RRS #3. Ongoing GW corrective action GWCA-A.
Olefin Oil Storage Tank	45	SWMU	Soil	3/18/1997 – RRS #3. Ongoing GW corrective action GWCA-B.
Styrene Soil Storage Tank	46	SWMU	Soil	4/24/2001 – RRS #3. Ongoing GW corrective action GWCA-D.
Adipic Acid Wastewater Tank	47	SWMU	Not specified	3/1/1999 – NFA.
Ammonia Oil/Water Separator	49	SWMU	Soil	11/13/2001 – RRS #3.
HMD Wastewater Storage Tank	50	SWMU	Not specified	3/1/1999 – NFA.
Styrene Tar Storage Tank	51	SWMU	Not specified	3/1/1999 – NFA.
PE/PP Oil-Water Separator	53	SWMU	None	8/3/1999 – RRS #2.
Oil Recovery Tank	54	SWMU	None	8/3/1999 – RRS #2.
Oil Recovery Tank	55	SWMU	None	8/3/1999 – RRS #2.
Oil or Solids Storage Tank	56	SWMU	None	8/3/1999 – RRS #2.
Oil or Solids Storage Tank	57	SWMU	None	8/3/1999 – RRS #2.
Oil or Solids Storage Tank	58	SWMU	None	8/3/1999 – RRS #2.
Wastewater Surge Pond	59	SWMU	None	8/3/1999 – RRS #2.
Triethyl Aluminum Storage Tank	61	SWMU	Not specified	5/13/1999 – NFA.
Polypropylene Flare Pit	62	SWMU	None	8/3/1999 – RRS #2.
Gulf Seal Ponds	63	SWMU	None	3/19/2001 – RRS #3. Ongoing GW corrective action GWCA-A.
Wastewater Treater	64	SWMU	Soil	12/19/2000 – RRS #3.
Injection Pond	65	SWMU	None	9/7/2000 – RRS #3. Ongoing GW corrective action GWCA-A.
North Flare Pond	66	SWMU	Soil	4/24/2001 – RRS #3. Ongoing GW corrective action GWCA-A.

Unit Name[3]	NOR Number, if applicable	SWMU or AOC	Affected Media[1]	Date Program Requirement and Remedy Standard Completed[2]
South Flare Pond	67	SWMU	None	3/25/1999 – RRS #3. Ongoing GW corrective action GWCA-A.
South Storage Pond	68	SWMU	None	12/15/1999 – RRS #3. Ongoing GW corrective action GWCA-A.
Container Storage Area	69	SWMU	None	8/17/2010 – RRS #1.
Fouled Naphtha Tank	70	SWMU	Not specified	10/10/2000 – NFA.
R&D Process Water Sump	72	SWMU	Soil	11/13/2001 – RRS #3.
Butadiene Wastewater Lagoon	73	SWMU	Soil & GW	11/13/2001 – RRS #3. Ongoing GW corrective action GWCA-C.
West Side Drainage Area	83	SWMU	Soil	11/13/2001 – RRS #3.
Filter Dump Sump	K	SWMU	Soil	10/21/1997 – RRS #3. Ongoing GW corrective action GWCA-A.
Solvent Rinse Sump	Y	SWMU	Soil	11/12/2001 – RRS #2. Ongoing GW corrective action GWCA-E.
Playa Lake Impoundment	H	SWMU	Soil	8/3/1999 – RRS #2.

SWMU = Solid Waste Management Unit; AOC = Area of Concern; NOR = Notice of Registration

Footnotes:

1. Specify the affected media [i.e., soil, groundwater (GW), surface water (SW), or sediment (SED)].

2. For each SWMU or AOC which has completed the Corrective Action Program objectives, specify the Remedy Standard (or Risk Reduction Standard) that was completed, the date of the Commission's No Further Action (NFA) approval letter for all affected media of concern, and the land use used to obtain NFA.

3. For sites with an authorized Facility Operations Area (FOA), list all SWMUs and/or AOCs located within the FOA boundary and outside of the FOA boundary that are subject to Corrective Action at the site.

   Please separate the SWMUs and/or AOCs that are located within the FOA boundary from the SWMUs and/or AOCs that are located outside of the FOA boundary.

Notes:

a) CP Table II lists SWMUs and/or AOC which have been identified in the RCRA Facility Assessment (RFA) Report as having a release(s) or potential releases of hazardous waste, hazardous constituents, or other chemicals of concern. The Permittee is thus required to meet Corrective Action objectives in accordance with Permit Section XI.H. and 30 TAC Section 335.167.

b) The Permittee shall update CP Table II when a new SWMU and/or AOC which requires Corrective Action is identified.

c) The Permittee shall also update CP Table II when the Corrective Action status of an affected media for a SWMU or AOC has changed as outlined in Footnote No. 2.

d) SWMUs and/or AOCs shall not be deleted from this table when the Corrective Action objectives have been completed and a NFA determination has been approved for the SWMU and/or AOC. In accordance with Permit Section XI.H., CP Table II is intended to be a historical record of the facility's corrective actions and to reflect when the Corrective Action objectives have been met for each SWMU/AOC.

e) There may be cases in which the Permittee fulfills the Corrective Action objectives for soils at a SWMU/AOC, but long-term monitoring and corrective action may be necessary to meet the groundwater Corrective Action objectives. In such instances, the SWMU/AOC would be listed in CP Table I.C and would be subject to all applicable provisions of this Compliance Plan. If a release from a SWMU/AOC is commingled with a RCRA-regulated unit, then the unit and the SWMU/AOC would be listed in CP Table I.D. In accordance with Permit Section XI.H, once the Corrective Action objectives for groundwater are completed, then the Permittee shall modify or amend the Compliance Plan to reassign the SWMU/AOC in CP Table I.C (or CP Table I.D) to CP Table II. CP Table II should reflect the new status of the SWMU/AOC and include the Remedy Standard (or Risk Reduction Standard) that was completed, the date of the NFA approval letter for <u>all</u> affected media of concern, and the land use used to obtain NFA.

CP Table III: Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/L) at the POC[1, 3]		**Column C** Groundwater Protection Standards (mg/L) at the POE, APOE, or FBOC[2, 3]	
GWCA-A, GWCA-B, GWCA-C, GWCA-D, GWCA-E					
	Arsenic	0.01	MCL	0.01	MCL
	Barium	2.0	MCL	2.0	MCL
	Chromium	0.1	MCL	0.1	MCL
	Lead	0.015	MCL	0.015	MCL
	Benzene	0.005	MCL	0.005	MCL
	Ethylbenzene	0.7	MCL	0.7	MCL
	Toluene	1.0	MCL	1.0	MCL
	Xylene (Total)	10	MCL	10	MCL
	Styrene	0.1	MCL	0.1	MCL
	Acenaphthene	2.19	MSC	2.19	MSC
	Acenaphthylene	6.1	MSC	6.1	MSC
	Anthracene	31	MSC	31	MSC
	Benzo(a)anthracene	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)
	Benzo(a)pyrene	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)
	Benzo(b)fluoranthene	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)
	Benzo(k)fluoranthene	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)
	Benzo(g,h,i)perylene	3.1	MSC	3.1	MSC
	Chrysene	0.039	MSC	0.039	MSC
	Dibenzo(a,h)anthracene	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)
	Fluoranthene	4.1	MSC	4.1	MSC
	Fluorene	4.1	MSC	4.1	MSC
	Ideno(1,2,3-cd)pyrene	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)	N.D. (0.01)
	Naphthalene	2.0	MSC	2.0	MSC

Unit Name	Column A Hazardous Constituents	Column B Groundwater Protection Standards (mg/L) at the POC[1, 3]		Column C Groundwater Protection Standards (mg/L) at the POE, APOE, or FBOC[2, 3]	
	Phenanthrene	3.1	MSC	3.1	MSC
	Pyrene	3.1	MSC	3.1	MSC

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, delete the contents of the table and add "Reserved" to the first row of CP Table III.

b) CP Table III represents the long list of hazardous constituents that are reasonably expected to be in, or derived from, the waste placed in each RCRA-regulated unit, SWMU, and/or AOC listed in the table. CP Table III also lists the hazardous constituents that have been historically detected in the groundwater for each RCRA-regulated unit, SWMU, and/or AOC. These hazardous constituents are monitored in accordance with Provision XI.F.3.c.(1).

c) In accordance with Provision XI.D.6., the Groundwater Protection Standards (GWPS) must be met before the Corrective Action Program can be terminated for the RCRA-regulated unit, SWMU, and/or AOC.

d) If applicable, "Appendix IX" can be used in Column A for a unit instead of listing each chemical of concern (COC). The Permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the Permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the unit.

e) Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells should not be listed in CP Table III. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table III, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by CP Table VII and Provision XI.G.3 and become a part of the Permit by reference.

f) POC = point of compliance; POE = point of exposure; APOE = alternate point of exposure (only applicable for an authorized plume management zone [PMZ]); and FBOC = Facility Operation Area (FOA) Boundary of Compliance (only applicable for an authorized FOA).

Footnotes:

1. Use Column B to specify the GWPS assigned at the POC for a RCRA-regulated unit subject to Corrective Action or for a SWMU/AOC subject to the Risk Reduction Rules. Put "N/A" if not applicable.

2. Use Column C to specify the GWPS assigned at the POE, APOE (PMZ only), or FBOC (authorized FOA only). Put "N/A" if not applicable.

3. For each COC, include the appropriate GWPS designation to demonstrate that the Corrective Action Program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

   ACL = alternative concentration limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B

RRR GWPS Designations and Definitions

MSC	ACL pursuant to 30 TAC Section 335.160(b) based upon the groundwater Medium-Specific Concentration (MSC), Residential (or Industrial) Risk Reduction Standard No. 2 (or No. 3) specified in 30 TAC Section 335 Subchapter S.
MCL	ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Maximum Contaminant Level (MCL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.
SMCL	ALC pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Secondary Maximum Contaminant Level (SMCL) specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.
AL	ACL pursuant to 30 TAC Section 335.160(b) based upon the Action Level (AL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.
BKG	Background as determined in accordance with Provision XI.F.1.
ND	Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the most recent edition of EPA SW-846, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentration of an analyte in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TRRP GWPS Designations and Definitions

$^{GW}GW_{Ing}$	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater ingestion PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1 or Class 2 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), $^{GW}GW_{Ing}$ PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10E-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.
$^{GW}GW_{Class3}$	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule

automatically change the concentration value established in Column B in this table.

$^{Air}GW_{Inh\text{-}V}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the inhalation of volatile constituents from groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1, 2, or 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SW}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-surface water PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SED}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-sediment PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{ECO}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL protective of ecological receptor(s) determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

BKG Background as determined in accordance with Provision XI.F.1.

ND Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the most recent edition of EPA SW-846 and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

CP Table IIIA: Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/L) at the POC[1, 3]		**Column C** Groundwater Protection Standards (mg/L) at the POE, APOE, or FBOC[2, 3]	
GWCA-A	Benzene	0.005	MCL	0.005	MCL
	Ethylbenzene	0.70	MCL	0.70	MCL
	Toluene	1.0	MCL	1.0	MCL
	Styrene	0.1	MCL	0.1	MCL
GWCA-B	Benzene	0.005	MCL	0.005	MCL
GWCA-C	Benzene	0.005	MCL	0.005	MCL
GWCA-D	Benzene	0.005	MCL	0.005	MCL
GWCA-E	Xylene	10	MCL	10	MCL

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, delete the contents of the table and add "Reserved" to the first row of CP Table IIIA.

b) CP Table IIIA represents the short list of hazardous constituents (i.e., indicator parameters) developed from CP Table III and are monitored on a frequency specified in CP Table VIII to verify that the ground water protection standards (GWPS) are met.

c) In accordance with Provision XI.D.6, the GWPS must be met before the Corrective Action Program can be terminated for the RCRA-regulated unit, SWMU and/or AOC.

d) If applicable, "Appendix IX" can be used in Column A for a unit instead of listing each chemical of concern (COC). The Permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the Permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the unit.

e) Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells should not be listed in CP Table IIIA. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table IIIA, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by CP Table VII and Provision XI.G.3 and become a part of the Permit by reference.

f) POC = point of compliance; POE = point of exposure; APOE = alternate point of exposure (only applicable for an authorized plume management zone [PMZ]); FBOC = Facility Operations Area (FOA) Boundary of Compliance (only applicable for an authorized FOA).

Footnotes:

1. Use Column B to specify the GWPS assigned at the POC for a RCRA-regulated unit subject to Corrective Action or for a SWMU/AOC subject to the Risk Reduction Rules. Put "N/A" if not applicable.

2. Use Column C to specify the GWPS assigned at the POE, APOE, or FBOC. Put "N/A" if not applicable.

3. For each COC, include the appropriate GWPS designation to demonstrate that the Corrective Action Program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

   ACL = alternative concentration limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B

RRR GWPS Designations and Definitions

MSC	ACL pursuant to 30 TAC Section 335.160(b) based upon the groundwater Medium-Specific Concentration (MSC), Residential (or Industrial) Risk Reduction Standard No. 2 (or No. 3) specified in 30 TAC Section 335 Subchapter S.
MCL	ACL pursuant to 30 TAC Section 335.160(b) based upon the groundwater Maximum Contaminant Level (MCL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.
SMCL	ALC pursuant to 30 TAC Section 335.160(b) based upon the groundwater Secondary Maximum Contaminant Level (SMCL) specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.
AL	ACL pursuant to 30 TAC Section 335.160(b) based upon the Action Level (AL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.
BKG	Background as determined in accordance with Provision XI.F.1.
ND	Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the most recent edition of EPA SW-846 and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentration of an analyte in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TRRP GWPS Designations and Definitions

$^{GW}GW_{Ing}$	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater ingestion PCL determined under RSA or RSB

(Residential or Commercial /Industrial) for Class 1 or Class 2 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), $^{GW}GW_{Ing}$ PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10E-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.

$^{GW}GW_{Class3}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

$^{Air}GW_{Inh\text{-}V}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the inhalation of volatile constituents from groundwater PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1, 2, or 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SW}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-surface water PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SED}GW ACL pursuant to 30 TAC Section 335.160(b)and 30 TAC Chapter 350 which is based upon the groundwater-to-sediment PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{ECO}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL protective of ecological receptor(s) determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

BKG Background as determined in accordance with Provision XI.F.1.

ND Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the most recent edition of EPA SW-846 and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

CP Table IV: Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Quantitation Limits

Unit Name	Column A Hazardous Constituents	Column B Concentration Limits (mg/L)[1, 2]	
Reserved			

Notes:

a) If there are no RCRA-regulated units subject to the Compliance Monitoring Program pursuant to 30 TAC Section 335.165, delete the contents of the table and add "Reserved" to the first row of CP Table IV.

b) CP Table IV represents the long list of hazardous constituents that are reasonably expected to be in, or derived from, waste placed in a RCRA-regulated unit but may not be detected in the groundwater above the chemical of concern's (COC) concentration limit.

c) If applicable, "Appendix IX" can be used in Column A for a RCRA-regulated unit instead of listing each COC. The Permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the Permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the unit.

d) CP Table IV chemicals of concern (COCs) are to be monitored annually in accordance with Provision XI.F.3.c(2)(b). Any CP Table IV COCs detected in the groundwater at a concentration greater than the COC's concentration limit should be added to CP Table IVA through permit modification or amendment.

Footnotes:

1. Use Column B to specify the concentration limit assigned at the point of compliance (POC).

2. For each COC, include the appropriate concentration limit designation according to either the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP concentration limit designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

RRR Concentration Limit Designations and Definitions

ND Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentrations of analytes in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

BKG Background as determined in accordance with Provision XI.F.1.

TRRP Concentration Limit Designations and Definitions

ND Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

BKG Background as determined in accordance with Provision XI.F.1.

CP Table IVA: Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/L)[1, 2]	
Reserved			

Notes:

a) If there are no RCRA-regulated units subject to the Compliance Monitoring Program pursuant to 30 TAC Section 335.165, delete the contents of the table and add "Reserved" to the first row of CP Table IVA.

b) CP Table IVA represents the short list of hazardous constituents released from a RCRA-regulated unit which are detected in the groundwater above the concentration limits specified in CP Table IV, Column B.

c) CP Table IVA chemicals of concern (COCs) are monitored in accordance with the frequency specified in CP Table VIII to verify the groundwater protection standards (GWPS) are met.

Footnotes:

1. Use Column B to specify the GWPS assigned at the point of compliance (POC).

2. For each COC, include the appropriate GWPS designation that applies to verify the Compliance Monitoring Program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

   ACL = alternative concentration limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B.

RRR GWPS Designations and Definitions

MSC ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Medium-Specific Concentration, Residential (or Industrial) Risk Reduction Standard No. 2 (or No. 3) specified in 30 TAC Section 335 Subchapter S.

MCL ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Maximum Contaminant Level specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.

SMCL ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Secondary Maximum Contaminant Level specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.

AL ACL pursuant to 30 TAC Section 335.160(b) based upon the Action Level (AL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.

BKG Background as determined in accordance with Provision XI.F.1.

ND Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentrations of analytes in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TRRP GWPS Designations and Definitions

$^{GW}GW_{Ing}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater ingestion PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1 or Class 2 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), $^{GW}GW_{Ing}$, PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10E-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.

$^{GW}GW_{Class3}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

$^{Air}GW_{Inh\text{-}V}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the inhalation of volatiles from groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1, 2, or 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SW}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is

based upon the groundwater-to-surface water PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SED}GW — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-sediment PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{ECO}GW — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL protective of ecological receptor(s) determined under RSA or RSB. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

BKG — Background as determined in accordance with Provision XI.F.1.

ND — Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

CP Table V: Designation of Wells

Point of Compliance (POC) Wells

Unit Name	Well Numbers
GWCA-A	Ogallala Wells: MW-22-88, MW-27-88, MW-73-90, MW-102-92, RW-6A-90, RW-8A-92, RW-9A-90, RW-12A-88, RW-13A-95, RW-14A-95, RW-15A-92, RW-16A-92, and RW-17A-92 Antler Wells: MW-66-90 and MW-67-90
GWCA-B	Ogallala Wells: MW-14-88 Antler Wells: MW-15-88
GWCA-C	Ogallala Wells: MW-90-92, RW-1C-88, and RW-2C-92 Antler Wells: MW-91-92 and MW-92-92
GWCA-D	Ogallala Wells: B-9, MW-4-88, MW-13-88, MW-57-89, MW-105-92, and RW-2D-88 Antler Wells: MW-1, MW-3-88, MW-5-88, MW-104-92
GWCA-E	Ogallala Wells: MW-45-88 and MW-86-92 Antler Wells: None
Monahans Draw Surface Water Sample Locations	IH-20 at McKinney Park, S-1, S-5, S-6, and S-9

Point of Exposure (POE) Wells

Unit Name	Well Numbers
Reserved	

Alternate Point of Exposure (APOE) Wells

Unit Name	Well Numbers
Reserved	

Background Wells

Unit Name	Well Numbers
GWCAs -A through -E	Ogallala Wells: MW-77-92, MW-87-92, MW-88-92, and MW-89-99

	Antler Wells: MW-48-89

FOA Boundary of Compliance (FBOC) Wells

Unit Name	Exposure Pathway	Well Numbers
Reserved		

Note:
Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells required by Permit Section XI.B.2. should not be listed in CP Table V. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table V, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by Provision XI.G.3. and CP Table VII and become a part of the Permit by reference.

CP Table VI: Compliance Period and Post Closure Period for RCRA-Regulated Units

GWCA-A (Based on Unit No. 63 Gulf Seal Ponds)	Year or Number of Years
Year Waste Management Activities Initiated	1960 (estimated)
Year Closed	2/9/2001
Compliance Period	41 Years
Compliance Period Begin Date	1960
Compliance Period End Date	2/9/2001
Post Closure Care Period	30 Years
Post Closure Care Period Begin Date	2/9/2001
Post Closure Care Period End Date	2/9/2031
GWCA-B (Unit No. 37 Olefin Oil/Water Separator)	**Year or Number of Years**
Year Waste Management Activities Initiated	1961
Year Closed	12/18/1998
Compliance Period	37 Years
Compliance Period Begin Date	1961
Compliance Period End Date	12/18/1998
Post Closure Care Period	30 Years
Post Closure Care Period Begin Date	12/18/1998
Post Closure Care Period End Date	12/18/2028
GWCA-D (Unit No. 38 Styrene Oil/Water Separator)	**Year or Number of Years**
Year Waste Management Activities Initiated	1958
Year Closed	12/18/1998
Compliance Period	40 Years
Compliance Period Begin Date	1958
Compliance Period End Date	12/18/1998
Post Closure Care Period	30 Years
Post Closure Care Period Begin Date	12/18/1998

GWCA-D (Based on Unit No. 63 Gulf Seal Ponds)	Year or Number of Years
Post Closure Care Period End Date	12/18/2028

CP Table VII: Reporting Requirements

Item	Program	Reporting Frequency	Requirements
1.	All programs	Annually by July 21st	Each report shall be certified by a qualified engineer and/or geoscientist.
2.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	A table of all modifications and amendments made to this Compliance Plan with their corresponding approval dates by the Executive Director (or the Commission) and a brief description of each action;
3.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	A summary of any activity and/or response actions implemented since the last reporting period within an area subject to an institutional control.
4.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Tabulation of well casing elevations in accordance with CP Attachment C;
5.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide a certified well installation diagram for any new monitoring well installed or replaced during the reporting period. Provide the certification for all wells plugged and abandoned during the reporting period;
6.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Recommendation for any changes to the program;
7.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Any other items requested by the Executive Director;

Item	Program	Reporting Frequency	Requirements
8.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Prepare water table maps from the groundwater data collected pursuant to Permit Section XI. F. and reported in accordance with Provision XI.G.3. The Permittee shall also include in the report an evaluation of the following parameters: a. Development and maintenance of a cone of depression during operation of the groundwater recovery system(s), if applicable; b. Direction and gradient of groundwater flow; c. Effectiveness of hydrodynamic control of the contaminated groundwater zone during operation of the groundwater recovery system(s), if applicable; and d. Estimation of the rate and direction of groundwater contamination migration.
9.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	The Permittee shall submit the groundwater monitoring report required by Provision XI.G.3. to each recipient listed in Provision XI.J.3. The report must include all applicable information listed in this table (CP Table VII: Reporting Requirements) for the reporting period. If both Corrective Action and Compliance Monitoring Programs are authorized, then the report shall contain the applicable information required for both programs.
10.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Discuss the Corrective Action System(s) authorized under Provision XI.B.3. that was in operation during the reporting period. Provide a narrative summary of the evaluations made for each system for the preceding reporting period in accordance with Permit Sections XI.E., XI.F., and XI.G. The reporting periods shall be January 1st through June 30th and July 1st through December 31st for the Corrective Action Program, unless an alternative schedule is approved by the Commission. The reporting period for the Compliance Monitoring Program shall be based on the calendar year.
11.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Discuss the method(s) used to manage recovered/purged groundwater in accordance with Provision XI.B.8. The Permittee shall maintain this information as part of the facility's operating record and make it available for inspection upon request.

Item	Program	Reporting Frequency	Requirements
12.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide an updated table and map of all monitoring and corrective action system wells. The wells to be sampled shall be those wells proposed in the Compliance Plan Application referenced in Provision I.B. and any changes subsequently approved by the Executive Director pursuant to Provisions XI.B.2. and XI.B.3. Provide in chronological order a list of those wells which have been added to, or deleted from, the groundwater monitoring program and remediation systems since original issuance of the Compliance Plan. Include the date of the Commission's approval for each well;
13.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide the results of the chemical analyses, submitted in a tabulated format acceptable to the Executive Director, which clearly indicates each chemical of concern (COC) that exceeds the Groundwater Protection Standard (GWPS) or Concentration Limit. Copies of the original laboratory report(s) which contain the appropriate quality control and quality assurance data and the detection limit for each COC shall be provided if requested by the Executive Director;
14.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Tabulation of all water level elevations, depth to water measurements, and total depth of well measurements collected since the previous groundwater monitoring report was submitted as required by Provisions XI.F.3.d.(1) and XI.F.3.d.(4). Also include in the table an evaluation of the silt accumulated in each well and clearly indicate the wells which require corrective action for silt accumulation as required by Provision XI.F.3.d.(4).;
15.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide potentiometric surface maps showing the elevation of the water table at the time of sampling, delineation of the radius of influence of the Corrective Action System, and the direction of groundwater flow gradients outside any radius of influence;
16.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Tabulation of all data evaluation results pursuant to Provision XI.F.4. Include the compliance status of each well regarding the Corrective Action objectives, GWPS, and/or Concentration Limits;

Item	Program	Reporting Frequency	Requirements
17.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide an updated summary as required by CP Table VIII;
18.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide a summary of any changes made to the groundwater monitoring program and/or Corrective Action Program. Include a summary of well inspections, repairs, and any operational difficulties;
19.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Include a notation of the presence or absence of light and/or dense non-aqueous phase liquids (NAPLs) in each well during each sampling event. Provide a tabulation of the depth and thickness of the NAPL, if detected, for each well;
20.	Corrective Action only	Annually by July 21st	Provide quarterly tabulations of the quantities of recovered groundwater and NAPLs, and graphs of monthly recorded flow rates versus time for the corrective action recovery wells in operation during the reporting period. Also provide a narrative summary which describes and evaluates the NAPL recovery program;
21.	Corrective Action only	Annually by July 21st	Tabulation of the total contaminant mass recovered from each groundwater recovery system in operation during the reporting period;
22.	Corrective Action only	Annually by July 21st	Provide maps of the area(s) where GWPSs are exceeded. Depict the concentrations of CP Table IIIA COCs, and any newly detected CP Table III COCs, as isopleth contours or discrete concentrations if isopleth contours cannot be inferred. Clearly delineate the area(s) where concentrations of COCs exceed the GWPS. Depict the boundary of the plume management zone (PMZ), if applicable;
23.	Corrective Action only	Annually by July 21st	Provide maps and tables which include the extent and thickness of detected light and/or dense NAPLs;

Item	Program	Reporting Frequency	Requirements
24.	Corrective Action only	Annually by July 21st	Annually provide a Corrective Measures Implementation (CMI) Progress Report or Response Action Effectiveness Report (RAER) in accordance with Provision XI.H.6. The Permittee must also include a narrative summary of the status of the approved final corrective measures conducted in accordance with the approved CMI Workplan or Response Action Plan and must demonstrate that the requirements of Provisions XI.H.6 and XI.H.7. are being met. The CMI Progress Report must include: a) A summary of the response actions taken since the last reporting period; b) An estimate of the percentage of the response action(s) which has been completed; c) An estimate in years of the additional time necessary to complete the response action(s); d) A determination whether sufficient progress is being made to complete the response actions within a reasonable timeframe; and e) Any other reasonable information required by the Executive Director. The RAER must include: f) The information required by Title 30 Texas Administrative Code (TAC) Section 350.93; or g) The Permittee may complete and submit the RAER Form (TCEQ Form 10327/RAER). The required CMI Progress Report/RAER may be submitted as a separate section in the groundwater monitoring report required by Provisions XI.G.3. Alternatively, the required elements of the CMI Progress Report/RAER may be incorporated within the groundwater monitoring report, but each requirement must be clearly identified within the groundwater monitoring report.

Item	Program	Reporting Frequency	Requirements
25.	Corrective Action only	Annually by July 21st	The Permittee must include a narrative summary of the status of each Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) subject to the requirements of Permit Section XI.H. The Permittee must also discuss the Interim Corrective Measures (ICM) Program for each applicable SWMU and/or AOC and document that the objectives of Provision XI.H.8.b. are being achieved.
26.	PMZ	Not Applicable	Provide a summary evaluating the effectiveness of the Corrective Action system in controlling migration beyond the downgradient boundary and vertical limit of the PMZ to achieve the GWPS. The summary shall include an evaluation of whether the attenuation action levels are exceeded at their respective attenuation monitoring points pursuant to 30 TAC Sections 350.33(f)(4)(A) and 350.33(f)(4)(D)(ii);
27.	PMZ	Not Applicable	Provide an estimate of the percentage of the response action which has been completed within the PMZ;
28.	PMZ	Not Applicable	Include an estimate in years of the additional time necessary to complete the response actions for the PMZ;
29.	PMZ	Not Applicable	Provide a determination whether sufficient progress is being made to achieve the selected remedy standard within a reasonable time frame given the circumstance of the affected property within the PMZ.
30.	Facility Operations Area (FOA) only	Not Applicable	Provide additional reporting requirements to fulfill the requirements of 30 TAC Section 350.134 and 30 TAC Section 350.135. These requirements include, but are not limited to: a. Provide an average of both lost workday injury case rates and injury incidence rates for the most recent three (3) year period compared to the most recent specific industry national average published by the Bureau of Labor Statistics; b. Document that the worker health and safety program meet the requirements of the Occupational Safety and Health Administration (OSHA) by providing records of the OSHA compliance history or the results of the most recent audit of the health and safety programs by the OSHA or a third party certified professional

Item	Program	Reporting Frequency	Requirements
			industrial hygienist and safety specialist. An audit is required anytime there is a significant change to the health and safety program, or at a minimum every three (3) years, the results of which indicate the program is satisfactory; c. Document a compliance history ranking of average or better for the TCEQ; d. Document the pollution prevention program that has a goal of prevention of releases of COCs to environmental media within the FOA; e. Provide a statement that the program required in 30 TAC Section 350.134(a)(7) to protect workers within the FOA from environmental media having concentrations of COCs greater than protective concentration levels (PCLs) or action levels based on the health and safety program is still in effect. In addition, the Permittee shall provide, for the preceding year, an updated map delineating areas where the Soil Response Action Plan has been implemented pursuant to 30 TAC Section 350.135(a)(5); f. Document there have not been any significant outstanding non-compliance issues resulting from inspections for compliance with the RCRA permit or Order, if any; g. Document areas of ecological impact identified within the FOA and procedures for responding to these identified ecologically impacted areas on a continual basis. Review any ecologically impacted areas annually and report any new ecological impacts within thirty (30) days of verification of impact; h. Document activity associated with tracking and responding to releases to soil and groundwater above reportable quantities, which occur within the FOA after the issuance of the Compliance Plan, in accordance with 30 TAC Section 350.135(a)(7); i. Document any NAPL occurrences and any procedure(s) used to address known NAPLs and any NAPLs identified during the operational life of the FOA. This should

Item	Program	Reporting Frequency	Requirements
			include any previously discovered NAPL occurrences; and j. Provide documentation that access is restricted to the FOA.

CP Table VIII: Compliance Schedule

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
A.	60 days	Compliance Plan	Submit to the Executive Director a schedule summarizing all activities required by the Compliance Plan. The schedule shall list the starting dates of all routine activities. The permittee shall include an updated schedule in the groundwater monitoring report required by Provision XI.G.3. and CP Table VII. The schedule shall list the activity or report, the Compliance Plan Section which requires the activity or report, and the calendar date the activity or report is to be completed or submitted (if this date can be determined.)
B.	60 days	30 TAC §335.163(4) and Provision XI.F.2.	Submit to the Executive Director for review and approval a Sampling & Analysis Plan (SAP) unless the SAP has been submitted with the application and referenced in Provision I.B.
C.	Not Applicable	30 TAC §335.166	Corrective Action monitoring shall be conducted on a semiannual basis for the RCRA-regulated units listed in CP Table I.A. which are subject to the Corrective Action Program.
D.	Not Applicable	30 TAC §335.165	Compliance Monitoring shall be conducted on a semiannual basis for the RCRA-regulated units listed in CP Table I.B. which are subject to the Compliance Monitoring Program.
E.	During the first thirty (30) days of each second and fourth quarter	30 TAC §335.167	Corrective Action monitoring shall be conducted on a semiannual basis for the solid waste management units (SWMUs) and/or areas of concern (AOCs) listed in CP Table I.C. which are subject to the Corrective Action Program.
F.	During the first thirty (30) days of each second and fourth quarter	30 TAC §335.151	Alternative Corrective Action monitoring shall be conducted on a semiannual basis for the RCRA-regulated units, SWMUs, and/or AOCs listed in CP Table I.D. which are subject to the Corrective Action Program.

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
G.	Not Applicable	30 TAC Section 335.156 and Chapter 350	FOA Corrective Action monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units, SWMUs, and/or AOCs listed in CP Table I.E., which are located within the FOA Boundary and are subject to the Corrective Action Program.
H.	Not Applicable	30 TAC §350.31(g) and §350.33(f) (4)(C)(i)	If a plume management zone (PMZ) has been authorized, submit to the Executive Director proof of compliance with the institutional control requirements which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time when the concentrations of the chemicals of concern are less than the groundwater protection standards (GWPS) listed on CP Table III.
I.	Not Applicable	30 TAC §350.33(k)	If a PMZ has been authorized, after an unexpected event occurs which indicates that additional response actions will be required at an affected property.
J.	See Note No. 2 relating to rows E and F		*See Note No. 2.*

Notes:

1. Please note that Corrective Action monitoring is conducted on semiannual basis unless a less frequent monitoring schedule is approved based on plume stability and achievement of Corrective Action objectives.

2. Groundwater monitoring events and data evaluation for the Corrective Action Program will be performed in accordance with the following schedule:

    a. Semiannual groundwater sampling of POC wells listed in CP Table V will be performed in April and October of each year.

    b. Annual groundwater sampling of background wells listed in CP Table V and CAO wells depicted on CP Attachment A will be performed in April of each year.

CP Table IX: Description of Uppermost Aquifer

The term "Uppermost Aquifer" as referenced in this Compliance Plan refers to the Ogallala hydrogeologic unit (Ogallala), with the underlying Trinity Antlers (Antlers) hydrogeologic unit. The groundwater is generally encountered at depths of less than 20 feet below ground surface (bgs). In the northern portion of the FHR Odessa Plant, the general depth to groundwater for the Ogallala is around 20 ft bgs with the general depth to groundwater for the underlying Trinity Antlers 1 to 3 ft deeper. Further south at the FHR Odessa Plant, the hydraulic connectivity between the two units is more apparent moving toward Monahans Draw, where the general depth to groundwater is generally less than 10 ft bgs. As shown on the figures in this submittal, both the water level elevations and the general flow directions are very similar for both units. In general, the flow direction on the eastern portion of the property is towards the southeast, and the flow on the western portion is south to southwest, towards Monahans Draw. The average gradient is approximately 0.002 to 0.003 feet/foot.

Table XI.A.1. - Facility History for Waste Management Units

Name of Waste Management Unit[1]	Type of Waste Management Unit	Notice of Registration Unit Number	Date Waste Was *First* Placed in Unit	EPA Waste Code	Estimated Capacity of Unit	Quantity of Waste Left in Place	Date Waste Was Last Placed in Unit[2]	Date of Unit Closure or Projected Closure	Date Unit Certified Closed[3]	Is There Evidence of a Release of Hazardous Constituent(s)[4] to Groundwater? (Yes, No, or Unknown)
1. NSI Warehouse	LT 90 Day Container Storage	05	7/28/1987	NA	3,000 ft^2	None	7/26/1993	7/26/1993	7/26/1993	No
2. West Plant Drum Storage Area	Interim Status Container Storage	07	7/28/1987	NA	6,300 ft^2	None	6/21/1989	6/16/2000	6/16/2000	No
3. Injection Well WDW-16	Injection Well	08	7/28/1987	NA	150 gal/min	None	3/6/2013	4/1/2013	7/11/2013	No
4. Bulk Storage Area	Permitted Bulk Storage	09	2/14/1990	NA	2,000 ft^2	None	8/26/1998	2/10/1999	2/10/1999	No
5. West Container Storage Area	Used Oil	11	8/16/1993	NA	2,500 ft^2	None	12/9/2009	12/31/2014	NA	No
6. Waste Acid Tank	LT 90 Day Storage Tank	16	7/28/1997	NA	42,000 gal	None	8/14/1990	11/21/1990	11/21/1990	No
7. Olefin “C” Boiler	Interim Status Industrial Boiler	18	7/28/1987	NA	100 gal/hr	None	4/4/2002	10/16/2003	10/16/2003	No
8. Styrene DNBP Drum Storage	LT 90 Day Storage Tank	19	7/28/1987	NA	110 gal	None	8/5/2002	1/27/2003	1/27/2003	No

9. Waste Oil Tank	LT 90 Day Storage Tank	20	7/28/1987	NA	451,000 gal	None	3/4/1992	6/22/1993	6/22/1993	No
10. Storage Tank (V-2109)	Permitted Storage Tank	23	7/28/1997	F003	24,510 gal	None	4/28/2009	6/18/2009	10/27/2009	No
11. Injection Well WDW-88	Injection Well	29	7/28/1987	NA	150 gal/min	None	8/2/2001	1/22/2002	1/22/2002	No
12. Injection Well WDW-126	Injection Well	30	7/28/1987	NA	150 gal/min	None	7/23/2001	1/22/2002	1/22/2002	No
13. Injection Well WDW-154	Injection Well	31	7/28/1987	NA	150 gal/min	None	7/13/2001	1/22/2002	1/22/2002	No
14. Olefin Oil/Water Separator	Interim Status Surface Impoundment	37	2/6/1990	NA	65,000 gal	None	6/15/1993	12/18/1998	12/18/1998	Yes
15. Styrene/BD Oil/Water Separator	Interim Status Surface Impoundment	38	2/15/1990	NA	65,000 gal	None	7/15/1990	12/18/1998	12/18/1998	Yes
16. Gulf Seal Ponds	Interim Status Surface Impoundment	63	2/14/1990	D018	1,073,000 gal	1,073,000 gal	6/15/1997	10/10/2000	10/10/2000	Yes
17. Injection Pond	Interim Status Surface Impoundment	65	2/14/1990	NA	1,610,000 gal	None	12/31/1991	6/14/2000	6/14/2000	Yes
18. South Flare Pond	Interim Status Surface Impoundment	67	2/14/1990	D018	1,280,680 gal	1,280,680 gal	3/31/1994	12/15/1998	12/15/1998	Yes
19. South Storage Pond	Interim Status Surface Impoundment	68	2/14/1990	D018	3,494,000 gal	3,494,000 gal	3/31/1994	10/14/1999	10/14/1999	Yes
20. Container Storage Area	Permitted Container Storage Area	69	2/14/1990	D001, D002, D007, Oth	700 drums	None	3/2/2010	3/5/2010	9/17/2010	No
21. “C” Boiler Horizontal Feed Tank	LT 90 Day Storage Tank	74	3/30/1995	NA	10,400 gal	None	5/19/2004	5/19/2004	5/19/2004	No

22. DOX Oil Tank	LT 90 Day Storage Tank	75	3/30/1995	NA	25,000 gal	None	5/17/2004	5/17/2004	5/17/2004	No
23. "C" Boiler Storage Tank	LT 90 Day Storage Tank	76	3/30/1995	NA	19,530 gal	None	NA	4/4/2002	6/6/2002	No
24. Injection Tank	LT 90 Day Storage Tank	77	3/30/1995	NA	257,332 gal	None	3/1/2004	12/31/2014	NA	No
25. Wastewater Surge Tank	WWTU	78	3/30/1995	NA	578,998 gal	None	NA	12/31/2014	NA	No
26. Wastewater Surge Tank	WWTU	79	3/30/1995	NA	578,998 gal	None	NA	12/31/2014	NA	No
27. Wastewater Surge Tank	WWTU	80	3/30/1995	NA	578,998 gal	None	NA	12/31/2014	NA	No
28. Wastewater Surge Tank	WWTU	81	3/30/1995	NA	578,998 gal	None	NA	12/31/2014	NA	No
29. Recovery Heptane Tank	LT 90 Day Storage Tank	84	2/14/1990	NA	446,000 gal	None	12/12/2001	2/1/2002	2/1/2002	No
30. Container Storage Area At C Boiler Feed Prep Area	LT 90 Day Container Storage Area	85	2/24/1999	NA	400 ft^2	NA	2/24/1999	2/24/1999	5/17/2004	No
31. Container Storage Area West of Fac. 69	LT 90 Day Container Storage Area	87	9/18/2000	NA	8.25 cubic yard rolloff boxes	NA	NA	12/31/2014	NA	No
32. Container Storage Area North of Fac. 69	LT 90 Day Container Storage Area	88	9/18/2000	NA	1,000 ft^2	None	NA	12/31/2014	NA	No
33. Groundwater Storage Tank (West)	LT 90 Day Storage Tank	89	9/18/2000	NA	10,000 gal	None	3/25/2009	12/31/2014	NA	No

34. Groundwater Storage Tank (East)	LT 90 Day Storage Tank	90	9/18/2000	NA	6,000 gal	None	3/25/2009	12/31/2014	NA	No
35. Alyl Waste Tank	LT 90 Day Storage Tank	91	10/16/2000	NA	850 gal	None	NA	12/31/2014	NA	No
36. PE Modifier Sump	Sump	92	8/27/2002	NA	2,200 gal	None	4/4/2002	6/6/2002	6/6/2002	No
37. Bundle Wash Pad Tank	LT 90 Day Storage Tank	93	11/4/2002	NA	3,000 gal	None	3/24/2003	6/18/2003	6/18/2003	No
38. East Side Drum Storage Area	LT 90 Day Container Storage Area	94	11/7/2002	NA	2,500 ft^2	None	9/29/2009	12/31/2014	NA	No

Footnotes:

1. Indicate by asterisk (*) those waste management units that have received any hazardous waste constituent listed in Appendix VIII of 40 CFR Part 261.

2. For the purposes of this Compliance Plan Application, a waste management unit receiving hazardous waste after July 26, 1982, shall be considered a RCRA-regulated Unit. A waste management unit that ceased receiving hazardous waste on or before that date shall be considered a Solid Waste Management Unit (SWMU).

3. The date the applicant submitted certification of closure to the Commission.

4. Hazardous constituents are those hazardous constituents listed in Appendix IX of 40 CFR Part 264.

Table XI.E. – General Information

Waste Management Area/Unit Description	NOR No. (if applicable)	Compliance Period for Waste Management Area/Unit[1, 2]
Not Applicable/Reserved		

Footnotes:

1. The compliance period is the number of years equal to the active life of the waste management area as defined in 30 TAC 335.162

2. In instances where the compliance period is equal to or exceeds 30 years, the maximum amount of financial assurance required will be based on 30 years because the required post-closure care period to perform Corrective Action and groundwater monitoring is 30 years. In instances where the compliance period is less than 30 years, the financial assurance for Corrective Action or Compliance Monitoring will be based on the longest time frame established by one of the following criteria:

    a. the duration of your Compliance Plan;

    b. the estimated time frame for clean-up based on model projections and historical data as approved by the Executive Director; or

    c. the compliance period for the unit/area.

Table XI.E.1. Corrective Action Program Cost Estimate

Task	Cost
1. Pumping Capacity Per Year:	
A. Daily average system pumping rate	0 gal/day
B. Annual groundwater volume recovered	0 gal/yr
2. Off-Site Liquid Treatment / Disposal Cost:	
A. Volume of treated contaminated water to be disposed of off-site yearly	500 gal/yr
B. Transportation of liquid waste disposed of off-site yearly	
(1) Transportation cost per gallon	$3.50/gal
(2) Gallons of contaminated water shipped per year	500 gal/yr
(3) Annual cost of transportation (1 x 2)	$1,750/yr
C. On-site yearly storage cost prior to off-site disposal	0 $/yr
D. Off-site yearly treatment cost of liquid waste	
(1) Treatment charge per gallon	$3.00/gal
(2) Total volume to be treated per year	500 gal/yr
(3) Annual treatment cost (1 x 2)	$1,500/yr
E. Off-site disposal cost of liquid waste per year	
(1) Disposal charge per gallon	0 $/gal
(2) Total volume to be disposed per year	0 gal/yr
(3) Annual disposal cost (1 x 2)	0 $/yr
Annual Off-Site Liquid Treatment / Disposal Cost (2B3 + 2C +2D3 + 2E3)	**$3,250**
3. On-site Wastewater Treatment System Cost and On-site Treatment / Disposal Cost:	
Submit a cost estimate for a treatment system specifically designed and used exclusively for the groundwater Corrective Action Program and operational after some start up maintenance. Estimates to clean out the system should also be included in the following cost.	N/A
A. Initial capital expenditure for treatment system including start up maintenance	$0
On-Site Wastewater Treatment System Capital Cost (3A)	$0

B. Gallons of contaminated water to be treated on-site per year	0 gal/yr
C. Cost of on-site treatment per gallon	$0/gal
D. Cost of sludge or solids disposal per year	$0/yr
E. Cost per year of maintenance on treatment system and recovery system, along with any additional equipment and repairs needed for the systems	$0/yr
F. Cost of on-site disposal per year	$0/yr
Annual On-Site Treatment / Disposal Cost [(3B x 3C) + 3D + 3E + 3F]	**$0**
4. Inspections, Maintenance and Operation Cost for the Corrective Action Program:	
A. Operator's time on-site for inspections and maintenance per year	150 hr/yr
B. Charge of salary per hour	$35/hr
C. Annual cost of labor (4A x 4B)	$5,250/yr
D. Replacement cost of parts and equipment per year	$3,500/yr
E. Electricity cost per year	$0/yr
Annual Inspections / Maintenance / Operation Cost for the Corrective Action Program (4C + 4D + 4E)	**$8,750**

Table XI.E.2.e - Groundwater Monitoring Cost Estimate

Task	Cost
1. Annual Sampling and Analysis Cost	
A. Background Wells	
(1) Number of wells	5
(2) Sample analysis cost per well	$60/well
(3) Number of sampling events per year	1/yr
(4) Sampling cost (1 x 2 x 3)	$300
B. Point of Compliance Wells	
(1) Number of wells	34
(2) Sample analysis cost per well	$60/well
(3) Number of sampling events per year	2/yr
(4) Sampling cost (1 x 2 x 3)	$4,080
C. Recovery Wells	
(1) Number of wells	0
(2) Sample analysis cost per well	$0/well
(3) Number of sampling events per year	0/yr
(4) Sampling cost (1 x 2 x 3)	0
D. Corrective Action Observation Wells	
(1) Number of wells	28
(2) Sample analysis cost per well	$60/well
(3) Number of sampling events per year	1/yr
(4) Sampling cost (1 x 2 x 3)	$1,680
E. Point of Exposure Wells	
(1) Number of wells	0
(2) Sample analysis cost per well	$0/well
(3) Number of sampling events per year	0/yr
(4) Sampling cost (1 x 2 x 3)	0
F. Supplemental Wells	
(1) Number of wells	5

(2) Sample analysis cost per well	$60/well
(3) Number of sampling events per year	2/yr
(4) Sampling cost (1 x 2 x 3)	$600
G. Field Quality Control Sampling	
(1) Number of wells	14
(2) Sample analysis cost per well	$60/well
(3) Number of sampling events per year	1/yr
(4) Sampling cost (1 x 2 x 3)	$840

2. Sampling Labor Cost:	
A. Hours of sampling per well	0.5 hrs/well
B. Number of sampling technicians per well	2
C. Charge per hour	$35/hr
D. Total number of wells to be sampled annually	28 + 5 = 33 Wells
E. Total number of wells sampled semi-annually	34 + 5 = 39 Wells
F. Total number of wells sampled quarterly	0
G. Total number of wells sampled monthly	0
H. Total number of wells sampled per year (2D) + (2E x 2) + (2F x 4) + (2G x 12)	33+78+0+0=111 Wells
I. Sampling Labor Cost (2A x 2B x 2C x 2H)	$3,885
Annual Groundwater Monitoring Cost (Annual Sampling and Analysis Cost + Sampling Labor Cost)	$11,385
3. Well Installation (typical cost):	
A. Monitor well installation cost per well	$0/well
B. Number of monitor wells to be installed	0
C. Cost of monitor well system (3A x 3B)	0
D. Recovery well installation cost per well	$0/well
E. Number of Recovery Wells to be installed	0
F. Cost of Recovery well system (3D x 3E)	0
Total Well Installation Cost (3C + 3F)	0
4. Administrative Cost:	

A. Annual cost for record-keeping and report preparation	$21,000

Annual Administrative Cost (4A)	$21,000
5. Inspection and Maintenance Cost for the Monitoring Program:	
A. Operator's time (hours) on-site for inspections and maintenance per year	150/yr
B. Charge or salary per hour	$35/hr
C. Annual cost of labor (4A x 4B)	$5,250/yr
D. Replacement of parts and equipment per year	$3,500/yr
Annual Inspections / Maintenance Cost for the Groundwater Monitoring Program (5C + 5D)	$8,750

Table XI.E.3. - Financial Assurance Summary

Task	Cost
Annual Off-Site Liquid Treatment / Disposal Cost	$3,250
Annual On-Site Treatment / Disposal Cost	$0
Annual Inspection / Maintenance / Operation Cost for the Corrective Action Program	$8,750
Annual Groundwater Monitoring Cost	$11,385
Annual Administrative Cost	$21,000
Annual Inspection and Maintenance Cost for the Groundwater Monitoring Program	$8,750
Annual Subtotal	$53,135
Total Years Used for Calculating Financial Assurance for Corrective Action and/or Compliance Monitoring Program	6 Years
Remediation Cost (Annual Subtotal x Total Years Used)	$318,810
On-Site Wastewater Treatment System Capital Cost Total	0
Total Well Cost	0
10% Contingency	$31,810
Grand Total Cost (round to nearest $1000)	$351,000

COMPLIANCE PLAN
(CORRECTIVE MEASURES IMPLEMENTATION WORK PLAN)

FLINT HILLS RESOURCES ODESSA, LP
ODESSA PLANT
ODESSA, ECTOR COUNTY, TEXAS

Prepared for:

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TABLE OF CONTENTS

Section			Page
SUMMARY			**S-1**
1	**INTRODUCTION AND BACKGROUND**		**1-1**
	1.1	OBJECTIVES	1-1
	1.2	SITE LOCATION AND DESCRIPTION	1-1
	1.3	HISTORY AND OPERATIONS	1-1
	1.4	HISTORY OF CORRECTIVE MEASURES	1-2
	1.5	RCRA PERMIT AND CORRECTIVE MEASURES FRAMEWORK	1-4
2	**SUMMARY OF CURRENT CONDITIONS**		**2-1**
	2.1	GROUNDWATER FLOW DIRECTION	2-1
	2.2	NON-AQUEOUS PHASE LIQUID	2-1
	2.3	GROUNDWATER QUALITY	2-2
	2.4	MONAHANS DRAW	2-2
3	**MONITORED NATURAL ATTENUATION EVALUATION**		**3-1**
	3.1	HYDROGEOLOGY AND NATURAL ATTENUATION PROCESSES	3-1
		3.1.1 GWCAs-A, B, AND C	3-2
		3.1.2 GWCA-D	3-2
		3.1.3 GWCA-E	3-3
		3.1.4 GWCA-F	3-3
	3.2	ONGOING MNA EVALUATIONS	3-3
4	**PROPOSED CORRECTIVE ACTION PROGRAM**		**4-6**
	4.1	OVERVIEW OF PROPOSED CHANGES	4-6
		4.1.1 GWCA-A	4-6
		4.1.2 GWCA-B	4-7
		4.1.3 GWCA-C	4-7
		4.1.4 GWCA-D	4-8
		4.1.5 GWCA-E	4-9
		4.1.6 GWCA-F	4-9
		4.1.7 GWCA-G	4-10
		4.1.8 MONAHANS DRAW SURFACE WATER	4-10
	4.2	SCHEDULING AND REPORTING	4-10
	4.3	REGULATORY CONSIDERATIONS	4-10
5	**REFERENCE**		**5-1**

LIST OF FIGURES

Figure 1-1 Facility Location Map 1-6

Figure 1-2 Facility Layout Map 1-7

Figure 2-1 Compliance Well Location Map 2-3

Figure 2-2 Potentiometric Surface Map – Ogallala April 2025 2-4

Figure 2-3 Potentiometric Surface Map – Antlers April 2025 2-5

Figure 2-4 Benzene Concentrations and Occurrence of NAPL – Ogallala April 2025 2-6

Figure 2-5 Benzene Concentrations and Occurrence of NAPL – Antlers April 2025 2-7

Figure 4-1 Monitoring Program for GWCA-A and GWCA-B 4-12

Figure 4-2 Monitoring Program for GWCA-C through GWCA-F 4-13

LIST OF TABLES

Table 2-1 Calculated LNAPL Thicknesses since 2008 2-8

Table 2-2 Calculated DNAPL Thicknesses since 2008 2-9

Table 2-3 Summary of Surface Water Sample Results Since 2008 2-10

Table 3-1 Benzene Concentrations since 2009 - Ogallala 3-4

Table 3-2 Benzene Concentrations since 2009 - Antlers 3-5

Table 4-1 Well Construction Details 4-14

APPENDICIES

APPENDIX A POTENTIOMETRIC MAPS 2023-2025 – OGALLALA AND ANTLERS
APPENDIX B HISTORICAL NAPL AND BENZENE ISOPLETH MAPS 2023-2025

1 INTRODUCTION AND BACKGROUND

1.1 OBJECTIVES

SQ Environmental, LLC (SQE) prepared this update to the Corrective Measures Implementation (CMI) Work Plan as part of the renewal application for the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Permit and Compliance Plan with the Texas Commission on Environmental Quality (TCEQ) (Permit No. 50290). This update replaces previously approved CMI Work Plans dated 20 November 2015 and April 2009 (SQE, 2015 and Weston, 2009) and describes the planned corrective measures for groundwater at the Flint Hills Resources Odessa, LLC (FHR) Odessa Plant in Odessa, Ector County, Texas. The objectives of this document are to:

1. Summarize current groundwater conditions (**Section 2**).
2. Evaluate the current corrective action system that consists of Monitored Natural Attenuation (MNA) (**Section 3**).
3. Update the procedures for the implementation of the MNA corrective action system **(Section 4**).

1.2 SITE LOCATION AND DESCRIPTION

The Odessa Plant consists of 134.83 acres of land located near the intersection of I-10 and South Grandview Avenue in the southern part of Odessa, Texas. The address of the Odessa Plant is 2400 South Grandview Avenue in Odessa, Texas 79766 and the location is shown on **Figure 1-1.** The 134.83 acres includes five hazardous waste management units that are currently in post-closure care. A layout of the FHR Odessa Plant showing the locations of the five hazardous waste management units is provided as **Figure 1-2**.

1.3 HISTORY AND OPERATIONS

The Odessa Plant was originally constructed on the west side of S. Grandview Ave. in 1957 by El Paso Products Company (EPPO). The Plant was expanded over the years and by the 1970s consisted of approximately 984 acres. Through a series of transfers and/or acquisitions, the Odessa Plant came to be operated by Rexene Corporation beginning around 1988. In 1997, Rexene Corporation merged with a private company, and the plant was operated by Huntsman Polymers Corporation (Huntsman). FHR acquired the Huntsman Odessa Plant in 2007 and a decision was made shortly thereafter to shut down operations and decommission the plant.

The Odessa Plant was operated between 1957 and early 2009 to manufacture petrochemicals, including ethylene, propylene, polyethylene, and polypropylene resin. The Odessa Plant was divided into two general areas; the West Plant (which was the area west of Grandview Avenue) and the East Plant (which was the area east of Grandview Avenue). Chemical manufacturing operations were discontinued in early 2009 and FHR completed demolition and decommissioning of the site thereafter.

In 2016, FHR sold a portion of the former Odessa Plant to REXtac, LLC and on 26 June 2018, FHR prepared a Class 1[1] Modification to Hazardous Waste Permit No. 50290 to redefine the boundary of the former plant. The Class 1[1] Modification was approved and issued by the TCEQ on 20 November 2018. Under the redefined boundary, REXtac owns the majority of the permitted facility, and FHR owns a portion

of the southern permitted facility. Although the portion of the permitted facility that includes the five hazardous waste management units in post-closure care is now owned by REXtac, FHR is the operator of the units. In addition, FHR will continue to implement corrective measures for groundwater as described in this CMI Work Plan.

1.4 HISTORY OF CORRECTIVE MEASURES

Investigation and remediation of groundwater have been on-going since the late 1980s. Remediation of groundwater has historically consisted of over 25 years of groundwater extraction and treatment. After FHR acquired the Odessa Plant in 2007, a decision was made to shut down operations and decommission the plant. Representatives of FHR met with the TCEQ on 10 December 2008 to discuss corrective actions for groundwater. With the decommissioning of operations, FHR proposed to change the corrective action system from active groundwater extraction and treatment to MNA.

On 24 April 2009, the *Corrective Measures Implementation (CMI) Work Plan for Monitored Natural Attenuation (MNA)* (Weston, 2009) was prepared and submitted to the TCEQ. The CMI Work Plan for MNA included a Tier 2 Screening Level Ecological Risk Assessment (SLERA) prepared in accordance with Texas Risk Reduction Program (TRRP) Guidance. The 2009 SLERA demonstrated that the conditions anticipated during the MNA period would not result in an unacceptable ecological risk.

The TCEQ provided comments to the CMI Work Plan for MNA in a letter dated 24 July 2009 and requested additional information, including the preparation of a non-aqueous Phase Liquids (NAPL) Management Plan in accordance with TRRP Guidance. FHR prepared a Response to Comments letter dated 24 September 2009. The Tier 2 SLERA was approved by the TCEQ in a letter dated 8 October 2009; the Response to Comments was approved in a letter dated 23 November 2009; and the NAPL Management Plan was approved in a letter dated 22 January 2010. The recovery system was turned off on 25 March 2009 and MNA was implemented in accordance with the approved work plan.

In 2015, FHR initiated the renewal process for the Odessa Plant's Industrial Hazardous Waste Permit (Permit No. 50290) and associated Compliance Plan. As part of the renewal, an updated CMI Work Plan was prepared and submitted providing additional details for the implementation of MNA at the Odessa Plant. The final version dated 20 November 2015 (SQE, 2015) was approved by TCEQ through the issuance of the Permit.

MNA has been implemented at the Odessa Plant for over 15 years. Updates of the effectiveness of MNA are provided to the TCEQ in Annual Compliance Reports (ACRs) submitted by July 21st each year. Periodically, and at the request of the TCEQ, FHR provides a more detailed update for the evaluation of the effectiveness of MNA as a corrective measure. The TCEQ has requested additional details regarding the effectiveness of MNA following three ACRs, as described below:

- Following a review of the 2018-2019 ACR, the TCEQ prepared a Request for Information Letter dated 17 September 2019, requesting an updated evaluation of MNA for the next compliance period in 2019-2020. In response, FHR prepared a *Monitored Natural Attenuation Evaluation Repor*t dated 14 July 2020 (SQE, 2020). The report provided a detailed evaluation of MNA and concluded that MNA continued to be an appropriate corrective action for the FHR Odessa Plant and has resulted in stable and/or declining benzene concentrations in groundwater at the FHR Odessa Plant. The report included an evaluation of historical rainfall in the Odessa area and how periods of drought or heavy rainfall can influence the water table elevation of the two relevant

groundwater-bearing zones (Ogallala and Trinity Antlers), temporarily and superficially resulting in higher dissolved-phase groundwater concentrations in samples collected from onsite monitoring wells. The 2019-2020 ACR was approved by the TCEQ in a letter dated 19 October 2020.

- Following its review of the 2022-2023 ACR, the TCEQ again transmitted a Request for Information Letter dated 12 October 2023, requesting that an evaluation of plume stability be performed. A response was submitted on 9 January 2024 and included a Mann-Kendall statistical trend analysis. The analysis concluded that MNA continued to be an appropriate corrective measure for groundwater at the Odessa Plant. The TCEQ noted, however, that while groundwater at groundwater controls areas (GWCAs) A, B, C, and E were generally stable or decreasing, two wells in GWCA-D and two wells in GWCA-F had apparent or possibly increasing trends and requested further evaluation. To further clarify the technical issues associated with short-term groundwater trend analysis and provide a more detailed evaluation of the MNA processes occurring outside of biological degradation (i.e., dispersion, dilution, and volatilization), representatives of FHR and TCEQ arranged a virtual meeting on 3 July 2024. A follow-up memorandum, *Updated Evaluation of Monitored Natural Attenuation*, dated 19 July 2024, was also prepared and submitted (SQE, 2024). The memorandum provided additional details regarding historical precipitation and fluctuations of groundwater elevation over time which can result in apparent increases of dissolved benzene concentrations. The memorandum also included the additional lines of evidence indicating that MNA continues to be an effective remedy for the Odessa Plant. The TCEQ approved the continued application of MNA and concurred that benzene concentrations were generally stable and/or decreasing in all GWCAs in a letter dated 25 October 2024 (TCEQ, 2024).

- Following its review of the 2024-2025 ACR, the TCEQ issued a Comment Letter dated 28 October 2025. The Comment Letter requested 1) that an institutional control be put into place for the ongoing response action, and 2) that consideration be taken to conduct Mann-Kendall statistical analyses for each well every two years. FHR plans to prepare a response to comments letter under separate cover; however, a discussion of each of these items is presented below and is incorporated in the evaluation of MNA in this CMI Work Plan:

    - Institutional Control. FHR is evaluating options to implement an institutional control for the various groundwater control areas to meet this requirement. Additional information or documentation of filing will be provided under separate cover.

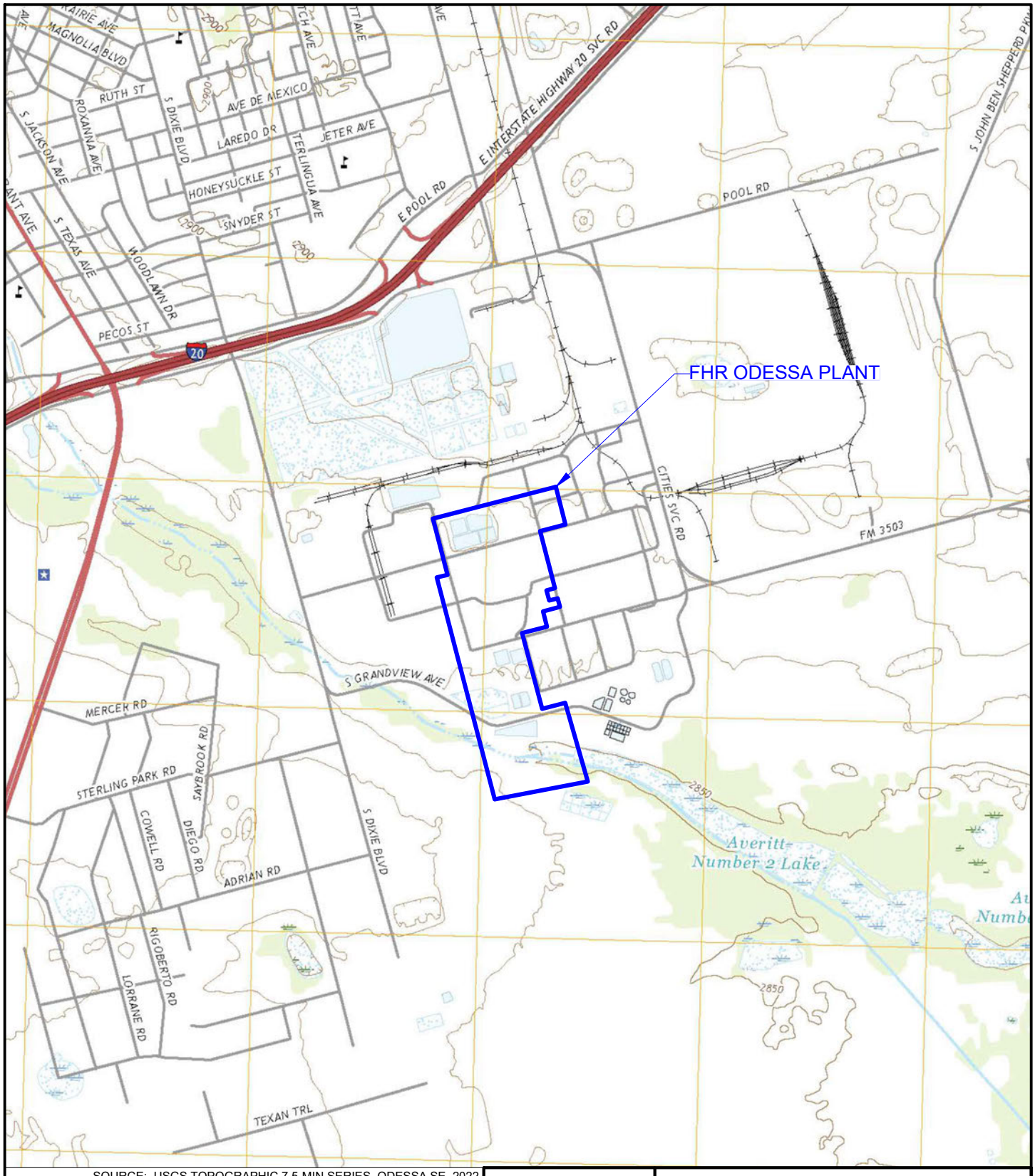
    - Statistical Analyses. The TCEQ understands that evaluation of MNA at the Odessa Plant requires multiple lines of evidence as opposed to the use of single well-point Mann-Kendall trend analysis. The lines of evidence should consider numerous natural attenuation processes, including volatilization, dispersion/dilution, dissolution, and biological activity. Short-term indications of apparent increasing or stable trends identified by Mann-Kendall or similar intrawell trend analyses may show variability of the MNA system but do not necessarily mean that MNA is not an effective remedy for the site. For example, there are areas within Odesa Plant (e.g., GWCA-D and -F) that have historically shown a statistically “apparent” increase in dissolved benzene over a period of above average rainfall. This trend was not due to a new source or an indication that MNA was failing but was caused by the mass of benzene dissolved from the “smear zone” into the groundwater. Observation and data collection over a longer time period identified that this fluctuation of hydrocarbons from the smear zone to the groundwater actually benefits the overall natural attenuation process through the increased removal rate of hydrocarbons. An apparent increase in the groundwater concentration can be observed during these periods even though natural attenuation processes are continuing, and, in some cases, the mass removal rate is actually increasing due to the “slug” of hydrocarbons that are released from the soil. Over the long term, this “washing” of the hydrocarbons from the soil to the groundwater benefits the overall natural attenuation process. As discussed in this CMI Work Plan, the evaluation of MNA as an appropriate remedy will include the use of multiple lines of evidence and will include Mann-Kendall trend analysis for selected wells considering a period of time that incorporates various natural attenuation processes.

1.5 RCRA PERMIT AND CORRECTIVE MEASURES FRAMEWORK

As noted above, a RCRA Hazardous Waste Permit and Compliance Plan Permit (No. 50290) has been issued for the Odessa Plant. The Permit was originally obtained in 1994 and renewed in 2005 and 2016. The Compliance Plan requires the facility to implement corrective actions at five RCRA-regulated units, and 16 Solid Waste Management Units (SWMUs). As part of the Compliance Plan, seven GWCAs were designated because of the co-mingling of constituents from regulated units, SWMUs, nonhazardous waste management units, and off-site sources. There are several units listed on the Odessa Plant's Notice of Registration (NOR) with the TCEQ. For the purposes of this report, these units are identified by "NOR No." or "Facility No." The use of these terms are used interchangeably in this report. A summary of the GWCAs is provided as follows:

- GWCA-A. This area is in the southwestern part of the plant, and includes the area adjacent to Monahans Draw. Within GWCA-A are three of the RCRA-regulated units and eight SWMUs that are subject to the Corrective Action Program.
- GWCA-B. This GWCA is located just to the northeast of GWCA-A, and includes one RCRA-regulated unit and two SWMUs that were subject to the Corrective Action Program.
- GWCA-C. This GWCA is located north of both GWCA-A and GWCA-B, and includes one SWMU that was subject to the Corrective Action Program.
- GWCA-D. This GWCA is located northeast of GWCA-B, and includes one RCRA-regulated unit and one SWMU that are subject to the Corrective Action Program.
- GWCA-E. This GWCA is located just to the east of Grandview Avenue and includes three SWMUs that are subject to the Corrective Action Program.
- GWCA-F. This GWCA is located just east of GWCA-E Corrective Action. This area formerly included one RCRA-Regulated unit (NOR No. 23 Spent Solvent Storage Tank). NOR No. 23 was clean closed in 2009 and subsequently taken out of service. Closure activities were included in a Closure Certification Letter Report dated 6 October 2009, which was approved by the TCEQ in correspondence dated 27 October 2009. The portion of the East Plant where NOR No. 23 was formerly located was transferred to REXtac, LLC, and is no longer on FHR-owned property included in the Hazardous Waste Permit Renewal Application Materials.
- GWCA-G. This GWCA is located west of Grand Avenue and included one RCRA-regulated unit (NOR No. 72 R&D Process Water Sump) that was subject to Compliance Monitoring in the 2005 Permit. Based on a review of the historical use of the R&D Process Water Sump, it appeared that this unit was incorrectly identified as a RCRA-Regulated Unit in the 2005 Permit. The sump was approved closed by the TCEQ on 22 December 1997 and was used to manage nonhazardous wastewaters. This unit would have been considered a SWMU subject to corrective action, but was not a RCRA-regulated unit. In the 2015 CMI Work Plan, it was proposed that the Corrective Action Program for GWCA-G be discontinued, as there were no benzene concentrations above the GWPS in any of the GWCA-G wells for the previous 3 years. GWCA-G was removed from the Corrective Action Program with the issuance of the 2016 Hazardous Waste Permit No. 50290.

Figure 1-2 illustrates the locations of each of the GWCAs, and the RCRA-regulated units and the SWMUs that are currently subject to the Corrective Action Program. Groundwater monitoring was initiated around 1993, and semi-annual monitoring began as early as 1998 and has continued through the present. Surface water sampling has also been performed along Monahans Draw. The results of the most recent groundwater monitoring event are provided in the *2024-2025 Annual Compliance Report*, which was submitted to TCEQ on 21 July 2025.



SOURCE: USGS TOPOGRAPHIC 7.5-MIN SERIES, ODESSA SE, 2022

N

TEXAS

0 1000 2000

SCALE IN FEET

SQ Environmental, LLC

FIGURE 1-1

FACILITY LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 2000 FT	FEB 2026	1039.005.001

UNIT Y - SOLVENT RINSE SUMP
UNIT 28 - FOULED XYLENE STORAGE TANK V-912
UNIT 24 - FOULED XYLENE STORAGE TANK V-911

GWCA-E

GWCA-F

GWCA-G

UNIT 38 - STYRENE OIL/WATER SEPARATOR (POST-CLOSURE CARE)

UNIT 46 - STYRENE OIL STORAGE TANK

GWCA-C

GWCA-D

UNIT 73 - BUTADIENE WASTEWATER LAGOON

UNIT 37 - OLEFIN OIL/WATER SEPARATOR (POST-CLOSURE CARE)

UNIT 45 - OILEFIN OIL STORAGE TANK

UNIT 10 - WASTE PILE

GWCA-B

UNIT 36 - LAND TREATMENT UNIT (WEST)

UNIT K - FILTER DUMP SUMP

UNIT 32 - HMDA WASTE PILE

GWCA-A

UNIT 65 - WASTEWATER INJECTION POND (CLOSED)

UNIT 66 - NORTH FLARE POND

UNIT 01 - WASTEWATER TREATMENTS SLUDGE LANDFILL (CLOSED)

UNIT 44 - STYRENE TAR PITS

UNIT 02 - ADIPIC ACID WASTE PILE

UNIT 63 - GULF SEAL PONDS (POST-CLOSURE CARE)

UNIT 67 - SOUTH FLARE POND (POST-CLOSURE CARE)

UNIT 68 - SOUTH STORAGE POND (POST-CLOSURE CARE)

N

LEGEND:

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM
- SOLID WASTE MANAGEMENT UNITS (SWMU) SUBJECT TO CORRECTIVE ACTION PROGRAM

SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018

0 400 800
SCALE IN FEET

SQ Environmental, LLC

FIGURE 1-2

FACILITY LAYOUT MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 800 FT	FEB 2026	1039.005.001

2 SUMMARY OF CURRENT CONDITIONS

Since 2009, FHR has implemented MNA for groundwater corrective actions in accordance with the issued Permit and CMI Work Plan. This includes semi-annual groundwater sampling and fluid level measurements (April and October) of groundwater monitoring wells, and semi-annual surface water sampling at Monahans Draw. The current conditions of the Odessa Plant, based on the most recent information, are discussed in this section.

2.1 GROUNDWATER FLOW DIRECTION

There are two main hydrogeologic units in the regional area around the site, the Ogallala and the underlying Trinity Antlers formations. Monitoring wells currently included in the groundwater monitoring program for each of the hydrogeologic units are shown on **Figure 2-1.** Potentiometric maps, based on the April 2025 measurements, are provided as **Figure 2-2** (Ogallala) and **Figure 2-3** (Antlers). The groundwater is generally encountered at depths of less than 20 feet below ground surface (bgs). In the northern portion of the FHR Odessa Plant, the general depth to groundwater for the Ogallala is around 20 ft bgs with the general depth to groundwater for the underlying Trinity Antlers 1 to 3 ft deeper. Further south at the site, the hydraulic connectivity between the two units is more apparent moving toward Monahans Draw, where the general depth to groundwater is generally less than 10 ft bgs. As shown on the figures, both the water level elevations and the general flow directions are very similar for both units. In general, the flow direction on the eastern portion of the property is towards the southeast, and the flow on the western portion is south to southwest, towards Monahans Draw. The average gradient is approximately 0.002 to 0.003 feet/foot.

Appendix A includes a series of potentiometric maps from the Compliance Reports, and represent the potentiometric conditions over the previous four events (two years). As shown, the general flow conditions (direction and gradient) have remained similar over the last four events.

2.2 NON-AQUEOUS PHASE LIQUID

The presence of NAPL in groundwater has decreased significantly at the FHR Odessa Plant since MNA began in 2009. As of April 2025, only two wells (RW-1E-88 and MW-114-92) had measured NAPL thicknesses above 0.01 ft, while seven wells had either trace NAPL or a measured thickness of 0.01 ft. All nine of these wells are Ogallala wells. **Figure 2-4** is a benzene isopleth map, and also labels the current locations and measured thicknesses of the LNAPL in the Ogallala wells for the three GWCAs with measured LNAPL based on the April 2025 measurements. As of April 2025, there is no measurable LNAPL in any of the Antler wells. **Table 2-1** provides a summary of the calculated thicknesses of LNAPL since April 2008. As shown, the thicknesses of LNAPL continues to be stable or declining and shows that MNA continues to be an appropriate corrective measure. No dense non-aqueous phase liquid (DNAPL) was measured in any wells during the April 2025 monitoring period. DNAPL has not been detected in Compliance Report gauging since April 2022. **Table 2-2** presents a summary of the calculated DNAPL thicknesses since 2008.

As discussed, the presence of NAPL in groundwater has decreased significantly at the FHR Odessa Plant since MNA began in 2009. In September 2009, a *NAPL Management Report for Groundwater Control Areas A, D and E* (Weston, 2009b) was submitted to TCEQ, and was approved in a letter dated 22 January 2010. This report presented an evaluation of the NAPL at the Odessa Plant, based on TCEQ Regulatory Guidance (*Risk-Based NAPL Management*, RG-336/TRRP-32, TCEQ 2008), and concluded that the NAPL

was stable; did not represent a threat to human health or ecological receptors; and that the presence of the NAPL was not causing the dissolved groundwater plume to expand. In addition, it was demonstrated that it was not practicable to continue NAPL recovery, due to the low volumes of NAPL that could be recovered. The selected NAPL Response Endpoint was the control of soluble NAPL fraction using MNA to create a stable (or shrinking) dissolved constituent plume.

2.3 GROUNDWATER QUALITY

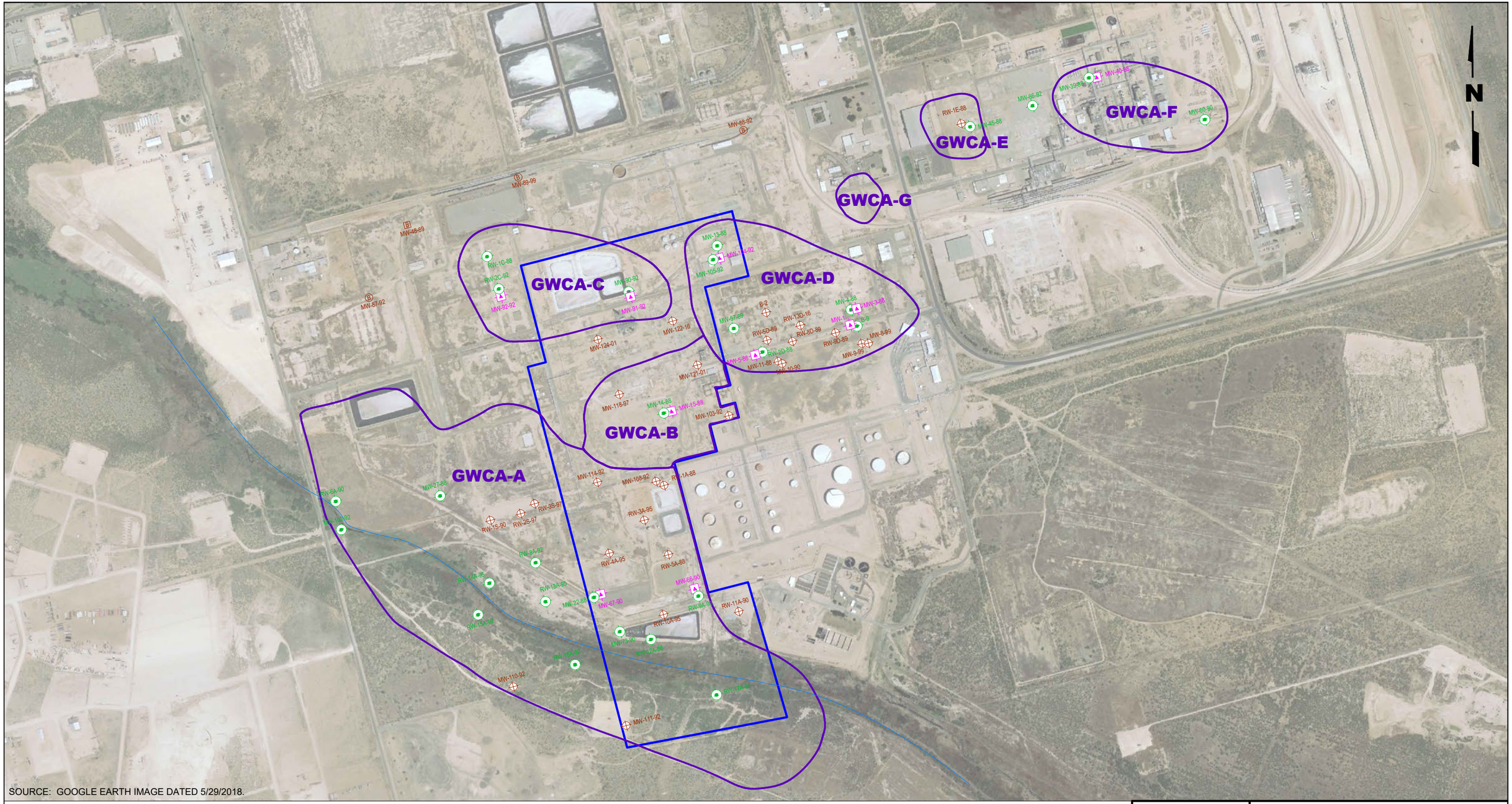
Currently, except for GWCA-A, benzene is the only COC that exceeds the Groundwater Protection Standard (GWPS) at the site. Within GWCA-A there is one location (RW-4A-95) where toluene, ethylbenzene, and styrene have exceeded the GWPS in the last three years. In each of these cases, benzene is also above the GWPS, so benzene is a good indicator of groundwater conditions. A benzene isopleth map for the Ogallala wells is present in **Figure 2-4**, based on the April 2025 sampling event. **Figure 2-5** provides the same information for the Antlers wells.

Historical NAPL and benzene isopleth maps for each of the groundwater units from 2020-2025 are provided in **Appendix B.** As shown on **Figure 2-4** and **Figure 2-5**, there are portions of the FHR Odessa Plant with elevated benzene concentrations in the Ogallala and Antlers aquifer. The highest concentrations of benzene are found in the southern part of GWCA-D and eastern part of GWCA-A. There is no longer benzene above 0.005 mg/L in the GWCA-F area. Benzene is not a COC for GWCA-E (the COC for this area is xylene, which has not been reported above the GWPS for a number of years). Trends in the benzene concentrations are discussed in Section 3.

2.4 MONAHANS DRAW

As part of the 2009 CMI Work Plan for MNA, a SLERA was prepared which demonstrated that groundwater discharge to Monahans Draw would not result in unacceptable risk to ecological receptors. A copy of the SLERA and the TCEQ approval were included in Appendix A of the CMI Work Plan in FHR's 2015 RCRA Permit Renewal application materials.

Table 2-3 provides a summary of the semi-annual sampling results for the Monahans surface water samples from April 2008 until April 2025. Several of the sampling sites (I-20 at McKinney Park, S-6, and S-9) have been dry and unable to be sampled since 2020. Of the 51 samples collected from Monahan's Draw since October 2015, benzene has only been detected above 0.005 mg/L at location S-1. During the October 2019 event, benzene at S-1 was reported to be 0.038 mg/L, and during the April 2022 event, benzene at S-1 was reported to be 0.0151 mg/L. Except for these two samples, no benzene was reported to be present in any surface water sample above 0.005 mg/L. For both October 2024 and April 2025, there was not sufficient water in Monahans Draw for surface water sampling.



SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.

LEGEND:

APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT

APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)

MW-67-90 — POINT OF COMPLIANCE WELL ANTLERS

MW-22-88 — POINT OF COMPLIANCE WELL OGALLALA

RW-4A-95 — CORRECTIVE ACTION OBSERVATION WELL

MW-48-89 (B) — BACKGROUND WELL OGALLALA

MW-87-92 (B) — BACKGROUND WELL ANTLERS

0 400 800

SCALE IN FEET

SQ Environmental, LLC

FIGURE 2-1

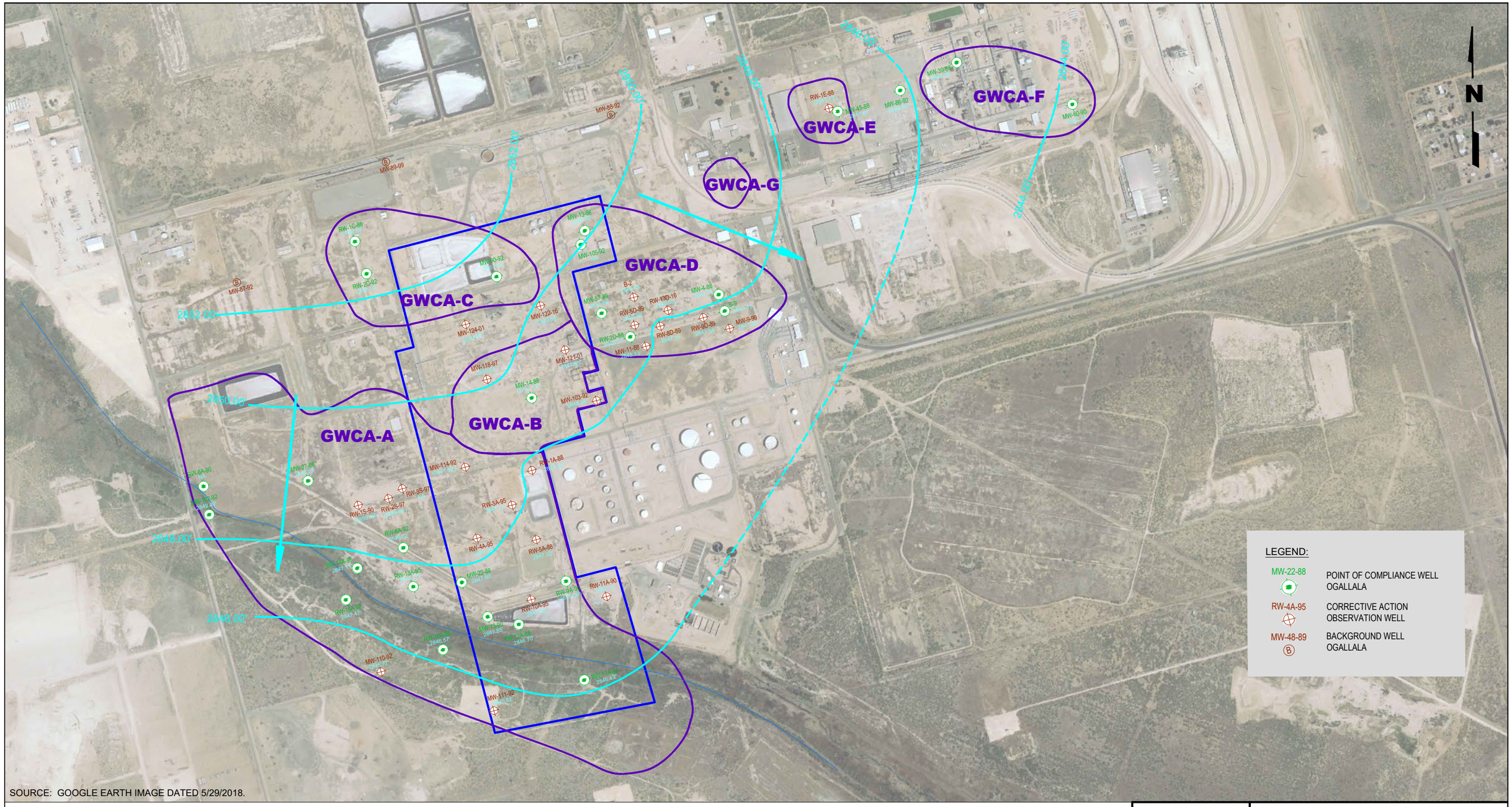
COMPLIANCE WELL LOCATION MAP

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE: 1 IN = 800 FT

DATE: FEB 2026

PN: 1039.005.001



SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.

EXPLANATION AND NOTES

- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION (FT ABOVE MEAN SEA LEVEL) DASHED WHERE INFERRED
- GROUNDWATER FLOW GRADIENT
- 2853.00' WATER LEVEL ELEVATION

NOTE: GROUNDWATER ELEVATION MEASUREMENTS OBTAINED FROM THE 2024-2025 TETRA TECH ANNUAL COMPLIANCE REPORT DATED JULY 2025.

DATA IN PARENTHESES NOT USED TO CREATE THE GROUNDWATER CONTOURS.

0 400 800
SCALE IN FEET

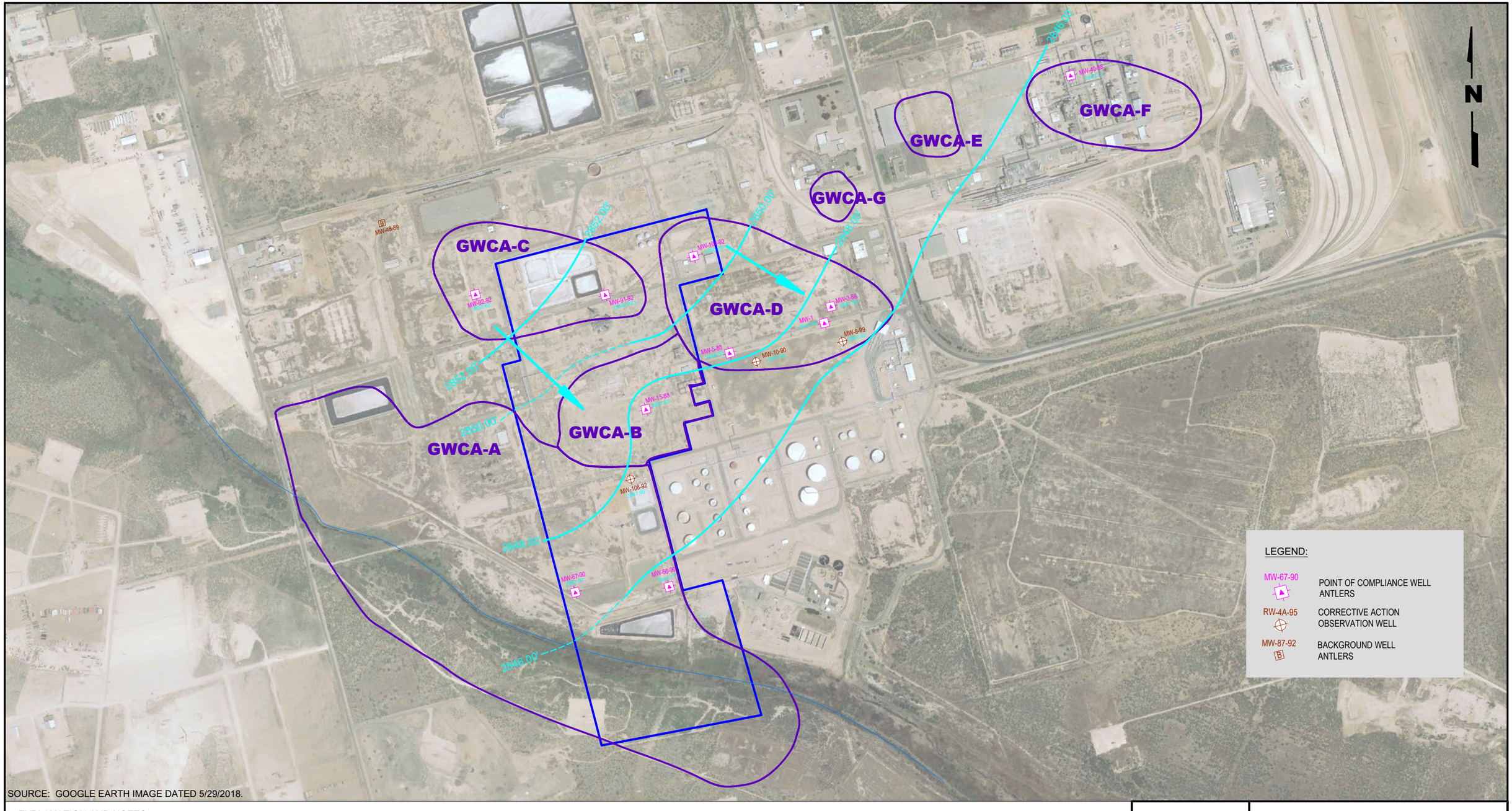
SQ Environmental, LLC

FIGURE 2-2

POTENTIOMETRIC SURFACE MAP - OGALLALA APRIL 2025

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 800 FT	FEB 2026	1039.005.001



SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.

EXPLANATION AND NOTES

- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION (FT ABOVE MEAN SEA LEVEL) DASHED WHERE INFERRED
- GROUNDWATER FLOW GRADIENT
- 2853.00' WATER LEVEL ELEVATION

NOTE: GROUNDWATER ELEVATION MEASUREMENTS OBTAINED FROM THE 2024-2025 TETRA TECH ANNUAL COMPLIANCE REPORT DATED JULY 2025.

DATA IN PARENTHESES NOT USED TO CREATE THE GROUNDWATER CONTOURS.

0 400 800
SCALE IN FEET

SQ Environmental, LLC

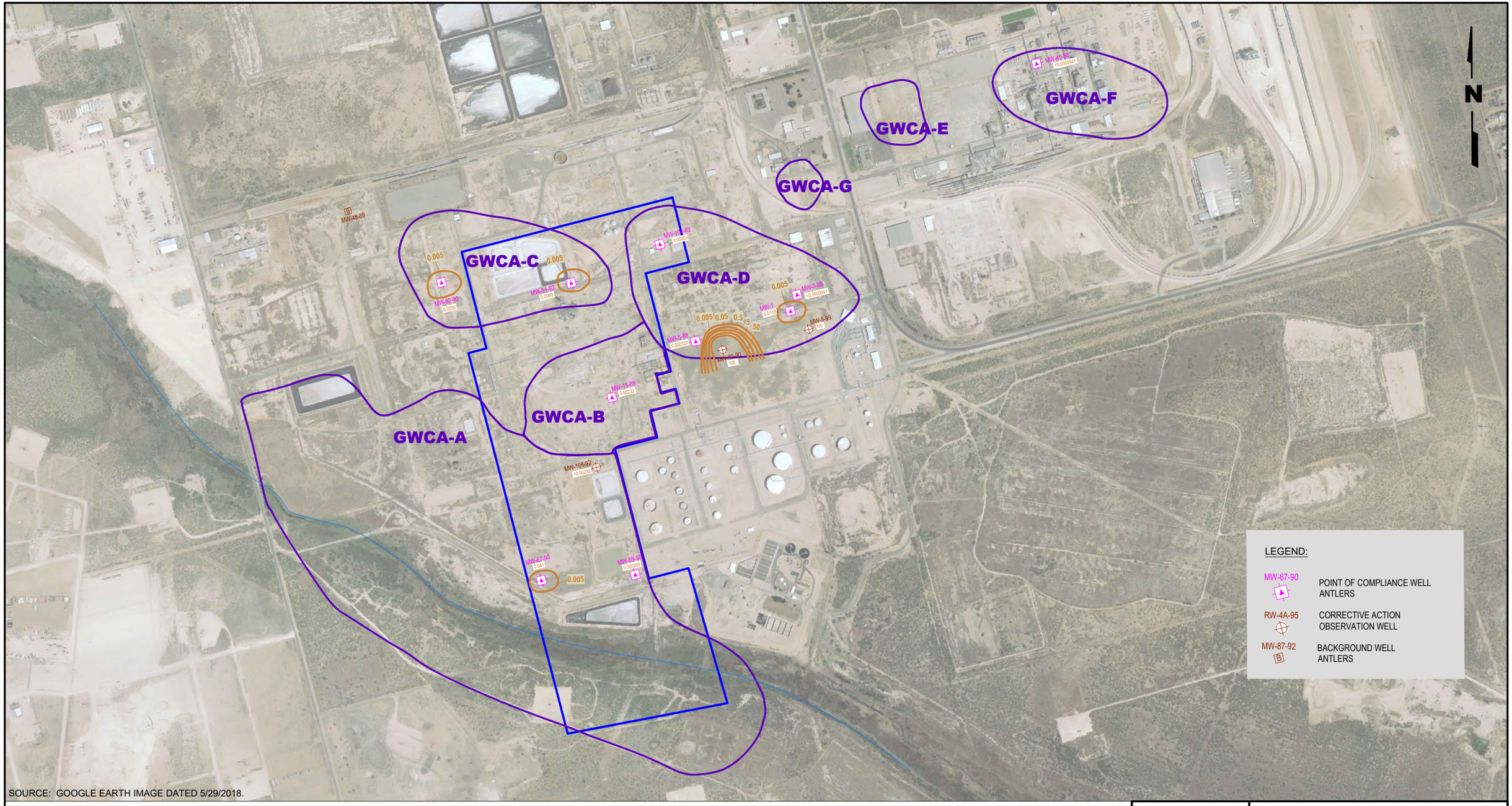
FIGURE 2-3

POTENTIOMETRIC SURFACE MAP - ANTLERS APRIL 2025

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 800 FT	FEB 2026	1039.005.001

GWCA-A
GWCA-B
GWCA-C
GWCA-D
GWCA-E
GWCA-F
GWCA-G
N
LEGEND:
MW-22-88 — POINT OF COMPLIANCE WELL OGALLALA
RW-4A-95 — CORRECTIVE ACTION OBSERVATION WELL
MW-48-89 — BACKGROUND WELL OGALLALA
SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.
EXPLANATION AND NOTES
APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
LINE OF EQUAL CONCENTRATION
0.005 BENZENE CONCENTRATION (MG/L)
LNAPL: 0.01 LNAPL THICKNESS (FEET)
NOTE: GROUNDWATER ELEVATION MEASUREMENTS OBTAINED FROM THE 2024-2025 TETRA TECH ANNUAL COMPLIANCE REPORT DATED JULY 2025.
0 400 800
SCALE IN FEET
SQ Environmental, LLC
FIGURE 2-4
BENZENE CONCENTRATIONS AND OCCURRENCE OF NAPL OGALLALA - APRIL 2025
FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766
SCALE: 1 IN = 800 FT
DATE: FEB 2026
PN: 1039.005.001



SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.

EXPLANATION AND NOTES

- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- LINE OF EQUAL CONCENTRATION
- 0.005 BENZENE CONCENTRATION (MG/L)

NOTE: GROUNDWATER ELEVATION MEASUREMENTS OBTAINED FROM THE 2024-2025 TETRA TECH ANNUAL COMPLIANCE REPORT DATED JULY 2025.

NO DETECTABLE LNAPL WAS MEASURED IN ANTLERS WELLS DURING THE APRIL 2025 EVENT.

0 400 800
SCALE IN FEET

SQ Environmental, LLC

FIGURE 2-5

BENZENE CONCENTRATIONS
ANTLERS - APRIL 2025

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 800 FT	FEB 2026	1039.005.001

TABLE 2-1
CALCULATED LNAPL THICKNESSES SINCE 2008
FHR Odessa Plant

	CALCULATED LNAPL THICKNESS (ft)															
Date	**B-2(Og)**	**B-9(Og)**	**MW-114-92(Og)**	**MW-118-97(Og)**	**MW-5-88(UA)**	**MW-22-88(Og)**	**RW-13D-92(Og)***	**RW-1A-88(Og)**	**RW-1E-88(Og)**	**RW-1S-90(Og)**	**RW-2D-88(Og)**	**RW-2S-97(Og)**	**RW-3S-97(Og)**	**RW-5D-89(Og)**	**RW-8D-89(Og)**	**RW-14A-95**
	D	**D**	**A**	**B**	**D**	**A**	**D**	**A**	**E**	**A**	**D**	**A**	**A**	**D**	**D**	**A**
Apr-08	Trace	0.01							0.01	0.02	0.10					
Oct-08	Trace								0.01	0.08	0.02		0.01		1.35	
Apr-09										0.02	0.12				0.08	
Oct-09								0.02			0.06				0.02	
Apr-10								0.05	0.02		0.03		0.00		0.01	
Oct-10								0.04	0.01	0.29	0.03		0.19		0.02	
Apr-11		0.02		0.00				0.20	0.03	1.68	0.04		1.14		0.20	
Oct-11	0.02	0.04	0.23		0.01		0.01	0.12	0.05	>2.98	0.06	0.01	0.94		0.27	
Apr-12	0.03	0.05	0.11		0.02			0.05	0.05	1.36	0.04	0.34	0.49		0.24	
Oct-12		0.02	0.04		0.01		0.02	0.23	0.29	0.70	in Area			0.01	0.05	
Apr-13		0.02	0.07		0.01		0.00	0.02	0.69	0.65	0.02				0.05	
Oct-13	0.01	0.04	0.06				0.00	0.11	0.50	0.08	0.03				0.13	
Apr-14	0.00	0.03	0.02					0.11	0.54	0.35	0.02	0.01	0.01		0.26	
Oct-14	0.01	0.01	0.00					0.02	0.51	0.57	0.00		0.00		0.15	
Apr-15	0.00		0.00		0.00		NM	0.01	0.04	0.08	0.00	0.01		0.00	0.21	
Oct-15			0.01				NM	0.00	0.09	0.02			0.00		0.11	
Apr-16			0.02					0.46	0.01						0.01	
Oct-16	NM		NM	NM			NM	NM	NM	NM		NM	NM	NM	NM	
Apr-17			0.00					0.00	0.00							
Oct-17	NM		NM	NM			NM	NM	NM	NM		NM	NM	NM	NM	
Apr-18								0.00	0.09	0.00				0.00	0.01	
Oct-18										0.39						
Apr-19															0.02	
Oct-19														0.02	0.03	
Apr-20										0.09				Trace		
Oct-20			Trace					Trace	0.02					0.05		
Apr-21			0.24			0.60		0.02	0.33	NM		0.01	NM			
Oct-21									Trace					Trace		0.17
Apr-22			Trace						0.23							0.04
Oct-22			0.32					0.01	0.23	NM		0.01	NM			0.04
Apr-23			0.33					0.01	0.23	NM		0.03	NM			0.01
Oct-23		0.01	0.33					0.01	0.20	0.02		0.26	NM			
Apr-24		0.01							0.21	0.02		0.01	NM			0.01
Oct-24		0.20	Trace					Trace	0.22	Trace		Trace	Trace			
Apr-25	0.01		0.12						0.72	0.01		0.01	NM		0.01	

NOTE:
-A blank indicates that no NAPL was detected during the event.
-NM indicates no measurments were collected from the well during the event.
-*RW-13D-92 was replaced by RW-13D-16 in 2016

TABLE 2-1
CALCULATED DNAPL THICKNESSES SINCE 2008
FHR Odessa Plant

CALCULATED DNAPL THICKNESS (ft)						
Date	B-2(Og)	MW-114-92(Og)	MW-22-88(Og)	RW-1S-90(Og)	RW-2S-97(Og)	RW-3S-97(Og)
	D	A	A	A	A	A
Apr-08		0.03		2.09	0.99	0.98
Oct-08		0.30		2.15	3.34	9.47
Apr-09				3.07	4.44	3.75
Oct-09				2.88	4.94	1.43
Apr-10		0.03	0.00	3.50	4.82	3.95
Oct-10	0.02	0.63		2.88	5.09	1.55
Apr-11		0.05		2.01	3.55	2.97
Oct-11				NM	NM	NM
Apr-12				NM	NM	NM
Oct-12				7.69	9.57	7.74
Apr-13				8.07	9.84	12.48
Oct-13				6.58	8.34	11.05
Apr-14				6.50	8.00	11.00
Oct-14						
Apr-15					8.34	8.80
Oct-15				8.35	7.69	8.45
Apr-16				3.24	6.42	4.86
Oct-16	NM	NM		NM	NM	NM
Apr-17				3.81	2.70	0.69
Oct-17	NM	NM		NM	NM	NM
Apr-18				3.94	2.81	0.72
Oct-18				2.94	9.36	4.67
Apr-19				1.24	2.11	1.07
Oct-19		0.03		3.08	4.00	2.93
Apr-20				8.46	6.48	0.29
Oct-20			0.01	2.22		1.94
Apr-21				NM		NM
Oct-21				2.40	2.20	1.50
Apr-22				NM	NM	NM
Oct-22						
Apr-23						
Oct-23						
Apr-24						
Oct-24						
Apr-25						

NOTE:
-A blank indicates that no NAPL was detected during the event.
-NM indicates no measurments were collected from the well during the event.

TABLE 2-3
SUMMARY OF GWCA-A SURFACE WATER DATA SINCE 2008

Well ID	Date Sampled	Benzene
McKinney	4/22/2008	< 0.005
McKinney	10/20/2008	< 0.005
McKinney	4/17/2009	< 0.005
McKinney	10/30/2009	< 0.005
McKinney	4/29/2010	< 0.005
McKinney	10/13/2010	NS*
McKinney	4/28/2011	NS*
McKinney	10/17/2011	NS*
McKinney	4/11/2012	NS*
McKinney	10/25/2012	NS*
McKinney	4/18/2013	NS*
McKinney	10/22/2013	NS*
McKinney	4/23/2014	NS*
McKinney	10/17/2014	NS*
McKinney	4/15/2015	< 0.005
McKinney	10/29/2015	< 0.005
McKinney	4/21/2016	NS*
McKinney	10/17/2016	NS*
McKinney	4/21/2017	NS*
McKinney	10/16/2017	< 0.005
McKinney	4/26/2018	< 0.005
McKinney	10/18/2018	< 0.005
McKinney	4/25/2019	< 0.005
McKinney	10/24/2019	< 0.005
McKinney	4/24/2020	< 0.005
McKinney	10/7/2020	NS*
McKinney	4/22/2021	NS*
McKinney	10/13/2021	NS*
McKinney	4/18/2022	NS*
McKinney	10/20/2022	NS*
McKinney	4/11/2023	NS*
McKinney	10/18/2023	NS*
McKinney	4/12/2024	NS*
McKinney	10/1/2024	NS*
McKinney	4/1/2025	NS*

Well ID	Date Sampled	Benzene
S-1	4/22/2008	< 0.005
S-1	10/20/2008	< 0.005
S-1	4/17/2009	< 0.005
S-1	10/30/2009	< 0.005
S-1	4/29/2010	< 0.005
S-1	10/13/2010	< 0.005
S-1	4/28/2011	< 0.005
S-1	10/17/2011	< 0.005
S-1	4/11/2012	< 0.005
S-1	10/25/2012	< 0.005
S-1	4/18/2013	< 0.005
S-1	10/22/2013	< 0.005
S-1	4/23/2014	0.101
S-1	10/16/2014	< 0.005
S-1	4/15/2015	< 0.005
S-1	10/29/2015	< 0.005
S-1	4/21/2016	< 0.005
S-1	10/17/2016	< 0.005
S-1	4/21/2017	< 0.005
S-1	10/16/2017	< 0.005
S-1	4/19/2018	< 0.005
S-1	10/18/2018	< 0.005
S-1	4/25/2019	< 0.005
S-1	10/24/2019	< 0.005
S-1	4/24/2020	< 0.005
S-1	10/7/2020	NS*
S-1	4/22/2021	< 0.005
S-1	10/13/2021	< 0.005
S-1	4/18/2022	< 0.005
S-1	10/20/2022	NS*
S-1	4/11/2023	< 0.005
S-1	10/18/2023	0.000185
S-1	4/12/2024	< 0.005
S-1	10/1/2024	NS*
S-1	4/1/2025	NS*

Well ID	Date Sampled	Benzene
S-5	4/22/2008	0.0917
S-5	10/20/2008	0.023
S-5	4/17/2009	0.016
S-5	10/30/2009	< 0.005
S-5	4/29/2010	0.0296
S-5	10/13/2010	0.0123
S-5	4/28/2011	0.193
S-5	10/17/2011	< 0.005
S-5	4/11/2012	< 0.005
S-5	10/25/2012	< 0.005
S-5	4/18/2013	< 0.005
S-5	10/22/2013	< 0.005
S-5	4/23/2014	< 0.005
S-5	10/17/2014	< 0.005
S-5	4/15/2015	0.0219
S-5	10/29/2015	< 0.005
S-5	4/21/2016	< 0.005
S-5	10/17/2016	< 0.005
S-5	4/21/2017	< 0.005
S-5	10/16/2017	< 0.005
S-5	4/19/2018	< 0.005
S-5	10/18/2018	< 0.005
S-5	4/25/2019	< 0.005
S-5	10/24/2019	0.038
S-5	4/24/2020	< 0.005
S-5	10/7/2020	NS*
S-5	4/22/2021	< 0.005
S-5	10/13/2021	NS*
S-5	4/18/2022	0.0151
S-5	10/20/2022	NS*
S-5	4/11/2023	NS*
S-5	10/18/2023	NS*
S-5	4/12/2024	NS*
S-5	10/1/2024	NS*
S-5	4/1/2025	NS*

Well ID	Date Sampled	Benzene
S-6	4/22/2008	< 0.005
S-6	10/20/2008	0.10
S-6	4/17/2009	0.18
S-6	10/30/2009	< 0.005
S-6	4/29/2010	0.157
S-6	10/13/2010	NS*
S-6	4/28/2011	NS*
S-6	10/17/2011	NS*
S-6	4/11/2012	NS*
S-6	10/25/2012	< 0.005
S-6	4/18/2013	< 0.005
S-6	10/22/2013	< 0.005
S-6	4/23/2014	< 0.005
S-6	10/17/2014	NS*
S-6	4/15/2015	< 0.005
S-6	10/29/2015	NS*
S-6	4/21/2016	< 0.005
S-6	10/17/2016	< 0.005
S-6	4/21/2017	< 0.005
S-6	10/16/2017	< 0.005
S-6	4/19/2018	< 0.005
S-6	10/18/2018	< 0.005
S-6	4/25/2019	< 0.005
S-6	10/24/2019	NS*
S-6	4/24/2020	< 0.005
S-6	10/7/2020	NS*
S-6	4/22/2021	NS*
S-6	10/13/2021	NS*
S-6	4/18/2022	NS*
S-6	10/20/2022	NS*
S-6	4/11/2023	NS*
S-6	10/18/2023	NS*
S-6	4/12/2024	NS*
S-6	10/1/2024	NS*
S-6	4/1/2025	NS*

Well ID	Date Sampled	Benzene
S-9	4/22/2008	< 0.005
S-9	10/20/2008	0.024
S-9	4/17/2009	0.039
S-9	10/30/2009	< 0.005
S-9	4/29/2010	0.0105
S-9	10/13/2010	NS*
S-9	4/28/2011	NS*
S-9	10/17/2011	NS*
S-9	4/11/2012	NS*
S-9	10/26/2012	< 0.005
S-9	4/18/2013	< 0.005
S-9	10/22/2013	< 0.005
S-9	4/23/2014	< 0.005
S-9	10/17/2014	NS*
S-9	4/15/2015	< 0.005
S-9	10/29/2015	NS*
S-9	4/21/2016	< 0.005
S-9	10/17/2016	< 0.005
S-9	4/21/2017	< 0.005
S-9	10/16/2017	< 0.005
S-9	4/19/2018	< 0.005
S-9	10/18/2018	< 0.005
S-9	4/25/2019	< 0.005
S-9	10/24/2019	NS*
S-9	4/24/2020	< 0.005
S-9	10/7/2020	NS*
S-9	4/22/2021	NS*
S-9	10/13/2021	NS*
S-9	4/18/2022	NS*
S-9	10/20/2022	NS*
S-9	4/11/2023	NS*
S-9	10/18/2023	NS*
S-9	4/12/2024	NS*
S-9	10/1/2024	NS*
S-9	4/1/2025	NS*

Notes:

Shaded values exceed 0.005 mg/L.

< - Concentration below the laboratory detection limit

NS* - Not sampled as surface sample location was dry.

3 MONITORED NATURAL ATTENUATION EVALUATION

FHR utilizes various "lines of evidence" to evaluate MNA performance at the site and to demonstrate that MNA continues to be an effective corrective action for groundwater at the Odessa Plant. Recent MNA evaluations were conducted at the request of TCEQ in 2020 and 2024. This section presents relevant information from those evaluations, as well as a detailed discussion of the effectiveness of MNA within each GWCA.

3.1 HYDROGEOLOGY AND NATURAL ATTENUATION PROCESSES

The 2024 MNA Evaluation included multiple lines of evidence indicating that MNA continues to be an effective remedy for the Odessa Plant. The TCEQ approved the continued application of MNA in a letter dated 25 October 2024. As discussed in the 2024 MNA Evaluation, there are a number of natural attenuation processes occurring in an environmental system impacted with petroleum hydrocarbons. While the most common process considered as part of a MNA remedy is biological degradation, there are other processes that are on-going and should be considered when evaluating the performance of MNA. These include:

- Volatilization from the soil and water into the interstitial space above the water table and ultimately, degradation and migration towards the surface due to the concentration gradient.
- Dispersion and dilution of dissolved constituents in the groundwater due to infiltration of rainfall and movement of the groundwater.
- Dissolution of organics that are adsorbed onto the soil into the groundwater.

While biological degradation, volatilization, and dispersion/dilution will all result in decreases in the concentrations of petroleum constituents in groundwater, the dissolution of the organics from the soil into the groundwater can result in periodic and temporary apparent increases in the groundwater concentrations. This can occur when groundwater elevations rise and the groundwater comes into contact with soil within the "smear zone." An apparent increase in the groundwater concentration can be observed during these periods even though natural attenuation processes are continuing, and, in some cases, the mass removal rate is actually increasing due to the "slug" of hydrocarbons that are released from the soil. Over the long term, this "washing" of the hydrocarbons from the soil to the groundwater benefits the overall natural attenuation process.

Based on the available information, the releases that are thought to be responsible for the groundwater impacts generally occurred over 35-40 years ago. Benzene is the only chemical that currently exceeds the GWPS in the groundwater from any POC well at the property. At the request of the TCEQ, further evaluations of benzene concentrations in specific GWCAs were conducted as part of the 2024 MNA Evaluation, which are discussed in detail below. After reviewing the natural attenuation processes and specific GWCA evaluations presented in the 2024 MNA Evaluation, the TCEQ concurred that benzene concentrations were generally stable/decreasing in all GWCAs, and that MNA continued to be an appropriate corrective action at the FHR Odessa Plant. **Table 3-1** provides a summary of the benzene concentrations for Ogallala wells within each GWCA from April 2009 through April 2025. **Table 3-2** provides the same data for the Antlers wells. A discussion of COC concentrations by GWCA is presented below.

3.1.1 GWCAs-A, B, AND C

The updated MNA Evaluations prepared in 2020 and 2024 show that the dissolved-phase benzene concentrations in all three of these GWCAs have continued to decrease. Trace amounts of LNAPL (typically less than 0.03 ft) are occasionally identified within GWCA-A, but its occurrence varies seasonally and is not present in recoverable quantities. Dissolved-phase benzene concentrations in all three of these GWCAs has been decreasing appreciably since 2009 and has generally dropped by one or more orders of magnitude since 2010. In a TCEQ Letter dated 25 October 2024, the TCEQ agreed with the updated MNA evaluation and concurred that the benzene concentrations were stable and/or decreasing in all GWCAs. The most recent benzene and LNAPL data up to the 2024-2025 ACR have been added to **Tables 3-1** and **2-1**, respectively. These data show that benzene concentrations continue to be stable and/or decreasing in these GWCAs and the footprint of LNAPL has decreased substantially to minimal or trace thicknesses.

3.1.2 GWCA-D

Historically, GWCA-D generally has the highest benzene concentrations in Ogallala wells at the former Odessa Plant. Following discontinuation of active remediation and the initiation of MNA in 2009, there was an area of measurable NAPL. Over time, the NAPL has attenuated, and as of the April 2025 event, no measurable NAPL is detected in GWCA-D wells. The 2020 MNA Evaluation Report and 2024 MNA Evaluation Update Memorandum presented detailed evaluations of dissolved-phase benzene concentrations in GWCA-D. While benzene concentrations are typically identified in POC wells above respective GWPS, the overall average concentrations have been decreasing since 2009, particularly in monitoring wells installed in the Ogallala.

The updated MNA Evaluation prepared in 2024 provided detailed discussion for select wells in GWCA-D. This updated MNA evaluation specifically analyzed two wells in GWCA-D (MW-11-88 [Og] and MW-8-99 [UA]) which, at the time of the 2024 evaluation, had apparent increases in their respective benzene concentrations over time, according to Mann-Kendall trends. As discussed in the July 2024 Memorandum, the period of rising concentrations was due to above average rainfall skewing results. During this time, the groundwater was likely in contact with the smear zone, and the groundwater elevation stayed high for an extended period of time, allowing for dissolution. Starting in 2019, another period of below average rainfall began, and both the groundwater elevations and the benzene concentrations dropped. The July 2024 Memorandum further stated that, looking just at the trends in both wells over the last five years (2019 to 2023 at the time of the memorandum), there was a significant downward trend in the benzene concentrations. Based on the additional lines of evidence presented in the 2024 updated MNA evaluation, the memorandum concluded that MNA is continuing to work and is an effective remedy for the FHR Odessa plant. The TCEQ concurred with the conclusions outlined in the 2024 updated MNA evaluation in a letter dated 25 October 2024, and agreed that benzene concentrations were stable and/or decreasing in GWCA-D. The most recent benzene data and LNAPL data have been added to **Tables 3-1** and **2-1**, respectively. These data show that benzene concentrations continue to be stable and/or decreasing in these GWCAs and the footprint of LNAPL has decreased substantially to minimal or trace thicknesses.

3.1.3 GWCA-E

Xylenes are the only chemicals of concern associated with GWCA-E. Corrective action observation well RW-1E-88 is monitored to evaluate the historic presence of LNAPL at this location. No concentrations of xylenes have been reported above the GWPS of 10 mg/L for the past 20 years for either POC wells.

3.1.4 GWCA-F

The updated MNA Evaluations prepared in 2020 and 2024 show that the dissolved-phase benzene concentrations in GWCA-F have continued to decrease. Since October 2023, none of the three regularly sampled wells in GWCA-F have had reported benzene concentrations above the GWPS of 0.005 mg/L, and NAPL has not been reported in any of the GWCA-F wells. The most recent benzene and LNAPL data up to the 2024-2025 ACR have been added to **Tables 3-1** and **2-1**, respectively. These data show that benzene concentrations continue to be stable and/or decreasing in this GWCAs and the footprint of LNAPL is non-existent in GWCA-F.

TABLE 3-1

BENZENE CONCENTRATIONS SINCE 2009 - OGALLALA

FHR Odessa Plant

Date Sampled	A MW-22-88 POC	A MW-27-88 POC	A MW-73-90 POC	A MW-102-92 POC	A MW-110-92 CAO	A MW-111-92 CAO	A MW-114-92 CAO	A RW-1A-88 CAO	A RW-3A-95 CAO	A RW-4A-95 CAO	A RW-5A-88 CAO	A RW-6A-90 POC	A RW-8A-92 POC	A RW-9A-90 POC	A RW-10A-95 CAO	A RW-11A-90 CAO	A RW-12A-88 POC	A RW-13A-95 POC	A RW-14A-95 POC	A RW-15A-92 POC	A RW-16A-92 POC	A RW-17A-92 POC
Apr-09	160	<0.005	0.78	<0.005	<0.005	<0.005	NM	NM	120	310	37	<0.005	15	47	0.58	18	2.2	1.1	5.0	0.085	0.42	0.041
Oct-09	174	0.0074	0.956	<0.005	0.00644	<0.005	NM	NM	118	370	22.6	<0.005	3.53	42	0.014	10.4	0.729	2.15	4.78	0.278	0.506	<0.005
Apr-10	164	<0.005	1.10	0.0117	<0.005	<0.005	NM	NM	109	304	4.66	<0.005	5.02	36.4	0.00673	7.79	1.62	2.05	4.67	0.0365	0.151	0.005
Oct-10	156	<0.005	0.0653	<0.005	0.00618	<0.005	NM	NM	113	276	17.0	<0.005	3.60	45.0	<0.005	9.12	0.0299	1.95	3.85	0.14	0.130	<0.005
Apr-11	150	<0.005	0.169	0.00785	<0.005	<0.005	NM	NM	107	235	22.2	<0.005	3.83	26.9	1.46	8.18	0.039	159	4.31	0.0115	0.126	0.0169
Oct-11	201	0.258	0.453	<0.005	0.0304	<0.005	NM	NM	126	294	9.3	<0.005	0.0411	31.8	0.053	5.57	0.013	3.57	5.82	0.530	0.700	0.0564
Apr-12	152	0.0575	0.00984	1.95	0.0118	<0.005	NM	NM	97.1	244	24.4	<0.005	4.16	0.130	<0.005	2.92	0.00613	2.02	4.37	0.178	0.344	0.0248
Oct-12	179	<0.005	0.0661	<0.005	0.0159	<0.005	NM	NM	160	379	86.6	<0.005	5.34	4.6	<0.005	2.26	0.149	3.15	4.87	0.421	0.641	<0.005
Apr-13	175	<0.005	0.234	<0.005	0.0143	<0.005	NM	NM	124	314	20.9	<0.005	4.80	0.202	0.0090	0.394	0.00986	2.24	4.67	0.0149	0.467	<0.005
Oct-13	247	<0.005	0.490	<0.005	0.0485	<0.005	NM	NM	161	382	58.0	<0.005	4.24	5.28	0.0126	0.272	0.0321	2.48	2.28	0.272	1.13	<0.005
Apr-14	165	<0.005	0.253	<0.005	<0.005	<0.005	NM	NM	42.9	250	17.2	<0.005	4.93	0.33	<0.005	0.0778	0.0071	0.0954	3.55	0.559	0.510	<0.005
Oct-14	250	<0.005	0.494	<0.005	0.0152	<0.005	NM	NM	177	387	36.8	<0.005	4.02	1.95	<0.005	0.0623	0.0662	2.59	3.59	0.238	0.890	<0.005
Apr-15	218	<0.005	0.285	<0.005	<0.005	<0.005	NM	NM	141	189	19.0	<0.005	3.83	0.404	<0.005	0.0061	0.0155	2.33	3.53	0.062	0.323	<0.005
Oct-15	223	<0.005	0.283	<0.005	<0.005	NM	NM	NM	57.8	408	7.23	<0.005	4.64	2.74	<0.005	0.0063	0.118	2.78	1.44	<0.005	0.0188	<0.005
Apr-16	199	<0.005	0.322	<0.005	<0.005	<0.005	NM	NM	16.0	216	7.91	<0.005	4.01	0.0579	<0.005	<0.005	0.0104	2.22	2.76	<0.005	0.0168	<0.005
Oct-16	164	<0.005	0.695	<0.005	NM	NM	NM	NM	NM	NM	NM	<0.005	4.5	1.15	NM	NM	0.0224	1.96	1.06	<0.005	0.0124	<0.005
Apr-17	199	<0.005	0.252	<0.005	<0.005	<0.005	NM	NM	11.9	232	3.62	<0.005	4.21	0.210	<0.005	<0.005	<0.005	2.32	1.14	<0.005	0.0131	<0.005
Oct-17	218	<0.005	0.181	<0.005	NM	NM	NM	NM	NM	NM	NM	<0.005	4.64	0.062	NM	NM	<0.005	3.51	1.25	<0.005	0.0506	<0.005
Apr-18	193	<0.005	0.037	<0.005	0.0303	<0.005	0.365	NM	9.0	274	2.09	<0.005	2.90	0.084	<0.005	<0.005	<0.005	2.54	1.13	<0.005	0.0456	<0.005
Oct-18	188	<0.005	0.026	<0.005	NM	NM	NM	NM	NM	NM	NM	<0.005	4.22	0.211	NM	NM	0.00773	2.91	1.28	<0.005	<0.005	<0.005
Apr-19	28.3	<0.005	0.582	<0.005	<0.005	<0.005	0.297	NM	1.71	276	2.02	<0.005	3.87	0.0302	0.361	<0.005	<0.005	2.38	0.81	<0.005	<0.005	<0.005
Oct-19	20.9	<0.005	1.620	<0.005	NM	NM	NM	NM	NM	NM	NM	<0.005	3.06	2.29	NM	NM	<0.005	2.89	0.726	<0.005	<0.005	<0.005
Apr-20	39.1	<0.005	0.159	<0.005	<0.005	<0.005	0.542	<0.005	2.70	220	1.76	<0.005	3.01	0.0665	<0.005	<0.005	<0.005	3.35	0.581	<0.005	<0.005	<0.005
Oct-20	27.3	<0.005	3.640	<0.005	NM	NM	NM	NM	NM	NM	NM	<0.005	2.42	1.05	NM	NM	0.00909	3.51	0.805	<0.005	<0.005	<0.005
Apr-21	15.4	<0.005	0.0834	<0.005	0.0284	0.0514	NM	NM	0.266	150	1.77	0.0513	2.21	0.0942	<0.005	0.00614	<0.005	4.06	0.365	0.0144	<0.005	0.00506
Oct-21	3.60	<0.005	0.400	<0.005	NM	NM	NM	NM	NM	NM	NM	<0.005	2.65	0.101	NM	NM	<0.005	5.15	NM	<0.005	<0.005	<0.005
Apr-22	21.5	0.0535	0.275	<0.005	<0.005	<0.005	NM	0.0286	0.520	115	2.26	0.0444	2.50	0.145	0.0295	<0.005	<0.005	4.75	NM	0.0127	<0.005	<0.005
Oct-22	9.65	<0.005	<0.005	<0.005	NM	NM	NM	NM	NM	NM	NM	NM	1.97	0.036	NM	NM	<0.005	3.24	NM	<0.005	0.119	<0.005
Apr-23	16.2	<0.005	<0.005	<0.005	<0.005	<0.005	NM	NM	0.0350	43.3	2.73	NM	2.86	0.0288	<0.005	<0.005	<0.005	5.85	NM	0.0198	0.00516	<0.005
Oct-23	19.9	0.000569	2.03	0.00040	NM	NM	NM	NM	NM	NM	NM	0.00163	2.12	<0.005	NM	NM	0.00526	6.29	0.231	0.00269	0.0181	<0.005
Apr-24	14.6	<0.005	0.365	<0.005	0.00056	<0.005	NM	<0.005	1.44	45.4	1.92	<0.005	2.68	0.00115	<0.005	<0.005	0.000744	NM	NM	0.00050	0.000184	<0.005
Oct-24	15.3	<0.0000941	0.0247	<0.0000941	NM	NM	NM	NM	NM	NM	NM	<0.0000941	2.20	0.00112	NM	NM	0.00106	4.82	0.00647	0.000096	0.000147	<0.0000941
Apr-25	13.4	<0.0000941	0.00462	<0.0000941	0.00114	0.000128	NM	0.000400	0.191	41.0	1.63	NM	3.05	0.00123	<0.0000941	<0.0000941	0.000349	7.22	0.00904	0.00211	0.000116	0.000138

Notes:

Shaded values indicates value used is an interpolated value calculated from previous and subsequent events.

TABLE 3-1

BENZENE CONCENTRATIONS SINCE 2009 - OGALLALA

FHR Odessa Plant

B Date Sampled	B MW-14-88 POC	B MW-103-92 CAO	B MW-118-97 CAO	B MW-121-01 CAO	B MW-122-016 CAO	B MW-124-01 CAO
Apr-09	0.510	52	3.3	0.064	140	66
Oct-09	0.769	69.4	3.53	<0.005	169	68.9
Apr-10	0.427	45	2.54	0.0199	138	53.4
Oct-10	0.384	10.8	1.95	0.533	154	58.2
Apr-11	0.213	15.9	NS	3.44	126	17.9
Oct-11	0.330	12.3	1.35	4.78	112	110
Apr-12	0.166	16.2	0.941	5.90	99.7	104
Oct-12	0.228	10.3	0.574	5.43	125	108
Apr-13	0.158	14	0.661	4.40	44.8	104
Oct-13	0.175	12.4	1.00	5.21	98.4	130
Apr-14	0.076	11.3	0.452	3.90	72.8	153
Oct-14	0.112	21.3	2.3	6.01	95.8	110
Apr-15	0.092	13.4	1.17	2.45	95.6	135
Oct-15	0.199	2.04	0.040	2.30	95.6	115
Apr-16	0.136	14.3	0.334	0.765	95.4	121
Oct-16	0.118	NM	NM	NM	NM	NM
Apr-17	0.163	9.29	0.137	0.618	93.9	119
Oct-17	0.158	NM	NM	NM	NM	NM
Apr-18	0.078	8.05	0.020	0.176	67.8	116
Oct-18	0.135	NM	NM	NM	NM	NM
Apr-19	0.051	4.17	0.099	0.134	76.3	257
Oct-19	0.031	NM	NM	NM	NM	NM
Apr-20	0.0283	4.52	0.026	0.0376	75	187
Oct-20	0.0226	NM	NM	NM	NM	NM
Apr-21	0.0348	2.21	0.0324	0.162	26.4	62
Oct-21	0.0191	NM	NM	NM	NM	NM
Apr-22	0.0273	1.13	0.0181	0.0374	29.1	104
Oct-22	0.0109	NM	NM	NM	NM	NM
Apr-23	0.0104	1.64	0.0138	0.0308	24.8	66.8
Oct-23	0.00826	NM	NM	NM	NM	NM
Apr-24	0.0247	0.889	0.00839	0.0132	18	12
Oct-24	0.00879	NM	NM	NM	NM	NM
Apr-25	0.0120	0.752	0.00487	0.0189	11.80	14.50

C Date Sampled	C MW-90-92 POC	C RW-1C-88 POC	C RW-2C-92 POC
Apr-09	<0.005	230	0.27
Oct-09	<0.005	193	0.083
Apr-10	0.0298	226	0.102
Oct-10	<0.005	126	5.78
Apr-11	<0.005	141	0.0246
Oct-11	<0.005	152	0.127
Apr-12	0.00618	123	0.0396
Oct-12	<0.005	40.3	0.0125
Apr-13	<0.005	18.8	0.123
Oct-13	<0.005	20.3	0.0113
Apr-14	0.00714	31.4	<0.008
Oct-14	<0.005	20.9	0.0256
Apr-15	<0.005	117	<0.005
Oct-15	0.00647	19.4	<0.010
Apr-16	<0.005	23	0.00523
Oct-16	<0.005	12	0.0106
Apr-17	<0.005	0.0804	<0.005
Oct-17	<0.005	1.57	<0.0066
Apr-18	0.0117	15.4	0.0219
Oct-18	<0.005	0.054	<0.005
Apr-19	<0.005	0.027	<0.005
Oct-19	<0.005	0.194	0.00747
Apr-20	<0.005	0.224	<0.005
Oct-20	<0.005	0.872	0.00663
Apr-21	0.0160	0.0469	24.5
Oct-21	<0.005	0.934	0.00880
Apr-22	<0.005	33.7	0.0251
Oct-22	<0.005	0.298	<0.005
Apr-23	<0.005	11.4	0.00732
Oct-23	0.00038	28.7	0.00785
Apr-24	<0.005	7.73	0.00727
Oct-24	<0.0000941	7.96	<0.00472
Apr-25	<0.0000941	12.20	0.0135

Notes:

Shaded values indicates value used is an interpolated value calculated from previous and subsequent events.

TABLE 3-1

BENZENE CONCENTRATIONS SINCE 2009 - OGALLALA

FHR Odessa Plant

D Date Sampled	D B-2 CAO	D B-9 POC	D MW-4-88 POC	D MW-9-99 CAO	D MW-11-88 CAO	D MW-13-88 POC	D MW-57-89 POC	D MW-105-92 POC	D RW-5D-89 CAO	D RW-9D-89 CAO
Apr-09	950	1000	190	1,000	140	<0.005	60	0.0066	900	560
Oct-09	960	911	253	1,350	107	0.0062	58.2	<0.005	827	363
Apr-10	776	648	191	1,170	92.6	<0.005	57.5	<0.005	980	244
Oct-10	No Data	871	216	1,070	78.3	0.0445	72.6	<0.005	899	237
Apr-11	2,480	828	175	889	154	<0.005	70.9	0.0165	950	616
Oct-11	1,949	786	186	1,210	238	<0.005	98.6	25.4	448	665
Apr-12	1,418	743	133	1,160	157	1.96	71.3	58.1	903	640
Oct-12	887	700	243	807	183	<0.005	54.4	43.1	No Data	866
Apr-13	895	658	151	1,300	144	<0.005	31.0	40.6	870	986
Oct-13	887	615	274	1,430	233	<0.005	101	86.9	1,100	1,110
Apr-14	895	572	168	1,080	89.1	0.00633	50.1	60.1	747	817
Oct-14	833	529	212	691	143	<0.005	72.1	57.4	731	736
Apr-15	770	487	139	1,120	116	<0.005	37.4	36.8	NM	472
Oct-15	708	444	207	1,720	243	<0.005	38.1	26.0	695	880
Apr-16	847	568	148	1,400	168	<0.005	50.0	18.0	1,110	596
Oct-16	NM	482	241	NM	NM	<0.005	47.4	24.6	NM	NM
Apr-17	714	518	145	1,280	208	0.0523	31.7	4.82	915	54.8
Oct-17	NM	422	260	NM	NM	<0.005	32.8	13.7	NM	NM
Apr-18	909	371	181	1,350	252	<0.005	24.2	6.49	784	237
Oct-18	NM	184	206	NM	NM	<0.005	6.42	10.0	NM	NM
Apr-19	729	132	197	1,600	369	<0.005	15	1.4	653	16.7
Oct-19	NM	79.5	219	NM	NM	<0.005	20.9	1.11	NM	NM
Apr-20	480	128	205	1,570	319	<0.005	6.63	0.268	653	16.7
Oct-20	NM	97.5	275	NM	NM	<0.005	16.2	4.37	NM	NM
Apr-21	520	141	417	964	104	<0.005	11.1	2.74	466	170
Oct-21	NM	232	260	NM	NM	<0.005	1.89	6.23	NM	NM
Apr-22	654	480	153	1,040	238	<0.005	15.8	6.01	514	223
Oct-22	NM	243	115	NM	NM	0.159	17.0	6.21	NM	NM
Apr-23	857	357	114	1,460	236	6.57	22.8	0.167	683	426
Oct-23	NM	376	189	NM	NM	0.00023	0.702	9.38	NM	NM
Apr-24	1,280	396	190	<0.005	<0.005	<0.005	15.5	12.1	892	842
Oct-24	NM	415	232	NM	NM	<0.0000941	22.30	5.80	NM	NM
Apr-25	1,069	434	253	1,190	232	0.00198	14.2	8.95	653	597

Notes:

Shaded values indicates value used is an interpolated value calculated from previous and subsequent events.

TABLE 3-1

BENZENE CONCENTRATIONS SINCE 2009 - OGALLALA

FHR Odessa Plant

F Date Sampled	F MW-39-88 POC	F MW-44-88 CAO	F MW-60-90 POC
Apr-09	<0.005	<0.005	<0.005
Oct-09	<0.005	<0.005	<0.005
Apr-10	<0.005	<0.005	<0.005
Oct-10	<0.005	<0.005	<0.005
Apr-11	4.46	<0.005	0.0319
Oct-11	0.0142	1.35	<0.005
Apr-12	0.0424	3.56	0.0192
Oct-12	0.0543	<0.005	<0.005
Apr-13	0.0729	<0.005	<0.005
Oct-13	0.0368	<0.005	<0.005
Apr-14	0.163	<0.005	<0.005
Oct-14	0.0298	<0.005	<0.005
Apr-15	0.0209	<0.005	<0.005
Oct-15	0.0113	<0.005	<0.005
Apr-16	<0.005	<0.005	<0.005
Oct-16	<0.005	NM	<0.005
Apr-17	<0.005	<0.005	<0.005
Oct-17	<0.005	NM	<0.005
Apr-18	<0.005	NM	<0.005
Oct-18	<0.005	NM	<0.005
Apr-19	<0.005	NM	<0.005
Oct-19	<0.005	NM	<0.005
Apr-20	<0.005	NM	<0.005
Oct-20	<0.005	NM	<0.005
Apr-21	<0.005	NM	<0.005
Oct-21	<0.005	NM	<0.005
Apr-22	0.0712	NM	0.0445
Oct-22	<0.005	NM	<0.005
Apr-23	0.0291	NM	0.338
Oct-23	0.00128	NM	0.00273
Apr-24	<0.005	NM	<0.005
Oct-24	0.0012	NM	0.00117
Apr-25	<0.0000941	NM	<0.0000941

Notes:

Shaded values indicate value used is an interpolated value calculated from previous and subsequent events.

TABLE 3-2
BENZENE CONCENTRATIONS SINCE 2009 - ANTLERS
FHR Odessa Plant

Date Sampled	A MW-66-90 POC	A MW-67-90 POC	A MW-108-92 CAO	B MW-15-88 POC	C MW-91-92 POC	C MW-92-92 POC
Apr-09	<0.005	<0.005	73	<0.005	0.36	1.2
Oct-09	<0.005	<0.005	75.1	0.00916	0.376	2.36
Apr-10	<0.005	<0.005	82.8	0.00604	0.180	6.61
Oct-10	<0.005	0.121	67.6	0.00537	0.248	4.05
Apr-11	0.004255	0.06175	57	0.00755	0.112	31.6
Oct-11	0.00601	<0.005	67.8	<0.005	0.0438	24.7
Apr-12	0.0445	2.24	54.9	<0.005	0.269	12.8
Oct-12	<0.005	<0.005	85	0.0055	0.0532	11.1
Apr-13	<0.005	<0.005	65	<0.005	0.0120	2.53
Oct-13	0.0224	<0.005	58	<0.005	0.0509	3.51
Apr-14	<0.005	<0.005	19.7	<0.005	0.0590	0.827
Oct-14	<0.005	<0.005	70	<0.005	0.0312	0.0105
Apr-15	<0.005	<0.005	71.9	<0.005	0.0226	0.310
Oct-15	<0.005	<0.005	61.6	<0.005	0.0116	1.73
Apr-16	<0.005	<0.005	65.1	<0.005	0.0089	0.214
Oct-16	<0.005	<0.005	NM	<0.005	0.00699	0.636
Apr-17	<0.005	<0.005	62.1	<0.005	0.00762	0.0576
Oct-17	<0.005	<0.005	NM	<0.005	0.00594	0.381
Apr-18	0.203	<0.005	53.1	<0.005	0.02380	0.0515
Oct-18	<0.005	<0.005	NM	<0.005	0.0106	0.170
Apr-19	<0.005	<0.005	2.49	<0.005	0.0083	0.0156
Oct-19	<0.005	<0.005	NM	0.00316	0.0103	0.202
Apr-20	<0.005	<0.005	1.02	<0.005	<0.005	0.626
Oct-20	<0.005	<0.005	NM	<0.005	<0.005	0.770
Apr-21	<0.005	<0.005	<0.005	0.0178	<0.005	0.560
Oct-21	<0.005	<0.005	NM	<0.005	0.0123	0.299
Apr-22	<0.005	<0.005	38.5	<0.005	0.0111	0.00728
Oct-22	<0.005	0.00991	NM	<0.005	<0.005	0.0633
Apr-23	<0.005	0.0119	32.8	<0.005	0.0091	<0.005
Oct-23	0.00931	0.00012	NM	0.00325	0.00017	0.158
Apr-24	<0.005	<0.005	17.4	0.00861	<0.0051	0.150
Oct-24	<0.0000941	0.000296	NM	0.0024	<0.0000941	0.010
Apr-25	0.000209	0.041	<0.00235	0.00232	0.0089	0.0059

Date Sampled	D MW-1 POC	D MW-3-88 POC	D MW-5-88 POC	D MW-8-99 CAO	D MW-10-90 CAO	D MW-104-92 POC	F MW-40-88 POC
Apr-09	0.48	<0.005	6.3	300	0.15	<0.005	<0.005
Oct-09	1.47	<0.005	2.5	308	0.253	<0.005	<0.005
Apr-10	0.160	<0.005	0.910	244	23.2	<0.005	<0.005
Oct-10	0.572	<0.005	0.405	225	24.5	0.0211	<0.005
Apr-11	0.187	<0.005	0.149	287	74	<0.005	<0.005
Oct-11	0.484	0.00975	NM	233	82.5	<0.005	<0.005
Apr-12	0.242	0.866	NM	268	122	<0.005	0.180
Oct-12	0.846	0.119	NM	212	86.4	<0.005	<0.005
Apr-13	0.189	<0.005	NM	111	90.3	<0.005	<0.005
Oct-13	0.324	<0.005	0.146	66.8	86.3	<0.005	<0.005
Apr-14	0.0974	0.109	0.0873	81.9	82.7	<0.005	<0.005
Oct-14	0.489	<0.005	0.055	96.5	74	<0.005	<0.005
Apr-15	0.101	<0.005	0.057	97.6	88	<0.005	<0.005
Oct-15	17.0	<0.005	0.0591	132	106	<0.005	<0.005
Apr-16	20.2	0.00598	0.0445	127	238	<0.005	<0.005
Oct-16	82.6	<0.005	0.0575	NM	NM	<0.005	<0.005
Apr-17	64.2	<0.005	0.0704	139	327	<0.005	<0.005
Oct-17	167	<0.005	0.0529	NM	NM	<0.005	<0.005
Apr-18	102	<0.005	0.167	209	365	<0.005	<0.005
Oct-18	22.6	<0.005	0.0689	NM	NM	<0.005	<0.005
Apr-19	629	<0.005	0.0707	197	376	<0.005	<0.005
Oct-19	126	0.00146	0.0395	NM	NM	<0.005	<0.005
Apr-20	18.2	<0.005	0.0445	369	226	<0.005	<0.005
Oct-20	0.352	<0.005	0.041	NM	NM	<0.005	<0.005
Apr-21	0.752	<0.005	0.0559	212	81.4	<0.005	0.00579
Oct-21	0.161	0.00613	0.0207	NM	NM	<0.005	<0.005
Apr-22	0.377	0.376	0.069	186	59.6	0.00606	0.0500
Oct-22	0.0607	<0.005	0.0845	NM	NM	0.030	<0.005
Apr-23	0.162	<0.005	0.565	167	37.4	0.156	0.187
Oct-23	0.0381	0.00984	15.9	NM	NM	0.000261	0.0030
Apr-24	0.0596	<0.005	0.0433	<0.005	<0.005	<0.005	<0.005
Oct-24	0.0691	0.0622	0.0445	NM	NM	0.000281	0.00125
Apr-25	0.0159	<0.0000941	0.000337	NM	108	0.00405	<0.0000941

Notes:

Shaded values indicates value used is an interpolated value calculated from previous and subsequent events.

4 PROPOSED CORRECTIVE ACTION PROGRAM

As discussed in **Section 3**, MNA has resulted in stable and/or declining benzene concentrations in the groundwater. This section presents the proposed corrective action program moving forward, as well as any changes to the corrective action program, split up by GWCA.

4.1 OVERVIEW OF PROPOSED CHANGES

The following list summarizes the proposed changes to the groundwater monitoring program followed by a discussion for each GWCA:

- GWCA-A – No changes proposed.
- GWCA-B – No changes proposed.
- GWCA-C – No changes proposed.
- GWCA-D – No changes proposed.
- GWCA-E – No changes proposed.
- GWCA-F – GWPS Achieved. There have been no benzene concentrations above the GWPS for three consecutive years. There are no permitted units in GWCA-F. It is proposed that the Corrective Action Program for GWCA-F be discontinued.

The proposed corrective action program for each GWCA is presented below. The locations of the units under Corrective Action, along with sampling locations, are shown on **Figure 4-1** and **Figure 4-2**. The wells proposed to be included in the Corrective Action Program are presented below by GWCA. Construction details are presented in **Table 4-1**.

4.1.1 GWCA-A

Currently, there are three RCRA-regulated units and eight SWMUs within GWCA-A that are in corrective action. Releases from the regulated units are comingled with releases from the SWMUs. No changes to the GWCA-A monitoring program are suggested in this RCRA permit renewal application. The wells proposed for the GWCA-A monitoring program are presented in the table below:

	GWCA-A Monitoring Program Wells			
Aquifer	**POC Wells**		**CAO Wells**	
Ogallala	MW-22-88	RW-12A-88	MW-110-92	RW-3S-97
	MW-27-88	RW-13A-95	MW-111-92	RW-4A-95
	MW-73-90	RW-14A-95	MW-114-92	RW-5A-88
	MW-102-92	RW-15A-92	RW-1A-88	RW-10A-95
	RW-6A-90	RW-16A-92	RW-1S-90	RW-11A-90
	RW-8A-92	RW-17A-92	RW-2S-97	
	RW-9A-90		RW-3A-95	
Antlers	MW-66-90		MW-108-92	
	MW-67-90			

The applicable analyte COCs and sampling frequencies for GWCA-A POC and COA wells are presented on the table below:

GWCA-A Monitoring Program Constituents and GWPS (mg/L)		
Wells	**VOCs (GWPS)**	**Sampling Frequency**
POC Wells	Benzene (0.005) Ethylbenzene (0.700) Toluene (1.00) Styrene (0.100)	Semi-annually (April, October)
CAO Wells	Benzene (0.005) Ethylbenzene (0.700) Toluene (1.00) Styrene (0.100)	Annually (April)

4.1.2 GWCA-B

There is one RCRA-regulated unit, NOR No. 37 Olefin Oil/Water Separator, and two SWMUs associated with GWCA-B, that are under corrective action. No changes to the GWCA-B monitoring program are suggested in this RCRA permit renewal application. The wells proposed for the GWCA-B monitoring program are presented in the table below:

GWCA-B Monitoring Program Wells		
Aquifer	**POC Wells**	**CAO Wells**
Ogallala	MW-14-88	MW-103-92 MW-118-97 MW-121-01 MW-122-16 MW-124-01
Antlers	MW-15-88	None

The applicable analyte COCs and sampling frequencies for GWCA-B POC and COA wells are presented on the table below:

GWCA-B Monitoring Program Constituents and GWPS (mg/L)		
Wells	**VOCs (GWPS)**	**Sampling Frequency**
POC Wells	Benzene (0.005)	Semi-annually (April, October)
CAO Wells	Benzene (0.005)	Annually (April)

4.1.3 GWCA-C

There is one SWMU, NOR No. 73 Butadiene Wastewater Lagoon, and no RCRA-regulated units under corrective action in GWCA-C. No changes to the GWCA-C monitoring program are suggested in this RCRA

permit renewal application. The wells proposed for the GWCA-C monitoring program are presented in the table below:

GWCA-C Monitoring Program Wells		
Aquifer	**POC Wells**	**CAO Wells**
Ogallala	MW-90-92 RW-1C-88 RW-2C-92	None
Antlers	MW-91-92 MW-92-92	None

The applicable analyte COCs and sampling frequencies for GWCA-C POC wells are presented on the table below. There are no CAO wells in GWCA-C:

GWCA-C Monitoring Program Constituents and GWPS (mg/L)		
Wells	**VOCs (GWPS)**	**Sampling Frequency**
POC Wells	Benzene (0.005)	Semi-annually (April, October)

4.1.4 GWCA-D

Within GWCA-D, there is one RCRA-regulated unit (NOR No. 38 Styrene/Butadiene Oil/Water Separator) and one SWMU (FAC 46 – Styrene Oil Storage Tank). No changes to the GWCA-D monitoring program are suggested in this RCRA permit renewal application. The wells proposed for the GWCA-D monitoring program are presented in the table below:

GWCA-D Monitoring Program Wells		
Aquifer	**POC Wells**	**CAO Wells**
Ogallala	B-9 MW-4-88 MW-13-88 MW-57-89 MW-105-92 RW-2D-88	B-2 MW-9-99 MW-11-88 RW-5D-89 RW-8D-89 RW-9D-89 RW-13D-16
Antlers	MW-1 MW-3-88 MW-5-88 MW-104-92	MW-8-99 MW-10-90

The applicable analyte COCs and sampling frequencies for GWCA-D POC and COA wells are presented on the table below:

GWCA-D Monitoring Program Constituents and GWPS (mg/L)		
Wells	**VOCs (GWPS)**	**Sampling Frequency**

POC Wells	Benzene (0.005)	Semi-annually (April, October)
CAO Wells	Benzene (0.005)	Annually (April)

4.1.5 GWCA-E

There are three SWMUs under corrective action in GWCA-E. No changes to the GWCA-E monitoring program are suggested in this RCRA permit renewal application. The wells proposed for the GWCA-E monitoring program are presented in the table below:

GWCA-E Monitoring Program Wells		
Aquifer	**POC Wells**	**CAO Wells**
Ogallala	MW-45-88 MW-86-92	RW-1E-88
Antlers	None	None

The applicable analyte COCs and sampling frequencies for GWCA-E POC and COA wells are presented on the table below:

GWCA-E Monitoring Program Constituents and GWPS (mg/L)		
Wells	**VOCs (GWPS)**	**Sampling Frequency**
POC Wells	Xylenes, Total (10.0)	Semi-annually (April, October)
CAO Wells	Xylenes, Total (10.0)	Annually (April)

4.1.6 GWCA-F

There are no active permitted units in GWCA-F. Historically, NOR Unit No. 23, Fouled Xylene Storage Tank was located in GWCA-F, but this unit was "clean closed" in 2009. The TCEQ approved the Closure Certification Letter Report in a letter dated 27 October 2009.

Groundwater monitoring for GWCA-F has been performed since 1998. Benzene has been the only COC for this area since 2015. There have been no benzene concentrations above the GWPS in any of the GWCA-F wells for the last three consecutive monitoring events (October 2023 through October 2025). The benzene data for all GWCA-F wells from October 2023 through October 2025 is presented in the table below. The October 2025 data will be included fully in the 2025-2026 ACR, to be submitted in July 2026.

GWCA-F Benzene Concentrations (mg/L) – October 2023 through October 2025			
Date Sampled	**MW-39-88 (Og)**	**MW-60-90 (Og)**	**MW-40-88 (Ant)**
October 2023	0.00128	0.00273	0.0030
April 2024	<0.005	<0.005	<0.005
October 2024	0.0012	0.00117	0.00125
April 2025	<0.0000941	<0.0000941	<0.0000941
October 2025	0.000410	0.00469	<0.000320

In accordance with the Permit, the GWPS is considered achieved for this GWCA and corrective actions are considered complete for this area. There are no SWMUs or AOCs in GWCA-F. It is proposed that the

Corrective Action Program for GWCA-F be discontinued. A summary of the proposed modifications for the Corrective Action Program for GWCA-F is as follows:

GWCA-F Monitoring Program Wells			
Aquifer	**POC Wells**	**CAO Wells**	**Wells to Abandon**
Ogallala	None	None	MW-39-88 MW-60-90 MW-44-88
Antlers	None	None	MW-40-88

4.1.7 GWCA-G

There are no corrective action units in GWCA-G. The Corrective Action Program was proposed to be discontinued as part of the 2015 CMI Work Plan, and was subsequently discontinued with the issuance of the 2016 RCRA Hazardous Waste Permit. No changes are proposed for GWCA-G.

4.1.8 MONAHANS DRAW SURFACE WATER

At certain times, groundwater from GWCA-A has the potential to discharge to Monahans Draw. Semi-annual sampling of five locations (I-20 at McKinney Park, S-1, S-5, S-6, and S-9) along Monahans Draw has been performed since 1999. The current COC for Monahans Draw surface water is benzene, and it is proposed that the semi-annual surface water sampling at these five locations continue, with the COC for this area for future monitoring continuing to be benzene.

4.2 SCHEDULING AND REPORTING

The results of the work performed under this CMI Work Plan will be reported annually, in a Compliance Report. Sampling will be performed during the first 30 days of April and first 31 days of October, and the report submitted by July 21st of each year. The Compliance Reports will be prepared in accordance with the applicable requirements outlined in the issued Hazardous Waste Permit with incorporated Compliance Plan, and will include the following:

- A detailed site map drawn to scale indicating the location of all monitoring wells.
- A potentiometric surface map drawn to scale and a list, in tabular form, of all the fluid level measurements used in the preparation of the map. All fluid measurements will be reported with reference to mean sea level and depth below the monitoring well top of casing.
- Lists in tabular form of current and historic fluid level measurements obtained from each monitoring well.
- An LNAPL plume map drawn to scale.
- A DNAPL plume map drawn to scale.
- Lists in tabular form of current analytical results.
- Summaries of all corrective action activities conducted for the reporting period.

4.3 REGULATORY CONSIDERATIONS

As presented in this document, MNA is effectively controlling the COCs in the groundwater and the continued use of MNA as the remedy for historical releases to the environment is appropriate. The current conditions are protective of human health since the groundwater beneath the plant is not utilized. A 2020 MNA Evaluation Report and 2024 Updated MNA Evaluation Memorandum were submitted to the TCEQ, both demonstrating that MNA is continuing to work and is an effective remedy for the FHR Odessa Plant. The reports provided a detailed evaluation of MNA within each GWCA and concluded that MNA continued to be an appropriate corrective action for the FHR Odessa Plant and has resulted in stable and/or declining benzene concentrations in groundwater at the FHR Odessa Plant. The reports also included a statistical evaluation of data using the Mann-Kendall trend analysis, showing that MNA continued to be an appropriate corrective action for the FHR Odessa Plant. The TCEQ approved the continued application of MNA in a letter dated 25 October 2024. Based on this information, the conditions remain protective of the environment, and will continue to be protective based on continued MNA.

FIGURE 4-1

MONITORING PROGRAM
GWCA-A AND GWCA-B

FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SQ Environmental, LLC

SCALE: 1 IN = 500 FT | DATE: FEB 2026 | PN: 1039.005.001

SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.

0 250 500
SCALE IN FEET

LEGEND:

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM
- SOLID WASTE MANAGEMENT UNITS (SWMU) SUBJECT TO CORRECTIVE ACTION PROGRAM

GWCA-A
GWCA-B
GWCA-C
GWCA-D

UNIT 73 - BUTADIENE WASTEWATER LAGOON
UNIT 10 - WASTE PILE
UNIT K - FILTER DUMP SUMP
UNIT 32 - HMDA WASTE PILE
UNIT 01 - WASTEWATER TREATMENTS SLUDGE LANDFILL (CLOSED)
UNIT 44 - STYRENE TAR PITS
UNIT 02 - ADIPIC ACID WASTE PILE
UNIT 67 - SOUTH FLARE POND (POST-CLOSURE CARE)
UNIT 45 - OILEFIN OIL STORAGE TANK
UNIT 37 - OLEFIN OIL/WATER SEPARATOR (POST-CLOSURE CARE)
UNIT 36 - LAND TREATMENT UNIT (WEST)
UNIT 65 - WASTEWATER INJECTION POND (CLOSED)
UNIT 66 - NORTH FLARE POND
UNIT 63 - GULF SEAL PONDS (POST-CLOSURE CARE)
UNIT 68 - SOUTH STORAGE POND (POST-CLOSURE CARE)

MONAHANS DRAW

MW-87-92 (B)
RW-2C-92
MW-92-92
MW-90-92
MW-91-92
MW-105-92
MW-122-16
MW-124-01
MW-121-01
MW-118-97
MW-14-88
MW-15-88
MW-103-92
MW-57-89
B-2
RW-13D-16
MW-4-88
MW-3-88
MW-1
B-9
RW-5D-89
RW-8D-89
RW-9D-89
MW-8-99
MW-9-99
MW-5-88
RW-2D-88
MW-11-88
MW-10-90
MW-27-88
RW-6A-90
MW-102-92
RW-1S-90
RW-2S-97
RW-3S-97
MW-114-92
MW-108-92
RW-1A-88
RW-3A-95
RW-4A-95
RW-5A-88
MW-67-90
MW-66-90
RW-9A-90
RW-11A-90
RW-10A-95
MW-73-90
RW-12A-88
MW-22-88
RW-8A-92
RW-14A-95
RW-13A-95
RW-15A-92
RW-16A-92
RW-17A-92
MW-111-92

LEGEND:

MW-67-90	POINT OF COMPLIANCE WELL ANTLERS
MW-22-88	POINT OF COMPLIANCE WELL OGALLALA
RW-4A-95	CORRECTIVE ACTION OBSERVATION WELL
MW-48-89 (B)	BACKGROUND WELL OGALLALA
MW-87-92 (B)	BACKGROUND WELL ANTLERS

N

UNIT Y - SOLVENT RINSE SUMP
UNIT 28 - FOULED XYLENE STORAGE TANK V-912
UNIT 24 - FOULED XYLENE STORAGE TANK V-911

UNIT 38 - STYRENE OIL/WATER SEPARATOR
(POST-CLOSURE CARE)

UNIT 46 - STYRENE
OIL STORAGE TANK

UNIT 37 - OLEFIN OIL/WATER
SEPARATOR
(POST-CLOSURE CARE)

UNIT 45 - OILEFIN OIL
STORAGE TANK

GWCA-C
GWCA-D
GWCA-E
GWCA-F
GWCA-G
GWCA-B

MW-88-92 (B)
MW-89-99 (B)
RW-1C-88
RW-2C-92
MW-92-92
MW-90-92
MW-91-92
MW-122-16
MW-124-01
MW-13-88
MW-104-92
MW-105-92
MW-57-89
B-2
RW-13D-16
RW-5D-89
RW-8D-89
RW-2D-88
MW-5-88
MW-11-88
MW-10-90
MW-4-88
MW-3-88
MW-1
B-9
RW-9D-89
MW-8-99
MW-9-99
RW-1E-88
MW-45-88
MW-86-92
MW-39-88
MW-40-88
MW-60-90
MW-121-01
MW-118-97
MW-14-88
MW-15-88
MW-103-92

LEGEND:

MW-67-90	POINT OF COMPLIANCE WELL ANTLERS
MW-22-88	POINT OF COMPLIANCE WELL OGALLALA
RW-4A-95	CORRECTIVE ACTION OBSERVATION WELL
MW-48-89 (B)	BACKGROUND WELL OGALLALA
MW-87-92 (B)	BACKGROUND WELL ANTLERS

N

LEGEND:

- APPROXIMATE BOUNDARIES OF FHR ODESSA PLANT
- APPROXIMATE BOUNDARIES OF GROUNDWATER CONTROL AREA (GWCA)
- RCRA UNITS SUBJECT TO CORRECTIVE ACTION PROGRAM
- SOLID WASTE MANAGEMENT UNITS (SWMU) SUBJECT TO CORRECTIVE ACTION PROGRAM

SOURCE: GOOGLE EARTH IMAGE DATED 5/29/2018.

0 250 500
SCALE IN FEET

SQ Environmental, LLC

FIGURE 4-2

MONITORING PROGRAM
GWCA-C, GWCA-D, GWCA-E, GWCA-F, and GWCA-G
FHR ODESSA PLANT
2400 S. GRANDVIEW AVE.
ODESSA, TEXAS 79766

SCALE:	DATE:	PN:
1 IN = 500 FT	FEB 2026	1039.005.001

TABLE 4-1
WELL CONSTRUCTION DETAILS
Odessa Plant

Well Name	GWCA	Screened Aquifer	Proposed Well Function	Installation Date	Surface Elevation (ft amsl)	Total Depth (ft amsl)	Total Depth (ft bgs)	Screen Length (ft)	Screen Interval (ft bgs)	Well Size (in)	Casing Material
MW-22-88	A	Ogallala	POC	10/14/1988	2,857.56	2,835.56	22	15	6.0 to 21.0	4	Fiberglass
MW-27-88	A	Ogallala	POC	10/10/1988	2,861.61	2,838.61	23	15	6.0 to 21.0	4	Fiberglass
MW-73-90	A	Ogallala	POC	10/18/1990	2,852.65	2,831.65	21	15	3.5 to 18.5	4	Fiberglass
MW-102-92	A	Ogallala	POC	7/29/1992	2,851.11	2,829.11	22	15.3	5.9 to 21.2	4	Fiberglass
MW-110-92	A	Ogallala	CAO	9/22/1992	2,858.37	2,834.87	23.5	14.9	7.3 to 22.2	4	Fiberglass
MW-111-92	A	Ogallala	CAO	9/28/1992	2,859.30	2,837.30	22	14.5	5.2 to 19.7	4	Fiberglass
MW-114-92	A	Ogallala	CAO	10/2/1992	2,861.63	2,841.63	20	14.8	4.5 to 19.3	4	Fiberglass
RW-1A-88	A	Ogallala	CAO	10/11/1988	2,861.17	2,838.17	23	16	6.0 to 22.0	4	Fiberglass
RW-1S-90	A	Ogallala	CAO	10/12/1990	2,860.57	2,839.07	21.5	15	5.5 to 20.5	4	Fiberglass
RW-2S-97	A	Ogallala	CAO	12/11/1997	2,861.32	2,823.42	37.9	10	25.0 to 35.0	6	Stainless Steel
RW-3A-95	A	Ogallala	CAO	10/24/1995	2,859.10	2,831.10	28	21.5	6.0 to 27.5	4	Fiberglass
RW-3S-97	A	Ogallala	CAO	3/4/1997	2,860.29	2,838.29	22	15	6.5 to 21.5	6	Stainless Steel
RW-4A-95	A	Ogallala	CAO	1/25/1995	2,857.34	2,835.34	22	9.5	12.0 to 21.5	4	Fiberglass
RW-5A-88	A	Ogallala	CAO	10/18/1988	2,856.97	2,833.97	23	16	6.0 to 22.0	4	Fiberglass
RW-6A-90	A	Ogallala	POC	9/21/1990	2,854.82	2,833.82	21	15	5.0 20.0	4	Fiberglass
RW-8A-92	A	Ogallala	POC	8/10/1992	2,858.38	2,818.38	40	15.2	24.2 to 39.4	4	Fiberglass
RW-9A-90	A	Ogallala	POC	9/21/1990	2,854.75	2,831.75	23	15	2.5 to 17.5	4	Fiberglass
RW-10A-95	A	Ogallala	CAO	6/20/1995	2,853.81	2,824.81	29	21	5.0 to 26.0	4	Fiberglass
RW-11A-90	A	Ogallala	CAO	11/14/1990	2,853.54	2,827.04	26.5	15	5.0 to 20.0	4	PVC
RW-12A-88	A	Ogallala	POC	10/19/1988	2,853.75	2,831.75	22	16	6.0 to 22.0	4	Fiberglass
RW-13A-95	A	Ogallala	POC	10/16/1995	2,852.17	2,814.17	38	28	3.0 to 31.0	4	Fiberglass
RW-14A-95	A	Ogallala	POC	10/19/1995	2,851.92	2,816.92	35	29	3.0 to 32.0	4	Fiberglass
RW-15A-92	A	Ogallala	POC	7/22/1992	2,850.43	2,831.43	19	15.2	3.1 to 18.3	4	Fiberglass
RW-16A-92	A	Ogallala	POC	7/23/1992	2,851.01	2,831.01	20	15.2	3.5 to 18.7	4	Fiberglass
RW-17A-92	A	Ogallala	POC	7/24/1992	2,850.98	2,830.98	20	15.3	4.5 to 19.8	4	Fiberglass
MW-66-90	A	UA	POC	9/24/1990	2,854.77	2,800.77	54	15	38.0 to 53.0	4	Fiberglass
MW-67-90	A	UA	POC	10/2/1990	2,857.85	2,795.85	62	15	45.5 to 60.5	4	Fiberglass
MW-108-92	A	UA	CAO	8/11/1992	2,860.79	2,818.49	42.3	14.9	27.2 to 42.1	4	Fiberglass
MW-14-88	B	Ogallala	POC	10/31/1988	2,862.68	2,840.68	22	15	7.0 to 22.0	4	Fiberglass
MW-103-92	B	Ogallala	CAO	7/29/1992	2,861.82	2,839.42	22.4	14.9	7.3 to 22.2	4	Fiberglass
MW-118-97	B	Ogallala	CAO	5/28/1997	2,863.72	2,843.72	20	10	9.5 to 19.5	4	Fiberglass
MW-121-01	B	Ogallala	CAO	3/9/2001	2,864.18	2,841.18	23	13	10.0 to 23.0	4	Fiberglass
MW-122-16	B	Ogallala	CAO	3/16/2001	2,865.76	2,842.76	23	13	10.0 to 23.0	4	Fiberglass
MW-124-01	B	Ogallala	CAO	3/12/2001	2,864.76	2,843.76	21	14	7.0 to 21.0	4	Fiberglass
MW-15-88	B	UA	POC	10/12/1988	2,862.50	2,808.50	54	15	39.0 to 54.0	4	Fiberglass
MW-48-89	BG	LA	Background	3/14/1989	2,868.66	2,758.96	109.7	15	89.3 to 104.3	4	Fiberglass
MW-77-92	BG	Ogallala	Background	6/3/1992	2,870.37	2,837.87	32.5	15	16.0 to 31.0	4	Fiberglass
MW-87-92	BG	Ogallala	Background	7/7/1992	2,867.33	2,848.03	19.3	15	4.1 to 19.1	4	Fiberglass
MW-88-92	BG	Ogallala	Background	7/7/1992	2,877.59	2,842.59	35	15	19.0 to 34.0	4	Fiberglass
MW-89-99	BG	Ogallala	Background	5/27/1999	2,873.53	2,844.53	29	15	12.0 to 27.0	4	Fiberglass

BTEX + S - Benzene, Toluene, Ethylbenzene, Xylene, Styrene
UA - Upper Antlers Unit
LA - Lower Antlers Unit
POC - Point of Compliance Location
CAO - Correction Action Observation Location

TABLE 4-1
WELL CONSTRUCTION DETAILS
Odessa Plant

Well Name	GWCA	Screened Aquifer	Proposed Well Function	Installation Date	Surface Elevation (ft amsl)	Total Depth (ft amsl)	Total Depth (ft bgs)	Screen Length (ft)	Screen Interval (ft bgs)	Well Size (in)	Casing Material
MW-90-92	C	Ogallala	POC	7/9/1992	2,868.23	2,846.73	21.5	15	5.5 to 20.5	4	Fiberglass
RW-1C-88	C	Ogallala	POC	10/17/1988	2,868.22	2,846.22	22	16	5.0 to 21.0	4	Fiberglass
RW-2C-92	C	Ogallala	POC	7/14/1992	2,867.39	2,847.39	20	15.25	4.5 to 19.75	4	Fiberglass
MW-91-92	C	UA	POC	7/11/1992	2,868.27	2,818.27	50	15	30.3 to 45.3	4	Fiberglass
MW-92-92	C	UA	POC	7/14/1992	2,866.39	2,821.39	45	15	26.0 to 41.0	4	Fiberglass
B-2	D	Ogallala	CAO	10/30/1992	2,866.85	2,839.60	27.25	18.9	5.5 to 24.4	4	Fiberglass
B-9	D	Ogallala	POC	2/18/1986	2,864.57	2,841.57	23	10	13.0 to 23.0	4	Fiberglass
MW-4-88	D	Ogallala	POC	4/12/1988	2,867.72	2,842.22	25.5	15	9.5 to 24.5	4	Fiberglass
MW-13-88	D	Ogallala	POC	10/18/1988	2,868.65	2,840.65	28	15	13.0 to 28.0	4	Fiberglass
MW-9-99	D	Ogallala	CAO	5/26/1999	2,865.24	2,837.24	28	18	10.0 to 28.0	4	Fiberglass
MW-11-88	D	Ogallala	CAO	6/9/1988	2,864.77	2,839.57	25.2	15.3	9.4 to 24.7	4	Fiberglass
MW-57-89	D	Ogallala	POC	5/2/1989	2,866.11	2,841.61	24.5	15	9.5 to 24.5	4	Fiberglass
MW-105-92	D	Ogallala	POC	8/8/1992	2,868.25	2,839.95	28.3	15	13.2 to 28.2	4	Fiberglass
RW-2D-88	D	Ogallala	POC	4/14/1988	2,865.60	2,840.60	25	15.3	9.1 to 24.4	4	Fiberglass
RW-5D-89	D	Ogallala	CAO	4/30/1989	2,865.48	2,839.98	25.5	15.48	10.02 to 25.5	4	Fiberglass
RW-8D-89	D	Ogallala	CAO	4/29/1989	2,865.24	2,839.24	26	16.87	9.13 to 26.0	4	Fiberglass
RW-9D-89	D	Ogallala	CAO	5/2/1989	2,865.89	2,842.39	23.5	15.47	8.03 to 23.5	4	Fiberglass
RW-13D-92	D	Ogallala	CAO	10/21/1992	2,866.22	2,836.22	30	19.7	5.3 to 25.0	4	Fiberglass
MW-1	D	UA	POC	3/26/1986	2,864.79	2,814.79	50	15	35.0 to 50.0	2	PVC
MW-3-88	D	UA	POC	4/18/1988	2,867.48	2,809.48	58	15	42.2 to 57.2	4	Fiberglass
MW-5-88	D	UA	POC	4/19/1988	2,866.31	2,805.31	61	15	45.5 to 60.5	4	Fiberglass
MW-8-99	D	UA	CAO	5/24/1999	2,865.31	2,800.31	65	19	46.0 to 65.0	4	Fiberglass
MW-10-90	D	UA	CAO	11/7/1990	2,864.68	2,814.58	50.1	15	33.5 to 48.5	4	Fiberglass
MW-104-92	D	UA	POC	8/7/1992	2,868.21	2,818.51	49.7	15	34.6 to 49.6	4	Fiberglass
MW-45-88	E	Ogallala	POC	11/9/1988	2,873.96	2,838.96	35	15	19.3 to 34.3	4	Fiberglass
MW-86-92	E	Ogallala	POC	7/6/1992	2,874.88	2,835.88	39	15	23.2 to 38.2	4	Fiberglass
RW-1E-88	E	Ogallala	CAO	4/5/1988	2,874.42	2,840.12	34.3	14.6	17.6 to 32.2	4	Fiberglass
MW-39-88	F	Ogallala	POC	10/27/1988	2,872.11	2,836.61	35.5	15	20.0 to 35.0	4	Fiberglass
MW-60-90	F	Ogallala	POC	8/29/1990	2,873.60	2,833.36	40.24	15	23.8 to 38.8	4	Fiberglass
MW-40-88	F	UA	POC	11/2/1988	2,872.22	2,851.22	21	15	42.0 to 57.0	4	Fiberglass
MW-44-88	F	UA	CAO	10/26/1988	2,873.13	2,832.63	40.5	16	24.0 to 40.0	4	Fiberglass
I-20	SW	NA	SW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S-1	SW	NA	SW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S-5	SW	NA	SW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S-6	SW	NA	SW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S-9	SW	NA	SW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

BTEX + S - Benzene, Toluene, Ethylbenzene, Xylene, Styrene
UA - Upper Antlers Unit
LA - Lower Antlers Unit
POC - Point of Compliance Location
CAO - Correction Action Observation Location

5 REFERENCE

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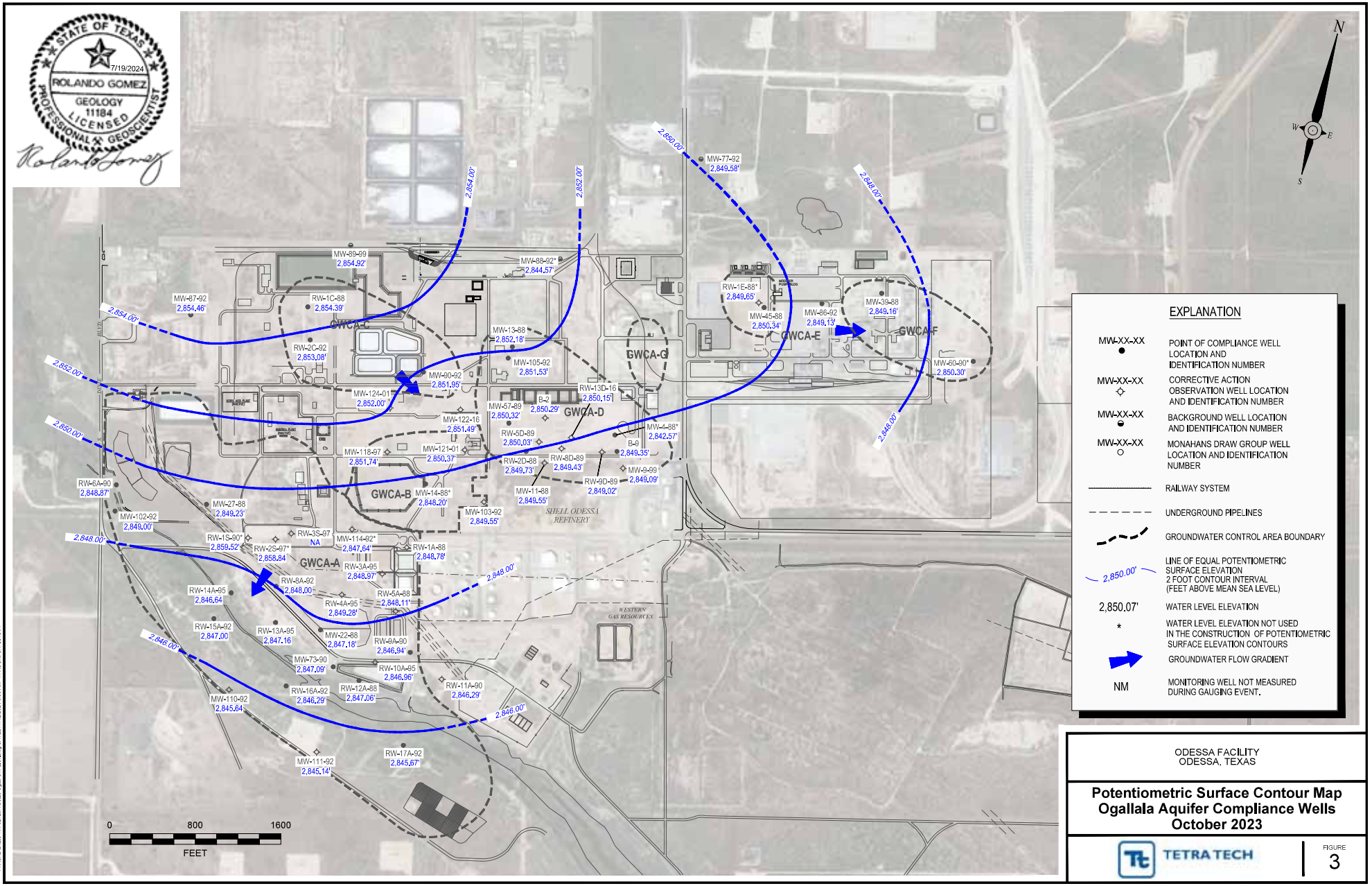
LIST OF ACRONYMS

CAO	Corrective Action Observation
CFR	Code of Federal Regulations
CMI	Corrective Measures Implementation
COC	Chemical of Concern
DNAPL	Dense Non-aqueous Phase Liquids
FHR	Flint Hills Resources Odessa, LLC
gpd	gallons per day
GWCA	Groundwater Control Area
GWPS	Groundwater Protection Standard
LNAPL	Light Non-aqueous Phase Liquids
MNA	Monitored Natural Attenuation
NAPL	Non-aqueous Phase Liquids
NOR	Notice of Registration
PE	Professional Engineer
PG	Professional Geologist
POC	Point of Compliance
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RRR	Risk Reduction Rules
SQE	SQ Environmental LLC
SWMU	Solid Waste Management Unit
TCEQ	Texas Commission on Environmental Quality
TAC	Texas Administrative Code
TNRCC	Texas Natural Resources Conservation Commission
TRRP	Texas Risk Reduction Program
USGS	United States Geological Survey

APPENDIX A

POTENTIOMETRIC MAPS 2023-2025 – OGALLALA AND ANTLERS



ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Ogallala Aquifer Compliance Wells
October 2023

TETRA TECH

FIGURE 3

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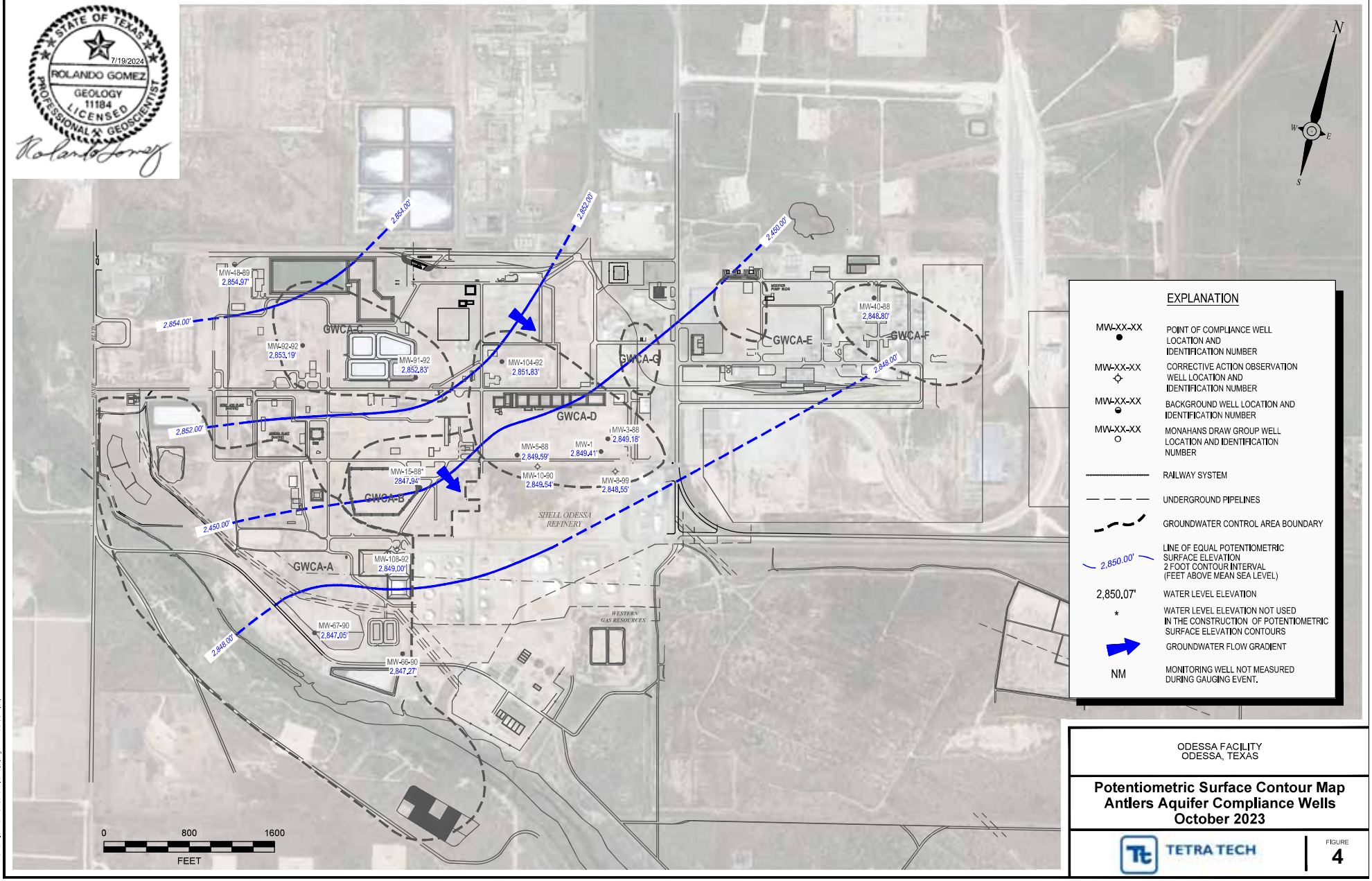

ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Antlers Aquifer Compliance Wells
October 2023

TETRA TECH

FIGURE
4

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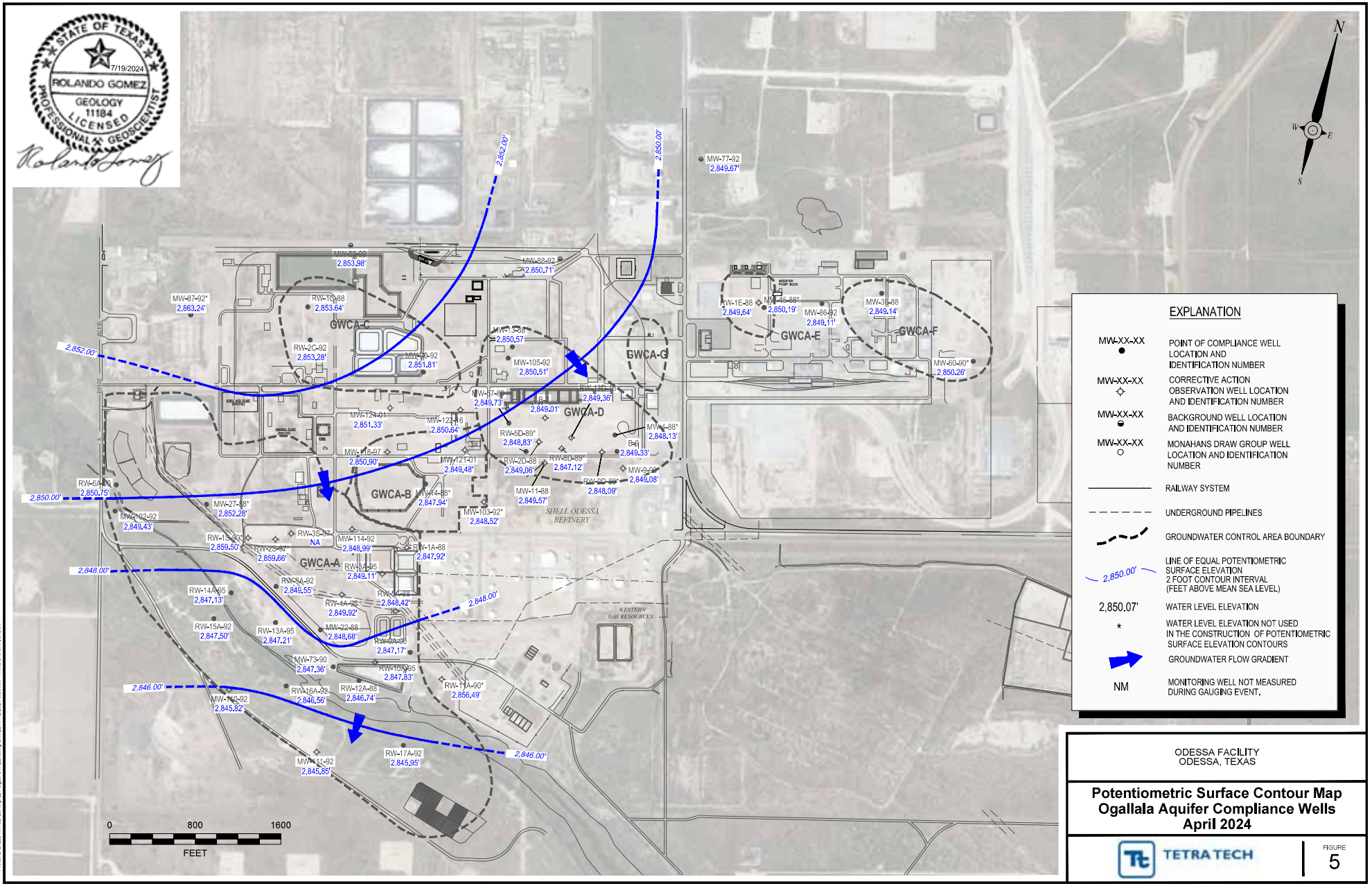


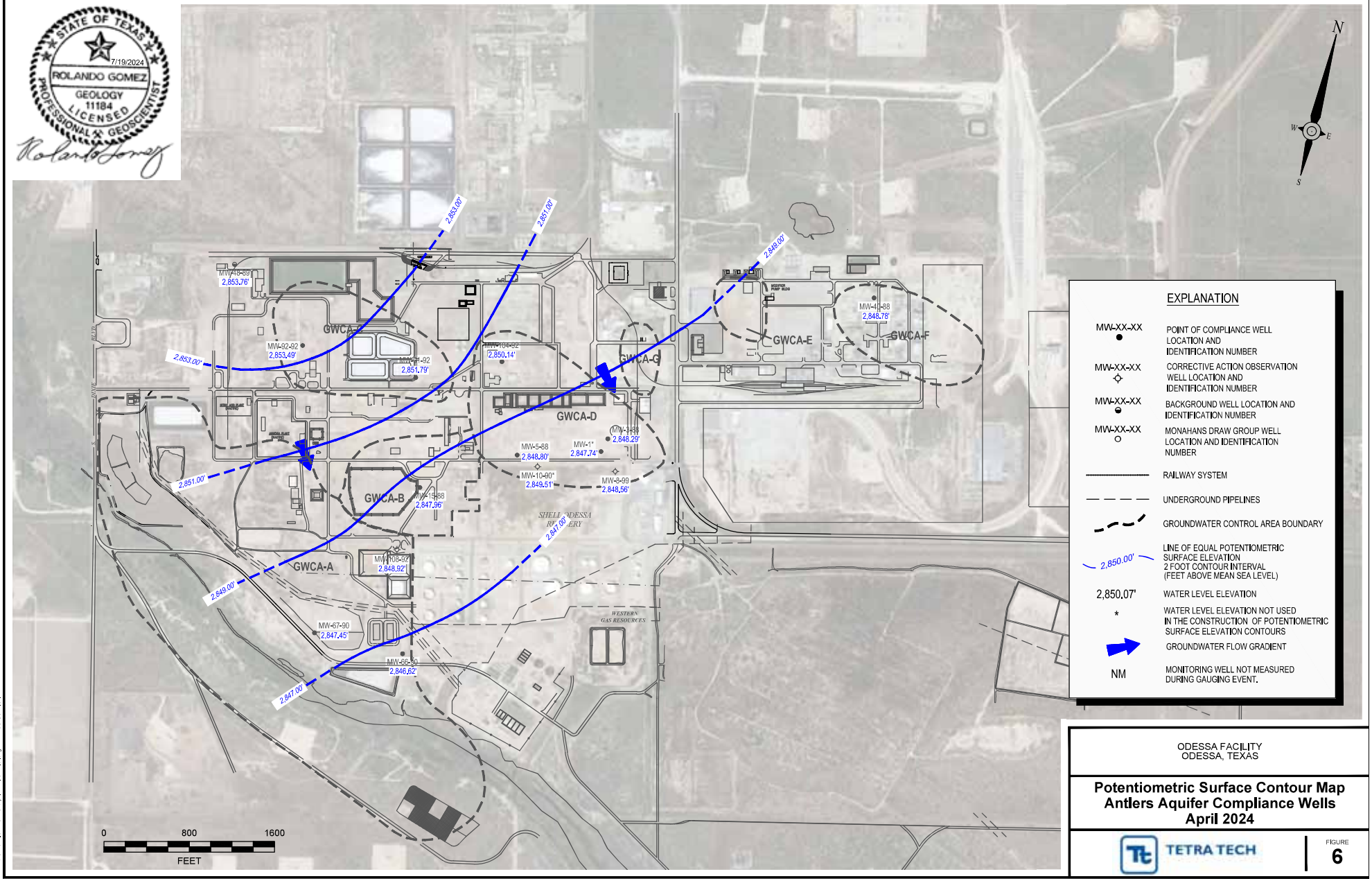
ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map Ogallala Aquifer Compliance Wells April 2024

TETRA TECH

FIGURE 5

P:\ACAD\2128-HN-2023\Apr24 Ogal GW Elev.dwg SAVED: 7/12/2024 8:39 AM - PAUGH, CHRISTINA



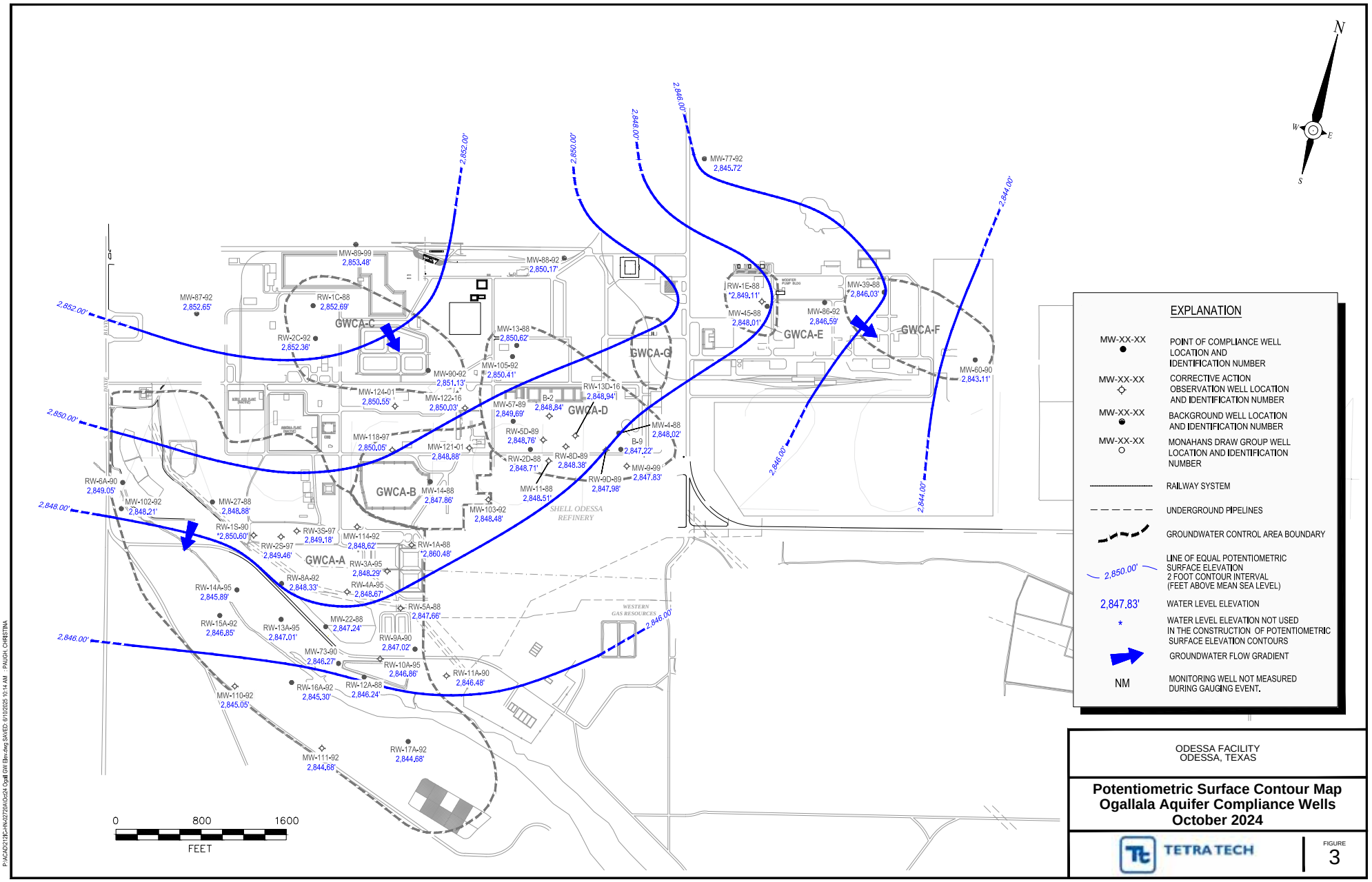
ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Antlers Aquifer Compliance Wells
April 2024

TETRA TECH

FIGURE
6

P:\AOC\CP3E~1\MXD\Map\Ant Aq GW Elev.mxd BY: PAUGH, CHRISTINA



ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Ogallala Aquifer Compliance Wells
October 2024

TETRA TECH

FIGURE 3

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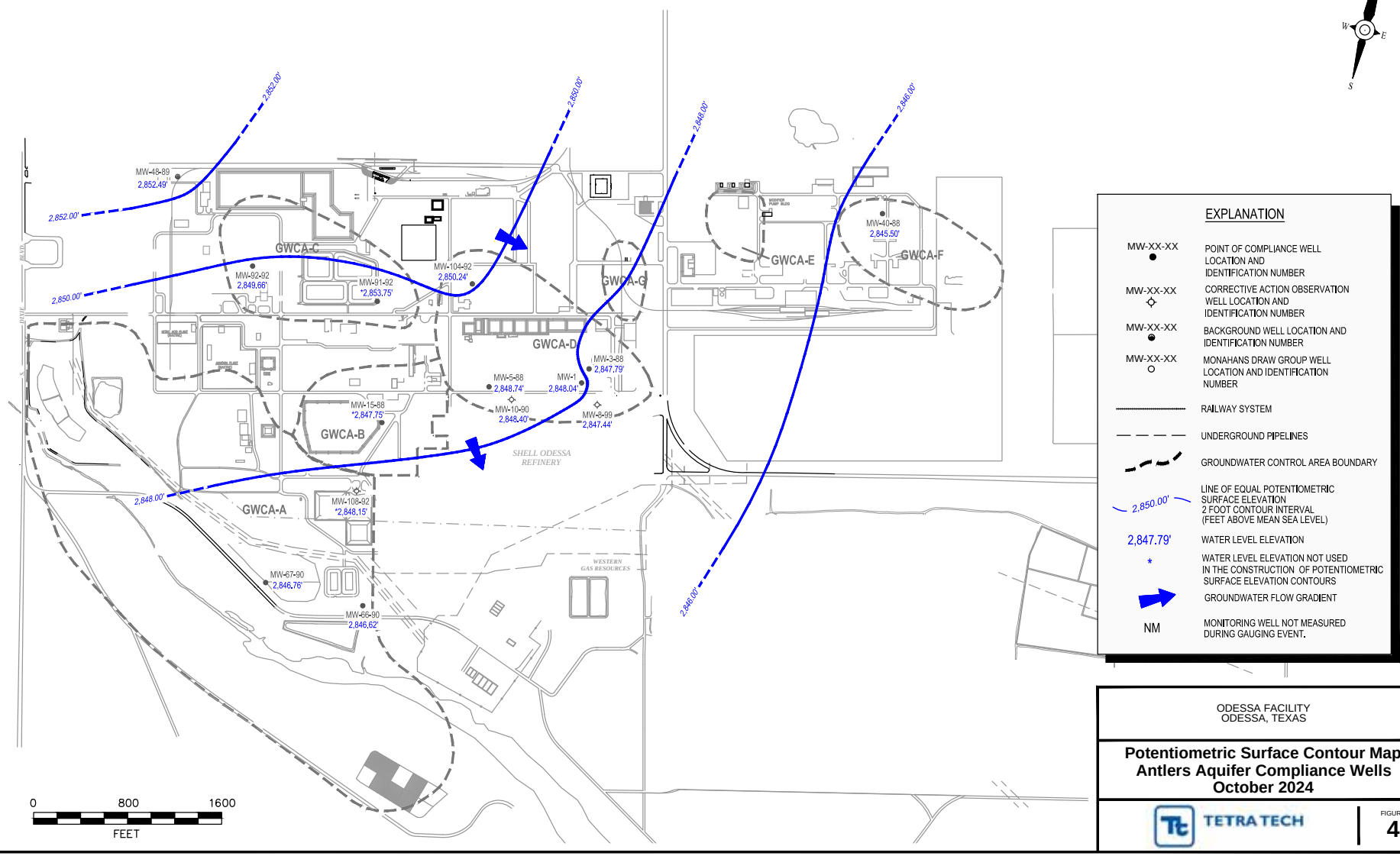

ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Antlers Aquifer Compliance Wells
October 2024

TETRA TECH

FIGURE
4

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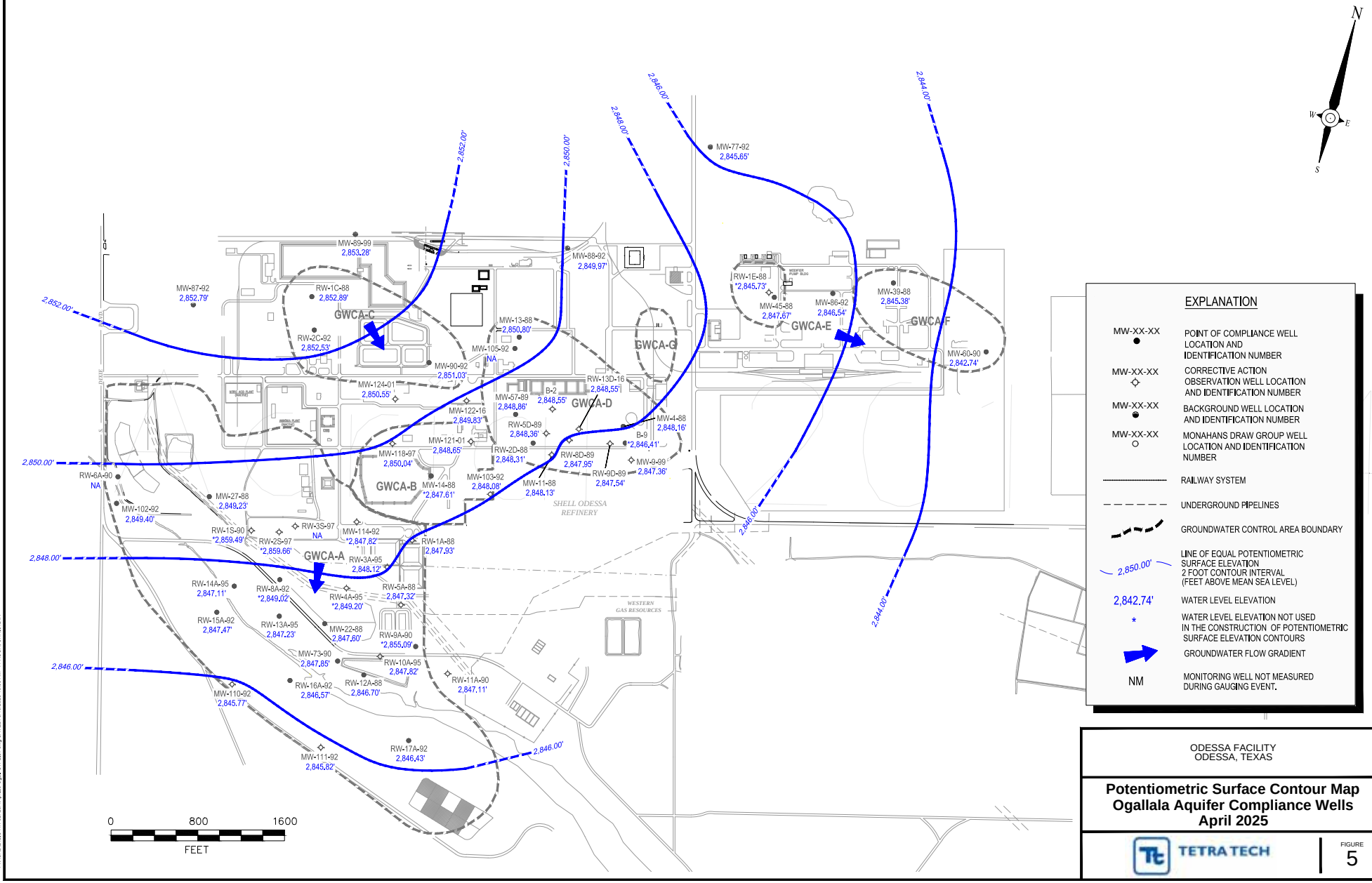


EXPLANATION

MW-XX-XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ◇	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ●	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ○	MONAHANS DRAW GROUP WELL LOCATION AND IDENTIFICATION NUMBER
----------	RAILWAY SYSTEM
- - - - - -	UNDERGROUND PIPELINES
~ ~ ~	GROUNDWATER CONTROL AREA BOUNDARY
2,850.00'	LINE OF EQUAL POTENTIOMETRIC SURFACE ELEVATION 2 FOOT CONTOUR INTERVAL (FEET ABOVE MEAN SEA LEVEL)
2,842.74'	WATER LEVEL ELEVATION
*	WATER LEVEL ELEVATION NOT USED IN THE CONSTRUCTION OF POTENTIOMETRIC SURFACE ELEVATION CONTOURS
➡	GROUNDWATER FLOW GRADIENT
NM	MONITORING WELL NOT MEASURED DURING GAUGING EVENT.

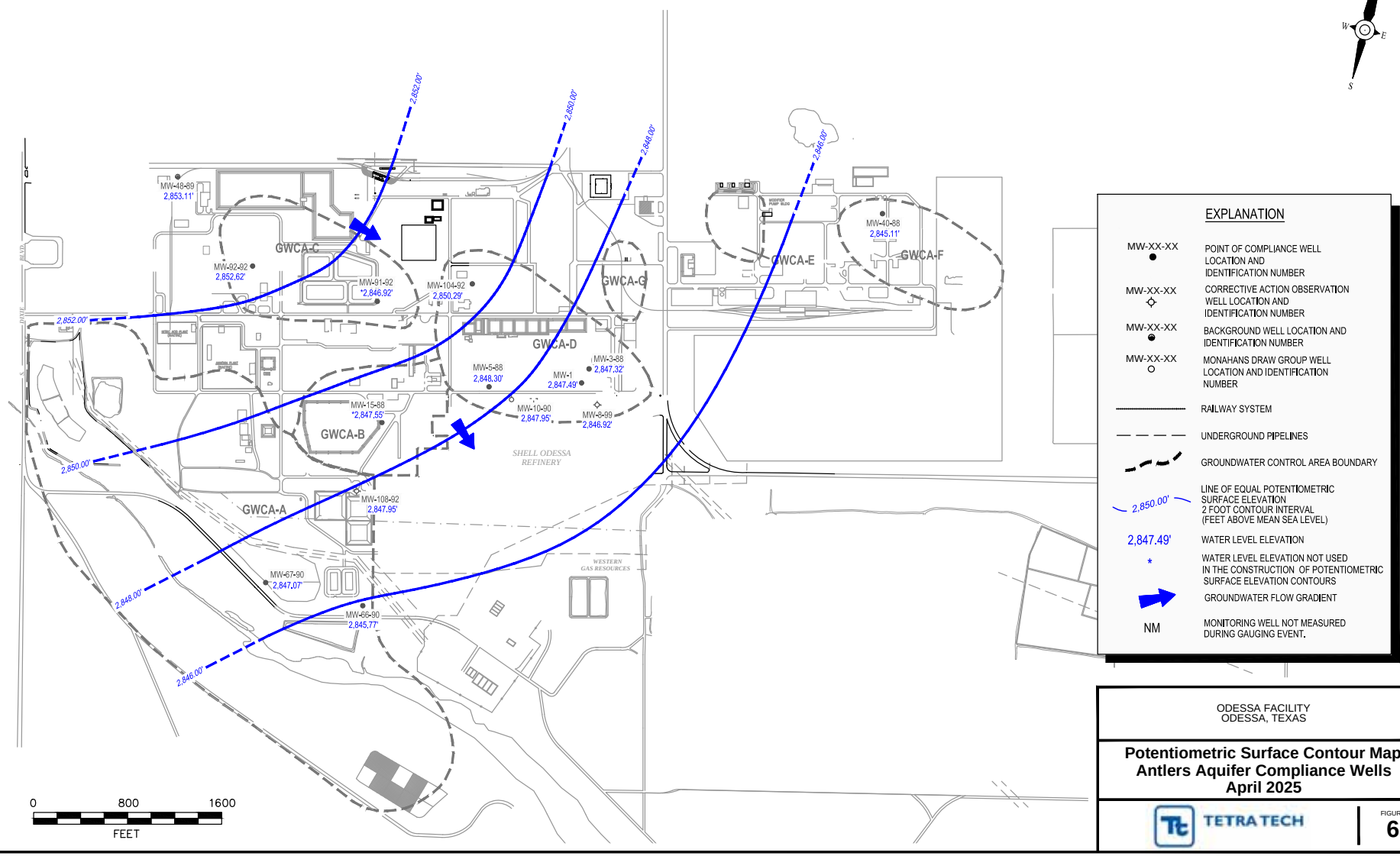
ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Ogallala Aquifer Compliance Wells
April 2025

TETRA TECH

FIGURE 5

P:\ACAD\218CHN\2728\Apr25 Ogal GW Elev.dwg SAVED: 6/10/2025 10:35 AM - PAUGH, CHRISTINA



ODESSA FACILITY
ODESSA, TEXAS

Potentiometric Surface Contour Map
Antlers Aquifer Compliance Wells
April 2025

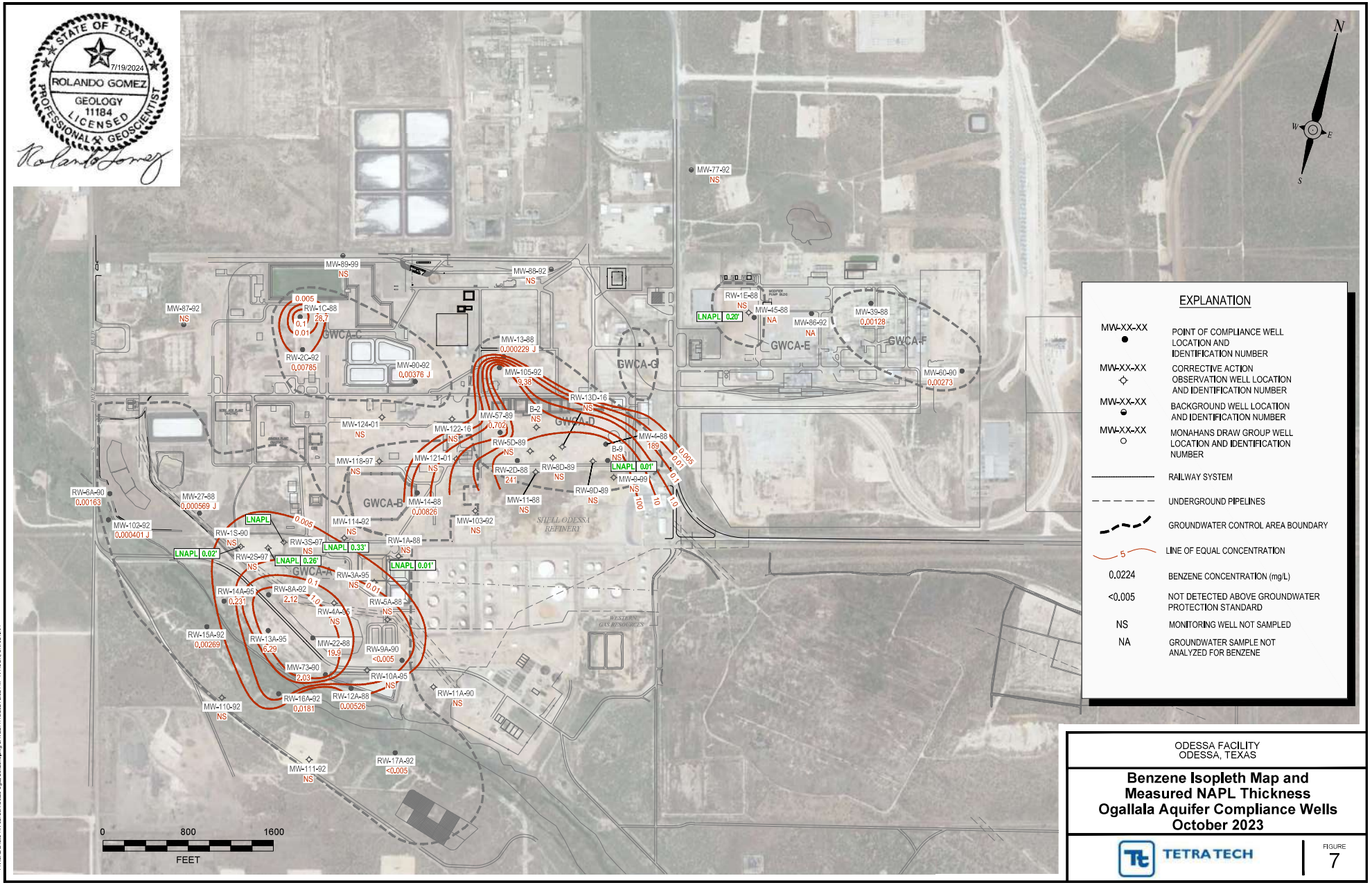
TETRA TECH

FIGURE
6

P:\MOD\2018\E-HN-0278\Mxd\FIG 6 Ant GW Elev.mxd BY: PAUGH, CHRISTINA

APPENDIX B

HISTORICAL NAPL AND BENZENE ISOPLETH MAPS, 2023-2025



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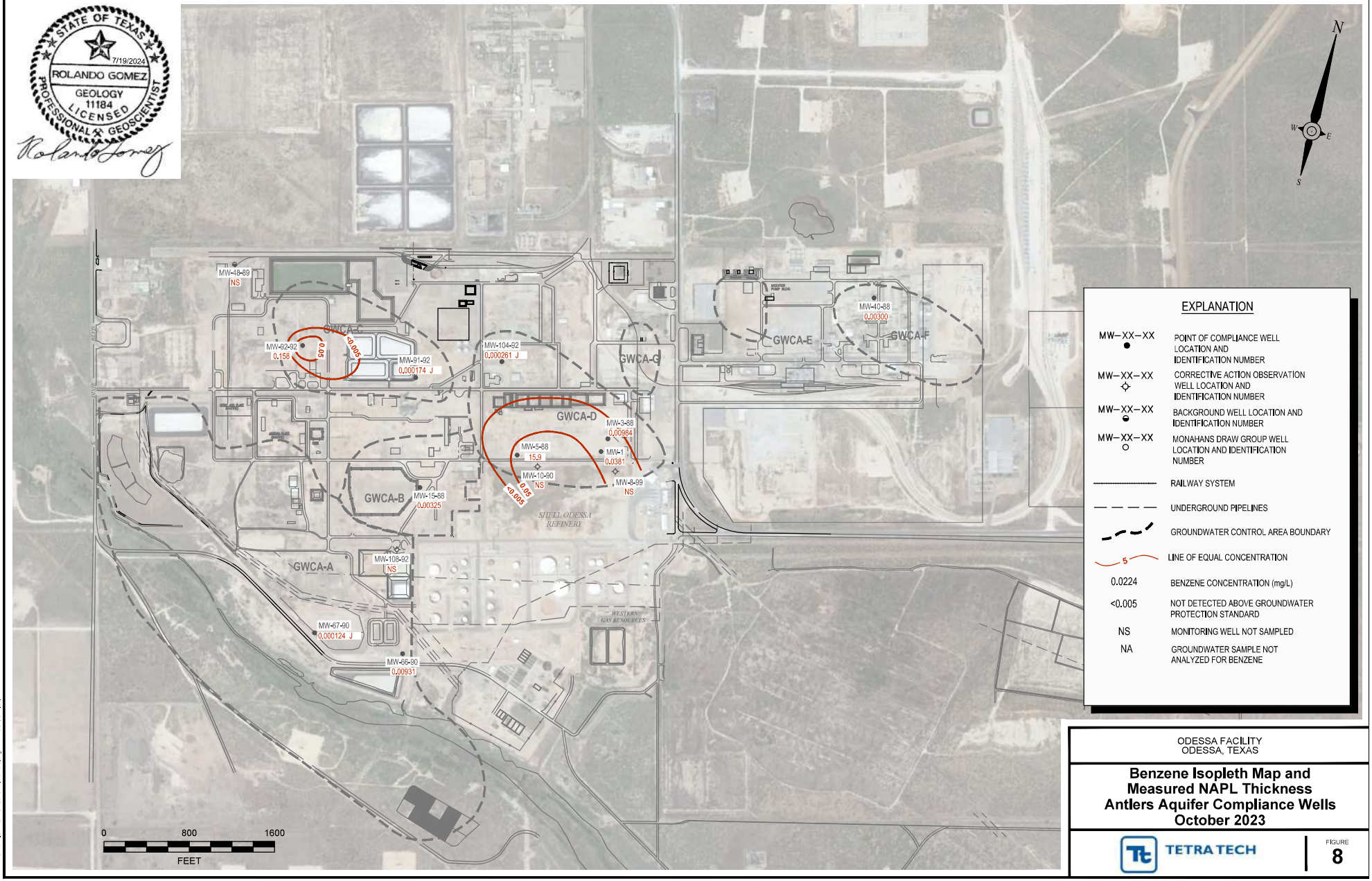
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Ogallala Aquifer Compliance Wells October 2023

TETRA TECH

FIGURE 7

P:\ACAD\218\Ph4\2720A\0023 Ogall Benzene.dwg SAVED: 7/15/2024 2:32 PM PAUGH, CHRISTINA



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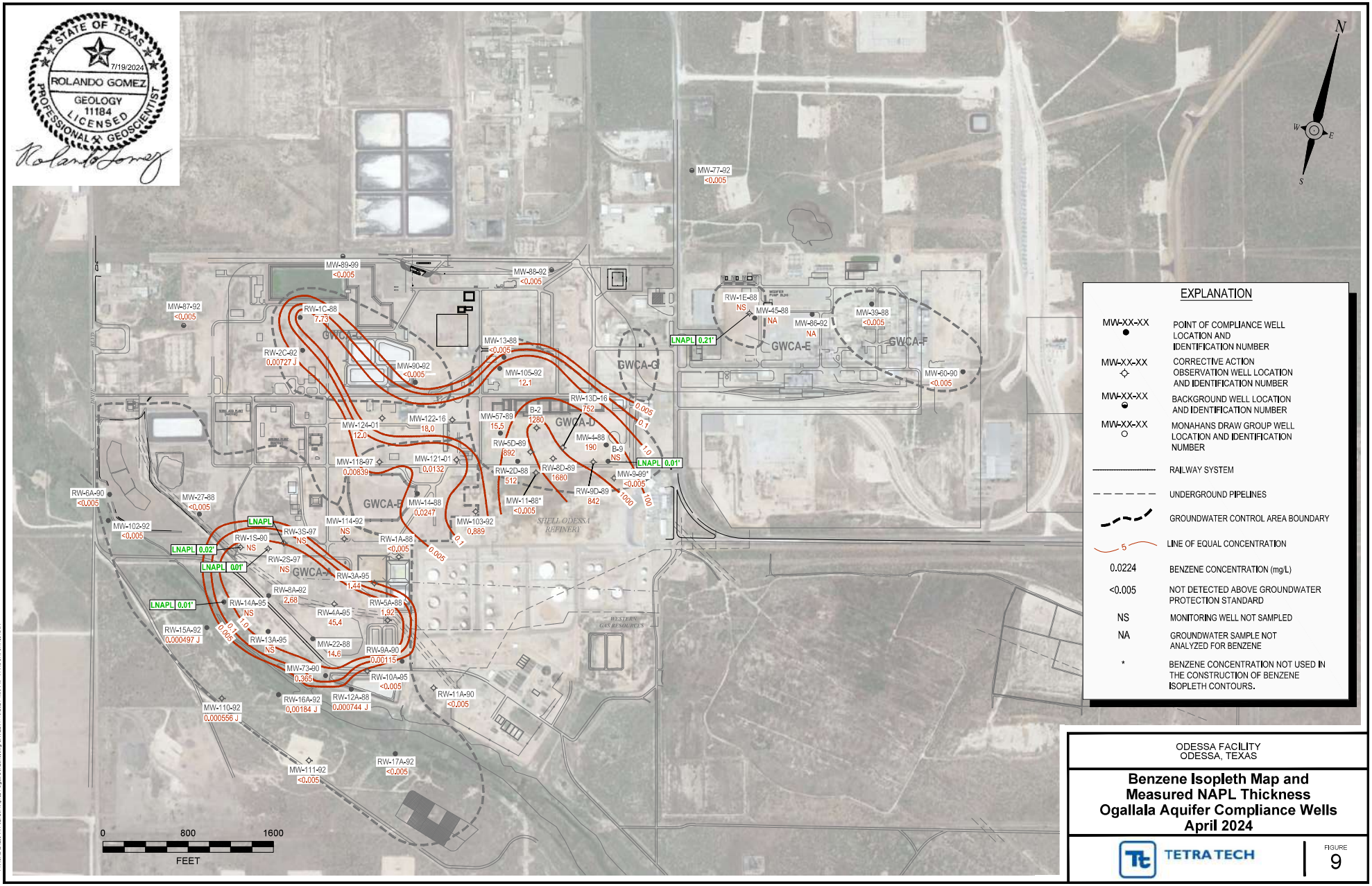
Benzene Isopleth Map and Measured NAPL Thickness Antlers Aquifer Compliance Wells October 2023

TETRA TECH

FIGURE 8

P:\ACAD\CAD\...\H-627BM\2023 Ant\Benzene.dwg BY: PAUDA, CHRISTINA



EXPLANATION

MW-XX-XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ☼	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ◒	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ○	MONAHANS DRAW GROUP WELL LOCATION AND IDENTIFICATION NUMBER
.....	RAILWAY SYSTEM
- - - - - -	UNDERGROUND PIPELINES
~~	GROUNDWATER CONTROL AREA BOUNDARY
5	LINE OF EQUAL CONCENTRATION
0.0224	BENZENE CONCENTRATION (mg/L)
<0.005	NOT DETECTED ABOVE GROUNDWATER PROTECTION STANDARD
NS	MONITORING WELL NOT SAMPLED
NA	GROUNDWATER SAMPLE NOT ANALYZED FOR BENZENE
*	BENZENE CONCENTRATION NOT USED IN THE CONSTRUCTION OF BENZENE ISOPLETH CONTOURS.

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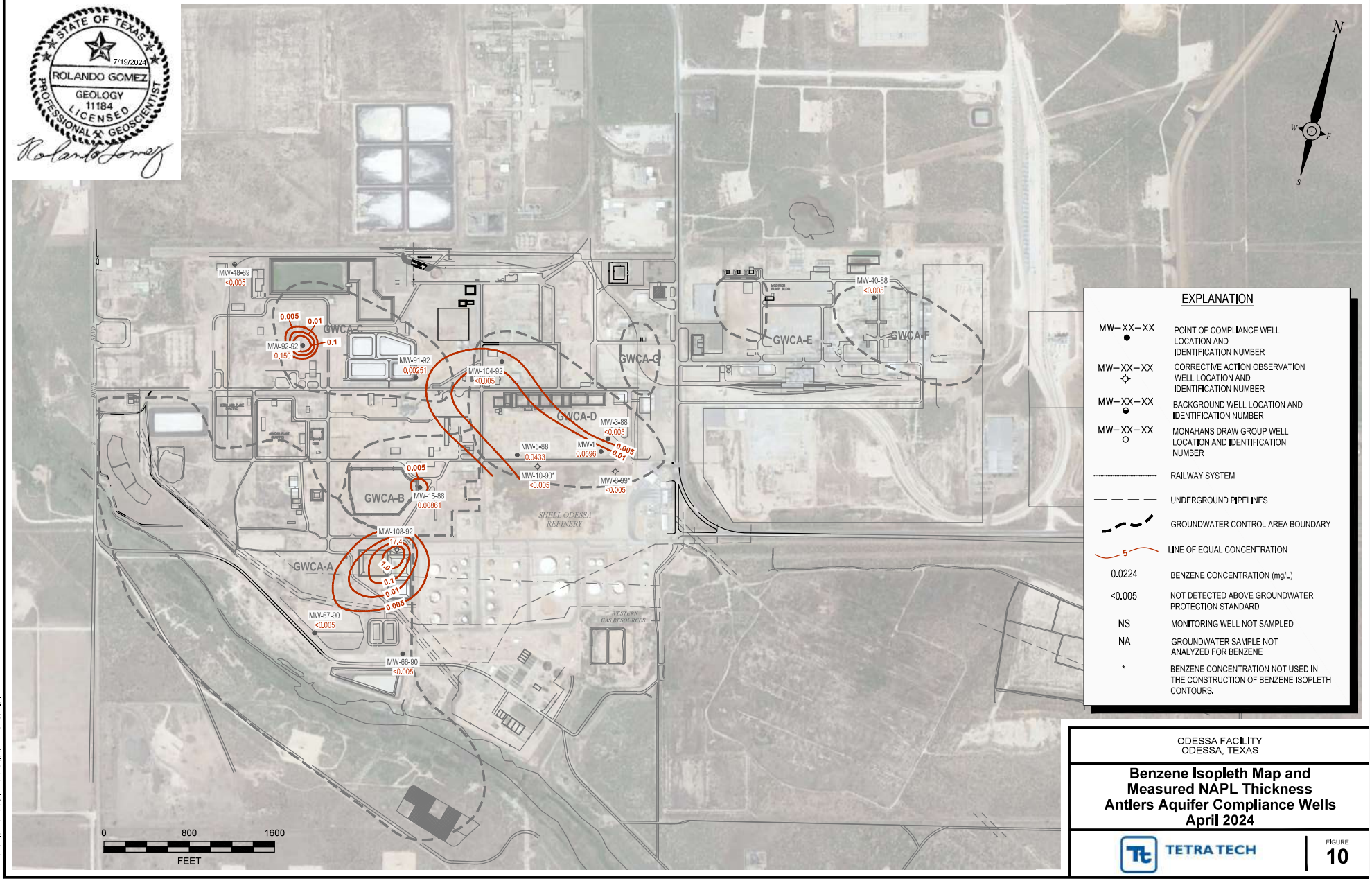
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Ogallala Aquifer Compliance Wells April 2024

TETRA TECH

FIGURE 9

P:\ACAD\218\HN-20729\April24 Ogall Benzene.dwg SAVED: 7/19/2024 4:38 PM - PAUGH, CHRISTINA



EXPLANATION

MW–XX–XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ☼	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ◒	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ○	MONAHANS DRAW GROUP WELL LOCATION AND IDENTIFICATION NUMBER
·····	RAILWAY SYSTEM
— — — —	UNDERGROUND PIPELINES
- - - -	GROUNDWATER CONTROL AREA BOUNDARY
5	LINE OF EQUAL CONCENTRATION
0.0224	BENZENE CONCENTRATION (mg/L)
<0.005	NOT DETECTED ABOVE GROUNDWATER PROTECTION STANDARD
NS	MONITORING WELL NOT SAMPLED
NA	GROUNDWATER SAMPLE NOT ANALYZED FOR BENZENE
*	BENZENE CONCENTRATION NOT USED IN THE CONSTRUCTION OF BENZENE ISOPLETH CONTOURS.

STATE OF TEXAS
7/19/2024
ROLANDO GOMEZ
GEOLOGY
11184
LICENSED
PROFESSIONAL GEOSCIENTIST

ODESSA FACILITY
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Antlers Aquifer Compliance Wells April 2024

TETRA TECH

FIGURE 10

P:\AOC\CP3E~1\H2709\MapFiles\Benzene.dwg BY: PAUGH, CHRISTINA

N
W
E
S

MW-77-92 NS

MW-89-99 NS

MW-88-92 NS

MW-87-92 NS

0.005
RW-1C-88 7.96
0.1
0.01

RW-2C-92 <0.005

MW-90-92 <0.005

MW-13-88 <0.005

MW-105-92 5.80

RW-13D-16 NS

MW-57-89 22.3

B-2 NS

MW-124-01 NS

MW-122-16 NS

RW-5D-89 NS

MW-4-88 232

B-9 NS

MW-118-97 NS

MW-121-01 NS

RW-2D-88 513

RW-8D-89 NS

LNAPL 0.01'

MW-9-99 NS

RW-9D-89 NS

MW-11-88 NS

MW-14-88 0.00879

MW-103-92 NS

RW-6A-90 <0.005

MW-27-88 <0.005

MW-102-92 <0.005

LNAPL

0.005

MW-114-92 NS

RW-1S-90 NS

RW-3S-97 NS

LNAPL 0.33'

RW-1A-88 NS

LNAPL 0.02'

RW-2S-97 NS

LNAPL 0.26'

LNAPL 0.01'

RW-3A-95 NS

RW-14A-95 0.00647

RW-8A-92 2.20

0.1
1.0
0.01

RW-5A-88 NS

RW-4A-95 NS

RW-15A-92 0.0000960 J

RW-13A-95 4.82

MW-22-88 15.3

RW-9A-90 0.00112

MW-73-90 0.0247

RW-10A-95 NS

RW-16A-92 0.000147 J

RW-12A-88 0.00106

RW-11A-90 NS

MW-110-92 NS

MW-111-92 NS

RW-17A-92 <0.005

RW-1E-88 NS

LNAPL 0.20'

MW-45-88 NA

MW-86-92 NA

MW-39-88 0.00120

MW-60-90 0.00117

GWCA-C
GWCA-G
GWCA-D
GWCA-B
GWCA-A
GWCA-E
GWCA-F

SHELL ODESSA REFINERY

0 800 1600
FEET

EXPLANATION

MW-XX-XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ☼	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ◒	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ○	MONAHANS DRAW GROUP WELL LOCATION AND IDENTIFICATION NUMBER
----------	RAILWAY SYSTEM
– – – – –	UNDERGROUND PIPELINES
	GROUNDWATER CONTROL AREA BOUNDARY
5	LINE OF EQUAL CONCENTRATION
0.0224	BENZENE CONCENTRATION (mg/L)
<0.005	NOT DETECTED ABOVE GROUNDWATER PROTECTION STANDARD
NS	MONITORING WELL NOT SAMPLED
NA	GROUNDWATER SAMPLE NOT ANALYZED FOR BENZENE

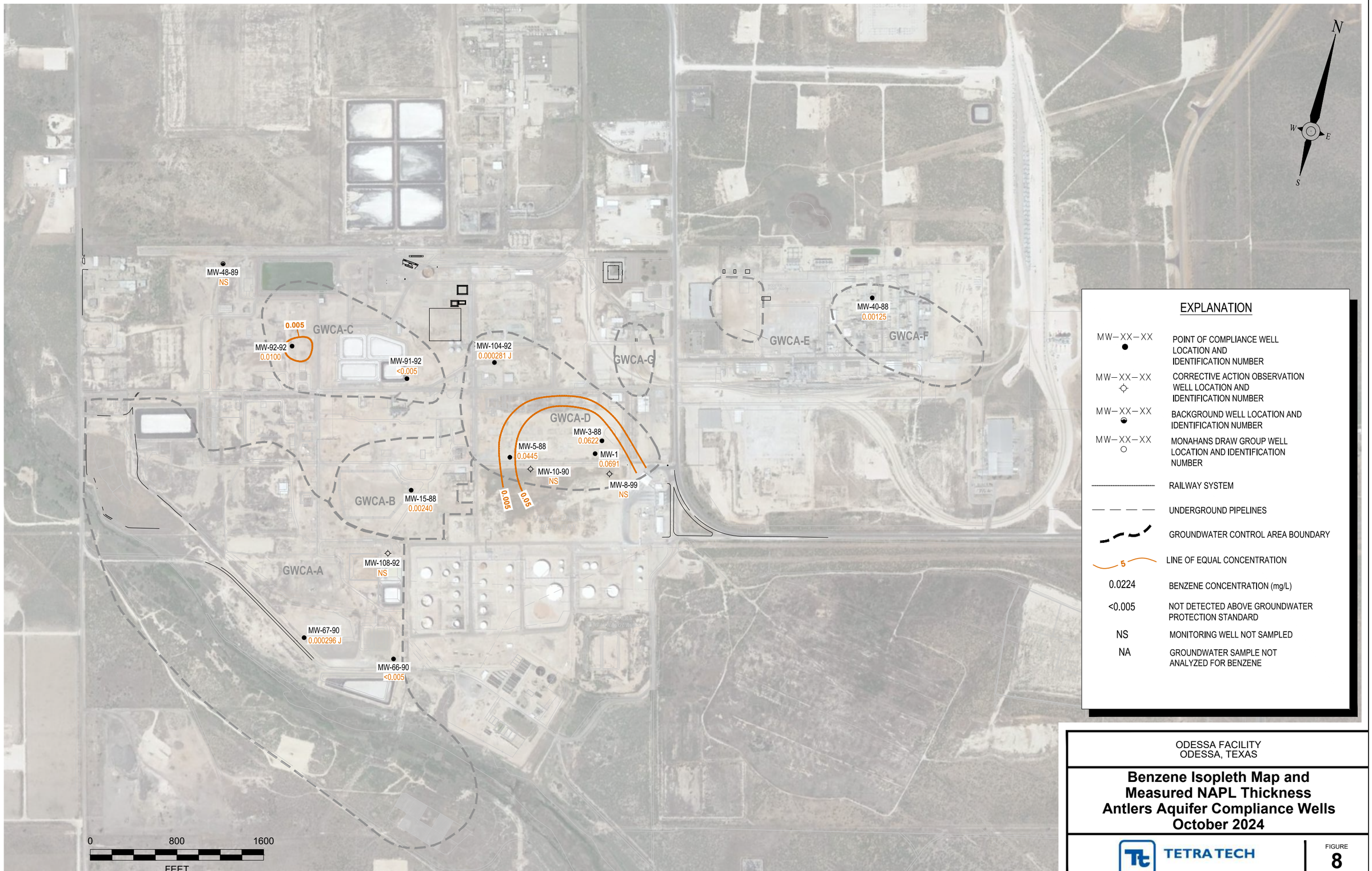
ODESSA FACILITY
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Ogallala Aquifer Compliance Wells October 2024

TETRA TECH

FIGURE 7

P:\ACAD\212\C-HN-02720A\Oct24 Ogall Benzene.dwg SAVED: 6/16/2025 6:10 PM : PAUGH, CHRISTINA



EXPLANATION

MW–XX–XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ☼	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ◒	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ○	MONAHANS DRAW GROUP WELL LOCATION AND IDENTIFICATION NUMBER
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— — — —	UNDERGROUND PIPELINES
- - - -	GROUNDWATER CONTROL AREA BOUNDARY
5	LINE OF EQUAL CONCENTRATION
0.0224	BENZENE CONCENTRATION (mg/L)
<0.005	NOT DETECTED ABOVE GROUNDWATER PROTECTION STANDARD
NS	MONITORING WELL NOT SAMPLED
NA	GROUNDWATER SAMPLE NOT ANALYZED FOR BENZENE

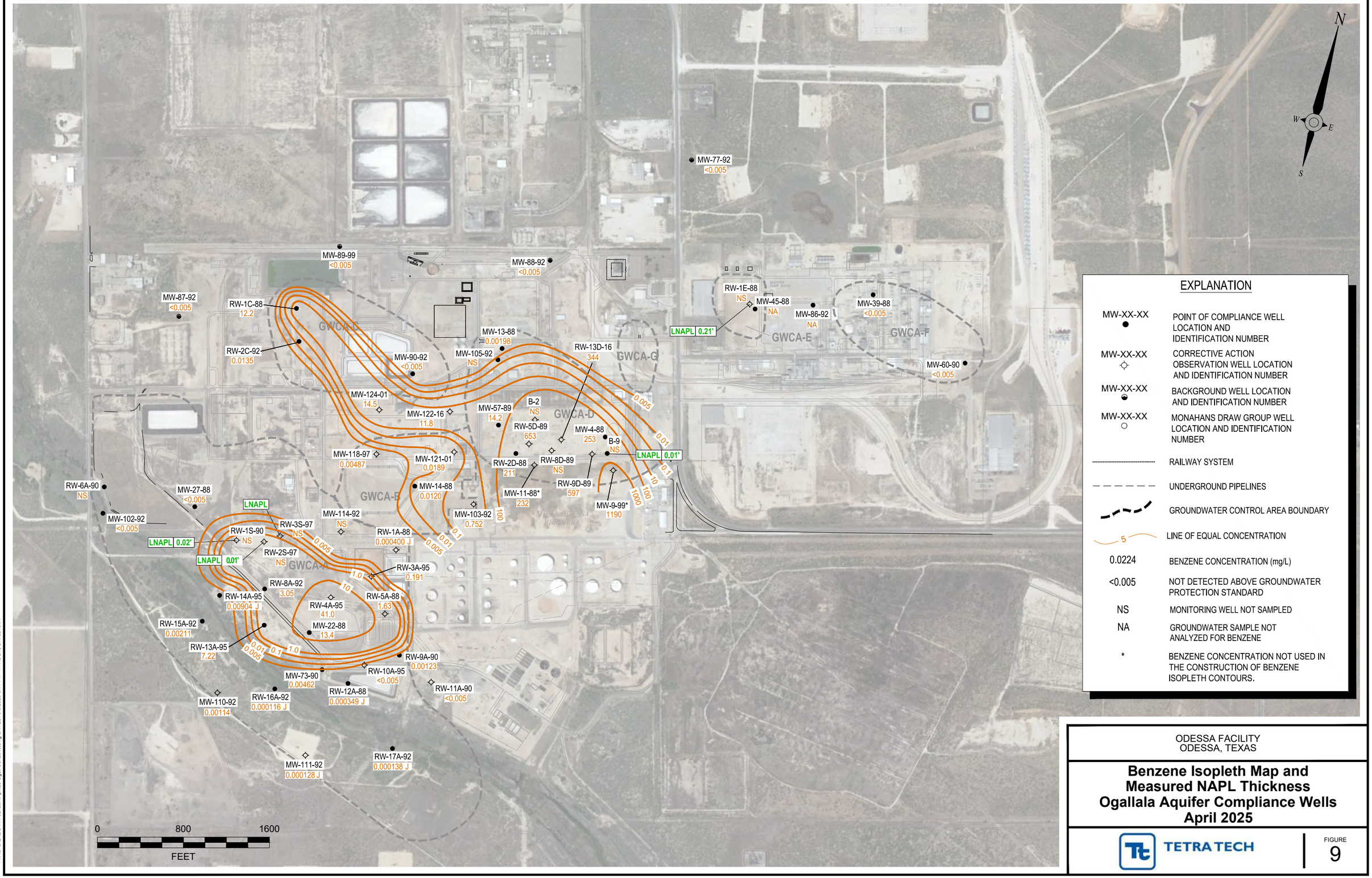
ODESSA FACILITY
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Antlers Aquifer Compliance Wells October 2024

TETRA TECH

FIGURE 8

P:\ACAD\212PC-HN-02720A\Oct24 Anl Benzene.dwg BY: PAUGH, CHRISTINA



EXPLANATION

MW-XX-XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ☼	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ◒	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
MW-XX-XX ○	MONAHANS DRAW GROUP WELL LOCATION AND IDENTIFICATION NUMBER
----------	RAILWAY SYSTEM
– – – – –	UNDERGROUND PIPELINES
~ ~ ~	GROUNDWATER CONTROL AREA BOUNDARY
5	LINE OF EQUAL CONCENTRATION
0.0224	BENZENE CONCENTRATION (mg/L)
<0.005	NOT DETECTED ABOVE GROUNDWATER PROTECTION STANDARD
NS	MONITORING WELL NOT SAMPLED
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*	BENZENE CONCENTRATION NOT USED IN THE CONSTRUCTION OF BENZENE ISOPLETH CONTOURS.

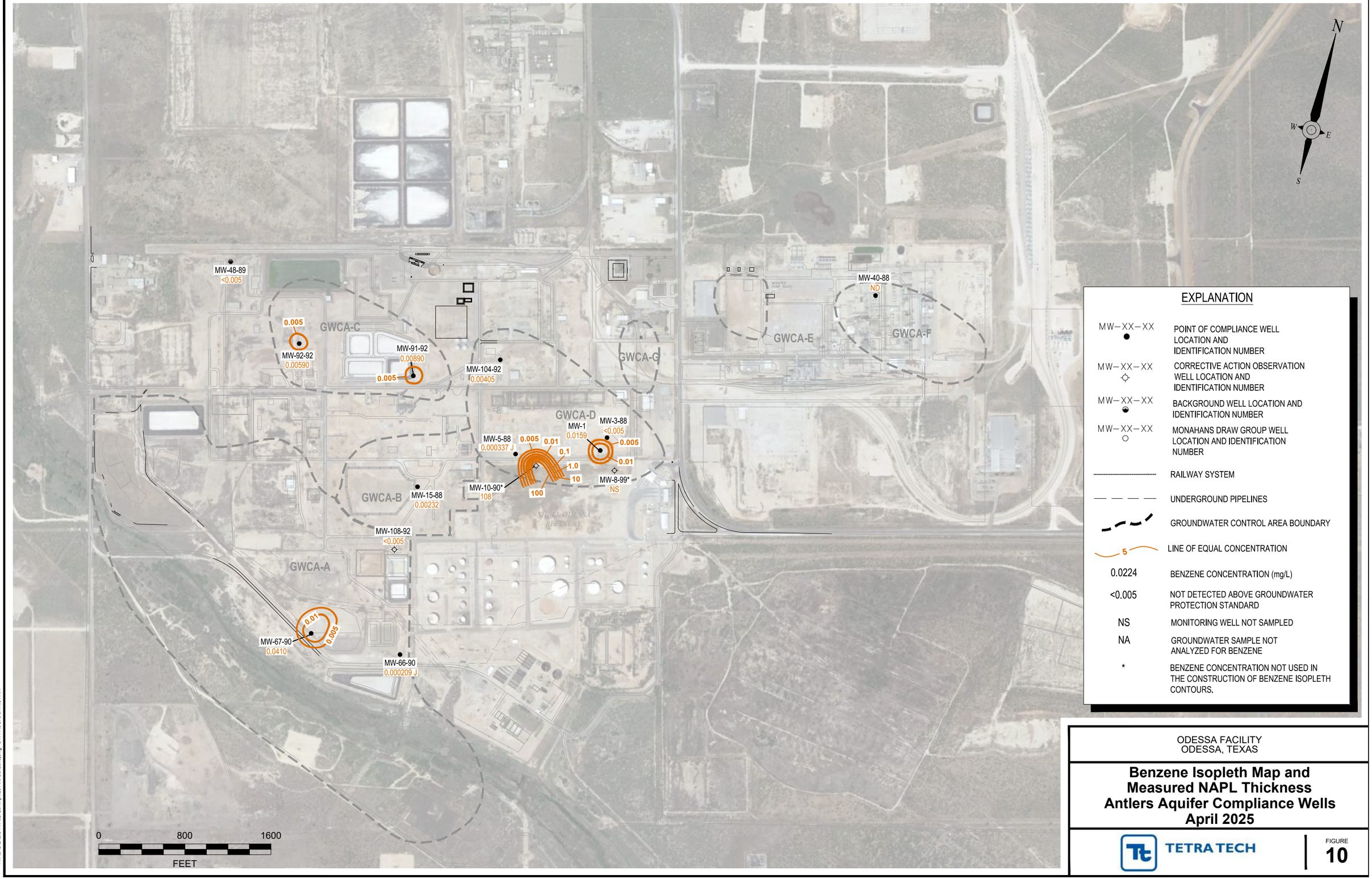
ODESSA FACILITY
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Ogallala Aquifer Compliance Wells April 2025

TETRA TECH

FIGURE 9

P:\ACAD\210IC-HN-02720A\April25 Ogall Benzene.dwg SAVED: 6/9/2025 6:11 PM : PAUGH, CHRISTINA



EXPLANATION

MW–XX–XX ●	POINT OF COMPLIANCE WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ☼	CORRECTIVE ACTION OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
MW–XX–XX ◒	BACKGROUND WELL LOCATION AND IDENTIFICATION NUMBER
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----------	RAILWAY SYSTEM
— — — —	UNDERGROUND PIPELINES
- - - -	GROUNDWATER CONTROL AREA BOUNDARY
5	LINE OF EQUAL CONCENTRATION
0.0224	BENZENE CONCENTRATION (mg/L)
<0.005	NOT DETECTED ABOVE GROUNDWATER PROTECTION STANDARD
NS	MONITORING WELL NOT SAMPLED
NA	GROUNDWATER SAMPLE NOT ANALYZED FOR BENZENE
*	BENZENE CONCENTRATION NOT USED IN THE CONSTRUCTION OF BENZENE ISOPLETH CONTOURS.

ODESSA FACILITY
ODESSA, TEXAS

Benzene Isopleth Map and Measured NAPL Thickness Antlers Aquifer Compliance Wells April 2025

TETRA TECH

FIGURE
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SAMPING AND ANALYSIS PLAN

FORMER ODESSA PLANT
2400 S. GRANDVIEW AVE
ODESSA, TEXAS 79766

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TABLE OF CONTENTS

Page #

1.0 INTRODUCTION 1

2.0 PRE-SAMPLING FLUID LEVEL DATA 3
- 2.1 DETECTION OF IMMISCIBLE LAYERS IN WELLS 3
- 2.2 GROUNDWATER LEVEL MEASUREMENTS 3
- 2.3 WELL DEPTH MEASUREMENTS 4
- 2.4 FIELD RECORDS 5

3.0 GROUNDWATER SAMPLING COLLECTION PROTOCOL 7
- 3.1 PURGING AND SAMPLING METHODS AND SAMPLING SEQUENCE 7
  - 3.1.1 Micropurging 8
  - 3.1.2 Measurement of Field Parameters 9
  - 3.1.3 Sampling Procedures for Micropurging Techniques 10
- 3.2 NO-PURGE SAMPLING METHODS 11
- 3.3 ANALYTICAL PARAMETERS 12
  - 3.3.1 Volatile Organic Compounds 12
  - 3.3.2 Semi-Volatile Organic Compounds 13
  - 3.3.3 Metals 13
  - 3.3.4 Groundwater Quality Parameters 13

4.0 SURFACE WATER 14
- 4.1 SAMPLE LOCATIONS 14
  - 4.1.1 Grab Samples 15
- 4.2 SAMPLING PROCEDURES 15
  - 4.2.1 Field Parameter Measurements 16
  - 4.2.2 Groundwater Quality Sampling Procedures 17

5.0 FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) 18
- 5.1 FIELD BLANKS 18
- 5.2 TRIP BLANKS 18
- 5.3 EQUIPMENT BLANKS 19
- 5.4 DUPLICATE SAMPLES 20

6.0 SAMPLE CONTAINERS, PRESERVATION AND HANDLING 21
- 6.1 SAMPLE CONTAINERS 21
- 6.2 SAMPLE PRESERVATION AND HANDLING 21
- 6.3 SAMPLE SHIPPING 21

TABLE OF CONTENTS (cont'd)

Page #

7.0 SAMPLE DOCUMENTATION 23
7.1 SAMPLE LABELS 23
7.2 CUSTODY SEALS 24
7.3 FIELD ACTIVITIES DAILY LOG 24
7.4 CHAIN-OF-CUSTODY RECORDS 25

8.0 ANALYTICAL PROCEDURES, PARAMETERS AND SAMPLING FREQUENCIES 26
8.1 EPA APPROVED METHODS 26
8.2 USE OF ALTERNATE METHOD 26

9.0 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL 27
9.1 LABORATORY SELECTION 27

10.0 EQUIPMENT DECONTAMINATION METHODOLOGY 28

11.0 EVALUATION OF DATA QUALITY 29
11.1 REPORTING OF CONCENTRATION VALUES 29
11.2 MISSING DATA VALUES 29
11.3 OUTLIERS 29
11.4 UNITS OF MEASURE 30

12.0 HEALTH AND SAFETY 31

13.0 REFERENCES 32

TABLES

1. Summary of Analytical Methods, Sampling Containers, Preservatives, and Holding Times

APPENDICES

A. Example of Groundwater Sample Collection Form
B. Examples of Chain of Custody, Custody Seal, and Labels

SAMPLING AND ANALYSIS PLAN
GROUNDWATER AND SURFACE WATER
MONITORING PROGRAM

1.0 INTRODUCTION

This document provides sampling and analysis procedures to be used in the groundwater monitoring program for Flint Hills Resources Odessa, LLC (FHR) Odessa, Texas facility. A listing of Wells by Function can be found in the issued Resource Conservation and Recovery Act (RCRA) Permit and Compliance Plan and Part B Application materials. Figures showing the location of wells can also be found in the issued RCRA Permit and Compliance Plan or the Part B Application materials for the Compliance Plan.

Groundwater monitoring wells at the facility are designed to monitor the two upper water-bearing zones found beneath the facility (e.g., the Ogallala and Antlers Formations). Well construction details are included in the Geologic and Hydrogeologic Report included with the Part B Application Materials.

The sampling and analysis plan, outlined in this document, shall also serve as the guideline for surface water sampling events in the Monahans Draw area. Analytical results will be used to help determine if past or present activities in the area have impacted the water quality of Monahans Draw. The purpose of the testing is to attempt to identify possible sources of facility-related constituents in Monahans Draw.

This document contains procedures for:

- Measuring water/hydrocarbon levels in groundwater monitoring wells,
- Collecting groundwater samples from monitoring wells for field and laboratory measurement,
- Collecting surface water samples from Monahans Draw,
- Preservation and handling of groundwater samples collected for laboratory analyses,
- Analytical procedures, parameters, and sampling frequencies,
- Methods of sample documentation including chain-of -custody protocol, and
- Field Quality Assurance/Quality Control.

This plan has been developed in accordance with the U.S. EPA Groundwater Monitoring Technical Enforcement Guidance Document (September 1986) (TEGD), methodologies developed during sampling events previously conducted at East Plant and West Plant facilities, and as practical, EPA's Test Methods for Evaluating Solid Waste.

2.0 PRE-SAMPLING FLUID LEVEL DATA

2.1 DETECTION OF IMMISCIBLE LAYERS IN WELLS

Prior to sampling any well, an interface probe or equivalent measuring device will be used to evaluate the presence and measure the thickness of any immiscible layer in the well from which the sample is to be collected. The probe will be slowly lowered into the well to carefully measure the top and bottom of the floating immiscible layer, if present. The probe provides a distinct signal to indicate the type of material encountered (typically a steady, continuous tone when submerged in hydrocarbon versus a non-continuous, beeping tone when submerged in water). The depth to fluid will be measured from the surveyed datum located at the top of the well casing. All depth to fluid readings will be measured and recorded to the nearest 0.01 foot. After recording the data, the interface probe will be lowered further in the well to determine whether a heavier than water immiscible layer is present.

When an interface probe cannot be used for depth to fluid measurements, hydrocarbon and water gauging paste (e.g. Kolor Kut™) may be used as a substitute. Or, a clean polyethylene or Teflon™ bailer may be lowered into the product until it is nearly submerged. The bailer will then be raised, the product examined, and the thickness measured. The bailer option will not work if the thickness of the product is greater than the length of the bailer.

2.2 GROUNDWATER LEVEL MEASUREMENTS

The static water levels will be measured in each well prior to purging or sampling water in the wells. If no-purge sampling methods are utilized, then static water levels will be measured prior to placement of the no-purge samplers. If the no-purge samplers were deployed during a previous event, the static water levels will be measured prior to removal of the samplers. The water levels will be measured using either an interface probe or an equivalent measuring device. The probe must be decontaminated prior to each use and between each well to prevent the addition of external contamination or artifacts into a well. The decontamination will consist of rinsing the probe with acetone and/or distilled water. Following decontamination, the probe will be slowly lowered down

the well until it produces the distinct tone which indicates contact with the water surface interface. The depth to water will be measured from the surveyed datum located at the top of the well casing and will be read to the nearest 0.01 foot. The datum is indicated with a painted area or a notch cut at the top of the casing.

2.3 WELL DEPTH MEASUREMENTS

In addition to depth to fluid measurements, depth to the bottom of each well casing that does not have a dedicated pump will also be measured to determine whether an appreciable amount of sediment has settled in the bottom of the well and to calculate the volume of water in the well. Well depth will be measured during each sampling event using either the interface probe or equivalent measuring device from the datum located at the top of the well casing. The measured depth must then be compared to the original depth documented on the well completion log. If the difference between the depth measurement and the original well depth is greater than 12 inches, sediments will have to be removed from the well in order to provide representative sampling results. Silt and sediment can be removed from the bottom of most well casings by using a pump. Removal can also occur by bailing and surging the well. This is accomplished by lowering a bailer to the bottom of the well and gently surging to fluidize and collect the sediment.

The total depth of each well equipped with a dedicated pump will be measured at least once every two years and when:

- The pumps are removed for maintenance; and/or
- The efficiency of the dedicated pump decreases by 25 percent from the pump rating when it was initially installed.

Should the total depth of the well measurement indicate that any well has silted in, then the silt will be removed as discussed above.

2.4 FIELD RECORDS

All fluid and well depth measurements will be recorded on a Field Activity Daily Log or Sampling Information Form. A dedicated log book may be used in lieu of these forms. The following general guidelines will be followed in documenting field work:

- Documentation will be completed in ink. Written errors will be crossed out with a single line, initialed, and dated.
- Logbooks or field forms will be stored in the project file after completion of the field work.
- The logbook or field form will contain the book number, project number, and site name. Logbooks will be numbered sequentially if more than one is used.
- The logbook or field form will be maintained on a real-time basis and will include the following information at a minimum:
    - Date, time of specific activities and weather conditions.
    - Names of all personnel on the site.
    - The purpose and provisions of the compliance plan requiring the sampling event.
    - Weather conditions.
    - Specific details regarding sampling activities, including locations, type of sampling, technique, media, and sample numbers. Also include well identification, and details regarding integrity of the well.
    - Monitor well construction inspection. Include repairs that may be needed for the monitor wells. Monitor well casings, pads, etc. will be inspected for cracks and competency.
    - Specific problems and resolutions (if any).
    - Identification numbers of monitoring instruments used that day.
    - Field preparation techniques and sample preservation methods.
    - Requested laboratory analyses.
    - Chain of Custody details.
    - Initials of the person responsible for completing the logbook or field form, on every page.

If groundwater sample collection may be compromised due to weather conditions or monitor well conditions, groundwater sampling will be postponed to a later date until uncompromised samples may be collected.

3.0 GROUNDWATER SAMPLING COLLECTION PROTOCOL

The following sections describe procedures that will be used to collect groundwater samples from selected monitoring wells.

FHR is actively identifying ways to reduce wastes generated at the FHR Odessa facility, and is considering implementing a "no-purge" sampling method to accomplish this goal. No-purge sampling methods may involve the use of a sampling device that requires a relatively small sample volume to collect formation-quality water under undisturbed natural flow conditions, or can be accomplished using a device that can measure compounds entering a sealed sampler through diffusion when it reaches equilibrium with the water quality in the surrounding well. Available no-purge samplers have been reviewed and are considered appropriate for use at the Odessa facility. These samplers are commonly used for volatile organic carbons (VOCs), semi-volatile organic carbons (SVOCS), and metals.

This Sampling and Analysis Plan describes procedures for purging (Section 3.1) and "no-purge" sampling techniques (Section 3.2).

3.1 PURGING AND SAMPLING METHODS AND SAMPLING SEQUENCE

Purging and sampling methods will involve either a dedicated driven pump capable of continuous operation during sampling at a pumping rate of 0.2 to 0.3 liters per minute (l/m) or a portable pump capable of continuous operation at a pumping rate of 0.2 to 0.3 l/m. Groundwater sampling equipment will include:

- Dedicated pump or portable submersible pump
- Dedicated discharge line or disposable discharge line
- Pump controller
- YSI or similar water quality parameter device with "flow-through cell"
- Disposable gloves

- Oil-water interphase probe
- Groundwater Sample Collection Form or logbook
- Sample containers
- Container labels
- Shipping container (i.e., cooler) and ice
- Container for collection of purge water
- Decontamination equipment, including non-phosphate detergent and distilled water.

The sequence of sampling events is listed in the following Sections 3.1.1 through 3.1.3.

3.1.1 Micropurging

Monitoring wells containing free phase hydrocarbons will not be purged or sampled**.** Monitor wells will be sampled in order of most likely contaminated to least likely contaminated (clean). Purging conducted using "micropurging" techniques. This will consist of removing small volumes of water at very low pumping rates until certain physiochemical parameters (shown below) have stabilized. When these parameters have stabilized, well purging will be discontinued and sampling will begin.

Purge water from the monitor wells will be collected in a container with lid. All purge water following the groundwater sampling event will be placed in a drum for classification and disposal. Sampling equipment that cannot be decontaminated, such as rope or plastic, will also be placed in a drum for classification and disposal.

Micropurging will be conducted using pumping equipment capable of sustaining continuous pumping rates of 0.1 to 0.5 liters per minute (l/m). Equipment used for purging and sampling which comes into contact with the groundwater will be noted on the Groundwater Sample Collection Form (or similar form thereto) or logbook.

The purge rate will be established as soon as practical after pumping begins. The purging rate will be measured by catching the discharge from the pump in a precisely quantified volumetric container (such as a graduated Erlenmeyer flask) and measuring the time required to reach a specific volume. The operator will regulate the discharge rate of the pump so that it is at least 100 but no more than 500 milliliters per minute (0.1 to 0.5 l/m).

3.1.2 Measurement of Field Parameters

Water quality parameters (e.g., dissolved oxygen, redox potential, etc.) are measured to determine the point at which sampling can begin. Field parameters will be measured using a "flow-through cell" attached to the pump discharge line. The measuring device will be placed in the flow-through cell and readings for each parameter will be recorded at approximately five (5) minute intervals. Measurements will be recorded on the Sampling Information Form (or other similar form) or log book. Odor, color, or other apparent physical characteristics of the groundwater will also be documented on the form. Water quality parameters that will be monitored during sampling include the following:

- Temperature
- pH
- Conductivity
- Dissolved Oxygen
- Redox Potential

Additional water quality parameters may be included at the discretion of the field team.

Micropurging of each well will continue until two consecutive readings of the water quality parameters listed above have stabilized within approximately 10% of each other. Sampling will begin when stabilization is reached. The total volume of water purged prior to sampling will be recorded on the Groundwater Sample Collection Form, logbook or equivalent.

Measuring devices for water quality parameters will be calibrated during sampling events once per week or as needed based on manufacturer recommendations. Calibration will be conducted using the manufacturer's recommended calibration procedures. Calibration standards, date, time and calibration readings will be recorded on the Field Activities Daily Log or logbook.

3.1.3 Sampling Procedures for Micropurging Techniques

Monitoring wells will be sampled immediately after micropurging is completed. If a monitor well is pumped dry during micropurging procedures, the groundwater level in the monitor well will be allowed to equilibrate to within 80% of the initial groundwater level, and groundwater samples will be immediately collected. If a dedicated pump is used, groundwater samples will be collected immediately after purging is completed and the pumping rate will be maintained between 0.1 and 0.5 l/m. All sampling containers will be filled directly from the discharge line. When the entire sample set is filled, the pump will be disconnected from the controller. If a monitor well's dedicated pump becomes inoperable, the monitor well will be purged and sampled using a portable pump and dedicated tubing.

If a dedicated pump is not used, a portable pump will be used and will be capable of a continuous sustained rate of flow between 0.2 and 0.3 l/m. The portable pump will be lowered into the well slowly so that it will not agitate the water. The pump will be lowered by means of the discharge line to the specified depth. The depth of each pump setting will be accurately measured and repeated for subsequent pump settings. The discharge line will be securely fastened to the well casing so that the pump will not move during the purging and sampling operation. The pump will be connected to the pump controller and the pumping rate regulated so that the agitation of groundwater in the well is minimized. Purging and sampling procedures will be the same as those for wells with dedicated pumps.

Following the sampling, the pump will be disconnected from the pump controller and the discharge line and pump will be slowly removed from the well. The pump will be visually inspected for any signs of physical or chemical damage, and then decontaminated as described in

Section 10.0. Indications of problems will be reported on the Groundwater Sample Collection Form, logbook, or similar.

The portable pump and any other non-dedicated equipment may require decontamination as described in Section 10.0. Equipment blanks will be collected as described in Section 5.3 whenever non-dedicated sampling equipment is used. The purpose of the equipment blank sample is to determine the validity of sampling results for wells without dedicated pumping equipment by establishing the efficiency of the decontamination procedures. One equipment blank will be taken if the portable pump is required for micropurging and sample collection for a monitoring well.

3.2 NO-PURGE SAMPLING METHODS

The no-purge sampler will be lowered into the monitoring well with a suspension line so as not to agitate the water and the top of the sampler will be below the top of the well screen. The sampler will be deployed in a manner to displace as little water as possible (anticipated to be less than 100 ml). For the first no-purge sampling event, the sampling device will be deployed into the well a minimum of 14 days prior to recovery and sampling. A longer period of time may be desired to maintain consistency with future sampling events. For subsequent, recurring (e.g., annual or semi-annual events), the sampling device may be deployed following the preceding event so that the sampler remains in the well until the next sampling event. At no time should the sampling device remain in the well for a period longer than the manufacturer recommends. Because the type of no-purge sampler is not specified in this Sampling and Analysis Plan, manufacturer-specific recommendations for operating procedures should be followed.

At the time of the sampling event, the sampling device will be retrieved from the well slowly to avoid agitation. The sampler will be immediately opened and containers filled with groundwater. Field parameters (e.g., temperature, pH, conductivity, dissolved oxygen, and redox potential) will not be collected; however, measurements for sample retrieval time and collection time will be noted in a logbook or sampling form, as appropriate.

The no-purge sampler sleeves, suspension lines, and discharge tubes are one-time use and will be disposed of following sample collection. If re-usable stainless steel weights or clips are used, they will be decontaminated in accordance with procedures described in Section 10.0.

3.3 ANALYTICAL PARAMETERS

Samples will be collected and containerized for laboratory analysis in the order of volatilization sensitivity of the analytical parameters, (i.e., first, volatile organic compounds; second, semi-volatile organic compounds; third, metals; and fourth, groundwater quality parameters).

A log of each day's events will be kept by the sampling technician during the collection of the samples. All pertinent information, including the time and date of sample collection, will be recorded in the Field Activities Daily Log and/or logbook.

3.3.1 Volatile Organic Compounds

The groundwater samples will be analyzed for the following volatile organic compounds (VOCs): benzene, ethylbenzene, toluene, total xylenes, and styrene. Variations of constituents may be requested and will be described in corrective measures work plans submitted to the agency for review and approval. Sample containers for VOCs will be filled with unfiltered water. Containers will not be rinsed. Water will be collected from the well slowly, in order to minimize agitation of the samples. Bottles will be filled to ensure that there is no air trapped in the bottle. Water will be slowly poured into the sample bottle until a convex meniscus forms above the lip of the bottle. Once capped, the bottle will be checked for air bubbles by turning the bottle upside down, tapping the cap of the inverted bottle and visually inspecting the bottle for occurrence of air bubbles. If any bubbles are observed, the bottle will be uncapped, sample added, and rechecked using the same procedures until no bubbles are present.

3.3.2 Semi-Volatile Organic Compounds

Each sample collected may be analyzed for the presence of Semi-Volatile Organic Compounds (semi-volatiles) or as specified in agency-approved corrective measures work plans. Sample containers for semi-volatiles will be filled with unfiltered water. Samples will be collected from the well using the same methods as for VOCs.

3.3.3 Metals

Some groundwater samples may be analyzed for arsenic, barium, lead and chromium (or other metals constituents as described in agency-approved work plans). Samples will be collected from the well and carefully transferred to a temporary sample container. These samples will then be transported to a clean environment for filtration. Sample bottles for these constituents will contain a pre-measured amount of nitric acid ($HN0_3$), prepared in the laboratory. Once filtered, the sample will be carefully transferred to the pre-preserved containers. Alternately, samples may be filtered in the field using dedicated disposable field filters and transferred directly into preserved laboratory containers.

3.3.4 Groundwater Quality Parameters

Samples may also be analyzed for other groundwater quality parameters (e.g., alkalinity, calcium, chloride, fluoride, potassium, magnesium, sodium, nitrate, sulfate, total dissolved solids, specific conductivity, and pH). Sample container(s) for major anions and cations will be filled with unfiltered water. The bottle(s) that do not contain preservatives will be overfilled to minimize headspace. Sample container(s) for metals will be provided by the analytical laboratory with pre-measured amounts of preservatives; therefore, these containers will not be overfilled.

4.0 SURFACE WATER

Surface water samples from Monahans Draw will be collected for chemical analysis from one location west and four south of the facility. The sample locations will be predetermined and will be as close as possible, providing water is present, to sample points of previous Monahans Draw sampling events.

4.1 SAMPLE LOCATIONS

The following points will be sampled during surface water sampling events.

- IH-20 at McKinney Park
- S-1
- S-5
- S-6
- S-9

A brief description of each station location is provided below.

IH-20 at McKinney Park

This location is upstream of the facility and will be used to evaluate background levels representative of urban runoff.

Sample Station 1

Sample Station 1 is a point in the Draw located on the property and will serve to represent the background water quality of the Draw prior to passing adjacent to the industrial complex.

Sample Station 5

Sample Station 5 is located further downstream in the Draw.

Sample Station 6

Sample Station 6 is located further downstream in the Draw.

Sample Station 9

Sample Station 9 is located within the Draw, downstream from outfall 002. At this location, the Draw is relatively narrow, ranging from 2 to 10 feet in width. If this station is dry, it will not be sampled and this will be documented in the Field Activities Daily Log.

4.1.1 Grab Samples

The grab samples will be collected by submerging a decontaminated Teflon (or similar material) dipper into the water. This dipper will be used only for these particular surface water samples. If disposable sampling equipment is not used, the dipper will be thoroughly decontaminated between sampling sites in the manner outlined in Section 10.0.

Grab samples will be collected from each sample station along Monahans Draw that contains water during the sampling event. During collection of the samples, the sampling team will follow the basic guidelines listed below:

- Clean latex/nitrile gloves will be worn during sample collection and new, clean gloves will be donned at each sample location.
- To avoid turbidity while collecting the sample, the mouth of the dipper will be placed facing downstream.
- The dipper will be placed in the channel below the surface of the water, but at a depth practical to minimize contamination from disturbed bottom sediments.

4.2 SAMPLING PROCEDURES

A summary of analytical parameters, analytical methods, bottle requirements, preservatives, and hold times is presented in Table 1. Bottle requirements, preservatives, and hold times may vary slightly from the values in Table 1 as industry or laboratory methods are updated. Water sample collection will be performed in accordance with the procedures described below. Samples will be collected in the order of the most volatile compounds to the least volatile compounds as follows:

- Pre-sampling field parameters (temperature, pH, conductivity, dissolved oxygen, redox potential).
- Volatile organic compounds.
- Semi-volatile organic compounds.
- Metals.
- Groundwater quality parameters.

Sample bottles will be supplied by the laboratory.

4.2.1 Field Parameter Measurements

Temperature, specific conductance, dissolved oxygen, redox potential, and pH will be measured in the field at each sample location prior to filling sample containers. Sample odor, color, turbidity, and other physically apparent characteristics of the surface water will also be documented.

The field parameter measurements for surface water sampling will be collected with the same or similar multiprobe analyzer that is used during the groundwater sampling. The multiprobe will be calibrated once per week or as needed during the sampling event. All calibrations will be carried out in accordance with the equipment manufacturer's procedures and recommendations. Date, time, calibration readings, and the method of calibration will be recorded in the Field Activities Daily Log.

Problems encountered during the collection of the field parameters (e.g. equipment malfunction) will be noted in the Field Activities Daily Log or logbook.

4.2.2 VOCs, SVOCs, Metals, and Other Groundwater Quality Sampling Procedures

Groundwater samples should be collected promptly after parameters have stabilized. Samples for VOCs should be collected first. Slowly transfer water into sample container until a

slight convex surface forms at the top of the jar. Do not overfill. Cap the vial tightly and turn upside down to check for bubbles. If bubbles appear, add more sample, but avoid overfilling. If overfilling occurs, collected another sample in a new container ensuring to minimize headspace.

Samples for SVOCs should be collected next. Slowly fill the sample container taking care not to overfill then cap tightly. Samples for Metals should be taken next. Slowly fill the sample container and cap tightly. All other remaining analytes should be collected last.

5.0 FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The Field Quality Assurance/Quality Control program includes collection of duplicate samples, field blanks, trip blanks and equipment blanks. Descriptions of the QA/QC samples are presented below.

5.1 FIELD BLANKS

The field blank will be used to determine potential absorption of volatile organics from the air into a water sample. One field blank will be collected near the beginning of each sampling day at predetermined well and surface sampling locations. The blank will be collected by filling one 40 milliliter glass vial with deionized water. Deionized water will be supplied by the laboratory performing the analyses. The field blank will be analyzed for the same volatile organic compounds as the groundwater and surface water samples. The concentration levels of any artifact found in the field blank will be noted and compared to the groundwater and surface water sample results.

5.2 TRIP BLANKS

The trip blank will be used to detect and quantify potential organic chemical artifacts occurring in the groundwater or surface water sample which originate from either the sample containers or the deionized water comprising the blank. One bottle set for each ice chest will be filled with deionized water by the laboratory prior to field mobilization. These bottles will be transported to the sampling location and returned to the laboratory in the ice chests used to transport groundwater and surface water samples. The trip blank will be analyzed for the same volatile organic parameters as the groundwater and surface water samples. The concentration levels of any artifact found in the trip blank will be noted and compared to the groundwater and surface water sample results.

5.3 EQUIPMENT BLANKS

Equipment blanks will be collected during each sampling event if non-dedicated purging and sampling equipment is used. The equipment blank will be used to identify potential artifacts originating from the sampling equipment.

To collect an equipment blank from a non-dedicated pump, the pumping equipment will be decontaminated as described in Section 10.0. Immediately following decontamination, deionized water will be placed into a clean container. The volume of the container and of the deionized water will be sufficient for the pump to operate and to collect the volume of sample necessary to duplicate the entire analytical program. The pump will be placed into the deionized water and operated at a rate of 0.2 to 0.3 l/m. The water discharged from the discharge tube or hose will be collected into the appropriate sample containers. Sample handling and preservation of equipment blank samples will be the same as that for groundwater samples; however, no physiochemical parameters will be measured.

If disposable sampling equipment is not used during the collection of surface water samples, an equipment blank will be collected from the surface water sampling equipment (dipper) during each sampling event. The equipment blank will be collected by pouring deionized water into the dipper, and then filling the sample containers with the deionized water. Sample handling and preservation of equipment blank samples will be the same as that for surface water samples.

The deionized water comprising the blanks will be provided by the laboratory performing the analyses. The equipment blanks will be analyzed for the same organic indicator parameters as the groundwater and surface water samples. The concentration levels of any artifact found in any equipment blank will be noted and compared to the groundwater or surface water sample results.

5.4 DUPLICATE SAMPLES

One duplicate sample will be collected during each groundwater and surface water sampling event. The duplicate will be collected at any well and surface water sampling location determined by the sampling personnel. To collect the duplicate, two complete sets of sample bottles will be filled with groundwater from the well. Two complete sets will also be filled with surface water from a surface water sample location. One set will be labeled as the "sample" (i.e. normal labeling procedure will be followed) and the other set will be labeled as a "duplicate" with no well or surface sampling location identification on the label. The location of the duplicate sample(s) will be entered into the Field Activities Daily Log or logbook. This duplicate will be analyzed using the same methods as all of the rest of the samples collected during the event. Results of the analysis from this duplicate will be used as a check for repeatability in the analytical procedures.

6.0 SAMPLE CONTAINERS, PRESERVATION AND HANDLING

6.1 SAMPLE CONTAINERS

Containers used to transport samples for laboratory analyses will be provided by the laboratory performing the analyses. The bottles should be prepared by the laboratory according to EPA specifications for environmental sampling as described in "Test Methods for Evaluating Solid Waste," EPA SW-846. The bottles will not be opened until immediately before samples are to be collected.

6.2 SAMPLE PRESERVATION AND HANDLING

Sample preservation is intended to (1) retard biological action, (2) retard hydrolysis, and (3) reduce absorption effects. Preservation methods include pH control, refrigeration, and protection from light. Table 1 lists the analytical parameters, analytical methods, sample container requirements, and preservative requirements for the groundwater and surface water samples. Analytical methods, sample container requirements, and preservative requirements may vary from the values listed in this table based on industry and method updates.

The chemical preservatives will be added to the sample containers by the laboratory performing the analyses. Samples will be placed in an insulated ice chest containing ice immediately after sample collection. Upon receipt of the samples, the authorized laboratory personnel will store and/or prepare the samples for analysis, taking into consideration sample holding times for the analytical parameters of interest.

6.3 SAMPLE SHIPPING

As determined by field personnel, samples may also be placed in sealable bags then placed into the ice chest and packed with ice. Packing material may be used as necessary to prevent breakage of bottles. Samples shall be labeled for shipment or transfer to the appropriate laboratory

and should be dispatched at the end of each work day. Samples may be held by the field technician up to 48 hours prior to shipment.

Each cooler/package of samples will be custody-sealed as described in Section 7.2 as appropriate for shipment.

7.0 SAMPLE DOCUMENTATION

A sample documentation program will be implemented to document possession and handling of samples from the time of field collection through laboratory analysis. The program will include:

- Sample labels which clearly identify samples;
- Sample cooler custody seal to preserve the integrity of the sample from the time it is packed for shipment until it is opened in the laboratory;
- Field Activities Daily Log and/or Sample Collection Form to record information about each sample collection during the monitoring program;
- Analysis Request and Chain-of-Custody Record to establish sample possession from the time of collection to analysis and serve as official communication to the laboratory of the particular analysis required for each sample and provide further evidence that the chain-of-custody is complete; and
- Laboratory Logbook which is maintained at the laboratory and records all pertinent information about the sample.

7.1 SAMPLE LABELS

To prevent misidentification of samples, legible labels will be affixed to each sample container, per Texas Administrative Code (TAC) 335.163 Subsection 4(A). An example label is included in **Appendix B**. The labels will be sufficiently durable to remain legible even when wet and will contain the following information:

- Facility/project identification number,
- Sampling point identification name and/or number,
- Name or initials of collector,
- Date and time of collection, and
- Analysis required (if space on label allows).

7.2 CUSTODY SEALS

In cases where samples are to be shipped off-site by commercial carrier, a custody seal will be placed on the shipping container of the bottles to ensure the samples have not been disturbed during transportation, per TAC 335.163 Subsection 4(D). The custody seal will be place across the opening of the shipping container (e.g., cooler) and secured with an adhesive backing or tape. An example custody seal is included in **Appendix B**.

7.3 FIELD ACTIVITIES DAILY LOG

A Field Activities Daily Log and a Groundwater Sample Collection Form or similar form (See **Appendix A** for example) will be maintained for sample collection activities, per TAC 335.163 Subsection 4(A). The following specific data will be documented where applicable:

- Name of collector
- Identification of sampling point
- Depth to water in wells (referenced from top of casing)
- Well total depth
- Well evacuation method
- Purge volume
- Method of measuring immiscible layer
- Thickness of immiscible layer
- Sample withdrawal procedures
- Types of sample containers used
- Preservatives used
- Climatic conditions including air temperature
- Sequence and time of field activities conducted
- Results of field analyses
- Field observations (broken lock, cracked casing, etc.)
- Sample observations (color, odor, etc.)

7.4 CHAIN-OF-CUSTODY RECORDS

Evidence of collection, shipment, laboratory receipt, and laboratory custody until completion of analyses will be documented via a Chain-of-Custody (COC) Record by the signature of the individuals collecting, shipping, and receiving each sample, per TAC 335.163 Subsection 4(D). The COC Record must be signed and dated by a member of the sampling team. An example of a COC Record is included as **Appendix B**. A sample is considered to be in custody if it is:

- In a person's actual possession;
- In view, after being in physical possession;
- Sealed so that no one can tamper with it, after having been in physical custody; or
- In a secured area, restricted to authorized personnel.

The COC Record will be used by personnel to record collection and shipment of all samples. A qualified laboratory will not accept samples collected for analysis without a correctly prepared COC Record.

8.0 ANALYTICAL PROCEDURES, PARAMETERS AND SAMPLING FREQUENCIES

8.1 EPA APPROVED METHODS

The analytical parameters, the appropriate test method for each parameter, and the test method detection limit to be applied to groundwater and surface water samples collected at the facility are identified in Table 1. Test methods listed in Table 1 are taken from EPA Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846 and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020. Other EPA-approved test methods may be used in lieu of the methods listed in Table 1 as industry or laboratory methods change.

8.2 USE OF ALTERNATE METHOD

As described above, other EPA-approved test methods may be used in lieu of the methods listed in Table 1 as industry or laboratory methods change. However, any deviation from an EPA-approved method must be adequately justified to ensure that the quality of the results meets the performance specification of the reference method. The method used must be fully documented to show that the method is accurate, reproducible, free of interferences, and sensitive. The limit of detection for the method should also be established with both clean standards and by spiking samples to determine the effect of the sample matrix.

9.0 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL

9.1 LABORATORY SELECTION

The selected laboratory will maintain a written QA/QC program which conforms, as a minimum standard, with QA/QC protocol set forth in U.S. EPA's Test Methods for Evaluating Solid Waste, SW-846, or any subsequent approved versions of this testing protocol. The laboratory will also maintain all accreditation requirements of the State of Texas National Environmental Laboratory Accreditation Program (NELAP) for the analyses performed. Proof of accreditation must be provided upon request.

10.0 EQUIPMENT DECONTAMINATION METHODOLOGY

All equipment introduced into a monitoring well, or that comes in contact with water from a well, must be decontaminated prior to use and prior to each reuse. Those wells fitted with dedicated pumping systems will not require the introduction of sampling equipment into the well. Only the water level indicator will need to be decontaminated for these wells. Section 2.2 provides the decontamination procedures for the water level indicator.

The decontamination procedures for all non-dedicated sampling equipment will consist of:

1. non-phosphate detergent wash,
2. distilled water rinse and/or acetone wash
3. three final rinses with distilled water.

Equipment that cannot be decontaminated, such as rope or plastic, will be placed in a drum for classification and disposal.

11.0 EVALUATION OF DATA QUALITY

11.1 REPORTING OF CONCENTRATION VALUES

Values that are "less than" a limit of detection can result when:

- Constituents are present at very low concentrations,
- An insensitive analytical technique has been used,
- The chemical matrix of the sample interferes with the analytical technique, or
- High concentrations of some constituents cause the laboratory to dilute the sample, thus affecting the detection limit for other constituents.

Reported detection limits for a specific compound will be checked for variation between sampling points. Where detection limits are high, the limit will be reduced in future samples, if possible, by using alternate laboratory procedures that remove or control interfering constituents.

11.2 MISSING DATA VALUES

Care will be taken to complete all analyses in order to provide a complete data set for statistical comparison.

11.3 OUTLIERS

An observation which is very different from all other observations in a group of observations is called an outlier. Causes for outliers in groundwater samples may be due to:

- A catastrophic occurrence such as a spill;
- Inconsistent sampling or analysis procedures; or
- Errors in transcription of the data values.

Any outliers reported in the data will be evaluated for cause and, where possible, corrected. Documentation of the cause of the outlier will be provided prior to correcting or excluding data values from evaluations. Where the cause of the outlier cannot be attributed to sampling, laboratory or reporting error, the value will not be excluded from the data base.

11.4 UNITS OF MEASURE

Units of measure will be specified after each quantity reported for the specific analyte.

12.0 HEALTH AND SAFETY

All personnel conducting sampling at the facility will conform to a site-specific Health and Safety Plan and Emergency Plan and any subsequent revisions to each. The site-specific Health and Safety Plan will be prepared in accordance with applicable Occupational Health and Safety Administration (OSHA) requirements and industry standards. The Emergency Plan is included in the Part B application materials. The Health and Safety Plan will provide procedures for the safe collection of samples, monitoring instruments, and job hazard analyses. One copy of the Health and Safety Plan will be on-site at all times that sampling is being conducted.

13.0 REFERENCES

Rexene Corporation, Micropurge Sampling Results at the Rexene Corporation Odessa Complex, April 1995.

U.S. Environmental Protection Agency, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.

U.S. Environmental Protection Agency, Technical Enforcement Guidance Document, September 1986.

U.S. Environmental Protection Agency, Test Method Equivalency Petitions; A Guidance Manual, PB87-178349, 1987.

U.S. Environmental Protection Agency, Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA-SW-846, November 1986.

U.S. Environmental Protection Agency, RCRA Ground-Water Monitoring: Draft Technical Guidance Document, EPA/530- R-93-001, November 1992.

Table 1
Summary Analytical Methods, Sampling Containers, Preservatives, and Holding Times

Analytes	Analytical Test Method[1]	Sample Container[3]		Preservative	Holding Times
		Type[2]	Min Volume		
VOCs	SW-846 Method 8021B SW-846 Method 8260B	G,T	3-40 mL containers	Hydrogen chloride (HCL), Sulfuric Acid (H2SO4) or Sodium Hydrogen sulfate (NaHSO4). Cool ≤ 6°C	14 days
SVOCs	SW-846 Method 8270C	G,A	2-1 liter	Cool ≤ 6°C	7 days
Inorganic Compounds (Arsenic Barium Chromium Lead)	SW-846 Method 6010B SW-846 Method 6020	P	500 mL	HNO3	6 months

[1]Analytical test method may vary from the methods listed to account for changes in analytical technology, provided it is an EPA-approved SW-846 Method and will not affect the quality or accuracy of the data.

[2,3]Sample container type and minimum volume may vary from the values listed, provided it does not impact the quality or accuracy of the results. G = Glass, T = Teflon, A = Amber Glass, P = Plastic

APPENDIX A

EXAMPLE OF GROUNDWATER SAMPLE COLLECTION FORM

WELL PURGING FORM
FLINT HILLS RESOURCES ODESSA, LLC

☐ Low Flow Procedures
☐ Bail Procedures

Well No:

WELL INFORMATION

Sample

Date

Start Time

Sample Time

Sampler

WATER LEVEL INFORMATION

(A) Depth to Well Bottom FT

(B) Depth to Water FT

(C) Water Column Height (A-B) FT

(D) Well Diameter Factor

Diameter	1"	2"	4"	6"
Factor	0.04	0.16	0.65	1.47

(E) One Well Volume (CxD) GAL

WATER QUALITY PARAMETERS

	Initial	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7
Time of Purge (min)								
Volume Purged (gal)								
Depth to Water (ft)								
Temp (C)								
DO (mg/L)								
% DO								
S.C. (mS/cm3)								
pH (su)								
Redox (mV)								
Other								

COMMENTS

APPENDIX B

EXAMPLES OF CHAIN OF CUSTODY RECORD, CUSTODY SEAL, AND LABEL

Example Chain of Custody Record

>>> Select a Laboratory <<<	Chain of Custody Record	TestAmerica THE LEADER IN ENVIRONMENTAL TESTING
#N/A		
#N/A		
#N/A		
#N/A	**Regulatory Program:** ☐ DW ☐ NPDES ☐ RCRA ☐ Other:	**TestAmerica Laboratories, Inc.**

Client Contact	**Project Manager:**	**Site Contact:**	**Date:**	COC No:
Your Company Name here	**Tel/Fax:**	**Lab Contact:**	**Carrier:**	_____ of _____ COCs
Address	**Analysis Turnaround Time**			Sampler:
City/State/Zip	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx Phone	TAT if different from Below _____			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name:	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	**Sample Date**	**Sample Time**	**Sample Type** (C=Comp, G=Grab)	**Matrix**	**# of Cont.**	**Filtered Sample (Y / N)**	**Perform MS / MSD (Y / N)**	Sample Specific Notes:

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

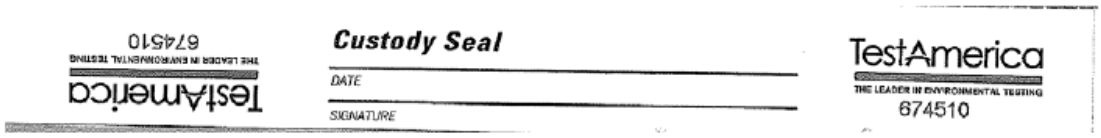
Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

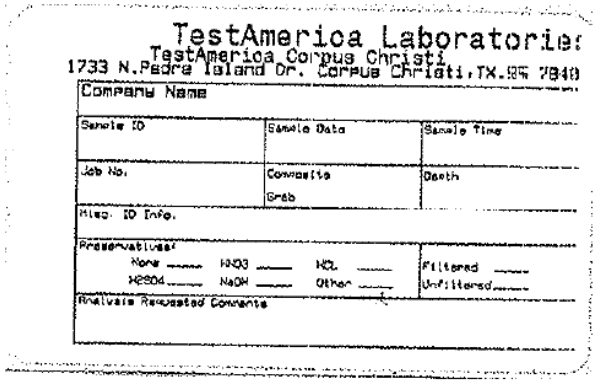
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.3, dated 12/05/2013

Example Custody Seal



Example Sample Label



APPENDIX XII
HAZARDOUS WASTE PERMIT APPLICATION FEE

ITEMS INCLUDED IN THIS APPENDIX:

- Table XII.A – Hazardous Waste Units
- Table XII.B – Hazardous Waste Permit Application Fee Worksheet
- TCEQ ePAY Proof of Payment Receipt

Table XII.A. - Hazardous Waste Units (For Application Fee Calculations)

Verbal Description of Unit	Rated Capacity	Surface Acreage[1]	# of Unit Types[2]	Identical Unit Justification[3]
Unit No. 37 Olefin Oil/Water Separator	Closed Unit - Formerly 65,000 gals	0.045	1	
Unit No. 38 Styrene/ Butadiene OWS	Closed Unit - Formerly 65,000 gals	0.045	1	
Unit No. 63 Gulf Seal Ponds	Closed Unit - Formerly 1,073,000 gals	2.30	1	
Unit No. 67 South Flare Pond	Closed Unit - Formerly 1,280,680 gals	1.09	1	
Unit No. 68 South Storage Pond	Closed Unit - Formerly 3,494,000 gals	2.64	1	
		Total[4] 6.12	Total[4] 5	

1. Number of calculated acres.
2. Enter number of units except for units identical in type and use which only count toward a single $500.00 fee.
3. Explain justification for any units claimed as identical in type and use.
4. Enter these totals on the worksheet.

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Name of Facility: Flint Hills Resources Odessa, LLC

Solid Waste Registration Number: 30142

1. Process Analysis - $1,000..... $ 1,000
2. Facility Management Analysis - $500..... $ 500
3. Unit Analysis - 5 units @ $500 per unit..... $ 2,500
4. Site Evaluation - 6.12 acres @ $100 per acre..... $ 612

   (Maximum of 300 acres)
5. Minor amendment, Class 1, or Class 1[1] modification - $100..... $ 0
6. Cost of Providing Notice - $50 (+ $15 for a renewal)..... $ 65

Pay This Amount **Total** $ 4,677

Pay Online through ePay portal www3.tceq.texas.gov/epay/

Enter ePay Trace Number: 582EA000711256

For Payment by check, make checks Payable To:

Texas Commission on Environmental Quality - Fund 549
(your canceled check will be your receipt)

Complete And Return With Payment To:

Texas Commission on Environmental Quality
Financial Administration Division - MC 214
P.O. BOX 13088
Austin, Texas 78711-3088

The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessitated.

Please do not submit a photocopy of the check (or equivalent transaction submittal) with your application packet but provide only the following account information:

Check No.	Date of Check	Check Amount
PAID ONLINE, SEE EPAY TRACE NUMBER		

Your transaction is complete. Thank you for using TCEQ ePay.

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number:	582EA000711256
Date:	01/30/2026 10:08 AM
Payment Method:	CC - Authorization 000004721I
ePay Actor:	NICK DANGER
Actor Email:	[redacted]
IP:	8.44.158.37
TCEQ Amount:	$4,742.00
Texas.gov Fee:	$106.95
Texas.gov Price:	$4,848.95*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

Name:	NICK DANGER
Company:	SQ ENVIRONMENTAL LLC
Address:	PO BOX 1991, AUSTIN, TX 78767
Phone:	781-929-0270

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
809331	HAZARDOUS WASTE PERMIT - RENEWAL		$4,677.00
809332	30 TAC 305.53B HWP NOTIFICATION FEE		$50.00
809333	30 TAC 305.53B HWP RENEWAL NOTIFICATION FEE		$15.00
		TCEQ Amount:	$4,742.00

ePay Again | Exit ePay

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt for your records.

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ATTACHMENT C - PROOF OF PAYMENT RECEIPT

Your transaction is complete. Thank you for using TCEQ ePay.

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt and the vouchers for your records. An email receipt has also been sent.

Transaction Information

Trace Number:	582EA000711256
Date:	01/30/2026 10:08 AM
Payment Method:	CC - Authorization 000004721I
ePay Actor:	NICK DANGER
Actor Email:	[redacted]
IP:	8.44.158.37
TCEQ Amount:	$4,742.00
Texas.gov Fee:	$106.95
Texas.gov Price:	$4,848.95*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

Name:	NICK DANGER
Company:	SQ ENVIRONMENTAL LLC
Address:	PO BOX 1991, AUSTIN, TX 78767
Phone:	781-929-0270

Cart Items

Click on the voucher number to see the voucher details.

Voucher	Fee Description	AR Number	Amount
809331	HAZARDOUS WASTE PERMIT - RENEWAL		$4,677.00
809332	30 TAC 305.53B HWP NOTIFICATION FEE		$50.00
809333	30 TAC 305.53B HWP RENEWAL NOTIFICATION FEE		$15.00
		TCEQ Amount:	$4,742.00

ePay Again | Exit ePay

Note: It may take up to 3 working days for this electronic payment to be processed and be reflected in the TCEQ ePay system. Print this receipt for your records.

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