April 27, 2026

Catherine Deiparine, Project Manager, Chemist
Industrial and Hazardous Waste Permit Section
Waste Permits Division MC-126
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: Technically Complete Copy of Application
Murray Corporation – Murray of Maryland Palestine, Palestine, Anderson County, Texas
Hazardous Waste Permit Number: 50328
Industrial Solid Waste Number: 33063
EPA Identification No. TXD053115978
RN100639897/CN600350359
Permit Renewal with Major Amendment

Dear Ms. Deiparine,

On behalf Murray Corporation, this letter is to provide the Technically Complete Copy of the Permit Renewal with Major Amendment Application as requested in your email dated April 15, 2026. The below technically complete copy of the application incorporates all previously discussed administrative and technical NOD items. Please contact either of the undersigned if you have any questions.

Sincerely,
For RPS/Tetra Tech

Byron Ellington, CPG, PG (TX, UT)
Principal
[redacted]
D 512.579.3315

Lucas Smith
Environmental Scientist V
[redacted]
D 254.760.7144

cc: Thorne Gould, CEO, Murray Corporation, electronic copy - [redacted]

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.

The renewal is for the sole-purpose of conducting post-closure groundwater monitoring.

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

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: 09/03/2024	
Customer Name: Murray Corporation	
Facility Name: Murray Corporation of Maryland - Palestine	
CN: 600350359	**RN:** 100639897
Permit Number: HW-50328	**Solid Waste Registration Number:** 33063
Facility Street Address: 2002 Tile Factory Road Palestine, Anderson County, Texas 75801	
Weblink to Street Address:	

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:** Mfg of automotive parts prior to 1990s.
What does the facility produce?	☐Chemicals ☐Fuels / lubricants ☒No products ☐Other **If other, enter description:**

Waste Management Information *(check all that apply)*

What types of wastes are managed?	☒Nonhazardous industrial ☒Hazardous ☐Other **If other, enter description:**	N/A. No waste remain or are currently managed.
Where does the waste come from?	☐Off-site source ☐On-site source	N/A. No waste remain or are currently managed.
How is the waste managed?	☐Storage ☐Process / Treatment ☐Disposal ☒Other **If other, enter description:**	N/A. No waste remain or are currently managed.
What type of units manage the waste?	☐Active ☒Post-Closure **Type and count:** The former drum burial area and impacted soils were excavated and sent for off-site disposal to an authorized disposal facility in 1988.	
What happens to waste managed at the facility?	☒Transported off-site ☐Disposed on-site ☐Other **If other, enter description:**	N/A. No waste remain or are currently managed.

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:** N/A. No waste remain or are currently managed

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**.

This permit renewal application does not change the compliance plan obligation for groundwater monitoring of the current permit and compliance plan. However, it should be pointed out that the former hazardous waste drum burial area and impacted soils were excavated and sent for off-site disposal to an authorized disposal facility in 1988. Semi-annual groundwater monitoring has demonstrated that chemicals of concern have not exceeded their respective Groundwater Protection Standards in any of monitoring wells since at least 2013.

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: 09/03/2024

Nombre del Cliente: Murray Corporation

Nombre de la Instalación: Murray Corporation of Maryland - Palestine

CN: 600350359	**RN:**100639897
Número de Permiso:HW-50328	**Número de Registro de Desechos Sólidos:** 33063

Dirección de la Instalación: 2002 Tile Factory Road Palestine, Anderson County, Texas 75801

Enlace Web a la Dirección Postal:

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:** Fabricación de piezas de automóviles para Coches fabricados antes de 1990.
¿Qué produce la instalación?	☐Químicos ☐Combustibles / lubricantes ☒Sin productos ☐Otro **Si es otro, introduzca la descripción:**

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:** I No aplica. No quedan residous peligrosos ni se gestionan actualmente.
¿De dónde provienen los desechos?	☐Fuente externa ☐Fuente interna No aplica. No quedan residous peligrosos ni se gestionan actualmente.
¿Cómo se gestionan los desechos?	☐Almacenar ☐Procesar / Tratar ☐Eliminación ☒Otro **Si es otro, introduzca la descripción:** I No aplica. No quedan residous peligrosos ni se gestionan actualmente.

¿Qué tipo de unidades gestionan los desechos?	☐ Activo ☒ Postcierre **Teclee y cuente:** En 1988, se excavó la antigua zona de enterramiento de tambores y los suelos impactados y se enviaron a una instalación autorizada para su eliminación fuera del sitio.
¿Qué sucede con los desechos gestionados en la instalación?	☒Transportados fuera del sitio ☐Eliminado en el sitio ☐Otro **Si es otro, introduzca la descripción:** No aplica. No quedan residous peligrosos ni se gestionan actualmente.

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:**		
¿Cómo limpiará la instalación los derrames, fugas y liberaciones?	☐Suministros de limpieza de derrames	☒Equipos de descontaminación	
	☐Otro **Si es otro, 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. No quedan residous peligrosos ni se gestionan actualmentd.		

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**.

Esta solicitud de renovación de permiso no cambia la obligación del plan de cumplimiento para el monitoreo de aguas subterráneas del permiso y el plan de cumplimiento actuales. Sin embargo, en 1988 se excavó la zona anterior de enterramiento de tambores e residuos peligrosos y los suelos afectados y se enviaron a una instalación autorizada para su eliminación fuera del sitio. El monitoreo semestral de las aguas subterráneas ha demostrado que los productos químicos preocupantes no han excedido sus respectivos Estándares de Protección de Aguas Subterráneas en ninguno de los pozos de monitoreo desde 2013.

August 30, 2024

4801 Southwest Parkway,
Parkway 1, Suite 185
Austin TX 78735
T +1 512 347 7588

Overnight and Electronic

Mr. Mohammad Khan, Environmental Permit Specialist
Industrial and Hazardous Waste
Waste Permits Division, MC-126
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: Hazardous Waste Permit Renewal and Major Amendment
Murray Corporation
2002 Tile Factory Road
Palestine, Anderson County, Texas
Hazardous Waste Permit No. HW-50328
Industrial Solid Waste Registration No. 33063
EPA Identification No. TXD05311597
CN600350359 / RN100639897

Dear Mr. Kahn:

On behalf of Murray Corporation (Murray), RPS is submitting the enclosed Renewal and Major Amendment application for Hazardous Waste Permit No. HW-50328. Murray was last issued a renewed Hazardous Waste Permit and Compliance Plan No. 50328 for the facility on October 3, 2014.

We understand from our meeting with TCEQ on August 9, 2024 that a pre-application public meeting and the requirement to provide mailing lists are not required because the permit is being renewed for the sole purpose of conducting post-closure (30 TAC 39 TAC §39.503).

This Submittal

Enclosed in this submittal are:

- Waste Permits Cover Sheet (TCEQ Form 20714);
- Part B Technical Evaluation Electronic Checklist (ecopy only-TCEQ Form 00136);
- Original and duplicates of signatures from the corporations' president for Part A and Part B (TCEQ Form-0283);
- Signed Core Information Forms (TCEQ Form 10400);
- Two hard copies of the application as per recent discussions with you and Mr. Srinath Vinkat, TCEQ, August 12, 2024;
- A third electronic copy provided on a flash drive and submitted using the TCEQ's preferred FTP portal.
- An additional copy of the complete application will be submitted to the Region 5 Office in Tyler, Texas upon request.

Plans to Seek Permit and Compliance Plan Termination

Per our referenced call on August 9, 2024, Murray understands that a no-further-action (NFA) letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action Section of the TCEQ (Attachment D). Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to also remove the requirements for groundwater monitoring for the remainder time period of the post closure period (until 2026).

Related to the NFA designation for groundwater monitoring, Murray intends to seek complete termination of the permit and compliance plan in the coming months. Technical backup supporting the NFA (and previously provided to Dr. Michael Duffin, TCEQ Corrective Action) are found in Attachment E through Attachment J of this submittal. It should be pointed out that the original buried drums containing hazardous waste (see Table IV.B – Waste Managed in Permitted Units), as well as impacted soils (reported as 350 drums and 1,040 tons of impacted soils) were completely removed in June 1988 and transported to Texas Ecologists hazardous waste landfill in Robstown, Texas.

Groundwater remediation and groundwater monitoring has continued through July 2024 according to the requirements of CP-50328. At the direction of Ms. Maureen Hatfield, December 13, 2023, a Response Action Completion Report (RACR) was prepared for the purposes of demonstrating that the groundwater is no-longer impacted and that a NFA should be issued. In summary, the RACR demonstrated that there has not been an exceedances of groundwater protection standards since 2013 of semi-annual groundwater monitoring.

On March 28, 2024, the RACR was submitted to corrective action, with clarifying information data provided on July 22, 2024. As of this writing we understand that the NFA allowing Murray to cease groundwater monitoring is pending.

The one hazardous waste unit associated with the permit (NOR 005) was certified as closed in a report dated March 7, 1996. This unit was accepted as closed by the TCEQ in a letter dated April 29, 1996. In February 2024, the status of NOR 005 was changed from post-closure care to closed.

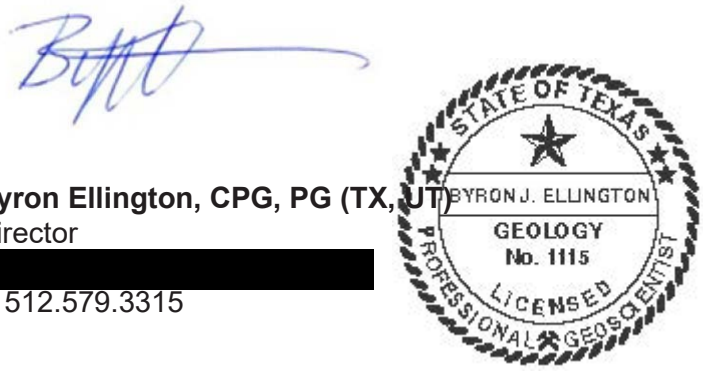
Mr. Mohammad Khan

August 30, 2024

Closing

A check for the application fee has been transmitted to the TCEQ Financial Administration Division under separate cover with the requested account information provided in Table XII.B of the Part B application. If you have any questions regarding this matter, or need additional information, please contact me at the phone number below or Mr. Thorne Gould, Murray Corporation, 410-299-7354.

Yours sincerely,
for RPS/Tetra Tech



Byron Ellington, CPG, PG (TX, UT)
Director
[redacted]
D 512.579.3315

cc: TCEQ Region Office, Tyler (electronic)
Thorne Goulde, President, Murray Corporation (electronic)

Attachments

Attachment 1 -	Waste Permits Cover Sheet (TCEQ Form 20714)
Attachment 2 -	Part B Technical Evaluation Electronic Checklist (TCEQ Form 00136). Provided as Excel ecopy only.
Attachment 3 -	Original and duplicates of signatures from the corporations' president for Part A and Part B (TCEQ Form-0283)
Attachment 4 -	Signed Core Information Forms (TCEQ Form 10400)
Attachment A -	Table Indicating Items Included In Part A and Part B Permit Application and Comments
Attachment B -	Permit Renewal and Major Amendment Part A and Part B Applications
Attachment C -	Redline/Strikeout of 2014 Issued Permit
Attachment D -	No Further Action Letter from TCEQ Corrective Action
Attachment E -	Compliance Plan Termination Demonstration Report-April 2023 (Draft and submitted to TCEQ April 2023)
Attachment F -	Closure Plan Completion Report and Certification-March 1996
Attachment G -	TCEQ Approval of Closure Completion Report-April 29, 1996

Attachment H -	TCEQ Agreed Order (recognizing waste and soil removal) – March 1989
Attachment I -	Notice of Registration Unit Status Change to Closed, NOR 005 – Drum Burial Area, February 14, 2024 Include
Attachment J -	Revised TCEQ NOR Printouts – August 2024

Attachment 1

Waste Permits Cover Sheet (TCEQ Form 20714)

Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: August 2024
Facility Name: Murray Corporation of Maryland Palestine
Permit or Registration No.: HW50328

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

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

Table 1 - Municipal Solid Waste Correspondence

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

Table 2 - Industrial & Hazardous Waste Correspondence

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

Attachment 2

Part B Technical Evaluation Electronic Checklist (TCEQ Form 00136)

Provided as stand-alone e-copy EXCEL file only

Attachment 3

Original and duplicates of signatures from the corporations' president for Part A and Part B (TCEQ Form-0283)

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: 10/14/25

Name and Official Title (type or print): Thorne Gould, President

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Owner Signature: _____ Date: _____

Name and Official Title (type or print): _____

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

I, _____ hereby designate _____
(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.

THORNE GOULD
Printed or Typed Name of Operator or Principal Executive Officer

Signature

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

Subscribed and sworn to before me by the said Thorne Gould on this

14 day of October, 2025.

My commission expires of the 24 day of July, 2028

FIROOZEH ASGARI
Notary Public in and for Baltimore County, ~~Texas~~ Maryland

FIROOZEH ASGARI
NOTARY PUBLIC
BALTIMORE COUNTY
MARYLAND
My Commission Expires July 24, 2028

Signature Page

I, Thorne Gould, President,
(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: 10/14/25

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

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

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 in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

SUBSCRIBED AND SWORN to before me by the said Thorne Gould

On this 14 day of October, 2025

My commission expires on the 24 day of July, 2028

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

FIROOZEH ASGARI

FIROOZEH ASGARI
NOTARY PUBLIC
BALTIMORE COUNTY
MARYLAND
My Commission Expires July 24, 2028

Attachment 4

Signed Core Information Forms (TCEQ Form 10400)

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 600350359		**RN 100639897**

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	8/30/2024

☐ 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:*

Murray Corporation

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

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

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:	260 Schilling Circle						
	City	Hunt Valley	**State**	MD	**ZIP**	21031	**ZIP + 4**

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

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

(412) 771-1380	0	( ) -

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.)*

Murray of Maryland Palestine

23. Street Address of the Regulated Entity: *(No PO Boxes)*	2002 Tile Factory Road							
	City	Palestine	**State**	TX	**ZIP**	75801	**ZIP + 4**	
24. County	Anderson							

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

25. Description to Physical Location:	Approximately 800 feet south of the intersection of US Highway 79 and Tile Factory Road in Palestine, Texas				
26. Nearest City			**State**	**Nearest ZIP Code**	
Palestine			TX	75801	

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:	31.729167°		**28. Longitude (W) In Decimal:**	95.675000°	
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)
3585	3714	333415	

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

34. Mailing Address:	**260 Schilling Circle**							
	City	**Hunt Valley**	**State**	**MD**	**ZIP**	**21031**	**ZIP + 4**	
35. E-Mail Address:								

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(412) 771-1380		( ) -

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 #50328
☐ 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:	Byron Ellington	41. Title:	Environmental Consultant

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 579-3315		( ) -	[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:	Murray Corporation	Job Title:	President	
Name *(In Print)*:	Thorne Gould	Phone:	~~(412) 771-1380~~ 410 299 7354	
Signature:	[signature]	Date:	10/14/25	

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of 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. Attachments — Describe Any Attachments: *(ex. Title V Application, Waste Transporter Application, etc.)*

☐ Yes ☒ No — This Core Data Form identifies the new property owner for RN100639897.

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN		RN **100639897**

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 6/1/2013

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

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☒ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*	*If new Customer, enter previous Customer below*	*End Date:*
GKG Palestine Property LLC	SeedAmerica	4/10/2013

10. Mailing Address: 6001 W Industrial Ave

City	State	ZIP	ZIP + 4
Midland	TX	79706	2841

11. Country Mailing Information *(if outside USA)*	12. E-Mail Address *(if applicable)*
	N/A

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(432) 694-1994		( ) -

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
462446595	N/A	N/A	801759052

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

21. Independently Owned and Operated? ☒ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information ☐ No Change** *(See below)*

**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

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

Murray Corporation of Maryland Palestine

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	2002 Tile Factory Road							
	City	Palestine	State	TX	ZIP	75801	ZIP + 4	
25. Mailing Address:	260 Schilling Circle							
	City	Hunt Valley	State	MD	ZIP	21031	ZIP + 4	
26. E-Mail Address:	[redacted]							

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(412) 771-1380		(412) 771-5576

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)
NA			

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Not applicable. Facility consists of a closed landfill under post-closure care. Murray Corporation (Responsible Party) does not own the property and has no active manufacturing operations at the site.

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	Approximately 800 feet south of the intersection of US Highway 79 and Tile Factory Road in Palestine, Texas

36. Nearest City	County	State	Nearest ZIP Code
Palestine	Anderson	TX	75801

37. Latitude (N) In Decimal:	31.729167°	38. Longitude (W) In Decimal:	95.675000°

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
31	43	45	95	40	30

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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

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

SECTION IV: Preparer Information

40. Name:	Mark S. Katterjohn	41. Title:	Senior Consultant/Hydrogeologist

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 347-7588		(512) 347-8243	[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 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	GKG Palestine Property LLC	Job Title:	Manager
Name *(In Print)* :	Greg Goree	Phone:	( ) -
Signature:		Date:	

Attachment A

Table indicating Items Included In Part A and Part B Permit Application and Comments

Attachment A

Items Included and Comments		
Section	Revised and Included?	Comments
Par A Instructions	**Included**	
Part A, Section I.B.	**Included**	
Part A, Section I.A, C., D., F., G.	**Included**	
Par A, Section H, Core Data Form	**Included**	The signed Core Data Form is included.
Part A Signature Page	**Included**	An original notarized signature from the facilities general manager is included.
Part A, Section II, Section III, Legal Description, Attachments, Tables, Photographs	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B Instructions, screening outputs, and automated table of contents	**Included**	
Part B, Core Data Form	**Included**	
Part B Signature Page	**Included**	
Part B, Section I	**Included**	
Part B, Section II. Facility Siting Criteria	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B, Section III. Facility Management	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B, Section IV. Waste and Waste Analysis	**Included**	See note below. Table IV.B. provided for historical context only.
Part B, Section V. Engineering Reports	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B. Section VI. Geology Report	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B, Section VII. Closure and Post Closure Plans	**Included**	See note below. Table VII.E.2. provided for historical context only and closure cost estimate has not been adjusted since 2014.
Part B, Section VIII. Financial Assurance	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B. Section IX. Releases from Solid Waste Units and Corrective Action	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B. Section X. Air Emissions Standards	Not included	These sections have not changed since the 2014 Permit Renewal.
Part B. Section XI. Compliance Plan	**Included**	See note below
Part B, Section XII. Closure and Post Closure Plans	**Included**	TCEQ Fee Calculation
Part B. Section XIII. Confidential Material-RESERVED	Not included	There is no confidential material being included.

Note that, as per recent discussions with TCEQ, Murray understands that a no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action Section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this renewal and major amendment application seeks to remove the requirements for groundwater monitoring for the remainder post closure care period (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of the permit and compliance plan.

Attachment B

Permit Renewal and Major Amendment Part A and Part B Applications

PART A
Industrial and Hazardous Waste Permit Renewal and Major Amendment Application

Murray Corporation
Palestine, Texas

HW/CP-50328
SWR 33063

August 2024

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Part A Application

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

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: **Murray Corporation**

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: **33063** EPA I.D. No.: **TXD053115978**

Street Address (If Available): **2002 Tile Factory Road**

City: **Palestine**, State: **Texas** Zip Code: **75801** County: **Anderson**

Telephone Number: **412-771-0380** Charter Number: **2521206**

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.

Thorne Gould
Murray Corporation
260 Schilling Circle
Hunt Valley, MD 21031
Phone: 410 771 0380

Byron Ellington
RPS/Tetra Tech
4801 Southwest Parkway
Parkway 1, Suite 185
Austin, Texas 78735
512-579-3315

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.

Terry M. Thorn
608 E. Crawford Street
Palestine, Texas 75801

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

Operator Name: **Murray Corporation**

Address: **260 Schilling Circle**

City: **Hunt Valley,** State: Maryland Zip Code: **21031**

Telephone Number: **412-771-0380** Charter Number: **2521206**

[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].

D. Owner

1. Indicate the ownership status of the facility:

   a. Private **X**

      (1) **X**_____Corporation **(Limited)**
      (2) _____Partnership
      (3) _____Proprietorship
      (4) _____Non-profit organization

   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

   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

   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.
   The property is owned by GKG Palestine Property LLC. Murray Corporation is the former property and facility owner and is the responsible party for this Hazardous Waste Permit/Compliance Plan 50328. The facility is under post-closure care and groundwater corrective action. Groundwater corrective action is complete and a no further action letter was received from the TCEQ on November 25, 2024.

Owner Name: **GKG Palestine Property LLC**

Address: **6001 W Industrial Avenue**

City: **Midland,** State: **Texas** Zip Code: **79706-2841**

Telephone Number: _____

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

E. Type of Application Submittal:

Initial X_____ or Revision __

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	**TXD053115978**	**EPA**
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/CP-50328**	**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	**488-12-4**	**City of Palestine POTW**

*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.

Historically, Murray Corporation rebuilt automotive air conditioner compressors at the facility. Murray Corporation no longer owns the facility or property. The facility is under post-closure care for a closed landfill.

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.

A revised Core Data Form has been provided in Attachment 1 for Regulated Entity RN100639897. The form has been revised to show Murray Corporation (CN603887811) as the operator and GKG Palestine Property LLC as the property owner.

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: 10/14/25

Name and Official Title (type or print): Thorne Gould, President

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Owner Signature: _____ Date: _____

Name and Official Title (type or print): _____

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

I, _____ hereby designate _____
(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.

THORNE GOULD
Printed or Typed Name of Operator or Principal Executive Officer

Signature

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

Subscribed and sworn to before me by the said Thorne Gould on this

14 day of October, 2025.

My commission expires of the 24 day of July, 2028

FIROOZEH ASGARI
Notary Public in and for Baltimore County, ~~Texas~~ Maryland

FIROOZEH ASGARI
NOTARY PUBLIC
BALTIMORE COUNTY
MARYLAND
My Commission Expires July 24, 2028

Signature Page

I, Thorne Gould, President,
(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: 10/14/25

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

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

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 in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

SUBSCRIBED AND SWORN to before me by the said Thorne Gould

On this 14 day of October, 2025

My commission expires on the 24 day of July, 2028

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

FIROOZEH ASGARI

FIROOZEH ASGARI
NOTARY PUBLIC
BALTIMORE COUNTY
MARYLAND
My Commission Expires July 24, 2028

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.

A revised Core Data Form has been provided in Attachment 1 for Regulated Entity RN100639897. The form has been revised to show Murray Corporation (CN603887811) as the operator and GKG Palestine Property LLC as the property owner.

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

To access the property, proceed approximately 15 miles southwest of Palestine, Texas on US Highway 79, turn left onto Tile Factory Road and proceed for approximately 800 feet to 2002 Tile Factory Road (entrance on left).

3. Enter the geographical coordinates of the facility:

Latitude: **31** deg **43** min **45** sec

Longitude: **-95** deg **40** min **30** 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.

The legal description is provided in Attachment B.

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.

Not applicable. No current manufacturing operations are conducted by Murray Corporation at the facility.

4-digit SIC Code	Description

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 **There are no active production operations at the facility.**

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

   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.

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).

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.

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.

   Zero lbs – All waste materials (including impacted soils) have previously been removed from the closed former drum burial trench.

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:

   Attachment C provides the requested information for the facility.

   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.).

      No known water wells are located within 1 mile of the facility.

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.

   A photograph of the closed landfill is provided as Attachment D.

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.

No hazardous waste will be handled, collected, stored, processed, and/or disposed of by the applicant. A process flow diagram reflecting historical waste management operations is provided as Attachment E.

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.

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	
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

Not Applicable. There are no active production operations at the facility.

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

[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.

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
Former Drum Burial Trench	N/A	Closed	120’ x 40’	-3	Unknown

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

Attachment 1

Core Data Form

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

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 600350359		RN 100639897

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 8/30/2024

☐ 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:*

Murray Corporation

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

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

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: 260 Schilling Circle

City	Hunt Valley	State	MD	ZIP	21031	ZIP + 4	

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

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

(412) 771-1380	0	( ) -

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.)*

Murray of Maryland Palestine

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2002 Tile Factory Road							
	City	Palestine	**State**	TX	**ZIP**	75801	**ZIP + 4**	
24. County	Anderson							

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

25. Description to Physical Location:	Approximately 800 feet south of the intersection of US Highway 79 and Tile Factory Road in Palestine, Texas

26. Nearest City	**State**	**Nearest ZIP Code**
Palestine	TX	75801

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:	31.729167°		**28. Longitude (W) In Decimal:**	95.675000°	
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)
3585	3714	333415	

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

34. Mailing Address:	**260 Schilling Circle**							
	City	**Hunt Valley**	**State**	**MD**	**ZIP**	**21031**	**ZIP + 4**	

35. E-Mail Address:	

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(412) 771-1380		( ) -

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 #50328
☐ 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:	Byron Ellington	41. Title:	Environmental Consultant

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 579-3315		( ) -	[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:	Murray Corporation	Job Title:	President
Name *(In Print)*:	Thorne Gould	Phone:	(412) 771- 1380
Signature:	[signature]	Date:	10/30/24

Kenneth A. Ottey Jr.
Baltimore County Maryland
My Commission Expires
December 6, 2026

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of 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. Attachments — Describe Any Attachments: *(ex. Title V Application, Waste Transporter Application, etc.)*

☐ Yes ☒ No — This Core Data Form identifies the new property owner for RN100639897.

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN		RN **100639897**

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 6/1/2013

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

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☒ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*	*If new Customer, enter previous Customer below*	*End Date:*
GKG Palestine Property LLC	SeedAmerica	4/10/2013

10. Mailing Address: 6001 W Industrial Ave

City	State	ZIP	ZIP + 4
Midland	TX	79706	2841

11. Country Mailing Information *(if outside USA)*	12. E-Mail Address *(if applicable)*
	N/A

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(432) 694-1994		( ) -

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
462446595	N/A	N/A	801759052

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

21. Independently Owned and Operated? ☒ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information ☐ No Change** *(See below)*

**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

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

Murray Corporation of Maryland Palestine

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	2002 Tile Factory Road							
	City	Palestine	State	TX	ZIP	75801	ZIP + 4	
25. Mailing Address:	260 Schilling Circle							
	City	Hunt Valley	State	MD	ZIP	21031	ZIP + 4	
26. E-Mail Address:	[redacted]							

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(412) 771-1380		(412) 771-5576

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)
NA			

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Not applicable. Facility consists of a closed landfill under post-closure care. Murray Corporation (Responsible Party) does not own the property and has no active manufacturing operations at the site.

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	Approximately 800 feet south of the intersection of US Highway 79 and Tile Factory Road in Palestine, Texas

36. Nearest City	County	State	Nearest ZIP Code
Palestine	Anderson	TX	75801

37. Latitude (N) In Decimal:	31.729167°	38. Longitude (W) In Decimal:	95.675000°

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
31	43	45	95	40	30

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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

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

SECTION IV: Preparer Information

40. Name:	Mark S. Katterjohn	41. Title:	Senior Consultant/Hydrogeologist

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 347-7588		(512) 347-8243	[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 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	GKG Palestine Property LLC	Job Title:	Manager
Name *(In Print)* :	Greg Goree	Phone:	( ) -
Signature:		Date:	

Attachment A

Site Access Agreement

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

AGREEMENT FOR RIGHT OF ENTRY

COUNTY OF ANDERSON
STATE OF TEXAS

THIS AGREEMENT is entered by and between MURRAY CORPORATION, a Maine corporation duly authorized to do business in the State of Texas, hereinafter referred to as "Murray," and GKG Palestine Property LLC, hereinafter referred to as "Owner."

WHEREAS:

A. Owner is the owner of five parcels of real property located in Palestine, Texas, described as [1] 7.721 acres, more or less, A-33, Joseph Jordan Survey, Block 1207, Tract 20 (V2055/P580); [2] 8.523 acres, more or less, A-33, Joseph Jordan Survey, Block 1207, Tract 20A (V2055/P580); [3] 3.15 acres, more or less, A-33, Joseph Jordan Survey, Block 1206, Tract 2 (V2055/P580); [4] 12.962 acres, more or less, A-33, Joseph Jordan Survey, Block 1206, Tract 3 (V2055 /P580); [5] 7.46 acres, more or less, A-33, Joseph Jordan Survey, Block 1206, Tract 1 (V2055/P580) (collectively hereinafter referred to as "the Property");

B. At various times in the past, Murray owned the parcels that constitute the Property;

C. Murray is the holder of permit and compliance plan number HW-/CP-50328 (the "Permit") issued by the Texas Commission on Environmental Quality ("TCEQ"). The Permit area includes certain portions of the Property identified therein, and requires Murray to take certain actions (the "Permit-Required Work") with regard to the installation, maintenance, testing and/or sampling of certain wells, pumps and associated equipment located at various locations on the Property.

D. The performance of the aforementioned Permit-Required Work will be at no cost or expense to Owner or Owner's lessees, assignees or agents, and all Permit-Required Work will be performed by Murray or Murray's agents;

E. It will be necessary for Murray personnel, or persons performing under contract for Murray, to enter upon the Property for the purpose of conducting said Permit-Required Work; and

F. It is the desire and intention of Murray and Owner to make this mutual agreement with respect to such activities.

NOW, THEREFORE, for and in consideration of the premises and the sum of ONE and NO/100 dollar ($1.00) paid to Owner by Murray and the promises and agreements herein stated:

1. Owner, grants to Murray, its contractors, subcontractors, and their employees and agents, a license to enter upon the areas of the Property shown on the Plat attached hereto (the "Licensed Area") for the purpose of conducting the Permit-Required Work and the performance

of all acts necessary in connection therewith, including the right to access the Licensed Area across Owner's parking lots located on the Property. Such license to enter the Licensed Area shall continue in force until all Permit-Required Work has been completed.

2. Owner and any lessees, licensees or agents of Owner agree not to prohibit, interfere with or obstruct such entry or activity upon the Licensed Area or destroy the sampling devices or wells or other equipment so installed prior to the end of this license, and not to cause or permit same to be done by others.

3. Murray agrees that such entry upon and activities upon the Licensed Area shall be limited to the extent necessary for the performance of the Permit-Required Work undertaken by Murray.

4. Upon completion of activity upon the Licensed Area, Murray will cause any tools, equipment, or materials placed thereon to be removed and will exercise reasonable diligence to restore the said Licensed Area to its approximate former condition. Any wells installed by Murray or Murray's contractors shall remain in place until permission to abandon them is granted by TCEQ.

5. This agreement is intended to be and shall be construed only as a license to enter and conduct the Permit-Required Work upon the Property and not as a grant of easement or any other interest in the Property. The term of this license shall be co-terminus with the Permit.

6. This agreement shall be binding upon the parties hereto and their respective successors, representatives, heirs and assigns.

7. Murray agrees to indemnify and defend Owner and all lessees, licensees, or agents of Owner from any and all claims for personal injury or physical real or personal property damage arising out of or attributable to Murray's performance of the activities undertaken upon the Property pursuant to this Agreement, provided however, that this indemnity shall not extend to any consequential damages, loss of use, loss of revenue or other losses arising out of the restrictions on the use of the Property inherent in the Permit or arising out of the Permit-Required Work or the existence of the wells and other equipment on the Property.

8. The Permit-Required Work shall be conducted in such a manner as not to interfere unreasonably with the operations of Owner on the Property. In particular, the activities shall be conducted insofar as practicable in such manner as not to interfere with vehicular or pedestrian ingress and egress during business hours except as expressly approved by Owner following written notice beforehand.

IN WITNESS HEREOF, Murray and Owner have executed two (2) original copies of the Agreement on the dates specified immediately adjacent to their respective signatures.

EXECUTED ON

June 4, 2013.

Attest _____

MURRAY CORPORATION

By: _____

Title: CEO

STATE OF MARYLAND)

) SS.

COUNTY OF Baltimore)

On the 4 day of June, 2013, before me personally came Harold T Gould of Murray Corporation, known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the foregoing instrument on behalf of said corporation.

My Commission Expires 3/31/16

KATHLEEN SCHMIDT
COMM. EXP.
NOTARY
PUBLIC
MARCH 31, 2016
BALTIMORE COUNTY, MD

Kathleen Schmidt

Notary Public

EXECUTED ON

May 20, 2013.

Attest _____

GKG PALESTINE PROPERTY LLC

By: _____

Greg Goree
Manager

COUNTY OF Dallas)

) SS.

STATE OF TEXAS)

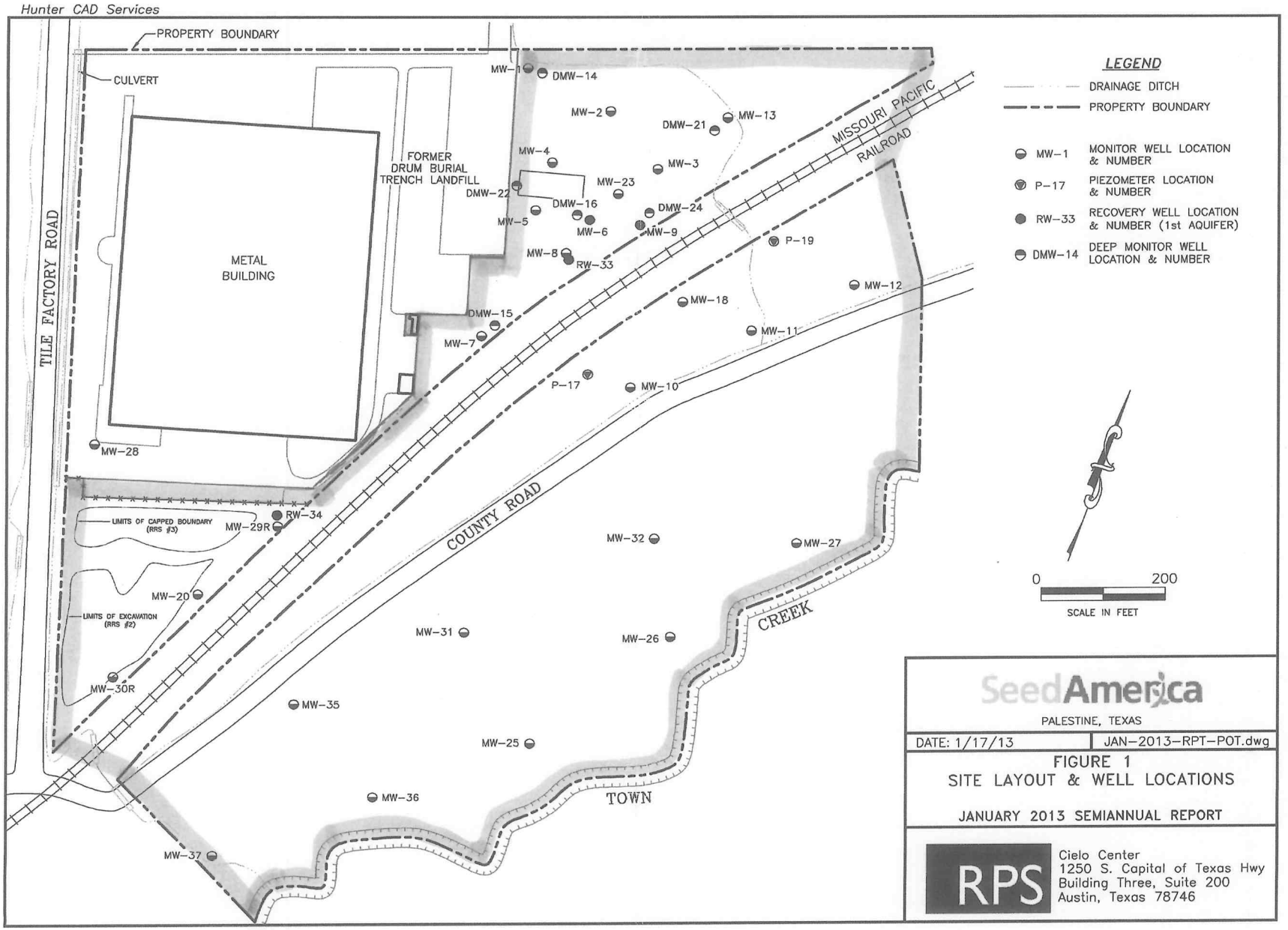
On the 20th day of May, 2013, before me personally came Greg Goree, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the foregoing instrument.

My Commission Expires 1/11/2014

D Wilcox

Notary Public

DIONNE WILCOX
Notary Public, State of Texas
My Commission Expires
January 11, 2014


Hunter CAD Services
PROPERTY BOUNDARY
CULVERT
TILE FACTORY ROAD
METAL BUILDING
FORMER DRUM BURIAL TRENCH LANDFILL
MISSOURI PACIFIC RAILROAD
COUNTY ROAD
CREEK
TOWN
LIMITS OF CAPPED BOUNDARY (RRS #3)
LIMITS OF EXCAVATION (RRS #2)
MW-1
DMW-14
MW-2
DMW-21
MW-13
MW-4
MW-3
MW-23
DMW-22
DMW-16
DMW-24
MW-5
MW-6
MW-9
MW-8
RW-33
P-19
MW-12
MW-18
DMW-15
MW-7
MW-11
P-17
MW-10
MW-28
RW-34
MW-29R
MW-32
MW-27
MW-20
MW-31
MW-26
MW-30R
MW-35
MW-25
MW-36
MW-37
LEGEND
DRAINAGE DITCH
PROPERTY BOUNDARY
MW-1 MONITOR WELL LOCATION & NUMBER
P-17 PIEZOMETER LOCATION & NUMBER
RW-33 RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
DMW-14 DEEP MONITOR WELL LOCATION & NUMBER
0
200
SCALE IN FEET
SeedAmerica
PALESTINE, TEXAS
DATE: 1/17/13
JAN-2013-RPT-POT.dwg
FIGURE 1
SITE LAYOUT & WELL LOCATIONS
JANUARY 2013 SEMIANNUAL REPORT
RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Attachment B

Site Legal Descriptions

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

SITE LEGAL DESCRIPTION

In March, 1990, Murray Corporation applied to the then Texas Water Commission (TWC) for a post-closure care permit (Proposed Permit HW50328-000, EPA I.D. No. TXD 053115978). The facility was described as being located on a 5.7 acre tract of land near the City of Palestine, Anderson County, Texas. The said 5.7 acre facility site is contained within a 16.244 acre tract which is made up of two tracts being 7.721 acres and 8.523 acres. The certain tracts are located within the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas and are recorded in the Deed Records of Anderson County, Texas in Volume 965, Page 559 and Volume 888, Page 879 respectively. The real property descriptions of each tract are included as Item I and Item 2 of Attachment C. The remainder of the Murray property (which is being leased to the current operator of the manufacturing facility), being 10.522 acres is described in Item 3 of Attachment C.

In 1990, Murray Corporation acquired a certain 3.15 acre tract in the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas located between the Union Pacific Railroad Right-of-Way and County Road No. 2144 (recorded in Volume 1243, Page 736 of the Anderson County Land Records). The tract description is presented as Item 4 in Attachment C.

Finally, in 1992, Murray Corporation acquired a certain 12.962 acre tract in the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas located between County Road No. 2144 and Town Creek (recorded in Volume 454, Page 135 of the Deed Records of Anderson County). The tract description is presented as Item 5 of Attachment C.

The total acreage of the Murray facility subject to the permit has increased from 5.7 acres to 21.8 acres as the result of the purchase of the two properties described under Items 4 and 5 in Attachment C. A map showing the certain tracts or parcels of land held by Murray Corporation in Palestine, Anderson County, Texas is presented as Item 6 in Attachment C.

EXHIBIT A
to
DEED OF TRUST, SECURITY AGREEMENT, ASSIGNMENT OF RENTS AND FINANCING STATEMENT from Murray Corporation to Cad Williams, as Mortgage Trustee

Real Property Description

TRACT ONE

ALL That certain tract or parcel of land, a part of the JOSEPH JORDAN SURVEY ABSTRACT No. 33, Anderson County, Texas, also being a part of that certain called 45.35 acre Second Tract conveyed to Anderson County Chamber of Commerce by Jack B. Bishop et ux, March 31, 1953, and recorded in Volume 294, page 135 of the Deed Records of Anderson County, Texas, also being all of that certain called 7.721 acre tract conveyed to Murray Corporation of Iowa by Palestine Industrial Foundation, Inc., June 23, 1982, recorded in Volume 965, page 559 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

BEGINNING at a 1/2" Iron Rod for corner in the North line of the above mentioned 45.35 acre tract, said corner Brs. S 73° 53' 19" W - 1005.00 feet from the Northeast corner of said tract.

THENCE S 12° 27' 47" E a distance of 799.71 feet to a 1/2" Iron Rod for corner in the Northwest R. O. W. line of the Missouri and Pacific Railroad.

THENCE S29° 16' W with the Northwest R. O. W. line of the Missouri and Pacific Railroad a distance of 497.59 feet to a 1/2" Iron Rod for corner in the East margin of Tile Factory Road.

THENCE N 13° 37' 54" W with the East margin of Tile Factory Road a distance of 1148.69 feet to a 1 1/2" Iron Pipe found for corner in the North line of said Second Tract.

THENCE N 73° 53' 19" E with the North line of said tract a distance of 351.35 feet to the place of beginning, containing 7.721 acres of land.

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EXHIBIT A (Cont.)

TRACT TWO

ALL that certain tract or parcel of land, a part of the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas, also being a part of that certain called 45.35 acre Second Tract conveyed to Anderson County Chamber of Commerce by Jack E. Bishop et ux, March 31, 1935, recorded in Volume 454, page 135 of the Deed Records of Anderson County, Texas, also being all of that certain called 8.523 acre tract conveyed to Murray Corporation by Palestine Industrial Foundation, Inc., January 30, 1979, recorded in Volume 888, page 879 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

BEGINNING at a 1/2" Iron Rod for corner at the Northeast corner of the above mentioned Second Tract.

THENCE S 23° 19' 42" E with the East line of said tract a distance of 27.45 feet to a 1/2" Iron Rod for corner in the Northwest R. O. W. line of Missouri and Pacific Railroad.

THENCE in a Southwesterly direction with the Northwest R. O. W. line of the Missouri and Pacific Railroad as follows: S 43° 36' W - 398.16 feet to the P. C. of a curve to the left, with said curve which has a delta angle of 14° 20', a R. of 3111.83 feet, a T. of 391.28 feet, a L. of 778.47 feet, and a D. of 1.84122 feet to the P. T. of said curve, and S 29° 16' W - 139.32 feet to a 1/2" Iron Rod for corner.

THENCE N 12° 27' 47" W a distance of 799.71 feet to a 1/2" Iron Rod for corner in the North line of said Second Tract.

THENCE N 73° 53' 19" E with the North line of said tract a distance of 1005.00 feet to the place of beginning, containing 8.523 acres of land.

Excluded from permitted facility

FIELD NOTE DESCRIPTION

ALL that certain tract of land in Palestine,, Anderson County, Texas in the JOSEPH JORDAN SURVEY, Abstract 33, being a part of that certain tract called 16.244 acres described in two tracts in Volume 965, Page 559 and Volume 888, Page 817 of the Anderson County Deed Records and being more particularly described as follows:

BEGINNING at a 1" iron pipe in the East line of Tile Factory Road at the Northwest corner of said 16.244 acre tract and the Southwest corner of a tract called .993 acre, owned by Southern Heritage, Inc.

THENCE; S 15° 52' 38" E, with the East line of Tile Factory Road, 708.49 feet to corner.

THENCE; N 75° 43' 24" E 145.69 feet to a chain link fence corner.

THENCE; S 16° 16' 04" E 23.56 feet to a chain link fence corner.

THENCE; N 74° 44' 12" E 235.35 feet to corner in the Northwest line of the Union Pacific Railroad.

THENCE; N 26° 54' 00" E, with the Railroad, 94.17 feet to point of curve to the right.

THENCE; With the curve to the right with a central angle of 5° 11' 44", a radius of 2914.79 feet and a length of 264.30 feet to corner.

THENCE; N 14° 40' 30" W 176.28 feet to corner.

THENCE; N 74° 21' 35" E 50.00 feet to corner.

THENCE; N 14° 40' 30" W 338.00 feet to corner in the North line of the 16.244 acre tract.

THENCE; S 71° 38' 35" W 694.58 feet to the PLACE OF BEGINNING, containing 10.522 acres.

I hereby certify that these field notes are a true and accurate representation of a survey made on the ground by me in March, 1991.

STATE OF TEXAS REGISTERED PAUL W. IVES 1659 PROFESSIONAL LAND SURVEYOR

PAUL W. IVES
Registered Professional Land Surveyor
State of Texas #1659

FIELD NOTE DESCRIPTION

ALL that certain tract or parcel of land in Palestine, Anderson County, Texas, in the JOSEPH JORDAN SURVEY, Abstract 33, being that same tract called 3.23 acres in deed to MURRAY CORPORATION OF MARYLAND, recorded in Volume 1243, Page 736 of the Anderson County Land Records and being more particularly described as follows:

BEGINNING at a 1/2" iron rod in the North margin of an oiled county road (also called West Reagan Street) at the Southwest corner of a tract called 1 acre in Volume 938, Page 781 of the Deed Records and the Southeast corner of said 3.23 acre tract.

THENCE; N 30° 21' 00" W 191.21 feet to a 1/2" iron rod in the Southeast line of the Union Pacific Railroad Right-of-Way at the Northwest corner of said 1 acre tract and the Northeast corner of said 3.23 acre tract.

THENCE; With the Southeast line of said railroad right-of-way, S 41° 24' 00" W 289.06 feet to point of curve to the left.

THENCE; With said curve having a central angle of 14° 30' 00", a radius of 2814.79 feet and a length of 712.35 feet to point of tangency.

THENCE; S 26° 54' 00" W 560.34 feet to a 1/2" iron rod at the intersection of the railroad right-of-way and the North line of said county road.

THENCE; With the North line of said road as follows:

N 33° 57' 00" E	119.92 feet
N 32° 30' 00" E	304.00 feet
N 36° 55' 00" E	596.00 feet
N 49° 03' 00" E	205.00 feet
N 48° 45' 00" E	261.99 feet

to the PLACE OF BEGINNING, containing 3.15 acres.

I hereby certify that these field notes are a true and accurate representation of a survey made on the ground by me in December, 1989.

STATE OF TEXAS
PAUL W. IVES
1659
REGISTERED PUBLIC SURVEYOR

PAUL W. IVES
Registered Public Surveyor #1659

SUBDIVISIONS
WELL LOCATIONS
LEASE SURVEYS
PIPE LINES
CONSTRUCTION SURVEYS

605 AVENUE A
PALESTINE, TEXAS 75801
PHONE: (903) 723-3116

Description of a 12.962 acre tract
JOSEPH JORDAN SURVEY, ABSTRACT NO. 33
Anderson County, Texas

ALL that certain tract or parcel of land, being a part of the JOSEPH JORDAN SURVEY, ABSTRACT NO. 33, Anderson County, Texas, also being a part of that certain called 20.96 acre tract conveyed to Anderson County Chamber of Commerce by Jack B. Bishop, March 31, 1953, recorded in Volume 454, page 135 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

BEGINNING at the Northeast corner of the above mentioned 20.96 acre tract, the Southeast corner of a 3.23 acre tract described in Volume 1243, page 736 of the Deed Records of Anderson County, Texas, in the center line of County Road No. 2144 (Bonner's Ferry Road), from which a 1/2" Iron Rod Brs. S 15° 40' 32" E - 16.63 feet.

THENCE S 15° 40' 32" E with the Northeast line of said 20.96 acre tract a distance of 320.78 feet to the center line of Town Creek, being the Southeast corner of said 20.96 acre tract, from which a 1/2" Iron Rod Brs. N 15° 40' 32" W - 29.20 feet.

THENCE in a Southerly direction with the Southeast line of said 20.96 acre tract and the center line of Town Creek, as follows: N 85° 27' 42" W - 22.30 feet, S 50° 47' 27" W - 36.75 feet, S 14° 30' 09" E - 112.58 feet, S 46° 32' 01" W - 183.15 feet, S 58° 28' 11" W - 73.95 feet, S 10° 48' 13" E - 77.38 feet, S 46° 22' 35" W - 79.11 feet, S 8° 31' 29" E - 143.89 feet, S 58° 20' 00" W - 61.23 feet, S 72° 47' 56" W - 106.84 feet, S 31° 21' 46" W - 77.90 feet, S 53° 17' 38" W - 60.46 feet, S 5° 29' 19" W - 73.29 feet, N 82° 29' 55" W - 121.02 feet, S 71° 53' 08" W - 123.53 feet, S 37° 58' 07" W - 37.67 feet, S 17° 54' 49" E - 55.34 feet, S 77° 58' 02" W - 73.50 feet, S 45° 23' 58" W - 29.82 feet, and S 0° 41' 34" W - 44.41 feet to the Southeast corner of a 7.46 acre tract described in Volume 1144, page 269 of the Deed Records of Anderson County, Texas, from which a 1/2" Iron Rod Brs. N 59° 31' 34" W - 58.46 feet.

THENCE N 59° 31' 34" W with the Northeast line of said 7.46 acre tract a distance of 330.16 feet to the Northeast corner of said 7.46 acre tract, in the center line of County Road No. 2144, the Northwest line of said 20.96 acre tract, and the Southeast line of said 3.23 acre tract, from which a 1/2" Iron Rod Brs. S 59° 31' 34" E - 21.88 feet.

THENCE in a Northeast direction with the Northwest line of said 20.96 acre tract, the Southeast line of said 3.23 acre tract, the center line of County Road No. 2144, as follows: N 42° 03' 43" E - 59.61 feet, N 36° 30' 55" E - 88.50 feet, N 34° 21' 24" E - 245.10 feet, N 36° 37' 25" E - 103.06 feet, N 39° 24' 45" E - 500.95 feet, N 46° 15' 32" E - 171.33 feet, and N 51° 51' 37" E - 369.95 feet to the place of beginning, containing 12.962 acres of land, of which 0.61 of an acre is in the R. O. W. of County Road No. 2144.

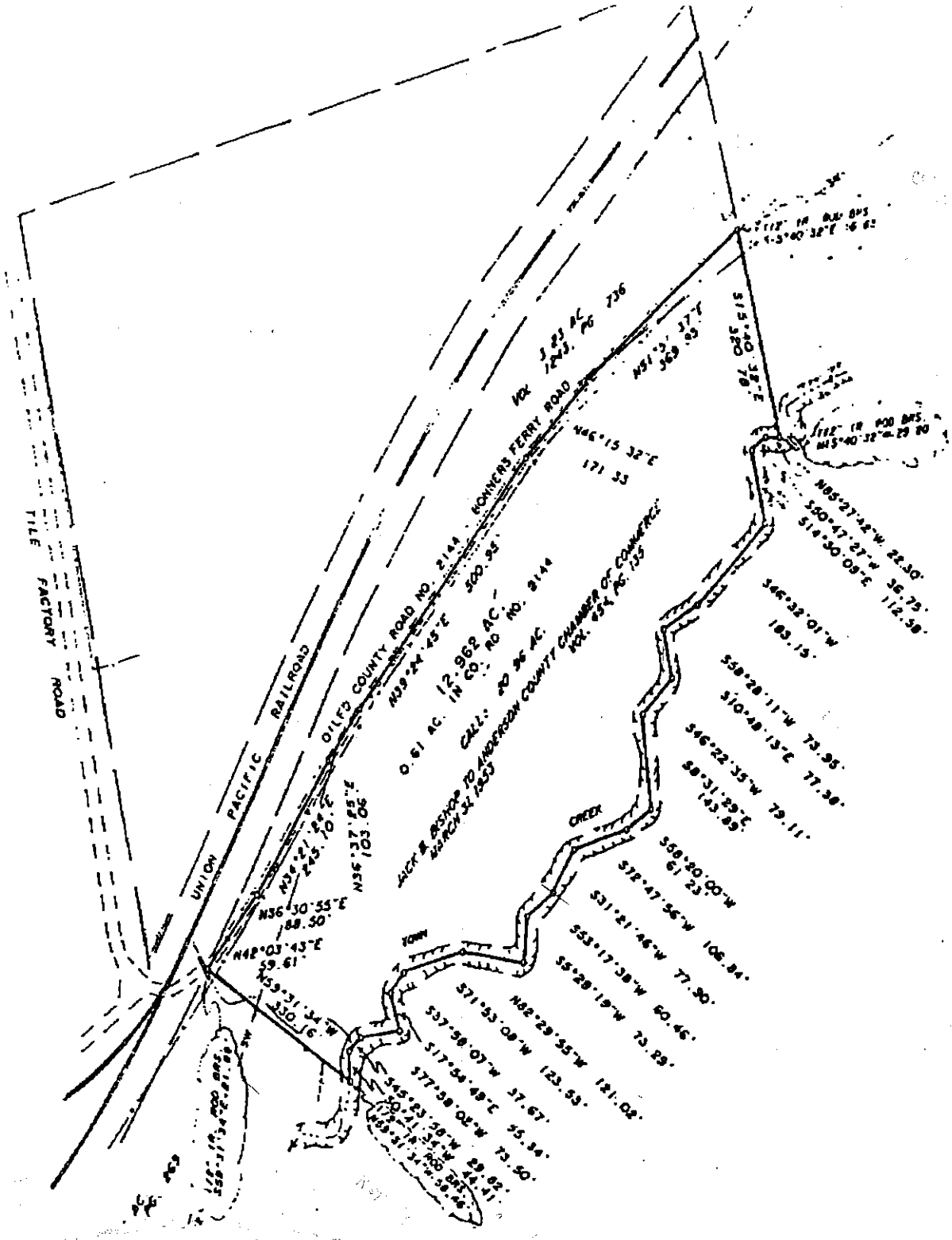
I, F. D. McBride, Registered Professional Land Surveyor No. 1548, do hereby declare that the above field notes were prepared from an actual survey made by me on the ground during the month of October, 1991.

GIVEN UNDER MY HAND AND SEAL this the 28th day of October, 1991.

REGISTERED PROFESSIONAL LAND SURVEYOR NO. 1548

STATE OF TEXAS
REGISTERED

ITEM 6



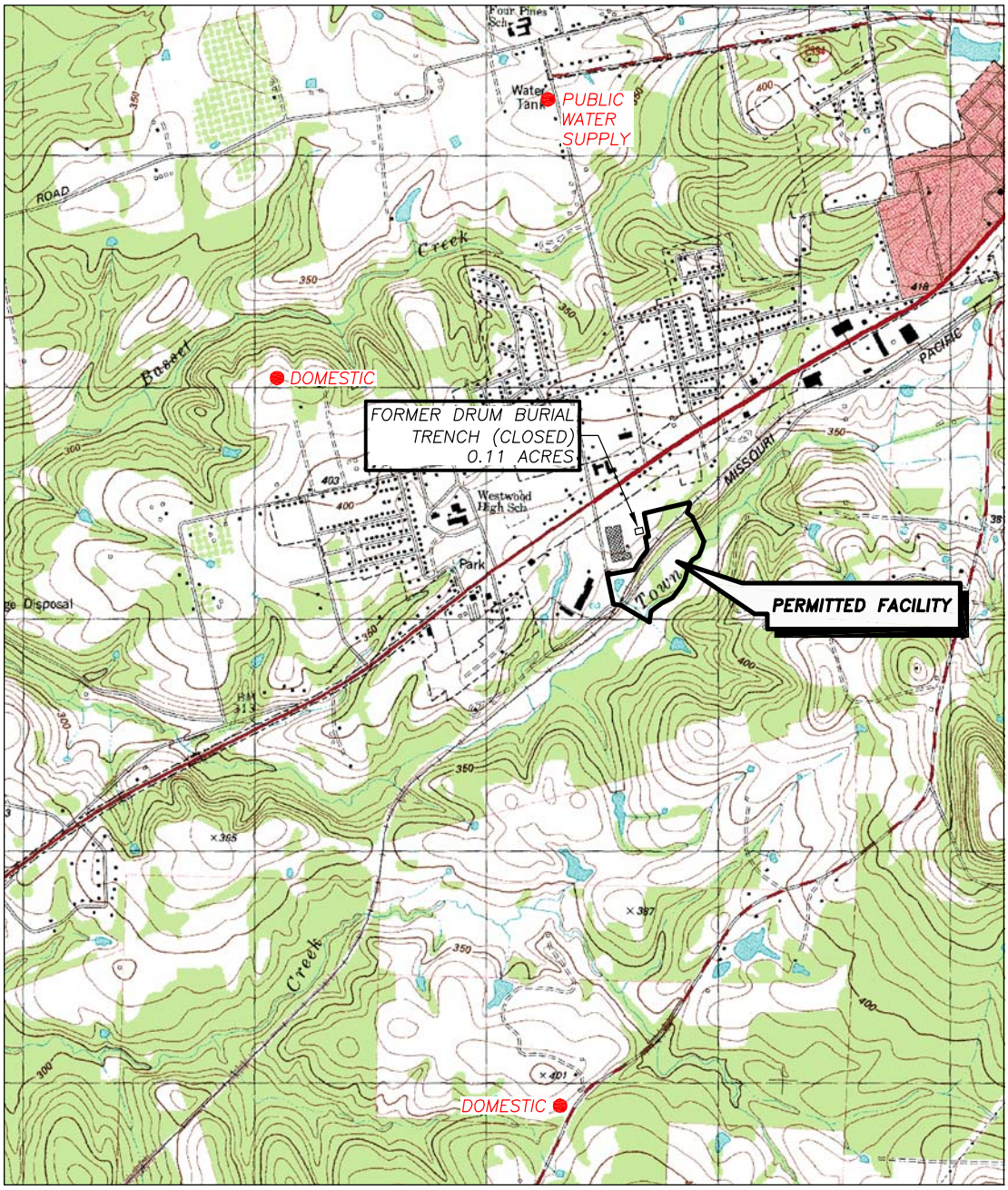
DESCRIPTION OF LAND PARCELS PURCHASED BY MURRAY CORPORATION SINCE 1990

JONES AND NEUSE, INC.
Environmental and Engineering Services

Attachment C

Facility Boundaries and Adjacent Waters Map

Murray Corporation
SWR No. 33063 Permit
No. 50328
Rev. 0 – October 2024



0 2000

SCALE IN FEET

MAP SOURCES:

SOUTHWEST PALESTINE, TEX.
7.5 MINUTE SERIES U.S.G.S MAP

LEGEND

WATER WELL LOCATION

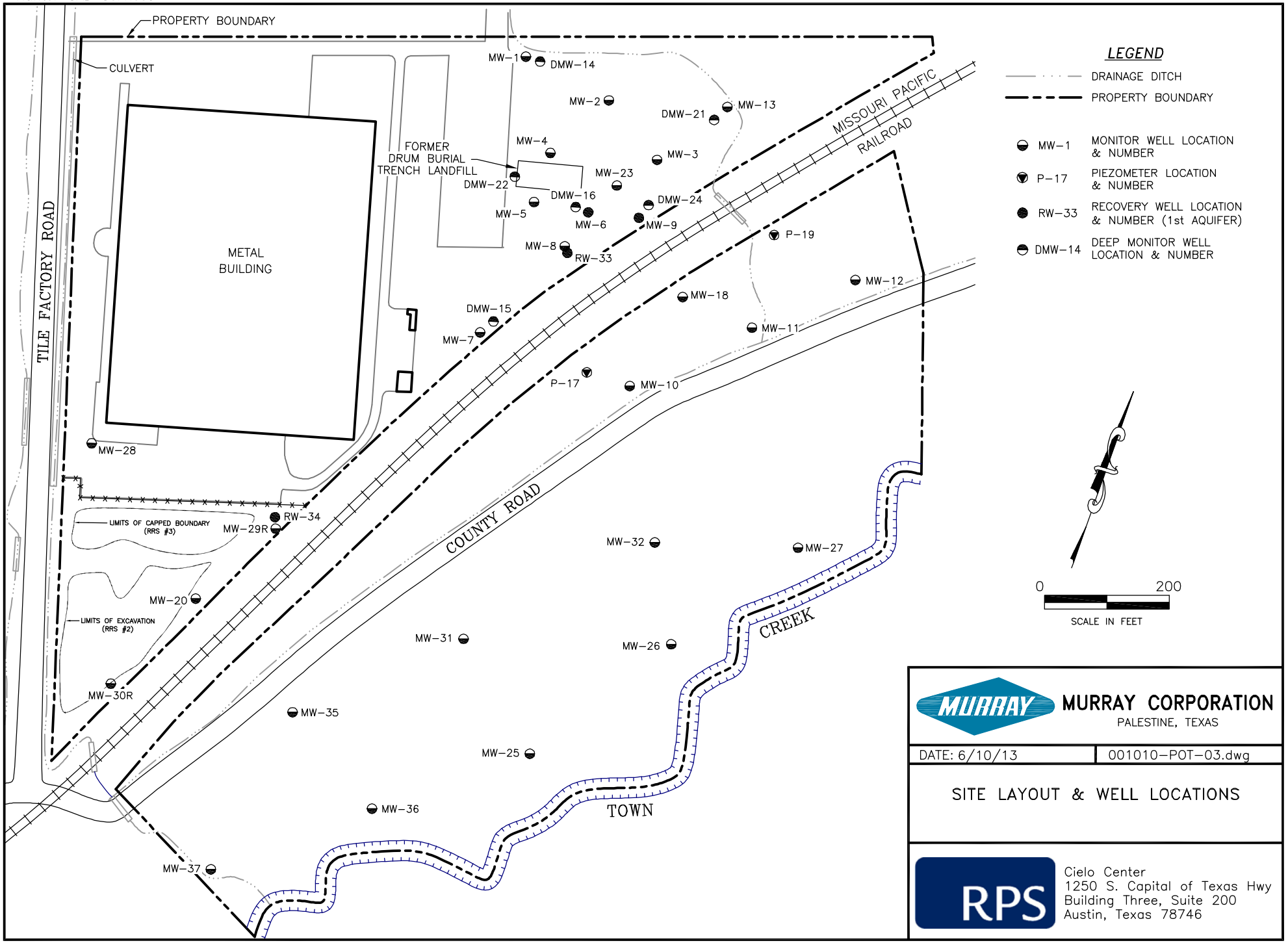
MURRAY CORPORATION
PALESTINE, TEXAS

DATE: *6/12/13* | *001010-50A.dwg*

ATTACHMENT C
FACILITY BOUNDARIES & ADJACENT WATERS MAP

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 6/10/13 | 001010-POT-03.dwg

SITE LAYOUT & WELL LOCATIONS

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Attachment D

Photographs

TNRCC PERMIT
UNIT No. 1

Attachment E

Process Flow Description

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

Attachment E
Process Flow Description

The landfill received drums that had contained spent solvents generated from refurbishing automotive air conditioning compressors. These drums were crushed prior to placing in the landfill. The landfill also received crushed empty drums and construction debris. The waste materials were removed from the landfill in June 1988 and transported (accompanied by manifests and land-ban certifications) to the Texas Ecologist (TECO) hazardous waste landfill in Robstown, Texas.

PART B
Industrial and Hazardous Waste Permit Renewal and Major Amendment Application

Murray Corporation
Palestine, Texas

HW/CP-50328
SWR 33063

August 2024

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

Part B Application

The TCEQ is committed to accessibility. You may request an accessible version of these documents, by contacting the Industrial and Hazardous Waste permits section program at (512)-239-2335 or by email at ihwper@tceq.texas.gov.

Disclaimer:

This document is intended for use in the RCRA Part B application preparation and review process. It contains a screening sheet that will produce a customized Part B application outline that is based on a facility's specific operating characteristics. This screening sheet and application outline are not a substitute for required application materials. This document may omit requirements applicable to the facility and/or include requirements that are not applicable. Please use the knowledge about the facility's operational design and history to ensure that a complete application based on 40 Code of Federal Regulations Part 270 and 30 Texas Administrative Code (TAC) Chapter 305 and Chapter 335 is submitted. Please include any necessary information that may have been mistakenly screened out. If regulatory requirements change during the application process, the TCEQ may request additional information before a permit is issued.

Quick Start Instructions for Part B Application with Screening Tool

Go to screening sheet

View Entire Application

Screening Sheet for Industrial and Hazardous Waste Permitted Facilities.

Please provide a response to all items. **Note: depending on certain selections you make, answers to some questions will automatically default to "No" but some questions will remain to be answered by the user as "Yes" or "No", and if the user does not provide a "Yes" or "No" answer, the application will be generated as if answered "Yes".** It is critical that each response is accurate to ensure retrieval of all applicable application items. If you need to change any response after the initial answer, change the answer and the application will update the application. Print (electronic or physical) a copy of the application materials to create the physical appendix format of your application.

Please answer Questions 1 through 11 and DO NOT leave any questions) unanswered to ensure an complete application.

1.	Is this an application for a compliance plan only?	○	Yes	◉	No
2.	Is this permit for post-closure care only?[1]	○	Yes	◉	No
3.	Is this an application for a compliance plan and post-closure care only?	◉	Yes	○	No
4.	Is this an application for WMU(s) with a compliance plan?[2]	○	Yes	◉	No
5.	Is this an application for WMU(s) with post-closure care?	○	Yes	◉	No
6.	Is this an application for WMU(s), with compliance plan and post-closure care?	○	Yes	◉	No
7.	Is this an application for WMU(s) only?	○	Yes	◉	No
	Any Land Based Units?	◉	Yes	○	No
	Surface Impoundments	○	Yes	◉	No
	Waste Piles	○	Yes	◉	No
	Land Treatment Units	○	Yes	◉	No
	Landfills[3]	◉	Yes	○	No
	Container Storage Areas	○	Yes	◉	No
	Tank and Tank Systems	○	Yes	◉	No
	Incinerators	○	Yes	◉	No
	Boilers/Industrial Furnaces	○	Yes	◉	No
	Drip Pads	○	Yes	◉	No
	Containment Buildings	○	Yes	◉	No
	Miscellaneous Units[4]	○	Yes	◉	No
8.	Is this a new commercial facility?	○	Yes	◉	No
9.	Is this a "One-Stop" application with air provisions?	○	Yes	◉	No
10.	Is this facility military, federal, or state owned?	○	Yes	◉	No
11.	Does the application contain Confidential Materials?	○	Yes	◉	No

Reset All Screening Questions | Jump to Table of Content(s) / Applicable Tables | Generate Application and Save

1 - If "Yes" is indicated for Post-Closure Care only, then all non-land-based units above will default to "No". Additionally if "Yes" is indicated for Post-Closure Care only, then at least one Land-Based Unit must be "Yes."

2 - If "Yes" is indicated for Active Permit Unit(s) with a Compliance Plan, then at least one unit must be "Yes."

3 - Select "Landfills- Yes" for any land-based unit that was closed as a landfill. (Example Surface Impoundment closed s a landfill.)

4 - For Miscellaneous Units, select "yes" and also select "Yes for the appropriate unit types (s) shown above. Address all applicable engineering requirements (e.g., landfill requirements from Section V.G) in Section V.K.

WMU- Waste Management Unit

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

Customized Part B Application

Form Availability:

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

Introduction:

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

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

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

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

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

Telephone Inquiries:

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

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

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

(512) 239 - 0272 (For non-combustion units) - Chemical New Source Review Permits

Section, Air Permits Division

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

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

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

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

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

Application Review Prohibition:

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

Permit Issuance Prohibited [30 TAC 335.205]:

The TCEQ shall not issue a permit for:

1. a new hazardous waste management facility or an areal expansion of an existing facility if the facility or expansion does not meet the requirements of 30 TAC 335.204 (relating to Unsuitable Site Characteristics);
2. a new hazardous waste landfill or the areal expansion of an existing hazardous waste landfill if there is a practical, economic, and feasible alternative to such a landfill that is reasonably available to manage the types and classes of hazardous waste which might be disposed of at the landfill;
3. a new commercial hazardous waste management facility as defined in 30 TAC 335.202 (relating to Definitions) or the subsequent areal expansion of such a facility or unit of that facility if the owner/operator proposes to locate the boundary of the unit within 0.5 of a mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park;
4. a new commercial hazardous waste management facility that is proposed to be located at a distance greater than 0.5 mile (2,640 feet) from an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park unless the applicant demonstrates to the satisfaction of the commission that the facility will be operated so as to safeguard public health and welfare and protect physical property and the environment, at any distance beyond the facility's property boundaries;
5. a proposed hazardous waste management facility, or a capacity expansion of an existing hazardous waste management facility if a fault exists within 3,000 feet of the proposed hazardous waste management facility or of the capacity expansion of an existing hazardous waste management facility unless the applicant performs the demonstration found in 30 TAC 305.50(a)(4)(D) and 305.50(a)(10)(E) ; and

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

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

Completing The Application and Electronic Checklist:

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

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

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

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

For those who pre-filed a Part A application, certain items may have been omitted. These omissions must be addressed at this time. Additionally, if hazardous waste management methods have changed since the filing of the Part A, please provide an updated Part A.

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

Groundwater Contamination:

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

Submittal:

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

For a new permit application or renewal, submit:

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

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

1. Sections I and XI.A. through XI.E., as applicable;
2. Tables XI.A.I., XI.E.1 through XI.E.III, and CP Tables I, II, V, VI through IX, are required; and CP Tables IIIA, IIIA, IV and IVA as applicable. The applicant should use the PDF formatted Tables provided in the Part B application to include site-specific information that will become part of the final draft permit; and
3. a Sampling and Analysis Plan (SAP) compliant with "Attachment A" requirements and evaluation of monitoring wells compliant with "Attachment B" well specification requirements.

For a post-closure care permit submit:

1. an original updated Part A permit application plus three (3) full copies;
2. the original Part B application (excluding Sections III B and F; IV A, C and D; VII A and B; VIII.B and C; and X) plus three (3) full copies;
3. a check for payment of permit application fees transmitted directly to the

TCEQ

Financial Administration Division;

4. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
5. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

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

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

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

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

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

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

5. evidence of the public notice mailing and publication (after the public meeting, please submit a statement that the public meeting was held within the required timeframes);

   a. Evidence of public notice mailing to Adjacent Landowners requires submittal of copies of mail.

6. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division;
7. pre-printed mailing labels of the adjacent landowners or an electronic mailing list on Compact Disk (CD) in MS Word format; and
8. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive.

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

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

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

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 1[1] modification is needed;
5. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division; and
6. Completed RCRA Part B Administrative and Technical Evaluation Electronic Checklist (Form #00136) on CD, DVD, or USB drive, for applications involving the partial transfer of some permitted waste management units.

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

1. (if appropriate) an original updated Part A permit application plus three (3) full copies;
2. an original Part B application plus three (3) full copies, consisting of, at a minimum, Section I - Table I of the Part B plus replacement pages for the changed

   portions of the application that change as a result of the modification;
3. a description of the exact changes to be made to the permit conditions and supporting documents referenced by the permit;
4. an explanation of why the Class 1 modification is needed; and
5. a check for payment of permit application fees transmitted directly to the TCEQ Financial Administration Division.

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

Application Revisions:

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

Waivers:

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

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, cross-referenced to Section XIII: Confidential Material, and submitted as a separate Section XIII 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 solid 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.

Exposure Assessment:

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

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

a. Applicant-held pre-application public meeting

In accordance with 30 TAC 335.503(b) and 40 CFR Part 124.31(b)-(d), an applicant-held pre-application public meeting is required for the following application types prior to submitting the application to allow the applicant and the public to identify potential issues:

- New applications;
- Renewal applications with Class 3 Permit Modifications or Major Amendments; and
- Major Amendment applications.

The pre-application public meeting is not required for an application submitted for the sole purpose of conducting post-closure activities or post-closure activities and corrective action at a facility unless:

- The application is also for an initial permit for hazardous waste management unit(s); or
- The application is also for renewal of the permit, where the renewal application is proposing a significant change (Class 3 Permit Modification or Major Amendment) in facility operations (Note: per preamble to the related federal rule, the facility operations referenced herein exclude post-closure and corrective action activities).

b. Pre-application meeting with TCEQ

Applicants are strongly encouraged to request a pre-application meeting with TCEQ Permits Section staff and to notify the Industrial and Hazardous Waste Permits Section, Waste Permits Division of intent to file new, renewal, Class 3 permit modification, major amendment, and other complex permit applications.

c. Pre-application local review

In accordance with 30 TAC 335.391, for a new hazardous waste management facility, if a local review committee has been established to facilitate communication between the applicant and the local host community, the applicant should summarize the activities of the committee and submit this summary with the application. Any report completed by a review committee must be submitted.

New industrial or hazardous waste facility that would accept municipal solid waste:

a. If an applicant proposes a new industrial or hazardous waste facility that would accept municipal solid waste, the applicant shall hold a public meeting in the county in which the facility is proposed to be located. This meeting must be held before the 45th day after the date the application is filed. In addition, the applicant shall publish notice of the public meeting in accordance with 30 TAC 39.503(e)(5).

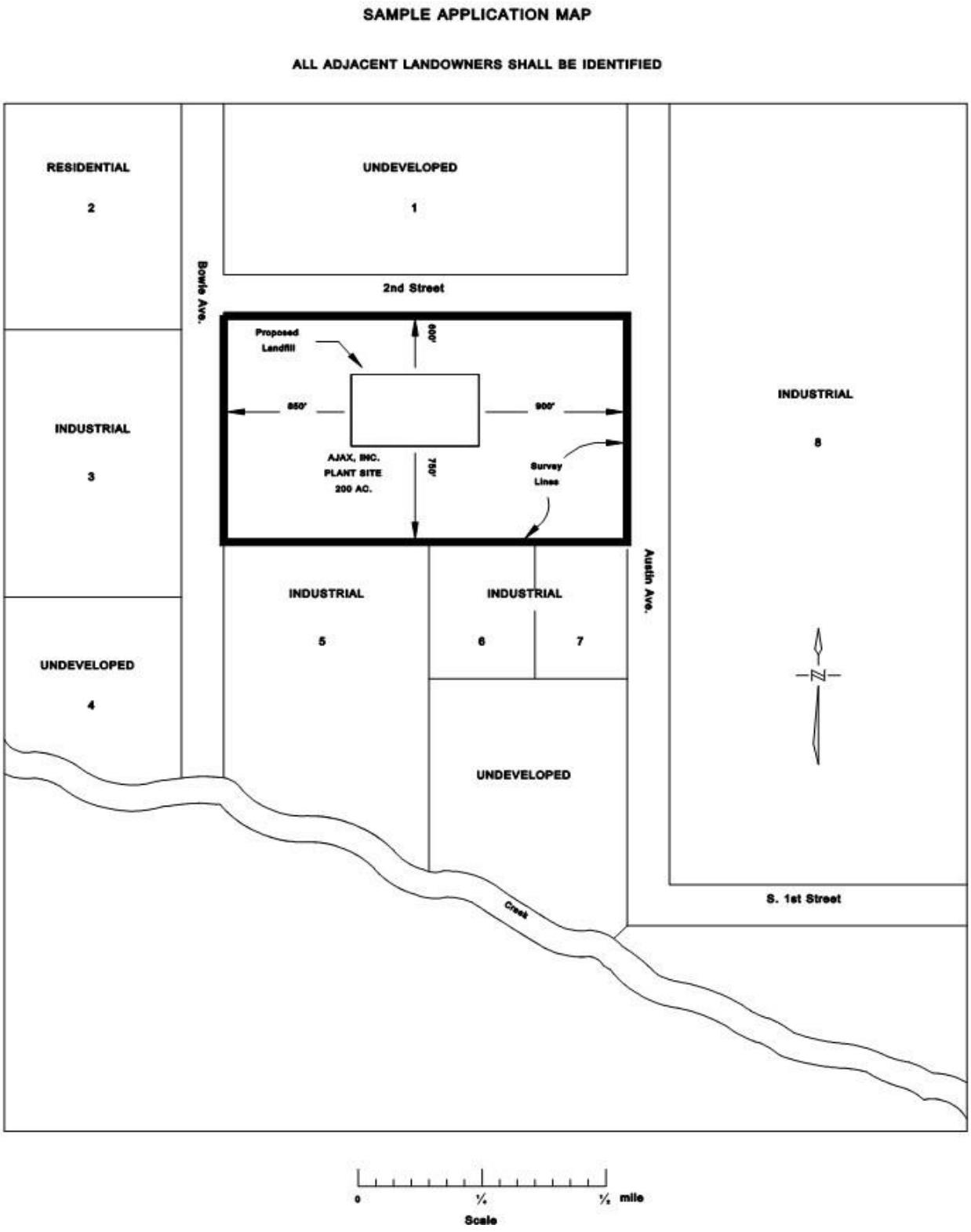
Bilingual Notice Instructions:

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.

Complete and submit the Bilingual notice confirmation for this application. The Bilingual notice confirmation can be downloaded from the Navigation Pane.

Landowners Cross-Referenced To Application Map



The persons identified below would be considered as affected persons.

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

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

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

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

5. GENERIC BREWING CO
4240 KNIGHTS BRIDGE
OUTBACK TX 77640

6. PLAIN COMPANY
6647 CRAIGMOUT LANE
BIG PLACE TX 77590

7. ABC CHEMICALS INC
1212 ZIP STREET
BROADBANKS TX 77640

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

Adjacent Landowners List

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

1. a Compact Disk (CD) using software compatible with MS Word [30 TAC 39.5(b)]; or

2. four sets of printed labels.

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

Example:

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

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

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

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

Plain Language Summary

Complete the following form(s) as applicable, 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].

Plain Language Summary Form - English

Plain Language Summary Form - Instructions

Plain Language Summary Form - Spanish

Note: The table of contents will update and be based on the questions answered at the beginning of the form.

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Instructions:
Open the File Attachments List in the Navigation Page to view all tables and attachments. (Or, click here to open List of Attachments Navigation Pane). Word versions of the tables are included in the Attachment Tab. Links below will only open the PDF versions of the tables. Select the applicable tables for your application and complete.

TCEQ Core Data Form (TCEQ-10400) [External weblink to download form]

Signature Page for Application

Table I - General Information

Table I.1 - Description of Proposed Application Changes

Adjacent Landowners List and Map (Go to instructions on page 11)

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CP Table III - Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard

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CP Table IV - Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Quantitation Limits

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CP Table V - Designation of Wells

CP Table VI - Compliance Period for RCRA-Regulated Units

CP Table VIII - Compliance Schedule

CP Table IX - Description of Uppermost Aquifer

Appendices List - NOTE: Provide all Part B responsive information, (e.g. engineering reports, attachments, drawings, tables, maps, etc.) in an Appendix for each section of the application. When preparing the physical format review the Format of Hazardous Waste permit Application and Instructions.

Appendix I - General Information

Appendix II - Facility Siting Information

Appendix III - Facility Management

Appendix III.A. - Compliance History and Applicant Experience

Appendix III.C - Facility Security

Appendix III.D. - Inspection Schedule

Appendix IV - Waste and Waste Analysis

Appendix V - Engineering Reports

Appendix V.A. - General Engineering Report

Appendix V.G. - Landfills Engineering Report

Appendix VI - Geology Report

Appendix VI.A - Geology and Topography Report

Appendix VI.B. - Facility Groundwater

Appendix VI.C. - Exemption from Groundwater Monitoring for an Entire Facility

Appendix VII.C. - Post-Closure Plan

Appendix VII.D. - Post-Closure Cost Estimate

Appendix VII.E. - Closure and Post-Closure Cost Summary Tables

Appendix VIII - Financial Assurance Infomation

Appendix IX - Releases from Solid Waste Units and Corrective Action

Appendix XI- Compliance Plan

Appendix XII - Hazardous Waste Permit Application Fee Tables

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

I. General Information

Provide all Part B responsive information in Appendix I. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

Provide responsive information in Appendix I.

a. Complete Table I - General Information

b. For all incoming New, Renewal, Class 3 Permit Modification, and Major Amendment applications, the TCEQ requires that a Core Data Form (CDF) be submitted whether or not a change has occurred in the previously submitted form.

   For Minor Amendment, Class 1, Class 1[1] , and Class 2 Permit Modification applications, the TCEQ requires that the CDF be only submitted if a change in any information in the previously submitted form has occurred at the time of the application submittal.

   For more information regarding the Core Data Form, call (512) 239 1575 or go to the TCEQ Web site at https://www.tceq.texas.gov/permitting/central_registry/guidance.html

c. Signature on Application

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

d. Complete Interim Status Land Disposal Unit(s) Certification, as applicable

e. Submit List and Map of Adjacent Landowners List, as applicable.

Part B, Signature Page

An original notarized signature page from the facilities General Manager is included.

Signature Page

I, Thorne Gould, CEO,
(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: 10/30/24

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

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

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 in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

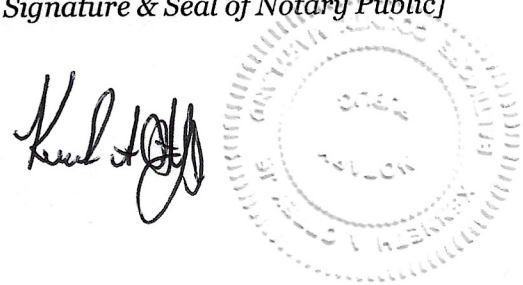
SUBSCRIBED AND SWORN to before me by the said Thorne Gould

On this 30th day of October, 2024

My commission expires on the 6th day of December, 2026

Notary Public in and for Baltimore County, ~~Texas~~ Maryland

*[**Note**: Application Must Bear Signature & Seal of Notary Public]*



Appendix I

General Information

Table I – General Information

Item I.D.6 – Table I.1 Description of Requested Changes

Item I.G.1 – State and Local Officials Mailing Addresses

Item I.H – Core Data Form

Table I: General Information

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

Name[1]	Murray Corporation
Address	260 Schilling Circle
City, State	Hunt Valley, MD
Zip Code	21031
Telephone Number	410-299-7354
Alternate Telephone Number	
Fax:	
TCEQ Solid Waste Registration No.	33063
EPA I.D. No.	TXD053115978
Permit No.	50328
County	Anderson
Regulated Entity Name	Murray Corporation of Maryland Palestine
Regulated Entity Reference Number (RN)	RN 100639897
Customer Name	Murray Corporation
Customer Reference Number:	CN600350359
Charter Number[2]	2521206
Previous or Former Names of the Facility (if applicable)	SeedAmerica

B. Facility Owner: Identify the Facility Owner if different than the Facility Operator[3]

Same as Facility Operator?

Name	GKG Palestine Property LLC
Address	6001 W Industrial Avenue
City, State	Midland, TX
Zip Code	79706-2841
Telephone Number	
Alternate Telephone Number	
Fax:	

C. Facility Contact

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

Name, Title:	Thorne Gould
Address	260 Schilling Circle
City, State:	Hunt Valley, MD
Zip Code	21031
Telephone Number	410-771-0380
Alternate Telephone Number	
E-mail	[redacted]
Fax:	

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

Name, Title:	Byron Ellington
Address	4801 Southwest Pkwy Building 1, Suite 185
City, State:	Austin, Texas
Zip Code	78735
Telephone Number	512-579-3315
Alternate Telephone Number	
E-mail	[redacted]
Fax:	

Remove Last Primary Contact Fields | Add Additional Primary Contact Fields

2. **Agent in Service or Agent of Service (if you are an out-of-state company)[4]:** Name,

Title:	Registered Agent Solutions, Inc
Address	5301 Southwest Parkway, Suite 400
City, State:	Austin, Texas
Zip Code	78735

3. **Individual responsible for causing notice to be published:**

Name:	Byron Ellington
Address	4801 Southwest Pkwy Building 1, Suite 185
City, State:	Austin, Texas
Zip Code	78735
Telephone Number	512-579-3315
Alternate Telephone Number	
E-mail	[redacted]
Fax:	

4. **Public place in county where application will be made available[5]:**

Name	Palestine Public Library
Address	502 N Queen St

City, State	Palestine, Texas
Zip Code	75801

D. Application Type and Facility Status

1. Application Type

- ☒ Permit
- ☐ New
- ☐ Interim status
- ☒ Renewal
- ☐ RD&D
- ☒ Compliance Plan

- ☒ Amendment
- ☒ 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?[6] No

4. Facility Status. Check all that apply

- ☐ Proposed
- ☒ Existing
  - ☐ On-Site
  - ☐ Off-Site
  - ☐ Commercial
  - ☐ Recycle
  - ☐ Land Disposal
  - ☐ Areal or capacity expansion
  - ☐ 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 I.1. 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: 22

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

River Segment 0804

River Basin Trinity River Basin

E. Facility Siting Summary:

Is the facility located or proposed to be located:

1. Within a 100-year floodplain?	Yes
2. in wetlands?	Yes
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. Within 0.5 mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park?[7] [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 county 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?	Yes

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

☒ Yes

TCEQ Permit No. 488124

TPDES Permit No.

☒ No

Date TCEQ discharge permit application filed

Date TPDES discharge permit application filed:

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator

THE HONORABLE ROBERT NICHOLS
P.O. Box 12068 Capital Station, Austin, TX, 78711
[redacted]
512 463 0103

State Representative	SENATOR ROBERT NICHOLS CAPITOL OFFICE: EXT E1.706 P.O. BOX 12068, CAPITOL STATION AUSTIN, TX 78711 (512) 463-0103 [redacted]

Local Officials List [30 TAC 39]

Mayor	MAYOR MITCHELL JORDAN 504 N. QUEEN STREET, PALESTINE, TX 75801 (903) 731-8400 [redacted]
Local Health Authority	TEXAS DEPARTMENT OF HEALTH 550 WILLOW CREEK PARKWAY PALESTINE, TEXAS 75801 PHONE: (903) 729-1116 *Multiple calls to this office have gone unanswered and messages not returned to acquire an individual name and email address.*
County Judge	COUNTY JUDGE CAREY G. MCKINNEY 703 N. MALLARD ST. 101 PALESTINE, TEXAS 75801 PHONE: (903) 723-7406 [redacted]
County Health Authority	TEXAS DEPARTMENT OF HEALTH REGION 4/5 ARTHUR ANDERSON 2521 W FRONT ST TYLER, TEXAS 75702 PHONE: (903) 533-5264 [redacted]

Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?	No
Bilingual Language(s):	
TCEQ Core Data Form Submitted?(see Section I Instructions, Item b.)	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 - must match the Secretary of State's database records for the Facility)
2. 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.
3. 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].
4. 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.

5. 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.
6. 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".
7. Use only for a new commercial hazardous waste management facility or areal expansion of an existing commercial hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202

Save Form Print Form

Item I.D.6 – Description of Requested Changes

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

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
I. General Information	Updated General Information section where appropriate Corrective action will be terminated if No Further Action is issued by Remediation Division	Renewal & Major Amendment	30 TAC §305.63 and §305.62(C)1
Compliance Plan CP Tables I through VIII	Existing Compliance Plan Tables I, IA, II, III, IV, IVA, V, VI, and VII are modified to match the combined Permit/ Compliance Plan format (CP Tables).	Remove Last Row	Add Row

Item I.G.1 – State and Local Officials Mailing Addresses

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

STATE OFFICIALS LIST (August 2024)
MURRAY CORPORATION
PALESTINE, TEXAS

STATE OFFICIALS LIST

SENATE DISTRICT 3--SENATOR ROBERT NICHOLS
CAPITOL OFFICE: EXT E1.706
CAPITOL PHONE: (512) 463-0103
CAPITOL ADDRESS: P.O. BOX 12068, CAPITOL STATION
AUSTIN, TX 78711
DISTRICT ADDRESS: 329 NECHES STREET
JACKSONVILLE TX 75766
PHONE: (903) 589-3003
[redacted]

HOUSE DISTRICT 8--REPRESENTATIVE CODY HARRIS
CAPITOL OFFICE: ROOM E2.606
CAPITOL PHONE: (512) 463-0730
CAPITOL ADDRESS: P.O. BOX 2910
AUSTIN, TX 78768
DISTRICT ADDRESS: 519 N SYCAMORE
PALESTINE TX 75801
PHONE: (903) 731-4005
[redacted]

LOCAL OFFICIALS LIST

MAYOR MITCHELL JORDAN
504 N. QUEEN STREET PALESTINE,
TX 75801
PHONE: (903) 731-8400
[redacted]

*TEXAS DEPARTMENT OF HEALTH
550 WILLOW CREEK PARKWAY
PALESTINE, TEXAS 75801 PHONE:
(903) 729-1116

ANDERSON COUNTY JUDGE CAREY G. MCKINNEY
703 N. MALLARD ST. 101
PALESTINE, TEXAS 75801
PHONE: (903) 723-7406
[redacted]

TEXAS DEPARTMENT OF HEALTH REGION 4/5
ARTHUR ANDERSON
2521 W FRONT ST
TYLER, TEXAS 75702
PHONE: (903) 533-5264
[redacted]

**Multiple calls to this office have gone unanswered and messages not returned to acquire an individual name and email address.*

Labels for Mailed Notice (Attachment I.G.2)

PERMIT NO. 50328
MURRAY CORPORATION

ROMEROS CONCRETE
CONSTRUCTION LLC
2303 CR 1125
TYLER TX 75704

SMITH RUSSELL D & TINA
117 WESTMINISTER DR
ROCKWALL TX 75032

TAN DEBRA
3 GEORGE CIRCLE
WARWICK RI 02888

EAR SOULA
100 CROCKETT RD
PALESTINE TX 75801

LS TRACTOR USA LLC
6900 CORPORATION PKWY
BATTLEBORO NC 27809

NAJERA FELIPE
P O BOX 4438
PALESTINE TX 75802

HAILEY ROBERT
P O BOX 617
ABILENE TX 79604

HYDE PARK TX LLC
3251 W 6TH ST #109
LOS ANGELES CA 90020

REGWAN RON
1464 COMSTOCK AVENUE
LOS ANGELES CA 90024

BELL RENE DANIELS
1010 AN COUNTY ROAD 2144
PALESTINE TX 75801

MARES JULIA I
1006 AN COUNTY ROAD 2144
PALESTINE TX 75801

FIKES WHOLESALE INC
6261 CENTRAL POINTE PKWY
TEMPLE TX 76504

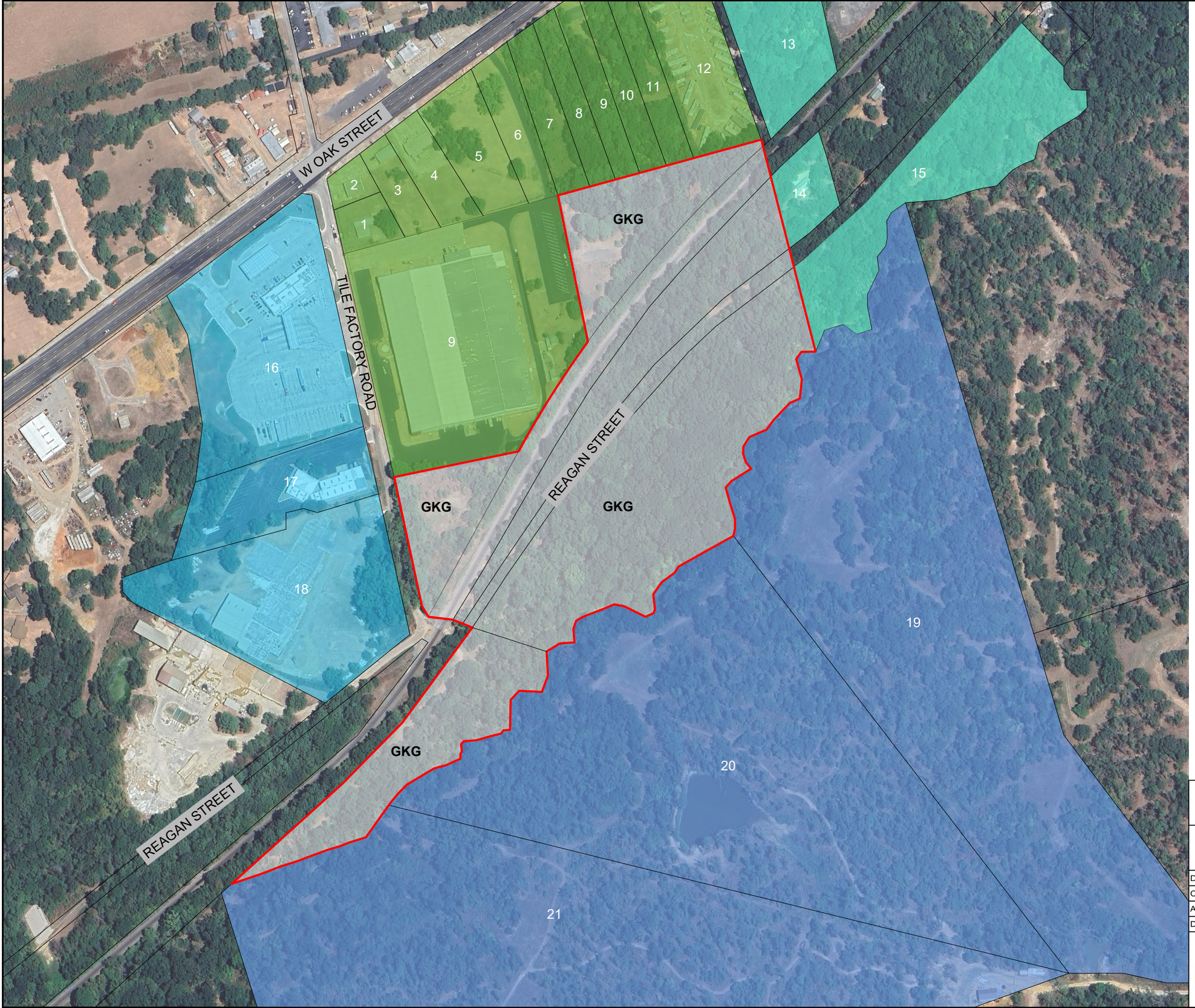
FREESTYLE TX HOLDING LLC
9226 NE HIGHWAY 99
VANCOUVER WA 97665

RED OAK PARTNERS LLC
3303 RAINTREE DR
FLOWER MOUND TX 75022

PAGE MICHAEL W & MONICA
2103 SALT WORKS RD
PALESTINE TX 75803

BUTLER DWAYNE LEE ETUX
BRANDIS E
23511 WILLOW CREEK DR
TOMBALL TX 77375

PEREZ JOSE & MARIA DE LA
CRUZ
3948 FM 1990
PALESTINE TX 75801



LEGEND

- Pemitted Boundary
- Adjacent East
- Adjacent West
- Adjacent North
- Adjacent South

0 150 300 FEET

1 " = 300 '
1:3,600

Murray Corporation
260 Schilling Circle
Hunt Valley, MD, 21031, USA

MURRAY CORPORATION

ADJACENT LANDOWNER MAP

DRAWN: JB	SCALE:	PROJ. NO.	117-RPS219755
CHECKED: B. ELLINGTON	GRAPHIC	FILE NO.	117-RPS219755 LO
APPROVED: B. ELLINGTON	DATE PRINTED:	ATTACHMENT I.G. 1-1	
DATE: SEPTEMBER 2024	9/24/2024		

4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735
512-347-7588

Attachment I.G.2 – Adjacent Landowners List

Adjacent Parcels NORTH

ID	Quadrant	Name	Anderson County ID	Mailing Address				Physical Address		
				Address	City	State	Zip Code	Address	City	Zip Code
1	N	ROMEROS CONCRETE CONSTRUCTION LLC	843494	2303 CR 1125	TYLER	TX	75704	0 TILE FACTORY RD	PALESTINE	75803
2	N	ROMEROS CONCRETE CONSTRUCTION LLC	14118	2303 CR 1125	TYLER	TX	75704	4222 W OAK	PALESTINE	75801
3	N	SMITH RUSSELL D & TINA	14119	117 WESTMINISTER DR	ROCKWALL	TX	75032	4220 W OAK	PALESTINE	75801
4	N	TAN DEBRA	14120	3 GEORGE CIRCLE	WARWICK	RI	02888	4218 W OAK	PALESTINE	75801
5	N	EAR SOULA	14121	100 CROCKETT RD	PALESTINE	TX	75801	4214 W OAK	PALESTINE	75801
6	N	LS TRACTOR USA LLC	46069	6900 CORPORATION PKWY	BATTLEBORO	NC	27809	0 W OAK ST	PALESTINE	75801
7	N	LS TRACTOR USA LLC	14123	6900 CORPORATION PKWY	BATTLEBORO	NC	27809	0 W OAK ST	PALESTINE	75801
8	N	LS TRACTOR USA LLC	14124	6900 CORPORATION PKWY	BATTLEBORO	NC	27809	4202 W OAK	PALESTINE	75801
9	N	LS TRACTOR USA LLC	14133	6900 CORPORATION PKWY	BATTLEBORO	NC	27809	2002 TILE FACTORY RD	PALESTINE	75801
10	N	NAJERA FELIPE	14126	P O BOX 4438	PALESTINE	TX	75802	4116 W OAK	PALESTINE	75801
11	N	HAILEY ROBERT	14127	P O BOX 617	ABILENE	TX	79604	0 W OAK	PALESTINE	75801
12	N	HYDE PARK TX LLC	14129	3251 W 6TH ST #109	LOS ANGELES	CA	90020	4020 W OAK ST	PALESTINE	75801

Adjacent Parcels EAST

ID	Quadrant	Name	Anderson County ID	Mailing Address				Physical Address		
				Address	City	State	Zip Code	Address	City	Zip Code
13	E	REGWAN RON	14130	1464 COMSTOCK AVENUE	LOS ANGELES	CA	90024	4008 W OAK	PALESTINE	75801
14	E	BELL RENE DANIELS	14115	1010 AN COUNTY ROAD 2144	PALESTINE	TX	75801	1010 AN COUNTY ROAD 2144	PALESTINE	75801
15	E	MARES JULIA I	853727	1006 AN COUNTY ROAD 2144	PALESTINE	TX	75801	0 AN COUNTY ROAD 2144	PALESTINE	75801

Adjacent Parcels WEST

ID	Quadrant	Name	Anderson County ID	Mailing Address				Physical Address		
				Address	City	State	Zip Code	Address	City	Zip Code
16	W	FIKES WHOLESALE INC	14105	6261 CENTRAL POINTE PKWY	TEMPLE	TX	76504	4506 W OAK	PALESTINE	75801
17	W	FREESTYLE TX HOLDING LLC	14108	9226 NE HIGHWAY 99	VANCOUVER	WA	97665	2005 W TILE FACTORY RD	PALESTINE	75801
18	W	RED OAK PARTNERS LLC	14107	3303 RAINTREE DR	FLOWER MOUND	TX	75022	2015 TILE FACTORY RD	PALESTINE	75801

Adjacent Parcels SOUTH

ID	Quadrant	Name	Anderson County ID	Mailing Address				Physical Address		
				Address	City	State	Zip Code	Address	City	Zip Code
19	S	PAGE MICHAEL W & MONICA	856451	2103 SALT WORKS RD	PALESTINE	TX	75803	0 FM 1990	PALESTINE	75801
20	S	BUTLER DWAYNE LEE ETUX BRANDIS E	856638	23511 WILLOW CREEK DR	TOMBALL	TX	77375	0 FM 1990	PALESTINE	75801
21	S	PEREZ JOSE & MARIA DE LA CRUZ	14109	3948 FM 1990	PALESTINE	TX	75801	3948 FM 1990	PALESTINE	75801

Item I.H – Core Data Form

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

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 600350359		RN 100639897

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy) 8/30/2024

☐ 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:*

Murray Corporation

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

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

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: 260 Schilling Circle

City	Hunt Valley	State	MD	ZIP	21031	ZIP + 4	

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

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

(412) 771-1380	0	( ) -

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.)*

Murray of Maryland Palestine

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2002 Tile Factory Road							
	City	Palestine	**State**	TX	**ZIP**	75801	**ZIP + 4**	
24. County	Anderson							

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

25. Description to Physical Location:	Approximately 800 feet south of the intersection of US Highway 79 and Tile Factory Road in Palestine, Texas

26. Nearest City	**State**	**Nearest ZIP Code**
Palestine	TX	75801

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:	31.729167°		**28. Longitude (W) In Decimal:**	95.675000°	
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)
3585	3714	333415	

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

34. Mailing Address:	**260 Schilling Circle**							
	City	**Hunt Valley**	**State**	**MD**	**ZIP**	**21031**	**ZIP + 4**	

35. E-Mail Address:	

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(412) 771-1380		( ) -

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 #50328
☐ 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:	Byron Ellington	41. Title:	Environmental Consultant

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 579-3315		( ) -	[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:	Murray Corporation	Job Title:	President
Name *(In Print)*:	Thorne Gould	Phone:	(412) 771- 1380
Signature:	[signature]	Date:	10/30/24

Kenneth A. Ottey Jr.
Baltimore County Maryland
My Commission Expires
December 6, 2026

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of 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. Attachments — Describe Any Attachments: *(ex. Title V Application, Waste Transporter Application, etc.)*

☐ Yes ☒ No — This Core Data Form identifies the new property owner for RN100639897.

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN		RN **100639897**

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy): 6/1/2013

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

☒ Owner ☐ Operator ☐ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐ Other: _____

7. General Customer Information

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☒ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)*	*If new Customer, enter previous Customer below*	*End Date:*
GKG Palestine Property LLC	SeedAmerica	4/10/2013

10. Mailing Address: 6001 W Industrial Ave

City	State	ZIP	ZIP + 4
Midland	TX	79706	2841

11. Country Mailing Information *(if outside USA)*	12. E-Mail Address *(if applicable)*
	N/A

13. Telephone Number	14. Extension or Code	15. Fax Number *(if applicable)*
(432) 694-1994		( ) -

16. Federal Tax ID *(9 digits)*	17. TX State Franchise Tax ID *(11 digits)*	18. DUNS Number *(if applicable)*	19. TX SOS Filing Number *(if applicable)*
462446595	N/A	N/A	801759052

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

21. Independently Owned and Operated? ☒ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information ☐ No Change** *(See below)*

**If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.

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

Murray Corporation of Maryland Palestine

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*	2002 Tile Factory Road							
	City	Palestine	State	TX	ZIP	75801	ZIP + 4	
25. Mailing Address:	260 Schilling Circle							
	City	Hunt Valley	State	MD	ZIP	21031	ZIP + 4	
26. E-Mail Address:	[redacted]							

27. Telephone Number	28. Extension or Code	29. Fax Number *(if applicable)*
(412) 771-1380		(412) 771-5576

30. Primary SIC Code (4 digits)	31. Secondary SIC Code (4 digits)	32. Primary NAICS Code (5 or 6 digits)	33. Secondary NAICS Code (5 or 6 digits)
NA			

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Not applicable. Facility consists of a closed landfill under post-closure care. Murray Corporation (Responsible Party) does not own the property and has no active manufacturing operations at the site.

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:	Approximately 800 feet south of the intersection of US Highway 79 and Tile Factory Road in Palestine, Texas

36. Nearest City	County	State	Nearest ZIP Code
Palestine	Anderson	TX	75801

37. Latitude (N) In Decimal:	31.729167°	38. Longitude (W) In Decimal:	95.675000°

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
31	43	45	95	40	30

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 or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

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

SECTION IV: Preparer Information

40. Name:	Mark S. Katterjohn	41. Title:	Senior Consultant/Hydrogeologist

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512) 347-7588		(512) 347-8243	[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 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	GKG Palestine Property LLC	Job Title:	Manager
Name *(In Print)* :	Greg Goree	Phone:	( ) -
Signature:		Date:	

Part B, Section II Facility Siting Criteria

Part B, Section III Facility Management

These sections have not changed since the 2014 Permit Renewal.

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

II. Facility Siting Criteria

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

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

Existing hazardous waste management facilities and capacity expansions of existing facilities need only complete Section II.F. and the applicable portions of II.G. Please note however, that additional technical information may be requested to address any facility siting characteristics noted in Section I.E.

The Site Selection Report is included as Attachment 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)]
☐ Yes ☒ No

Provide the source of information. **See Attachment II.**

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).

2. in the critical habitat of an endangered species of plant or animal? [as applicable: 30 TAC 335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)]
☐ Yes ☒ No

Provide the source of information. **See Attachment II.**

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

3. on the recharge zone of a sole-source aquifer? [30 TAC 335.204(a)(3), (b)(3), (c)(3), (d)(3), and/or (e)(3)]
☐ Yes ☒ No

Provide the source of the information. **See Attachment II.**

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.

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

4. 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 ☐ No

Provide the source of information. **See Attachment II.**

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

5. 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)]
☐ Yes ☐ No

   Provide information to verify the above. **See Attachment II.**

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

6. 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? [as applicable: 30 TAC 335.204 (a)(6), (b)(7), (c)(6), and/or (e)(8)].
☐ Yes ☒ No

   Provide information to verify the above. **See Attachment II.**

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

7. 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? [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/or (e)(9)]
☐ Yes ☒ No

   Provide the source of the information. **See Attachment II.**

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

8. 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? [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]
☐ Yes ☒ No

   Provide the source of information. **See Attachment II.**

If Yes, then 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.

B. Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)] **Not Applicable**

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

1. 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?

☐ Yes ☐ 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).

2. either
   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?
   ☐ Yes ☐ No

If Yes, then 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.

   b. within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.
   ☐ Yes ☐ No

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

3. on a barrier island or peninsula?
   ☐ Yes ☐ 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).

C. Additional Requirements for Waste Piles [30 TAC 335.204(c)] **Not Applicable**

Is the waste pile located or proposed to be located:

1. either
   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?
   ☐ Yes ☐ No

If Yes, then 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.

   b. within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.
   ☐ Yes ☐ No

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

2. on a barrier island or peninsula?
   ☐ Yes ☐ 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).

D. Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)] **Not Applicable**

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

1. either
   c. within 1000 feet of an area of active coastal shoreline erosion even though the area is

protected by a barrier island or peninsula?
☐ Yes ☒ No

If Yes, then 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.

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

2. on a barrier island or peninsula?
☐ Yes ☒ 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).

E. Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with Wastes in Place)

Is the landfill located or proposed to the located:

1. 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?
☐ Yes ☒ 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).

2. (*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?
☐ Yes ☐ No **Not a commercial facility.**

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).

3. Either
   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?
   ☐ Yes ☒ 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.

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

4. On a barrier island or peninsula?
☐ Yes ☒ 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).

F. Flooding

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

A portion of the facility is located within a 100-year floodplain. However, no units are located within the floodplain (*FEMA, FIRM Flood Insurance Rate Map, Anderson County Texas and Incorporated Areas, Map Number 48001C0535D, Map Revised: February 3, 2010*). See Attachment II.F (Flooding) for an official copy of a portion of the flood map.

5. If the facility is located within the 100-year flood plain the applicant must provide information detailing the specific flooding levels and other events (e.g., Design Hurricane projected by Corps of Engineers) which impact the flood protection of the facility. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (e.g., wave action) which must be considered in designing, construction, operating, or maintaining the facility to withstand washout from a 100-year flood. **Not Applicable**

6. State whether any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.), designed to prevent washout from the 100-year flood. **Not Applicable**

   a. ***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)]

      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)]

   b. ***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)]

      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)]

7. If applicable, and in lieu of the flood protection devices from above, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. [40 CFR 270.14(b)(11)(iv)(c)] **Not Applicable**

   The procedures should include:

a. Timing of such movement relative of flood levels, including estimated time to move the waste, to show that such movement can be completed before flood waters reach the facility. Indicate which specific events shall be use to begin waste movement (e.g., Hurricane warning, Flash Flood watch, etc.);
b. A description of the location(s) to which the waste will be moved and a demonstration that these facilities will be eligible to receive hazardous waste in accordance with appropriate regulations (i.e., a permitted facility);
c. The planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use; and
d. The potential for accidental discharges of the waste during movement and precautions taken to preclude accidental discharges.

G. Additional Information Requirements

1. For a new hazardous waste management facility, include a map of relevant local land-use plans and descriptions of the major routes of travel in the vicinity of the facility to be used for the transportation of hazardous waste to and from the facility covering at least a five (5)-mile radius from the boundaries of the facility. [30 TAC 305.50(a)(10)(A)&(D)] **Not applicable. This application is not for a new hazardous waste management facility.**

2. For a new commercial hazardous waste management facility as defined in 30 TAC 335.202 or the subsequent areal expansion of such a facility or unit of that facility, indicate on the map the nearest established residence, church, school, day care center, surface water body used for a public drinking water supply, and dedicated public park. **Not applicable. This application is not for a new commercial hazardous waste management facility.**

3. For new commercial hazardous waste management facilities, submit the following: [30 TAC 305.50(a)(12)(A)] **Not applicable. This application is not for a new commercial hazardous waste management facility.**
   a. the average number, gross weight, type, and size of vehicles used to transport hazardous waste;
   b. the major highways nearest the facility irrespective of distance; and
   c. the public roadways used by vehicles traveling to and from the facility within a minimum radius of 2.5 miles from the facility.

4. Include the names and locations of industrial and other waste-generating facilities within 0.5 miles for a new on-site hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)] **Not applicable. This application is not for a new on-site hazardous waste management facility.**

5. Include the names and locations of industrial and other waste-generating facilities within 1.0 miles for a new commercial hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)] **Not applicable. This application is not for a new commercial hazardous waste management facility.**

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

A copy of the deed recordation is provided as Attachment II.G.6.

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

   The Former Drum Burial Trench has been previously permitted (on December 2, 1992) and is only being permitted for post-closure care. Information on the potential for exposure associated with the unit (i.e., the information requirements of 30 TAC 305.50(8) and 40 CFR 270.10(j)) was submitted in the Baseline Risk Assessment Report, which was included as Section 3 of the "Revised Closure Plan for the Former Drum Burial Trench, July 1995".

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

   Not applicable. This application is not requesting a capacity expansion of an existing unit.

Attachment II

Site Selection Report

Attachment II
Site Selection Report

This Site Selection Report addresses all information regarding Unsuitable Site Characteristics found in 30 TAC §335.204 pertaining to the closed RCRA-regulated unit at the Murray Corporation facility in Palestine, Texas. The Former Drum Burial Trench was closed as a "landfill" and is currently in post-closure care under Hazardous Waste Permit HW-50328. The landfill was utilized for the disposal of spent halogenated solvents (EPA Hazardous Waste No. F001), crushed drums, and other debris. All waste materials have been removed and final closure has been completed (with closure certification submitted to the Texas Natural Resource Conservation Commission [TNRCC] - predecessor to the Texas Commission on Environmental Quality [TCEQ] on March 7, 1996 and approved on April 29, 1996). The requested information is addressed by provision number under 30 TAC §335.204(e) (Landfills) applicable to the closed unit.

30 TAC §335.204(e)(1) – Federal Emergency Management Agency Flood Insurance Map No. 48001C0535D shows that the southern part of the facility lies within the 100 year flood plain. The Former Drum Burial Trench is located to the north of the Union Pacific railroad tracks and not within the floodplain. A copy of the FEMA flood plain map is provided as Attachment II.F.

30 TAC §335.204(e)(2) – The closed unit is not located in wetlands (See Attachment 1).

30 TAC §335.204(e)(3) – The closed unit is not located in the recharge zone of a sole-source aquifer (See Geology Report in Attachment VI of the application).

30 TAC §335.204(e)(4)(B) – As presented in the geology reports (Attachment VI of the application), a minimum of 10 feet of low permeability silty clay and clay separates the base of the closed unit from the lower water-bearing unit of the Queen City Aquifer monitored at the site. No impacts from the landfill have been detected within the lower aquifer monitoring wells. Further, the base of the closed landfill is greater than 100 feet above the top of the regional Carrizo-Wilcox aquifer.

30 TAC §335.204(e)(5) – Not applicable. A containment structure or treatment zone is not associated with the Former Drum Burial Trench.

30 TAC §335.204(e)(6) – The closed unit is not located within 1,000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park.

30 TAC §335.204(e)(8) – The closed unit is not located in areas of direct drainage within one mile of any lake used to supply public drinking water through a public water system.

30 TAC §335.204(e)(9) – The facility is not located in areas of active geologic processes (See Geology Report in Attachment VI of the application).

30 TAC §335.204(e)(10) – The facility is not located along the coastline.

30 TAC §335.204(e)(11) – According to the U.S. Fish and Wildlife Service Critical Habitat Mapper, the facility is not located in the critical habitat of an endangered species of plant or animal.

30 TAC §335.204(e)(12) – The facility is not located on a barrier island or peninsula.

30 TAC §335.204(e)(13) – There are no known or inferred faults with surface expressions at the facility (See Geology Report in Attachment VI of the application).

III. Facility Management

A. Compliance History and Applicant Experience

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

The Palestine facility, which is the subject of this application, is the only Texas facility.

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

Not applicable –This is not a new commercial facility.

B. Personnel Training Plan

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

Not Applicable. There are no operational hazardous waste units addressed by this permit.

C. Security

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

Not applicable. Via Class 1[1] permit modification issued on May 3, 1995, the facility has been exempted from the security requirements of 40 CFR 264.14. A copy of that modification approval letter is provided as Attachment III.C.

D. Inspection Schedule

Provide an inspection schedule summary for the facility which reflects the requirements of 40 CFR 264.15(b), 264.33 and, where applicable, the specific requirements in 40 CFR 264.174, 264.193(i), 264.195, 264.226, 264.254, 264.273, 264.303, 264.347, 264.552, 264.574, 264.602, 264.1033(f), 264.1034, 264.1052, 264.1053(e), 264.1057, 264.1058, 264.1063, 264.1084, 264.1085, 264.1086, 264.1088, 264.1101(c)(4) and 270.14(b)(5). The inspection schedule should reflect the requirements described below. The schedule should encompass each type of hazardous waste management (HWM) unit (i.e., facility component) and its inspection requirements. For incorporation into a permit, complete Table III.D. - Inspection Schedule for all units to be permitted.

The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to the release of hazardous waste constituents to the environment or which may pose 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.

The owner or operator must develop and follow a written schedule for inspecting other basic elements such as monitoring equipment, safety and emergency equipment, security devices, the presence of liquids in leak detection systems, where installed, 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.

If the owner or operator of a facility which contains a waste pile wishes to pursue an exemption from the groundwater monitoring requirements for that waste management unit, the inspection schedule must include examination of the base for cracking, deterioration, or other conditions that may result

in leaks. The frequency of inspection must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability).

The post-closure inspection schedule is provided in Table III.D.

E. Contingency Plan

(This portion of the application does not apply to post closure applications.) If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this section. Provide a Contingency Plan which includes all the information required by 40 CFR Part 264 Subparts C and D, except for 40 CFR 264.56(d)(1) and 30 TAC 335.153(2). This plan must also include a drawing of the facility which shows the location of all emergency equipment. In addition, complete the following tables to summarize information expressed in more detail in the plan.

Not applicable. This application is submitted only for post-closure care.

1. Arrangements with Local Authorities

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

2. Emergency Coordinator's List

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

3. Emergency Equipment List

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

4. Waiver from Preparedness and Prevention Requirements

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

F. Emergency Response Plan

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

condition associated with the operation of the facility. (For financial assurance requirements associated with the emergency response activities, please see Section VIII.C.3.)

Not applicable. This application is submitted only for post-closure care, and the facility is not a new commercial hazardous waste management facility.

1. Practice Drills

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

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

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

4. A definition of a worst-case emergency for the proposed facility should be described in the application. This worst-case emergency should take into account the possible complications involved with a facility emergency compounded by adverse weather conditions. It should also detail spills, fires, explosions, etc. This worst case scenario should be developed with the help of local governmental entities where possible. Emergency planning should include both unexpected emergencies and emergencies occurring as a result of a predictable event such as a flood or hurricane. For areas which are prone to hurricanes and flash flooding, the worst case which allows for a realistic situation should be used. For example, response teams should be well versed in reacting to events such as a 100-year flood.

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

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

will assume responsibility as alternates.

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

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

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

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

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

Attachment III.C

Security Requirements Exemption Approval

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Garner, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

Murray Corporation
Attn: Manager
2002 Tile Factory Road
P.O. Box 1988
Palestine, Texas 75802

May 3, 1995

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: Transmittal of Class 1[1] Permit Modification
Murray Corporation
Hazardous Waste Permit No. HW-50328
ISW Registration No. 33063

Dear Manager:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed your Class 1[1] modification dated April 12, 1994, and revision dated March 1, 1995, for Murray Corporation, requesting to update the facility legal description to include recently purchased acreage and to exempt the Drum Disposal Unit (Permit Unit No. 01) from security fencing requirements.

Our evaluation indicates that the information presented is sufficient for a Class 1[1] permit modification. Transmitted herewith are the modifications which are now part of your permit and should be attached thereto. Please note that notice of this modification request must be sent to all persons listed in Title 30 Texas Administrative Code (TAC) 305.103(b) pursuant to 30 TAC Section 305.69(b)(1)(B) within 90 days after approval of the change by the Executive Director.

Questions regarding this matter should be directed to Mary McGill at (512)239-6624, Mail Code MC130.

Sincerely,

Barry J. Williams

Barry J. Williams, Deputy Director
Office of Waste Management

RECEIVED MAY 10 1995

BJW/MMM/mmm
Enclosure

cc: Fred Dalbey, RMT/Jones and Neuse, Inc., 912 Capital of Texas Hwy., Austin, Texas 78744
Don Mitchell, Arent Fox Kintoe Plotkin & Kahn, 1050 Connecticut Ave., Wash. D.C. 20036
Bill Gallagher, EPA Region VI - Dallas
Jeff Saitas, TNRCC Office of Air Quality - Austin
TNRCC Region 5 Office - Tyler
Bob Brydson, Permits Section, I&HW Division - Austin

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

CLASS 1[1] MODIFICATION
TO TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
PERMIT NO. HW-50328
MURRAY CORPORATION

Permit No. HW-50328 is hereby modified as follows:

continuation sheet 6 of 28

Provision III.B.5. General Operational Requirements

Revise Provision III.B.5. to read: "The permittee is exempted from the requirements of 40 CFR 270.14(b)(4), specifying that there must be a means to control entry at all times."

The permittee therefore is exempt from installed security fencing around the Drum Disposal Area.

Permit Attachment A, Site Legal Description

Replace Attachment A, Site Legal Description, pages 1-3 with an updated Attachment A, Site Legal Description, pages 1-6.

This Class 1-1 modification is part of Permit No. HW-50328 and should be attached thereto.

Barry J. Williams, Deputy Director
Texas Natural Resource Conservation Commission

4/28/95
Date

Table III.D. - Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Final Cover System	Cap settlement	Quarterly or after significant storm event*
	Ponding of water	Quarterly or after significant storm event*
	Erosion rills	Quarterly or after significant storm event*
Run-On and Run-Off Control Systems	Settling at asphalt/grade interface	Quarterly or after significant storm event*
	Erosion of asphalt/grade interface	Quarterly or after significant storm event*
	Damage at asphalt/grade interface	Quarterly or after significant storm event*
Groundwater Monitoring	Damaged, unlocked, or missing well cap or lock	Semiannual (during GWM events)
	Cracked or settled concrete pad	Semiannual (during GWM events)
	Broken protective casing	Semiannual (during GWM events)
	Obstruction or inaccessibility of well	Semiannual (during GWM events)
Site Security Units	Fence damage and holes	Semiannual (during GWM events)
	Gates or locks damaged or missing	Semiannual (during GWM events)
	Warning signs damaged or missing	Semiannual (during GWM events)

- Significant storm event refers to the maximum 24-hour, 1 year rainfall event of 3.5 inches.

INSPECTION LOG SHEET
CLOSED LANDFILL
(FORMER DRUM BURIAL TRENCH)
Murray Corporation
Palestine, Texas

Inspector's Name/Title:

Date of Inspection:

Time of Inspection:

Post-Closure Care System/Component	***Inspection Observation***	***Y/N***	***Potential Maintenance Action***
Final Cover System	Minor cap settlement [less than 2 inches over a 20 ft^2 area]		Fill in settled areas with additional asphalt and regrade surface
	Minor cap settlement [2 to 6 inches over a 20 ft^2 area]		Add road base (gravel) to settled areas up to 2 inches below grade, fill in remaining volume with additional asphalt, and regrade surface
	Major cap settlement [greater than 6 inches over a 20 ft^2 area]		Contact professional engineer to investigate major subsidence issues
	Ponded water [greater than 100 ft^2 and 3 inches deep]		Remove ponded water via vacuum truck, fill in low areas with additional asphalt, and regrade surface
	Erosion rills		Fill in eroded areas with additional asphalt and regrade surface
Run-On and Run-Off Control Systems	Settling at asphalt/natural grade interface		Fill in settled areas with additional soils, compact soils, and regrade to match grade of asphalt cap surface
	Erosion of asphalt/natural grade interface		Fill in settled areas with additional soils, compact soils, and regrade to match grade of asphalt cap surface
	Damage at asphalt/natural grade interface		Fill in damaged areas with additional soils, compact soils, and regrade to match grade of asphalt cap surface

Comments on Observations/Recommended Maintenance Actions:

Inspector's Signature _____

MAINTENANCE LOG SHEET
CLOSED LANDFILL
(FORMER DRUM BURIAL TRENCH)
Murray Corporation
Palestine, Texas

Contractor's Name/Company:

Date of Maintenance Action:

Time of Maintenance Action:

Post-Closure Care System/Component	***Potential Maintenance Issue***	***Y/N***	***Maintenance Actions Taken***
Final Cover System	Minor cap settlement [< 2 inches]		
	Minor cap settlement [2-6 inches]		
	Major cap settlement [> 6 inches]		
	Ponded water [> 100 ft^2 & 3 inches deep]		
	Erosion rills		
Run-On and Run-Off Control Systems	Settling at asphalt/natural grade interface		
	Erosion of asphalt/natural grade interface		
	Damage at asphalt/natural grade interface		
Comments Regarding Maintenance Actions Taken:			

Contractor's Signature _____

INSPECTION LOG SHEET
CLOSED UPPER POND
Murray Corporation
Palestine, Texas

Inspector's Name/Title:

Date of Inspection:

Time of Inspection:

Post-Closure Care System/Component	***Inspection Observation***	***Y/N***	***Potential Maintenance Actions***
Final Cover System	Minor cap settlement [less than 6 inches over 20 ft^2 area]		Fill in with topsoil, seed, fertilize, and water as required to establish vegetation
	Major cap settlement [greater than 6 inches over 20 ft^2 area]		Determine cause and provide appropriate repairs
	Ponded water [> 100 ft^2 and 3 inches deep]		Fill in with topsoil, seed, and vegetate
	Sloughing of Slopes		Fill, compact, recap with topsoil and seed, fertilize, and water as required to establish vegetation
	Erosion rills		Fill affected area, seed, and fertilize
Comments on Observations/Recommended Maintenance Actions:			

Inspector's Signature _____

MAINTENANCE LOG SHEET
CLOSED UPPER POND
Murray Corporation
Palestine, Texas

Contractor's Name/Company:

Date of Maintenance Action:

Time of Maintenance Action:

Post-Closure Care System/Component	***Potential Maintenance Issue***	***Y/N***	***Maintenance Actions Taken***
Final Cap and Cover System	Minor cap settlement [less than 6 inches over 20 feet]		
	Major cap settlement [greater than 6 inches over 20 feet]		
	Ponded water [> 100 ft^2 & 3 inches deep]		
	Sloughing of Slopes		
	Erosion rills		
Comments Regarding Maintenance Actions Taken:			

Contractor's Signature _____

IV. Wastes and Waste Analysis

Provide all Part B responsive information in Appendix IV. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

A. Waste Management Information - RESERVED

B. Waste Managed In Permitted Units

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

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

C. Sampling and Analytical Methods - RESERVED

D. Waste Analysis Plan - RESERVED

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
1	Spent halogenated solvents, crushed drums, and other debris *	F001, F002	202H
2	Aqueous waste with low solvents, generated on-site from a product process or service activity **	TXD053115978	00121011
		Remove Last Row	Add Row

* Constituents detected in waste characterization samples collected at the Former Drum Burial Trench are as follows: acetone, benzene, chloroform, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, trans-1,2-dichloroethene, 1,3-dichloropropene, 2,4-dimethylphenol, ethylbenzene, Freon 113, methyl ethyl ketone, methylene chloride, nonane, styrene, tetrachloroethene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, trichlorofluoromethane, o-xylene, and total xylenes.

** No longer generated wastewater-automotive parts reclamation (No longer generates waste).

Note that, as per recent discussions, Murray understands that a no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action Section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this renewal and major amendment application seeks to remove the requirements for groundwater monitoring for the remainder post closure care period (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of the permit and compliance plan.

Part B, Section V Engineering Report

Part B, Section VI Geology Report

These sections have not changed since the 2014 Permit Renewal.

Murray Corporation
SWR No. 33063 Permit
No. 50328
Rev. 0 – October 2024

V. Engineering Reports

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

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

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

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

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

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

The facility is permitted only for post-closure care. The certification of closure report has been sealed by a registered professional engineer, and a copy of that report is provided as Attachment V.G. The Former Drum Burial Trench was certified closed on March 7, 1996 and approved by TCEQ on April 29, 1996.

A. General Engineering Reports

1. General Information

Provide an overall plan view of the entire facility. Identify each hazardous or industrial solid waste management unit (container storage area, tank, incinerator, etc.) to be

permitted in relation to its location and the type of waste managed in that unit. Also provide a plan view at an appropriate scale to clearly show the location of all hazardous waste management units to be permitted on one or more 81/2" x 11" sheets. Indicate on this plan view how the design or operation provides for buffer zones or waste segregation as appropriate for incompatible, ignitable, or reactive wastes.

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

Facility unit and topographic maps are provided in Attachment V.A.1 and includes some information that was submitted in the Part B application dated May 2002.

2. Features to Mitigate Unsuitable Site Characteristics

   For all new hazardous waste management storage and/or processing facilities or areal expansions of existing hazardous waste management storage and/or processing facilities, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(a)(1) and (a)(3) through (9). **Not applicable.**

3. Construction Schedules
   a. In order to meet the required design standards, extensive retrofitting of some facilities may be required. In the worst case, the applicant may elect to close certain operations rather than comply with the RCRA standards. Thus, the permit may specify a schedule of compliance requiring the accomplishment of given tasks within specific time frames. As required, indicate an appropriate schedule(s) of compliance in this application. The schedule should provide for facility compliance as soon as possible and in accordance with 40 CFR 270.33(a)(2) and 270.33(b). **Not applicable.**
   b. For commercial hazardous waste management facilities, permit applications (new, renewal, or interim status applications), major amendments, and Class 3 modifications submitted after 11/23/94, must include a construction schedule. A construction schedule must be submitted even if the application does not include an addition of units or a revision to permitted units. This schedule should comply with the requirements of 30 TAC 305.149. **Not applicable.**

4. Provide detailed plans and specifications which when, accompanied by the engineering report, will be sufficiently detailed and complete to allow the Executive Director to ascertain whether the facility will be constructed and operated in compliance with all pertinent permitting requirements. Engineering plans and specifications must be prepared under the supervision of and sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act. For some facilities, plans in the form of a standard piping and instrumentation diagram will be sufficient. Overall dimensions and materials of construction must be shown. **Not applicable.**

B. Container Storage Areas **Not applicable.**

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

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

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

3. Wastes Containing No Free Liquids

   With the exception of 40 CFR 264.175(d), storage areas that hold only wastes that do not contain free liquids need not have a containment system, , provided that compliance with 40 CFR 264.175(c) is demonstrated. This demonstration must be submitted as part of the application and must include:
   a. test procedures and results or other documentation or information to show that the wastes do not contain free liquids; and
   b. a description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids.

4. Managing Ignitable or Reactive Wastes

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

5. Managing Incompatible Wastes

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

C. Tanks and Tank Systems **Not applicable.**

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

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

If a tank will manage ignitable or reactive waste, as indicated on Table V.C, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.198 and provide

drawings demonstrating compliance with any applicable buffer zone requirements and 40 CFR 264.17.

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

Submit written assessments that were reviewed and certified by an independent, qualified licensed Professional Engineer that attests to the structural integrity and suitability of handling the hazardous waste for each tank system, as required under 40 CFR 264.191-264.192 for existing tanks which do not have secondary containment meeting the standards of 40 CFR 264.193. The engineer signing the written assessment must make the certification specified in 40 CFR 270.11(d). The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.

If a tank has been de-rated or if the permitted capacity is otherwise different from the design capacity, specify in the engineering report.

D. Surface Impoundments **Not applicable.**

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

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

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

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

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

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

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

5. Describe the surface impoundment. A plan view and cross-section of the surface impoundment should be included with the engineering report.

6. Freeboard

   Specify the minimum freeboard to be maintained and the basis of the design to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment;

and human error. [40 CFR 264.221(g)] Show that adequate freeboard will be available to prevent overtopping from a 100-year, 24-hour storm.

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

7. Waste Flow

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

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

8. Dike Construction

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

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

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

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

Date: _____"
(Signature)

"*(Seal)*"

b. The structural integrity of the dike system must be certified by a qualified Professional Engineer before a permit is issued. If the impoundment is not being used, the dike licensed system must be certified before it can be put into use. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.

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

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

d. Earthen dikes should have a protective cover to minimize wind and water erosion and

to preserve the structural integrity of the dike. Describe the protective cover used and describe its installation and maintenance.

9. Containment System

TCEQ Technical Guideline No. 6, Monitoring Systems and Leachate Collection, which can be obtained from the I&HW Permits Section, contains suggested methods of leak detection system construction and EPA publication 530-SW-85-014 provides design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities , or an equivalent method approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

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

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

For artificial liners:

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

For soil liners:

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

For leachate collection systems:

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

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

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

e. Submit a quality assurance/quality control plan for all components to demonstrate

that all components will be properly installed and will perform to design specifications.

10. Surface impoundments that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. Plans and specifications for both new and existing surface impoundments must demonstrate conformity with 30 TAC 335.168 and 40 CFR 264.221.

11. Run-on Diversion

    Describe in detail how the surface impoundment system will manage stormwater run-on away from the surface impoundment. Stormwater run-on must be diverted away from a surface impoundment. Use at least a 100-year, 24-hour rainfall event in the design and analysis of diversion structures. Where dikes are used to divert run-on, they must be protected from erosion. Include all analyses used to calculate run-on volumes.

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

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

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

E. Waste Piles **Not applicable.**

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

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

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

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

1. For inclusion into a permit, complete Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.

   If a waste pile will manage ignitable or reactive waste, as indicated on Table V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.256.

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

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

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

3. Containment System

   TCEQ Technical Guideline No. 6, Monitoring Systems and Leachate Collection, which can be obtained from the I&HW Permits Section, contains suggested methods of leak detection system construction and EPA publication 530-SW-85-014 provides design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities , or an equivalent method approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

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

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

   For artificial liners:

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

   For soil liners:

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

   For leachate detection, collection, and removal system:

   (11) Capacity of system
      (a) rate of leachate removal

(b) capacity of sumps
(c) thickness of mounding and maximum hydraulic head

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

c. Containment/liner system installation date and expected lifetime of liner system (years).
d. Specify whether the containment/liner system is chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.
e. Submit a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

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

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

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

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

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

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

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

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

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

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

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

8. Provide a description and list of all equipment and procedures used to place the waste in or on the waste pile, and how the liner surface will be exposed for inspection, if necessary.

A containment system must be protected from plant growth which could puncture any component of the system.

9. Exemption from Liner and Leachate Collection Requirements

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

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

10. Exemption from Groundwater Monitoring

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

    a. The waste pile (including its underlying liners) must be located entirely above the seasonal high water table; and
    b. The waste pile is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated, provided that:
       (1) Liquids or materials containing free liquids are not placed in the pile;
       (2) The waste pile is protected from surface water run-on by the structure or in some other manner;
       (3) The waste pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting; and
       (4) The waste pile will not generate leachate through decomposition or other reactions; or
    c. The waste pile must have a leachate collection and removal system above the top liner; and
    d. underlayment:
       (1) either
           (a) The waste pile must be underlain by two liners, which are designed and constructed in a manner that prevents the migration of liquids into or out of the space between the liners and a leak detection system which must be designed, constructed, maintained, and operated between the liners to detect any migration of liquids into the space between the liners; and
           (b) A demonstration must be made that there is a low potential for migration of liquid from the waste pile to the uppermost aquifer during the life of the waste pile (including the closure period). The owner or operator must base any predictions made on assumptions that maximize the rate of liquid migration; ***or***
       (2) either
           (a) The waste pile must be underlain by a liner (base) that is designed, constructed, and installed in a manner that prevents the migration of liquids or waste beyond the liner; and
           (b) The wastes in the waste pile must be removed periodically, and the liner must be inspected for deterioration, cracks, or other conditions that may result in leaks. The frequency of inspection will be specified in the inspection plan and must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates

and subsurface stability).

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

F. Land Treatment Units **Not applicable.**

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

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

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

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

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

   a. No more than 1.5 meters (5 feet) from the surface; and
   b. More than 1 meter (3 feet) above the seasonal high water table.

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

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

   If a land treatment unit will manage F020, F021, F022, F023, F026 and F027 waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.283.

2. Describe the land treatment unit. A plan view and cross-section of the unit should be included with the engineering report.

3. Complete Table V.F.3. - Land Treatment Principal Hazardous Constituents and list the wastes for which the treatment demonstration will be made and the principal hazardous constituents in each waste. Specify in the report the data sources to be used to make the demonstration such as laboratory data, field data, operating data, literature, or other.

4. Run-on Diversion

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

   The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the land treatment unit during peak discharge from a 100-year, 24-hour storm. [30 TAC 335.171(3)]

Any tanks or basins associated with the run-on control system must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system. [30 TAC 335.171(5)]

5. Run-off Control

   Describe in detail the measures used to control the run-off from the unit, and minimize hazardous constituents in the run-off, include all the analyses used to calculate the run-off volumes.

   The owner or operator must design, construct, operate and maintain a run-off management system to collect and control at least the water volume resulting from a 100-year, 24-hour storm. [30 TAC 335.171(4)]

   Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.171(5)]

6. Wind Dispersal

   The owner or operator of a land treatment unit containing hazardous waste which could be subject to dispersal by wind must cover or otherwise manage the land treatment unit so that wind dispersal is minimized. Describe practices to control wind dispersal (e.g., cover or frequent wetting) of the hazardous waste. [30 TAC 335.171(6)]

7. Treatment Demonstration

   A description of the treatment demonstration required under 40 CFR 264.272 and 270.20(a) shall be included with the engineering report. If the owner or operator intends to conduct field tests or laboratory analyses in order to make the demonstration, he must obtain a treatment or disposal permit.

8. Food Chain Crops [40 CFR 264.276]

   Several conditions must be satisfied if food-chain crops are to be grown in or on the treatment zone. A demonstration must be prepared similar to the one described in the Treatment Demonstration and submitted at least 90 days prior to the planting of crops. The demonstration need not be submitted with this application. However, a description of the demonstration must be included as part of the engineering report. This demonstration may be combined with the Treatment Demonstration description, as some of the information required is identical.

G. Landfills

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(5), (6), (9), (10), and (12), 335.173, 40 CFR 264.19, 264.300, 264.301, 264.302, 264.303(a), 264.304, 264.309, 264.312, 264.313, 264.315-264.317, and 270.21(with the exception of 270.21(e), (g), (h), and (i)). The text of the report should be written to supplement engineering plans, specifications, and test results necessary to provide a detailed description of how the landfill will comply with these standards.

Not applicable. Murray Corporation does not have active landfills at the facility. There is a closed landfill at the facility, which is known as the Former Drum Burial Trench, that is the subject of this post-closure care application. Attachment V.G provides a copy of the certification of closure report for the Former Drum Burial Trench, which contains an engineering certification that is sealed by a registered professional engineer.

For landfills at a new hazardous waste management facility or which are part of an areal expansion of

an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(e).

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

Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

If a landfill will manage ignitable or reactive waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.312.

If a landfill will manage incompatible waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.313.

If a landfill will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.317.

1. Describe the landfill. A plan view and cross-section of the landfill should be included with the engineering report.

2. Containment System

   TCEQ Technical Guideline No. 6, Monitoring Systems and Leachate Collection, which can be obtained from the I&HW Permits Section, contains suggested methods of leak detection system construction and EPA publication 530-SW-85-014 provides design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

   a. Complete Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.
   b. In the engineering report, describe the design, installation, construction, and operation of the liner and leachate collection system. The description must demonstrate that the liner system will prevent discharge to the land, groundwater, and surface water. The following analyses should be included as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

      For artificial liners:

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

      For soil liners:

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

For Leachate Collection System

For incorporation into the permit, complete Table V.G.4. - Landfill Leachate Collection System used for the landfill.

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

c. State whether the liner system components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.
d. Submit a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.
e. Whether the leachate collection components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

3. For Dikes:
   a. Slope Stability Analysis;
   b. Hydrostatic and Hydrodynamic Analyses
   c. Ability to withstand scouring from leaking liner.

4. Landfills that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. The minimum technological requirements include the installation of two or more liners and a leachate collection system above and between the liners [40 CFR 264.301(c)]. Plans and specifications for both new and existing landfills must demonstrate conformity with 30 TAC 335.173.

5. Site Development Plan

   Describe the methods used to deposit waste in the landfill. This description should include rate of waste deposition, waste segregation, average lift size, maximum lift, average cell or trench size, maximum cell or trench size, and other information necessary to depict how the landfill will be developed. Do not include liner or leachate collection system information, closure information, or handling of special wastes. This will be included elsewhere in the report.

6. Run-on Control [30 TAC 335.173(g)]

   The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 100-year, 24-hour storm.

   In the engineering report, include the following analyses:

a. Run-on volume and depth calculations from the peak discharge of the 100-year, 24-hour storm; and

b. For ditches on the plant property, back-water calculations.

Collection and holding facilities associated with the run-on control system must be emptied or otherwise managed expeditiously. [30 TAC 335.173(i)]

7. Run-off Control [30 TAC 335.173(h)]

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

   Include all analyses used to calculate run-off volumes.

   Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.173(i)]

8. Wind Dispersal [30 TAC 335.173(j)]

   If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to minimize wind dispersal. Based upon the characteristics of the material to be landfilled describe the likelihood of wind dispersal occurring. Describe in detail any method and/or control mechanism used to prevent wind dispersal.

9. Liquid Waste

   If liquid waste or waste containing free liquids is to be stabilized and then placed in the landfill, the procedures used to stabilize the waste must be described in the engineering report. The waste must be treated prior to landfilling using a treatment technology that does not solely involve the use of a material that functions primarily as a sorbent. Provide supporting documentation to verify that an appropriate stabilization procedure is used to comply with 30 TAC 335.175.

10. The Commission may approve an alternate design or operating practice for a landfill if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.301(d)]:

    a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system; and

    b. Will allow detection leaks of hazardous constituents through the top liner at least as effectively.

11. Exemption from Double-Liner Requirements for Monofills [264.301(e)]

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

12. Above-grade Benefits

The engineering report must evaluate the benefits, if any, associated with the construction of the landfill above existing grade at the proposed site, the costs associated with the above-grade construction, and the potential adverse effects, if any, which would be associated with the above-grade construction. [TX. Health and Safety Code 361.108]

H. Incinerators **Not applicable.**

Provide an engineering report which includes all of the information specified in 30 TAC 305.171-305.175, 40 CFR 264.340, 264.342-264.346, 264.347(a), and 270.19.

Note: A permit is not required prior to conducting a trial burn for existing incinerator operating under 30 TAC 335.2(c). However, without the prior approval of the Executive Director the operator cannot be certain that the trial burn data will be sufficient to demonstrate compliance with regulations. Applicants are encouraged to obtain approval prior to conducting a test burn. For any trial burn plan approved by the TCEQ or EPA, the applicant shall submit a certification that the previously conducted trial burn was conducted in accordance with the approved trial burn plan.

1. Complete Table V.H.1 - Incinerators and list the incinerators covered by this application and list the waste managed in each unit.

   Complete Table V.H.2 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems.

   Complete Table V.H.3 - Maximum Constituents Feed Rate.

   Complete Table V.H.4 - Maximum Allowable Emission Rates

   For use during the shakedown period, the trial burn period and the period after completion of the initial trial burn, complete Table V.H.5 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff-Short-Term Operation.

   If an incinerator will manage reactive or incompatible waste, as indicated on Table V.H.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17.

   If an incinerator will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.H.1, the DRE requirement is 99.9999%.

2. If a trial burn will be performed, designate one or more of the 40 CFR 261 Appendix VIII organic compounds present in the wastes to be incinerated as Principal Organic Hazardous Constituents (POHCs). Selection will be based upon the degree of difficulty of incineration of these compounds and upon their concentration or mass in the waste feed. These POHCs will be used to determine the destruction and removal efficiency (DRE) specified in the performance standards of 40 CFR 264.343. In addition, complete Table V.H.8 - Principal Organic Hazardous Constituents.

3. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities which will occur in conjunction with the trial burn.

I. Boilers and Industrial Furnaces **Not applicable.**

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(13), 305.571-573, 40 CFR 266.100 and 266.102 (as incorporated by reference in 30 TAC 335.221 through 335.225), 266.104-266.112, and 270.22.

1. Complete Table V.I.1 - Boilers and Industrial Furnaces and list the boilers and/or industrial furnaces covered by this application to be permitted and list the waste managed in each unit.

Complete Table V.I.2 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems.

Complete Table V.I.3 - Maximum Constituent Feed Rate.

Complete Table V.I.4 - Maximum Allowable Emission Rates.

For use during the shakedown period, trial burn period and the period after completion of the initial trial burn, complete Table V.I.5 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems-Short-Term Operation.

If a boiler or industrial furnace will manage reactive or incompatible waste, as indicated on Table V.I.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17.

If a boiler and industrial furnace will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.I.1, the DRE requirement is 99.9999%.

2. If a trial burn will be performed, designate one or more of the 40 CFR 261 Appendix VIII organic compounds present in the wastes to be incinerated as Principal Organic Hazardous Constituents (POHCs). Selection will be based upon the degree of difficulty of incineration of these compounds and upon their concentration or mass in the waste feed. These POHCs will be used to determine the destruction and removal efficiency (DRE) specified in the performance standards of 40 CFR 266.104. In addition, complete Table V.I.8 - Principal Organic Hazardous Constituents.

3. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities.

J. Drip Pads **Not applicable.**

Provide an engineering report which includes all of the information specified in 40 CFR 264.570-573 and 270.26.

1. Complete Table V.J.1. - Drip Pads and list the drip pads, covered by this application, to be permitted. List the N.O.R. unit number, the waste managed in each unit, the rated capacity of each unit, and the overall dimensions of the unit (including perimeter curb or berm height) that will be in contact with the waste.

2. For either new drip pads[2] or existing drip pads for which the owner/operator elects to comply with the synthetic liner requirement of 40 CFR 264.573(b), please complete Table V.J.2. - Drip Pad Synthetic Liner System.

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

   For artificial liners:

   a. Seaming method
   b. Surface preparation method
   c. Tensile Strength

[2]New drip pads are those drip pads constructed after 12/06/90 and which had no binding contract for construction. If electing to comply with 40 CFR 264.573(b), the requirement to install a leakage collection system of 40 CFR 264.573(b)(3) applies only to those drip pads constructed after 12/24/92 and which had no binding contract for construction.

d. Impact Resistance
e. Compatibility Demonstration
f. Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For Leakage Collection System

g. Capacity of the system:
   (1) rate of leachate removal
(2) capacity of sumps
(3) thickness of mounding and maximum hydraulic head
h. Pipe Material and Strength
i. Pipe Network Spacing and Grading
j. Collection Sump(s) Material and Strength
k. Drainage Media Specifications and Performance
l. Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
m. Compatibility Demonstration

K. Miscellaneous Units **Not applicable.**

A miscellaneous unit is a unit other than a container, tank, incinerator, boiler, industrial furnace, landfill, surface impoundment, waste pile, underground injection well, land treatment area, drip pad, or unit eligible for an R, D & D permit that is used to process, store, or dispose of hazardous waste.

For each miscellaneous unit for which an operating permit is sought, provide an engineering report which includes all of the information specified in 40 CFR 264.600-264.602, and 270.23.

1. Complete Table V.K - Miscellaneous Units and list the miscellaneous units covered by this application. List the waste managed in each unit and the rated capacity or size of the unit. If the information requested is not applicable, an explanation must be submitted.
2. Provide any other information which is descriptive of the relationship between the miscellaneous unit and the environment. Application information may include design requirements of 30 TAC 305 and 335, 40 CFR Part 264 Subparts I through O, and Part 270 that are appropriate for the miscellaneous unit or portions of the unit being permitted.
3. For a unit which involves combustion, please provide emissions data or a trial burn plan. Tables V.H.1-5 for incinerators or Tables V.I.1-5 for boilers and industrial furnaces may be adapted as appropriate to provide operation, monitoring, and emission information for a miscellaneous combustion unit.

L. Containment Buildings **Not applicable.**

Provide an engineering report which includes all of the information specified in 40 CFR 264.1100-1101(c)(3), and 264.1101(d)-(e).

Complete Table V.L. - Containment Buildings and list the containment buildings covered by this application to be permitted. List the N.O.R. unit number, whether the unit is for storage and/or processing, the waste or debris managed in each unit, the rated capacity of each unit, and the overall dimensions of the unit (including containment wall height) that will be in contact with the waste or debris.

Attachment V.A.1

General Information

List of Contents – Attachment V.A.1

1. Table V.A Facility Waste Management Handling Units
2. General Facility Plot Plan
3. Topographic Map Showing Locations of Solid Waste Management Units (Historical Appendix VIII-2)
4. Surrounding Land Use

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]
NA	Container Storage Area	001	Container Storage Area	141 Storage, bulking, and/or transfer off site - no treatment/ recovery, fuel blending or disposal at this site.	Closed as Landfill
NA	Tank (surface)	002	21,00 gallon tanks piped together	141 Storage, bulking, and/or transfer off site - no treatment/ recovery, fuel blending or disposal at this site.	Closed as Landfill
NA	Container Storage Area	003	NA	141 Storage, bulking, and/or transfer off site - no treatment/ recovery, fuel blending or disposal at this site.	Closed as Landfill
NA	Waste Treatment Facility	004	Waste Treatment Unit	NA	Closed as Landfill
001	Landfill	005	Landfill - Former Drum Burial Trench	132 Landfill or surface impoundments closed as landfill (to include on-site treatment and/or stabilization)	Closed as Landfill

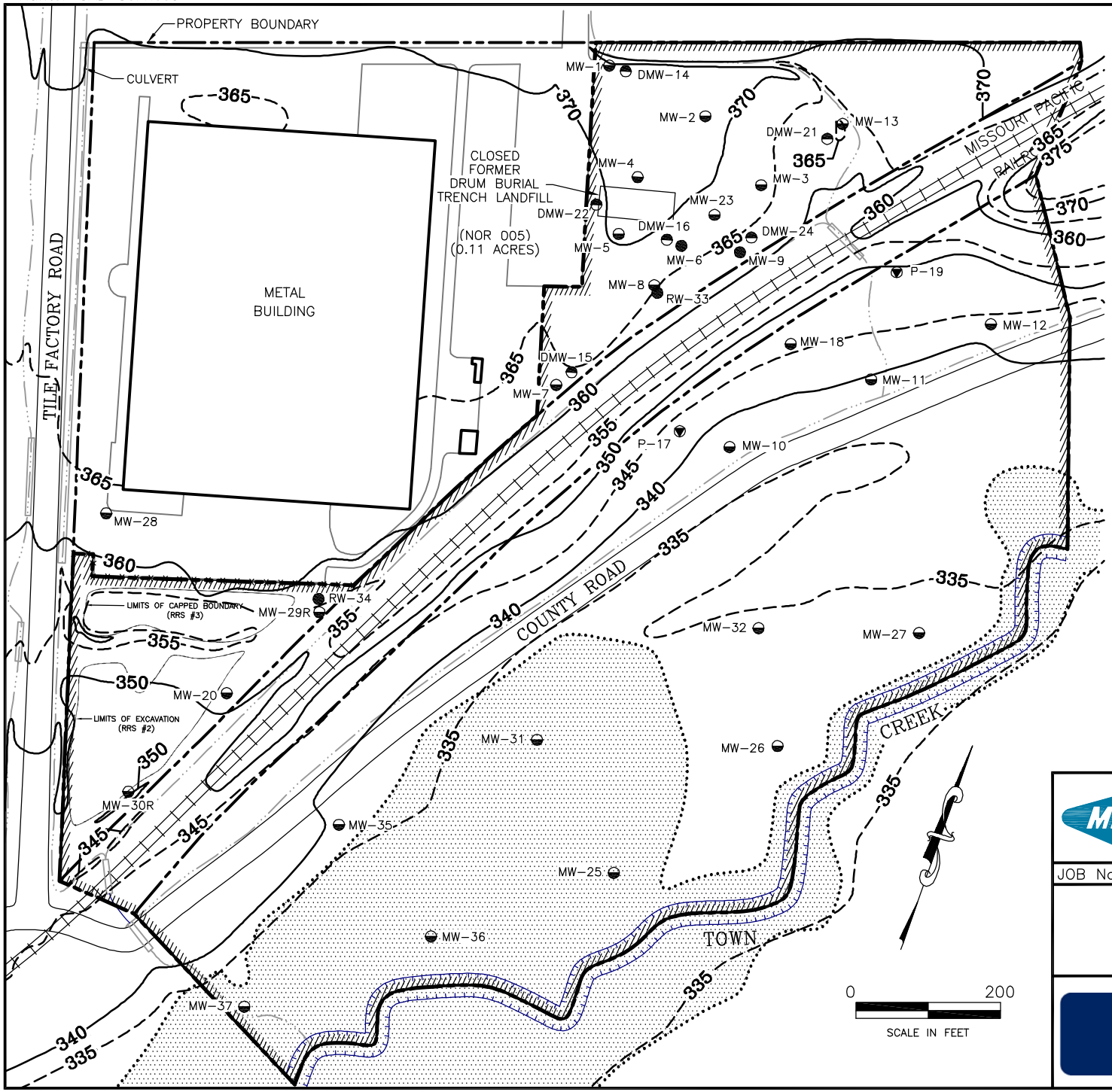
TCEQ Permit Unit No. [1]	Unit Name	NOR No.[1]	Unit Description[3]	Capacity	Unit Status[2]
NA	Surface Impoundment	006	Surface impoundments on southwest section of property, triangular in shape. The manufacturing operations were transferred to Murray - Moog Automotive, Notice of Registration No. 20140	132 Landfill or surface impoundments closed as landfill (to include on-site treatment and/or stabilization)	Closed as Landfill

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.

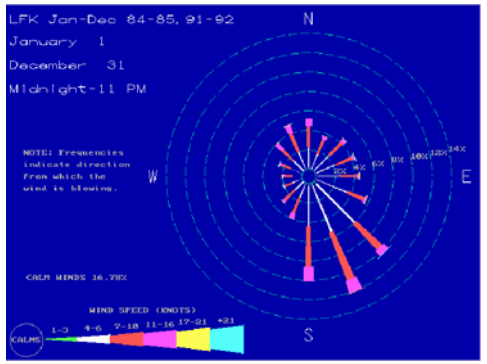
Hunter CAD Services



LEGEND

- CREEK OR DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- DMW-14 — DEEP MONITOR WELL LOCATION & NUMBER
- PERMITTED FACILITY BOUNDARY
- 100 YEAR FLOOD PLAIN BOUNDARY

NOTE:
FLOOD PLAIN DATA FROM FIRM PANEL No. 48001C0535D



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/12/13	001010-58D.dwg

ATTACHMENT V.A.1
GENERAL FACILITY PLOT PLAN

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

PROPERTY BOUNDARY

METAL BUILDING

PARKING LOT

TOWN CREEK

DMW-14 MW-1 MW-2 MW-13 MW-4 MW-3 MW-5 DMW-16 MW-6 MW-9 MW-8 DMW-15 MW-7 MW-12 MW-11 MW-10

1 2 3 4 5 6 7 8 9 10

SOLID WASTE MANAGEMENT UNITS

1. 2-1,000 GAL. TANKS- SPENT FREON 113-CLEAN, CLOSED & REMOVED
2. 1-9,000 GAL.TANK- CLEAN, CLOSED & REMOVED
3. 1-6,000 GAL.TANK- LESS THAN 90 DAY STORAGE
4. CONTAINER STORAGE AREAS-5,500 GAL.- LESS THAN 90 DAY STORAGE
5. SPENT SOLVENT DISTILLATION FACILITY-60 GAL.
6. LOWER SURFACE IMPOUNDMENT- 1.0 AF
7. UPPER SURFACE IMPOUNDMENT-0.6 AF
8. CONSTRUCTION DEBRIS AREA-460 CUBIC YARDS
9. CRUSHED EMPTY DRUM DISPOSAL FACILITY-15,000 P
10. LANDFILL (BURIAL TRENCH)- 2,080,000 P-WASTE REMOVED

LEGEND

- MW-10 — MONITOR WELL LOCATION
- FENCE LINE
- CREEK or DRAINAGE DITCH
- CULVERT
- SOLID WASTE MANAGEMENT UNITS (SWMU's)

✳ SEE TABLES VIII-1 & VIII-2 FOR KEY TO SWMU's

N

SCALE IN FEET
0 50 100 200

MURRAY CORPORATION

PALESTINE PLANT AND VICINTITY IN THE
JOSEPH JORDAN SURVEY A-33
ANDERSON COUNTY, TEXAS

SCALE: 1"=100' DECEMBER, 1989

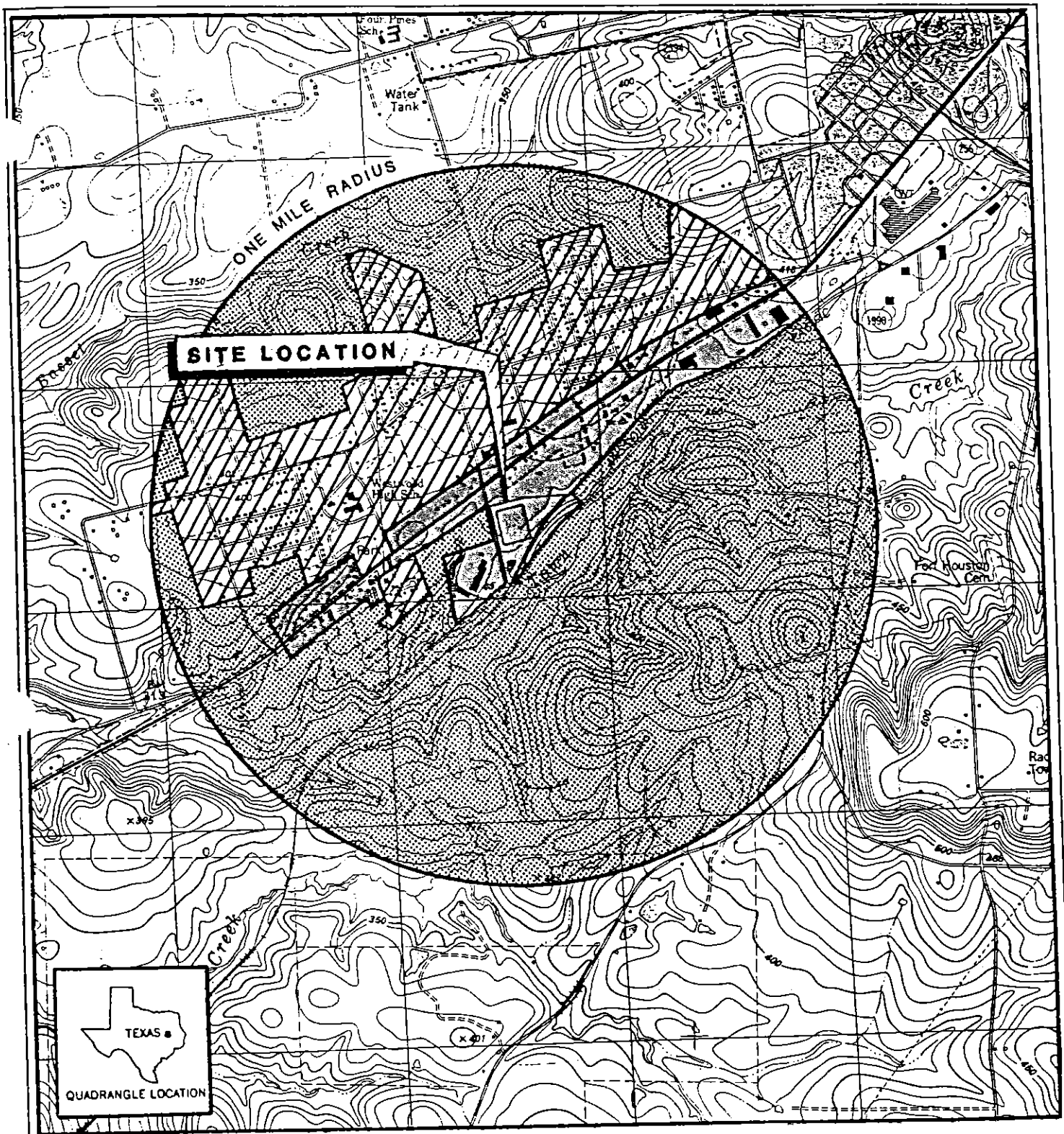
IVES TECHNICAL SERVICE
P.O. BOX 1561 (214) 549-2512
PALESTINE, TEXAS

3	Δ	
2	Δ	
1	Δ	

REVISIONS

DESIGNED BY:	MURRAY CORPORATION PALESTINE, TEXAS
	APPENDIX VIII-2 TOPOGRAPHIC MAP SHOWING LOCATIONS OF SOLID WASTE MANAGEMENT UNITS
	JONES AND NEUSE, INC. Engineering and Environmental Consultants JN 118206
Drawn By: D.H. / Scale: 1" = 100'	D89284
Checked By: R.K. / Date: 2-90	Sheet 1 Of 1

83250



SOURCE: USGS 7.5 MIN. SOUTHWEST PALESTINE, TEXAS QUAD SHEET (1982)

SCALE: 1" = 2000'

JN 118206 D89264

LEGEND

- RESIDENTIAL
- INDUSTRIAL/COMMERCIAL
- RURAL/AGRICULTURIAL

N

LAND USE MAP

MURRAY CORP.–PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

Attachment V.G

Certification of Closure Report

CLOSURE COMPLETION REPORT AND CERTIFICATION
MURRAY CORPORATION FACILITY
FORMER DRUM BURIAL TRENCH

PALESTINE, TEXAS
TNRCC SOLID WASTE REGISTRATION NO. 33063

MARCH 1996

JONES & NEUSE
GULF COAST REGION OF RMT

RMT/JONES & NEUSE, INC. – AUSTIN, TX
912 CAPITAL OF TEXAS HIGHWAY SOUTH • SUITE 200 • 78746-5210
512/327-9840 • 512/327-6163 FAX

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March 7, 1996

Mr. Paul S. Lewis
Texas Natural Resource Conservation Commission
Corrective Action Section
Industrial and Hazardous Waste Division
P.O. Box 13087
Austin, Texas 78711-3087

Attention: Kirk Coulter, Closure Team

Re: Murray Corporation - SWR #33063
Closure Completion Report and Certification
Former Drum Burial Trench

Dear Mr. Lewis:

Attached please find the Closure Completion Report and Certification for the closure of the Former Drum Burial Trench at the Murray Corporation site in Palestine, Texas. All activities were performed in accordance with the modified closure plan that was approved by the TNRCC on November 8, 1995.

If you have any questions please contact me or Mr. Brad McKenzie, P.E., at (512) 327-9840.

Sincerely,

RMT/JONES AND NEUSE, INC.

Fred C. Dalbey
Project Manager

FCD/ch

Attachments

cc: Thorne Gould - Murray Corporation - Cockeysville, Maryland
Don Mitchell - Arent, Fox, Kintner, Plotkin & Kahn
Bob Moody - Moog Automotive - Palestine, Texas
TNRCC - Region 5 Office - Tyler, Texas

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Section 1
INTRODUCTION

This Closure Completion Report and Certification documents closure activities performed at the Former Drum Burial Trench at the Murray Corporation Facility in Palestine, Texas. A site location map is included as Figure 1.

A closure plan for this area was originally submitted to the TNRCC with the Post-Closure Permit Application on March 5, 1990. A revised closure plan was submitted to the TNRCC on April 15, 1994 that incorporated the Risk Reduction Rules. This plan was approved by the TNRCC on May 15, 1995 (copies of TNRCC approval letters included in Appendix A).

The approved closure plan was modified to incorporate a revised cover system design and resubmitted to the TNRCC in July 1995. The revised closure plan was approved by the TNRCC on November 8, 1995 (copy of approval letter included in Appendix A). All closure activities were performed in accordance with this closure plan.

It is noted that the following minor change was made to the approved closure plan: The proposed six inches of topsoil over the geonet drainage layer was replaced with six inches of compacted road base to provide increased structural integrity to the asphalt paving. This resulted in a total of 14 inches of base which replaced the proposed six inches of topsoil and the eight inches of road base.

1.1 Background Information

The Former Drum Burial Trench is located east of the employee parking lot and has dimensions of approximately 120 feet by 40 feet (see Figure 2 for a plan view of the burial trench). An initial soil-boring investigation was completed in January 1988 to characterize the wastes in the trench. In May 1988, a soil-gas investigation was completed to identify locations in the area of the trench containing elevated concentrations of volatile organic constituents.

During June 13-21, 1988, Murray removed wastes from the trench. Approximately 1,040 tons of contaminated soil (containing about 350 crushed drums) were excavated from the landfill and disposed at the Texas Ecologists (TECO) hazardous waste landfill in Robstown, Texas. After the waste-removal activities were completed, soil samples were collected and analyzed from the base and sides of the excavation. Some of these samples were analyzed for selected volatile and acid-

extractable semivolatile organic constituents. After the samples were collected, the excavation was backfilled with clean soils and graded to existing natural contours. The contaminants remaining in the soils are listed and discussed in the approved closure plan.

As detailed in the approved closure plan, the closure activities documented in this report were performed to prevent the exposure of contaminated soils to wind or surface water dispersal and to minimize the infiltration of rainwater through the contaminated media. The final cover system meets the requirements for landfill closure as presented in 40 CFR §264.310. These requirements include:

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion or abrasion of the cover;
- Accommodate settling and subsidence so that the cover's integrity is maintained; and
- Have a permeability less than or equal to any bottom liner system or natural subsoils present.

Section 2
CLOSURE ACTIVITIES

2.1 Notification

On January 24, 1996, RMT/Jones and Neuse, Inc. (RMT/JN) sent a letter to the TNRCC central office in Austin, Texas and the TNRCC regional office in Tyler, Texas providing written notice of the commencement of closure activities at the site. A copy of this letter is included in Appendix B.

2.2 Health and Safety

RMT/JN prepared a hazard assessment for work at this site. A copy of the hazard assessment is included in Appendix C. A copy of the assessment was kept at the site during all closure activities.

2.3 Closure Activities

On January 25, 1996 RMT/JN mobilized personnel and equipment to the site. The location of the former drum burial trench was surveyed and staked out in the field. A benchmark was created to provide for vertical and horizontal control during construction operations. A survey of the existing ground elevations of the trench was conducted. Construction stakes were then placed over the landfill area with the appropriate depth of cut calculated for each stake.

The trench was then excavated to the appropriate subgrade elevations with a trackhoe. The subgrade was then smoothed to the final subgrade elevation with a blade and compacted with a smooth-drum roller. The final subgrade was surveyed to ensure that the proper elevations had been obtained.

On January 29, 1996 the geosynthetic clay liner (GCL) was installed over the landfill area. The GCL was supplied by GSE Gundle Lining Plastics out of Houston, Texas. The GCL was installed directly on the prepared subgrade with the overlapping seams oriented perpendicular to the direction of flow. A nominal six-inch seam was maintained at all locations where there was GCL overlap. All seams were covered with the powdered bentonite that was provided with the GCL to ensure an impermeable bond between the separate rolls of GCL. The edges of the GCL were anchored into the sides of the trench as shown on the as-built drawings (see Figure 3).

The synthetic drainage layer was installed directly over the GCL. The synthetic drainage layer was also supplied by GSE Gundle Lining Plastics. The synthetic drainage layer consisted of an HDPE

geonet surrounded on both sides by polyester filter fabric. Upon completion of the installation of the GCL and synthetic drainage layer, the material was visually inspected for any defects. No defects were observed.

A protective soil layer of compacted road base was installed over the synthetic drainage layer. A total of 14 inches of base were installed and compacted. The road base was installed with a minimum of 0.7% slope in each direction. The slope and finished elevations of the road base were surveyed during its installation and upon its final compaction.

Due to cold and wet weather there was an approximate one week delay in installing the asphalt paving after the road base was installed. On February 7, 1996 the weather was acceptable for installing the asphalt. Two inches of asphalt were installed and compacted over the road base. A final survey was then conducted to ensure the appropriate slopes of the closure cap for drainage. This concluded the field closure activities for the Former Drum Burial Trench.

2.4 Operation, Maintenance and Monitoring Requirements

Maintenance of the closure area will consist of quarterly site inspections. The cover will be inspected for signs of improper drainage, ponding of stormwater, erosion, abrasion or other damage. If any repairs or modification are warranted, such repairs will be made in a timely fashion upon the recommendation of the inspector.

2.5 Photographs

Copies of color photographs taken during closure activities are included in Appendix D.

2.6 Deed Recordation

Within 90 days after acceptance of this closure report by the TNRCC, Murray will deed record the closure area in accordance with 40 CFR §264.116 and 30 TAC §335.566. A draft copy of the deed certification language is provided in Appendix E.

Section 3

CERTIFICATION OF CLOSURE

Pursuant to the closure plan approved by the Texas Natural Resource Conservation Commission, I hereby certify that the Former Drum Burial Trench at the site located at 2002 Tile Factory Road in Palestine, Texas, known as Murray Corporation has been closed in accordance with the closure plan that was approved by the TNRCC on November 8, 1995 (RMT/JN Document D940120A.DOC)

Based upon the methodology described herein (RMT/JN Document No. D960139), and subject to the limitations of that methodology, I certify under penalty of law that this document and all attachments were prepared under my direction and 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 information, the information submitted is to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for intentionally submitting false information, including the possibility of fine and imprisonment for knowing violations.

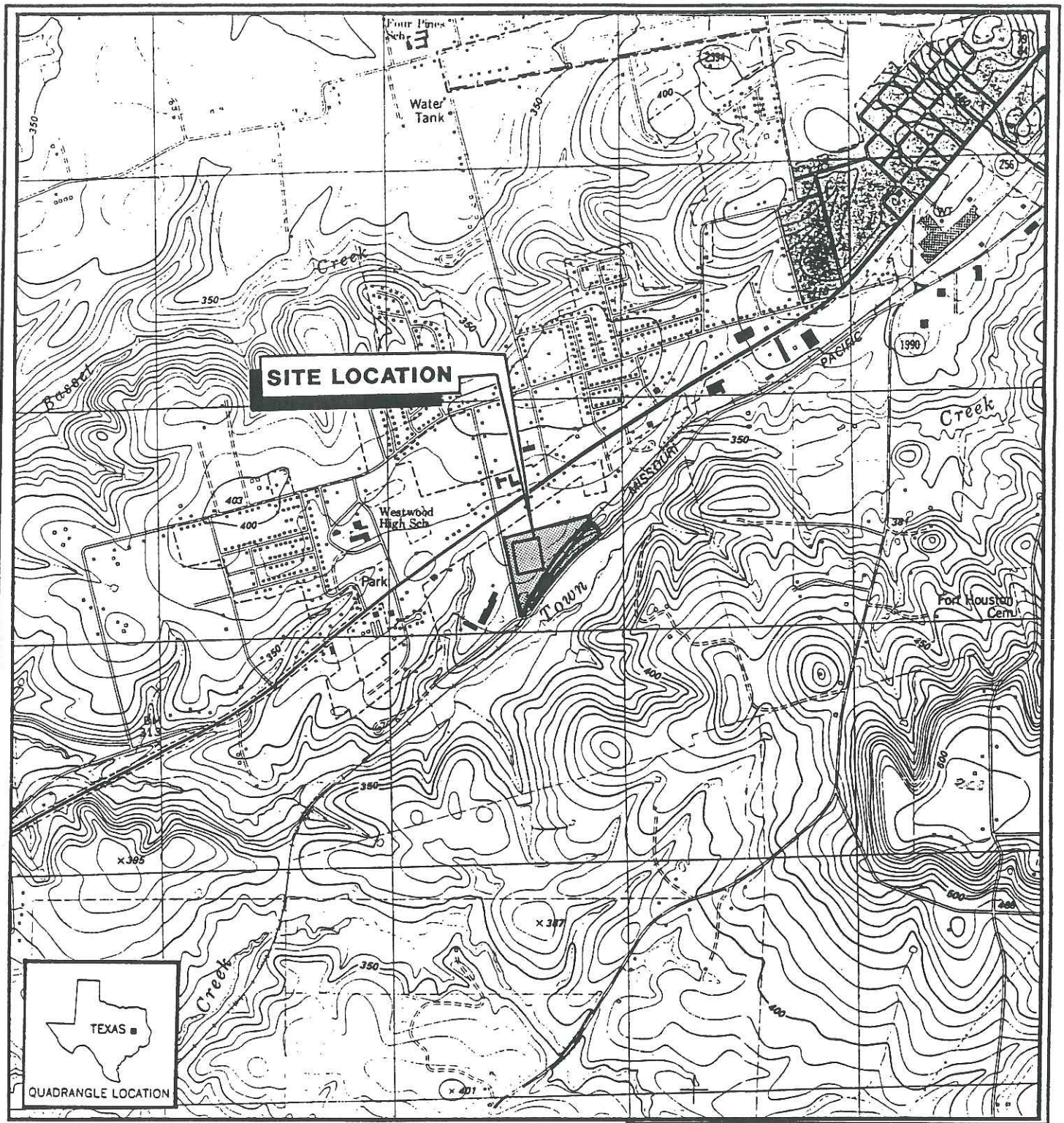
Bradley R. McKenzie, P.E.
State of Texas 80250
RMT/Jones and Neuse, Inc.

3/7/96
Date

Mr. Thorne Gould
Murray Corporation

3/11/96
Date

FIGURES



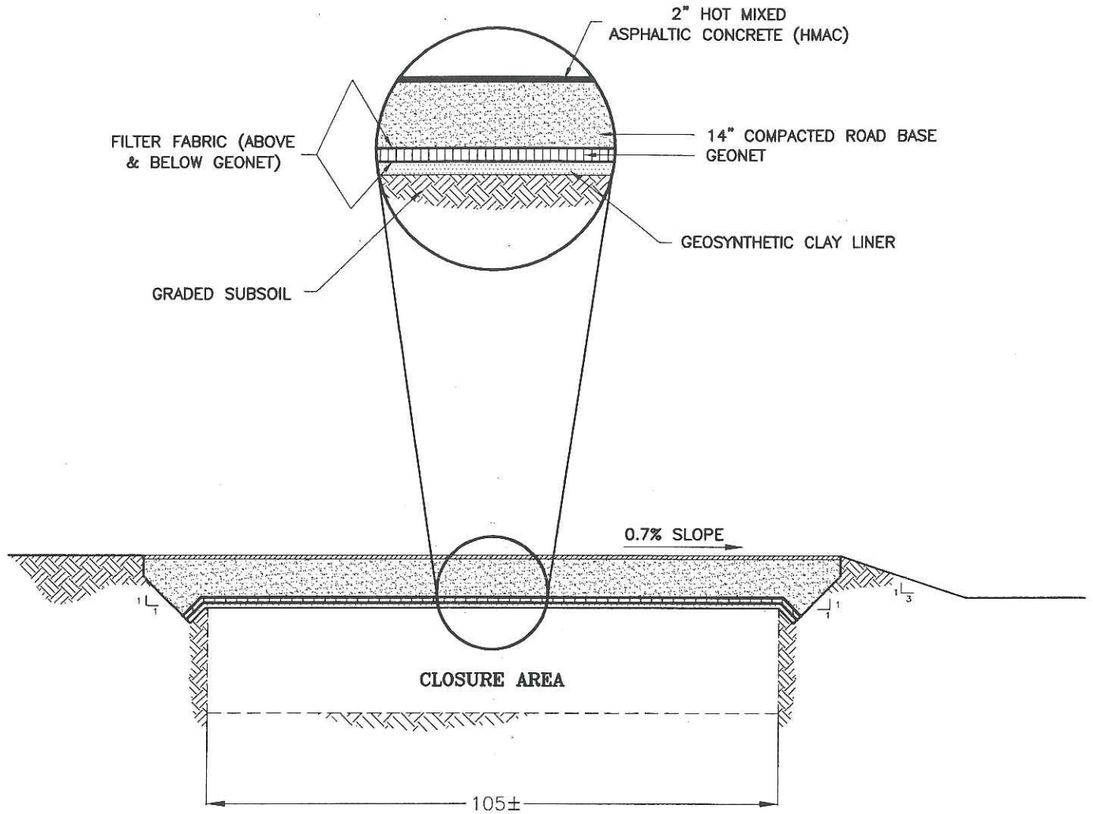
SOURCE: USGS 7.5 MIN. SOUTHWEST PALESTINE, TEXAS QUAD SHEET (1974)

MURRAY CORPORATION
PALESTINE, TEXAS

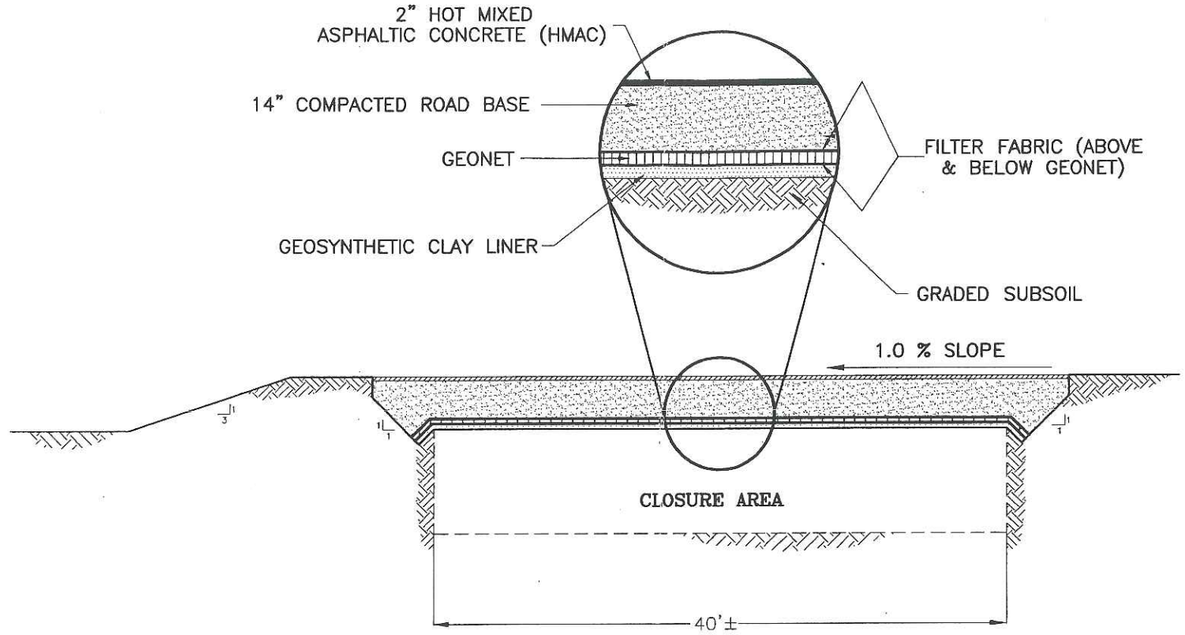
50-00182.06.010 2/20/96

FIGURE 1
SITE LOCATION MAP

JONES AND NEUSE, INC.
Environmental and Engineering Services
A Division of [redacted] INC.
©



SECTION A



SECTION B

AS-BUILT
SCHEMATIC DRAWING
NOT TO SCALE

MURRAY CORPORATION
PALESTINE, TEXAS

50-00182.06.010 2/20/96

FIGURE 3

CROSS SECTIONS OF AS-BUILT
FINAL COVER SYSTEM

JONES & NEUSE
GULF COAST REGION OF RMT

ASPHALT DRIVE

PROPERTY BOUNDARY

MW-1

DMW-14

MW-2

FENCE

MW-13

PROPOSED ASPHALT
PARKING EXPANSION

EXISTING
ASPHALT
PARKING

BUILDING

ASPHALT DRIVE

B

MW-4

MW-3

A

DMW-22

CLOSURE AREA

A

MW-5

MW-6

B

DMW-16

MW-9

N

POWER
POLE

MW-8

POWER
POLE

SCALE IN FEET

0 20 40 80

MURRAY CORPORATION
PALESTINE, TEXAS

50-00182.06.010 2/20/96

FIGURE 2

PLAN VIEW OF AS-BUILT
FINAL COVER SYSTEM

JONES & NEUSE
GULF COAST REGION OF RMT

Appendix A

TNRCC APPROVAL LETTERS

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Garner, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

May 15, 1995

Mr. Thorne Gould
Murray Corporation
Schilling Circle
Greater Baltimore Industrial Park
Cockeysville, MD 21030

Re: Murray Corp./Palestine, Texas
TNRCC Solid Waste Registration No. 33063
Former Drum Burial Trench
Interim-Status Hazardous Waste Unit
Closure Plan Review

Dear Mr. Gould:

A review of the closure plan entitled "Revised Closure Plan For The Former Drum Burial Trench", dated April 15, 1994, for the referenced facility has been completed. According to the plan, Murray Corp. intends to close the Former Drum Burial Trench using Risk Reduction Rules Standard No. 3 (RRS3). Murray removed crushed drums and contaminated soil from the landfill in June 1988. The closure plan contains the Remedial Investigation Report, Baseline Risk Assessment, and the Corrective Measures Study required for the RRS3 closure. The closure of the landfill will be accomplished by constructing a cover system, operating a groundwater recovery system until the constituents of concern are below the groundwater protection standards established in the Compliance Plan of the Permit, and implementing post-closure care in accordance with the Permit.

Our review indicates that the closure plan conforms with the requirements of 30 Texas Administrative Code (TAC) §335.6 and §335.8. Accordingly, the Executive Director approves the closure plan. Our evaluation indicates that your closure plan should, when adequately implemented, provide reasonable assurance of effective industrial solid waste management, subject also to the submittal of closure certification.

Please be aware that it is the continuing obligation of persons associated with a site to assure that industrial solid waste and municipal hazardous waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of such waste

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

50-00182-06

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 8, 1995

Mr. Thorne Gould
Murray Corporation
Schilling Circle
Greater Baltimore Industrial Park
Cockeysville, MD 21030

Re: Murray Corp./Palestine, Texas
TNRCC Solid Waste Registration No. 33063
Former Drum Burial Trench
Interim-Status Hazardous Waste Unit
Closure Plan Review

Dear Mr. Gould:

A review of the modified closure plan for the Former Drum Burial Trench, dated July 20, 1994, for the referenced facility has been completed. According to the plan, Murray Corp. intends to substitute an asphalt final cover component for the vegetative cover system, which was originally approved in the closure plan dated April 15, 1995. A public notice was published in the Palestine Herald-Press on October 7, 1995 for the modification of the cover system of the landfill.

Our review indicates that the modified closure plan conforms with the requirements of 30 Texas Administrative Code (TAC) §335.6 and §335.8. Accordingly, the Executive Director approves the closure plan. Our evaluation indicates that your closure plan with its modification should, when adequately implemented, provide reasonable assurance of effective industrial solid waste management, subject also to the submittal of closure certification.

Please be aware that it is the continuing obligation of persons associated with a site to assure that industrial solid waste and municipal hazardous waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of such waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4.

The closure is expected to be completed within 90 days after the date of this letter. Within 60 days after completion of closure, a **Closure Completion Report** shall be submitted by registered mail detailing analytical results, work done, and the final configuration of the subject unit. The Closure Completion Report shall contain **certifications** signed by the owner or operator and by an independent Texas registered professional engineer that the hazardous waste management unit has been closed in accordance with the approved closure plan.

Please submit all original correspondence with one copy to this office and send one copy of all correspondence to the TNRCC Region 5 Office in Tyler, Texas. Upon completion of closure, please submit a revision to your Notice of Registration to the Data Control Team of the Waste Evaluation Section at the letter head address.

If you have any questions regarding this closure, please contact Kirk Coulter in Austin at 512/239-2572, Mail Code MC-127.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial and Hazardous Waste Division

KEC/kec

cc: TNRCC Region 5, Tyler, Texas
Tennie Larson, Corrective Action Section
Bob Moody, Murray Division, 2002 Tile Factory Rd., Palestine, Tx. 75801
Fred Dalby, Jones & Nuese, 912 Loop 360, Suite 300, Austin Tx. 78746-5210

Appendix B

TNRCC NOTIFICATION LETTER

January 24, 1996

Mr. Paul S. Lewis
Corrective Action Section
Industrial and Hazardous Waste Division
TNRCC
P.O. Box 13087
Austin, Texas 78711-3087

RE: Murray Corp./Palstine, Texas
TNRCC SWR No. 33063
Former Drum Burial Trench
50-00182.06.010

Dear Mr. Lewis:

This letter is to provide written notice to the TNRCC of the start of closure activities at the above referenced facility. All work will be completed according to the closure Plan that was submitted on July 20, 1994 and approved by the TNRCC on November 8, 1995.

Upon completion of closure activities, a Closure Completion Report will be submitted to the TNRCC.

Please call me at (512) 327-9840 if you have any questions.

Sincerely,

RMT/JONES AND NEUSE, INC.

Bradley R. McKenzie, P.E.
Project Manager

BRM/sml

cc: TNRCC - Region 5 Office - Tyler, Texas
Thorne Gould - Murray Corporation
Bob Moody - Murray Corporation
Fred Dalbey - RMT/JN - Austin

JONES & NEUSE
GULF COAST REGION OF RMT

RMT/JONES & NEUSE, INC. — AUSTIN, TX
912 CAPITAL OF TEXAS HIGHWAY SOUTH SUITE 300 78746-5210
512/327-9840 512/327-6163 FAX

Appendix C
HAZARD ASSESSMENT

HAZARD ASSESSMENT

1. General Information

PROJECT: Murray Drum Closure

PROJECT NUMBER: 50-00182.06.001

SITE LOCATION: Palestine, Texas

PROJECT MANAGER: Brad McKenzie

PREPARED BY: Brad McKenzie

DATE: 1-18-96

APPROVED BY: _____ (PM) _____ (HSC)

DATE: 1-22-96 1-22-96

PROPOSED SCOPE OF WORK AND SPECIFIC TASKS: Excavation, subgrade preparation and compaction; installation of clay liner and geotextile drainage layer; installation of compacted base and asphalt.

PROPOSED DATES OF ON-SITE WORK: January 24 - February 2, 1996

BACKGROUND INFORMATION REVIEW: Preliminary ☐ Moderate ☐ Substantial ☒

DOCUMENTATION/SUMMARY OVERALL HAZARD: Serious ☐ Moderate ☐ Low ☒ Unknown ☐

2. Site Characterization

FACILITY DESCRIPTION: Murray corporation rebuilds atomotive air conditioning compressors. All work will be performed outside of the plant in a grassy area adjacnt to the parking lot.

Status (active, inactive, unknown): Active

Operations (current and past): Rebuilding automotive air conditioning compressors

Unusual Features (utilities, terrain, etc.): Monitoring wells around work area

History (worker or nonworker injury, complaints from public, previous agency action): Area being closed was used as a drum disposal area

3. Site Classification

SITE TYPE ALLOCATED: ☒ 1 ☐ 2 ☐ 3

COMMENTS: General construction activities. No chemical exposure hazards.

4. Hazard Evaluation

CHEMICAL HAZARDS

SUBSTANCE* NAME	PHYSICAL STATE	KNOWN CONCENTRATION** LEVELS PRESENT	POTENTIAL ROUTES OF EXPOSURE	OSHA PEL
None	N/A	N/A	N/A	N/A

* Attach MSDS if available.
** Attach laboratory results or tables if available.

PHYSICAL SAFETY HAZARDS ON-SITE AND CONTROL MEASURES (e.g., heat or cold stress, confined spaces, explosion hazards, slippery ground, excavations, utilities, etc.):

HAZARD	CONTROL MEASURE
General Work Hazard	Hard Hat, Safety Galsses

Appendix D
PHOTOGRAPHS

Photo 1 - Excavating Down to Subgrade With Trackhoe

Photo 2 - Final Grading of Subgrade With Blade

Photo 3 - Final Subgrade With Anchoring Trench Around the Perimeter of the Area

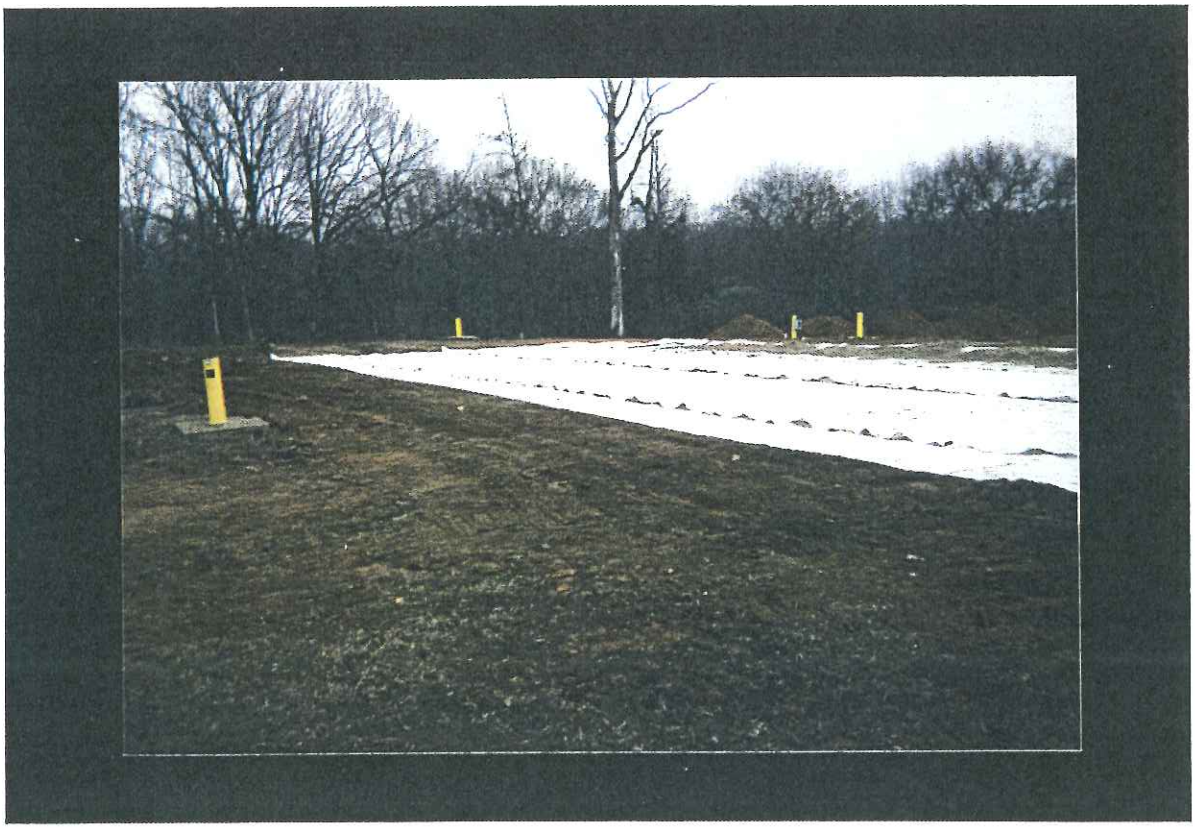


Photo 4 - Synthetic Drainage Layer Placed Over the Geosynthetic Clay Liner

Photo 5 - Compacted Road Base Installed Over the Burial Trench Area

Photo 6 - Installing the Two Inches of Asphalt Pavement

Appendix E

DRAFT DEED CERTIFICATION LANGUAGE

DRAFT DEED CERTIFICATION
STATE OF TEXAS ANDERSON COUNTY

MURRAY CORPORATION, INDUSTRIAL SOLID WASTE NO. 30063
CERTIFICATION OF CLOSURE

KNOW ALL MEN BY THESE PRESENTS THAT: Pursuant to the Rules of the Texas Natural Resource Conservation Commission pertaining to Industrial and Solid Waste Management, this document is hereby filed in the Deed Records of Anderson County, Texas in compliance with the recordation requirements of said rules:

I

Murray Corporation has performed a closure of the land described herein. A copy of the Notice of Registration (No. 33063), including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations, which remains in the soils is attached hereto and is made part of this filing. The soils are considered contaminated by spent solvents which are listed hazardous wastes (HW Nos. F001 and F002). Further information concerning this matter may be found by an examination of company records or in the Notice of Registration (No. 33063) files, which are available for inspection upon request at the central office of the Texas Natural Resource Conservation Commission in Austin. The Texas Natural Resource Conservation Commission derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, §361.002, Texas Health and Safety Code. Chapter 361, which enables the Texas Natural Resource Conservation Commission to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §5,012 and §5.013, Texas Water Code, Annotated, Chapter 5, the Texas Natural Resource Conservation Commission is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the Texas Natural Resource Conservation Commission requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the Texas Water Commission of the suitability of this land for any purpose, nor does it constitute any guarantee by the Texas Natural Resource Conservation Commission that the remediation standards specified in this certification have been met by Murray Corporation.

II

Being a ___ acre tract, more or less, out of the Murray Corporation's ____ acre tract in the _____ League (No. _____), Abstract (No. _____), recorded in Volume (No. _____), Page (No. ____) of the Deed of Records Anderson County, Texas, said _____ acre tract being more particularly described as follows:

Contaminated soils contained herein have been remediated in accordance with a plan designed to meet the requirements of 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care measures. **THE CLOSURE AREA DESCRIBED HEREIN IS RESTRICTED FROM DISTURBANCE IN ACCORDANCE WITH THE POST CLOSURE REQUIREMENT IN THE 40 CFR PART 264 SUBPART G REGULATIONS.**

III

The owner of the site is Murray Corporation, and its address is Schilling Circle, Great Baltimore Industrial Park, Cockeysville, Maryland, 21030 where more specific information may be obtained from Mr. Thorne Gould, President of Murray Corporation.

VI. Geology Report

This portion of the application applies to owners or operators of new hazardous waste management facilities; areal and/or capacity expansions of existing hazardous waste management facilities; and existing industrial solid waste facilities that store, process or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles (except those waste piles that meet the requirements of Section V.E.10.b. of this application), and tanks or drip pads which require a contingent post-closure plan.

For a new Compliance Plan or modification/amendment to an existing Compliance Plan of Section XI of this application, submit a Geology Report which contains updated site geologic information derived from on-going investigations since submittal of the last Permit modification/amendment application.

Submit a Geology Report which includes at a minimum the following information. This report and all specifications, details, calculations/estimates and each original sheet of plans, drawings, maps, cross-sections, other graphics, such as limits of contamination maps, etc. or any other geoscientific work must be signed and sealed by a Professional Geoscientist licensed in the State of Texas under the Professional Geoscientists Practice Act.

The Geology Report (Summary Report of Geologic and Hydrogeologic Conditions at the Murray Corporation Facility dated March 1990) submitted with the May 2002 Part B renewal application is provided as Attachment VI. Reports and cross-sections submitted with the July 2002 Compliance Plan renewal application are also included in Attachment VI.

A. Geology and Topography

1. Active Geologic Processes **See Attachment VI.**

Provide a description and interpretation of the active geologic processes in the vicinity of the facility. This description should include:

a. An identification of any faults (active or otherwise) in the area of the facility. The preparer should determine which Holocene sediments or man-made structures have been displaced. The report should contain a description of the investigation techniques used to identify faults and should assess the degree, if any, to which a particular fault increases the long-term potential for waste migration. The clearance required from active faults to ensure that liner systems will not be disrupted will be based upon site specific factors such as the zone of significant surface deformation, uncertainty in locating the fault, activity of the fault, and a distance to provide a reasonable margin of safety. These issues should be addressed when discussing the offset of an industrial solid waste facility unit from an active fault.

To satisfy the requirements of 30 TAC 305.50(a)(4)(F) and 305.50(a)(10)(E), for a proposed hazardous waste management facility or a modification or amendment of a permit which includes a capacity expansion of an existing hazardous waste management facility, submit the following.

(1) A geologic literature review should be conducted, from which useful information on the possibility of faulting at a given site may be revealed. This includes, but is not limited to, maps of surface faults, subsurface structure, and field investigations by the author(s).

(2) Descriptions and maps of faulting, fracturing, and lineations in the area are necessary. An aerial photo with lineation interpretations is suggested.

(3) The maps and cross-sections are to be constructed using an amount of data necessary to adequately describe the geology of the area. Surface data, including data regarding known surface expressions, such as surface faults, gas seeps, lineations, etc., should be

accounted for in the subsurface interpretations. A surface structure map should be prepared, incorporating all of the subsurface data as well as known surface features.

(4) A minimum of two structural cross-sections, utilizing available oil field and/or water well electric log data, shall be made perpendicular to each other, crossing at the proposed surface unit location. These cross-sections should define geologic units, indicating especially Holocene sediments and Underground Sources of Drinking Water (USDWs), as well as lithology. The cross-sections should be constructed from the surface, down through the shallowest major structure or the base of the Holocene, whichever is deeper. These cross-sections need to be on a scale necessary to depict the local geology (3000' radius from the site location minimum). If needed to adequately describe the local geology, then a larger radius or deeper area of review may be necessary.

(5) A minimum of two structural subsurface maps need to be prepared. One map should be made on the shallowest mappable subsurface marker, the other on a deeper horizon that shows the underlying major structure. Additional maps may be necessary.

(6) Field surveillance will be necessary to check the area of the facility for surface features, such as lineations, and to investigate potential surface faults as indicated by, but not limited to, aerial photos, topographic maps, and seismic and subsurface structural maps.

(7) The above requirements do not limit the use of any additional information, such as seismic data, isopach maps, or potentiometric maps, that may help in defining the geology of the area of review.

(8) If faulting exists within 3000 feet of the surface unit, it must be demonstrated that the fault has not had displacement within Holocene time. If such a fault does exist, it cannot pass within 200 feet of the surface unit.

(9) If a fault that has been active within the Holocene is located within 3000 feet of the surface unit, it must be demonstrated that, a.) the fault is not transmissive, i.e., it will not provide for groundwater movement that would result in endangerment to human health or the environment, and b.) there is no actual and/or potential problem of subsidence, which could endanger the stability of the surface unit.

b. A discussion of the extent of land surface subsidence in the vicinity of the facility including total recorded subsidence and past and projected rates of subsidence. For facilities located at low elevations along the coast which have experienced appreciable rates of subsidence, the potential for future submergence beneath Gulf water should be addressed.

c. A discussion of the degree to which the facility is subject to erosion. The potential for erosion due to surface water processes such as overland flow, channeling, gullying, and fluvial processes such as meandering streams and undercut banks should be evaluated. If the facility is located in a low-lying coastal area, historical rates of shoreline erosion should also be provided.

d. Complete Table VI.A.1. – Major Geologic Formations.

2. Regional Physiography and Topography (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan) **See Attachment VI.**

   a. Distance and direction to nearest surface water body
   b. Slope of land surface
   c. Direction of slope
   d. Maximum elevation of facility
   e. Minimum elevation of facility

3. Regional Geology (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan) **See Attachment VI.**

   Provide a description of the regional geology of the area. This section should include:

   a. A geologic map of the region with text describing the stratigraphic and lithologic properties of the map units. An appropriate section of a published map series such as the Geologic Atlas of Texas prepared by the Bureau of Economic Geology is acceptable.
   b. A description of the generalized stratigraphic column in the facility area from the base of the lowermost aquifer capable of providing usable groundwater to the land surface. At least the uppermost 1,000 feet of section below the facility should be described. The geologic age, lithology, variation in lithology, thickness, depth, geometry, hydraulic conductivity, and depositional history of each geologic unit should be described based upon available geologic information. Regional stratigraphic cross sections should be provided, where available.

4. Subsurface Soils Investigation Report **See Attachment VI.**

   This section should contain the results of an investigation of subsurface conditions for each land based unit and/or unit which requires contingent closure and post-closure care. If several units are in close proximity, a single investigation for the area will suffice. This report should include:

   a. The logs of borings performed at the waste management area. All borings must be conducted in accordance with established field exploration methods. Investigation procedures should be discussed in the report. A sufficient number of borings should be performed to establish subsurface stratigraphy and to identify and allow assessment of potential pathways for pollution migration. Borings must be sufficiently deep to allow identification of the uppermost aquifer and underlying hydraulically interconnected aquifers. Borings should penetrate through the uppermost aquifer and all deeper hydraulically interconnected aquifers, deep enough to identify the aquiclude at the lower boundary. Borings should be completed to a depth at least 30 feet below the deepest excavation planned at the waste management area. The required number of borings will increase or decrease depending on the heterogeneity of subsurface materials. Locations with stratigraphic complexities such as non-uniform beds which pinch out, vary significantly in thickness, coalesce, or grade into other units, will require a significantly greater degree of subsurface investigation than areas with simple hydrogeologic frameworks. Boring logs should include a detailed description of materials encountered including any discontinuities such as fractures, fissures, slickensides, lenses or seams. Whenever possible, electric logs should be run on each borehole. The hollow stem auger boring method is recommended in those instances where an accurate determination of initial water levels is important. A key explaining both the symbols used on the boring logs and the classification terminology for soil type, consistency, and structure should be provided.
   b. Cross-sectional drawings prepared from the borings depicting the generalized soil strata profile at the site. For small waste management areas two cross sections prepared perpendicular to each other will normally suffice.
   c. A text which describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation. If appropriate, soils may be assigned to generalized strata to aid in the discussion.
   d. Complete Table VI.A.4. - Waste Management Area Subsurface Conditions and provide in the report data which describes the geotechnical properties of the subsurface soil materials. All laboratory and field tests must be performed in accordance with recognized procedures. A brief discussion of test procedures should be included. All

major strata encountered during the field investigation phase should be characterized with regard to: Unified Soil Classification, moisture content, percent less than number 200 sieve, Atterberg limits (liquid limit, plastic limit, and plasticity index), and coefficient of permeability. Field permeability tests should be used to determine the coefficient of permeability of sand or silt units and should also be used to supplement laboratory tests for more clay-rich soils. In addition, particle size distribution and relative density based upon penetration resistance should be determined for coarse-grained soils. For fine-grained soils the following parameters should also be determined: cohesive shear strength based upon either penetrometer or unconfined compression tests, dry unit weight, and degree of saturation(s). For the major soil strata encountered, the maximum, minimum, and average for each of these variables should be compiled.

e. For land treatment units, provide a description of the surficial soils at the site which includes:

(1) The name and description of the soil series at the site;
(2) Important physical properties of the series such as depth, permeability, available water capacity, soil pH, and erosion factors;
(3) Engineering properties and classifications such as USDA texture, Unified Soil Classification, size gradation, and Atterberg limits (liquid limit, plastic limit, and plasticity index); and
(4) The cation exchange capacity (CEC) of the soil(s) expressed in units of meq/100g.

Much of this information may be obtained by consulting the county soil survey published by the United States Department of Agriculture, Soil Conservation Service. If available, a copy of an aerial photograph showing soil series units on the land treatment area should be provided.

If an aerial photograph is not available, include a soil series map as an attachment to this subsurface soils investigation report.

B. Facility Groundwater

If past monitoring has shown the presence of hazardous constituents in the groundwater, the owner or operator must submit a Compliance Plan Application with this application. The Compliance Plan Application and instructions can be found in Section XI of this application form.

Hazardous constituents have been detected in groundwater. A Compliance Plan (CP-50328) has been issued for the facility. The Compliance Plan addresses the uppermost (shallow) aquifer at the facility, which has been impacted by historical releases from the landfill and the unaffected lower (deep) aquifer also be incorporated into the Compliance Plan. See Section XI for the Compliance Plan renewal application.

1. Regional Aquifers **See Attachment VI.**

Provide a description of the regional aquifers in the vicinity of the facility based upon available geologic references. The section should provide:

a. Aquifer names and their association with geologic units described in Section VI.A.3.b.;
b. A description of the constituent materials of the aquifer(s);
c. A description of the water-bearing and transmitting properties of the aquifer(s);
d. Whether the aquifers are under water table or artesian conditions;
e. Whether the aquifers are hydraulically connected;
f. A regional water table contour map or potentiometric surface map for each aquifer, if available, from published references;
g. An estimate of the rate of groundwater flow in units of ft/yr;

h. Values for total dissolved solids content of groundwater from the aquifers;

i. Identification of areas of recharge to the aquifers; and

(An application for a new hazardous waste surface impoundment, waste pile, land treatment unit, or landfill, which is to be located in the apparent recharge zone of a major or minor aquifer, as designated by the Texas Water Development Board in the publication entitled Water for Texas, Today and Tomorrow (1990) or subsequent revision must include a hydrogeologic report documenting the potential effects, if any, on the regional aquifer in the event of a release from the waste containment system. (30 TAC 305.50(6)])

j. The present use of groundwater withdrawn from aquifers in the vicinity of the facility.

The preparer should update Section III.C.1.e. of the Part A permit application to ensure that all water wells within 1 mile of the property boundaries of the facility have been located. The aquifer(s) yielding water should be identified for each well.

Provide groundwater conditions for each land based unit or unit which requires post closure care which includes all the information specified in 30 TAC 335.156-335.167.

Information regarding groundwater conditions at the facility is included in the Geology Report, which is provided as Attachment VI. In addition to the information provided in the Geology Report, Murray Corporation routinely submits reports detailing current groundwater conditions in accordance with the requirements of the Part B Permit (HW-50328) and the Compliance Plan (CP-50328).

This discussion should also include:

a. Records of water level measurements in borings. The boring logs prepared in response to Section VI.A.4.a. should be annotated to note the level at which groundwater is first encountered and the level of groundwater after equilibration. Normally a 24-hour period is adequate for equilibration of groundwater but an extended period may be required for saturated clay deposits. This information should also be presented on the cross-sections required in Section VI.A.4.b. and recorded and retained in the facility groundwater monitoring record.

b. Records of maximum and minimum static water level measurements in monitor wells. Historic water level measurements made during any previous groundwater monitoring should be presented in a table for each well.

c. Upper and lower limits of the uppermost aquifer and deeper aquifers which are hydraulically interconnected to it beneath the facility boundary. In most cases this identification would include surface contour maps of the top and bottom surfaces.

d. A site specific water table contour map or potentiometric surface map for the uppermost aquifer, and the basis for such identification (the information obtained from hydrogeologic investigations of the facility area). The predicted groundwater flow direction and rate should be indicated.

e. A discussion of the variation of hydraulic gradient across the site, including vertical gradient. Calculations for the maximum, minimum, and average groundwater flow velocities for each aquifer identified should also be provided, including pump test data where appropriate.

f. An analysis of the most likely pathway(s) for pollutant migration in the event that the primary barrier liner system is penetrated.

2. Description of the Detection Monitoring Program **Not applicable. The Former Drum Burial Trench is under a Corrective Action Monitoring Program. See Section XI of this application.**

The groundwater monitoring standards apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in surface impoundments, waste piles, land treatment units, landfills, or tanks without satisfactory secondary containment for which a post-closure care plan or permit is required. If a waste management unit meets certain standards it may qualify for an exemption to the groundwater monitoring requirements. An exemption for a unit does not exempt an entire facility. (See the instructions for each type of unit for a specific exemption.) A facility-wide exemption is described in Section VI.C.

It is important to note that even if the proposed program may use the same well system as the present program, the sampling parameters may be different.

a. Include in the design report a description of the proposed detection monitoring program. This description should contain all requirements of 30 TAC 335.163-335.164. Provide a justification for the selected suite of waste specific parameters specified in Table VI.B.3.c. - Groundwater Sample Analysis based on toxicity, mobility, persistence, and concentrations in light and dense non-aqueous phase components of the waste. Describe the proposed sampling, analysis, and statistical comparison procedures to be utilized in evaluating groundwater monitoring data. Specify the statistical method and process for determining whether constituent concentrations in groundwater are above background, in accordance with 30 TAC 335.163. Refer to the EPA guidance document entitled *Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Unified Guidance (March 2009) (document # EPA 530-F-09-020)* for recommended methods.

   All data submitted to the TCEQ shall be in a manner consistent with the latest version of the "*Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation Recovery Act and Underground Injection Control*" (TCEQ QAPP) which a can be found on the agency's website.

   Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity. The method used to obtain a representative sample of the material to be analyzed shall be the appropriate method from Ground Water, Volume II: Methodology, (document # EPA/625/6-90/016b) or an equivalent method approved by the Executive Director of the TCEQ. Laboratory methods shall be those specified in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1987*, as revised; *Standard Methods for the Examination of Water and Wastewater, Fifteenth Edition, 1980*, and *1981 supplement*, or current adopted edition; *RCRA Ground-Water Monitoring: Draft Technical Guidance, 1992, OSWER Directive 9950.1*, or an equivalent method approved in writing prior to use by the Executive Director. [30 TAC Section 305.125(11)(A)]

b. For inclusion into a permit, complete Table VI.B.3.b. - Unit Groundwater Detection Monitoring System to specify the proposed well system for each unit or waste management area which requires groundwater monitoring.

c. For inclusion into a permit, complete Table VI.B.3.c to specify:

   (1) the suite of waste specific parameters (indicator parameters, waste constituents, or reaction products) which will be analyzed at each sampling event for each well or group of wells. These parameters must provide a reliable indication of the presence of hazardous constituents in the groundwater;

(2) the sampling frequencies and calendar intervals (e.g., monthly; quarterly within the second 30 days of each quarter; semiannually within the first 30 days of the 2nd and 4th quarters, etc.);

(3) the analytical method and the achievable detection limit of the sample preparation and

analysis methods for the selected parameters. This detection limit will represent the capability of the sampling and analysis to reliably and accurately determine the presence of the selected parameters in the sample; and

(4) the concentration limit which will be the basis for determining whether a release has occurred from the waste management unit/area. Concentration limits shall be based on background values for the waste management unit/area, or Practical Quantitation Limit (PQL) values developed through laboratory data obtained using practices consistent with the latest version of the TCEQ QAPP. If background values are lower than PQLs, the applicant may choose respective PQLs as concentration limits for hazardous constituents.

d. Submit drawings depicting the monitoring well design, current and proposed.

e. Submit at least one map of the entire facility and additional maps or drawings if necessary on one or more 82“ x 11” sheets of sufficient scale to show the following in adequate detail:

(1) Monitoring well locations, current and proposed;
(2) Soil-pore liquid and core sampling points, current and proposed;
(3) Waste management unit(s)/area;
(4) Property boundary;
(5) Point of compliance;
(6) Direction of groundwater flow; and
(7) Extent of any known plume of contamination

C. Exemption from Groundwater Monitoring for an Entire Facility **Not applicable.**

In accordance with 30 TAC 335.156(b)(4), a waste management facility may be exempt from groundwater monitoring if the owner or operator can demonstrate that there is no potential for migration of liquid from any regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and post-closure care period. This demonstration must be submitted with the permit application, and must be certified by a qualified geologist or geotechnical engineer.

This exemption does not apply to Unsaturated Zone Monitoring. Owners and operators of Land Treatment Units must monitor the unsaturated zone under all circumstances.

The following areas should be addressed in the demonstration, and any predictions must be made on assumptions that maximize the rate of liquid migration:

1. Thickness of soil between the base of the unit and saturated zone;

2. Thickness of saturated zone;

3. Head pressure of the fluids;

4. Properties of the saturated and unsaturated zone (including permeability, effective porosity, and homogeneity), and

5. Total life of facility

The criteria used for the evaluation of this demonstration are more stringent than those used for evaluations of demonstrations submitted prior to permitting. Thus it is necessary for an owner or operator to submit another demonstration even if one was submitted and approved previously.

This type of exemption differs from the exemptions described in Sections V.D. (Surface Impoundments), V.E. (Waste Piles), and V.G. (Landfills). An owner or operator may

pursue a facility-wide exemption as well as an exemption for a particular unit, if the owner or operator wishes.

D. Unsaturated Zone Monitoring **Not applicable.**

This section applies only to facilities which contain land treatment units. Attach any previous monitoring data to the monitoring report.

1. List all hazardous constituents that have been or will be monitored.
   a. Current parameters.
   b. Proposed parameters.

2. Number of soil-pore liquid sampling points.
   a. Depth of sampling points.
   b. Equipment used for soil pore liquid monitoring.

3. Number of soil core sampling points.
   a. Depth of soil core sampling points.
   b. Indicate on a facility map locations of all sampling points.

Table VI.A.2. Description of Uppermost Aquifer

The uppermost aquifer at the Murray facility consists of the shallow groundwater-bearing zone of the Wilcox Group (Nacatoch Sand). Groundwater is typically encountered at approximately 25–35 feet below ground surface, corresponding to elevations of about 320–330 feet above mean sea level. The aquifer materials consist primarily of fine- to medium-grained sands with interbedded silts and clays, and the saturated thickness is generally 40 to 60 feet. Groundwater within this aquifer is classified as Class 2 and flows to the southeast toward Town Creek, which serves as the natural discharge point downgradient of the facility.

Table VI.B.3.b. - Unit Groundwater Detection Monitoring System

Waste Management Unit/Area Name[1]	Former Drum Burial Trench					
Well Number(s):	**MW-1**	**MW-5**	**MW-6**	**MW-10**		
Hydrogeologic Unit Monitored	Uppermost Groundwater	Uppermost Groundwater	Uppermost Groundwater	Uppermost Groundwater		
Type (e.g., point of compliance, background, observation, etc.)	Background	Point of Compliance	Point of Compliance	Attenuation Monitoring Point		
Up or Down Gradient	Up Gradient	Down Gradient	Down Gradient	Down Gradient		
Casing Diameter and Material	2" Sch. 40 PVC	4" FRP	4" FRP	2" Sch. 40 PVC		
Screen Diameter and Material	2" Sch. 40 PVC	4" FRP	4" FRP	2" Sch. 40 PVC		
Screen Slot Size (in.)	0.01"	0.01"	0.01"	0.01"		
Top of Casing Elevation (ft, MLGL or MSL)	374.08	373.02	371.07	340.16		
Grade or Surface Elevation (ft, MLGL or MSL)	371.58	370.78	368.47	337.89		
Well Depth (ft, Below Grade Surface [BGS])	41'	25'	22'	20.75'		
Well Depth (Ft, Below Top of Casing [BTOC])	43.5'	27.25'	24.5'	23'		
Screen Interval, From(ft, BGS) To(ft, BGS)	21'-41'	15'-25'	12'-22'	6.75'-20.75		
Screen Interval, From(ft, BTOC) To(ft, BTOC)	23.5'-43.5'	17.25'-27.25'	14.5'-24.5'	9'-23'		
Facility Coordinates (e.g., lat/long or company coordinates)	31.730539°, -95.673661°	31.729947°, -95.673426°	31.729974°, -95.673183°	31.729396°, -95.672483°		

[1]From Tables in Section V.

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

Unit/Waste Management Area

Well No(s). **MW-1, MW-5, MW-6, MW-10**

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit [1]
Carbon Tetrachloride	Semiannual	EPA 8260	0.001	0.54
Chlorobenzene	Semiannual	EPA 8260	0.005	3.56
1,1-Dichloroethane	Semiannual	EPA 8260	0.005	143
1,2-Dichloroethane	Semiannual	EPA 8260	0.005	30.7
1,1-Dichloroethene (1,1-DCE)	Semiannual	EPA 8260	0.005	83.3
Methylene Chloride	Semiannual	EPA 8260	0.005	332
Tetrachloroethene (PCE)	Semiannual	EPA 8260	0.001	2.72
1,1,1-Trichloroethane (1,1,1-TCA)	Semiannual	EPA 8260	0.005	136
Trichloroethene (TCE)	Semiannual	EPA 8260	0.001	30.8
Vinyl Chloride	Semiannual	EPA 8260	0.001	1.33
Carbon Tetrachloride	Semiannual	EPA 8260	0.001	0.54

[1] The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.

XI. Compliance Plan

Groundwater Monitoring and Corrective Action Requirements for Regulated Units

Owners or operators of facilities that process, store, or dispose of hazardous waste may be required to establish groundwater monitoring and response programs in accordance with the provisions of 30 TAC 335.157. There are three types of groundwater monitoring programs which may be addressed in a Compliance Plan Application for Regulated Units: i) detection monitoring, ii) compliance monitoring, and iii) corrective action monitoring. The applicability of these various monitoring programs and the associated application requirements are illustrated in Figure 2 of the Compliance Plan Application instructions and further outlined below. A Compliance Plan Application will be required to be submitted when establishing a new compliance plan or incorporating changes in an existing compliance plan.

Landfill – Former Drum Burial Trench

Groundwater monitoring for the closed landfill has been conducted under a Corrective Action Program established within the Compliance Plan. The corrective action program consists of a plume management zone (PMZ) described in the Response Action Plan (RAP) which addresses releases from the landfill and from a leak in the groundwater recovery system discharge line. The corrective action program incorporates alternate concentration limits for designated point of exposure (POE) and attenuation monitoring point (AMP) wells located within the Town Creek floodplain.

A description of the PMZ is presented in the Revised Response Action Plan (June 2013) provided in Attachment XI.D.6. Groundwater protection standards within the PMZ are based on critical groundwater to surface water PCLs. The RAP was revised to update the groundwater protection standards (GWPS) based on current Tier 1 PCL in June 29, 2012 TRRP tables and SW RBELs in Figure 30 TAC§307.6(d)(1). The revised RAP also reflects that active groundwater recovery was discontinued after the GWPS was met in all point of compliance (POC), corrective action observation (COA), POE and AMP wells for three consecutive years.

Detection Monitoring: An owner/operator required to conduct detection monitoring per the requirements of 30 TAC 335.164 must monitor for indicator parameters, such as specific conductance, total organic carbon, and total organic halogen, as well as chemical parameters and hazardous constituents specified in the facility permit. If a statistically significant increase in any parameter or hazardous constituent specified in the facility permit is detected in any monitoring well down-gradient of the compliance point, the owner/operator must sample the groundwater in all monitoring wells and analyze the samples for the presence of 40 CFR Part 264 Appendix IX hazardous constituents. As shown in the accompanying Flow Diagram (see Figure 2), if the analytical results confirm the presence of Appendix IX constituents down-gradient of the compliance point, the owner/operator must submit a Compliance Plan Application to establish a compliance monitoring program or corrective action program.

Compliance Monitoring: The requirements for compliance monitoring programs are detailed in 30 TAC 335.165. Owners/operators required to establish a compliance monitoring program must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) specified in the compliance plan (see 30 TAC 335.158 - .160). If a statistically significant increase above the GWPS in any chemical parameter or hazardous constituent specified in the compliance plan is confirmed, the owner/operator must submit a application to modify the compliance plan to establish a corrective action program in accordance with 30 TAC 335.166 (see Figure 2). If no such exceedence of the GWPS is detected for three consecutive years and the applicable compliance period has expired, the owner/operator must apply for modification of the compliance plan to reestablish a detection monitoring program for the unit. No further monitoring will be needed if the applicable post-closure care period for the unit is complete.

Regulated Unit Corrective Action Program: Owners/operators required to implement a corrective action program in accordance with the provisions of 30 TAC 335.166 must remove the hazardous

waste constituents found in the groundwater or treat the groundwater in-place to levels equal to or less than the GWPS down-gradient of the compliance point. The owner/operator must also establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Corrective action measures may be terminated once the concentrations of hazardous constituents are reduced to levels equal to or below their respective concentration limits. After termination of the corrective action measures, the owner/operator must submit an application for modification of the compliance plan to reestablish a compliance monitoring program for the duration of the compliance period (see Figure 2).

Groundwater Corrective Action Requirements for Solid Waste Management Units (SWMUs)

HSWA Solid Waste Management Unit (SWMU) Corrective Action Program: An owner/operator of a Permitted facility or an applicant applying for a hazardous waste permit is required to submit a Compliance Plan Application if hazardous constituents have been released from a SWMU and/or Area of Concern (AOC) to the groundwater and exceeds background or Practical Quantitation Limit (PQL) values, if under Risk Reduction Rules 30 TAC 335 and/or appropriate Protective Concentration Limits (PCLs), if under Texas Risk Reduction Program Rules 30 TAC 350. The Permitted facility must implement a corrective action program for SWMUs and/or AOCs in accordance with provisions 30 TAC 335.167 (see Figure 3, page 122 of the instructions for example of process-alternate, but equivalent process may be authorized by the Executive Director).

Compliance Plan Application Form Structure:
The Compliance Plan Application consists of Sections XI.A. through E.

Application Information Form:
This section contains detailed information necessary for the application and regulatory requirements needed to put in the final compliance plan.

The application form contains the following subsections:

A. Site Specific Information
B. Groundwater Protection Standard (GWPS)
C. Compliance Monitoring Program
D. Corrective Action Program
E. Cost Estimates for Financial Assurance

CP Attachments:

A. Alternate Concentration Limits
B. Well Design and Construction Specifications
C. Sampling and Analysis Plan

Compliance Plan Site Specific Tables:
This section includes the following tables which are to be completed by the applicant, as applicable, and shall be incorporated as part of the final draft Compliance Plan. [Note: include a CD disk with the application providing an electronic copy of the files supporting the compliance plan tables, as applicable, in MS Word format]:

CP Table I – Waste Management Units and/or Areas Subject to Groundwater Corrective Action and Compliance Monitoring
CP Table II – Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167.
CP Table III – CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard
CP Table IIIA – CORRECTIVE ACTION PROGRAM Table of Indicator Parameters and the Groundwater Protection Standard
CP Table IV – COMPLIANCE MONITORING PROGRAM Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring
CP Table IVA – COMPLIANCE MONITORING PROGRAM Table of Detected Hazardous

Constituents and the Groundwater Protection Standard for Compliance Monitoring
CP Table V – Designation of Wells by Function
CP Table VI – Compliance Period for RCRA-Regulated Units

Note to the Permittee: All responses to each item in Section XI of the application form should be entered immediately below the original text associated with the form. Do not delete any areas of the application form that are not applicable, retain these areas with a response of either 'Reserved' or 'Not Applicable' below the original text of the form. In addition, if material supporting a response is located elsewhere in the application, the response should provide details as to the specific location within the referenced material.

One of the primary goals of the performance based Compliance Plan is the wells listed in, CP Table V – Designation of Wells by Function (to be included in the final Compliance Plan) are the wells in which the GWPS must be met to verify compliance with Compliance Monitoring program or corrective action objectives, and to change the table would require a modification. On the other hand, the following types of wells Corrective Action Observation Wells, Corrective Action System well, etc., that are included in "Attachment A" maps of the final draft Compliance Plan, should be flexible. The purpose is to provide the permittee with the authority to alter the groundwater monitoring system and Corrective Action System designs, as necessary, to proactively address changing environmental conditions without modifying or amending the Compliance Plan. An application to modify/amend the compliance plan is only required if wells listed in CP Table V are changed; consequently, Corrective Action Observation and Corrective Action System Wells are not listed in CP Table V of the compliance plan so they may be added or removed without modifying/amending the compliance plan. Notification of proposed changes to the groundwater monitoring system and Corrective Action System designs can be included in the semiannual or annual report required by CP Table VIII – Compliance Schedule (to be included in the final Compliance Plan).

Figure 1
Overview of Required Submittals And Revisions Associated with TCEQ Groundwater Compliance Plan Application

Type of Compliance Plan Application or Revision	Minimum Required Submittals				Additional Application Submittals Or Revisions					
	Description of Modification	Public Notification Evidence	Fee Payment Evidence	Part B, Section I	Section XI.A.	Section XI.B.	Section XI.C.	Section XI.D.	Section XI.E.	Attachment A
				General Information	Site-Specific Information	Groundwater Protection Standard	Compliance Monitoring Program	Corrective Action Program	Financial Assurance Cost Estimates	Alternate Concentration Limits
RCRA Permitted Units										
Compliance Monitoring Program, commencement or modification per 30 TAC 335.165.	●	●	●	●	●	●	●	○	●	◒
Corrective Action Program, commencement or modification per 30 TAC 335.166.	●	●	●	●	●	●	○	●	●	◒
Compliance Period, termination or extension per 30 TAC 335.162.	●	●	●	●	◒	○	●	○	◒	○

Solid Waste Management Units										
Corrective Measure Implementation (CMI), per 30 TAC 335.167.	●	●	●	●	●	●	◒	●	●	○
Corrective Action Program termination.	●	●	●	●	◒	○	●	○	○	○

Note:

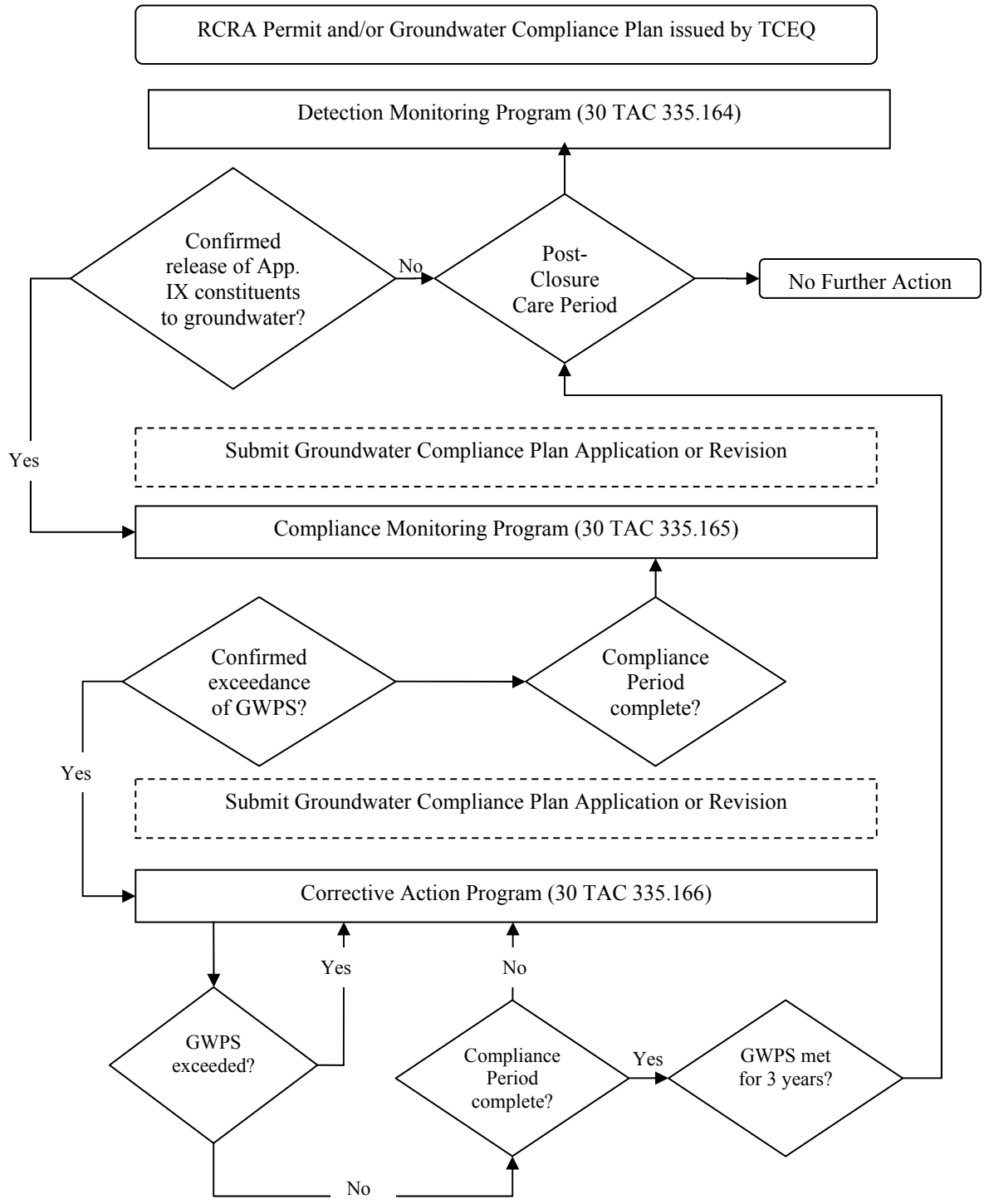
● ‘submittal of additional or revised information required.

○ =No submittal of additional or revised information required.

☐ =Possible submittal of additional or revised information required.

Figure 2
Summary of Groundwater Monitoring and Compliance Plan Application Requirements for Regulated Waste Management Units

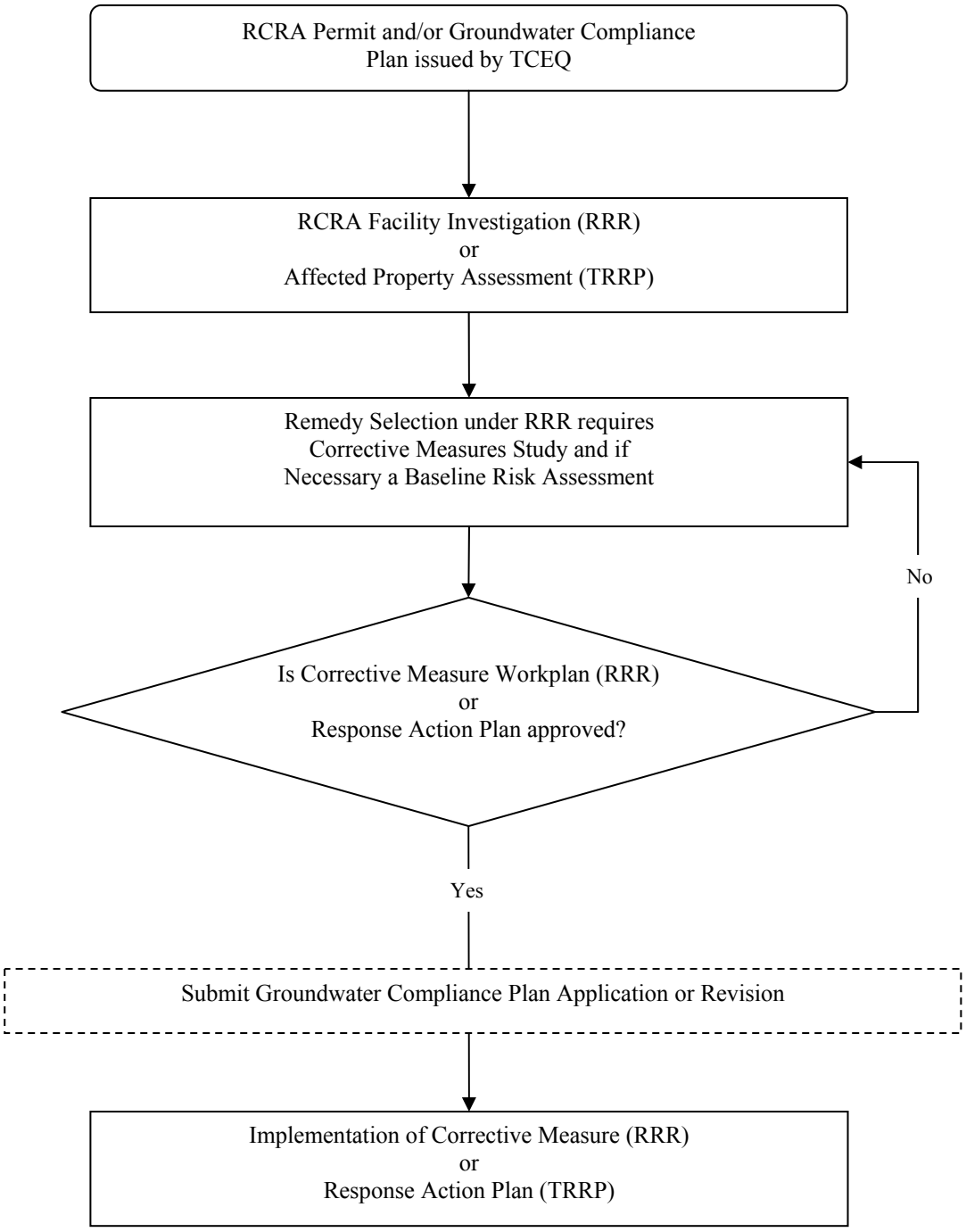
(30 TAC 335 Subchapter F)



Note:
- GWPS = Groundwater Protection Standard (See Section XI.B. of this document, and 30 TAC 335.158 – 160)
- App. IX = Groundwater Monitoring List, 40 CFR 264 Appendix IX.
- Compliance Period = See Section XI.E. of this application, and 30 TAC 335.162.

Figure 3
Summary of Compliance Plan Application Requirements
for Solid Waste Management Units (SWMUS)

(30 TAC 335.167)



Note:
(RRR) – Risk Reduction Rules, 30 TAC 335
(TRRP) – Texas Risk Reduction Program, 30 TAC 350

A. Site Specific Information

1. General Site Information (provide the following information): **See Attachment XI.A.1.**
   a. An overall plan view map of the entire facility delineating the facility's property boundary, Facility Operations Area (FOA) boundaries, as applicable, and the plume management zone (PMZ) boundaries as applicable;
   b. A 7.5 minute U.S.G.S. quadrangle topographic map showing the entire facility;
   c. All oversized (larger than 8.5" by 11") drawings submitted in accordance with a and b, above, should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper which shall be used as "CP Attachment A" maps in the final draft Permit/Compliance Plan. The applicant should title the map(s) accordingly as "CP Attachment A, Sheet 1 of xx – Facility Site Map"; "CP Attachment A, Sheet xx of xx, FOA Lateral Boundary Map"; "CP Attachment A, Sheet xx of xx, PMZ Boundary Location Map"; and **Required figures for inclusion within the Compliance Plan are provided in Attachment XI.A.1.**
   d. Aerial photographs through time depicting changes in the land use, if available. **Attachment XI.A.1.d includes aerial photographs from 1995 to 2012.**

2. Waste Management

   Provide a complete list and a plan view drawing(s) locating and identifying the following waste management units at the scale of 2.5 centimeters (1 inch) equal to not more than 61.0 meters (200 feet). All oversized (larger than 8.5" by 11") drawings should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper. Please provide information for each waste management unit listed below on Table XI.A.1. – Facility History for Waste Management Units.

   List of Facilities – Closed Landfill (Former Drum Burial Trench)

   A map showing the location and status of the permitted unit is provided in Attachment XI.A.2. A separate map showing the waste management unit location for inclusion in the compliance plan is included in Attachment XI.A.1. Table XI.A.1 has been completed.

   a. All hazardous waste management units regulated under the Industrial Solid Waste and Municipal Hazardous Waste Rules (Chapter 335) required to be monitored in accordance with 30 TAC 335.164 (Detection Monitoring), 335.165 (Compliance Monitoring Program) and 335.166 (Corrective Action Program); **Closed Landfill (Former Drum Burial Trench) under Corrective Action Program**
   b. All solid waste management units (SWMUs) and Areas of Concern (AOCs) regulated under 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA) shall include those identified in accordance with the permit requirements subsequent to the initial RFA. **Not applicable.**
   c. All on-site wastewater treatment units. **None.**

3. Facility History

   Based on the information provided in Table XI.A.1., complete CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring accordingly in the format provided. **CP Table I has been completed.**

   For the SWMUs or AOCs listed in Table XI.A.1. regulated under 30 TAC 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA), including those identified in accordance with permit requirements subsequent to the initial RFA, complete CP Table II – Solid Waste Management Units and

Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167. CP Table II will become part of the Compliance Plan. **CP Table II has been completed.**

4. Site Geology, Hydrogeologic Conditions, and Relationship to Surface Water

   For New, modified/amended Compliance Plan, please provide a Geology Report as required by Section VI.B of this application containing updated site geologic information including the following descriptions, maps and tables with appropriate supporting documentation [All maps should be at the scale of 1 inch equal to not more than 200 feet and legible when reduced to 8.5" by 11" letter size paper]: **Site geology and hydrogeology reports are provided in Attachment VI. Current contaminant plume maps from the January 2013 Semiannual Corrective Action Report are provided in Attachment XI.A.4.**

   a. A description of the site geology for the facility. The geologic description should include a site geology map and sufficient cross sections (see Item h. below) to describe the uppermost aquifer and any confining stratigraphic unit(s) beneath the site. **See Attachment VI.**

   b. A description of the site soils and subsurface lithologies using the Unified Soil Classification System. For those soil units which do not extend beneath the entire site area, the soil description should include a plan view map designating the soil's areal extent; **See Attachment VI.**

   c. Where a soil remedy is required in a corrective action program of Section XI.D.1. of this application for a Regulated Unit, SWMU and/or AOC, the applicant shall submit a description of contamination in soils of the vadose zone (unsaturated zone above the uppermost aquifer). The soil description should include maps indicating lateral and vertical extent of contamination; **Not applicable. No soil remedy is required.**

   d. A description and designation of the uppermost saturated zone or uppermost aquifer including the name, the type of unit (e.g. perched, confined, etc.,), and groundwater characteristics (flow rates, directions, hydraulic conductivity, etc.). As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formation, or part of a formation, capable of yielding significant amount of groundwater to wells or springs. Persons using Texas Risk Reduction Program (TRRP) should also consider the definition of a groundwater bearing unit as a saturated geologic formation, group of formations, or part of a formation with a hydraulic conductivity of equal to or greater than 1 x 10 -5 centimeters/second (30 TAC 350.4(a)40). **See Attachment VI.**

   e. Present the geologic, stratigraphic and hydrogeological information; and **See Attachment VI.**

   f. Maps indicating the lateral and vertical extent of the contamination for each stratigraphic unit affected, with supporting documentation. **See Attachment VI.**

   g. Current Contaminant Plume Map(s) - Locating and identifying the extent of contamination as determined from previous monitoring on a separate facility base map(s). Locate and identify all monitor wells and waste management units/areas. **See Attachment XI.B.4.**

   h. Cross section - Cross section transect lines should be indicated on the Contaminant Plume Map. The applicant, at a minimum, must submit two (2) stratigraphic cross sections for each waste management unit/area. One cross section should be drawn through all the point of compliance wells and the second cross section should be drawn along the direction of the movement of the contaminant plume released from the unit/area. Cross sections should follow the requirements outlined in the Geologic and Hydrogeologic Report of Parts IV and V of this application. At a minimum, the cross sections should include the following information: **See Attachment XI.B.4.**

      (1) the stratigraphic interpretation (e.g., surface grade, uppermost aquifer, aquiclude);
      (2) lithology/geologic description of the uppermost aquifer and aquiclude;

(3) the potentiometric surface;
(4) detected non-aqueous phase liquids (NAPLs) and hazardous constituents; and
(5) screen length and screen depth for each well in the cross section.

i. Well Construction diagram - The report should include a well construction diagram for all wells used in the cross section. The well construction diagram should include the information in "Attachment B" of this (Compliance Plan) application. The well construction diagram information may be included on the geologic cross-section(s). **See Attachment XI.D.3.a.**

j. Describe the potential for any surface water bodies to be hydraulically connected to groundwater containing hazardous constituents. Apply the guidance provided in Determining PCLs for Surface Water and Sediment, RG-366/TRRP-24 Revised, December 2002, in order to determine the water body type and applicable surface water criteria for human health, aquatic life and wildlife, as applicable. **See Attachment VI.**

B. Hazardous Constituents In Groundwater And Groundwater Protection Standards (GWPSs)

Hazardous Constituents in Groundwater

For each contaminated hydrogeologic unit beneath a waste management unit/area (40 CFR 264.95), provide a list of all 40 CFR Part 264 Appendix IX hazardous constituents that have been detected in groundwater samples above background values, Practical Quantitation Limits (PQLs), or Method Quantitation Limits (MQLs). Please submit for each unit/area the most recent Appendix IX laboratory analysis results showing the constituents, constituent concentrations, methods used for analysis and associated laboratory QA/QC. **A comprehensive groundwater sampling event of the uppermost aquifer was conducted in November 2001 with additional samples collected in April and June 2002. Analytical results presented in the January 2013 groundwater sampling event showing the detected hazardous constituents in the groundwater beneath the facility are provided in Attachment XI.B. None of the detected constituent concentrations exceed the established or updated groundwater protection standards (GWPS) within Compliance Plan CP-50328 (See Section XI.B.2.b).**

The groundwater samples (collected for the purpose of determining whether constituents listed in Appendix IX are present) shall be from each waste management unit/area monitoring well system as required by 30 Texas Administrative Code (TAC) 335.164 (detection monitoring program).

If the waste management unit/area is subject to Corrective Action Program required by 30 TAC 335.166 or 335.167 and/or Compliance Monitoring required by 30 TAC 335.165, then list the unit/area and include the list of hazardous constituents and their principal degradation constituents in:

CP Table III – Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard; and **CP Table III has been completed for the PMZ.**

CP Table IV – Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring. **CP Table IV is reserved.**

1. Groundwater Protection Standards (GWPSs)

The GWPS (30 TAC 335.158) is designed to ensure that hazardous constituents (30 TAC 335.159) identified in groundwater and their principal degradational constituents do not exceed concentrations that pose a present or potential hazard to human health and the environment. Compliance monitoring and corrective action programs for a Regulated Unit (30 TAC 335.165 and 335.166) and a corrective action program for a solid waste management unit (SWMU) (30 TAC 335.167) require human health and the environment

to be protected from all releases of hazardous wastes and constituents. These corrective action and monitoring programs are evaluated using the GWPS. The GWPS is based on the following criteria.

a. Background Levels - Background levels authorized under 30 TAC 335.160(a)(1) are defined as constituent concentration values that are naturally occurring or are not influenced by contamination coming from the waste management unit. These values are established by statistical analysis of upgradient well sampling data. Analytical results from a sufficient number of independent samples are required to be utilized with an approved and appropriate statistical method. For guidance on the statistical methods consult, Statistical Analysis of Groundwater Data at RCRA Facilities-Unified Guidance, U.S. EPA, March 2009, and any subsequent updates to this document.

   Practical Quantitation Limits (PQLs) or Method Quantitation Limits (MQLs) are utilized in lieu of background values unless a background demonstration establishes concentrations for naturally occurring constituents. The PQL or MQL is defined in the footnote of CP Tables III and IV.

b. Primary and Secondary Maximum Contaminant Levels (MCLs) - Maximum permissible level of a contaminant in water which is delivered to any user of a public water system (40 CFR Part 141 and 143, Federal Safe Drinking Water Act).

c. Alternate Concentration Limits (ACLs) determined in accordance with 30 TAC 335.160(b) and are defined in footnote of CP Tables III and IV.

2. Establishing the Groundwater Protection Standard (GWPS)

   a. If background, PQL or MQLs are proposed for the GWPS, the applicant must list all constituents (i.e., detected and degradational constituents) for which a GWPS is being applied for and the appropriate concentration limits. This information shall be submitted in the format of CP Tables III, and IV.

   b. Alternate Concentration Limits (ACLs) - ACLs are established at the point of compliance (POC) for a regulated or solid waste management unit (SWMU). All concentration values or limits listed in Section XI.B.1.c. are considered ACLs. ACLs are evaluated in accordance with the provisions of 30 TAC 335.160(b) and other regulations acceptable to the executive director. If an ACL is requested on the basis of Section XI.B.1.c. (MCLs), then no ACL demonstration is necessary. The ACL demonstration must establish constituent concentrations in groundwater in accordance with regulations acceptable to the executive director. This information shall be submitted in the format of CP Tables III and IV. Note that depending upon the rule employed [i.e., 30 TAC 335 Subchapter S – Risk Reduction Rules (RRR) or 30 TAC 350 – Texas Risk Reduction Program (TRRP)], the applicant should determine the GWPS for the point of compliance and point of exposure, as applicable, in accordance with the remedy standard being utilized.

      If the contaminant plume discharges or has a potential to discharge into surface water, then the facility must also comply with 30 TAC Chapter 307 (Texas Surface Water Quality Standards) unless other regulatory requirements acceptable to the executive director are requested.

      "Attachment A" of this Compliance Plan Application provides a summary of regulatory requirements for an ACL demonstration in accordance with 30 TAC 335.160(b).

      Development of the GWPS for the PMZ groundwater monitoring program is presented in the revised Response Action Plan (dated June 2013) provided in Attachment XI.D.6. Chemicals of concern (COCs) and concentration limits for the POE and attenuation monitoring points are provided in application CP Table III and CP Table IIIA. The concentration limits for the POE and attenuation monitoring points are Tier 2 PCLs based on critical groundwater-to-surface water protective concentration

levels (^{SW}GW PCLs) based on the human health exposure pathways and ecological exposure pathways and incorporate a groundwater to surface water (Town Creek) dilution factor. The GWPS in CP Tables III and IIIA have been revised to reflect the current Tier 1 PCLs in June 29, 2012 TRRP tables and SW RBELs in Figure 30 TAC§307.6(d)(1). Attenuation action levels (AALs) for the attenuation monitoring point (AMP) wells have been developed as part of the plume management zone (PMZ) response action and are also presented within the revised RAP (Attachment XI.D.6).

C. Compliance Monitoring Program

The compliance monitoring program is no longer required due to issuance of the recent No Further Action (NFA) letter.

The compliance monitoring objectives established under Permit No. 50328 in Section XI.C and XI.D, consistent with the requirements of 30 TAC §335.165, have been met at all designated point of compliance (POC) and background wells (see CP Table V). Groundwater monitoring conducted under Section XI.F of the Compliance Plan has consistently demonstrated that concentrations of chemicals of concern remain below the applicable groundwater protection standards at the POC wells and that background water quality conditions are stable. These objectives were confirmed by the long-term monitoring program and documented in the Response Action Completion Report (RACR, April 2024), which summarized groundwater analytical results for all POC and background wells . The RACR data show that exceedances identified prior to 2013 were addressed through corrective action, and since that time, groundwater concentrations have met permit-issued groundwater protection standards with only isolated exceedances that did not impact downgradient compliance points. Accordingly, the compliance monitoring program has achieved the requirements of Section XI of the permit, and the monitoring objectives have been fulfilled in accordance with the applicable permit provisions and regulatory standards.

As required by 30 TAC 335.165, an owner or operator must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) under 30 TAC 335.158. The applicant must provide the following information when proposing a compliance monitoring program.

1. Groundwater Monitoring Program Description
   a. Describe the proposed groundwater monitoring system to be used to monitor compliance with the GWPS which includes the following information.
      (1) Changes, if applicable, from the current detection monitoring system or compliance monitoring system groundwater monitoring program at the waste management unit that will be required to comply with the compliance monitoring program described in 30 TAC 335.165. This description should address changes concerning:
         (a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit an updated Geologic and Hydrogeologic Report required by Section XI.A.4];
         (b) Waste management areas/units;
         (c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
         (d) The number and locations of additional monitor wells [also see Section XI.C.1.b.(2)];
         (e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
         (f) Frequency of monitoring;
         (g) Monitoring parameters;
         (h) Evaluation of compliance with GWPS (Statistical Methods);
         (i) Other Sampling and Analysis Plan information to be compliant with "Attachment C";
         (j) Compliance period as defined in Section XI.E.1.c. of the application;
         (k) Financial assurance (see Section XI.E.); and
         (l) An ACL variance under 30 TAC 335.160(b), if applicable (also see "Attachment A").

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Observation Wells, Piezometers, etc.). Complete CP Table V – Designation of Wells by Function and make changes as applicable to plans referenced in Section XI.C.1.b.

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in Table CP IV accordingly to develop the constituent list for the Compliance Monitoring Program. Also, list the PQL, MQL, or background concentration for each constituent in CP Table IV. CP Table IV shall become part of the final Compliance Plan to be analyzed at least annually as required by 30 TAC 335.165(7).

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IV., complete CP Table IVA – Compliance Monitoring Program, Table of Detected Hazardous Constituents and the Groundwater Protection Standard for Compliance Monitoring, accordingly. CP Table IVA shall become part of the final Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.165(6). **CP Table IVA is reserved.**

(5) Monitoring frequency.

(6) Provisions for reporting of groundwater data at least on an annual basis.

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI – Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan.

b. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan - The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Monitoring System Plan - If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The Monitoring System Plan must include:

(a) Monitoring System Design and Specifications - Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(b) Well Drilling and Well Casing Specifications - Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report - Provide a report per Section X.I.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based.

2. Waste Management Units Monitored

a. Delineate and identify the following for each waste management unit in the proposed

groundwater monitoring program.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units subject to compliance monitoring should be listed in CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring which shall become part of the final Compliance Plan.

(2) The proposed point of compliance (30 TAC 335.161) and point of exposure wells.

(3) Any other proposed monitor wells such as supplemental wells, observation wells,background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells be designated to monitor the downgradient extent of the plume.

(4) Features which may serve as conduits for subsurface contamination.

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance and/or point of exposure wells should be indicated in CP Table V – Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for compliance monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Compliance Plan.

3. Implementation Schedule

Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application, or are not completed at the time of issuance of the final draft Permit/Compliance Plan, then the items should be added to the CP Table VIII - Compliance Schedule of the application.

D. Corrective Action Program

As required by 30 TAC 335.166, the owner or operator must take corrective action to ensure that Regulated Units are in compliance with the Groundwater Protection Standards (GWPS) under 30 TAC 335.158. As required under 30 TAC 335.167, all releases of hazardous constituents from any solid waste management unit at the facility must also be addressed. For existing corrective action programs which have been approved by the TCEQ, the applicant shall provide a copy of the TCEQ corrective action system approval letter, design system specifications and any updates as requested in Section XI.D.3.a.(1) of this section. The applicant must provide the information requested below when proposing a corrective action program which has not been previously approved by the TCEQ including a detailed description of a corrective action or a combination of corrective actions that will remedy the groundwater contamination at the waste management unit and a proposed plan for a monitoring program that will demonstrate the effectiveness of the corrective action.

The owner or operator may also apply for a the Facility Operations Area (FOA) pursuant to the requirements of 30 TAC 350.131 - 350.135 of the Texas Risk Reduction Program (TRRP) rules, provided the applicant meets the FOA pre-approval process steps 1 through 3 approved by the Commission.

Also, the owner or operator may apply for alternative groundwater Corrective Action Program pursuant 30 TAC 335.151, 335.156 and 30 TAC 350, where there are commingled releases from RCRA-regulated unit from one or more SWMUs, PCO, and/or AOC.

The Compliance Plan incorporates a corrective action and groundwater monitoring program to address groundwater impacts from the RCRA-regulated unit and the historical groundwater recovery system discharge line release. The groundwater contamination is currently addressed through a Corrective Action Program that utilizes a Plume Management Zone (PMZ), including point of exposure wells and attenuation monitoring points to monitor compliance with the GWPS. A description of

the PMZ is presented in the Revised Groundwater Response Action Plan (June 2013) provided in Attachment XI.D.6. Although originally part of the corrective action program, active groundwater recovery was discontinued April 2013 after the GWPS was met in all point of compliance (POC), corrective action observation (COA), POE and AMP wells for three consecutive years.

1. Type of Corrective Action Proposed

   From the list below, indicate the type of groundwater corrective action proposed for each hazardous waste unit/area. Discuss in detail if more than one corrective action is to be used in a waste management area. Submit the discussion and descriptions as an attachment to the application. **See Attachment XI.D.6.**

   a. Groundwater well recovery with surface treatment
   b. Groundwater well recovery/surface treatment/re-injection
   c. Groundwater well recovery and disposal **Active groundwater recovery was discontinued in April 2013 after GWPS met for 3 consecutive years (per TCEQ approval dated April 19, 2013). Recovery system will be reactivated if GWPS are exceeded in the future.**
   d. Vapor extraction system
   e. Interceptor trench recovery and disposal
   f. Interceptor trench recovery and surface treatment
   g. In-situ treatment – bioreclamation
   h. In-situ treatment – chemical reaction
   i. Barrier walls/encapsulation
   j. Permeable treatment beds
   k. Other, please describe **Plume Management Zone – See Attachment XI.D.6.**

2. Program Description

   Attach a technical report providing a detailed description of a complete corrective action system including above and below ground equipment/facilities. Include discussions on the following concerns for each type of corrective action as applicable. **See Attachment XI.D.6.**

   a. Recovery Wells
      (1) Indicate on a plan view of the waste management area the anticipated location of Recovery Well(s) which would optimize the extraction of the groundwater contaminants.
      (2) Indicate on a plan view the estimated radius of influence of each Recovery Well.
      (3) Indicate the optimum pumping rate of each Recovery Well determined from the aquifer pump test.
      (4) Describe the design of the Recovery Wells and pump system including diameter, construction material, gravel packing, screen slot sizes and patterns, type of pumps and maintenance requirements.
      (5) Describe the collection and storage of the contaminated groundwater which is classified hazardous waste (on-site storage of hazardous waste shall require compliance with the applicable regulations):
         (a) Less than 90-day tanks (see 40 CFR 262.34/40 CFR 265 Subpart J);
         (b) Permitted Tanks (see 40 CFR 264 Subpart J);
         (c) (Less than 90-day Container Storage Area (see 40 CFR 262.34/40 CFR 265 Subpart I);
         (d) Permitted Container Storage Area (see 40 CFR 264 Subpart I); and
         (e) Temporary Units (see CFR 264.553).

(6) Describe the treatment and/or final disposition of the hazardous and nonhazardous contaminated groundwater.

b. Vapor Extraction System

(1) Indicate on a plan view of the waste management area the anticipated location of the vapor extraction system which would optimize the extraction of hazardous constituents from the vadose zone.
(2) Describe the construction design of the vapor extraction system in detail, including all diagrams and drawings.
(3) Describe the emission control equipment used to comply with air quality regulations.
(4) Provide the anticipated volatile contaminants to be remediated along with information on the expected effectiveness of the vapor extraction system at the waste management unit.
(5) Provide established treatability data for the proposed design.
(6) Specify the hazardous constituents affected by this type of treatment.

c. Interceptor Trenches

(1) Indicate on a plan view of the waste management area the anticipated location of the interceptor trench.
(2) Provide the construction design.
(3) Describe the procedure for construction.
(4) Describe the liquid removal and collection system.
(5) Describe the surface storage and/or treatment of the contaminated groundwater.
(6) Describe the final disposition of the contaminated groundwater.

d. In-situ Treatment – Chemical Reaction

(1) Characterize the chemical agents to treat the contaminated groundwater and/or soils in the vadose zone.
(2) Provide laboratory treatability data.
(3) Specify the hazardous constituents affected by this type of treatment.
(4) Specify the reaction by-products produced during the chemical reactions.
(5) Indicate degradation time for each treated hazardous constituent and any resulting chemical reaction by-products.
(6) Describe the potential health risks caused by human exposure to the reaction by-products.
(7) Describe potential damage to wildlife, crops, vegetation and physical structures caused by exposure to reaction by-products.
(8) Describe the persistence and permanence of the potential effects of the reaction by-products.
(9) Describe the method of chemical reactant injection and other important aspects of the system design.

e. In-situ Treatment - Bioreclamation

(1) Describe the type of bacteria most appropriate for the degradation of the hazardous constituents present in the groundwater and/or soil in the vadose zone.
(2) Describe the nutrients necessary and application frequency to encourage effective bioreclamation.
(3) Provide laboratory data from treatability studies utilizing the contaminated groundwater and describe any potential hazardous by-products.
(4) Indicate the degradation time for each hazardous constituent affected by this treatment.
(5) Describe the method of injecting the bacteria and nutrients and describe the delivery system design.

f. Barrier Walls

(1) Provide laboratory permeability data using the actual contaminated groundwater.

(2) Describe the barrier wall materials.
(3) Summarize construction design and installation procedures.

g. Permeable Treatment Beds

(1) Provide laboratory data of treatability simulations using actual contaminated groundwater in combination with the material proposed to be used in treatment beds.
(2) Discuss the properties of the treatment material which would make it effective for use at this site.
(3) Indicate which hazardous constituents will be affected by this treatment. Indicate the reactions which will take place and the resulting reactant by-products. Discuss the anticipated lifetime of the permeable treatment beds.
(4) Provide the construction design and installation procedures.

h. Other

Discuss in detail, any other corrective action (soils and groundwater) not included above which is proposed for use at the affected waste management area(s).

3. Groundwater Monitoring and Corrective Action Program Description

a. Describe the proposed groundwater monitoring system to be used to monitor corrective action and compliance with the GWPS which includes the following information.

No changes in the current Compliance Plan list of detected hazardous constituents, the list of indicator parameters, the semiannual sampling of groundwater, the semiannual reporting or annual determination of groundwater flow rate and direction are proposed. However, the CP Tables in this application have been revised to update the groundwater protection standards (GWPS) based on current Tier 1 PCL in June 29, 2012 TRRP tables and SW RBELs in Figure 30 TAC§307.6(d)(1).

The monitoring and corrective action system is described in Attachment XI.D.3.a. The PMZ monitoring system consists of POE wells, AMPs, and supplemental COA wells which are sampled semiannually. Copies of the well logs are included in Attachment XI.D.3.a.

(1) Changes, if applicable, from the current groundwater monitoring program at the waste management unit that will be required to comply with the corrective action monitoring program described in 30 TAC 335.166. This description should address changes concerning:

(a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit a Geologic and Hydrogeologic Report in accordance with Section XI.A.4;
(b) Waste management areas/units;
(c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
(d) The number and locations of additional monitor wells [must submit the Monitoring System Plan/Report required by Section XI.D.3.c.(2);
(e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
(f) Frequency of monitoring;
(g) Monitoring parameters;
(h) Evaluation of compliance with GWPS (statistical methods);
(i) Other Sampling and Analysis Plan information to be in compliant with "Attachment C";
(j) Compliance period as defined in Section XI.E.1.c. of the application;

(k) Financial assurance; and **Financial assurance has been updated.**

(l) An ACL variance under 30 TAC 335.160(b), if applicable (also see "Attachment A").

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Corrective Action Observation Wells, Supplemental Wells, piezometers, etc.) and all Recovery Wells and complete CP Table V – Designation of Wells by Function. Also, make revisions as applicable to plans referenced in Section XI.D.3.c. **See Attachment XI.D.3.a. CP Table V has been completed.**

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in CP Table III accordingly to develop the constituent list for the Corrective Action Monitoring Program. CP Table III shall become part of the final Compliance Plan. **The COC list is the same as in the existing Compliance Plan. CP Table III has been completed.**

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table III complete CP Table IIIA – Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard, accordingly. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7). **The indicator parameter list is the same as in the existing Compliance Plan. CP Table IIIA has been completed.**

(5) Monitoring frequency. **Corrective action monitoring will continue on a semiannual basis.**

(6) Provisions for semiannual reporting of groundwater data. **Groundwater monitoring results will be reported in the Semiannual Groundwater Monitoring Reports submitted in January and July of each year in accordance with the existing Compliance Plan.**

(7) Annual determination of contamination plume rate and direction of migration. **Determination of the rate and direction of contaminant plume migration will be reported in the Semiannual Groundwater Monitoring Reports submitted in January and July of each year in accordance with the existing Compliance Plan.**

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI – Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan. **The Compliance Period for the Ponds WMA is 7 years as established within the existing Compliance Plan. CP Table VI has been completed.**

b. Proposed methods of evaluating the effectiveness of the corrective action in the saturated and vadose zone. **See Attachment XI.D.6.**

c. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan - The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application. **The updated Sampling and Analysis Plan (dated June 2013) is provided in Attachment XI.D.3.c.**

(2) Groundwater Recovery and Monitoring System Plan - At a minimum, the plan must include: **See Attachment XI.D.3.a.**

(a) Recovery System Plan - The applicant should propose a recovery

system design that will achieve the performance requirement to protect human health and the environment. The plan should provide detailed plans, information and specifications on the recovery system's design and well installation specifications. All new recovery wells must be installed in accordance with applicable specifications outlined in "Attachment B", unless an alternative well design is approved by the agency prior to installation of the well. The Recovery System Plan must include Recovery System Design and Specifications - Certified by a Texas Registered Professional Engineer. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.; **The approved recovery system for the permitted unit (Landfill – Former Drum Burial Trench) began operation in 1993 and consisted of three recovery wells (MW-6, MW-9 and RW-33). An additional recovery well (RW-34) began operation in 2003 to address groundwater contamination associated with a historical leak associated with the closed landfill's groundwater recovery discharge line. The recovery system is currently inactive after being shut down (with TCEQ approval) in April 2013 after the GWPS were met for 3 consecutive years.**

(b) Monitoring System Plan - If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The Monitoring System Plan must include: **See Attachment XI.D.3.a.**

(i.) Monitoring System Design and Specifications - Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(ii.) Well Drilling and Well Casing Specifications - Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report - Provide a report per Section XI.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based. **See Attachment VI.**

4. Waste Management Units/Areas Monitored Under Corrective Action Programs

a. Delineate and identify the following for each waste management unit/area in the proposed groundwater monitoring and corrective action programs. **CP Table I has been completed. A map showing the waste management unit location is provided in Attachment XI.A.2. Groundwater monitoring and corrective**

action for the closed Landfill – Former Drum Burial Trench is addressed under a PMZ.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units/areas subject to corrective action pursuant to 30 TAC 335.166 and 335.167 should be listed in CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring. CP Table I shall become part of the final Compliance Plan. **CP Table I has been completed.**

(2) The proposed point of compliance (30 TAC 335.161), point of exposure wells, or alternate point of exposure wells. **The approved POC and POE wells are provided in CP Table V. The well locations are shown on CP Attachment A Sheets that are provided in Attachment XI.A.1.**

(3) Any proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells to monitor the downgradient extent of the plume. **See Attachment XI.D.3.a.**

(4) Features which may serve as conduits for subsurface contamination. **There are no features at the facility that could serve as conduits for subsurface contamination.**

(5) Corrective action system. **The inactive corrective action system is identified in Attachment XI.D.3.a and shown on figures in Attachment XI.A.1.**

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance, point of exposure wells and/or alternate point of exposure wells should be indicated in CP Table V – Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for corrective action monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Permit/Compliance Plan. **Maps are provided in Attachment XI.A.1. CP Table V has been completed.**

5. Waste Management Units/Areas Addressed Under Other Corrective Action Programs - Facility Operations Area (FOA), specific to the requirements of 30 TAC 350.131 - 350.135. The Permittee should also complete Sections XI.D.4. for other units not addressed by the FOA that may require corrective action outside the FOA boundary. For other units not addressed by the FOA, either within the FOA or outside the FOA which may require compliance monitoring, the Permittee should complete Section XI.C. of this application accordingly. **Not applicable.**

   a. Provide an approved version of the FOA Qualifying Criteria Checklist and evidence that Steps 1 through 3 of the FOA pre-approval process has been approved by the Commission.

   b. Provide a discussion on exceptions to the TRRP rule requested.

   c. Provide a summary of the SWMUs/AOCs that will be addressed within the FOA boundary and a discussion of the multiple sources of COCs present and how FOA will

better address these sources.

d. Provide maps of appropriate scale depicting the following (maps may be combined where appropriate):
   (1) The number, location and type of monitoring points in each stratigraphic unit to be monitored individual monitoring wells should be identified by respective well number on a plan view drawing, to include the background, Point of Compliance (POC), Point of Exposure (POE), FOA Boundary of Compliance wells, FOA piezometers or supplemental wells, Corrective Action Observation ((CAO), Corrective Action System (CAS) wells that are applicable for FOA monitoring program should be labeled as "CP Attachment A, sheet no xx of xx" in the title box. The title box should also include reference to the facility name, Permit/Compliance Plan Number (00000), TCEQ Solid Waste Registration Number and Unit Description or Name. The "CP Attachment A" map(s) shall become part of the final Permit/Compliance Plan.
   (2) HWMUs/SWMUs/AOCs addressed
   (3) Surrounding land use
   (4) FOA lateral boundaries
   (5) Potential source areas
   (6) Potentiometric surface of all relevant transmissive units
   (7) Surrounding water wells
   (8) Extent of known contamination in each transmissive unit
   (9) Areas of potential ecological impact
   (10) Known occurrences of NAPL or DNAPL in each transmissive units
   (11) FOA access control components

e. Provide cross-sections in accordance with Section XI.A.4. depicting the following (maps may be combined where appropriate);
   (1) The vertical boundaries of the FOA;
   (2) The vertical extent of contamination;
   (3) Groundwater level elevations for each transmissive unit.

f. Provide tabulated information for;
   (1) Results of Appendix IX GW sampling.
   (2) Proposed PCLs for each hazardous constituent and principal degradational constituent for each monitoring point with supporting documentation (including a discussion of exposure pathways) should be listed in CP Table III – CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard. CP Table III shall become part of the final Compliance Plan.
   (3) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IIIA. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7).
   (4) Only the background, POC, POE, FOA Boundary of Compliance wells should be listed in CP Table V which shall become part of the final Permit/Compliance Plan.

g. Provide a discussion of the types of corrective action that will be employed to address contaminated media.

h. Provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.

i. Provide a detailed description of the ground water monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.

j. Provide a Sampling and Analysis plan for the proposed FOA that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures for evaluating analytical results (Appendix C).

k. Propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.

l. Propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.

m. Provide Financial Assurance in accordance with Section XI.E.

n. Provide draft language intended to comply with the deed notification requirements of 30 TAC 350.111 and 350.135(a)(11).

o. Provide a summary of the approved workers protection plan.

p. Provide a discussion of areas of ecological impact, if any, and development of associated Protective Concentration Limits (PCLs).

q. Provide a discussion of how NAPL occurrences, if any, will be addressed inside and outside the FOA.

r. Provide a schedule of implementation for items not completed at the time of application See also Section XI.D.8.

6. Waste Management Units/Areas Monitored Under Corrective Action Programs - Plume Management Zone (PMZ) **See Attachment XI.D.6.**

   a. Please provide a summary of the HWMUs and SWMUs/AOCs that will be addressed within the PMZ boundary.

   b. Please provide a discussion of the multiple sources of COCs present and how PMZ will better address these sources.

   c. Please provide maps of appropriate scale depicting the following (maps may be combined where appropriate);

      (1) HWMUs/SWMUs/AOCs addressed

      (2) surrounding land use

      (3) PMZ lateral boundaries

      (4) potential source areas

      (5) Potentiometric surface of all relevant transmissive units

      (6) Surrounding water wells

      (7) extent of known contamination in each transmissive unit

      (8) number, location and type of monitoring points in each stratigraphic unit to be monitored

      (9) Areas of potential ecological impact

      (10) known occurrences of LNAPL or DNAPL in each transmissive unit

   d. Please provide sufficient cross-sections depicting the following (maps may be combined where appropriate);

      (1) The vertical boundaries of the PMZ;

      (2) The vertical extent of contamination;

      (3) potentiometric surfaces for each transmissive unit.

   e. Please provide tabulated information for;

      (1) history of all relevant units or AOCs;

      (2) summary of hydrogeologic data for each affected transmissive unit;

      (3) results of Appendix IX GW sampling;

      (4) proposed PCLs for each constituent for each monitoring point (Point of Exposure

wells, alternate point of exposure wells, etc) with supporting documentation (including a discussion of exposure pathways). This should also include the designation/establishment of sufficient number of Attenuation Monitoring Points (AMPs) beginning at an appropriate hydraulically upgradient location within the groundwater protective concentration level exceedence (PLCE) zone and continuing down the approximate central flow path of the constituent of concern (COC) in the downgradient extent of the Plume Management Zone(s) in accordance with 30 TAC 350.33(f)(4)(D).

(5) Establish/Calculate Attenuation Action Levels (AALs) (critical PCLs) for each attenuation monitoring point in accordance with 30 TAC 350.33(f)(4)(D)(ii). The established AALs (critical PCLs) for each AMP well should be graphically presented in table format on the plan view map depicting the location of individual monitoring wells (including AMP wells) for corrective action monitoring labeled "CP Attachment A, Sheet xx of xx", referenced in XI.D.4.b.

f. Please provide a discussion of the types of corrective action that will be employed to address contaminated media.

g. Please provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.

h. Please provide a detailed description of the groundwater monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.

i. Please provide a Sampling and Analysis plan for the proposed PMZ that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures for evaluating analytical results.

j. Please propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.

k. Please propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.

l. Please provide a thorough detailed description of an estimate of all costs that will be incurred by implementing, operating, and maintaining the corrective action and monitoring systems addressed by the compliance plan.

m. Please provide draft language intended to comply with the deed notification requirements of 350.111, and schedule to verify compliance with institutional control requirements in accordance with 30 TAC 350.31(g) which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time as constituents of concern may be reduced to below the GWPS.

n. Schedule for notification requirements if an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property pursuant to 30 TAC 350.33(k).

o. Please provide a summary of the approved soil response action plan.

p. Please provide a discussion of areas of ecological impact, if any, and development of associated PCLs.

q. Please provide a discussion of how NAPL occurrences, if any, will be addressed inside the PMZ.

r. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

7. Waste Management Units/Areas Monitored Under Alternative Corrective Action Program for Co-mingled plumes Alternative groundwater Corrective Action Program apply, pursuant 30 TAC 335.151, 335.156 and 350, for commingled release from RCRA-regulated unit and from one or more SWMUs and/or AOC. **Not applicable.**
   a. Complete Sections XI.D.1. through 4.;
   b. In addition to the CP Attachment A maps in Section XI.D.4.b., CP Attachment A maps should clearly depict those waste management unit or areas of the facility which have commingled plumes and the alternative corrective action applies.
   c. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

8. Implementation Schedule

   Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application, or are not completed at the time of issuance of the final draft Compliance Plan, then the items should be added to the CP Table VIII - (Compliance Schedule) of the application. **CP Table VIII is complete.**

E. Cost Estimates For Financial Assurance

As required by 30 TAC 335.156 and 335.167, the applicant must provide cost estimates for groundwater monitoring and corrective action to determine the amount of financial assurance. Please complete the applicable parts of this form. Cost estimates should be filled out for each proposed corrective action/monitoring system at the site; or any additional corrective action system not covered in this Part. Please note, the Executive Director may request from the applicant documentary evidence for cost estimates.

If an item is not applicable, please mark it NA.

General Information

1. For each Waste Management Area (WMA) list the following:
   a. A description of the waste management unit(s) in the WMA (e.g., landfill, surface impoundment, land treatment);

      Landfill – Former Drum Burial Trench

   b. The NoR unit number(s) in the WMA; and **NOR No. 005**
   c. The compliance period for the WMA listed above. Year(s) = **7**

      (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).
   d. 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:
      (1) the duration of your compliance plan;
      (2) the time frame for clean-up based on model projections and historical data as approved by the Executive Director; or
      (3) the compliance period for the unit/area.

Total Years Used To Calculate the Financial Assurance for the Corrective Action and/or Compliance Monitoring Program

Year(s) = **10**

2. Please complete Table XI.E.1. – Corrective Action Program Cost Estimate. **Not applicable. No active groundwater recovery operations.**

3. Please complete Table XI.E.2. – Groundwater Monitoring Cost Estimate. **Table XI.E.2 is completed.**

4. Please complete Table XI.E.3. – Financial Assurance Summary. **Table XI.E.3 is completed.**

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	Date Program Requirement and Remedy Standard Completed[4]
Former Drum Burial Trench	005	**No-Further-Action letter Recieved November 25, 2024. Remedy Standard B With PMZ Closure.**

Remove Last Row | Add Row

B. Compliance Monitoring[1] (30 TAC Section 335.165)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

Remove Last Row | Add Row

C. Corrective Action[2] (30 TAC Section 335.167)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]
Not Applicable		

Remove Last Row | Add Row

D. Alternative Corrective Action[3] (30 TAC Section 335.151)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]
Not Applicable		

Remove Last Row | Add Row

E. Facility Operations Area (FOA)[4] (30 TAC Section 335.156 and Chapter 350)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]
Not Applicable		

Remove Last Row | Add Row

Note: If a specific program is not applicable to the unit/area then the program should be marked as "Reserved."

Foot Note:

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 RCRA-regulated unit and from one or more SWMUs and/or AOCs.
4. List SWMUs, additional units/areas of Investigation, AOCs, RCRA-regulated units within the FOA that are subject to corrective action. For RCRA units, SWMUs and/ or AOC outside the FOA boundary for which compliance monitoring and/ or corrective action applies should be listed separately in Items A, B or C as appropriate.

5. For the purpose of maintaining a historical record to verify the units/areas have met the program requirements in accordance with Permit Provisions XI.A.2, XI.A.3., XI.A.4. and/or XI.A.5., the permittee shall update CP Table I to reflect the new status of the unit/area to include the remedy standard achieved for all media of concern and the date of the Commission's No Further Action (NFA) approval letter. The units/area shall not be deleted from CP Table I until the program objectives have been completed and no further action has been approved through modification or amendment to the Permit.

CP Table II: Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167

SWMU/AOC No.	Unit/Area Name	Unit/Area Description	HSWA Status	NFA/Other Approval	Comments
None	None	No SWMUs or AOCs subject to HSWA corrective action.	N/A	N/A	

CP Table III: Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard **RESERVED**

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/l) at the POC [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC [1,2]	

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, mark "Reserved" next to the CP Table III heading.

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 RCRA-regulated unit, SWMU, and/or AOC can exit the Corrective Action Program.

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 waste management area.

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 become a part of the Permit by reference.

Footnotes:

1. Use Column C to specify the GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP), or FBOC for those sites with FOA authorization. Put "N/A" if a specific program or column item is not applicable.
2. For each COC, select the appropriate GWPS designation and definition 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).

Select ONE GWPS designation: ○ RRR GWPS Designation ○ TRRP GWPS Designation

CP Table IIIA: Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard **RESERVED**

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/l) at POC [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC[1,2]	
	Remove Last Parameter Row			Add Parameter Row	

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, mark "Reserved" next to the CP Table III heading.

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 RCRA-regulated unit, SWMU, and/or AOC can exit the Corrective Action Program.

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 waste management area.

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 become a part of the Permit by reference.

Footnotes:

CP Table IV: Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Quantitation Limits RESERVED

CP Table IVA: Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard RESERVED

CP Table V: Designation of Wells

Point of Compliance Wells	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: MW-5, MW-6, MW-23	
Remove Last Unit and Wells	Add Unit and Wells
Point of Exposure Wells	
[*Add "None" if there are no POE wells] NOTE: This row will not appear when printed	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: MW-25, MW-26, MW-27, MW-36, MW-37	
Remove Last Unit and Wells	Add Unit and Wells
Alternate Point of Exposure Wells	
[*Add "None" if there are no APOE wells] NOTE: This row will not appear when printed	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: None	
Remove Last Unit and Wells	Add Unit and Wells
Background Wells	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: MW-1	
Remove Last Unit and Wells	Add Unit and Wells
FOA Boundary of Compliance Wells	
Exposure Pathway: (e.g. SWGW - Groundwater to surface water PCL for Brazos River or Barge Canal, etc)	
Unit Name: OW-6	
Well Numbers:	
Remove Last Unit and Wells	Add Unit and Wells

Wells that are not listed in this table, but are required by Permit Section XI.B.2 (e.g. AMP wells, CAO wells, etc.,) and depicted only in CP Attachment A are subject to change, upon approval by the Executive Director, without modification to the Compliance Plan.

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 CP Table VII and become a part of the Permit by reference.

Note:

Following the issuance of the permit renewal, the Point of Exposure (POE) wells MW-25, MW-26, MW-27, MW-36, and MW-37 will be plugged and abandoned.

CP Table VI: Compliance Period for RCRA-Regulated Units

RESERVED

Unit	Year or Number of Years
Year Waste Management Activities Initiated	
Year Closed	
Compliance Period	
Compliance Period Began	

CP Table VII: Reporting Requirements

RESERVED

Item	Program	Reporting Frequency	Requirements
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

CP Table VIII: Compliance Schedule **RESERVED**

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
A.			
B.			
C.			
D.			
E.			

CP Table IX: Description of Uppermost Aquifer

RESERVED

Attachment VI

Geology Report

List of Contents – Attachment VI

1. Site Geology and Hydrogeology from March 1990 Permit Application
2. Stratigraphy and Migration Pathways Between MW-10 and MW-26, September 1998
3. Technical Evaluation of the Stratigraphy and Contaminant Migration Pathways at Murray Corporation Property in Palestine, Texas, August 1999
4. Hydrogeologic Cross-Section Maps from 2003 Permit Renewal Application
5. Surface Geology Map – Geologic Atlas of Texas, Palestine, Texas Sheet

IV. GEOLOGY REPORT SUMMARY

Appendix number(s) of the Geology Report(s): IV-1

A. **Regional Physiography and Topography**

Distance and direction to nearest surface water body: A surface water run-off ditch runs along the Union Pacific Railroad property and empties into a tributary to Town Creek less than one mile south of the site.

Slope of land surface: 0.013 ft/ft

Direction of slope: South

Maximum elevation of facility: 371.09 feet msl (USGS TOPO)

Minimum elevation of facility: 357.18 feet msl (USGS TOPO)

B. **Regional Geology**

Stratigraphy: The generalized stratigraphy for the Murray Corporation site has been developed in the TWDB Report No. 150 and the Geologic Atlas of Texas (Palestine Sheet). Excerpts from these reports are presented in Appendix IV-1. The Queen City Sand outcrops at the Murray Corporation facility and forms the uppermost aquifer for the region. The Queen City Sand is underlain by the Reklaw Formation which serves as an aquitard between the Queen City and the Carrizo Sand. The Carrizo Sand is underlain by, and is in hydrologic communication with, the Wilcox Group. Collectively, the Carrizo Sand and Wilcox Group constitute the major source of fresh water to the region.

Structural setting: The stratigraphic units discussed above are associated with the East Texas Embayment (syncline) which is part of the much larger Gulf Coast Geosyncline. The beds dip gently toward the Gulf of Mexico with the younger strata outcropping nearer to the coast.

C. **Active Geological Processes**

Faults: There are several areas of faulting in Anderson County. These are associated with the intrusion of salt domes and past tectonic activity (the Mount Enterprise Fault Zone). No observations of surface faulting have been identified by any of the investigations or reports prepared for the Murray facility.

Subsidence: The geology reports do not indicate that regional subsidence has occurred in this area. Several small sink-hole collapses have formed around the Palestine salt dome due to salt brine mining activities approximately 2.5 miles west of the Murray facility.

Geomorphic Processes: The site topography dips gently to the south where surface water run-off collects in a drainage ditch and is directed to the southwest toward Tile Factory Road. The ditch empties into Town Creek which eventually drains into the Trinity River about 8.5 miles west of the Murray site.

Are there any wetlands within the property boundary of the facility?

_____YES . __X__NO

D. **Regional Aquifers**

Description: The Queen City Aquifer crops out west of Palestine in the vicinity of the Murray facility. The Queen City Aquifer is underlain by the Reklaw Formation which serves as an aquiclude between the Queen City and Carrizo Sand. The Carrizo Sand is underlain by the Wilcox Group. Collectively, the Carrizo Sand and Wilcox Group form the major high-yield aquifer for the region. Water quality is generally good in both aquifers.

Water-bearing properties: The Queen City Aquifer yields small to moderate quantities of water for rural domestic and livestock use. The Queen City decreases in thickness and eventually pinches out to the north. The Carrizo-Wilcox Aquifer yields moderate to large quantities of fresh to brackish water i Anderson County. The Carrizo-Wilcox Aquifer is the principal high-yield aquifer for the region due to the great thicknesses of permeable sand contained in the lower portion of the unit.

Water quality: The dissolved solids content of the Queen City is normally below 200 ppm but may exceed 500 ppm in the southern part of the county where salt domes and faulting are more prevalent. Objectionable iron staining from the water is commonly reported. Water quality in the Carrizo-Wilcox Aquifer is comparable to that of the Queen City and seldom exceeds 500 ppm of dissolved solids except in the southern part of the county.

E. Waste Management Area Subsurface Conditions

Depth below grade (ft)

	0-20	20-30	30-40	40-60	60-80	100
*number of borings:	13	10	3	2	1	

maximum depth: 75 feet below grade *includes monitoring well installatior

_____ feet above MSL

stratigraphy: See Section IV.B above for regional stratigraphy and Geology Report in Appendix IV-1 for shallow site stratigraphy.

Boring No.	Stratum	Liquid Limit	Plasticity Index	% passing #200 sieve	Permeability (cm/sec)	% porosity

(See Tables 1 and 2 attached)

TABLE 1

SUMMARY OF LABORATORY GEOTECHNICAL TEST RESULTS

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Permeability (cm/sec)	Atterberg Limits LL	PI	Moisture Content (%) (after testing)	Porosity (%)
B-1	15	16	Shallow Aquifer	4×10^{-8}	NA	NA	15.8	NA
B-1 Deep	33	34	Shallow Aquifer	NA	22	0	30.8	NA
B-1 Deep	43	44	Confining Zone	NA	40	19	18.8	NA
B-1 Deep	59.5	60	Confining Zone	NA	49	30	22.0	45.2
B-1 Deep	65	65.5	Deep Aquifer	NA	25	1	26.8	NA
B-1 Deep	71.5	72	Confining Zone	NA	30	4	18.8	NA
MW-10	12	12.5	Alluvial Aquifer	1.6×10^{-6}	NA	NA	NA	NA
MW-10	12.5	13	Alluvial Aquifer	NA	19	2	19.3	38.2
MW-10	17.5	18	Alluvial Aquifer	NA	34	17	20.3	NA
MW-10	20.5	21	Confining Zone	NA	38	15	24.1	NA
MW-11	12	12.5	Alluvial Aquifer	NA	25	8	20.1	NA
MW-11	12.5	13	Alluvial Aquifer	6.4×10^{-7}	NA	NA	NA	NA
MW-11	19	19.5	Confining Zone	NA	43	23	25.6	46.1
MW-13	17	18	Shallow Aquifer	NA	24	3	32.8	NA
MW-13	22	22.5	Shallow Aquifer	NA	21	0	29.7	NA
MW-13	29.5	30	Confining Zone	NA	53	30	25.1	NA

NA: Not Analyzed

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TABLE 1
SUMMARY OF LABORATORY GEOTECHNICAL TEST RESULTS
(Continued)

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Permeability (cm/sec)	Atterberg Limits LL	PI	Moisture Content % (after testing)	Porosity (%)
DMW-14	27	28	Shallow Aquifer	2.7×10^{-7}	NA	NA	NA	36.8
DMW-14	50	50.5	Confining Zone	NA	NA	NA	23.2	NA
DMW-14	60	60.5	Confining Zone	NA	NA	NA	23.2	NA
DMW-15	22	23	Confining Zone	NA	45	22	22.3	NA
DMW-15	25	26	Confining Zone	NA	53	26	24.3	NA
DMW-15	29	30	Confining Zone	NA	52	29	19.4	NA
DMW-15	42	43	Confining Zone	NA	NA	NA	20.2	NA
DMW-15	39	40	Deep Aquifer	NA	NA	NA	NA	36.6
DMW-16	28	29	Confining Zone	NA	49	26	23.2	NA
DMW-16	32	33	Confining Zone	NA	57	32	23.2	NA
DMW-16	36	37	Confining Zone	NA	56	33	20.3	NA
DMW-16	40	40.5	Deep Aquifer	Not Testable	NA	NA	NA	39.5

Remarks and/or distribution 1 - Above

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TABLE 2

SUMMARY OF GRAIN SIZE ANALYSES RESULTS

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Type of Material %Sand	%Silt	%Clay
B-1	15.0	16.0	Shallow Aquifer	50.0	25.0	25.0
MW-10	12.5	13.0	Alluvial Aquifer	61.2	NA	NA
MW-10	17.5	18.0	Alluvial Aquifer	55.0	NA	NA
MW-10	20.5	21.0	Confining Zone	29.2	48.8	21.0
MW-11	12.0	12.5	Alluvial Aquifer	60.8	NA	NA
MW-11	19.0	19.5	Confining Zone	6.4	67.1	26.5
MW-13	17.0	18.0	Shallow Aquifer	71.3	NA	NA
MW-13	22.0	22.5	Shallow Aquifer	79.1	NA	NA
MW-13	29.5	30.0	Confining Zone	0.9	63.1	36.0
DMW-14	64.0	64.5	Deep Aquifer	34.5	NA	NA
DMW-15	20.0	21.0	Confining Zone	70.6	NA	NA
DMW-15	22.0	23.0	Confining Zone	2.7	NA	NA
DMW-15	34.0	40.0	Deep Aquifer	31.9	NA	NA
DMW-16	20.0	21.0	Shallow Aquifer	90.8	NA	NA
DMW-16	32.0	33.0	Confining Zone	0.4	NA	NA
DMW-16	40.0	40.5	Deep Aquifer	36.1	NA	NA

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TABLE 2

SUMMARY OF GRAIN SIZE ANALYSES RESULTS

(Continued)

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Type of Material %Sand	%Silt	%Clay
B-1 Deep	33.0	34.0	Shallow Aquifer	86.5	13.5	0.0
B-1 Deep	43.0	44.0	Confining Zone	51.2	33.8	15.0
B-1 Deep	59.5	60.0	Confining Zone	25.7	45.8	28.5
B-1 Deep	65.0	65.5	Deep Aquifer	28.0	50.0	22.0
B-1 Deep	71.5	72.0	Confining Zone	67.0	27.0	6.0

NA: Not Analyzed

Method of Analysis - ASTM D-422

JONES & NEUSE

Permeable, water-bearing strata: The water-bearing unit being monitored at the site is identified as the Queen City Aquifer (See Appendix IV-1).

Number of water level measurements: Five sets of measurements were taken See Table 2 in Appendix V-2 for summary of water level data.

Maximum static water level: 18.73 feet below grade 01-16-90

356.41 feet above MSL 01-16-90

static water level measured 100+ hours after drilling

initial water level for the above well: 23.85 feet below grade 09-23-88

351.29 feet above MSL 09-23-88

date of the above water level measurement: January 16, 1990

Minimum static water level: 11.49 feet below grade 12-01-89

329.01 feet above MSL 12-01-89

initial water level for the above well: 11.49 feet below grade 12-01-8

329.01 feet above MSL 12-01-89

date of the above water level measurements: December 1, 1989

Flow in direction of uppermost water-bearing stratum: The hydraulic gradient is to the south and southeast. An apparent ground-water mound is evident in the vicinity of MW-8. This mound may be the result of the infiltration of ponded water trapped behind a run-off prevention berm located to the east of MW-8.

Hydraulic gradient: Ground-water measurements taken on 09-23-88 indicate a gradient of about 0.008 ft/ft to the south.

SUMMARY OF GEOLOGIC AND HYDROGEOLOGIC CONDITIONS AT THE MURRAY FACILITY

SUMMARY REPORT OF GEOLOGIC AND HYDROGEOLOGIC CONDITIONS AT THE MURRAY CORPORATION FACILITY PALESTINE, TEXAS

March, 1990

D89284.GLY
118206.1

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

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SECTION 1.0
INTRODUCTION

1.0 INTRODUCTION

This summary report of local geologic and hydrogeologic conditions at the Murray Corporation site in Palestine, Texas was prepared by Jones and Neuse, Inc. (JN) from a review of available literature. The site-specific conditions were compiled from the following documents:

- "Report of Subsurface Investigation for Hydrogeologic Assessment at Murray Corporation, Palestine, Texas;" April, 1988; Jones and Neuse, Inc.

- "Monitor Well Installations and Results of First Sampling Event, Murray Corporation, Palestine, Texas;" October 19, 1988; Jones and Neuse, Inc.

- "Interim Closure Report; Murray Corporation, Palestine, Texas;" April 19, 1989; Jones and Neuse, Inc.

- "Hydrogeologic Investigation and Ground-Water Assessment Plan; Murray Corporation, Palestine, Texas;" June 19, 1989; Jones and Neuse, Inc.

The portions of this report outlining the regional geologic and hydrogeologic conditions for the Anderson County area were developed from a review of the following documents:

- "Ground-Water Conditions in Anderson, Cherokee, Freestone, and Henderson Counties, Texas;" August, 1972; Texas Water Development Board Report No. 150.

- "Ground-Water Resources of the Anderson County Underground Water Conservation District, Anderson County, Texas;" February, 1988; Texas Water Commission Report No. 88-01.

- "Geochemical Alteration of the Ground Water in the Carrizo Sand of Northwestern Anderson County, Texas;" May, 1987; Unpublished Masters Thesis from Stephen F. Austin State University by Emmett O. Rushing III.

- "Structural Geology of Keechi Salt Dome, Anderson County, Texas;" August, 1965; Unpublished Masters Thesis from University of Texas at Austin by Gerald K. Ebanks.

Development of this summary report also included information derived from (1) a review of data available from the Texas Department of Water Resources (TDWR) and U.S. Geological Survey (USGS) on the aquifers in the vicinity of the site, (2) a water-well inventory to locate water wells in the near vicinity of the site, (3) drilling and lithologic logging of several borings and monitor well installations to determine the shallow subsurface stratigraphy, and (4) ground-water sampling results to determine the ground-water quality at the site.

SECTION 2.0
PHYSIOGRAPHY AND TOPOGRAPHY

2.0 PHYSIOGRAPHY AND TOPOGRAPHY

The Murray facility is located adjacent to Tile Factory Road, between U.S. 84 and West Reagan Street in the southwest portion of Palestine, Texas (Figure 1). The City of Palestine is situated in the Sand Hills Region of the Eastern Timber Physiographic Province of Texas. The topography of this region is characterized by gently rolling hills with a relief of 300 to 350 feet.

The Murray property is situated on a relatively flat area to the north of Town Creek, which is a perennial stream. The average gradient across the Murray property is about 0.013 foot per foot (ft/ft) from north to south and approximately 0.009 ft/ft from west to east. The approximate maximum and minimum elevations at the Murray facility are 370 feet and 350 feet, respectively (Figure 2).

The general surface drainage pattern at the Murray facility is from north to south where the drainage is intercepted by a ditch on the north side of the Union Pacific Railway right-of-way which forms the southern and eastern boundary of the Murray facility. Drainage is then directed via the ditch to the southwest, where it flows beneath the railroad tracks, under Tile Factory Road, and into Town Creek. The point at which surface drainage reaches Town Creek is approximately 500 feet from the nearest boundary of the Murray property. Town Creek eventually empties into the Trinity River approximately 8.5 miles southwest of the Murray property.

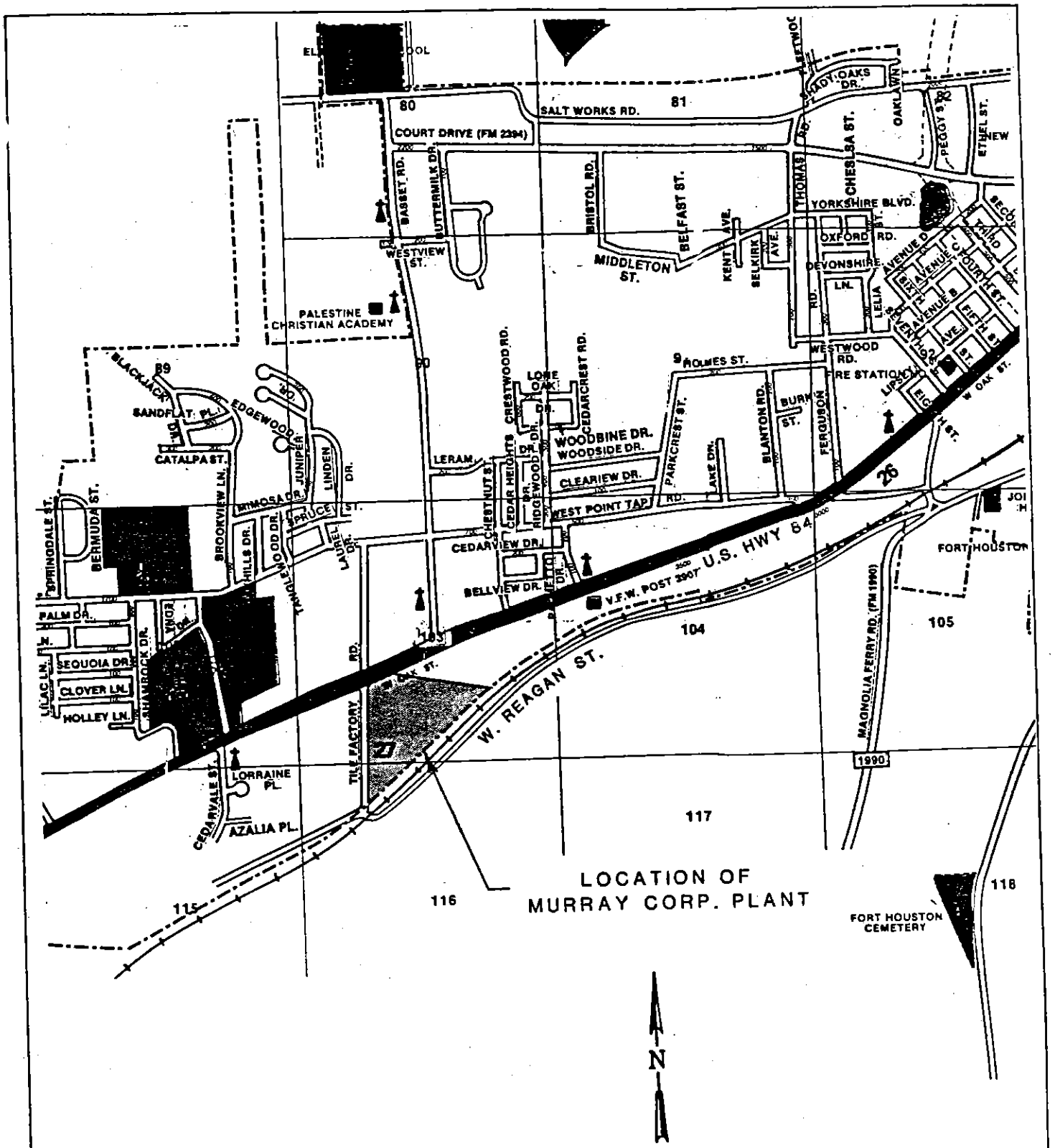

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FIGURE 1

LOCATION OF
MURRAY CORPORATION FACILITY
MURRAY CORP.-PALESTINE, TEXAS

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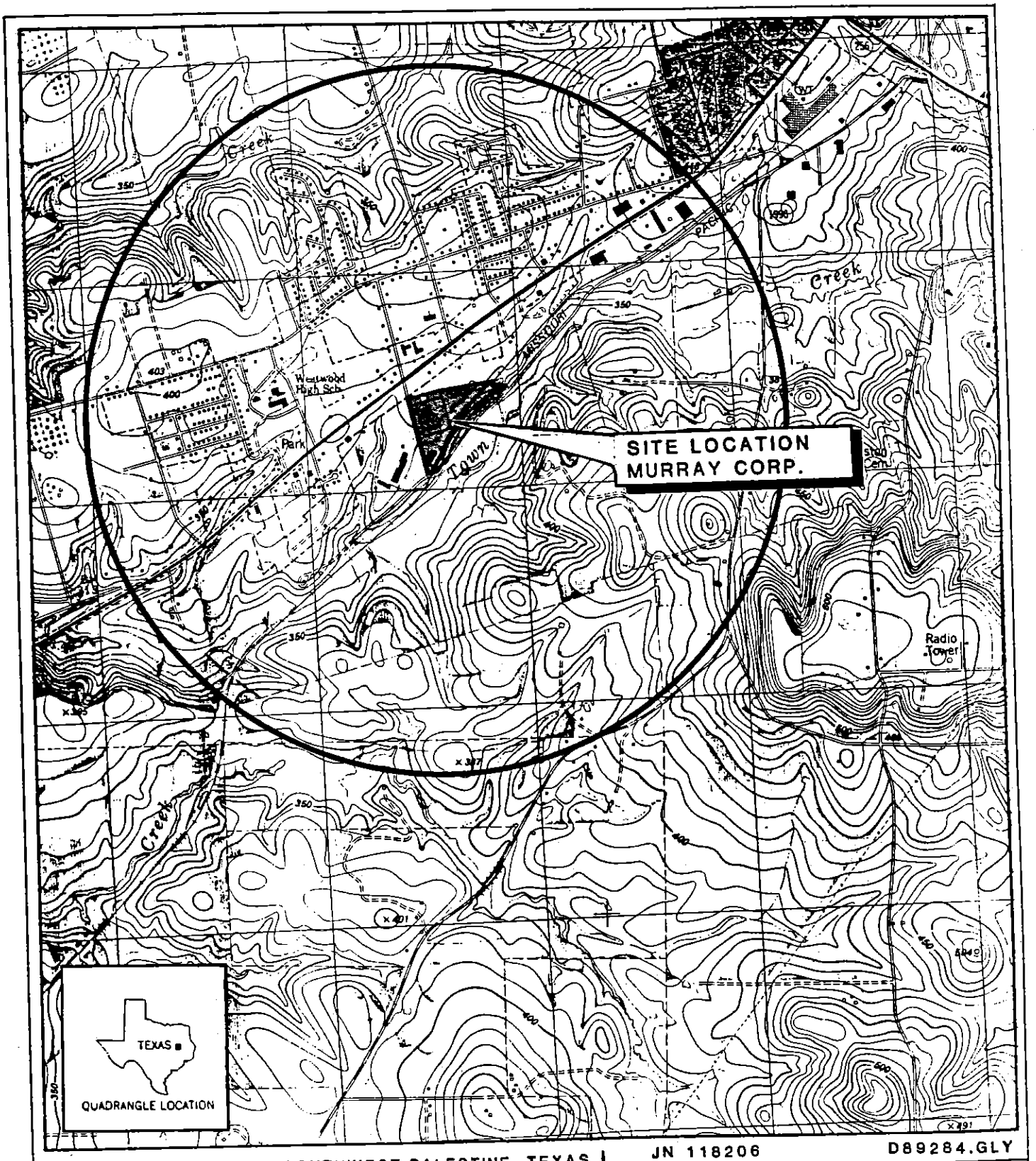
SOURCE: CITY OF PALESTINE, TEXAS STREET MAP



SOURCE: USGS 7.5 MIN. SOUTHWEST PALESTINE, TEXAS QUAD SHEET (1982)

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N

SCALE: 1"= 2000'

FIGURE 2

TOPOGRAPHIC MAP

MURRAY CORP.-PALESTINE, TEXAS

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SECTION 3.0
REGIONAL GEOLOGY

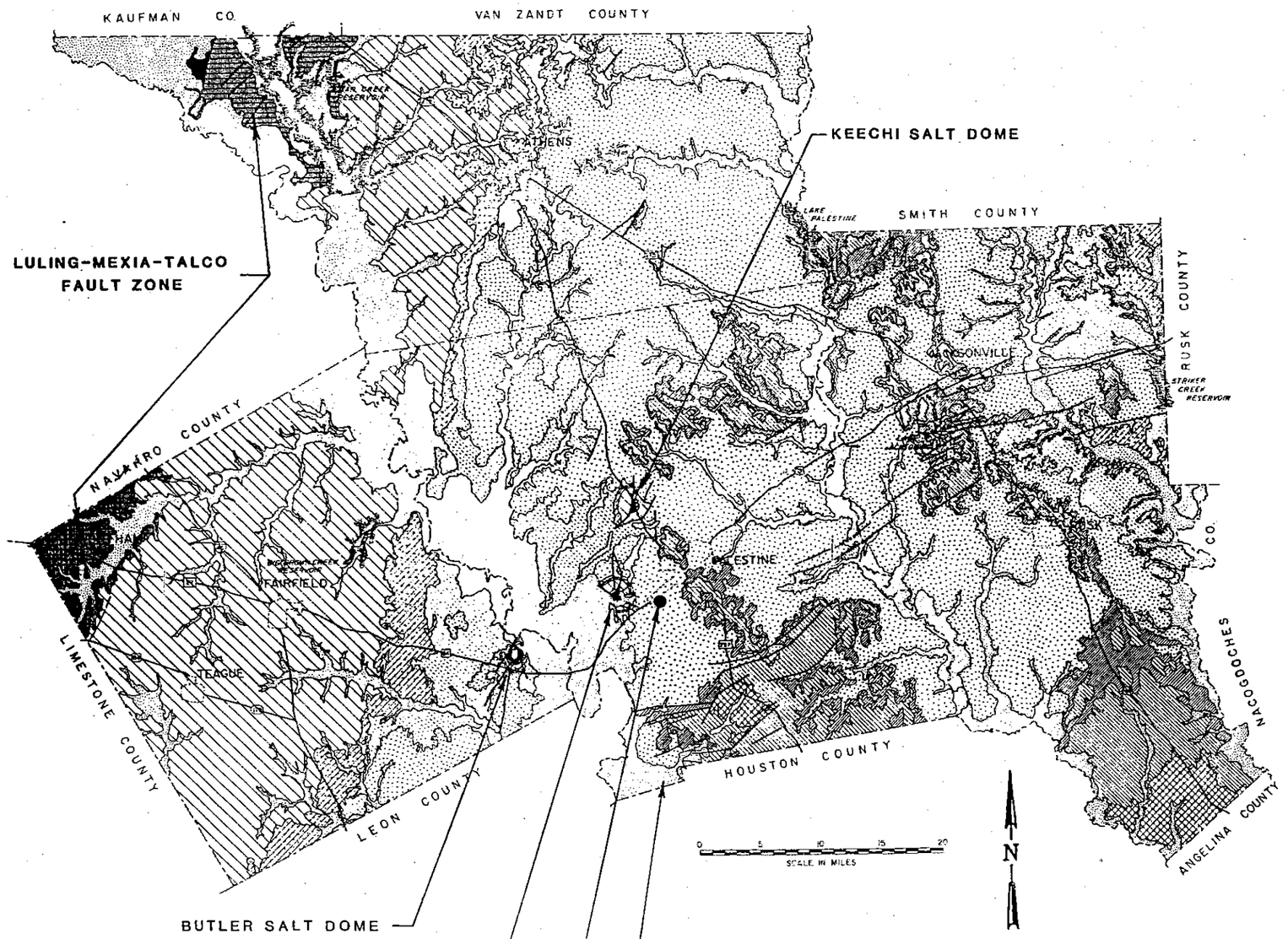
3.0 REGIONAL GEOLOGY

In the vicinity of the Murray facility, the stratigraphic sequence of concern includes (in ascending order): The Midway Group (Eocene), the Wilcox Group (Eocene), the Carrizo Sand (Eocene), the Reklaw Formation (Eocene), and the Queen City Sand (Eocene). The Murray facility is situated on the outcrop of the Queen City Sand. Figure 3 is a geologic map of the area showing the formations and their outcrop patterns.

The sediments in the Palestine region were deposited within a syncline known as the East Texas Embayment. This large structural trough is part of the much larger Gulf Coast Geosyncline. These two structural features have a dominant influence on the geology and hydrogeology of the region.

The Midway Group is encountered at a depth of approximately 2,000 feet in the Anderson County region (Figure 4). The Midway Group is largely impermeable and serves as an aquiclude to the overlying Wilcox Group, which is a major water-bearing unit in the region. The Midway consists of thin-to-poorly bedded, plastic, gray and olive-green, muscovitic, and glauconitic clays, which are slightly silty and sandy in their upper portions. The Midway is approximately 100 to 200 feet thick in outcrop and has an estimated thickness of 800 feet in the Palestine region.

The Wilcox Group overlies the Midway Group. The Wilcox is the major water-bearing unit in the region and is encountered at a depth of about 600 feet in the Palestine region. The Wilcox is approximately 2,000 feet thick in central Anderson County, and thickness increases toward the southeast (Figure 4). Local variations in thickness occur over salt domes in the region. The Wilcox is a heterogeneous sequence of largely nonmarine deposits. The unit is a highly variable and discontinuous deposit of interbedded sand, silt, and clay with minor amounts of lignite. The sands are typically gray, and most are relatively thin-bedded, fine-grained, and silty. However, some of the sand beds



EXPLANATION

- Qal — ALLUVIUM
- Ecm — COOK MOUNTAIN FORMATION
- Es — SPARTA SAND
- Ew — WECHES FORMATION
- Eqc — QUEEN CITY SAND
- Er — REKLAW FORMATION
- Ec — CARRIZO SAND
- Ewk — WILCOX GROUP
- MIDWAY GROUP
- CRETACEOUS ROCKS UNDIVIDED
- U/D — FAULT

U - Upthrown side; D - Downthrown side; dotted where concealed

NOTE: Generalized from Geologic Atlas of Texas - Dallas, Palestine, Tyler, and Waco sheets, Bureau of Economic Geology, University of Texas, various dates

SOURCE:
TEXAS WATER DEVELOPMENT BOARD REPORT 150, 1982

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FIGURE 3
GEOLOGIC MAP OF ANDERSON COUNTY & SURROUNDING REGION
MURRAY CORP.-PALESTINE, TEXAS

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H

HORIZONTAL PROJECTION OF PALESTINE LOCATION

H'

LT-34-43-303 | LT-34-52-102 | LT-34-52-701 | AA-34-60-404 | AA-38-03-601 | AA-38-12-103 | AA-38-12-401 | AA-38-12-902 | AA-38-20-301 | AA-38-29-104 | AA-38-29-405

SP 40 MV | RESISTIVITY 0 20 0 200 ohms m²/m

ALTITUDE, FEET

+800 +600 +400 +200 Sea Level -200 -400 -600 -800 -1,000 -1,200 -1,400 -1,600 -1,800 -2,000 -2,200 -2,400 -2,600 -2,800

APPROXIMATE LAND SURFACE

Queen City Sand

Reklaw Formation

Carrizo Sand

Wilcox Group

Midway Group

Weches Formation

Sparta Sand

Weches

Queen City Sand

Reklaw Formation

Carrizo Sand

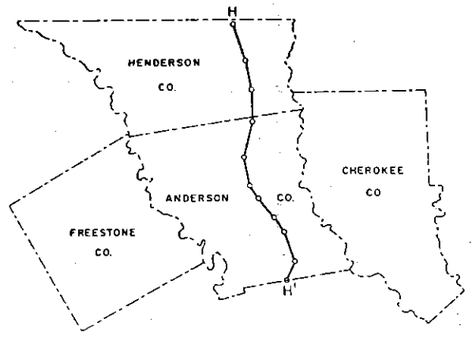
Wilcox Group

W Q C R C

Sparta Sand
Weches
Queen City Sand
Reklaw
Carrizo

Sparta Sand
Weches Formation
Queen City Sand
Reklaw Formation
Carrizo

0 2 4 6 8 10 Miles



EXPLANATION OF COLORS USED TO DENOTE GENERAL WATER QUALITY IN IMPORTANT WATER-BEARING UNITS

- Water containing less than 1,000 ppm dissolved solids
- Water containing 1,000 ppm to 3,000 ppm dissolved solids
- Water containing more than 3,000 ppm dissolved solids

NOTE: CORRELATIONS BASED ON ELECTRIC LOGS. RESISTIVITY CURVE SHOWN IS SHORT NORMAL.

SOURCE:
TEXAS WATER DEVELOPMENT BOARD REPORT 150, 1982

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FIGURE 4

GEOLOGIC CROSS SECTION THROUGH THE ANDERSON CO., TEXAS REGION

MURRAY CORP.-PALESTINE, TEXAS

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in the middle and lower portions are coarse-grained and quite thick. Individual beds within the Wilcox Group generally cannot be correlated from well to well due to rapid lateral changes in character and thickness.

The Carrizo Sand rests unconformably on the underlying Wilcox Group. The Carrizo Sand is capable of producing small to moderate quantities of fresh water and is in hydrologic communication with the underlying Wilcox Group. Collectively, these strata comprise the Carrizo-Wilcox Aquifer. The Carrizo is typically reddish-brown to light gray and cross-bedded in areas of outcrop. In the subsurface, the Carrizo is typically a white, massive, fine-to medium-grained quartz sand. It often contains a few thin clay lenses. However, these are generally only minor components of the unit as a whole. In the vicinity of the Murray facility, the Carrizo is encountered at a depth of about 500 feet. The thicknesses of the Carrizo Sand varies from about 90 to 110 feet in southern Anderson County to about 40 to 80 feet in the northern portion of the county (Figure 4).

The Reklaw Formation overlies the Carrizo Sand in the Palestine region. The Reklaw Formation has been divided into two members. The upper member is represented by the Marquez Shale, and the Newby Sand constitutes the lower member. The lower portion of the Reklaw Formation consists of brownish-green to reddish-brown, glauconitic, medium-grained, cross-bedded sand containing gravel in some places. The upper portion of the Reklaw consists of soft, dark grayish-brown, silty, glauconitic, muscovitic, slightly calcareous clay and shale. In northern Anderson County, the Reklaw is thinner and of a different character. The thick clays, typical of the Reklaw in the southern part of the county, are not present in the north. Instead, the formation is principally composed of interbedded sand and clay. However, the Reklaw is consistently of a lower permeability than the overlying Queen City Sand (or the underlying Carrizo Sand) and serves as an aquitard between the two aquifers. The Reklaw Formation is approximately 200 feet thick and is encountered at a depth of about 300 feet in the Palestine region (Figure 4).

The Queen City Sand overlies the Reklaw Formation and is the uppermost stratigraphic unit in the vicinity of the Murray property. The Queen City Sand constitutes the uppermost aquifer in the region and is capable of producing small quantities of fresh water. The Queen City is an important water-bearing unit within the region mainly because of its widespread, shallow occurrence. The Queen City Aquifer represents the most readily-available source of ground water to the region, especially for rural domestic and livestock use. The thickness of the Queen City is controlled largely by local topography. It has a maximum thickness of about 550 feet in northeastern Anderson County and is about 300 feet thick at the Murray facility (Figure 4). The Queen City consists of alternating beds of very fine to fine-grained quartz sand and clay.

SECTION 4.0
ACTIVE GEOLOGIC PROCESSES

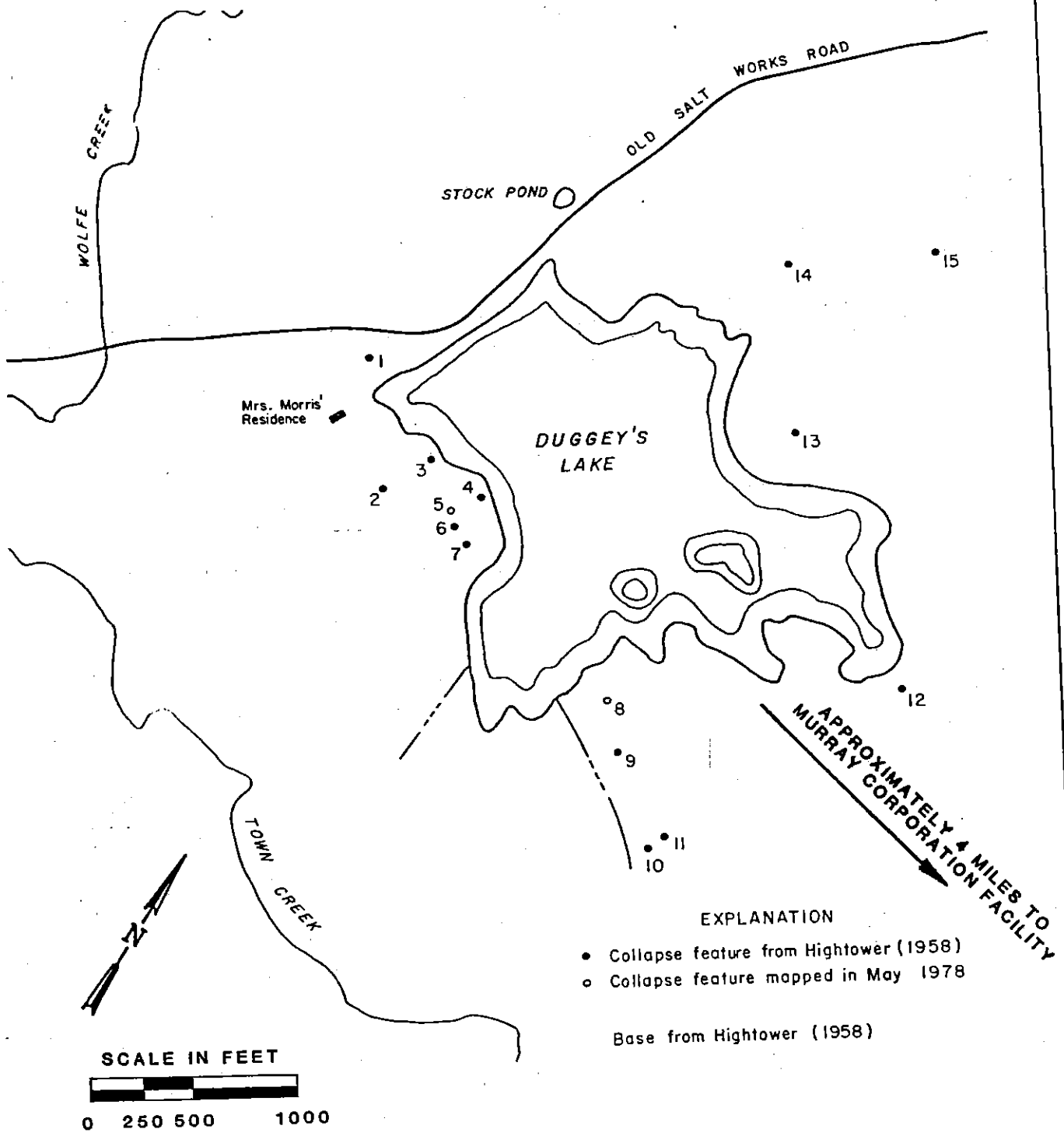
4.0 ACTIVE GEOLOGIC PROCESSES

There are several areas of faulting in the Anderson County region (Figure 3). However, the Murray facility is approximately two and one-half miles from the nearest faulted area. The faults most proximal to the Murray facility are associated with the intrusion of the Palestine salt dome. Similar faulting is associated with the Keechi and Butler salt domes as well.

A major zone of faulting, called the Mount Enterprise fault zone, extends from the southwest corner of Anderson County toward the northeast into Cherokee County. This irregular zone of faulting ranges in width from one to eight miles. Displacement along the faults range up to 600 feet. These faults may act as partial or complete barriers to ground-water flow in the region.

A fault zone known as the Luling-Mexia-Talco zone occurs across the northwestern corners of Freestone and Henderson Counties. This faulted zone is important to local oil and gas production, but does not disturb any of the Eocene ground-water reservoirs. No lineations or faults have been mapped crossing the Murray property.

In the Palestine region, subsidence has been limited to the occurrence of collapse structures associated with the use of brine wells to mine salt from the Palestine salt dome. These wells allow water to dissolve salt, which is then recovered at the surface. These wells are operated until the solution cavity below the well becomes so large that the overlaying strata collapse and form a sink hole. As of October, 1979, 16 collapsed structures had been identified around the Palestine salt dome (Figure 5). The last reported collapse occurred in 1978 along the southern border of the salt dome. These collapse structures are uniquely related to the dissolution of the underlying salt dome, which is approximately four miles west of the Murray facility. Therefore, they pose no threat of causing a surface collapse at the Murray property. .



SOURCE:
GEOLOGY & GEOHYDROLOGY OF THE EAST TEXAS BASIN, BUREAU OF ECONOMIC GEOLOGY, GEOLOGIC CIRCULAR 80-12, KREITLER & OTHERS, 1980

JN 118206 D89284.GLY

FIGURE 5

LOCATIONS OF SINKHOLES OVERLYING PALESTINE SALT DOME IN OCTOBER 1979

MURRAY CORP.-PALESTINE, TEXAS

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Surface erosion at the Murray facility should be minimal due to the relatively flat surface features of the property. After the final cover has been placed over the former burial trench, a run-off diversion system will be constructed to prevent erosion of the capping material.

There are no wetlands located within the Murray facility property boundaries.

SECTION 5.0
REGIONAL AQUIFERS

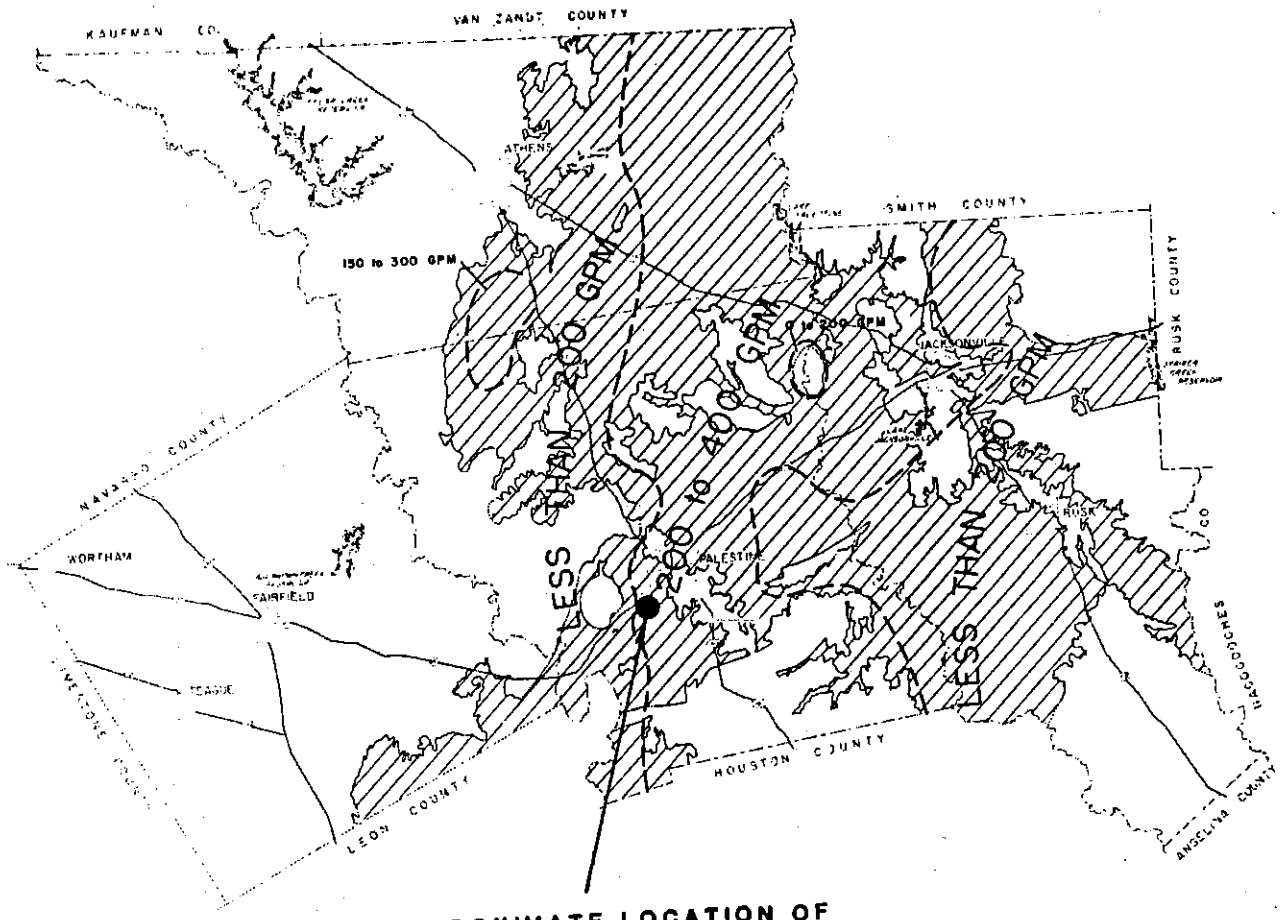
5.0 REGIONAL AQUIFERS

There are two principal aquifers recognized in the Palestine region. The upper aquifer is a low-yield ground-water reservoir composed of the Queen City Sand which constitutes the Queen City Aquifer. The lower aquifer is a high-yield ground-water reservoir composed of the Carrizo Sand and the Wilcox Group and is collectively referred to as the Carrizo-Wilcox Aquifer. These aquifers are generally unconfined in the Palestine region. However, local lenses of impermeable clay may impart semi-confined conditions. In the northern portion of Anderson County, these two aquifers are in hydrologic communication, but in the southern part of the county (where the Murray facility is located), they are separated by the impermeable upper shale member of the Reklaw Formation.

The Queen City Aquifer is an important aquifer to the region because of its widespread, shallow extent rather than the volume of ground water that it supplies. The Queen City provides the most readily-available supply of ground water for domestic and livestock use.

The Queen City Aquifer is considered to be a low-yield aquifer having yields that range up to 400 gallons per minute (gpm) (Figure 6). The highest yields are generally in the areas where the Queen City is the thickest. The thickest sections are typically found along the axis of the East Texas syncline.

The transmissivity of the Queen City Aquifer is relatively low due to the fine-grained nature of the sand beds, their limited thickness, and the presence of clay lenses. The low transmissivities are reflected in the typical low yields achieved by wells producing from the aquifer. A transmissivity value of about 3,000 gallons per day per foot (gpd/ft) is fairly typical of the Queen City Aquifer in Anderson County. Values for permeability vary widely in the Queen City due to the heterogeneous nature of the deposit. However, since the sediments are fine-grained, values of permeability are typically low.



EXPLANATION

PRINCIPAL OUTCROP OF QUEEN CITY SAND, CONTACTS DOTTED WHERE CONCEALED

200 to 400 GPM — ESTIMATED MAXIMUM INDIVIDUAL WELL YIELDS, GALLONS PER MINUTE

NOTE: OUTCROP OF QUEEN CITY SAND FROM GEOLOGIC ATLAS OF TEXAS, PALESTINE, TYLER, AND WACO SHEETS, BUREAU OF ECONOMIC GEOLOGY, UNIVERSITY OF TEXAS, VARIOUS DATES.

N

SCALE IN MILES

0 20

JN 118206 D89284.GLY

FIGURE 6

ESTIMATED MAXIMUM INDIVIDUAL WELL YIELDS-QUEEN CITY SANDS MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

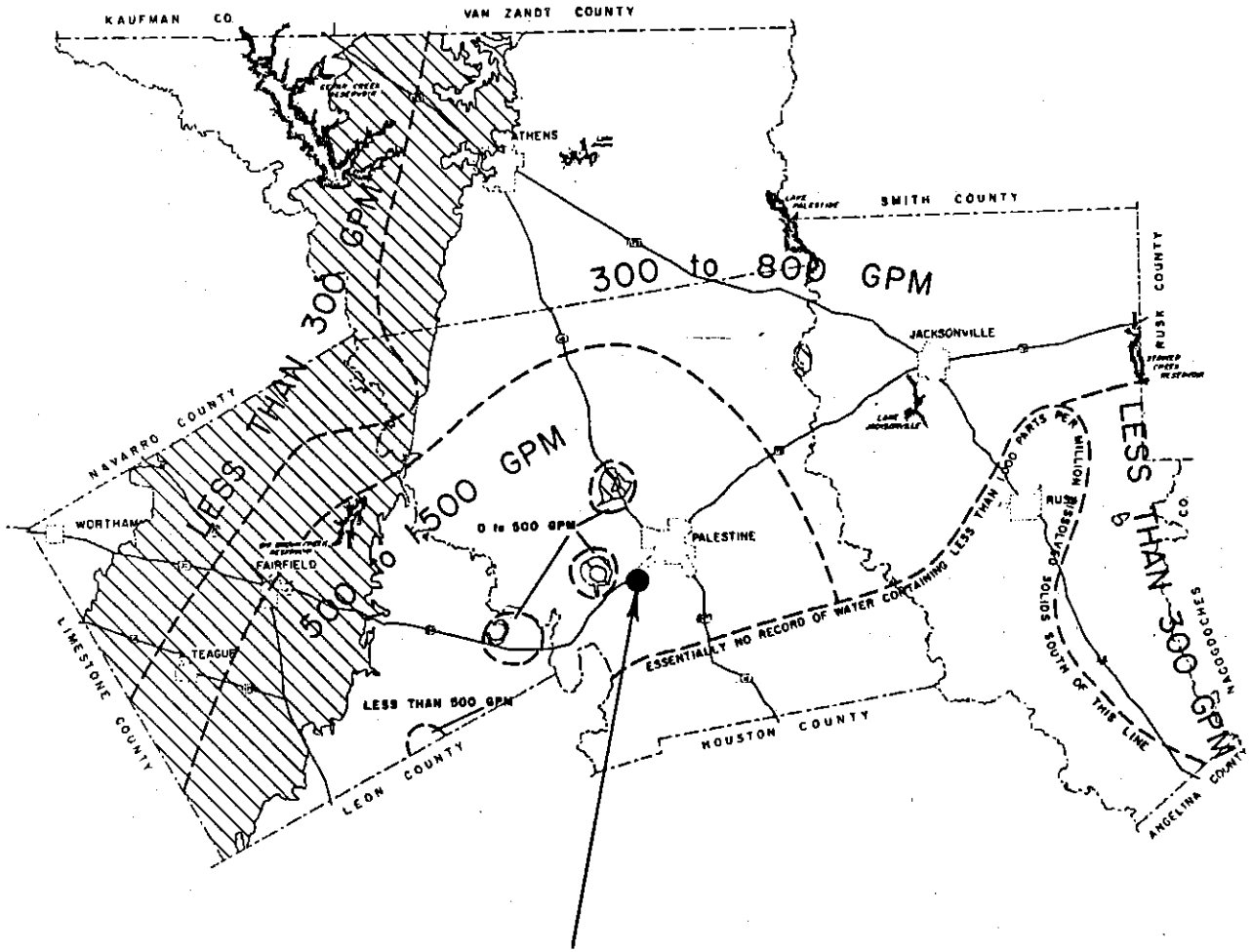
SOURCE:
TEXAS WATER DEVELOPMENT BOARD REPORT 160, 1982

Both the Queen City and Carrizo-Wilcox Aquifers receive recharge from the infiltration of precipitation and stream flow in areas of outcrop. The Queen City Sand contains water which is quite fresh in its outcrop, although a few shallow wells contain highly-mineralized water. The dissolved-solids content of the Queen City ground water is normally below 200 parts per million (ppm). However, in southern Anderson County (where the Queen City is found at greater depths), the dissolved-solids content of the ground water ranges from less than 200 ppm to over 500 ppm. The hardness of Queen City water has a considerable range, but most values are between 20 and 100 ppm. Objectionable iron staining from the water is commonly reported.

The Reklaw Formation separates the Queen City from the Carrizo-Wilcox Aquifer. In the northern portion of Anderson County, the Reklaw is more permeable than it is in the southern region. Therefore, the Queen City and Carrizo-Wilcox are in hydrologic communication in the northern area. Farther south, the Reklaw develops a thick, impermeable shale interval in its upper portion which causes the Carrizo-Wilcox to become a confined aquifer in the southern part of the county.

The Carrizo-Wilcox Aquifer is a high-yield aquifer having yields that range up to about 1,500 gpm (Figure 7). Well yields tend to increase from the northeast to the southwest due to an increase in sand thickness and the development of higher hydraulic heads. Figure 8 is a potentiometric map of the Carrizo-Wilcox Aquifer in Anderson County. The hydraulic gradient is to the south at a rate of about 0.0005 ft/ft. The map in Figure 8 is based on a regional study of selected wells, and local investigations may differ significantly. However, the map does provide a general view of regional flow patterns. The closed contours surrounding the Concord and Keechi domes in the central portion of the county indicate that the area is a recharge zone.

Transmissivities in the Carrizo-Wilcox Aquifer are much higher than the values found in the Queen City Aquifer. This difference is primarily due to the much coarser and thicker sand intervals encountered in the



EXPLANATION

PRINCIPAL OUTCROP OF WILCOX GROUP, CONTACTS DOTTED WHERE CONCEALED

300 to 800 GPM — ESTIMATED MAXIMUM INDIVIDUAL WELL YIELD OBTAINABLE, GALLONS PER MINUTE

NOTE: OUTCROP OF WILCOX GROUP FROM GEOLOGIC ATLAS OF TEXAS, DALLAS, PALESTINE, TYLER, AND WACO SHEETS, BUREAU OF ECONOMIC GEOLOGY, UNIVERSITY OF TEXAS, VARIOUS DATES

N

SCALE IN MILES

0 20

APPROXIMATE LOCATION OF MURRAY CORPORATION FACILITY

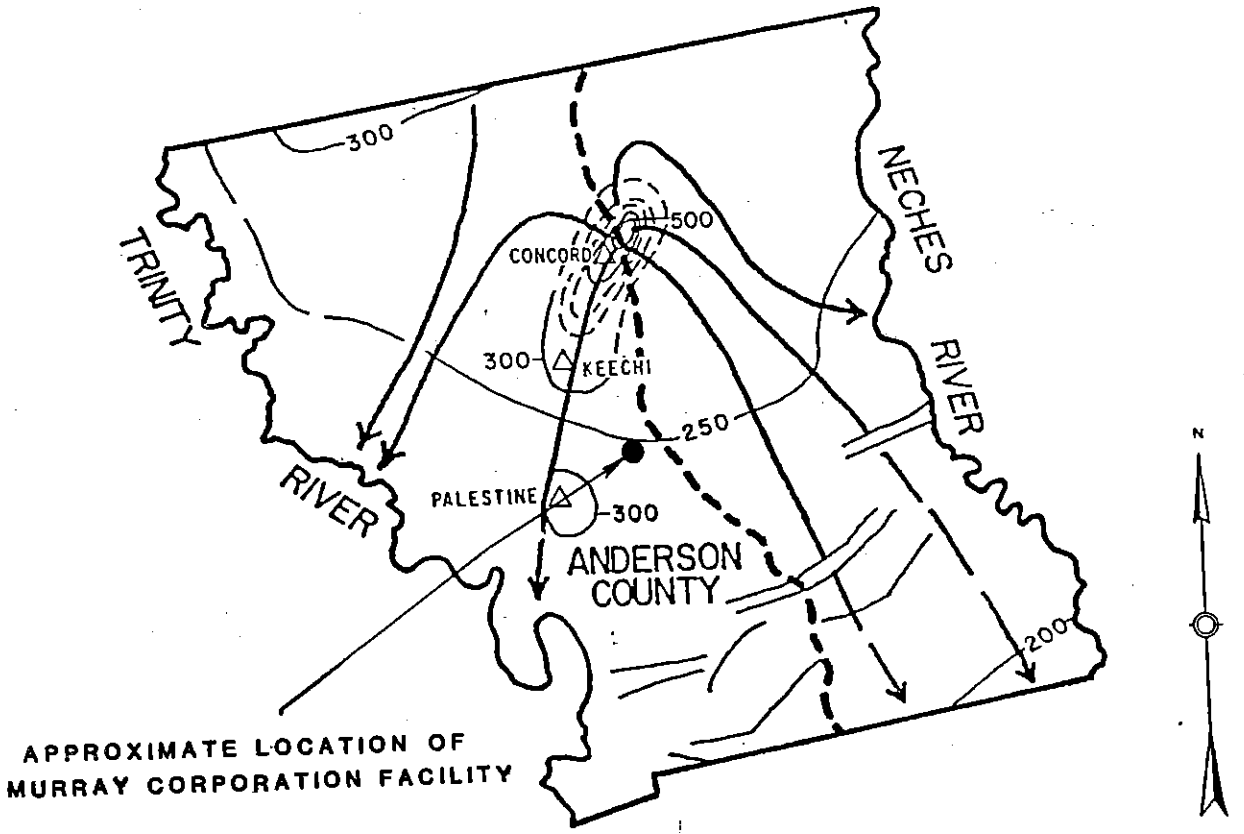
SOURCE:
TEXAS WATER DEVELOPMENT BOARD REPORT 160, 1982

JN 118206 D89284.GLY

FIGURE 7

ESTIMATED MAXIMUM INDIVIDUAL WELL YIELDS-WILCOX GROUP
MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants



SCALE
0 5 10 mi.
0 8 16 km.

EXPLANATION

-200- POTENTIOMETRIC CONTOUR, FEET ABOVE MEAN SEA LEVEL

GROUND WATER FLOW LINES

FAULT

SALT DOME

DRAINAGE BASIN DIVIDE

CONTOUR INTERVAL = 50 FEET

SOURCE:
GEOCHEMICAL ALTERATION OF THE GROUND WATER IN THE CARRIZO SAND OF NORTHWESTERN ANDERSON COUNTY, TEXAS, UNPUBLISHED MASTERS THESIS, STEPHEN F. AUSTIN UNIVERSITY, RUSHING, E.O., 1987

JN 116206 D89284.GLY

FIGURE 8

POTENTIOMETRIC MAP OF ANDERSON COUNTY INDICATING GENERALIZED FLOW DIRECTIONS OF GROUND WATER IN THE CARRIZO SAND AQUIFER
MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
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Carrizo-Wilcox. Transmissivities have been recorded in the Carrizo-Wilcox up to 47,000 gpd/ft, which is almost 16 times greater than that found in the Queen City. Permeabilities recorded in the Carrizo-Wilcox Aquifer range from 17 to 338 gallons per day square foot (gpd/ft^2) and average about 88 gpd/ft^2.

In areas where the Carrizo-Wilcox Aquifer crops out, water quality is generally good. Chemical analyses of water in these areas show that the dissolved-solids content ranges from less than 300 ppm to about 500 ppm. The water generally becomes more saline as it moves in a down-dip direction, becoming mostly brackish in the Elkhart area. The high salinities may be related to the dissolution of salt from the numerous salt domes in the region.

Records of 167 water wells producing from the Carrizo-Wilcox Aquifer were collected during a 1988 investigation. Of these wells, one was used for irrigation, four were used for public supply, and the rest were used for domestic and livestock purposes (or were abandoned).

A drillers well-log search identified one well within a one-mile radius of the Murray facility (Figure 9). This shallow well (55 feet deep) is located approximately 2/3-mile southwest of the Murray facility and is used for domestic purposes.

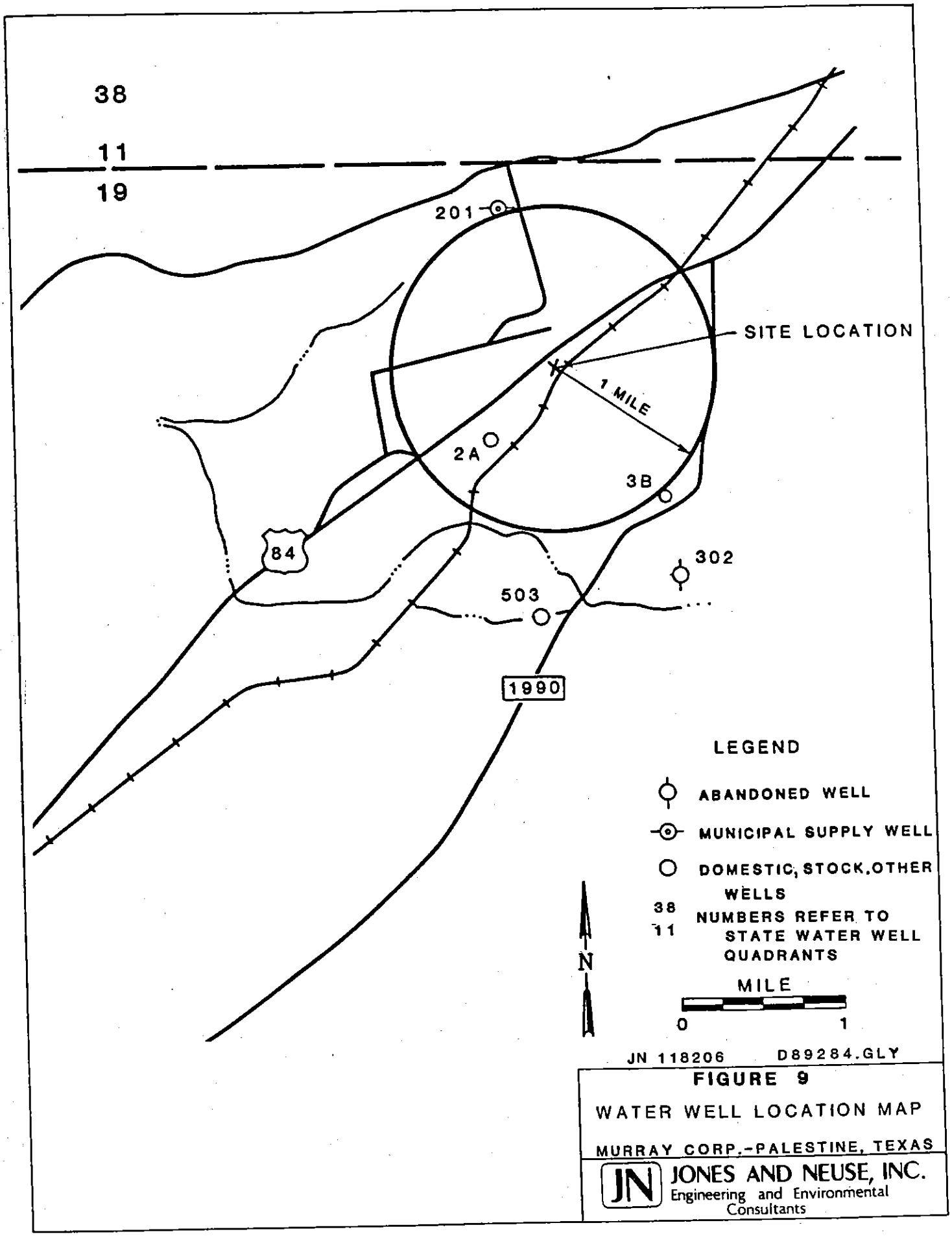

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FIGURE 9

WATER WELL LOCATION MAP

MURRAY CORP.-PALESTINE, TEXAS

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SECTION 6.0
LOCAL GEOLOGY AND HYDROGEOLOGY

6.0 LOCAL GEOLOGY AND HYDROGEOLOGY

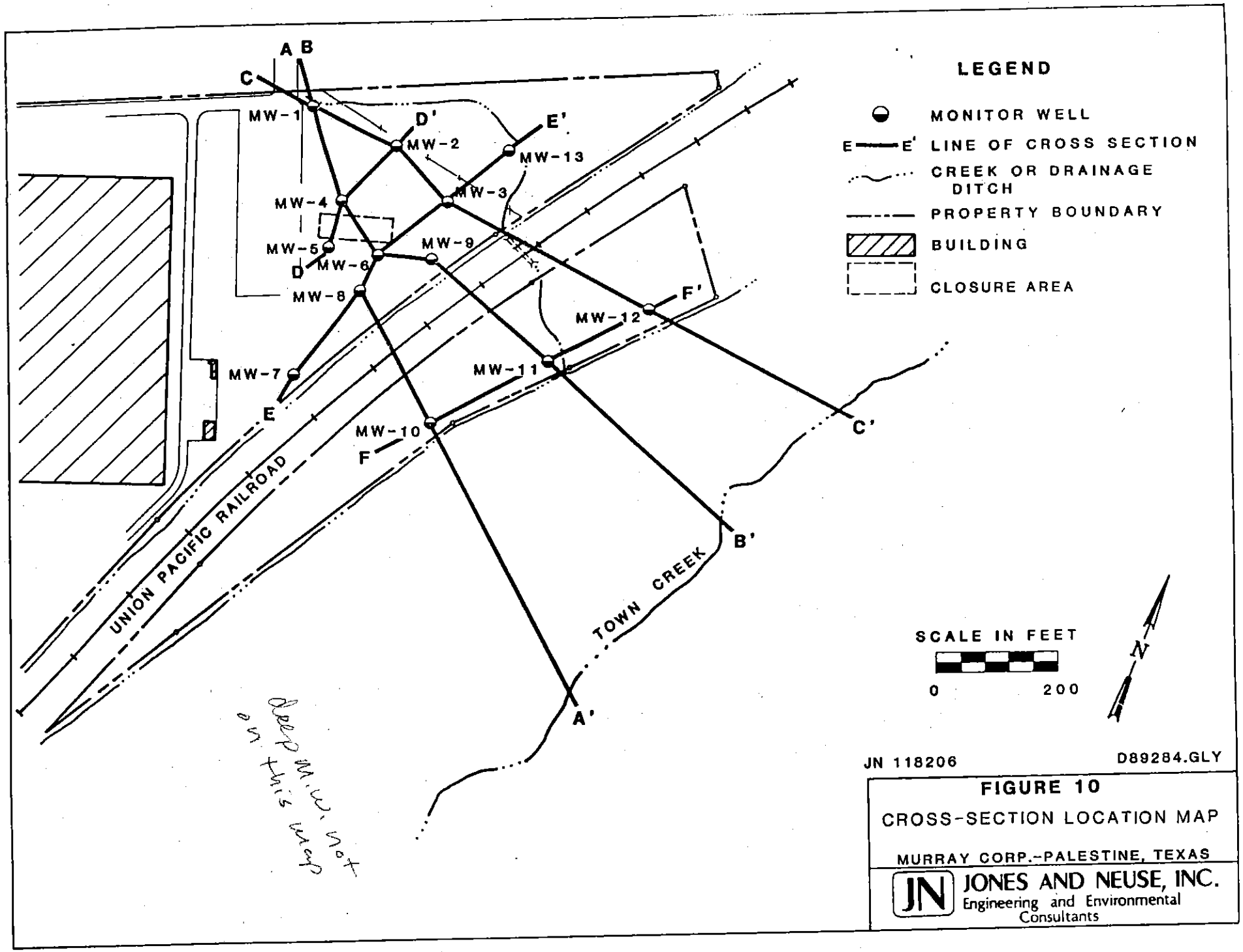
6.1 Geology

Six geologic cross sections have been constructed from the logs of 16 wells completed at the Murray site. The lines of cross sections are shown in Figure 10 and the cross sections are presented in Figure 11. These sections show two separate aquifers within the Queen City Formation in the vicinity of the closure area north of the Union Pacific Railroad line. Monitor wells MW-1 through MW-9 and MW-13 are completed within the uppermost aquifer. Monitor wells DMW-14 through DMW-16 are completed within a deep aquifer. The aquifers are hydraulically separated by dense, unsaturated, interbedded, sandy clays and clayey sands. These confining sediments range in thickness from 16 feet at DMW-15 to 23 feet at DMW-14.

The Queen City sediments beneath the Murray site dip to the north-northwest as depicted on cross sections A-A', B-B' and C-C'. The sediments consist primarily of clayey sands, silty sands, and sandy clays with lesser amounts of clayey gravels and gravelly sands.

An alluvial aquifer located within the floodplain of Town Creek has been identified south of the Union Pacific Railroad as shown on cross sections A-A', B-B', and C-C'. Monitor wells MW-10 through MW-12 are completed within this alluvial aquifer. The alluvial sediments are very similar in composition and texture to the Queen City sediments because the Queen City Formation comprises the primary source area for alluvial sediments deposited within the Town Creek basin.

Information derived from the installation of 14 soil borings and nine monitoring wells installed in July, 1988 at the Murray facility suggests that the shallow, unsaturated sediments are composed predominantly of clayey sand, consisting of very fine to fine silica sand with 12 to 50 percent moderately to highly plastic clay. To further characterize the sediments, geotechnical testing was conducted on soil samples collected during the installation of monitor wells MW-10, MW-11, MW-12, MW-13,



JN 118206 D89284.GLY

FIGURE 10

CROSS-SECTION LOCATION MAP

MURRAY CORP.–PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

DMW-14, DMW-15, and DMW-16. The geotechnical analyses performed on these samples reveal that, on the average, the shallow Queen City Aquifer at the Murray facility consists of approximately 76 percent sand and 24 percent silt and clay. The confining zones beneath the shallow Queen City Aquifer average approximately 26 percent sand, 48 percent silt, and 26 percent clay.

The deep Queen City Aquifer in which monitor wells DMW-14 through DMW-16 are completed in consists predominantly of fine sand to coarse silt. Geotechnical analyses of the deep aquifer sediments reveal that, on the average, these sediments consist of approximately 33 percent sand. The alluvial aquifer in which monitor wells MW-10 through MW-12 are completed in consists of approximately 59 percent sand and 41 percent silt and clay. The confining zone in which these wells were terminated, consists of 18 percent sand, 58 percent silt, and 24 percent clay. Table 1 provides a summary of the laboratory geotechnical tests. Table 2 provides a summary of grain size analyses performed on the samples.

6.2 Hydrogeology

Shallow Aquifers

The ground-water elevations in the shallow Queen City and alluvial aquifers at the Murray site are depicted on the geologic cross sections shown in Figure 3. As shown in the cross sections, the depth to the ground water varies from about 20 feet near MW-1 to about one foot near MW-12. On January 30, 1990, the hydraulic gradient across the northern portion of the site between monitor wells MW-1 and MW-9 was approximately 0.003 feet/foot to the southwest, while the gradient across the southern portion of the site between monitor wells MW-9 and MW-11 was approximately 0.053 feet/foot to the southeast, reflecting the abrupt change in topography. The overall hydraulic gradient from monitor wells MW-1 to MW-11 was approximately 0.024 feet/foot to the southeast. A potentiometric map of the shallow aquifer for January 30, 1990, is shown in Figure 12.

TABLE 1

SUMMARY OF LABORATORY GEOTECHNICAL TEST RESULTS

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Permeability (cm/sec)	Atterberg Limits LL	PI	Moisture Content (%) (after testing)	Porosity (%)
B-1	15	16	Shallow Aquifer	4×10^{-8}	NA	NA	15.8	NA
B-1 Deep	33	34	Shallow Aquifer	NA	22	0	30.8	NA
B-1 Deep	43	44	Confining Zone	NA	40	19	18.8	NA
B-1 Deep	59.5	60	Confining Zone	NA	49	30	22.0	45.2
B-1 Deep	65	65.5	Deep Aquifer	NA	25	1	26.8	NA
B-1 Deep	71.5	72	Confining Zone	NA	30	4	18.8	NA
MW-10	12	12.5	Alluvial Aquifer	1.6×10^{-6}	NA	NA	NA	NA
MW-10	12.5	13	Alluvial Aquifer	NA	19	2	19.3	38.2
MW-10	17.5	18	Alluvial Aquifer	NA	34	17	20.3	NA
MW-10	20.5	21	Confining Zone	NA	38	15	24.1	NA
MW-11	12	12.5	Alluvial Aquifer	NA	25	8	20.1	NA
MW-11	12.5	13	Alluvial Aquifer	6.4×10^{-7}	NA	NA	NA	NA
MW-11	19	19.5	Confining Zone	NA	43	23	25.6	46.1
MW-13	17	18	Shallow Aquifer	NA	24	3	32.8	NA
MW-13	22	22.5	Shallow Aquifer	NA	21	0	29.7	NA
MW-13	29.5	30	Confining Zone	NA	53	30	25.1	NA

NA: Not Analyzed

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TABLE 1
SUMMARY OF LABORATORY GEOTECHNICAL TEST RESULTS
(Continued)

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Permeability (cm/sec)	Atterberg Limits LL	PI	Moisture Content % (after testing)	Porosity (%)
DMW-14	27	28	Shallow Aquifer	2.7×10^{-7}	NA	NA	NA	36.8
DMW-14	50	50.5	Confining Zone	NA	NA	NA	23.2	NA
DMW-14	60	60.5	Confining Zone	NA	NA	NA	23.2	NA
DMW-15	22	23	Confining Zone	NA	45	22	22.3	NA
DMW-15	25	26	Confining Zone	NA	53	26	24.3	NA
DMW-15	29	30	Confining Zone	NA	52	29	19.4	NA
DMW-15	42	43	Confining Zone	NA	NA	NA	20.2	NA
DMW-15	39	40	Deep Aquifer	NA	NA	NA	NA	36.6
DMW-16	28	29	Confining Zone	NA	49	26	23.2	NA
DMW-16	32	33	Confining Zone	NA	57	32	23.2	NA
DMW-16	36	37	Confining Zone	NA	56	33	20.3	NA
DMW-16	40	40.5	Deep Aquifer	Not Testable	NA	NA	NA	39.5

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TABLE 2

SUMMARY OF GRAIN SIZE ANALYSES RESULTS

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Type of Material %Sand	%Silt	%Clay
B-1	15.0	16.0	Shallow Aquifer	50.0	25.0	25.0
MW-10	12.5	13.0	Alluvial Aquifer	61.2	NA	NA
MW-10	17.5	18.0	Alluvial Aquifer	55.0	NA	NA
MW-10	20.5	21.0	Confining Zone	29.2	48.8	21.0
MW-11	12.0	12.5	Alluvial Aquifer	60.8	NA	NA
MW-11	19.0	19.5	Confining Zone	6.4	67.1	26.5
MW-13	17.0	18.0	Shallow Aquifer	71.3	NA	NA
MW-13	22.0	22.5	Shallow Aquifer	79.1	NA	NA
MW-13	29.5	30.0	Confining Zone	0.9	63.1	36.0
DMW-14	64.0	64.5	Deep Aquifer	34.5	NA	NA
DMW-15	20.0	21.0	Confining Zone	70.6	NA	NA
DMW-15	22.0	23.0	Confining Zone	2.7	NA	NA
DMW-15	34.0	40.0	Deep Aquifer	31.9	NA	NA
DMW-16	20.0	21.0	Shallow Aquifer	90.8	NA	NA
DMW-16	32.0	33.0	Confining Zone	0.4	NA	NA
DMW-16	40.0	40.5	Deep Aquifer	36.1	NA	NA

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TABLE 2

SUMMARY OF GRAIN SIZE ANALYSES RESULTS

(Continued)

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Type of Material %Sand	%Silt	%Clay
B-1 Deep	33.0	34.0	Shallow Aquifer	86.5	13.5	0.0
B-1 Deep	43.0	44.0	Confining Zone	51.2	33.8	15.0
B-1 Deep	59.5	60.0	Confining Zone	25.7	45.8	28.5
B-1 Deep	65.0	65.5	Deep Aquifer	28.0	50.0	22.0
B-1 Deep	71.5	72.0	Confining Zone	67.0	27.0	6.0

NA: Not Analyzed

Method of Analysis - ASTM D-422

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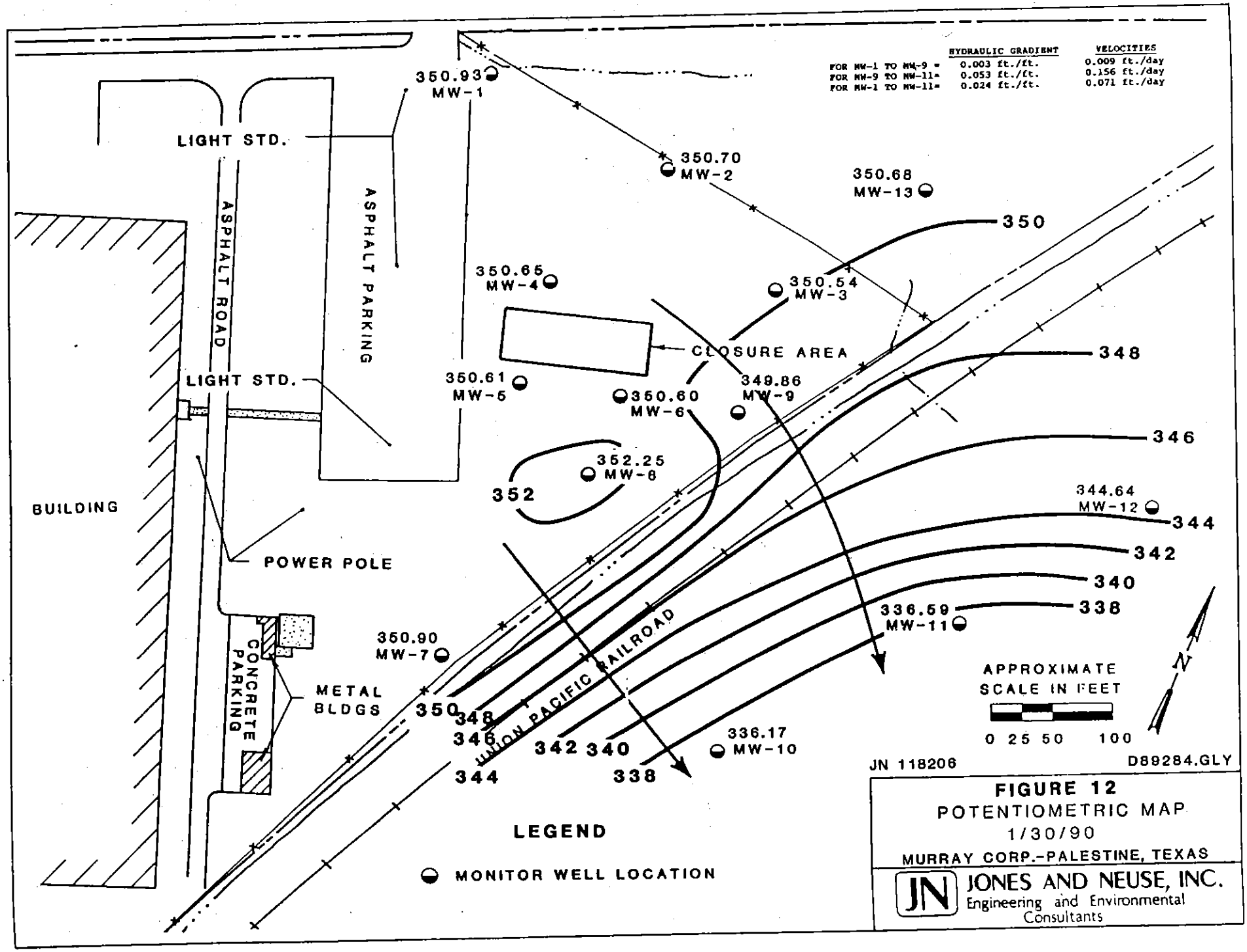

FIGURE 12
POTENTIOMETRIC MAP
1/30/90
MURRAY CORP.-PALESTINE, TEXAS

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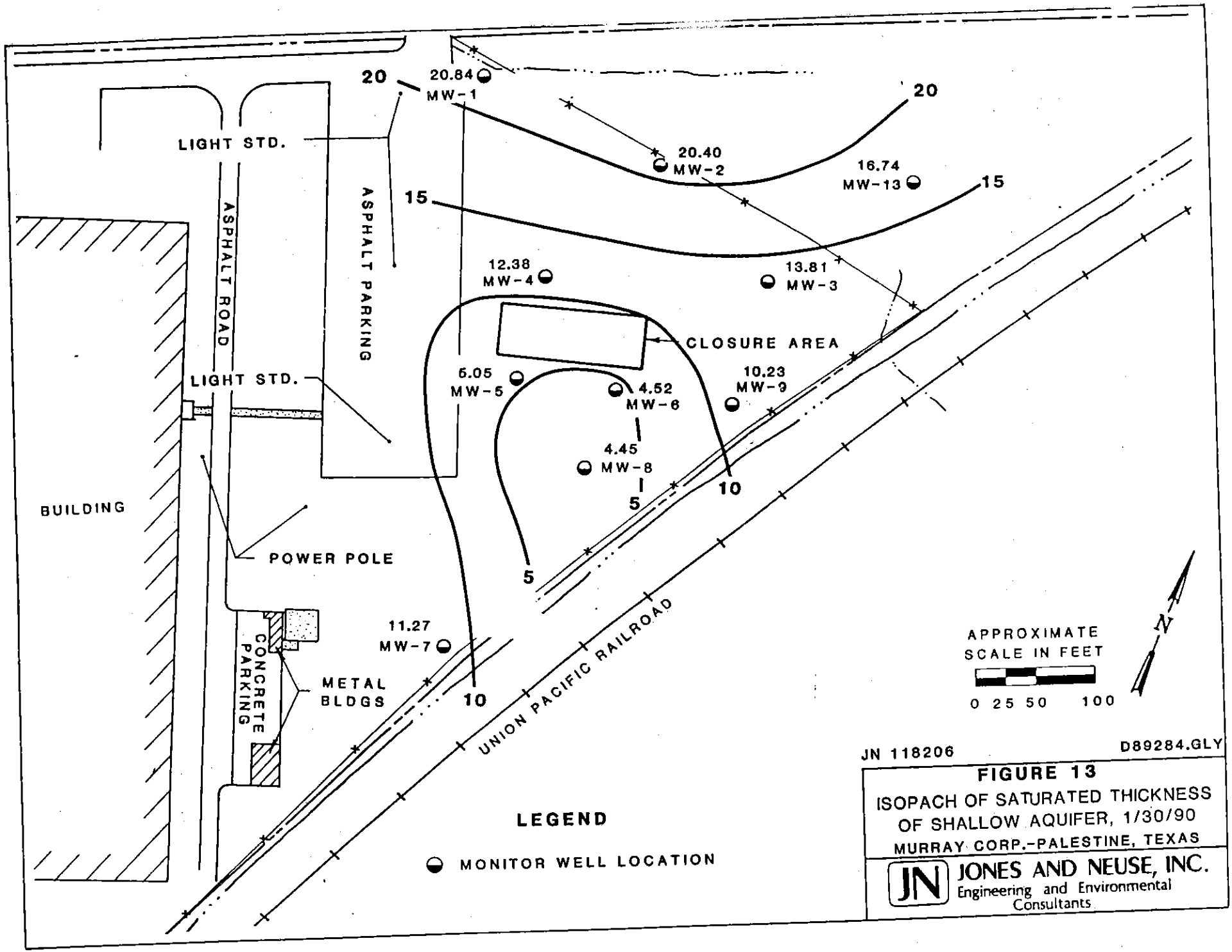
Engineering and Environmental Consultants

The uniform, low hydraulic gradient seen in the January 30, 1990 potentiometric surface map (Figure 12) in the area of the site north of the railroad line represents ground-water flow within the shallow Queen City Aquifer. A deviation from this uniformity is seen in the vicinity of monitor well MW-8. In this area, a soil berm nas caused the ponding of surface water runoff with the result of a small ground-water mound.

The ground-water gradient steepens south of the railroad tracks. The steepening of the gradient south of the railroad occurs in response to a steepening of the land surface in that vicinity. The shallow Queen City Aquifer may have a direct hydraulic connection with the alluvial aquifer just south of the railroad. However, the exact nature of this connection is not clearly understood at this time. The placement of the additional wells (just south of the railroad) proposed in Murray's Compliance Plan application will provide additional information about the spatial and hydraulic relationship between these two aquifers.

The saturated thickness of the shallow Queen City aquifer north of the Union Pacific Railroad ranges from greater than 20 feet near MW-1 to less than five feet in the vicinity of MW-8. An isopach map of the saturated thickness of the shallow Queen City Aquifer for the January 30, 1990, sampling event is shown in Figure 13. The saturated thickness of the shallow aquifer is controlled largely by the north-northwest dip of the underlying confining zone as depicted on cross sections A-A', B-B', and C-C'. This north-northwest dip in conjunction with the southeasterly hydraulic gradient creates a wedge-shaped saturated interval which thins from north to south.

In-situ aquifer tests were conducted to determine the fluid transmitting properties of the shallow aquifers at the Murray site. The aquifer testing methodology consisted of slug tests which were conducted in 12 monitor wells at the site. The slug tests were conducted by calculating the displacement volume of the dedicated bailers in each well. This volume was then removed, and the recovery of water levels was


20
20.84
MW-1
20
20.40
MW-2
16.74
MW-13
15
15
LIGHT STD.
ASPHALT ROAD
ASPHALT PARKING
12.38
MW-4
13.81
MW-3
CLOSURE AREA
LIGHT STD.
6.05
MW-5
4.52
MW-6
10.23
MW-9
4.45
MW-8
5
10
BUILDING
POWER POLE
5
11.27
MW-7
CONCRETE PARKING
METAL BLDGS
10
UNION PACIFIC RAILROAD
APPROXIMATE SCALE IN FEET
0 25 50 100
N
LEGEND
MONITOR WELL LOCATION
JN 118206
D89284.GLY
FIGURE 13
ISOPACH OF SATURATED THICKNESS OF SHALLOW AQUIFER, 1/30/90
MURRAY CORP.-PALESTINE, TEXAS
JN
JONES AND NEUSE, INC.
Engineering and Environmental Consultants

recorded as a time series of water level elevations. The data were then plotted and graphically solved using the method developed by H. Bouwer and R. C. Rice (Water Resources Research, Vol. 12, #3, June, 1976, pp., 423-428 and as modified by H. Bouwer in Ground Water, Vol. 27, #3, May - June, 1989, pp. 304-309). Raw data and calculations are included in Appendix IV-2.

Hydraulic conductivity values for the shallow and alluvial aquifers determined from the analysis of the slug test data ranged from 8.1×10^{-5} to 2.1×10^{-3} cm/sec (Table 3). The highest hydraulic conductivities were reported for monitor wells MW-2, MW-5, MW-6, and MW-13. Generally, the hydraulic conductivity values were higher at the most upgradient wells (i.e., MW-2) and lower in the downgradient wells. The higher hydraulic conductivity values reported for monitor wells MW-5 and MW-6, which are located immediately downgradient of the former burial trench, may be the result of impacts to the subsurface media by the solvents which were buried in this area. The lithologies logged in these wells do not suggest the higher hydraulic conductivities are attributed to lithology. Monitor well MW-13 is partially screened in a gravelly sand which appears to have contributed to the higher hydraulic conductivity value reported for this well.

The hydraulic conductivities calculated for each aquifer test were multiplied by the saturated thickness of the corresponding well to obtain transmissivity values. The transmissivity values are shown in Table 3. The observed transmissivities appear to be higher in the upgradient wells and lower in the drowngradient wells similar to the trend observed for hydraulic conductivities. This observation is partially attributed to the larger saturated thicknesses which are present in the upgradient portion of the site.

Deep Aquifer

A potentiometric surface map (Figure 14) was developed for the deep Queen City Aquifer from water level data collected on February 23, 1990. A hydraulic gradient was calculated from monitor well DMW-16 to the

TABLE 3

SHALLOW AND ALLUVIAL AQUIFER TEST DATA SUMMARY

Monitor Well No.	Slug No.	Hydrogeologic Unit	Hydraulic Conductivity cm/sec	Hydraulic Conductivity gpd/ft^2	Saturated Thickness feet	Transmissivity gpd/ft
MW-1	1(out)	Shallow Aquifer	8.2×10^{-4}	17.0	20.45	347.7
	2(out)	Shallow Aquifer	8.5×10^{-4}	18.0	20.46	368.3
MW-2	1(out)	Shallow Aquifer	2.3×10^{-3}	50.0	21.77	1088.5
MW-3	1(out)	Shallow Aquifer	5.8×10^{-4}	12.0	13.48	161.8
MW-4	1(out)	Shallow Aquifer	6.2×10^{-4}	13.0	13.82	179.7
MW-5	1(out)	Shallow Aquifer	2.8×10^{-3}	60.0	6.60	396.0
MW-6	1(in)	Shallow Aquifer	2.1×10^{-3}	44.0	4.11	180.8
	2(out)	Shallow Aquifer	2.4×10^{-3}	51.0	5.94	302.9
MW-7	1(out)	Shallow Aquifer	1.5×10^{-4}	3.2	8.34	26.7
	2A(out)	Shallow Aquifer	6.4×10^{-4}	14.0	8.53	119.4
	2B(out)	Shallow Aquifer	1.5×10^{-4}	3.2	8.53	27.3
MW-9	1(out)	Shallow Aquifer	2.9×10^{-4}	6.2	10.16	63.0
	2A(out)	Shallow Aquifer	5.1×10^{-4}	11.0	11.65	128.15
	2B(out)	Shallow Aquifer	1.8×10^{-4}	3.7	11.65	43.1
MW-10	1(out)	Alluvial Aquifer	2.2×10^{-4}	4.7	22.77	107.0
MW-11	1(out)	Alluvial Aquifer	1.0×10^{-4}	2.2	13.32	29.3
MW-12	1(out)	Alluvial Aquifer	8.1×10^{-5}	1.7	15.65	26.6
MW-13	1(out)	Shallow Aquifer	3.5×10^{-3}	75.0	17.97	1347.8
	2(out)	Shallow Aquifer	5.1×10^{-3}	110.0	17.99	1978.9
	3(out)	Shallow Aquifer	4.3×10^{-3}	92.0	17.99	1655.1

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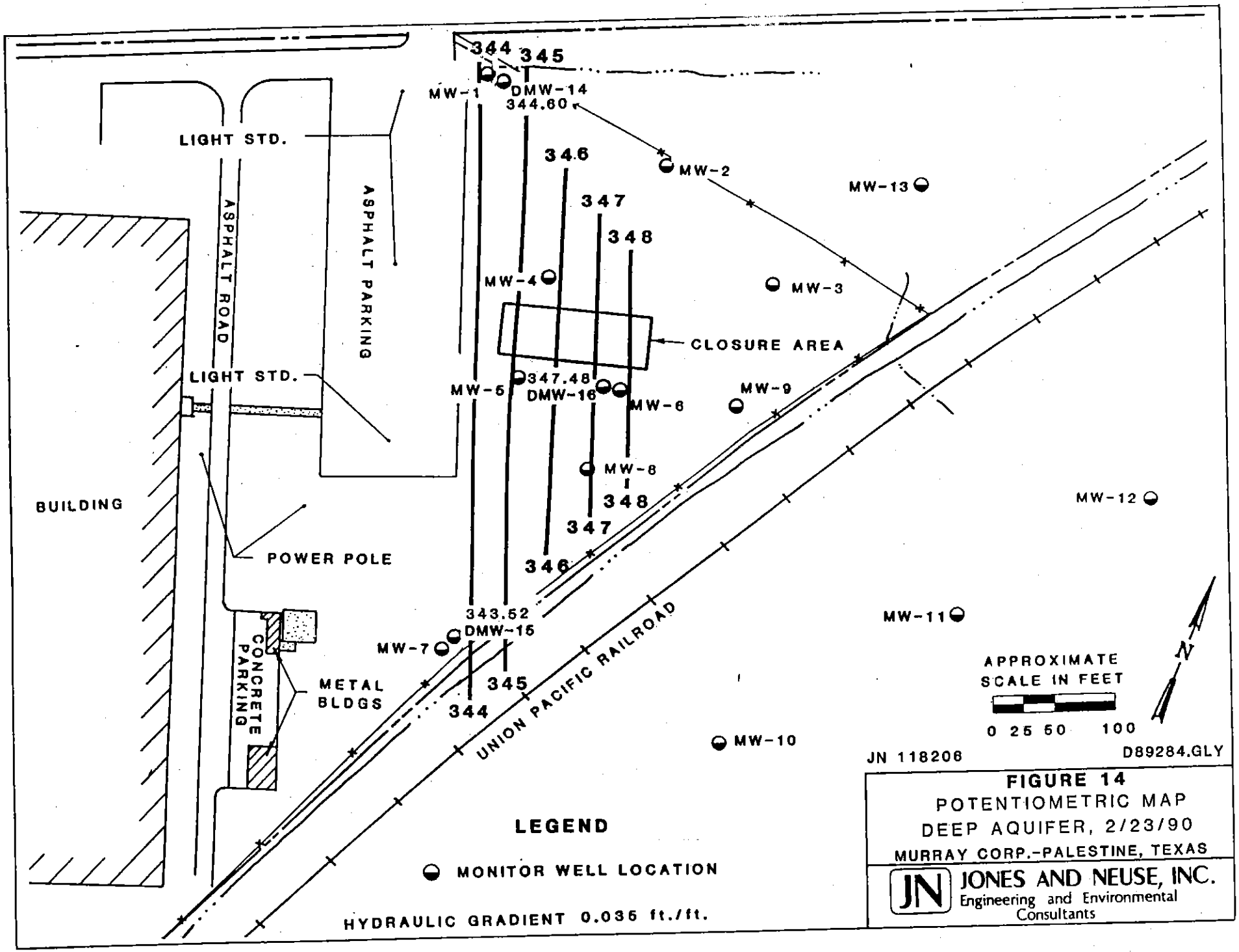

FIGURE 14
POTENTIOMETRIC MAP
DEEP AQUIFER, 2/23/90
MURRAY CORP.-PALESTINE, TEXAS

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344-foot contour line along a line parallel to the direction of ground-water flow. The hydraulic gradient across the site was determined to be 0.035 feet/foot to west-southwest. This flow direction is consistent with the regional ground-water flow direction which is west-southwest toward the Trinity River.

The ground-water elevations in the deep monitor wells are significantly higher than the elevations of the top of saturation in the deep aquifer. This difference suggests the deep aquifer is confined and that the water levels in the monitor wells represent the confining pressure at the top of the aquifer. A maximum confined pressure of 14.2 pounds per square inch (psi) or 33 feet of equivalent hydraulic head occurs in monitor well DMW-14, while a minimum confined pressure of approximately 5.0 psi (11.5 feet of hydraulic head) is present in monitor well DMW-15. Differences in hydraulic head are shown in the deep aquifer potentiometric surface map in Figure 14.

Slug tests in the deep monitor wells were conducted in a similar manner as those conducted in the shallow monitor wells which were discussed previously. Raw data and calculations are included in Appendix IV-2.

Hydraulic conductivity values for the deep aquifer determined from the analysis of the slug test data ranged from 4.5×10^{-5} to 2.7×10^{-4} cm\sec (Table 4). The hydraulic conductivity value reported for monitor well DMW-14 was approximately an order of magnitude higher than the values reported for monitor wells DMW-15 and DMW-16. This observation could be attributed to a higher percentage of coarse silt to fine silt in monitor well DMW-14 than in the other two deep wells as observed by the on-site geologist during the well installations.

The transmissivity values for the deep monitor wells are shown in Table 4. The transmissivity values ranged from 51.3 gpd/ft for monitor well DMW-14 to 4.0 gpd/ft for monitor well DMW-16. These values primarily reflect the hydraulic conductivities reported for each well due

TABLE 4

DEEP AQUIFER TEST DATA SUMMARY

Monitor Well No.	Slug No.	Hydrogeologic Unit	Hydraulic Conductivity cm/sec	Hydraulic Conductivity gpd/ft^2	Saturated Thickness feet	Transmissivity gpd/ft
DMW-14	1(out)	Deep Aquifer	2.7×10^{-4}	5.7	9.0	51.3
DMW-15	1(out)	Deep Aquifer	4.5×10^{-5}	1.0	8.0	8.0
DMW-16	1(out)	Deep Aquifer	3.7×10^{-5}	0.8	5.0	4.0

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to the lack of significant variations in the saturated thicknesses of the aquifer penetrated by these wells.

MONITOR WELL LOGS AND AQUIFER TEST DATA

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-1
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	23.54 FEET
SLUG WATER LEVEL:	28.20 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	28.20	4.66
22	24.20	0.66
45	23.78	0.24
62	23.66	0.12
78	23.59	0.05
96	23.58	0.04
124	23.57	0.03
154	23.57	0.03
178	23.56	0.02
204	23.56	0.02
234	23.56	0.01
420	23.55	0.01

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-1
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	21.43 feet
Length of saturated screen interval:	L =	20.00 feet
Thickness of saturated media:	D =	21.43 feet
Diameter (or 2 X radius) of casing:	2rc	0.167 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	1.70 feet
t value for a point on slope line:	t =	80 seconds
Y value for point on slope line at time t:	Yt =	0.047 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw = 80.00

A = 4.00
B = 0.75
C = 3.50

RESULTS:

K: 2.7E-05 FT/SEC
2.3E+00 FT/DAY
1.7E+01 GPD/FT2
8.2E-04 CM/SEC

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JN 118206
SLUG TEST ANALYSIS
MW-1, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental
Consultants
Yo = 1.70
Yt = 0.047
t (feet)
t (seconds)
0.01
0.1
1.0
0
50
100
200
300
400
500
46 5490
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 2 (OUT)
WELL NUMBER:	MW-1
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	23.53 FEET
SLUG WATER LEVEL:	28.20 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	28.20	4.68
12	24.83	1.31
28	24.20	0.68
45	23.82	0.30
60	23.63	0.10
75	23.58	0.06
90	23.57	0.05
120	23.54	0.02
150	23.53	0.01
180	23.53	0.01
234	23.56	0.03

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-1
TEST NUMBER: SLUG # 2 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	21.43 feet
Length of saturated screen interval:	L =	20.00 feet
Thickness of saturated media:	D =	21.43 feet
Diameter (or 2 X radius) of casing:	2rc	0.167 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.30 feet
t value for a point on slope line:	t =	80 seconds
Y value for point on slope line at time t:	Yt =	0.056 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	80.00
A =	4.00
B =	0.75
C =	3.50

RESULTS:

K:	2.8E-05 FT/SEC
	2.4E+00 FT/DAY
	1.8E+01 GPD/FT2
	8.5E-04 CM/SEC

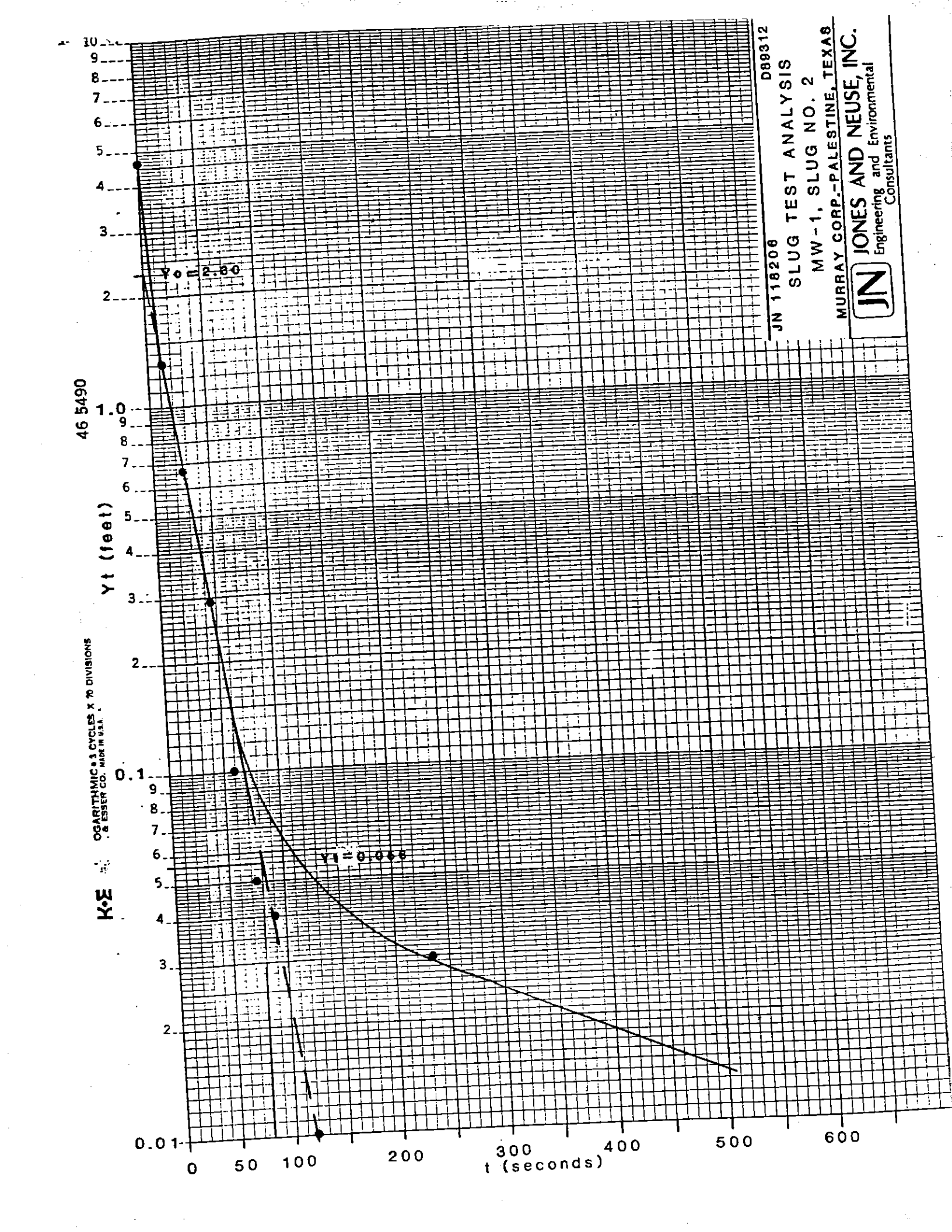
D89312
JN 118206
SLUG TEST ANALYSIS
MW-1, SLUG NO. 2
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo = 2.80
Y1 = 0.065
Yt (feet)
t (seconds)
0.01
0.1
1.0
10
0
50
100
200
300
400
500
600
46 5490
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-2
WELL MATERIAL:	2"-PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	22.29 FEET
SLUG WATER LEVEL:	26.95 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	26.95	4.66
12	23.00	0.71
25	22.48	0.19
38	22.31	0.02
50	22.30	0.01
80	22.29	0.00
95	22.29	0.00
120	22.29	0.00

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-2
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	21.77 feet
Length of saturated screen interval:	L =	20.00 feet
Thickness of saturated media:	D =	21.77 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.167 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	4.66 feet
t value for a point on slope line:	t =	25 seconds
Y value for point on slope line at time t:	Yt =	0.190 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	80.00
A =	4.00
B =	0.75
C =	3.50

RESULTS:

K:	7.7E-05 FT/SEC
	6.6E+00 FT/DAY
	5.0E+01 GPD/FT2
	2.3E-03 CM/SEC

Yo = 4.66
Yt = 0.19
t = 25
Yt (feet)
t (SECONDS)
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
50
100
46 5490
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JN 118206
MW2-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental
Consultants

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-3
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	20.97 FEET
SLUG WATER LEVEL:	25.63 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	25.63	4.66
12	21.35	0.38
30	21.11	0.14
42	21.07	0.10
54	21.05	0.08
70	21.05	0.08
90	21.04	0.07
135	21.03	0.06
180	21.03	0.06
240	21.03	0.06
330	21.03	0.06
660	21.01	0.04
2580	21.00	0.03
3300	20.98	0.01

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-3
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	13.48 feet
Length of saturated screen interval:	L =	20.50 feet
Thickness of saturated media:	D =	13.48 feet
Diameter (or 2 X radius) of casing:	2rc	0.167 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	0.54 feet
t value for a point on slope line:	t =	80 seconds
Y value for point on slope line at time t:	Yt =	0.031 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	82.00
A =	4.00
B =	0.66
C =	3.50

RESULTS:

K:	1.9E-05 FT/SEC
	1.6E+00 FT/DAY
	1.2E+01 GPD/FT2
	5.8E-04 CM/SEC

JN 118206
D89312
SLUG TEST ANALYSIS
MW-3, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo=0.64
Yt=0.0313
Y (feet)
t (seconds)
0.01
0.1
1.0
0
50
100
200
300
400
500
600
700
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-4
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	21.37 FEET
SLUG WATER LEVEL:	26.03 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	26.03	4.66
12	22.86	1.49
30	22.15	0.78
40	21.85	0.48
50	21.71	0.34
65	21.58	0.21
90	21.50	0.13
105	21.46	0.09
120	21.42	0.05
135	21.41	0.04
150	21.40	0.03
240	21.38	0.01
300	21.37	0.00

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-4
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	13.82 feet
Length of saturated screen interval:	L =	20.00 feet
Thickness of saturated media:	D =	13.82 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.167 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.30 feet
t value for a point on slope line:	t =	80 seconds
Y value for point on slope line at time t:	Yt =	0.120 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	80.00
A =	4.00
B =	0.75
C =	3.50

RESULTS:

K:	2.0E-05 FT/SEC
	1.7E+00 FT/DAY
	1.3E+01 GPD/FT2
	6.2E-04 CM/SEC

10
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
0.1
9
8
7
6
5
4
3
2
0.01
Yo = 2.30
Yt = 0.12
t = 80
Yt (feet)
0
100
200
300
t (seconds)
46 5490
JN 118208
MW 4 - 1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental
Consultants

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-5
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	20.86 FEET
SLUG WATER LEVEL:	24.69 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	24.69	3.83
20	21.85	0.99
40	21.35	0.49
50	21.26	0.40
65	21.13	0.27
75	21.07	0.21
90	21.05	0.19
120	21.02	0.16
180	21.00	0.14
300	20.98	0.12
540	20.97	0.11
840	20.97	0.11

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-5
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	6.59 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	6.59 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	1.70 feet
t value for a point on slope line:	t =	80 seconds
Y value for point on slope line at time t:	Yt =	0.165 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	29.99
A =	2.50
B =	0.40
C =	2.00

RESULTS:

K:	9.3E-05 FT/SEC
	8.0E+00 FT/DAY
	6.0E+01 GPD/FT2
	2.8E-03 CM/SEC

MW5-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
JN 118208
Yo = 1.70
Yt = 0.165
t = 80
(feet)
t (seconds)
0
100
200
300
400
500
600
10
1.0
0.1
0.01
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (IN)
WELL NUMBER:	MW-6
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	20.85 FEET
SLUG WATER LEVEL:	13.17 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	13.17	7.68
10	15.00	5.85
47	18.70	2.15
80	19.63	1.22
100	20.04	0.81
120	20.37	0.48
135	20.60	0.25
145	20.63	0.22
160	20.69	0.16
172	20.72	0.13
188	20.73	0.12
200	20.75	0.10
240	20.76	0.09
300	20.77	0.08
390	20.79	0.06
510	20.80	0.05
600	20.81	0.04
750	20.82	0.03

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-6
TEST NUMBER: SLUG # 1 (IN)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	4.11 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	4.11 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	7.68 feet
t value for a point on slope line:	t =	200 seconds
Y value for point on slope line at time t:	Yt =	0.054 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	29.99
A =	2.50
B =	0.40
C =	2.00

RESULTS:

K:	6.8E-05 FT/SEC
	5.9E+00 FT/DAY
	4.4E+01 GPD/FT2
	2.1E-03 CM/SEC

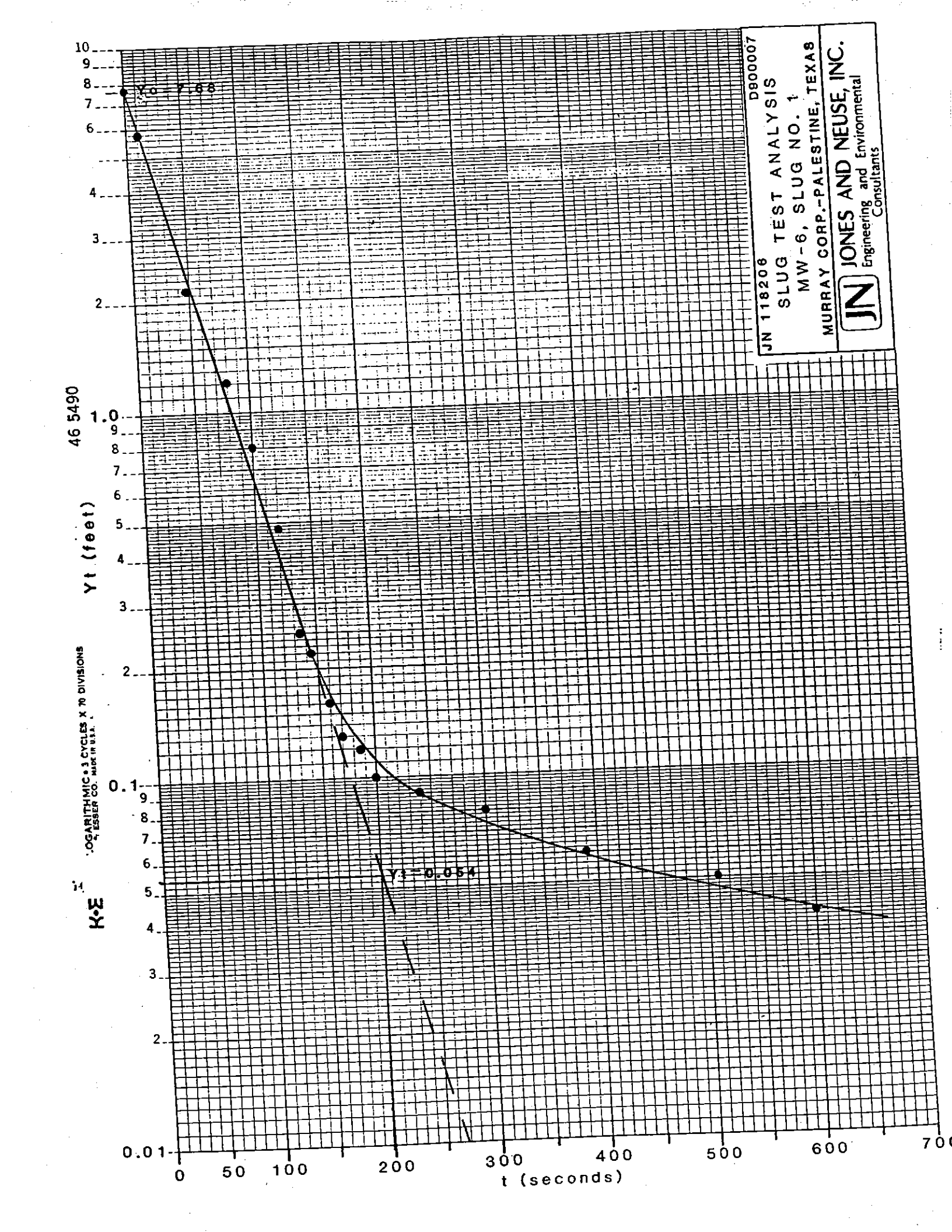
D800007
JN 118206
SLUG TEST ANALYSIS
MW-6, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JN JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo = 7.68
Yt = 0.054
Yt (feet)
t (seconds)
0.01
0.1
1.0
10
0
50
100
200
300
400
500
600
700
46 5490
K•E
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 2 (OUT)
WELL NUMBER:	MW-6
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	19.05 FEET
SLUG WATER LEVEL:	22.87 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	22.87	3.82
15	20.33	1.28
30	19.97	0.92
42	19.60	0.55
55	19.45	0.40
60	19.37	0.32
75	19.28	0.23
100	19.20	0.15
120	19.14	0.09
150	19.10	0.05
180	19.09	0.04
210	19.08	0.03
240	19.08	0.03
300	19.06	0.01
360	19.06	0.01
600	19.06	0.01

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-6
TEST NUMBER: SLUG # 2 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	5.94 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	5.94 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	1.78 feet
t value for a point on slope line:	t =	80 seconds
Y value for point on slope line at time t:	Yt =	0.230 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	29.99
A =	2.50
B =	0.40
C =	2.00

RESULTS:

K:	7.9E-05 FT/SEC
	6.8E+00 FT/DAY
	5.1E+01 GPD/FT2
	2.4E-03 CM/SEC

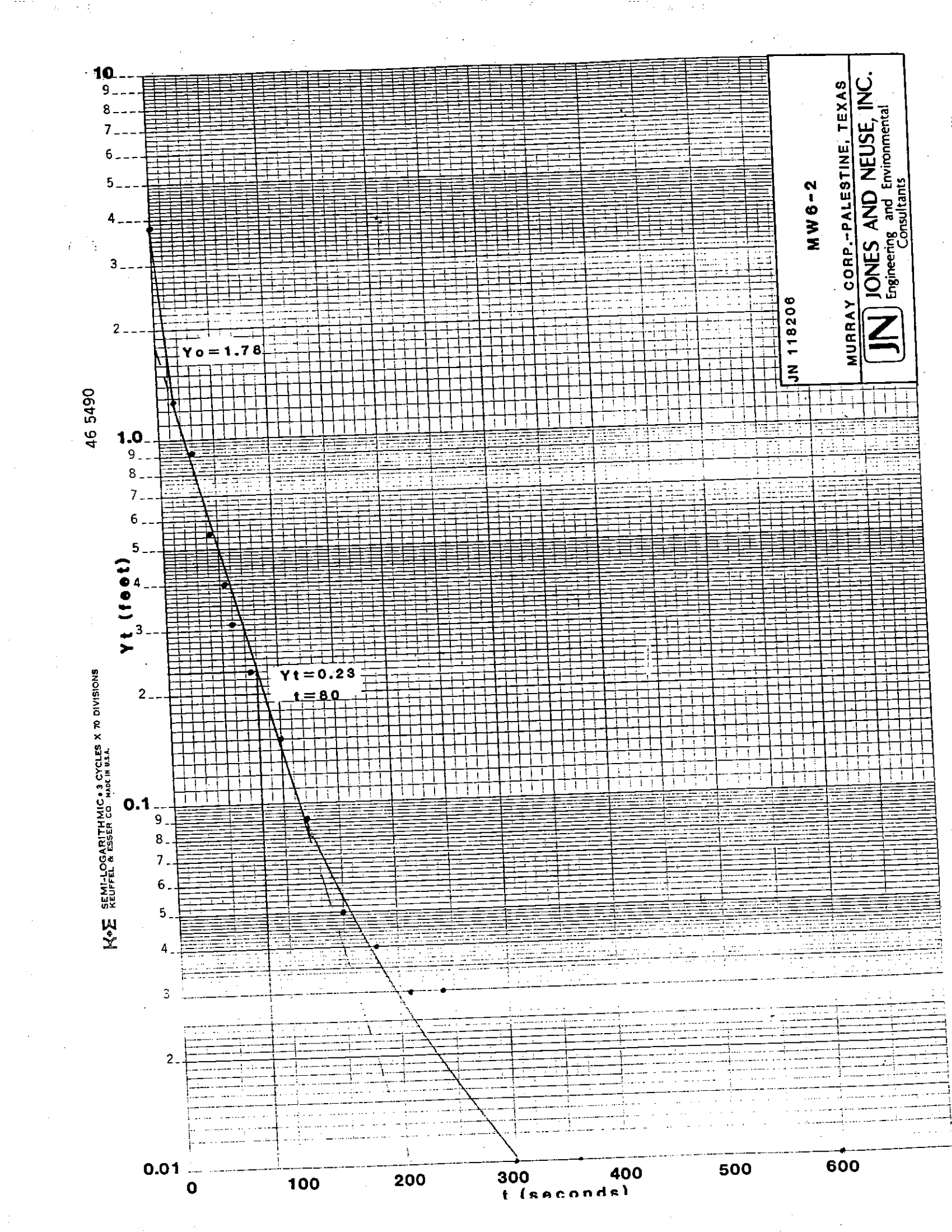
MURRAY CORP.-PALESTINE, TEXAS
JN 118206
MW6-2
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo = 1.78
Yt = 0.23
t = 80
Yt (feet)
t (seconds)
0
100
200
300
400
500
600
10
1.0
0.1
0.01
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-7
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	16.02 FEET
SLUG WATER LEVEL:	19.85 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	19.85	3.83
18	19.02	3.00
38	18.59	2.57
53	18.44	2.42
75	18.32	2.30
95	18.20	2.18
120	18.10	2.08
140	18.04	2.02
170	17.94	1.92
200	17.84	1.82
240	17.72	1.70
270	17.67	1.65
330	17.54	1.52
420	17.38	1.36
600	17.15	1.13
660	17.09	1.07
750	17.00	0.98
840	16.92	0.90
960	16.85	0.83
1080	16.77	0.75
1200	16.72	0.70
1680	16.55	0.53
1860	16.50	0.48
1920	16.48	0.46
1980	16.48	0.45
2520	16.39	0.37
3660	16.27	0.25
3900	16.25	0.23
7440	16.08	0.06

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-7
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	8.29 feet
Length of saturated screen interval:	L =	12.00 feet
Thickness of saturated media:	D =	8.29 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	0.26 feet
t value for a point on slope line:	t =	500 seconds
Y value for point on slope line at time t:	Yt =	0.110 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	35.98
A =	2.70
B =	0.49
C =	2.30

RESULTS:

K:	4.9E-06 FT/SEC
	4.2E-01 FT/DAY
	3.2E+00 GPD/FT2
	1.5E-04 CM/SEC

JN 118206
D89812
SLUG TEST ANALYSIS
MW-7, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yt (feet)
t (seconds)
Yo=0.260
Yt=0.110
0
200
400
600
800
1000
1200
1.0
0.1
0.01
K&E SEMI-LOGARITH
KEUFFEL & ESSER C
CYCLES X 70
46 5490

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 2 (OUT)
WELL NUMBER:	MW-7
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	15.83 FEET
SLUG WATER LEVEL:	19.66 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	19.66	3.83
15	18.89	3.06
30	18.44	2.61
50	18.25	2.42
60	18.21	2.38
75	18.10	2.27
90	18.03	2.20
120	17.89	2.06
150	17.80	1.97
180	17.72	1.89
210	17.62	1.79
270	17.48	1.65
300	17.40	1.57
420	17.20	1.37
480	17.07	1.24
720	16.85	1.02
900	16.66	0.83
1050	16.55	0.72
1200	16.50	0.67
1500	16.35	0.52
2160	16.20	0.37
2700	16.14	0.31
3180	16.09	0.26

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-7
TEST NUMBER: SLUG # 2A (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	8.31 feet
Length of saturated screen interval:	L =	12.00 feet
Thickness of saturated media:	D =	8.31 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.333 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	3.40 feet
t value for a point on slope line:	t =	200 seconds
Y value for point on slope line at time t:	Yt =	0.780 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	35.98
A =	2.70
B =	0.49
C =	2.30

RESULTS:

K:	2.1E-05 FT/SEC
	1.8E+00 FT/DAY
	1.4E+01 GPD/FT2
	6.4E-04 CM/SEC

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-7
TEST NUMBER: SLUG # 2B (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	8.31 feet
Length of saturated screen interval:	L =	12.00 feet
Thickness of saturated media:	D =	8.31 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

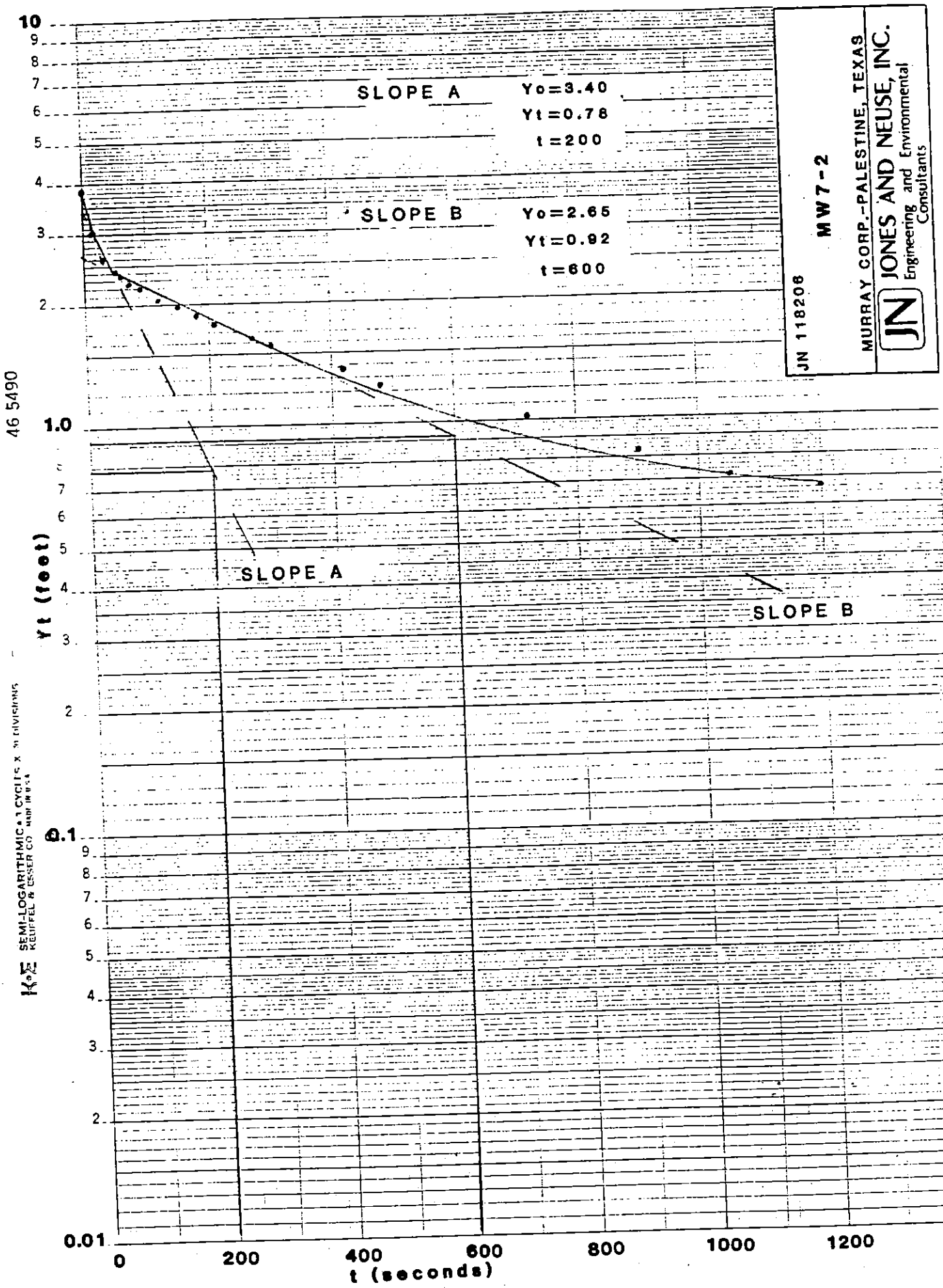
Y intercept of slope line:	Yo =	2.65 feet
t value for a point on slope line:	t =	600 seconds
Y value for point on slope line at time t:	Yt =	0.920 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	35.98
A =	2.70
B =	0.49
C =	2.30

RESULTS:

K:	5.0E-06 FT/SEC
	4.3E-01 FT/DAY
	3.2E+00 GPD/FT2
	1.5E-04 CM/SEC


SLOPE A
Yo=3.40
Yt=0.78
t=200
SLOPE B
Yo=2.65
Yt=0.92
t=600
MURRAY CORP.-PALESTINE, TEXAS
MW7-2
JN 118208
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yt (feet)
t (seconds)
SLOPE A
SLOPE B
10
1.0
0.1
0.01
0
200
400
600
800
1000
1200
46 5490
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KEUFFEL & ESSER CO

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-9
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	17.17 FEET
SLUG WATER LEVEL:	21.83 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	21.83	4.66
22	19.86	2.69
42	19.38	2.21
60	19.21	2.04
78	19.07	1.90
100	18.98	1.81
125	18.85	1.68
145	18.78	1.61
180	18.66	1.49
240	18.52	1.35
300	18.39	1.22
390	18.26	1.09
480	18.16	0.99
600	18.06	0.89
780	17.90	0.73
960	17.77	0.60
1200	17.62	0.45
1500	17.51	0.34
1980	17.41	0.24
2400	17.34	0.17
3180	17.25	0.08
5220	17.17	0.00

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-9
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	10.10 feet
Length of saturated screen interval:	L =	12.00 feet
Thickness of saturated media:	D =	10.10 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.333 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.50 feet
t value for a point on slope line:	t =	500 seconds
Y value for point on slope line at time t:	Yt =	0.500 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	35.98
A =	2.70
B =	0.49
C =	2.30

RESULTS:

K:	9.6E-06 FT/SEC
	8.3E-01 FT/DAY
	6.2E+00 GPD/FT2
	2.9E-04 CM/SEC

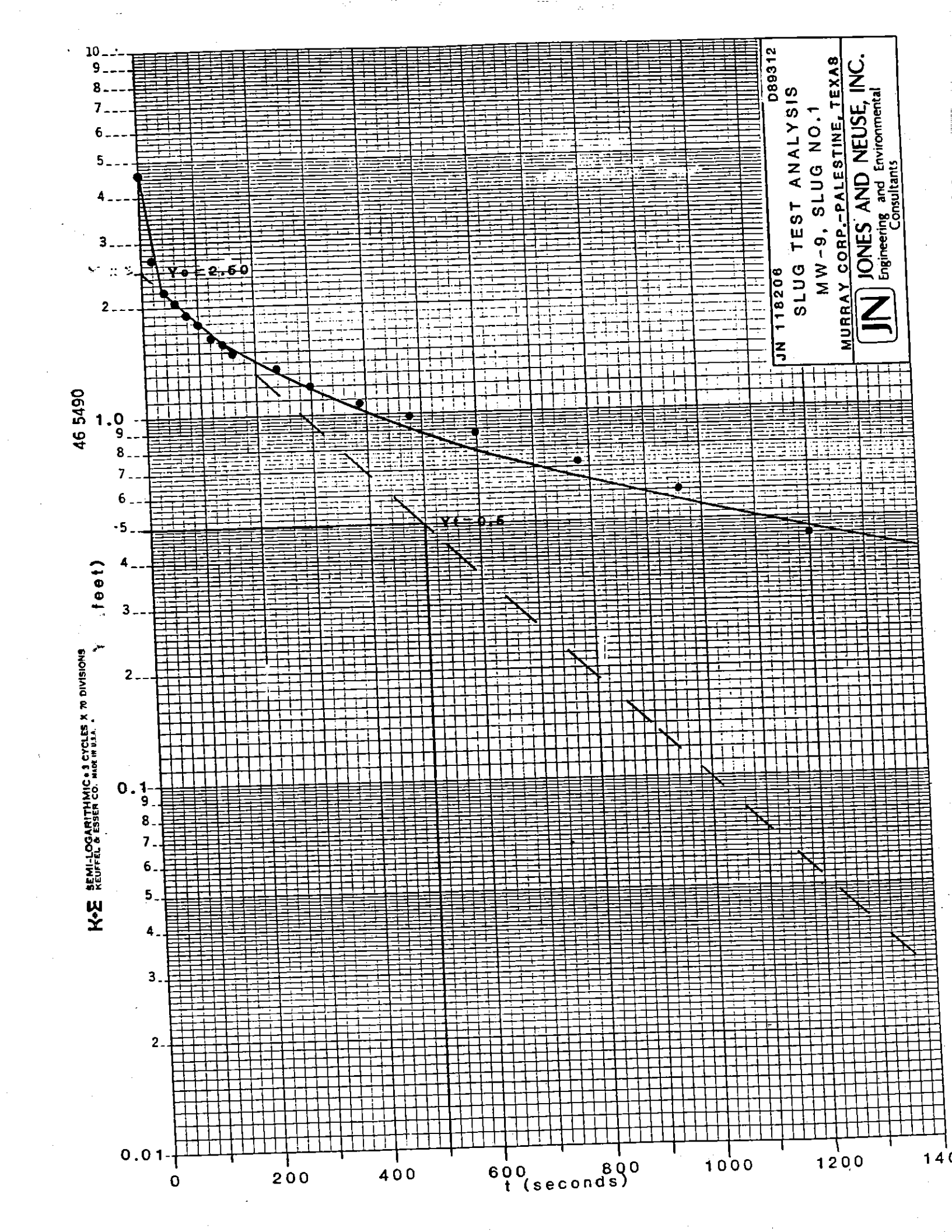
D89312
JN 118206
SLUG TEST ANALYSIS
MW-9, SLUG NO.1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Y₀ = 2.60
Y(t) = 0.6
Y (feet)
t (seconds)
0
200
400
600
800
1000
1200
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
KE SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 2 (OUT)
WELL NUMBER:	MW-9
WELL MATERIAL:	4" FRE
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	15.68 FEET
SLUG WATER LEVEL:	19.50 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	19.50	3.82
20	18.31	2.63
34	18.08	2.40
45	17.90	2.22
70	17.71	2.03
85	17.65	1.97
100	17.57	1.89
120	17.50	1.82
150	17.42	1.74
180	17.34	1.66
270	17.18	1.50
360	17.09	1.41
450	16.98	1.30
600	16.75	1.07
900	16.38	0.70
1200	16.16	0.48
2190	15.86	0.18
3720	15.73	0.05

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-9
TEST NUMBER: SLUG # 2A (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	11.62 feet
Length of saturated screen interval:	L =	12.00 feet
Thickness of saturated media:	D =	11.62 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.90 feet
t value for a point on slope line:	t =	200 seconds
Y value for point on slope line at time t:	Yt =	1.000 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	35.98
A =	2.60
B =	0.49
C =	2.20

RESULTS:

K:	1.7E-05 FT/SEC
	1.4E+00 FT/DAY
	1.1E+01 GPD/FT2
	5.1E-04 CM/SEC

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-9
TEST NUMBER: SLUG # 2B (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	11.62 feet
Length of saturated screen interval:	L =	12.00 feet
Thickness of saturated media:	D =	11.62 feet
Diameter (or 2 X radius) of casing:	2rc	0.333 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

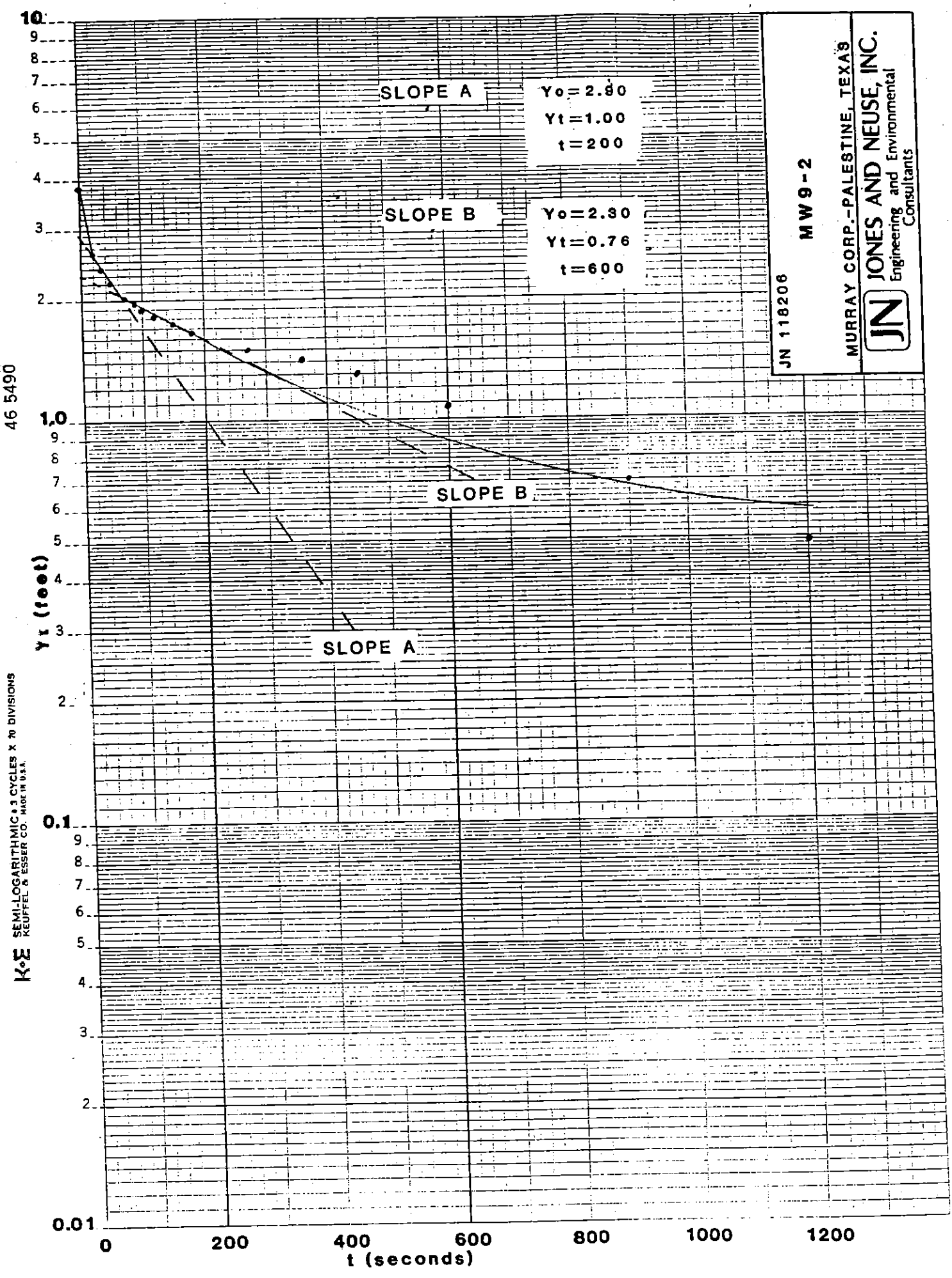
Y intercept of slope line:	Yo =	2.30 feet
t value for a point on slope line:	t =	600 seconds
Y value for point on slope line at time t:	Yt =	0.760 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	35.98
A =	2.60
B =	0.49
C =	2.20

RESULTS:

K:	5.7E-06 FT/SEC
	5.0E-01 FT/DAY
	3.7E+00 GPD/FT2
	1.8E-04 CM/SEC


SLOPE A
Yo = 2.80
Yt = 1.00
t = 200
SLOPE B
Yo = 2.30
Yt = 0.76
t = 600
SLOPE B
SLOPE A
Yt (feet)
t (seconds)
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
200
400
600
800
1000
1200
JN 118206
MW 9-2
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
46 5490
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KEUFFEL & ESSER CO. MADE IN U.S.A.

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-10
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	3.25 FEET
SLUG WATER LEVEL:	7.91 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	7.91	4.66
7	5.66	2.41
23	5.33	2.08
34	5.15	1.90
40	5.00	1.75
54	4.74	1.49
67	4.60	1.35
80	4.48	1.23
90	4.35	1.10
100	4.27	1.02
110	4.18	0.93
125	4.07	0.82
140	4.02	0.77
150	3.95	0.70
180	3.81	0.56
210	3.76	0.51
220	3.72	0.47
240	3.66	0.41
270	3.59	0.34
300	3.52	0.27
330	3.50	0.25
375	3.44	0.19
435	3.41	0.16
480	3.38	0.13
660	3.35	0.10
750	3.33	0.08
960	3.33	0.08
1080	3.33	0.08

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-10
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	23.11 feet
Length of saturated screen interval:	L =	14.00 feet
Thickness of saturated media:	D =	23.11 feet
Diameter (or 2 X radius) of casing:	2rc	0.167 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.50 feet
t value for a point on slope line:	t =	200 seconds
Y value for point on slope line at time t:	Yt =	0.450 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	56.00
A =	3.25
B =	0.50
C =	2.80

RESULTS:

K:	7.3E-06 FT/SEC
	6.3E-01 FT/DAY
	4.7E+00 GPD/FT2
	2.2E-04 CM/SEC

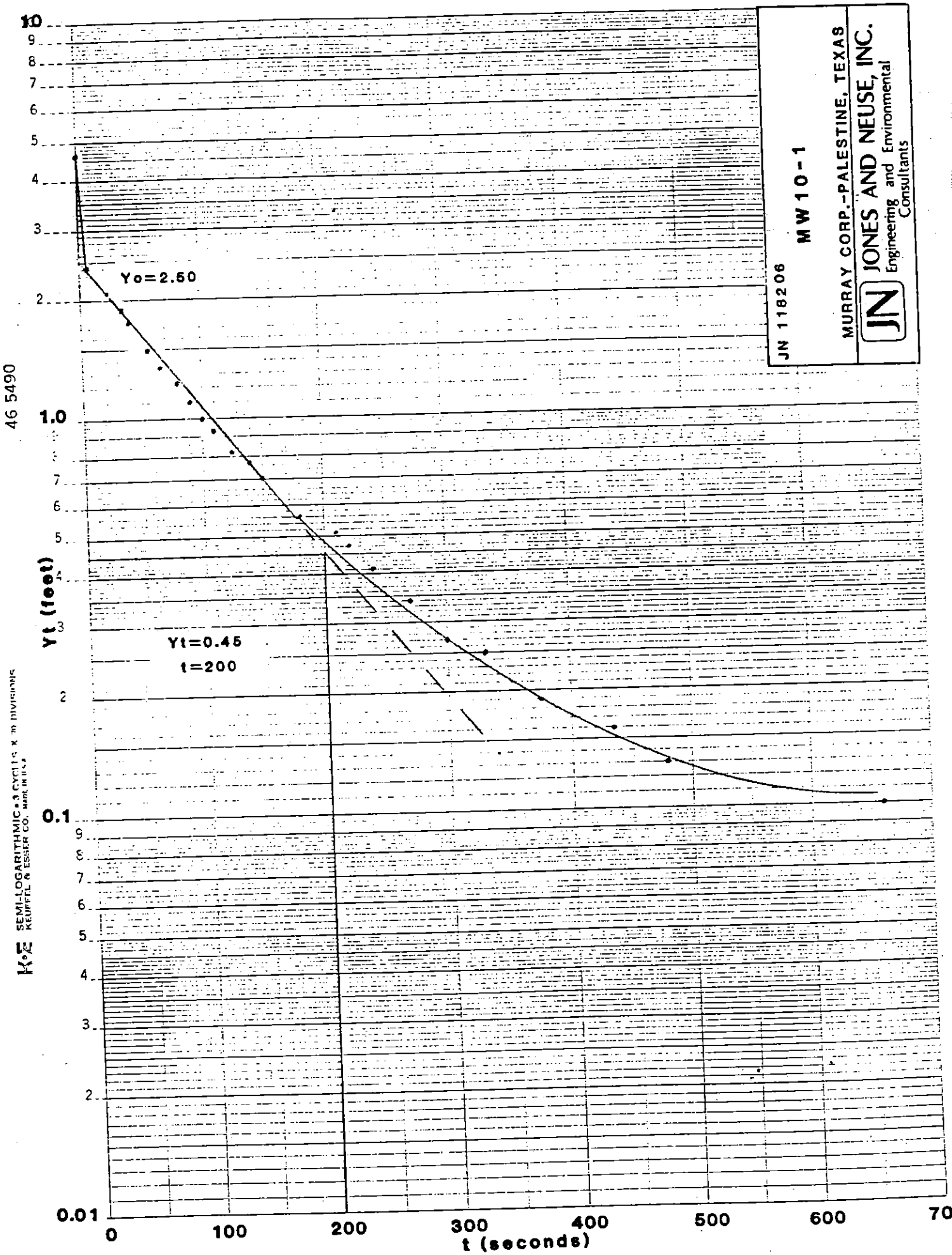
JN 118206
MW10-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo=2.50
Yt=0.45
t=200
Yt (feet)
t (seconds)
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
100
200
300
400
500
600
70
46 5490
SEMI-LOGARITHMIC 3 CYCLE X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-11
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	9.28 FEET
SLUG WATER LEVEL:	13.94 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	13.94	4.66
12	11.40	2.12
30	11.20	1.92
41	11.18	1.90
58	11.02	1.74
70	10.92	1.64
84	10.81	1.53
96	10.74	1.46
110	10.66	1.38
121	10.64	1.36
140	10.52	1.24
160	10.44	1.16
181	10.39	1.11
211	10.29	1.01
240	10.20	0.92
272	10.16	0.88
300	10.07	0.79
330	10.00	0.72
360	9.94	0.66
420	9.82	0.54
480	9.74	0.46
540	9.66	0.38
600	9.58	0.30
660	9.53	0.25
750	9.46	0.18
840	9.41	0.13
1027	9.35	0.07
1110	9.32	0.04
1208	9.30	0.02

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-11
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	9.28 FEET
SLUG WATER LEVEL:	13.94 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
1333	9.29	0.01
1500	9.29	0.01

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-11
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	13.17 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	13.17 feet
Diameter (or 2 X radius) of casing:	2rc	0.167 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.10 feet
t value for a point on slope line:	t =	500 seconds
Y value for point on slope line at time t:	Yt =	0.400 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw = 40.00

A =	2.80
B =	0.49
C =	2.50

RESULTS:

K:	3.4E-06 FT/SEC
	2.9E-01 FT/DAY
	2.2E+00 GPD/FT2
	1.0E-04 CM/SEC

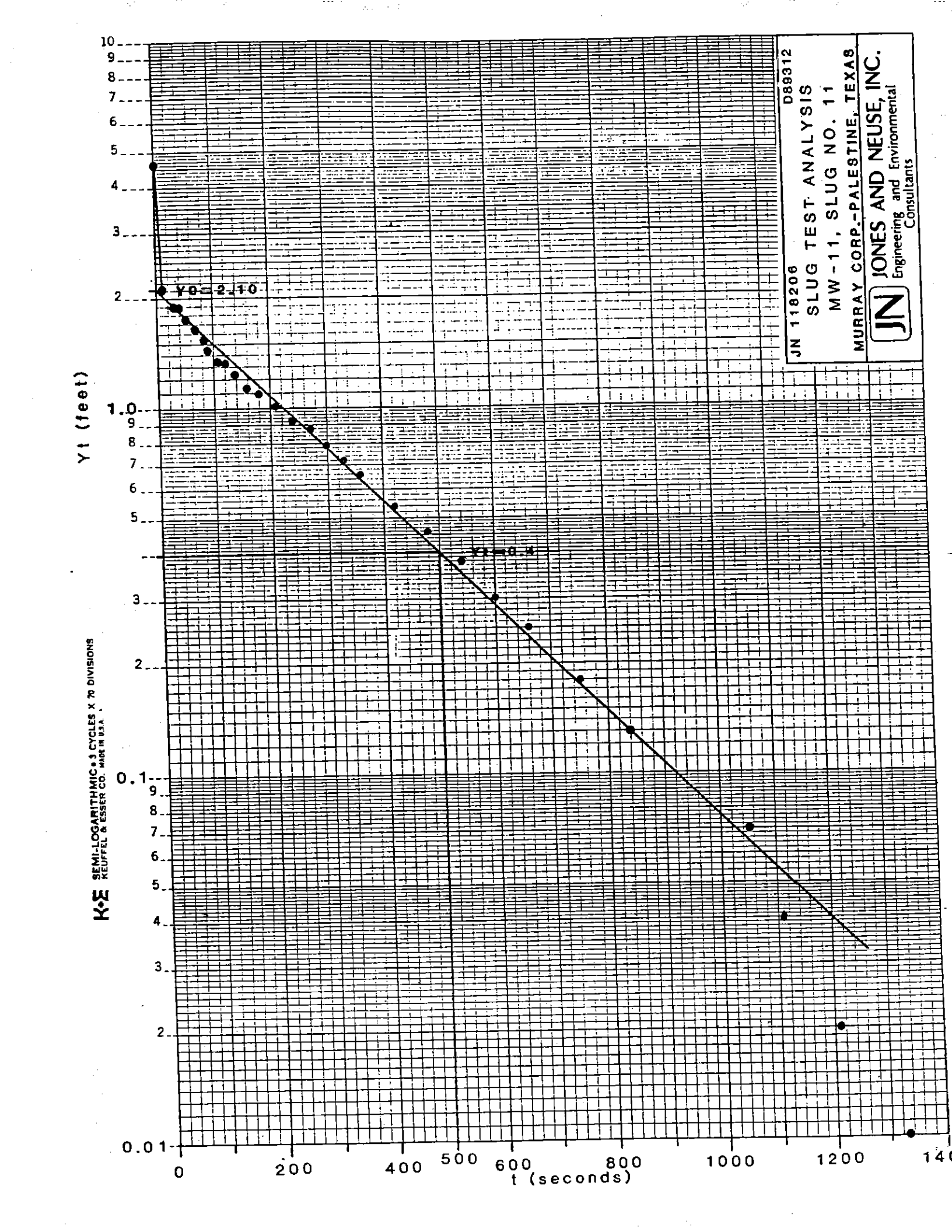
JN 118206
D89312
SLUG TEST ANALYSIS
MW-11, SLUG NO. 11
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo=2.10
Yt=0.4
Yt (feet)
t (seconds)
0
200
400
500
600
800
1000
1200
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-12
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	2.18 FEET
SLUG WATER LEVEL:	6.84 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	6.84	4.66
10	4.50	2.32
20	4.40	2.22
30	4.28	2.10
40	4.25	2.07
50	4.19	2.01
65	4.12	1.94
75	4.05	1.87
90	4.00	1.82
100	3.97	1.79
120	3.90	1.72
135	3.85	1.67
150	3.80	1.62
165	3.76	1.58
180	3.71	1.53
210	3.65	1.47
220	3.62	1.44
240	3.58	1.40
300	3.45	1.27
360	3.35	1.17
420	3.26	1.08
480	3.16	0.98
600	3.03	0.85
660	2.98	0.80
810	2.86	0.68
990	2.74	0.56
1140	2.66	0.48
1350	2.59	0.41
1890	2.48	0.30

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-12
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	2.18 FEET
SLUG WATER LEVEL:	6.84 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
2400	2.38	0.20
3000	2.33	0.15

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-12
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	15.84 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	15.84 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.167 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.40 feet
t value for a point on slope line:	t =	400 seconds
Y value for point on slope line at time t:	Yt =	0.880 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	40.00
A =	2.80
B =	0.49
C =	2.50

RESULTS:

K:	2.7E-06 FT/SEC
	2.3E-01 FT/DAY
	1.7E+00 GPD/FT2
	8.1E-05 CM/SEC

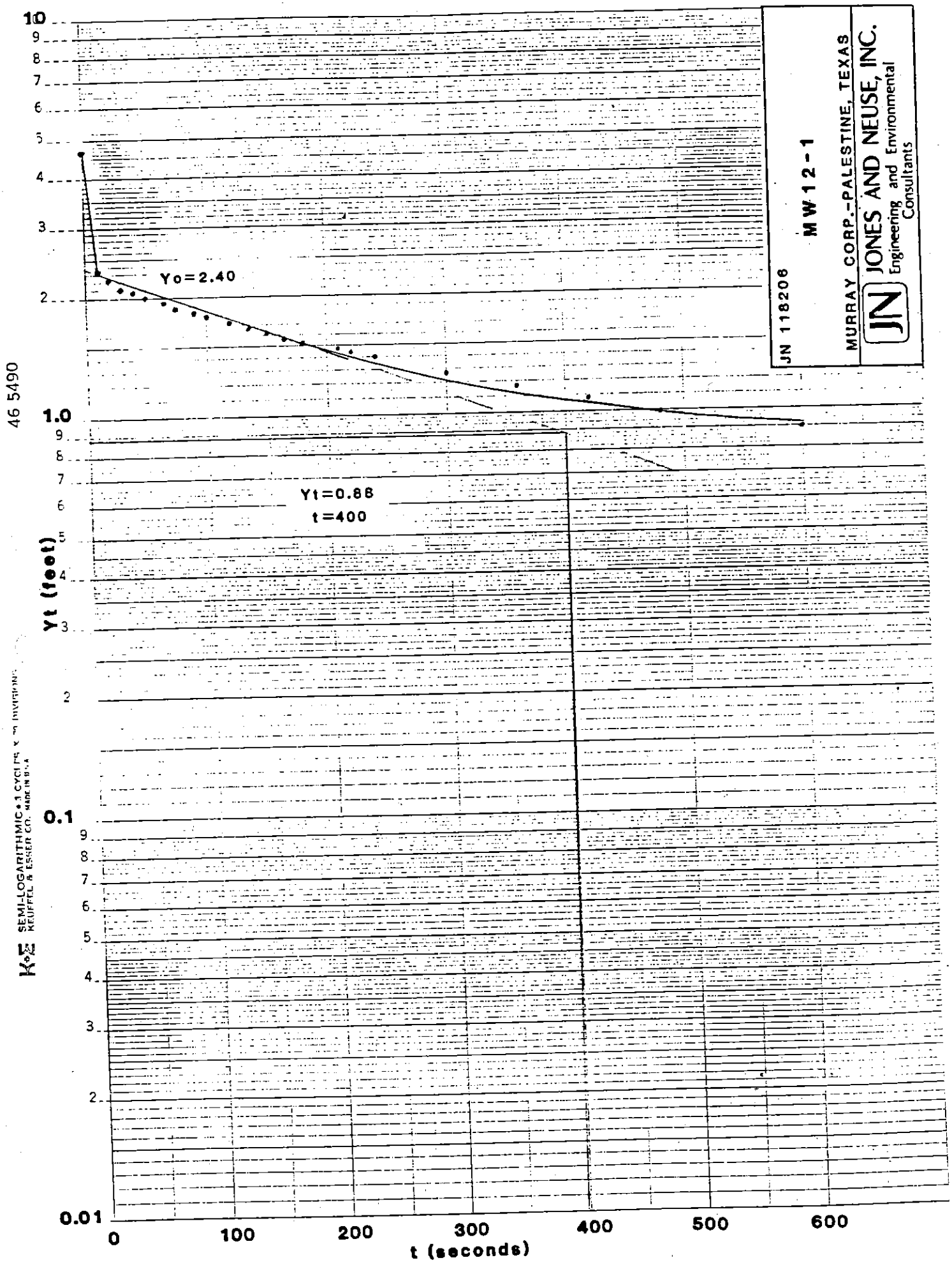
JN 118206
MW 12-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo=2.40
Yt=0.88
t=400
Yt (feet)
t (seconds)
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
100
200
300
400
500
600
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-13
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	15.12 FEET
SLUG WATER LEVEL:	19.78 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	19.78	4.66
15	15.25	0.13
37	15.12	0.00
60	15.12	0.00

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-13
TEST NUMBER: SLUG # 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	18.15 feet
Length of saturated screen interval:	L =	17.00 feet
Thickness of saturated media:	D =	18.15 feet
Diameter (or 2 X radius) of casing:	2rc	0.167 feet
(2"=0.167, 4"=0.333)		
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	4.66 feet
t value for a point on slope line:	t =	20 seconds
Y value for point on slope line at time t:	Yt =	0.150 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	68.00
A =	3.50
B =	0.55
C =	3.20

RESULTS:

K:	1.2E-04 FT/SEC
	1.0E+01 FT/DAY
	7.5E+01 GPD/FT2
	3.5E-03 CM/SEC

Yo=4.66
Yt=0.15
t=20
Yt (feet)
t (seconds)
10
1.0
0.1
0.01
0
100
200
JN 118206
MW13-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 2 (OUT)
WELL NUMBER:	MW-13
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	15.10 FEET
SLUG WATER LEVEL:	19.76 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	19.76	4.66
8	15.27	0.17
18	15.14	0.04
25	15.13	0.03
30	15.12	0.02
45	15.10	0.00

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-13
TEST NUMBER: SLUG # 2 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	18.17 feet
Length of saturated screen interval:	L =	17.00 feet
Thickness of saturated media:	D =	18.17 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.167 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	4.66 feet
t value for a point on slope line:	t =	10 seconds
Y value for point on slope line at time t:	Yt =	0.400 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw = 68.00

A = 3.50
B = 0.55
C = 3.20

RESULTS:

K: 1.7E-04 FT/SEC
1.4E+01 FT/DAY
1.1E+02 GPD/FT2
5.1E-03 CM/SEC

10
9
8
7
6
4
3
2
Yo=4.66
1.0
7
6
5
4
Yt=0.40
t=10
3
2
0.1
9
8
7
6
5
4
3
2
0.01
0
100
t (seconds)
Yt (feet)
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JN 118206
MW13-2
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental
Consultants

TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 3 (OUT)
WELL NUMBER:	MW-13
WELL MATERIAL:	2" PVC
WELL RADIUS:	0.083 FEET
STATIC WATER LEVEL:	15.10 FEET
SLUG WATER LEVEL:	19.76 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	19.76	4.66
8	15.27	0.17
18	15.14	0.04
25	15.13	0.03
30	15.12	0.02
45	15.10	0.00

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: MW-13
TEST NUMBER: SLUG # 3 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	18.17 feet
Length of saturated screen interval:	L =	17.00 feet
Thickness of saturated media:	D =	18.17 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.167 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.50 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	4.66 feet
t value for a point on slope line:	t =	20 seconds
Y value for point on slope line at time t:	Yt =	0.070 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	68.00
A =	3.50
B =	0.55
C =	3.20

RESULTS:

K:	1.4E-04 FT/SEC
	1.2E+01 FT/DAY
	9.2E+01 GPD/FT2
	4.3E-03 CM/SEC

Yo=4.66
Yt=0.07
t=20
Yt (feet)
t (seconds)
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
100
JN 118206
MW 13-3
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
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Consultants
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/1/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	DMW-14
WELL MATERIAL:	4"-PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	29.75 FEET
SLUG WATER LEVEL:	32.05 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	32.05	2.30
15	31.64	1.89
28	31.52	1.77
52	31.41	1.66
65	31.40	1.65
90	31.25	1.50
120	31.13	1.38
150	31.05	1.30
180	30.97	1.22
210	30.88	1.13
270	30.75	1.00
360	30.59	0.84
450	30.45	0.70
540	30.35	0.60
630	30.26	0.51
720	30.17	0.42
900	30.08	0.33
1050	30.02	0.27
1290	29.93	0.18

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: DMW-14
TEST NUMBER: SLUG 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	47.07 feet
Length of saturated screen interval:	L =	15.00 feet
Thickness of saturated media:	D =	47.07 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.333 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	1.95 feet
t value for a point on slope line:	t =	300 seconds
Y value for point on slope line at time t:	Yt =	0.880 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	44.98
A =	2.80
B =	0.48
C =	2.50

RESULTS:

K:	8.8E-06 FT/SEC
	7.6E-01 FT/DAY
	5.7E+00 GPD/FT2
	2.7E-04 CM/SEC

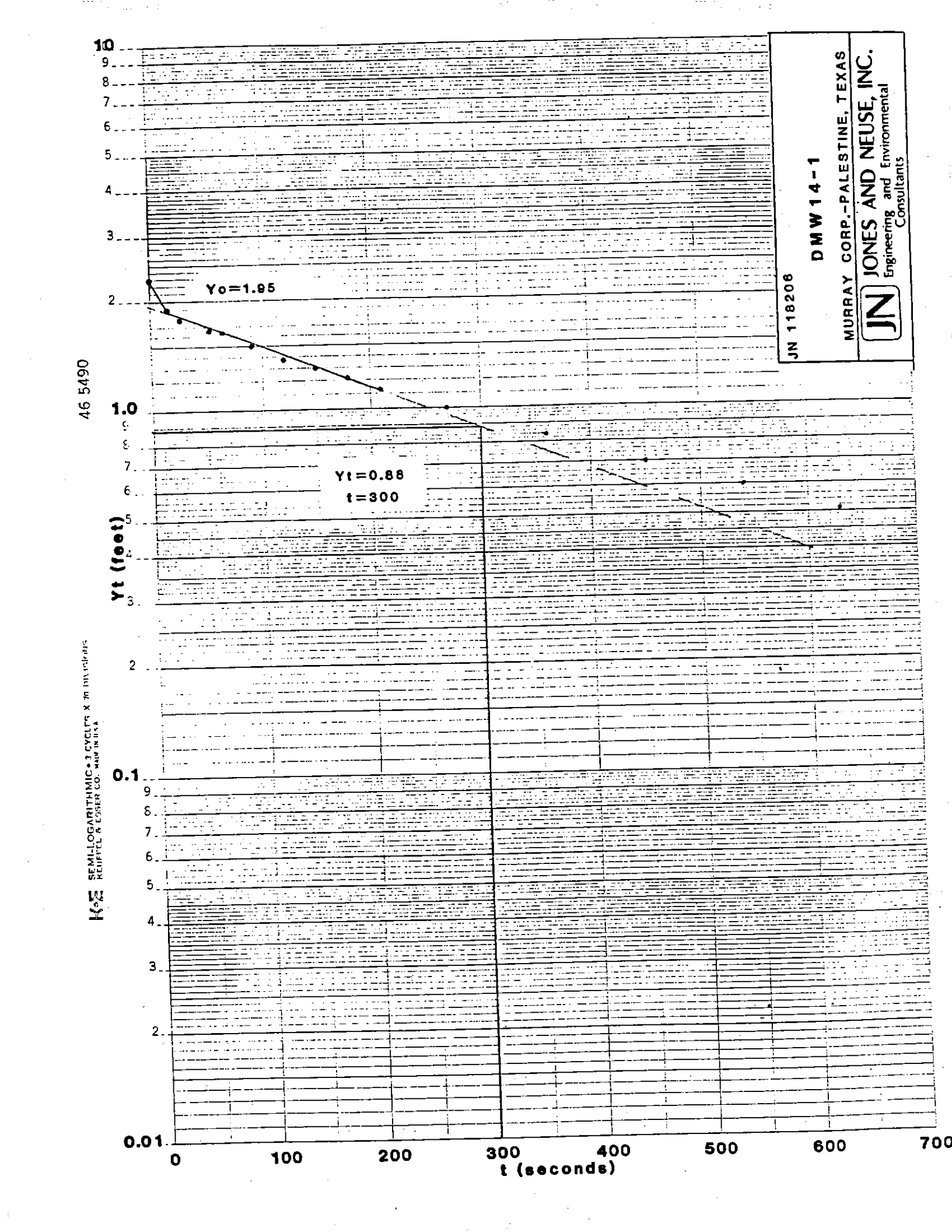
JN 118206
DMW14-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo=1.85
Yt=0.88
t=300
Yt (feet)
t (seconds)
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
100
200
300
400
500
600
700
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/2/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	DMW-15
WELL MATERIAL:	4" PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	24.73 FEET
SLUG WATER LEVEL:	27.03 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	27.03	2.30
15	27.00	2.27
30	26.96	2.23
45	26.95	2.22
60	26.94	2.21
90	26.94	2.21
105	26.93	2.20
120	26.92	2.19
180	26.92	2.19
240	26.92	2.19
300	26.91	2.18
420	26.90	2.17
600	26.90	2.17
1410	26.87	2.14
1800	26.82	2.09
2400	26.79	2.06
3000	26.75	2.02
3600	26.72	1.99
4680	26.68	1.95
6000	26.63	1.90

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: DMW-15
TEST NUMBER: SLUG 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	22.84 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	22.84 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.333 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	2.30 feet
t value for a point on slope line:	t =	400 seconds
Y value for point on slope line at time t:	Yt =	2.000 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw =	29.99
A =	2.50
B =	0.40
C =	2.00

RESULTS:

K:	1.5E-06 FT/SEC
	1.3E-01 FT/DAY
	9.6E-01 GPD/FT2
	4.5E-05 CM/SEC

Yo=2.30
Yt=2.00
t=400
Yt (feet)
t (seconds)
10
9
8
7
6
4
3
2
1.0
0.1
0.01
0
100
200
300
400
500
600
700
JN 118206
DMW15-1
MURRAY CORP.-PALESTINE, TEXAS
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Engineering and Environmental Consultants
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TABLE A
BOUWER AND RICE SLUG TEST DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	3/2/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	DMW-16
WELL MATERIAL:	4" PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	23.83 FEET
SLUG WATER LEVEL:	26.13 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0	26.13	2.30
20	25.64	1.81
35	25.64	1.81
60	25.62	1.79
90	25.62	1.79
150	25.60	1.77
240	25.58	1.75
300	25.57	1.74
600	25.54	1.71
1200	25.46	1.63
1800	25.40	1.57
2400	25.35	1.52
3000	25.31	1.48
3600	25.28	1.45
4200	25.22	1.39
5400	25.17	1.34

TABLE B
BOUWER AND RICE SLUG TEST CALCUALATION DATA SHEET
MURRAY CORPORATION, PALESTINE, TEXAS

WELL NUMBER: DMW-16
TEST NUMBER: SLUG 1 (OUT)

DIMENSIONAL DATA:

(Determine dimensional data from well construction logs.)

Height of water above bottom of well:	H =	24.17 feet
Length of saturated screen interval:	L =	10.00 feet
Thickness of saturated media:	D =	24.17 feet
Diameter (or 2 X radius) of casing: (2"=0.167, 4"=0.333)	2rc	0.333 feet
Diameter (or 2 X radius) of wellbore:	2rw	0.67 feet

INTERMEDIATE VALUES:

(Determine Yo, Yt, and t from plotted graph of data and enter.)

Y intercept of slope line:	Yo =	1.88 feet
t value for a point on slope line:	t =	500 seconds
Y value for point on slope line at time t:	Yt =	1.630 feet

(Extrapolate A, B, and C from type curve using L/rw and enter.)

L/rw = 29.99

A =	2.50
B =	0.40
C =	2.00

RESULTS:

K:	1.2E-06 FT/SEC
	1.1E-01 FT/DAY
	7.9E-01 GPD/FT2
	3.7E-05 CM/SEC

DMW16-1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
JN 118206
Yo=1.88
Yt=1.63
t=500
Yt (feet)
t (seconds)
10
9
8
7
6
4
3
2
1.0
0.1
0.01
0
100
200
300
400
500
600
700
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KEUFFEL & ESSER CO. MADE IN U.S.A.

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-11-88 WELL NO.: MW-1

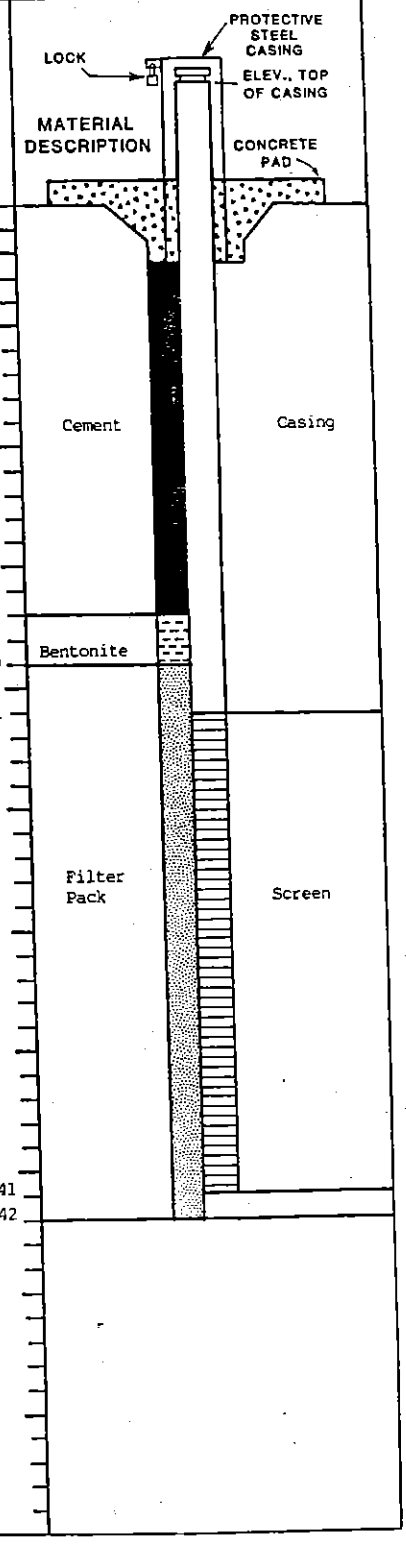
SITE: Palestine, Texas ELEVATION: PAD 371.58 TOP OF PVC CASING 374.08

TOTAL DEPTH: 41' CASING SIZE & TYPE: 2" Sch. 40 PVC SCREEN SIZE: 2"-0.01 mill slot

WATER LEVEL: 22.68 REF.: BTOC DATE: 8-4-88 TIME: GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SC		Clayey Sand, well graded, fine, subangular to subrounded, clay matrix, compact, reddish brown, dry, clean
5		5.0	SC		Clayey Sand, similar to above, except with 15% clay, dense, yellowish red
			SC		Clayey Sand, similar to above, except with coarse fraction increased to 30% of iron stone as very coarse sand
10			SC		Clayey Sand, similar to above except with increasing clay to 20%, moist
			SC		Clayey Sand, similar to above except cleaner with clay around 12%, fine to very fine, yellow and red alternating bands, red layers contain 15% clay
15			SW		Sand, well graded, 20% coarse to very fine, subangular to subrounded, red with occasional seams of lignite black silty material to 0.2' thick; moist, clean sand similar to above except with 5% medium gravel at base
			SC		Clayey Gravel, well graded, 30% medium gravel; 45% subangular sand with 25% clay matrix, dense; reddish yellow; moist
20			SC		Clayey Sand, poorly graded, fine, subangular to subrounded with 20% clay matrix, compact, yellor red, saturated below 20', clean
25					
			SC		Clayey Sand, similar to above except with clayey interbeds to 0.3' increasing with depth, saturated
30					
			SC		Clayey Sand, similar to above except grey, saturated
35					
40			CH		Clay, high, firm with 20% fine sand/silt, dark brown, damp, clean
45					Monitor well terminated at 42.0' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-12-88 WELL NO.: MW-2

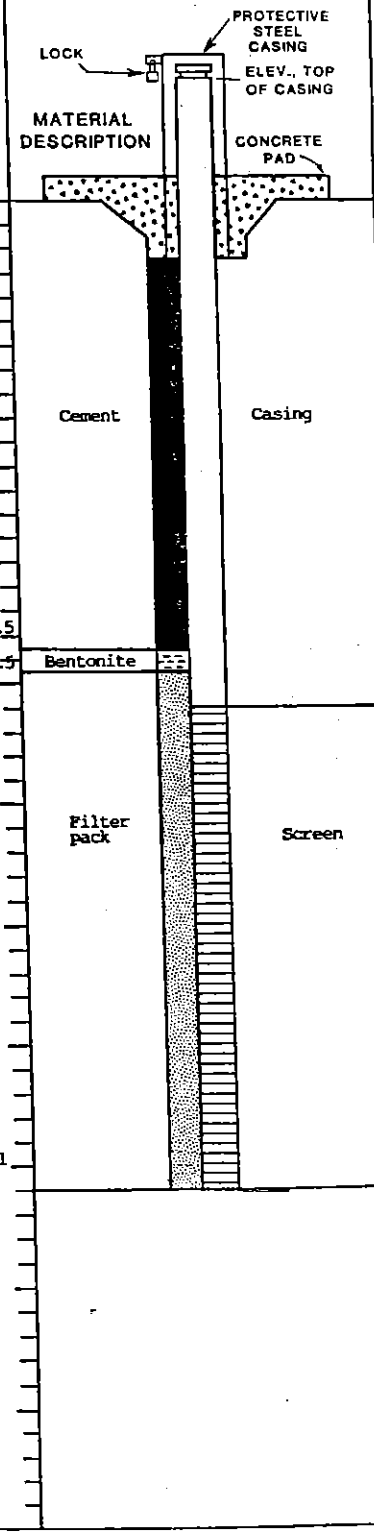
SITE: Palestine, TX ELEVATION: PAD 371.74 . TOP OF PVC CASING 374.36

TOTAL DEPTH: 41' CASING SIZE & TYPE: 2" Sch. 40 PVC SCREEN SIZE: 2" PVC 0.01 Mill slot

WATER LEVEL: 22.44' REF.: BTOC DATE: 8-4-88 TIME: GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand, well graded, medium to very fine, subrounded to subangular, with 20% clay matrix; loose at surface to compact at 1', organic brown at surface to iron red at 1', damp, clean with disseminated lignite below 1'
5					Clayey Sand, similar to above except alternating 0.2' bands of 35% clay matrix, firm, green grey, damp
10					Clayey Sand, similar to above, except clayey fraction increases to 45%
15			SW		Gravelly Sand, well graded, medium iron stained gravel 5% with 10% coarse to very fine, subangular, dark red sand, damp clean
20			SC		Clayey Sand, poorly graded, fine and very fine, subangular with 15% clay in matrix, compact, red, very moist, saturated by 21', clean
25					Clayey Sand, similar to above, except with grey clayey interbeds
30					
35					
40			CH		Clay, highly plastic, firm with 30% fine sand, dark brown, damp, clean
					Monitor well terminated at 41.0' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-13-88 WELL NO.: MW-3

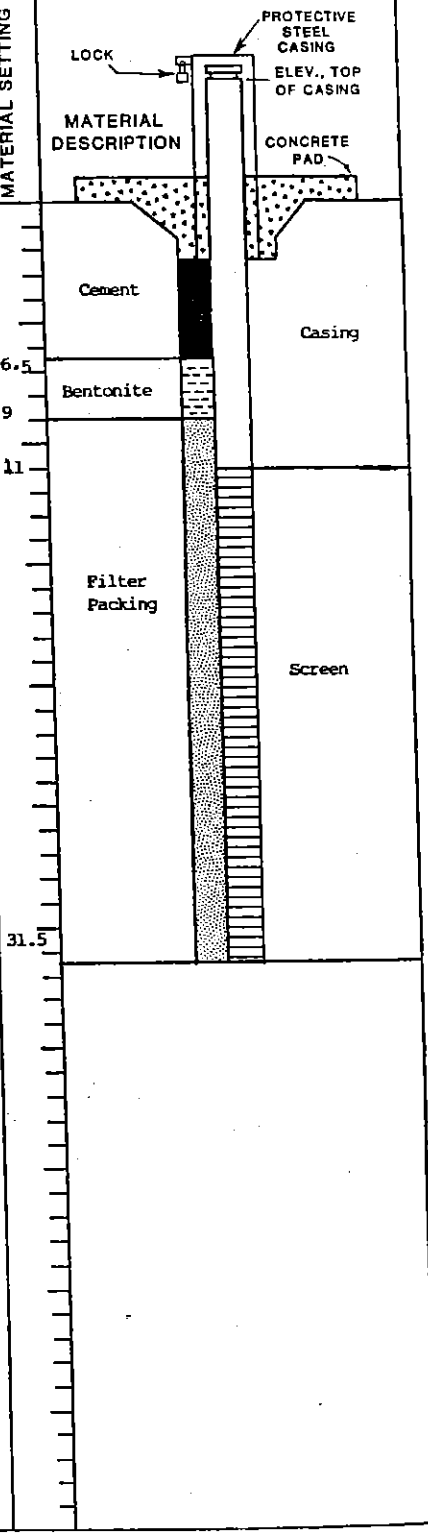
SITE: Palestine, TX ELEVATION: PAD 368.63 TOP OF PVC CASING 371.23

TOTAL DEPTH: 31.5 CASING SIZE & TYPE: 2" Sch 40 PVC SCREEN SIZE: 2" PVC 0.01 Mill slot

WATER LEVEL: 20.55' REF.: BTOC DATE: 8-4-88 TIME: _____ GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SC		Clayey Sand, well graded medium to very fine, subangular with 35% clay in matrix, compact, reddish brown at surface to reddish tan laminated with green grey at 4', damp, clean
5			SC		Clayey Sand, similar to above, except 45% clay in layers 0.2' thick, near saturated at 12' above dense grey green layer at 12 to 13.5'
10			SC		Clayey Sand, similar to above except less clay (around 15%) below 13.5 feet; more fine sand, moisture increasing to saturation at 18'
15					
20			SC		Clayey Sand, well graded, 15% red gravel to very fine subrounded sand with 15% clay in matrix, compact interbedded red with yellow and brown layers, saturated clean
25					
30			CH		Clay, highly plastic, firm with 25% pea gravel, 20% fine sand, dark brown, damp, clean
					Monitor well terminated at 31.5' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-13-88 WELL NO.: MW-4

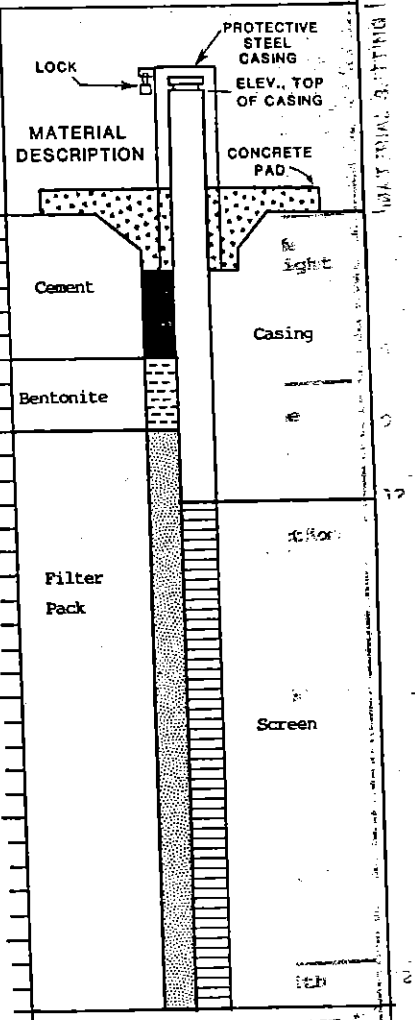
SITE: Palestine, TX ELEVATION: PAD 371.25 TOP OF PVC CASING 373.46

TOTAL DEPTH: 32' CASING SIZE & TYPE: 2" Sch 40 PVC SCREEN SIZE: 2" PVC 0.01 Mill slot

WATER LEVEL: -22.36' REF.: BTOC DATE: 8-4-88 TIME: GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
5			CB		Clay, highly plastic, firm, with fine sand 25%, mixed with tree roots, branches, lumber, all partially decomposed, light grey, damp odor of organic decay, possibly solvents, fill material
10			SC		Clayey Sand, well graded, fine gravel (around 10%) to fine sand (60%) subangular in clay matrix (20%), compact, alternating bands of grey green and ochre red, damp, odor of decaying vegetation
15			SC		Clayey Sand, similar to above, except without gravel fraction and with only 15% clay, odor diminished to absence at 22' saturated at 19'
20			SC		Clayey Sand, similar to above except 0.2' interbeds of 30% greenish-grey clay
25			SC		Clayey Sand, similar to above, except with coarse to fine gravel around 30%
30			GC		Clayey Gravel, well graded, medium to fine, subangular with 35% clay in matrix, firm, brown, damp, clean
35					Monitor well terminated 32.0' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-13-88 WELL NO.: MW-5

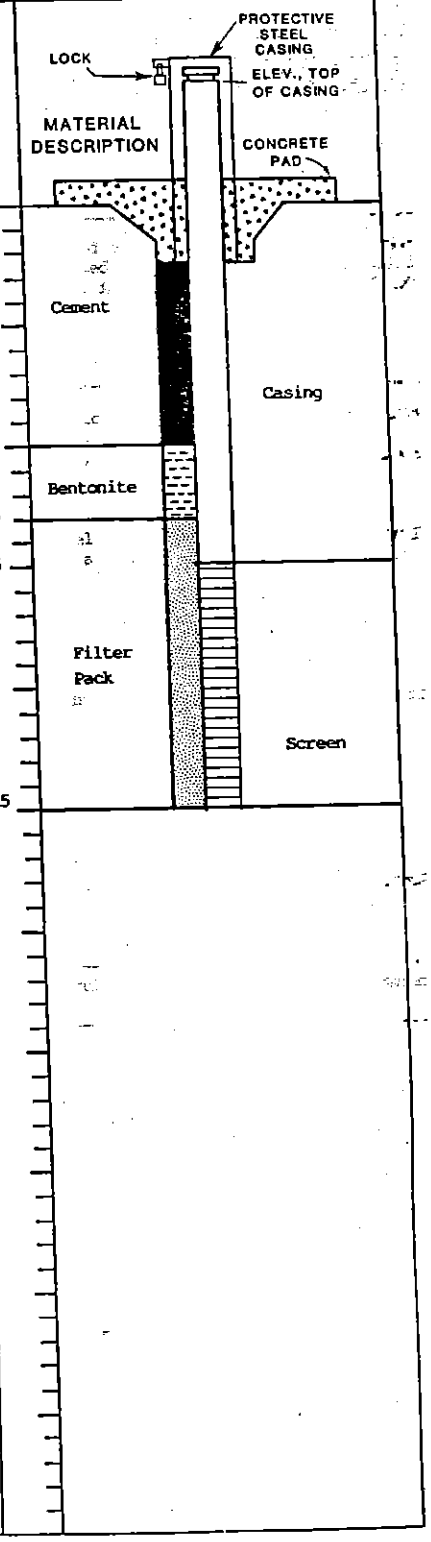
SITE: Palestine, TX ELEVATION: PAD 370.78 TOP OF PVC CASING 373.02

TOTAL DEPTH: 21.96 CASING SIZE & TYPE: 4" fibergalss SCREEN SIZE: 4" - 0.01 mill slot

WATER LEVEL: 21.96 REF.: BTOC DATE: 8-4-88 TIME: _____ GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded sand, 20% clay in matrix, compact, red and ochre, damp, clean
5			SC		Clayey Sand, similar to above, except with 20% fine gravel and very coarse sand
10					
15			SC		Clayey Sand, similar to above, except without gravel, all medium and very fine sand
20			SC		Clayey Sand, similar to above except 40% very coarse to fine sand with 20% clay in matrix, saturated at 20' moderate odor of solvents
25			CH		Clay, highly plastic, firm with 35% fine sand, dark brown, moist, clean
30					Monitor well terminated at 25.0' below surface
35					

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

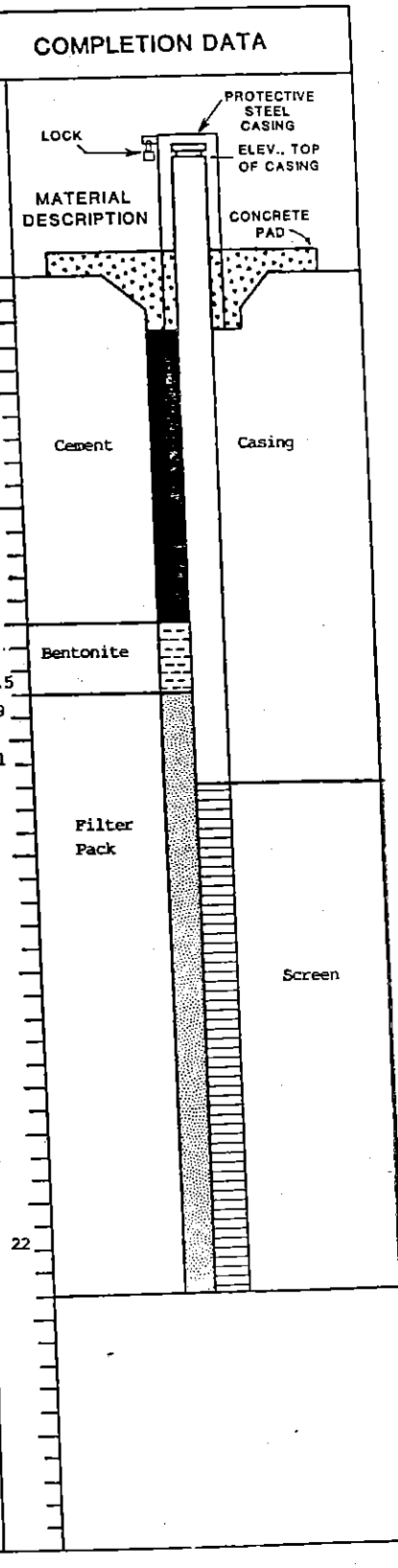
CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-15-88 WELL NO.: MW-6

SITE: Palestine, TX ELEVATION: PAD 368.47 TOP OF PVC CASING 371.07

TOTAL DEPTH: 22' CASING SIZE & TYPE: 4" FRP SCREEN SIZE: 4"-0.01 Mill slot

WATER LEVEL: 21.19 REF.: BTOC DATE: 9-23-88 TIME: 1:30 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, with 20% clay in matrix, compact, red, damp, no odor, clean
5			SC		Clayey Sand, similar to above except with very coarse sand 30%
			SC		Clayey Sand, similar to above except without coarse sand, cleaner with 15% clay in matrix
10			SC		Clayey Sand, similar to above except with 55% coarse sand and silt, red, damp, clean
			SC		Clayey Sand, similar to above, except with medium and fine gravel around 5% with 25% clay in matrix
15					
			SC		Clayey Sand, similar to above except without coarse fraction clay 15%, greenish grey and red alternating bands possible odor 15%, saturation at 16', substantial odor at 11'
20			CH		Clay, highly plastic, firm with 20% fine sand, green grey, damp, slight odor
					Monitor well terminated at 22.0 feet below surface



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-18-88 WELL NO.: MW-7

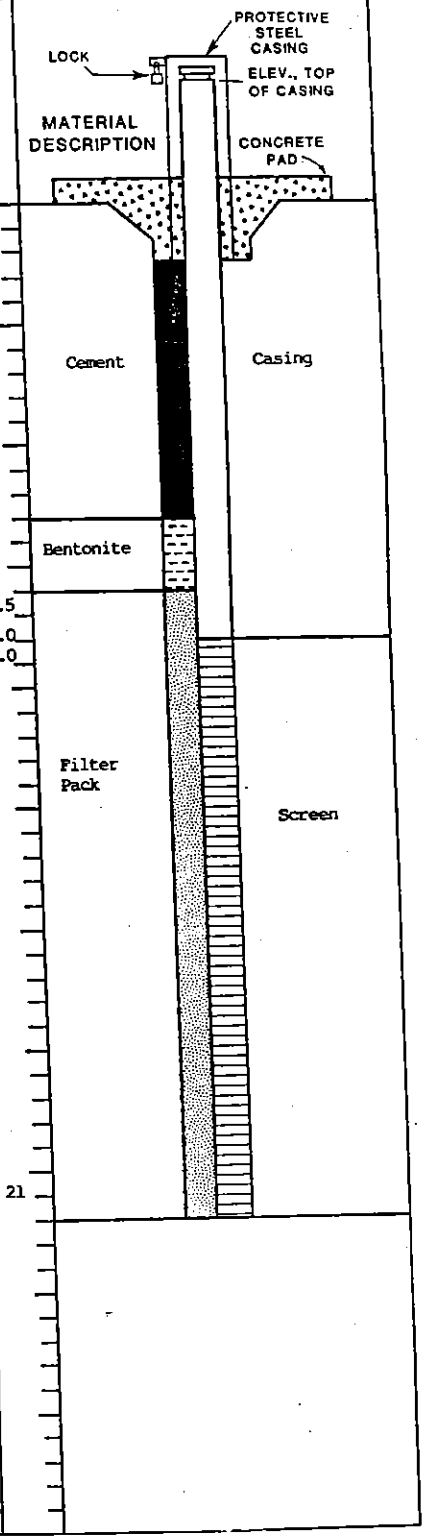
SITE: Palestine, TX ELEVATION: PAD 365.42 TOP OF PVC CASING 368.36

TOTAL DEPTH: 21.0' CASING SIZE & TYPE: 4" FRP SCREEN SIZE: 4" 0.01 Mill slot

WATER LEVEL: 19.95 REF.: BTOC DATE: 9-23-88 TIME: 2:30 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SP		Sand, poorly graded, fine and very fine, subangular, clean loose, tan and red, dry, clean
5			SC		Clayey Sand, well graded, medium to very fine, subangular with 20% clay as matrix, compact, red and tan, damp, clean
			CH		Clay, high plasticity, no visible coarse constituents, grey, firm, damp, clean, silty toward base
10			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, compact, grey and rusty interbeds, moist slight odor
			SC		Clayey Sand, similar to above, except 35% clay, micaceous, brown streaked, damp, solvent odor
15			SC		Clayey Sand, similar to above, except saturated at 18'
					Saturation at 18.0 feet below surface
			SC		Clayey Sand, similar to above except with less mica cleaner with 20% clay in matrix
20			SC		Clayey Sand, similar to above except 40% clay dense, moist
					Monitor Well terminated at 21.0' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-18-88 WELL NO.: MW-8

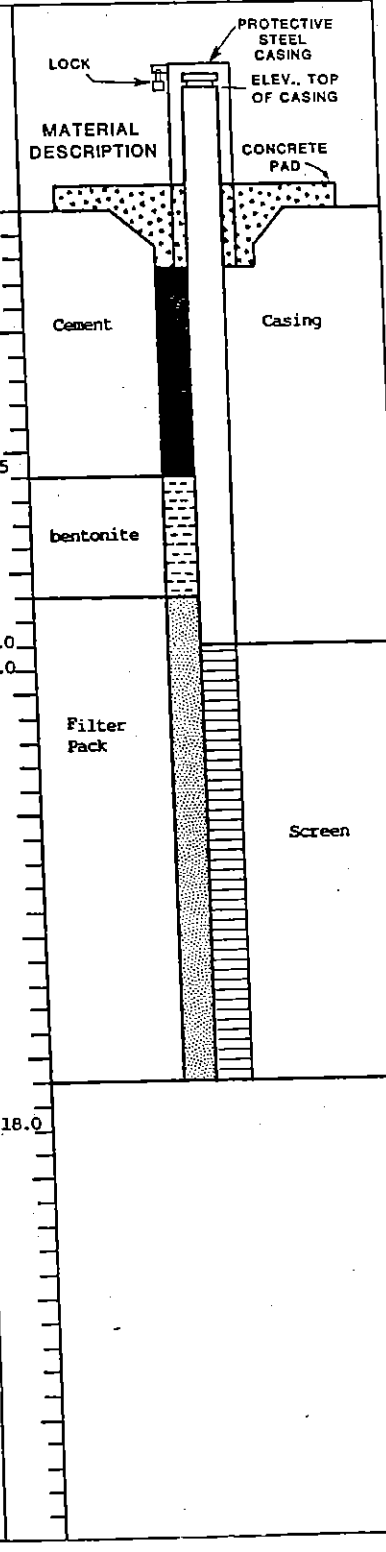
SITE: Palestine, TX ELEVATION: PAD 366.03 TOP OF PVC CASING 368.72

TOTAL DEPTH: 18.0 feet CASING SIZE & TYPE: 4" Dia FRP SCREEN SIZE: 4" - 0.01 mill slot

WATER LEVEL: 18.35 REF.: BTOC DATE: 9-23-88 TIME: 3:05 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, 20% clay in matrix, compact, rusty red, moist, slight odor of solvent
5			SC		Clayey Sand, similar to above, except strong solvent odor and color change to tan
10			SC		Clayey Sand, similar to above except with very coarse sand, dark red, and 5% medium gravel, very strong odor
			SC		Clayey Sand, similar to above except gravel absent, very hard, hemetite cemented layer
15			SC		Clayey Sand, similar to above except medium to very fine, grey and red laminated with continued odor saturated
			SC		Clayey Sand, similar to above except all grey, micaceous, firm, damp
20					Monitor well terminated at 18.0 feet below surface

COMPLETION DATA



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Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-15-88 WELL NO.: MW-9

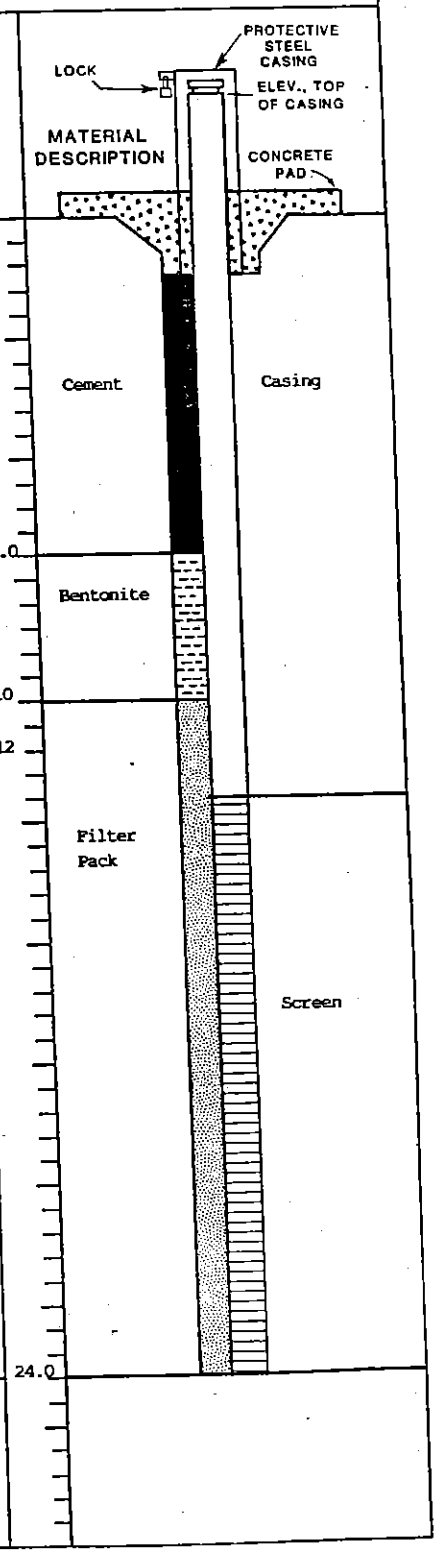
SITE: Palestine, TX ELEVATION: PAD 363.98 TOP OF PVC CASING 366.96

TOTAL DEPTH: 24.0' CASING SIZE & TYPE: 4" Dia FRP SCREEN SIZE: 4" - 0.01 Mill slot

WATER LEVEL: 18.01 REF.: BTOC DATE: 9-23-88 TIME: 4:00 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
5			SC		Clayey Sand, well graded, very coarse to very fine, subangular to subrounded, 20% clay in matrix, loose to 3' then compact, rusty red, dry at surface to 3' then damp, clean
			SC		Clayey Sand, similar to above, except firmer, without coarse components above medium sand, interbedded grey with red
10			CH		Clay, high plasticity, stiff, with 30% medium and fine sand, light grey, damp clean
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, 25% clay in matrix, compact, rusty red interbeds with grey, moist, clean
15			SC		Clayey Sand, similar to above except with 35% clay, firm, grey
			SC		Clayey Sand, similar to above except 30% clay in matrix increasing to 45% at base, firm to stiff at base, damp, no odor
20					
					Monitor well terminated at 24.0 feet below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

MONITOR WELL INSTALLATION

WELL NO.: MW-10

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

SITE: Palestine, TX ELEVATION: PAD 337.89 TOP OF PVC CASING 340.16

TOTAL DEPTH: 23.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 11.49' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT^2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand – Poorly graded, very fine, subangular, with 20% silt, compact, dense at 4'-5', damp, tan and red, clean.
5			SC		Clayey Sand – Poorly graded, very fine to fine, subangular to subrounded, with 30-35% silt and clay, compact, moist, saturated below 9.0', gray and red, clean.
10					
15					Gravelly Sand – Well graded, fine to coarse subangular to subrounded, with 20% granules and 10-20% silt and clay, loose, saturated, reddish brown, clean.
20			SW		
			SC		Clayey Sand – Poorly graded, very fine, subangular, with 30-50% silt and clay laminations, dense, damp, black-gray, clean.
25					Monitor Well terminated at 23 feet below surface.

COMPLETION DATA

MATERIAL SETTING	MATERIAL DESCRIPTION
0	Cement
5	Bentonite
7	
9	Filter Pack

PROTECTIVE STEEL CASING
LOCK
ELEV., TOP OF CASING
CONCRETE PAD
Casing
Screen

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MONITOR WELL INSTALLATION

WELL NO.: MW-11

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

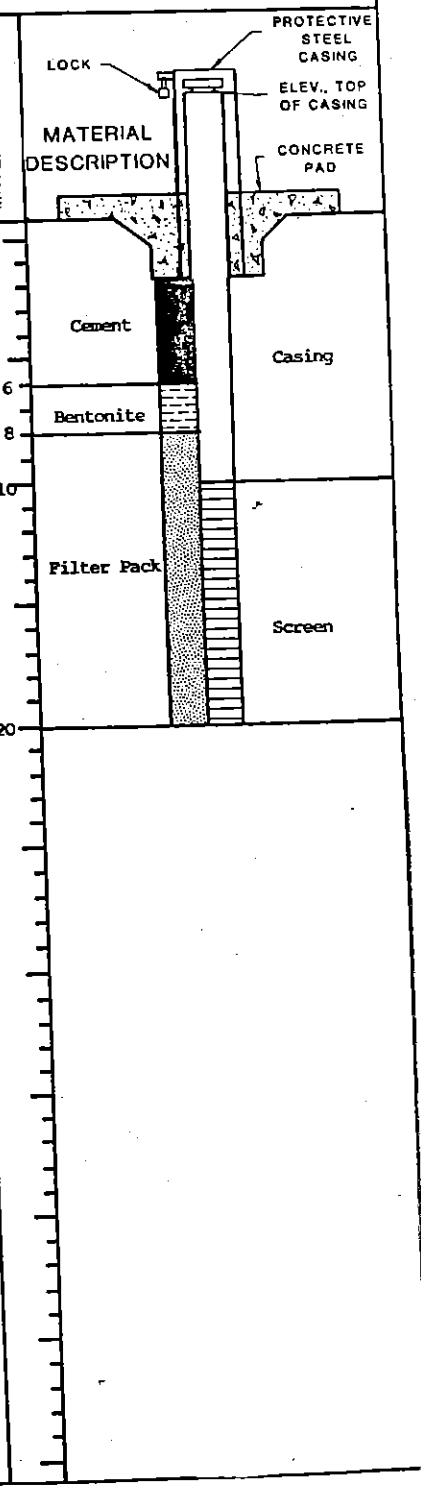
SITE: Palestine, TX ELEVATION: PAD 340.95 TOP OF PVC CASING 342.91

TOTAL DEPTH: 20.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 13.40' REF.: TOC DATE: 12/01/89 TIME: _____ GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - Poorly graded, very fine, subangular to subrounded, with 20-25% silt, loose to compact, damp, tannish red to brown, clean.
5			SM		Silty Sand - Similar to above except with 5-10% granules.
			SC		Clayey Sand - Poorly graded, very fine to fine, subangular to subrounded, with 30-40% silt and clay, dense to very dense, damp, moist at 9.5', saturated at 10.5', tan and red, clean.
15			SC		Clayey Sand - Similar to above except gray with red streaks.
			CH		Sandy Clay - High plasticity, very stiff, with 20-40% fine sand, damp, gray with red streaks, clean.
20					Monitor Well terminated at 20 feet below surface.

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-12

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/22/89 SHEET 1 of 1

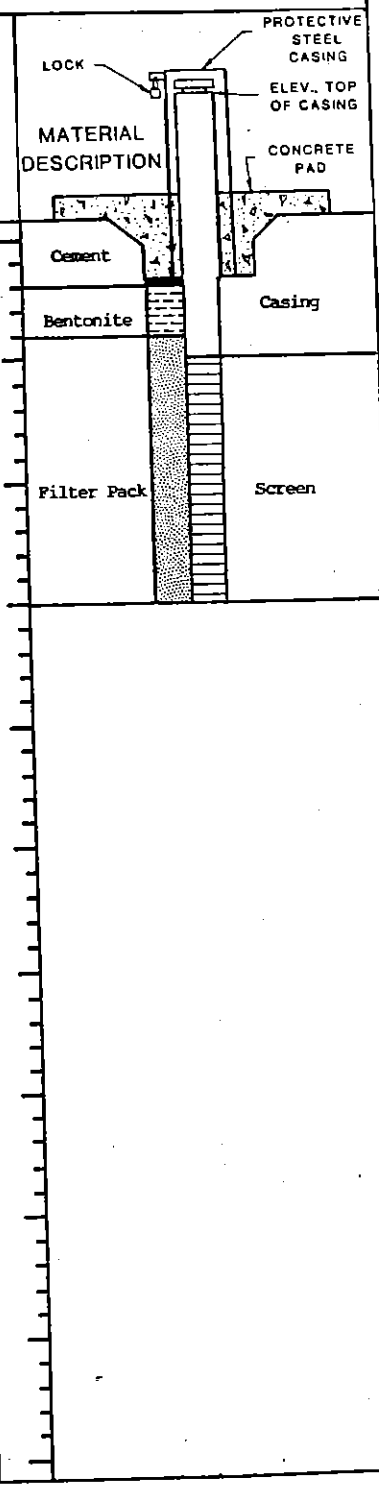
SITE: Palestine, TX ELEVATION: PAD 346.16 TOP OF PVC CASING 348.14

TOTAL DEPTH: 15.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 4.44' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand – Poorly graded, very fine to fine, subangular to subrounded, with 20–30% silt and clay, loose, damp, reddish brown, clean
			CL		Sandy Clay – Moderate to high plasticity, stiff, with 25–45% fine sand laminations increasing downward, damp, gray and yellow, clean.
5			CL		Sandy Clay – Similar to above except with 35–50%, fine sand interbeds and laminations, saturated at 7.0', clean.
10			CL		Sandy Clay – Similar to above except with 10–25% fine sand laminations decreasing downward, clean.
15					Monitor Well terminated at 15 feet below surface.

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-13

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

SITE: Palestine, TX ELEVATION: PAD 364.58 TOP OF PVC CASING 367.03

TOTAL DEPTH: 30.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

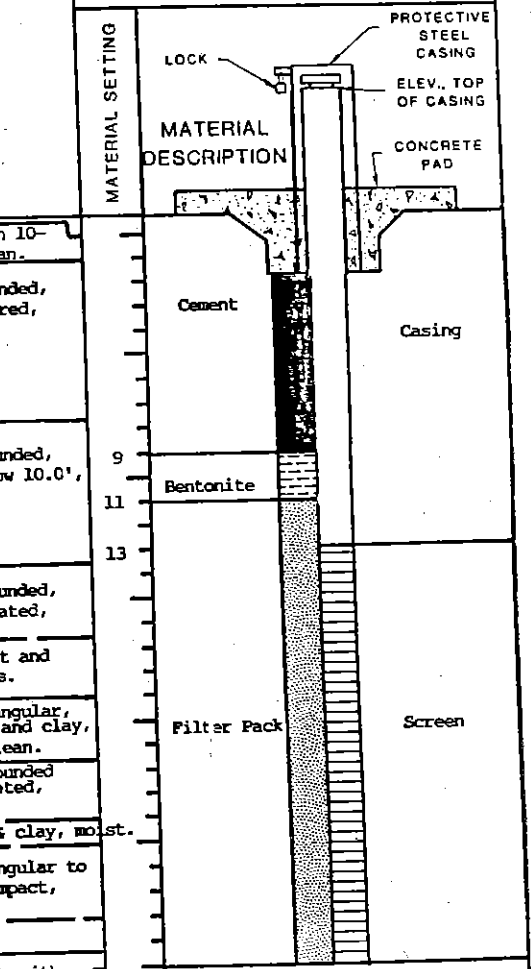
WATER LEVEL: 16.73' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - Poorly graded, very fine, subrounded, with 10-20% silt, loose, damp, reddish brown, clean.
			SC		Clayey Sand - Poorly graded, very fine to fine, subrounded, with 20-30% silt and clay, dense, damp, red, clean.
5					
10			SM		Silty Sand - Poorly graded, fine, subangular to subrounded, with 10-20% silt, loose, damp, moist below 10.0', yellow to red, clean.
15			SC		Clayey Sand - Poorly graded, very fine to fine, subrounded, with 40-50% silt and clay, dense, saturated, gray, clean.
			SC		Clayey Sand - Similar to above except with 20-30% silt and clay, compact, gray with red laminations.
20			SW		Gravelly Sand - Well graded, very fine to coarse subangular, with 20-30% granules and 20-30% silt and clay, compact, saturated, reddish brown, clean.
			SC		Clayey Sand - Poorly graded, very fine to fine, subrounded with 25% silt and clay, compact, saturated, tan and red, clean
25			SC		Clayey Sand - Similar to above except w/40-45% silt & clay, moist.
			SC		Clayey Sand - Poorly graded, very fine to fine, subangular to subrounded, with 20% silt and clay, compact, saturated, reddish brown, clean.
30			SC		Clayey Sand - Similar to above except gray.
			CL		Sandy Clay - Moderate plasticity, very stiff to hard, with 30% fine sand laminations, damp, gray to brown, clean.

Monitor Well terminated at 30 feet below surface.

COMPLETION DATA

MATERIAL SETTING	MATERIAL DESCRIPTION
9	Cement
11	Bentonite
13	Filter Pack



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MONITOR WELL INSTALLATION

WELL NO.: DMW-14

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-30-90 SHEET 1 of 2

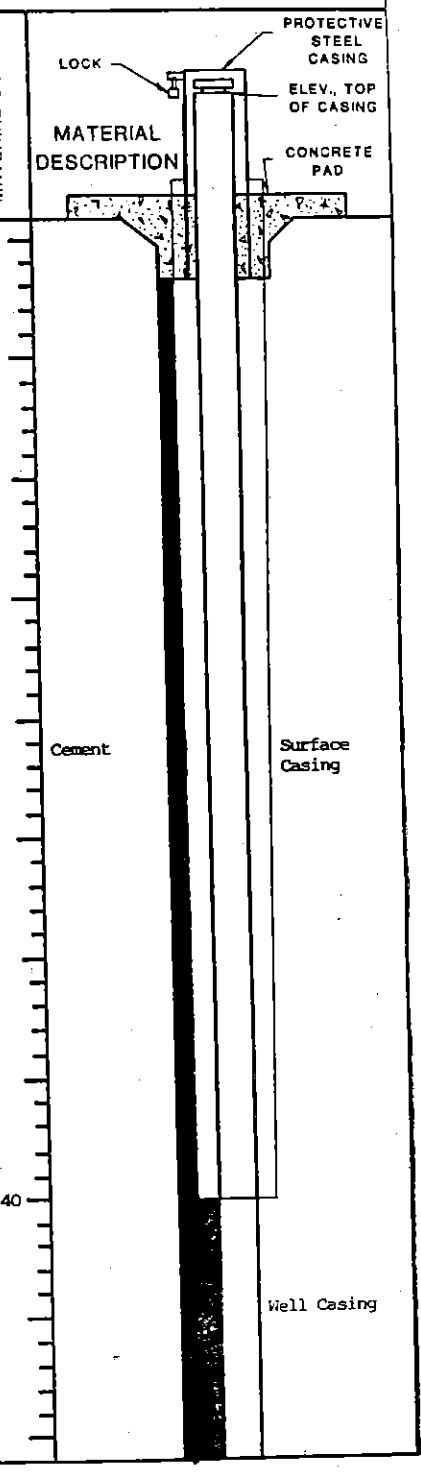
SITE: Palestine, TX ELEVATION: PAD 371.97 TOP OF PVC CASING 374.35

TOTAL DEPTH: 74.0 feet CASING SIZE & TYPE: Surface – 8-Inch Steel Well – 4-Inch PVC SCREEN SIZE: 0.01 mil slot

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand – poorly graded, fine, subangular to subrounded, with 10 to 20% clay and silt, compact, damp, dark brown to dark gray, clean
10			SC		Clayey Sand – similar to above except with 10% clay and silt light red-brown, moist
20			SC		Clayey Sand – similar to above except with 30% silt and clay, saturated, gray-brown
35			SW		Gravelly Sand – moderately graded, fine to very coarse, subrounded to rounded with 20% silt and 30% gravel, compact, saturated, reddish brown, clean
40			SC		Clayey Sand – poorly graded, fine, subangular to subrounded, with 20 to 30% silt and clay, compact, saturated, gray-brown, clean
45			SC		Clayey Sand – poorly graded, very fine to fine, subangular to subrounded, with 30 to 50% silt and clay and interbedded lignite, dense, damp, gray, clean
50					

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: DMW-14

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-30-90 SHEET 2 of 2

SITE: Palestine, TX ELEVATION: PAD 371.97 TOP OF PVC CASING 374.35

TOTAL DEPTH: 74.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch PVC SCREEN SIZE: 0.01

WATER LEVEL : REF.: DATE: TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT.)	POCKET PENETROMETER (TONS/FT^2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
50			SC		Clayey Sand - poorly graded, very fine to fine, subangular to subrounded, with 30 to 50% silt and clay and interbedded lignite, dense, damp, gray, clean
55					
60			SC		Clayey Sand - similar to above except clayey sands and sandy clays are finely interbedded. Increase in clay interbeds at 59 to 60 feet
65			SM		Silty Sand - poorly graded, very fine to fine, subrounded with 10 to 20% silt increasing to 20 to 30% silt at 72 feet, dense, saturated, gray, clean
70			SM		Silty Sand - poorly graded, very fine, subrounded to subangular with 40 to 50% silt and clay, dense to very dense, damp, gray-black
75					Boring terminated at 74.0 feet below surface

COMPLETION DATA	
MATERIAL SETTING	MATERIAL DESCRIPTION CONT.
52	Cement
	Bentonite
56	Well Casing
59	Filter Pack
	Screen
74	

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MONITOR WELL INSTALLATION

WELL NO.: DMW-15

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-31-90 SHEET 1 of 1

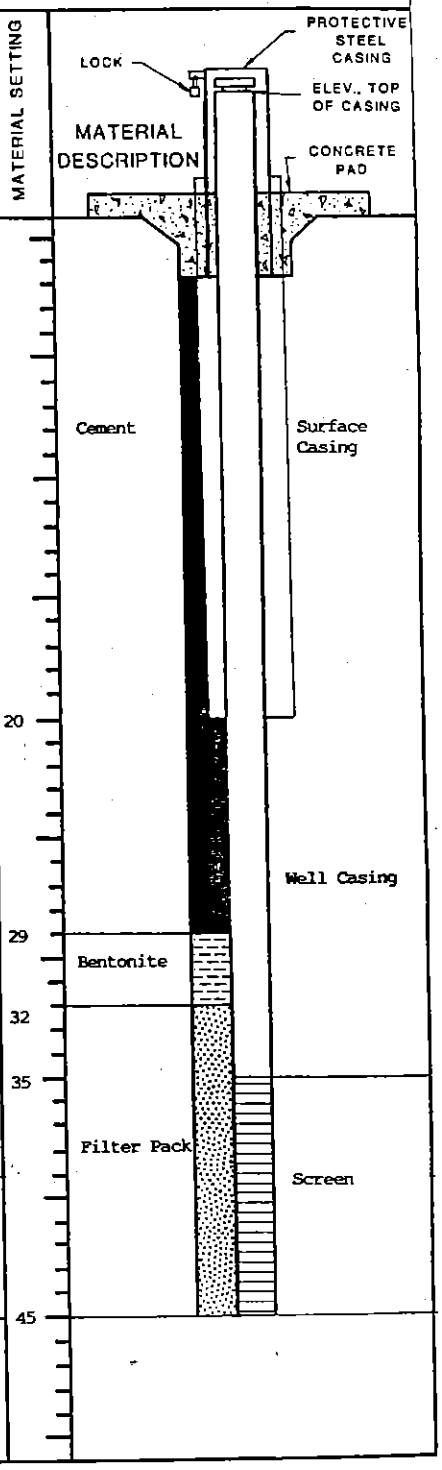
SITE: Palestine, TX ELEVATION: PAD 366.23 TOP OF PVC CASING 368.25

TOTAL DEPTH: 45.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch PVC SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: J. Hughes

DEPTH	N VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand - moderately graded, fine to very fine, subangular to subrounded with 20% clay as matrix, compact, red and tan, damp
5			CH		Clay - high plasticity, firm, gray, damp
10			SS		Sandstone - moderately crystalline, highly cemented with hematite, reddish-brown
			GC		Clayey Gravel - moderately graded, granular, angular to subrounded, with 40 to 50% sand and clay, loose, reddish-brown, moist
15			SC		Clayey Sand - poorly graded, fine, subangular to subrounded, with 30 to 35% clay and silt as matrix and interbeds, compact, reddish-brown 10.5 to 11.5 ft, otherwise gray-brown, moist, slight odor
			CL		Clayey Sand - poorly graded, very fine, subangular to subrounded with 40 to 50% clay and silt, dense, brown, damp, saturated at 18 ft
20			CL		Silty Clay - low plasticity, very stiff, with 0.1 mm thick, very fine sand interbeds, brown, damp
25			CL		Silty Clay - similar to above, except without sand interbeds
30					
35			SM		Silty Sand - poorly graded, fine to very fine, subangular to subrounded, with 25 % silt and clay as matrix, dense, dark gray, saturated, no odor
40			SM		Silty Sand - similar to above, except with increase in silt, approximately 50% silt at 45 ft., dark gray, transition to moist at 44 ft.
45					Monitor Well terminated at 45.0 feet below surface

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: DMW-16

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-31-90 SHEET 1 of 1

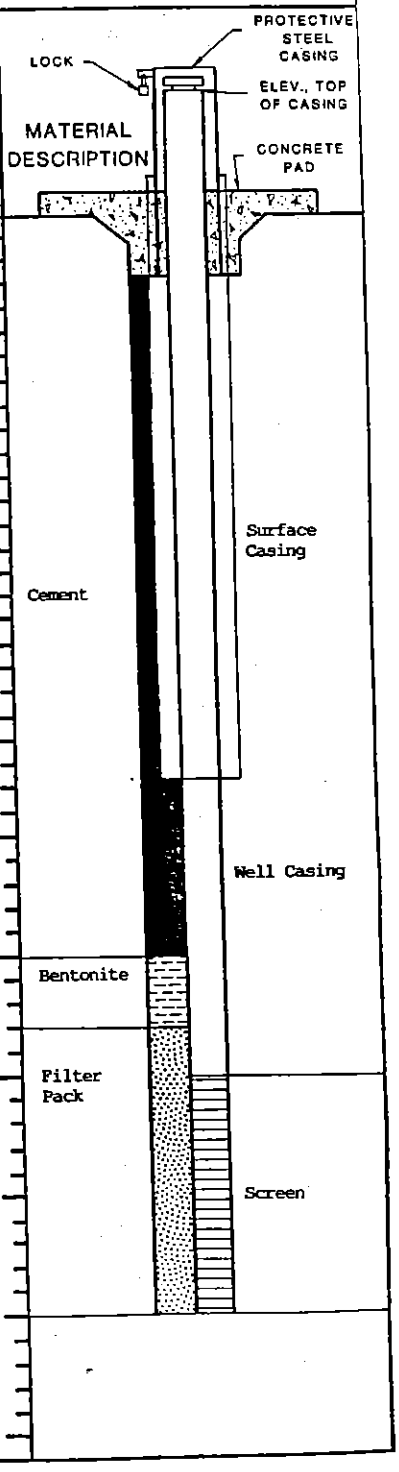
SITE: Palestine, TX ELEVATION: PAD 368.74 TOP OF PVC CASING 371.31

TOTAL DEPTH: 45.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch FRE SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand - poorly graded, fine to very fine, subsangular to subrounded with 20% clay as matrix, compact, red, damp
5					
10			SC		Clayey Sand - similar to above, except with medium to fine sand
15			SC		Clayey Sand - poorly graded, fine, subrounded, with 20 to 30% silt and clay as matrix, compact, red-gray, moist, saturated at 17 ft, odor
20			CH		Clay - highly plastic, firm with 20% very fine sand, gray, damp, slight odor
25			SC		Clayey Sand - poorly graded, fine, subrounded with 20 to 30% silt and clay as matrix, some 1 to 10 mm thick, clay and silt interbeds, compact, gray with red streaks, moist, slight odor
			CL		
30			CL		Sandy Clay - low plasticity, very stiff, with 20% fine sand interbeds, brown, damp
					Sandy Clay - similar to above, except with 10% fine sand interbeds
35			CL		Sandy Clay - similar to above, except gray
40			SM		Silty Sand - poorly graded, fine, subangular to subrounded, with 30% silt and clay as matrix increasing to 50% at base. compact. gray, saturated, damp at 45 ft.
45					Monitor Well terminated at 45.0 feet below surface
50					

COMPLETION DATA



JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Austin, Houston, Belton, Temple, Corpus Christi, Orange

MONITOR WELL CONSTRUCTION

WELL NO. DMW-21

CLIENT: Murray Corporation — JOB NO: 018206.1 — SHEET 1 OF 2

SITE: Palestine, Texas — DATE: START: 10/1/91 — FINISH: 10/5/91

GEOLOGIST: J. Hughes — DRILLER: Rone Engineering — DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollowstem auger - Continuous — TOTAL DEPTH: 60' — HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: Adjacent to MW-13 — ELEVATIONS: GROUND: 362.53 — PAD: 363.02 — TOC: 365.40 — PROT. CAS.: ---

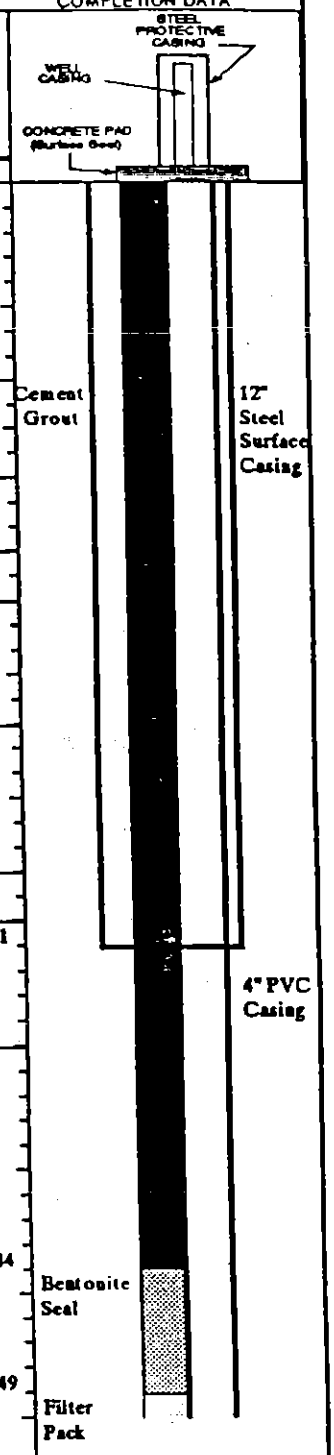
WATER LEVEL: DEPTH: 21.09 — DATUM: TOC — DATE: 10/8/91 — TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
0				SC		Clayey Sand - Very fine to fine, subrounded, with 20-30% silt and clay as matrix, compact, damp, brownish-red.
10				SM		Silty Sand - Fine, subangular to subrounded, with 20-30% silt as matrix, damp, saturated at 11.0', yellow to red.
15				SC		Clayey Sand - Very fine to fine, subrounded with 40-50% silt and clay as matrix, dense, saturated, gray.
				SC		Clayey Sand - Fine, subrounded with 20-30% silt and clay and 10% coarse sand and granules as matrix, very compact, saturated, reddish-brown.
20				SM		Gravelly Silty Sand - Very fine to coarse, subrounded to round, with 10% granules, and 10-20% silt as thin seams, minor or hematite cemented zones saturated, very reddish brown.
25				SC		Clayey Sand - Very fine to fine, subrounded with 30-40% silt and clay as matrix, very moist, compact, saturated, reddish-brown.
30				SM		Gravelly Silty Sand - Very fine to coarse, subrounded to round with 10% granules, 10-20% silt as thin seams, saturated, reddish-brown.
				CL		Sandy Clay - Low plasticity, very stiff to hard, with 20-30% very fine sand partings, damp, gray to brown.
35				CL		Sandy Clay - Similar to above except with 40-50% very fine sand partings, gray, minor lignite.
40						
45						
50						

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-21

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 2 OF 2

SITE: Palestine, Texas DATE: START: 10/1/91 FINISH: 10/5/91

GEOLOGIST: J. Hughes DRILLER: Rone Engineering DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollow stem auger - Continuous TOTAL DEPTH: 60' HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: Adjacent to MW-13 ELEVATIONS: GROUND: 362.53 PAD: 363.02 TOC: 365.40 PROT. CSG: ---

WATER LEVEL: DEPTH: 21.09 DATUM: TOC DATE: 10/8/91 TIME:

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION	COMPLETION DATA
50				CL		Sandy Clay - Similar to above.	50
55				CL SM		Silty Sand - Very fine to fine, subrounded, with 30-40% silt and clay partings, and seams, dense, saturated, gray.	Filter Pack; 0.01 inch mill slot screen
60				CL		Sandy Clay - Low plasticity, very stiff to hard, with 20-30% very fine sand partings, damp, gray.	59 Blank 60
						Boring terminated at 61' below ground surface.	

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

COMPLETION DATA: STEEL PROTECTIVE CASING; WELL CASING; CONCRETE PAD (Surface Seal)

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-22

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 2

SITE: Palestine, Texas DATE: START: 10/1/91 FINISH: 10/5/91

GEOLOGIST: J. Hughes DRILLER: Rone Engineering DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollowstem auger - Continuous TOTAL DEPTH: 64' HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: West of Closure Area ELEVATIONS: GROUND: 370.03 PAD: 370.56 TOC: 372.69 PROT. CSG: ---

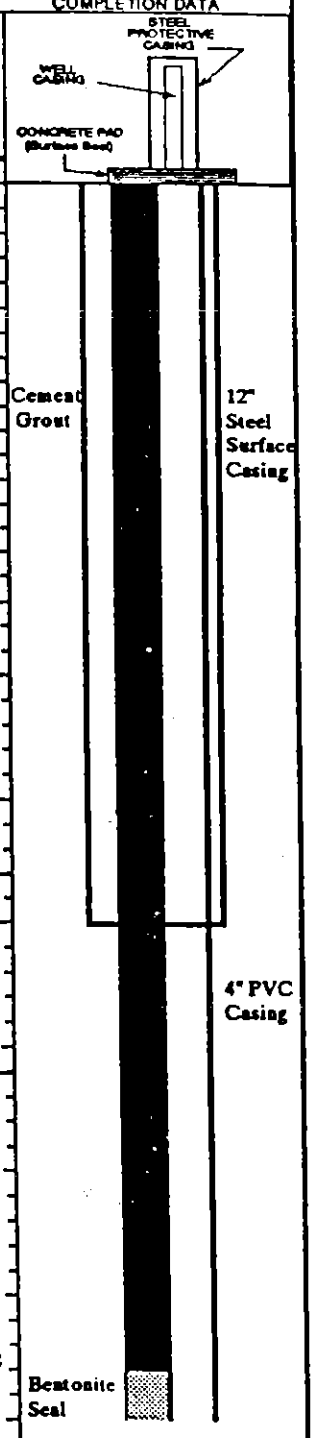
WATER LEVEL: DEPTH: 26.23' DATUM: TOC DATE: 10/8/91 TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
0				SM		Silty Sand - Very fine to fine, subrounded, with 10-20% silt as matrix, loose, damp.
				CL		Sandy Clay - Medium plasticity, with 20-30% very fine sand as matrix, 1-2" thick seams of fine sand to gravel at 7-8', damp, red to reddish-brown.
10				CS		Clayey Sand - Very fine, subrounded, with 30-40% silt and clay as matrix, compact damp, saturated at 17', reddish-brown.
20				SC		Gravelly, Clayey Sand - Similar to above, except with 10-20% silt and clay, and 10% granules at 25'-28'.
30				CL		Sandy Clay - Low plasticity, very stiff to hard, with 20-30% very fine sand partings, damp, gray to brown.
40				CL		Sandy Clay - Similar to above except with 40-50% very fine sand partings, gray, minor lignite.

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-22

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 2 OF 2

SITE: Palestine, Texas DATE: START: 10/1/91 FINISH: 10/5/91

GEOLOGIST: J. Hughes DRILLER: Rone Engineering DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollowstem auger - Continuous TOTAL DEPTH: 64' HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: West of Closure Area ELEVATIONS: GROUND: 370.03 PAD: 370.56 TOC: 372.69 PROT. OBG: ---

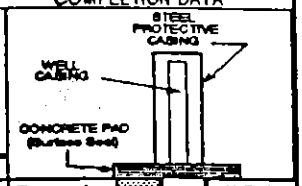
WATER LEVEL: DEPTH: 26.23' DATUM: TOC DATE: 10/8/91 TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
50						
55				SM		Silty Sand - Very fine, subrounded with 30-40% silt and clay partings and seams, dense, saturated, gray.
60						
65				CL		Sandy Clay - Low plasticity, very stiff to hard, with 20-30% very fine sand partings, damp to moist, gray.
70						Boring terminated at 70' below ground surface.

COMPLETION DATA



50	Bentonite Seal	4" PVC Casing
53		
54		
	Filter Pack	0.01 inch mill slot screen
59		
63		
64		Blank
70		

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-23

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 1

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-26-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 24.0 Feet HOLE DIAMETER: 11.5 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 369.20 PAD: 369.75 TOC: 371.96 PROT. CSG: 372.30

WATER LEVEL: DEPTH: 17.41 Feet DATUM: TOC DATE: 1-28-93 TIME: 8:30 AM

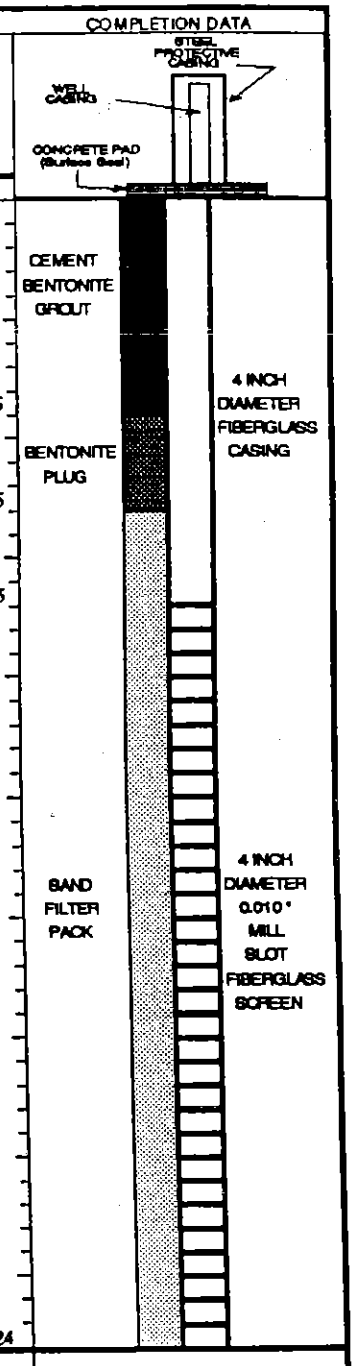
JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION	
0	SC	CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, dense, dry, red, no odor
5	SC	CLAYEY SAND	similar to above with hematite gravel at 9.0 feet, lignite flakes
10	SC	CLAYEY SAND	similar to above but no hematite gravel or lignite present
15	GP	HEMATITE GRAVEL	well graded, red, saturated
20	SC	CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose, red, saturated, odor
24	GP	HEMATITE GRAVEL	well graded, red, saturated, odor
	CH	CLAY	20 to 30% fine grained sand, moderate to high plasticity, firm, damp, light gray

BORING TERMINATED AT 24.0 FEET BELOW GRADE

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATON SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-24

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 3

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-28-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 55.5 Feet HOLE DIAMETER: 16.0 In. / 11.5 In.

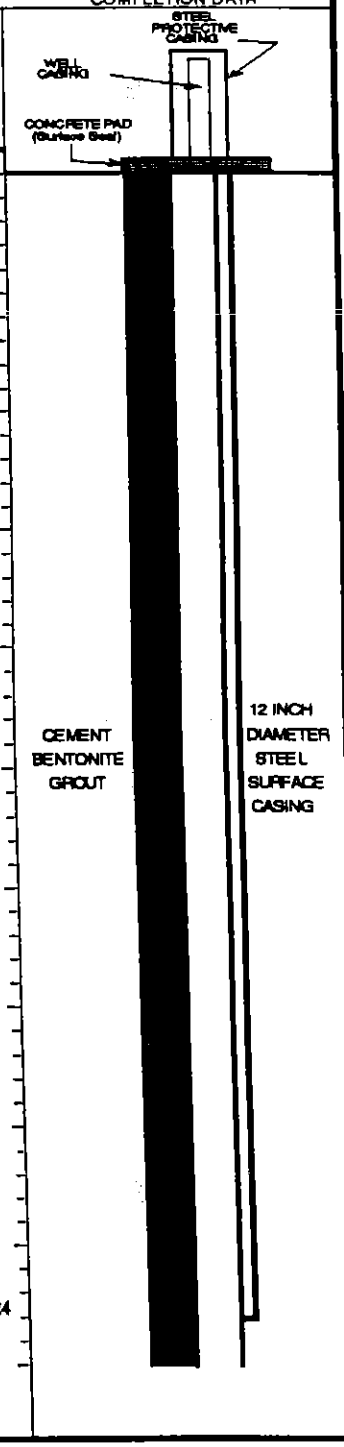
SITE COORDINATES: NA ELEVATIONS: GROUND: 363.30 PAD: 364.52 TOC: 366.38 PROT. CSG: 366.61

WATER LEVEL: DEPTH: 27.11 Feet DATUM: TOC DATE: 2-8-93 TIME: 1:29 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	STRATIGRAPHY		
0	SC		CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose in top 1 foot then dense, damp, red, no odor, hematite nodules at 4.0 to 4.5 feet
5	SC		CLAYEY SAND	similar to above
	CH		CLAY	10 to 20% fine grained sand, moderate to high plasticity, very stiff, dry, light gray with red hematite staining, hematite nodules, clayey sand seams at 9.0 feet
10	SC		CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose, moist, red and light gray marbled
	CH		CLAY	10 to 20% fine grained sand, moderate to high plasticity, very stiff, dry, light gray
15	CH		CLAY	similar to above
20	SC		CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose, saturated, red and light gray marbled
	CH		CLAY	10 to 20% fine grained sand, moderate to high plasticity, very stiff, dry, light gray
25	CH		CLAY	similar to above



(1) UNIFIED SOIL CLASSIFICATON SYSTEM

MW-ST-BC.WK3

MONITOR WELL CONSTRUCTION

WELL NO: DMW-24

CLIENT: Murray Corporation | JOB NO: 018206.1 | SHEET: 2 OF 3

SITE: Palestine, Texas | DATE: START: 1-26-93 | FINISH: 1-28-93

GEOLOGIST: Mark Norman | DRILLER: Jones and Neuse, Inc. | DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample | TOTAL DEPTH: 55.5 Feet | HOLE DIAMETER: 16.0 In. / 11.5 In.

SITE COORDINATES: NA | ELEVATIONS: GROUND: 363.30 | PAD: 364.52 | TOC: 366.38 | PROT. CSG: 366.61

WATER LEVEL: DEPTH: 27.11 Feet | DATUM: TOC | DATE: 2-8-93 | TIME: 1:29 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION	
25				CH		CLAY	similar to above
30				CL		SANDY CLAY	20 to 30% fine grained sand, low plasticity, stiff dark gray clay with saturated sand partings, minor lignite seams
35				CL		SANDY CLAY	similar to above
40				CL		SANDY CLAY	similar to above
45				CL		SANDY CLAY	similar to above
50				CL		SANDY CLAY	similar to above

COMPLETION DATA

BELOW GRADE MATERIAL COMPLETIONS CONTINUED FROM PREVIOUS PAGE

CEMENT BENTONITE GROUT

4 INCH DIAMETER PVC CASING

38

BENTONITE PLUG

40

41

BAND FILTER PACK

4 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN

50

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MONITOR WELL CONSTRUCTION

WELL NO. DMW-24

CLIENT: Murray Corporation JOB NO.: 018206.1 SHEET 3 OF 3

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-28-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 55.5 Feet HOLE DIAMETER: 16.0 In. / 11.5 In

SITE COORDINATES: NA ELEVATIONS: GROUND: 363.30 PAD: 364.52 TOC: 366.38 PROT. CBG: 366.61

WATER LEVEL: DEPTH: 27.11 Feet DATUM: TOC DATE: 2-8-93 TIME: 1:29 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
50				CH		CLAY similar to above
55						
55.5				CH		CLAY similar to above

BORING TERMINATED AT 55.5 FEET BELOW GRADE

COMPLETION DATA

BELOW GRADE MATERIAL COMPLETIONS CONTINUED FROM PREVIOUS PAGE

SAND FILTER PACK

4 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN

55.5

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-PG2.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-25

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 1

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 23.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 332.10 PAD: 332.67 TOC: 334.89 PROT. CSG: NA

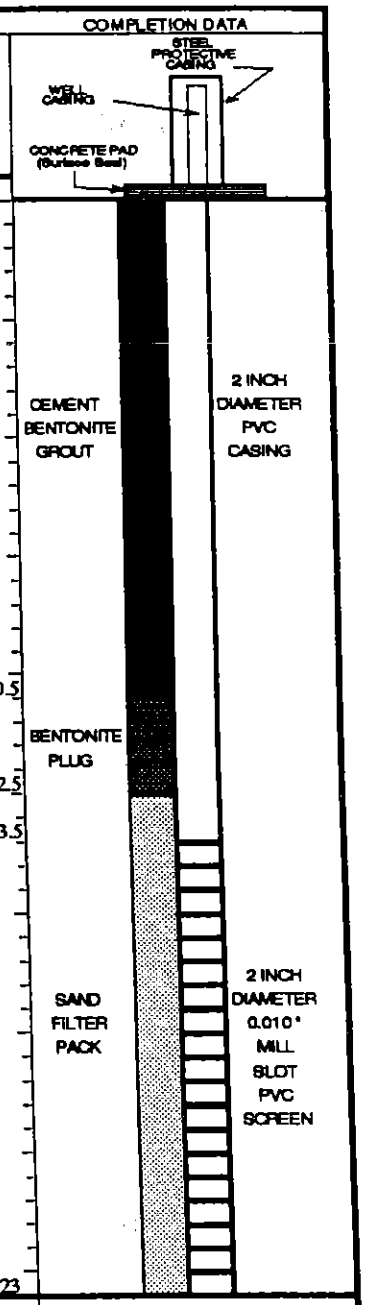
WATER LEVEL: DEPTH: 6.45 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:11 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION
0	SC	CLAYEY SAND — 10 to 20 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 0 to 1 foot, then dry
5	SC	CLAYEY SAND — similar to above but dark brown with surficial moisture from 4 to 5.5 feet
	CH	CLAY — high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
10	CH	CLAY — similar to above with increasing sand, 20 to 30%, and sparatic hematite gravel
15	SC	CLAYEY SAND — 20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, massive, dark gray, saturated, 5 " layer of hematite gravel at 18 feet
20	SC	CLAYEY SAND — similar to above
23	CH	CLAY — 20 to 30% fine grained sand partings, low to moderate plasticity, very stiff, dry, dark brown clay with gray sand

BORING TERMINATED AT 23.0 FEET BELOW GRADE



(1) UNIFIED SOIL CLASSIFICATON SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-26

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 2

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 34.0 Feet HOLE DIAMETER: 8.75 Inches

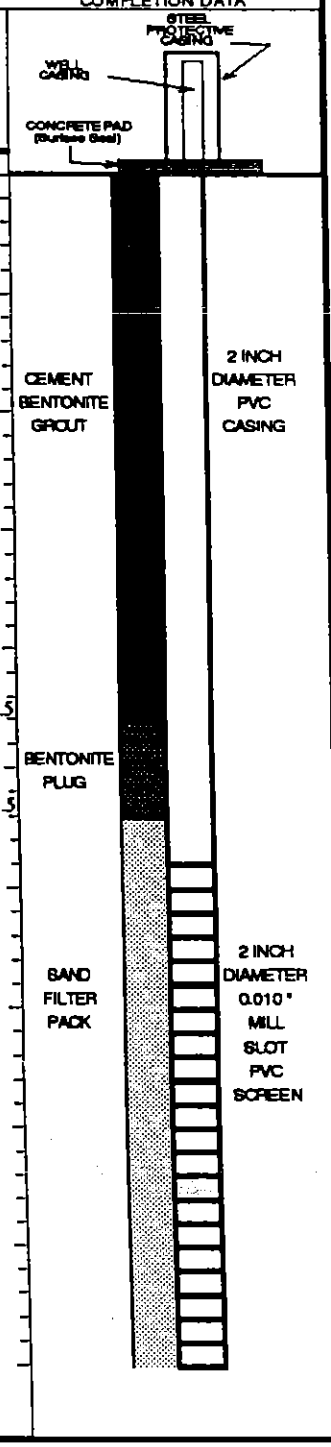
SITE COORDINATES: NA ELEVATIONS: GROUND: 334.20 PAD: 334.83 TOC: 337.11 PROT. CSG: NA

WATER LEVEL: DEPTH: 8.05 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:14 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	STRATIGRAPHY		
0	SC		CLAYEY SAND	10 to 20 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 4 to 5 feet, then dry
5	CH		CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
	GW		HEMATITE GRAVEL	well graded, red, saturated
10	CH		CLAY	high plasticity, firm, dark brown with 20 to 30% orange sand partings, damp
15	SC		CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, 20 to 30% hematite gravel, saturated, dark gray sand with red gravel
20	SC		CLAYEY SAND	similar to above but no gravel present
25	SC		CLAYEY SAND	similar to above



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. MW-26

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 2 OF 2

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 34.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 334.20 PAD: 334.83 TOC: 337.11 PROT. CSG: NA

WATER LEVEL: DEPTH: 8.05 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:14 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION	COMPLETION DATA
25				SC		CLAYEY SAND similar to above	BELOW GRADE MATERIAL COMPLETIONS CONTINUED FROM PREVIOUS PAGE
30				SC		CLAYEY SAND similar to above	SAND FILTER PACK; 2 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN
34							
						BORING TERMINATED AT 34.0 FEET BELOW GRADE	

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-27

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 1

SITE: Palestine, Texas DATE: START: 4-20-93 FINISH: 4-20-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 23.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 334.30 PAD: 334.94 TOC: 337.33 PROT. CSG: NA

WATER LEVEL: DEPTH: 6.48 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:20 PM

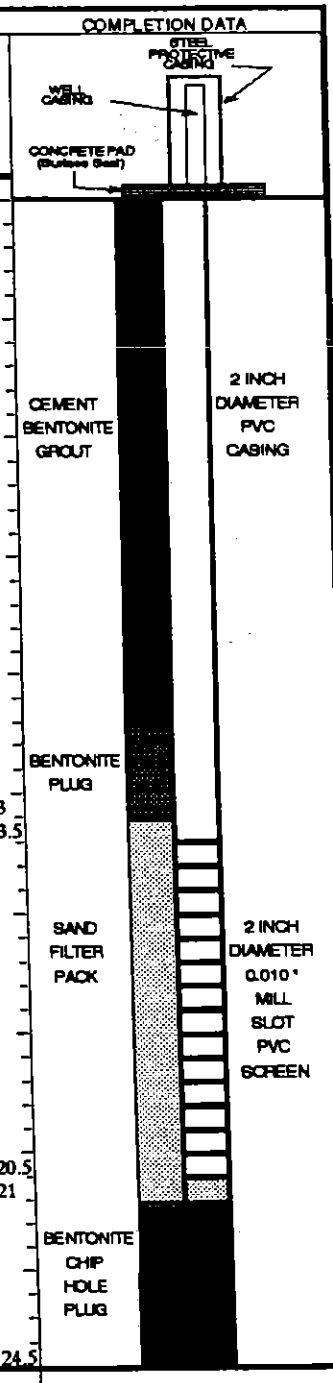
JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY		
0				SC		CLAYEY SAND	20 to 30 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 3.5 to 4.0 feet, then dry
5				CH		CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
10				CH		CLAY	similar to above with increasing sand, 30 to 40%
15				SC		CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, massive, dark gray, saturated, hematite gravel layer at 16.5 to 17.0 feet and lignite seam at 19.0 feet
20				CH		SANDY CLAY	20 to 30% fine grained sand partings, low to moderate plasticity, very stiff, dry, dark brown clay with gray sand
24.5				SC		CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, loose, dark gray, mica, damp

BORING TERMINATED AT 24.5 FEET BELOW GRADE

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

LOG OF BORING

BORING NO. 3rd Aquifer Exp–1

CLIENT: Murray Corporation | JOB NO: 018206.1 | SHEET: 1 OF: 2

SITE: Adjacent to MW–8 | DATE: START: 10/2/91 | FINISH: 10/8/91

GEOLOGIST: J. Hughes | DRILLER: Rone Engineering | DRILLING RIG TYPE: CME–75

DRILLING METHODS: Hollow–stem Augers – Continuous Sample | TOTAL DEPTH: 72' | HOLE DIAMETER: 16"/7 1/2"

SITE COORDINATES: | ELEVATION:

GROUND–WATER LEVEL: DEPTH: | DATUM: | DATE: | TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
0				CL		Sandy Clay – Moderately plastic, with 30–40% very fine sand as matrix, firm, damp, brownish–red.
5				SC		Clayey Sand – Very fine, subrounded with 30–40% silt and clay as matrix, compact, damp, brownish–red, hematite gravel at 7'–8'.
10				SC		Clayey Sand – Similar to above except with 20–30% coarse sand and fine gravel as thin seams and matrix, thin gravel seams are partially hemotite cemented. Saturated at 12'.
15				SC		Clayey Sand – Very fine, with 30–40% silt and clay as matrix, compact, saturated, gray.
20				CL		Sandy Clay – Low plasticity, very stiff to hard, with 20–30% very fine sand as partings, damp, gray to brown.
25						
30				CL		Sandy Clay – Similar to above except with 10–20% very fine sand partings, gray.
35						
40						
45						
50				SM		Silty Sand – Very fine, subrounded with 30–40% silt and clay partings, dense, saturated, gray.

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

B–LOG.WK3

LOG OF BORING

BORING NO. 3rd Aquifer Exp–1

CLIENT: Murray Corporation | JOB NO: 018206.1 | SHEET: 2 OF: 2

SITE: Adjacent to MW–8 | DATE: START: 10/2/91 | FINISH: 10/8/91

GEOLOGIST: J. Hughes | DRILLER: Rone Engineering | DRILLING RIG TYPE: CME–75

DRILLING METHODS: Hollow–stem Augers – Continuous Sample | TOTAL DEPTH: 72' | HOLE DIAMETER: 16"/7 1/2"

SITE COORDINATES: | ELEVATION:

GROUND–WATER LEVEL: DEPTH: | DATUM: | DATE: | TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
50				CL		Sandy Clay – Low plasticity, very stiff, with 20–30% very fine sand partings, moist, sand partings are saturated.
55						
60						
65				SM		Silty Sand – Very fine, subrounded, with 30–40% silt and clay partings, dense, saturated, gray, auger refusal at 72' encountered hard cemented horizon.
70						
75						Broing terminated at 72' below ground level.

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

B–LOG.WK3

GEOTECHNICAL TEST RESULTS

SUMMARY OF LABORATORY GEOTECHNICAL TEST RESULTS

Boring Number	Sample Interval (feet) From	To	Type of Material	Permeability (cm/sec)	Atterberg Limits LL	PL	PI	Moisture Content (%) (*after testing)	Porosity (%)
B-1	15	16	Clayey sand, with silty seams, reddish-brown	4×10^{-8}	NA	NA	NA	15.8 17.8*	NA
B-1 (deep)	33	34	Silty sand	NA	22	NA	0	30.8	NA
B-1 (deep)	43	44	Clayey sand	NA	40	NA	19	18.8	NA
B-1 (deep)	59.5	60	Lean clay with sand	NA	49	NA	30	22.0	45.2
B-1 (deep)	65	65.5	Silt with sand	NA	25	NA	1	26.8	NA
B-1 (deep)	71.5	72	Silty sand	NA	30	NA	4	18.8	NA
MW-10	12	12.5	Clayey sand	1.6×10^{-6}	NA	NA	NA	NA	NA

JONES & NEUSE

SUMMARY OF LABORATORY GEOTECHNICAL TEST RESULTS
(Continued)

Boring Number	Sample Interval (feet) From	To	Type of Material	Permeability (cm/sec)	Atterberg Limits LL	PL	PI	Moisture Content % (*after testing)	Porosity (%)
MW-10	12.5	13	Silty sand	NA	19	NA	2	19.3	38.2
MW-10	17.5	18	Clayey sand	NA	34	NA	17	20.3	NA
MW-10	20.5	21	Lean clay with sand	NA	38	NA	15	24.1	NA
MW-11	12	12.5	Clayey sand	NA	25	NA	8	20.1	NA
MW-11	12.5	13	Clayey sand	6.4×10^{-7}	NA	NA	NA	NA	NA
MW-11	19	19.5	Lean Clay	NA	43	NA	23	25.6	46.1
MW-13	17	18	Silty sand	NA	24	NA	3	32.8	NA
MW-13	22	22.5	Silty sand	NA	21	NA	0	29.7	NA
MW-13	29.5	30	Fat clay	NA	53	NA	30	25.1	NA

NA: Not Analyzed

JONES & NEUSE

Hamilton Drilling & Engineering Testing, Inc.
Soils and Foundation Engineers
10214 I.H. 35 North/Austin, Texas 78753/512-837-6580

To Jones & Neuse, Inc.
2720 Bee Caves Road
Austin, Texas 78746

DATE 2/5/88
REPORT NO. 7829
FILE NO. GA-782

Name of Job Murray Corporation Assessment Testing

Murray Corporation Assessment Testing

SUMMARY OF PERMEABILITY TEST

Boring No.	Depth (feet)	Unit Dry Weight (pcf)		Moisture Content (%)	
Bh-1	15.0-16.0	111.7 (prior to testing)	109.8 (after testing)	15.8 (prior to testing)	17.8 (after testing)

Permeability (cm/sec)
4×10^{-8}

Description

Clayey sand, with Silty Seams,
Reddish Brown

JONES AND NEUSE, INC.

Report Date: 12-20-89 Report Number: 118206-11-1

To: Jones and Neuse, Inc.
2720 Bee Caves Road
Austin, Texas 78746
Attn: Curt Black

Project: Arent, Fox, Kintner, Plokin Project Number: 118206
Groundwater Services

SUMMARY OF LABORATORY TESTING

Boring No.	Depth (ft)	Moisture Content (%)	Atterberg Limits Liquid Limit	Atterberg Limits Plasticity Index	Porosity (%)	Coefficient of Permeability (cm/sec)
B-1-Deep	33 - 34	30.8	22	0	-	-
B-1-Deep	43 - 44	18.8	40	19	-	-
B-1-Deep	59.5 - 60	22.0	49	30	-	-
B-1-Deep	65 - 65.5	26.8	25	1	45.2	-
B-1-Deep	71.5 - 72	18.8	30	4	-	-
MW - 10	12 - 12.5	-	-	-	-	1.6×10^{-6}
MW - 10	12.5 - 13	19.3	19	2	-	-
MW - 10	17.5 - 18	20.3	34	17	38.2	-
MW - 10	20.5 - 21	24.1	38	15	-	-
MW - 11	12 - 12.5	20.1	25	8	-	-
MW - 11	12.5 - 13	-	-	-	-	6.4×10^{-7}
MW - 11	19 - 19.5	25.6	43	23	-	-
MW - 13	17 - 18	32.8	24	3	46.1	-
MW - 13	22 - 22.5	29.7	21	0	-	-
MW - 13	29.5 - 30	25.1	53	30	-	-

Remarks and/or Distribution 1 - Above

Reviewed by: Eddy Hugh Trevino
Eddy Hugh Trevino, P.E.

SUMMARY OF GRAIN SIZE ANALYSES RESULTS

Boring Number	Sample Interval (feet) From	To	Hydrogeologic Unit	Type of Material %Sand	%Silt	%Clay
B-1	15.0	16.0	Aquifer	50.0	25.0	25.0
MW-10	12.5	13.0	Aquifer	61.2	NA	NA
MW-10	17.5	18.0	Aquifer	55.0	NA	NA
MW-10	20.5	21.0	Confining Zone	29.2	48.8	21.0
MW-11	12.0	12.5	Aquifer	60.8	NA	NA
MW-11	19.0	19.5	Confining Zone	6.4	67.1	26.5
MW-13	17.0	18.0	Aquifer	71.3	NA	NA
MW-13	22.0	22.5	Aquifer	79.1	NA	NA
MW-13	29.5	30.0	Confining Zone	0.9	63.1	36.0
B-1 Deep	33.0	34.0	Aquifer	86.5	13.5	0.0
B-1 Deep	43.0	44.0	Confining Zone	51.2	33.8	15.0
B-1 Deep	59.5	60.0	Confining Zone	25.7	45.8	28.5
B-1 Deep	65.0	65.5	Deep Aquifer	28.0	50.0	22.0
B-1 Deep	71.5	72.0	Confining Zone	67.0	27.0	6.0

NA: Not Analyzed

JONES & NEUSE

GRAIN SIZE DISTRIBUTION

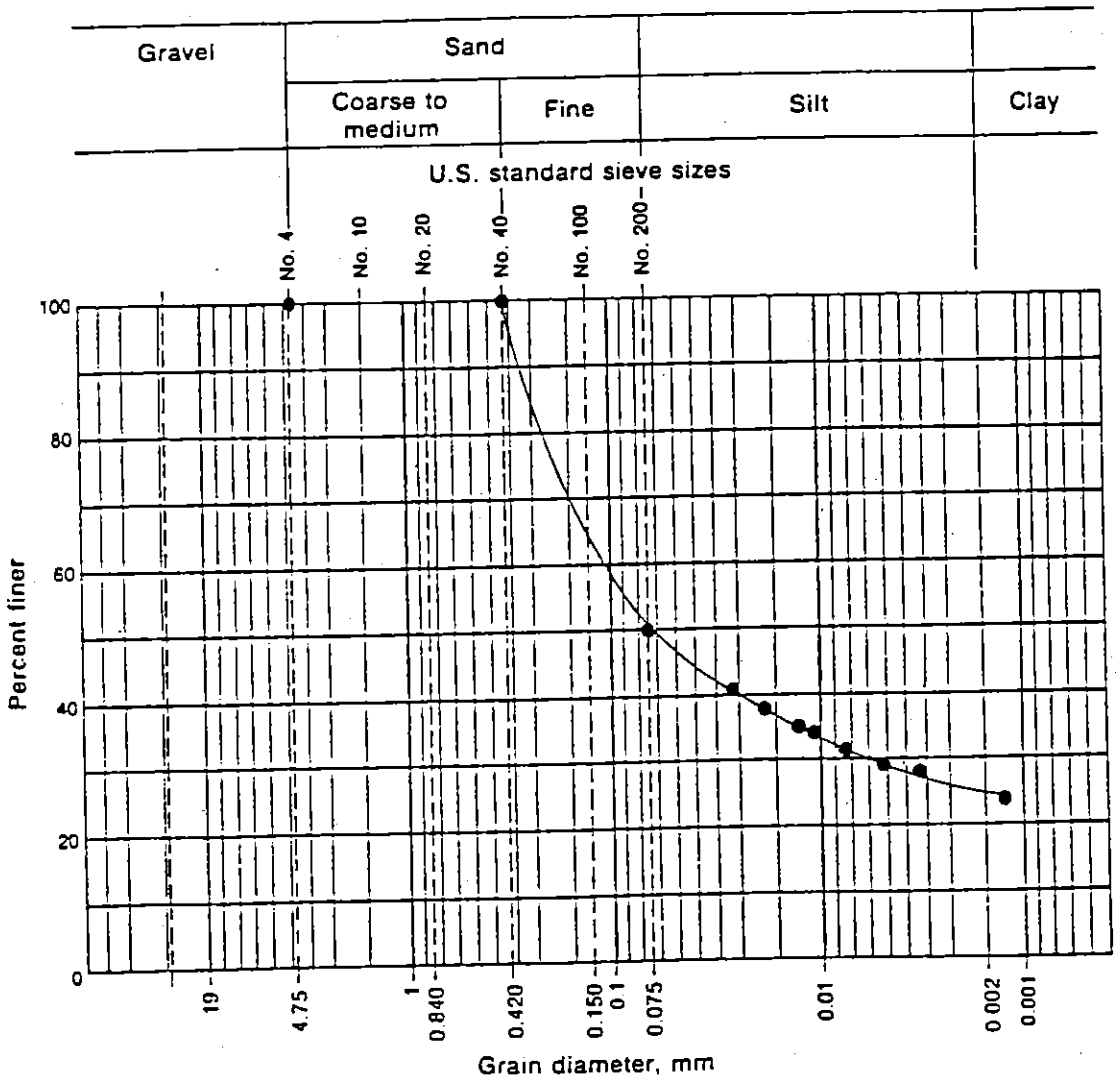
Report No. 782-11-1

Project Murray Job. No. GA-782

Location of Project _____ Boring No. 1 Sample No. ---

Description of Soil Clayey Sand Depth of Sample 15.0' - 16.0'

Tested By. MJW Date of Testing 2-1-88



Visual soil description Clayey Sand, with Silty Seams, Reddish Brown

Soil classification:

SC System Unified Soils Classification System

JONES AND NEUSE, INC.

Report Date: 1-10-90

Report Number: 118206-11-4

To: Jones and Neuse, Inc.
2720 Bee Caves Road
Austin, Texas 78746
Attn: Curt Black

Project: Arent, Fox, Kintner, Plokin
Groundwater Services

Project Number: 118206

SUMMARY OF SIEVE ANALYSES

Boring No.	Depth (ft)	Percent Passing No.4	No.10	No.40	No.60*	No.100*	No.200
B-1-Deep	33 - 34	100.0	100.0	99.8	97.9	55.0	13.5
B-1-Deep	43 - 44	99.9	98.3	94.5	99.4	88.6	48.8
B-1-Deep	59.5 - 60	100.0	99.2	92.4	-	-	74.3
B-1-Deep	65 - 65.5	100.0	99.8	97.7	98.9	93.2	72.0
B-1-Deep	71.5 - 72	99.7	99.6	85.1	79.2	66.4	33.0
MW - 10	12.5 - 13	99.4	98.4	96.9	-	-	38.8
MW - 10	17.5 - 18	99.8	98.0	96.2	94.2	71.7	45.0
MW - 10	20.5 - 21	100.0	99.5	96.3	-	-	70.8
MW - 11	12 - 12.5	97.4	95.7	93.7	-	-	39.2
MW - 11	19 - 19.5	99.5	98.6	97.5	-	-	93.6
MW - 13	17 - 18	99.3	98.3	96.8	97.6	76.7	28.7
MW - 13	22 - 22.5	100.0	100.0	99.7	96.2	64.3	20.9
MW - 13	29.5 - 30	100.0	100.0	99.8	-	-	99.1

Remarks and/or Distribution 1 - Above

* An initial sample was used to determine the percent passing the No.4, No.10, No.40, and No.200 sieve. A subsequent sample was used to determine the percent passing the No.60 and No.100 sieve. In case of a discrepancy between the two to tests, results from the initial test should be considered more valid due to a larger, more representative, sample size.

Reviewed by: Michael Wahl

Michael Wahl, C.E.T.

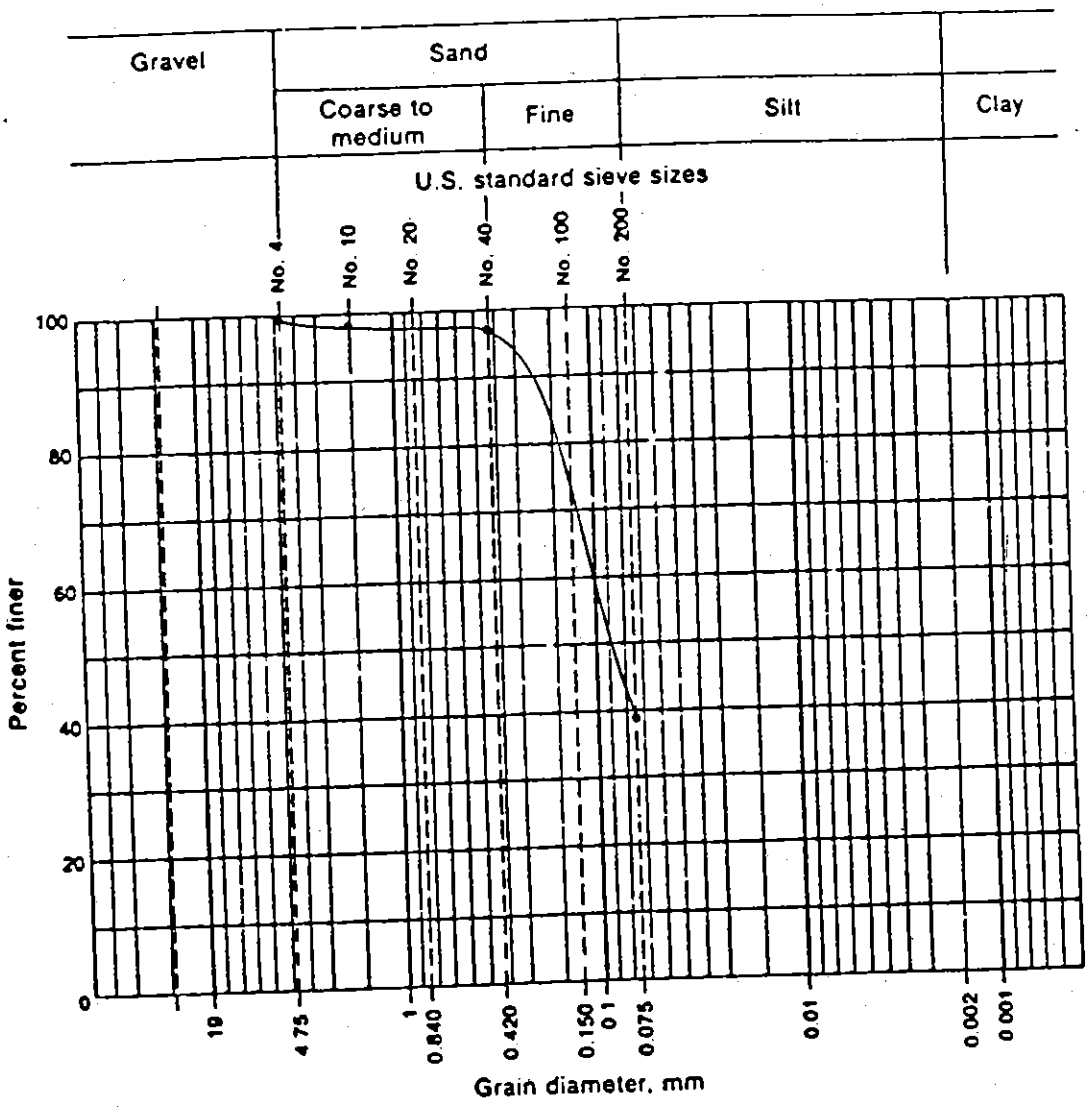
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No.: 790228

Location of Project: - — Boring No.: MW-10 — Sample No.: -

Description of Soil: Silty Sand — Depth of Sample: 12.5'-13'

Tested By: MJW-LEL — Date of Testing: 12/89



JONES AND NEUSE, INC.

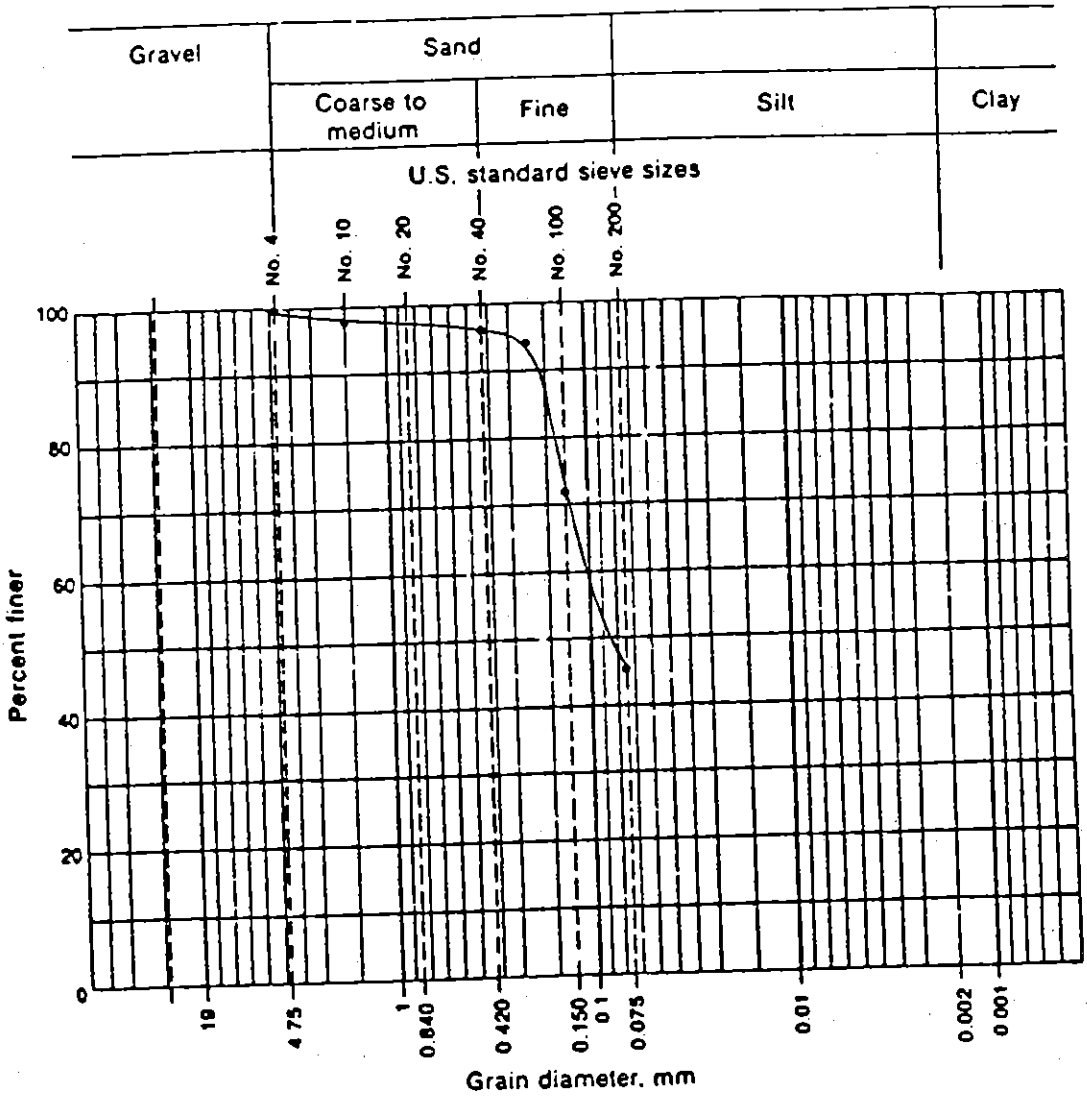
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No: 790228

Location of Project: - — Boring No: MW-10 — Sample No: -

Description of Soil: Clayey Sand — Depth of Sample: 17.5'-18'

Tested By: MJW-LEL — Date of Testing: 12/89



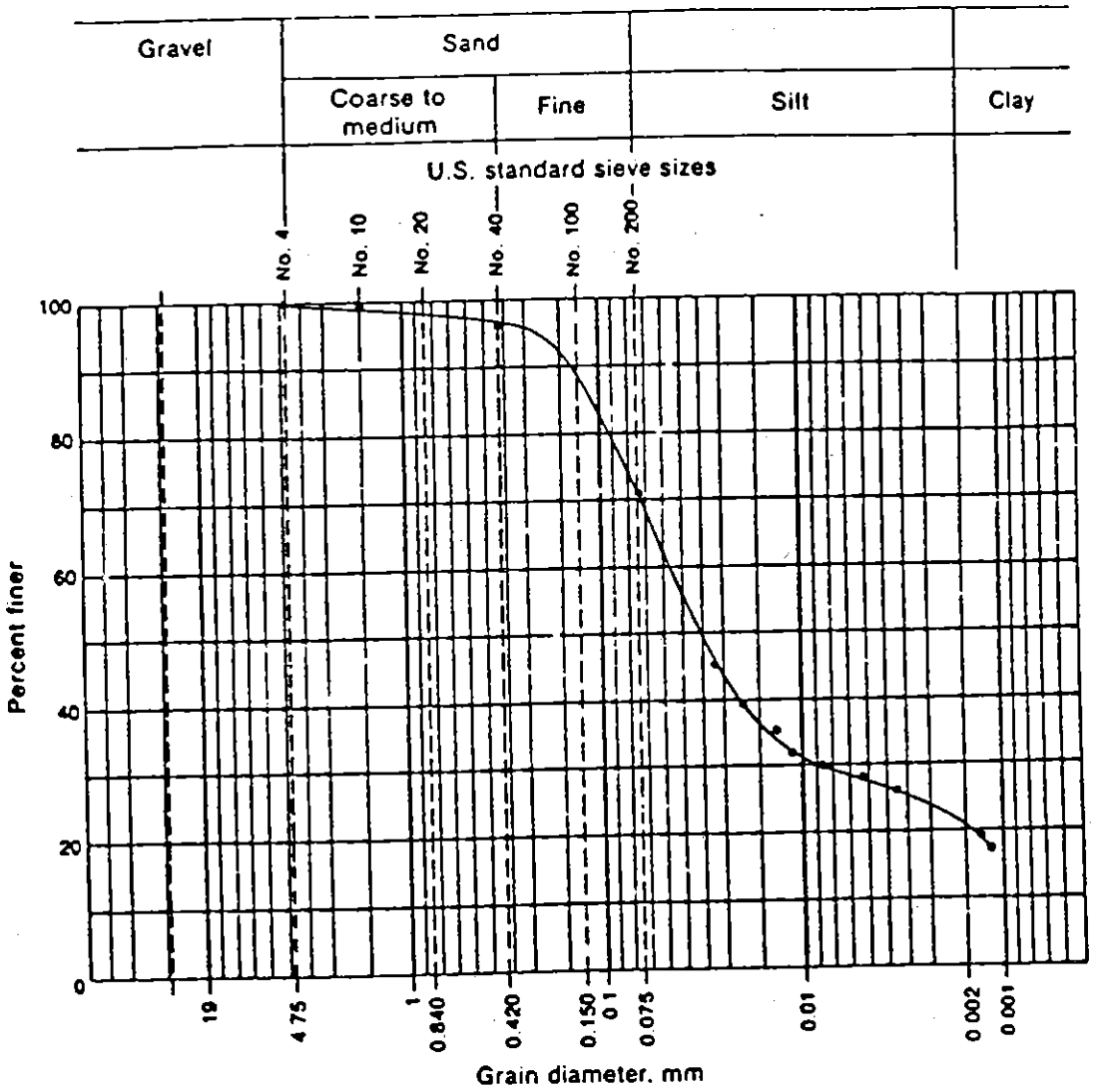
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project: - — Boring No. MW-10 — Sample No. -

Description of Soil: Lean Clay with Sand — Depth of Sample: 20.5'-21'

Tested By: MJW-LEL — Date of Testing: 12/89



JONES AND NEUSE, INC.

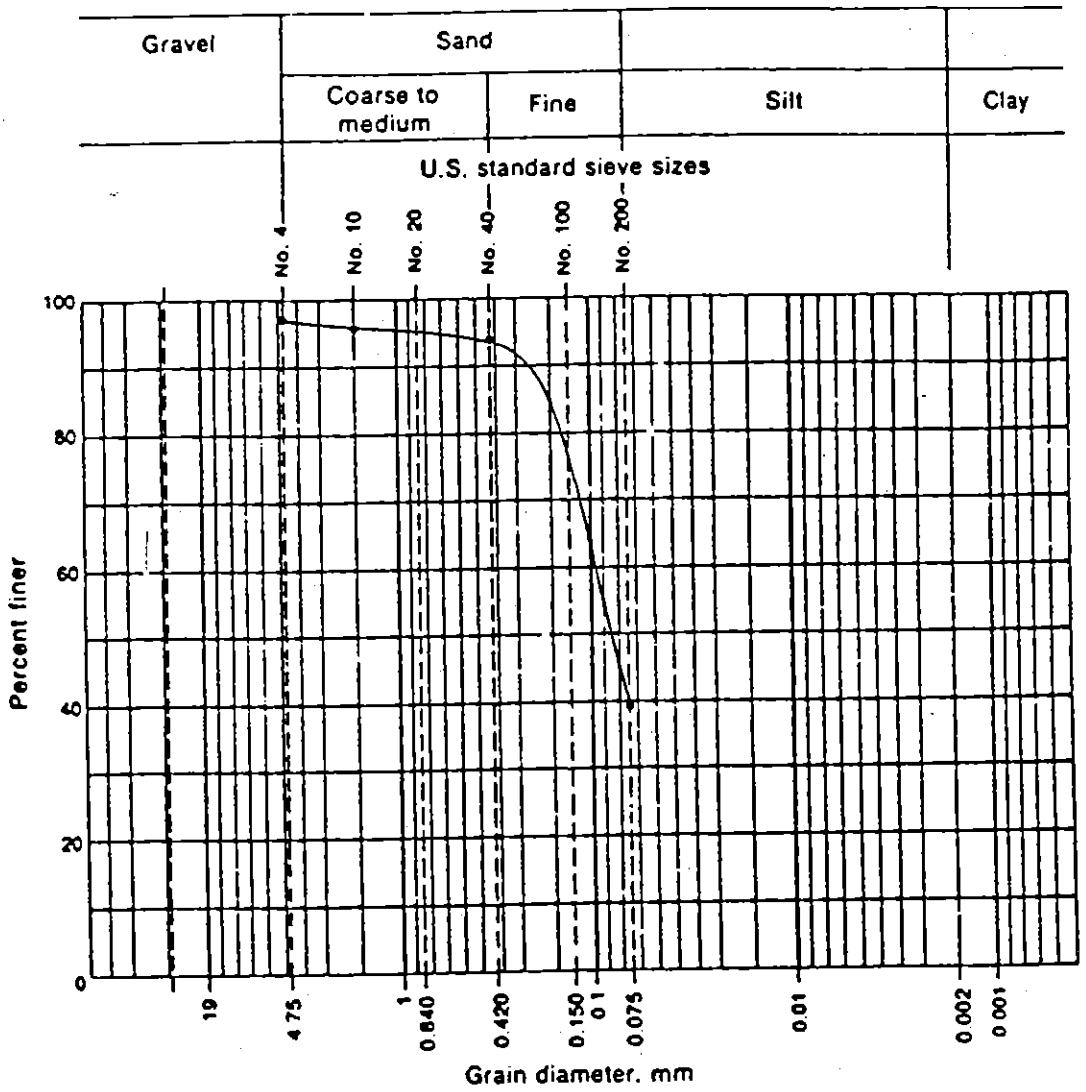
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No.: 790228

Location of Project: — Boring No.: MW-11 — Sample No.: —

Description of Soil: Clayey Sand — Depth of Sample: 12'-12.5'

Tested By: MJW-LEL — Date of Testing: 12/89



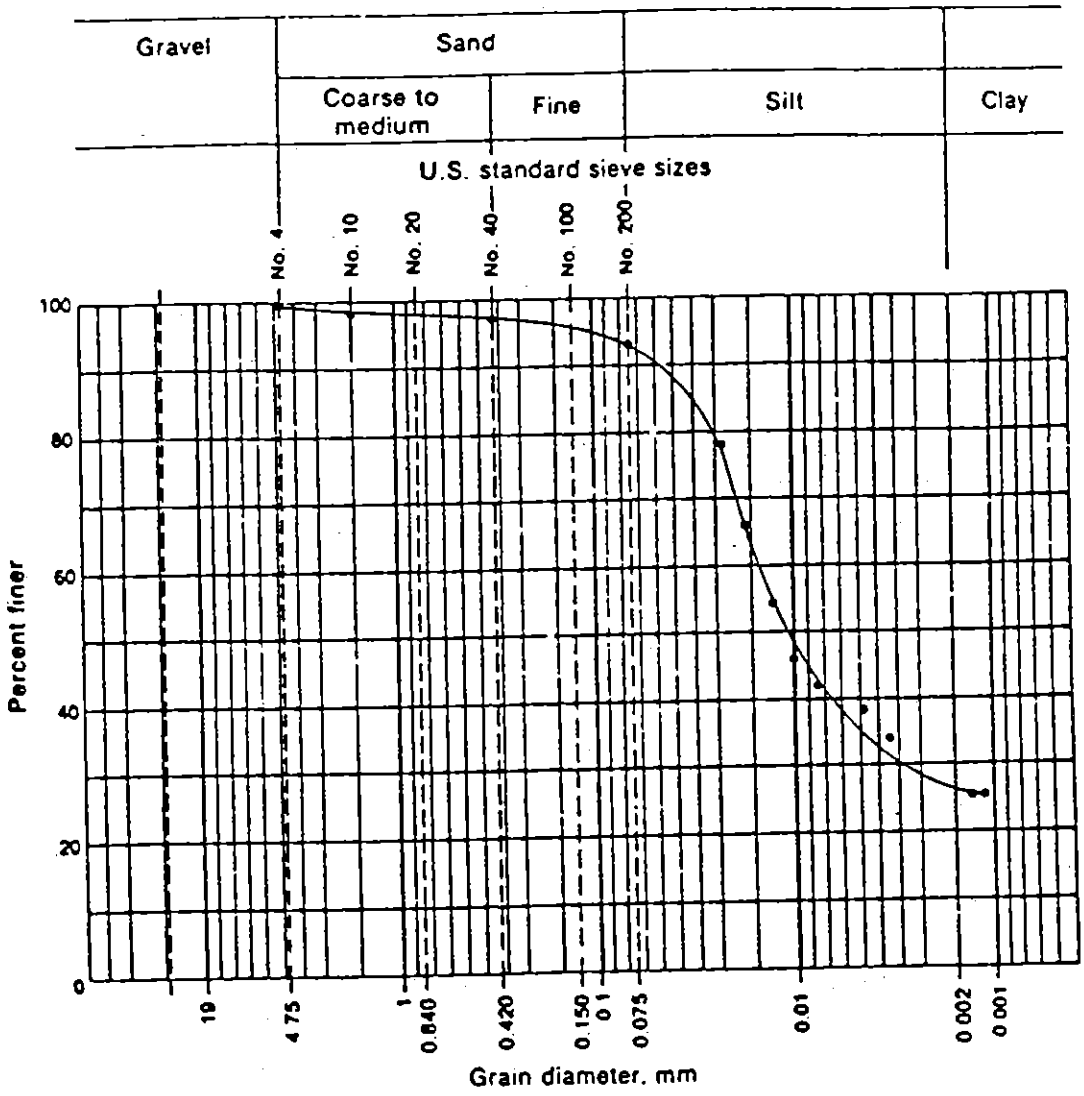
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintenr, Plokin Groundwater Services — Job No. 790228

Location of Project: - — Boring No. MW-11 — Sample No. -

Description of Soil: Lean Clay — Depth of Sample: 19'-19.5'

Tested By: MJW-LEL — Date of Testing: 12/89



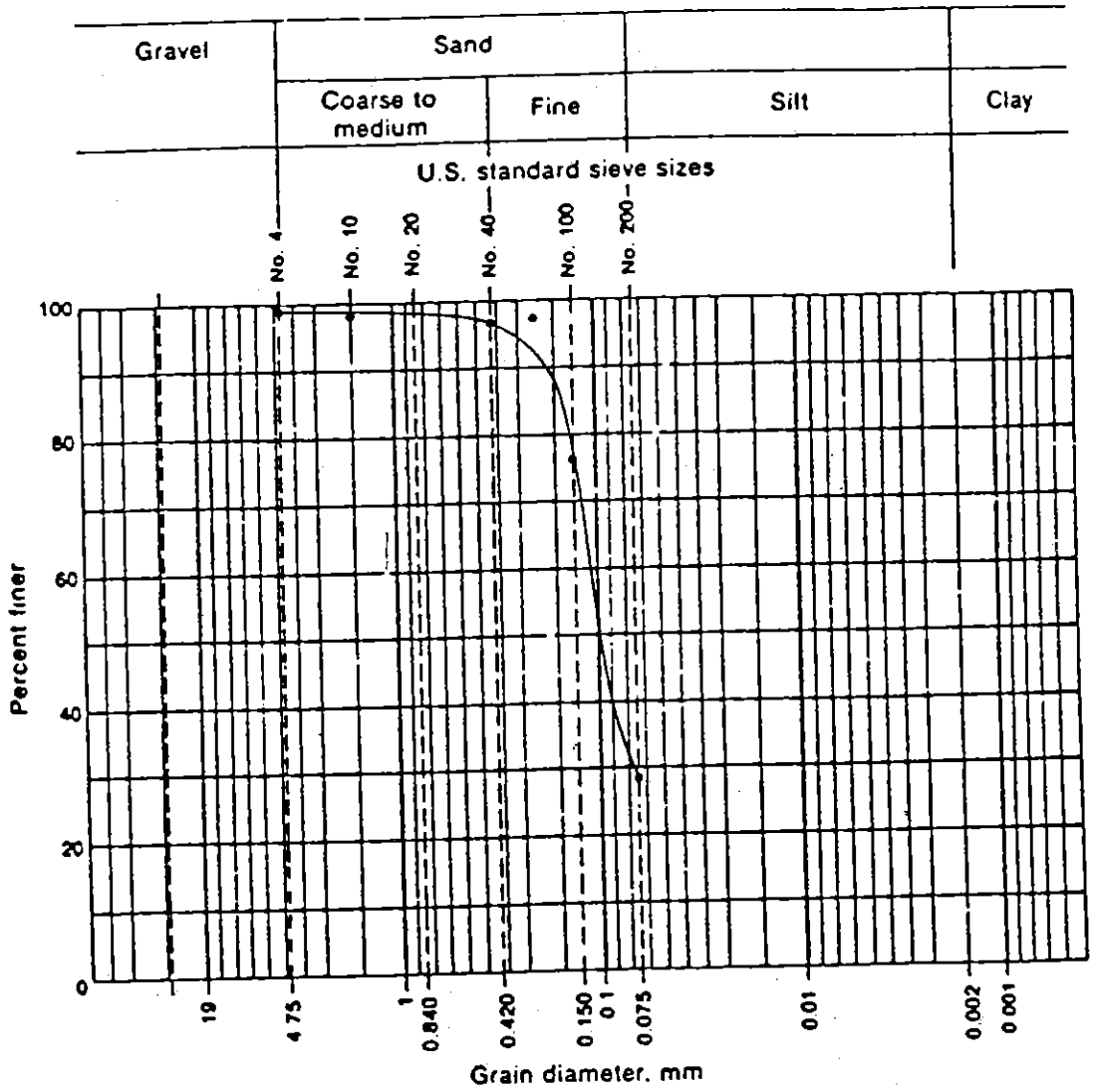
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project: - — Boring No. MW-13 — Sample No. -

Description of Soil: Silty Sand — Depth of Sample: 17'-18'

Tested By: MJW-LEL — Date of Testing: 12/89



JONES AND NEUSE, INC.

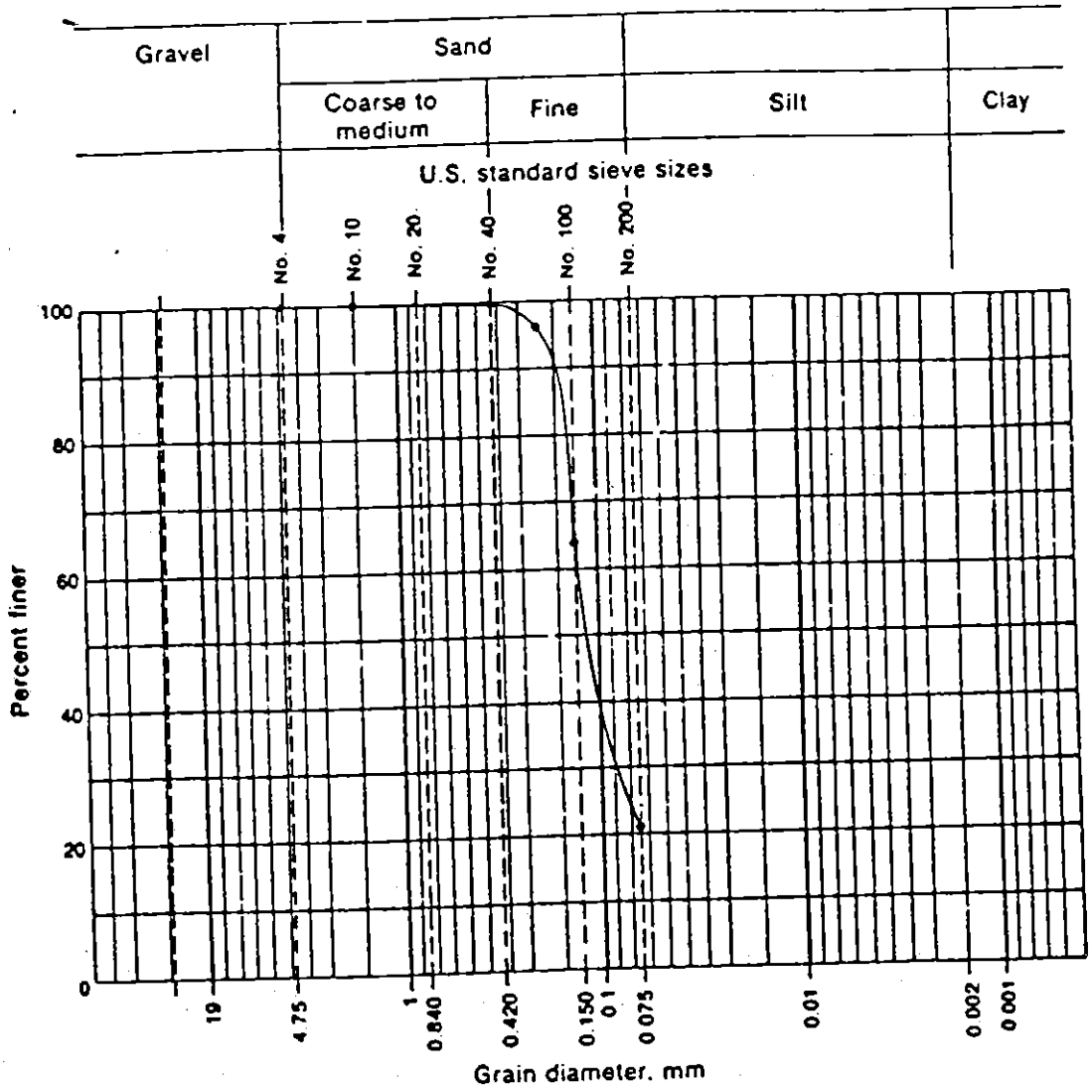
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No.: 790228

Location of Project: - — Boring No.: MW-13 — Sample No.: -

Description of Soil: Silty Sand — Depth of Sample: 22'-22.5'

Tested By: MJW-LEL — Date of Testing: 12/89



Geotechnical Division 13800 Thermal Drive Austin, Texas 78728 (512) 251-3466

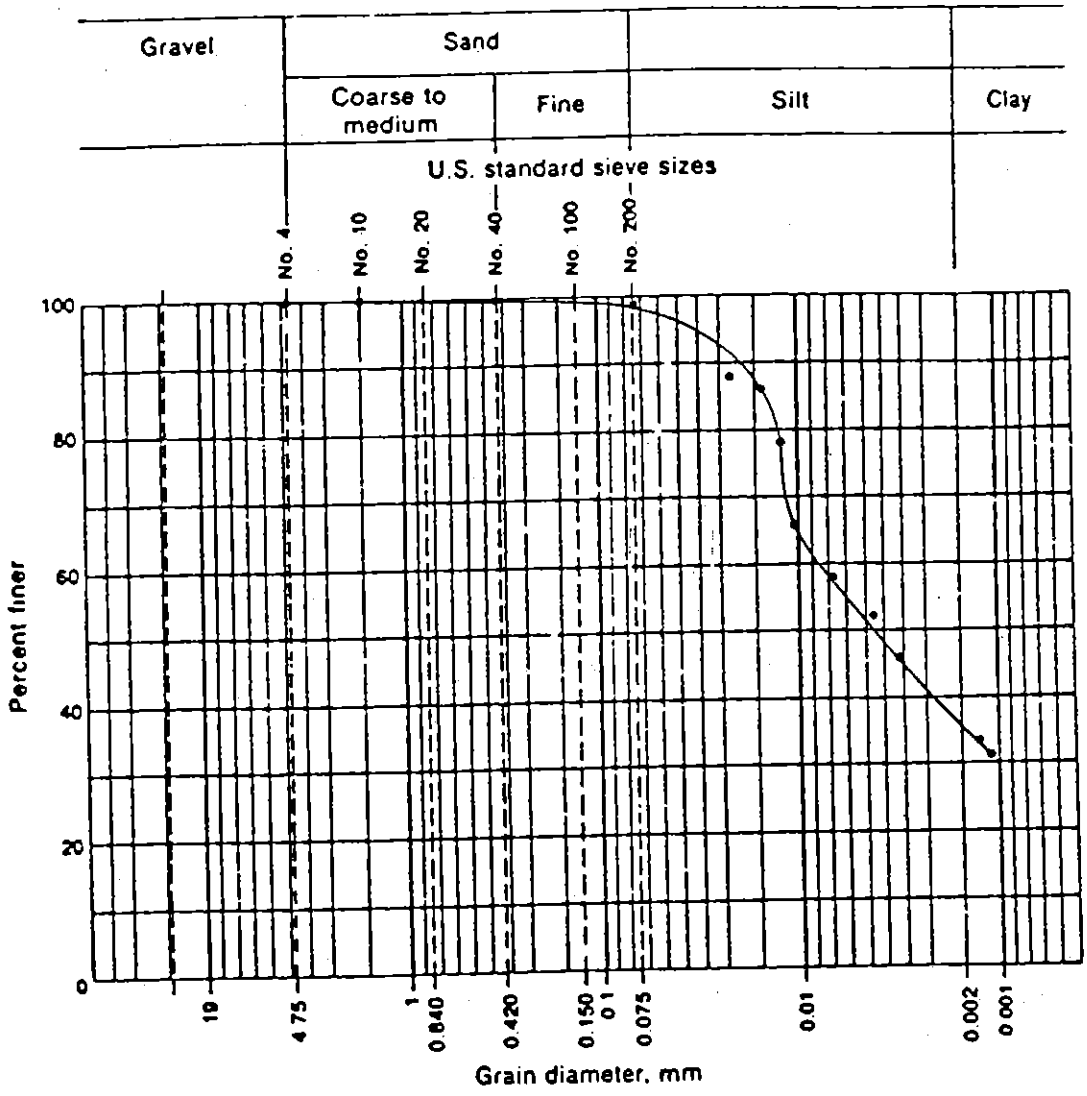
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Knitner, Plokin Groundwater Services — Job No: 790228

Location of Project: - — Boring No.: MW-13 — Sample No.: -

Description of Soil: Fat Clay — Depth of Sample: 29.5'-30'

Tested By: MJW-LEL — Date of Testing: 12/89



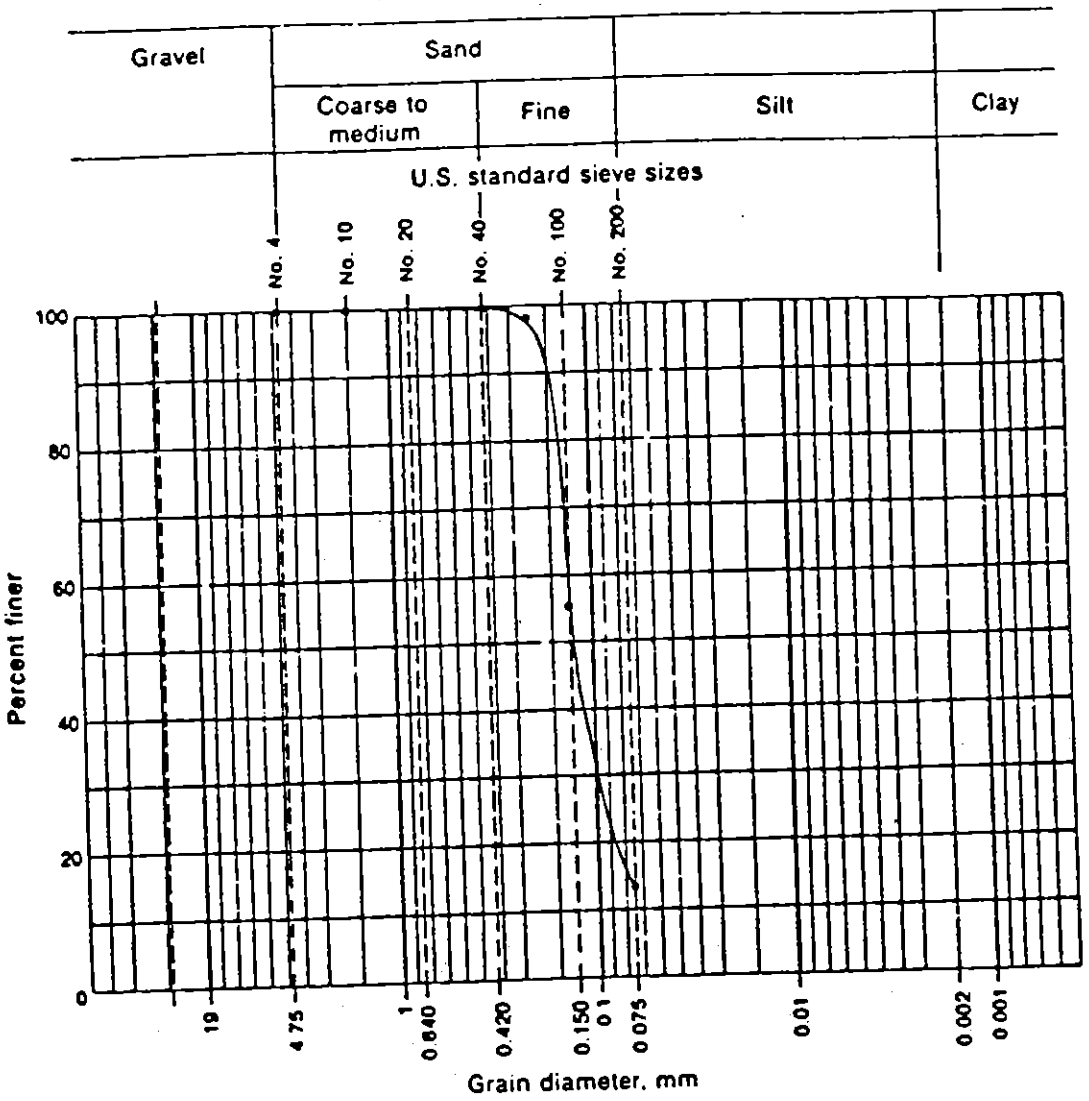
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project: - — Boring No. B-1 Deep — Sample No. -

Description of Soil: Silty Sand — Depth of Sample: 33'-34'

Tested By: MJW-LEL — Date of Testing: 12/89



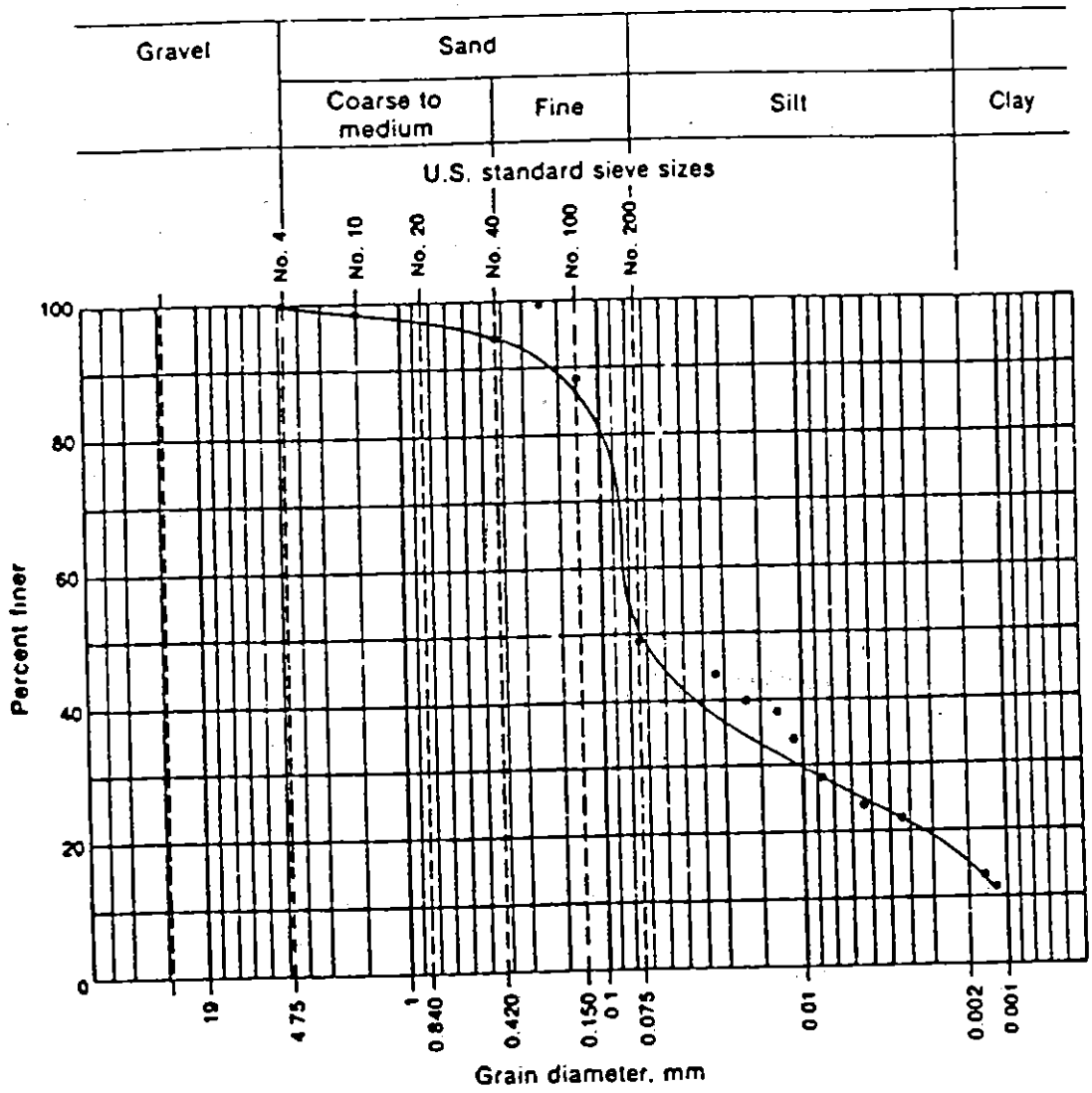
GRAIN SIZE DISTRIBUTION

Project Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project – — Boring No. B-1 Deep — Sample No. –

Description of Soil Clayey Sand — Depth of Sample 43'-44'

Tested By MJW-LEL — Date of Testing 12/89



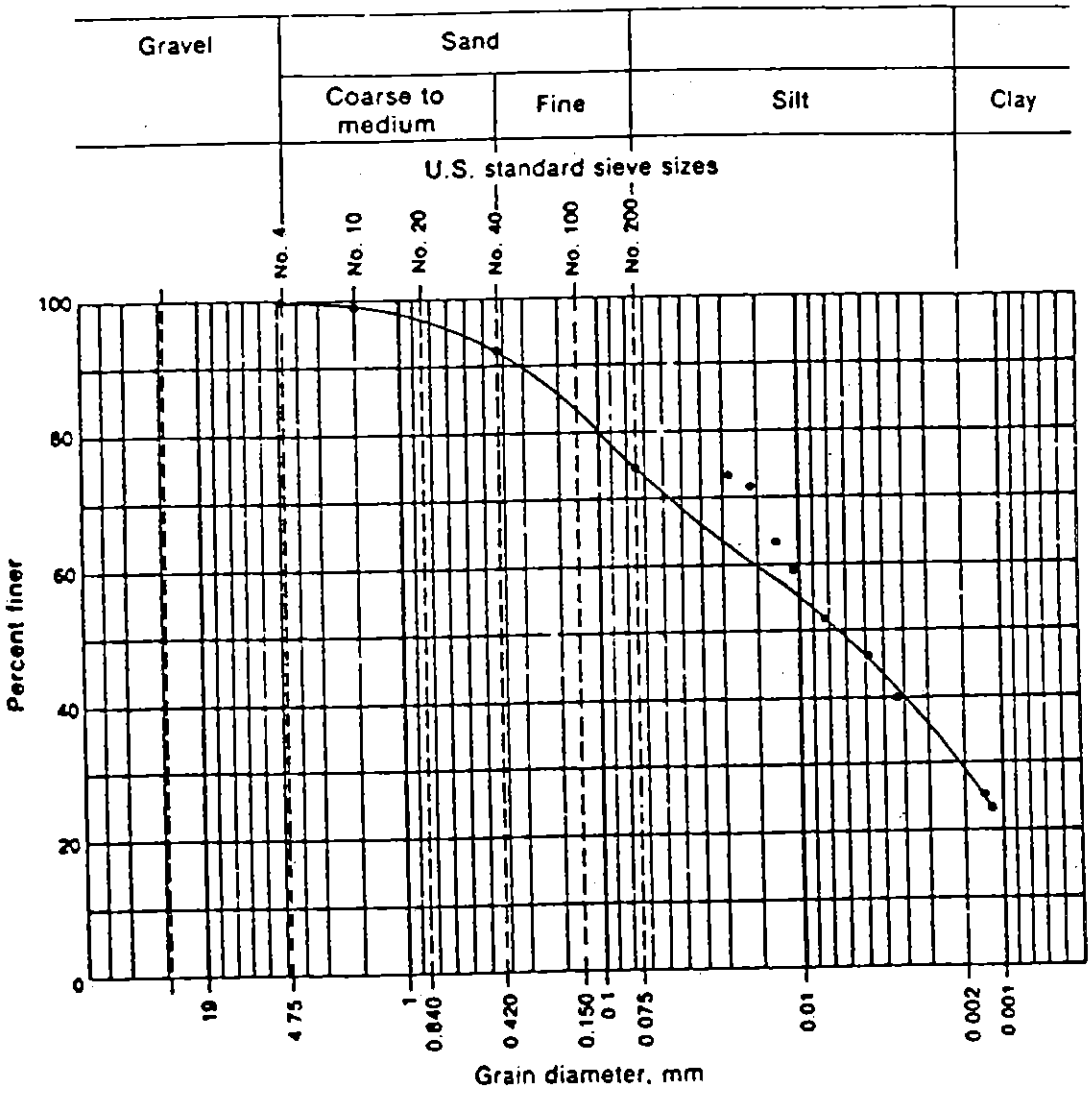
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project: - — Boring No. B-1 Deep — Sample No. -

Description of Soil: Lean Clay with Sand — Depth of Sample: 59.5'-60'

Tested By: MJW-LEL — Date of Testing: 12/89



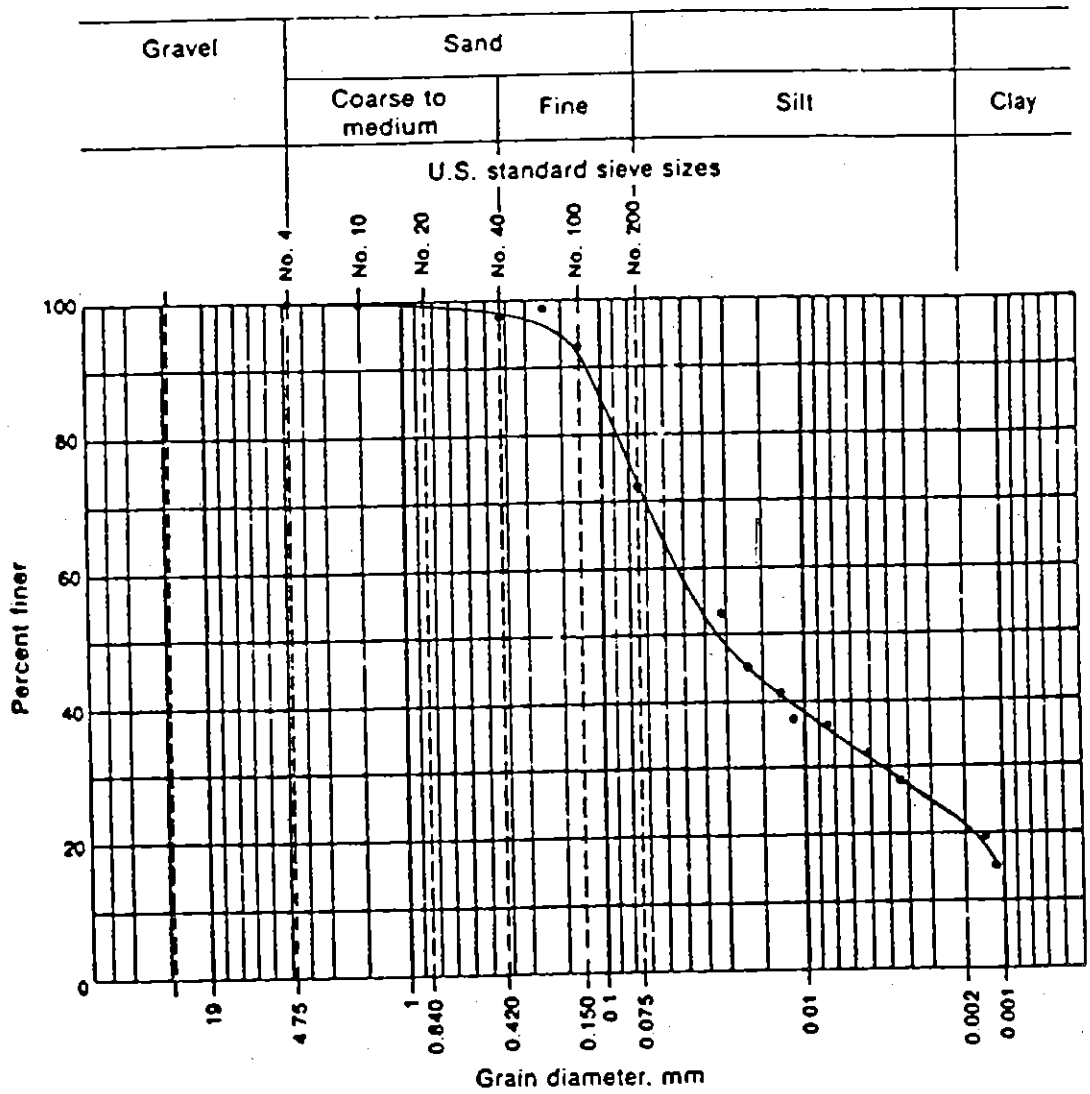
GRAIN SIZE DISTRIBUTION

Project: Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project: - — Boring No. B-1 Deep — Sample No. -

Description of Soil: Silt with Sand — Depth of Sample: 65'-65.5'

Tested By: MJW-LEL — Date of Testing: 12/89



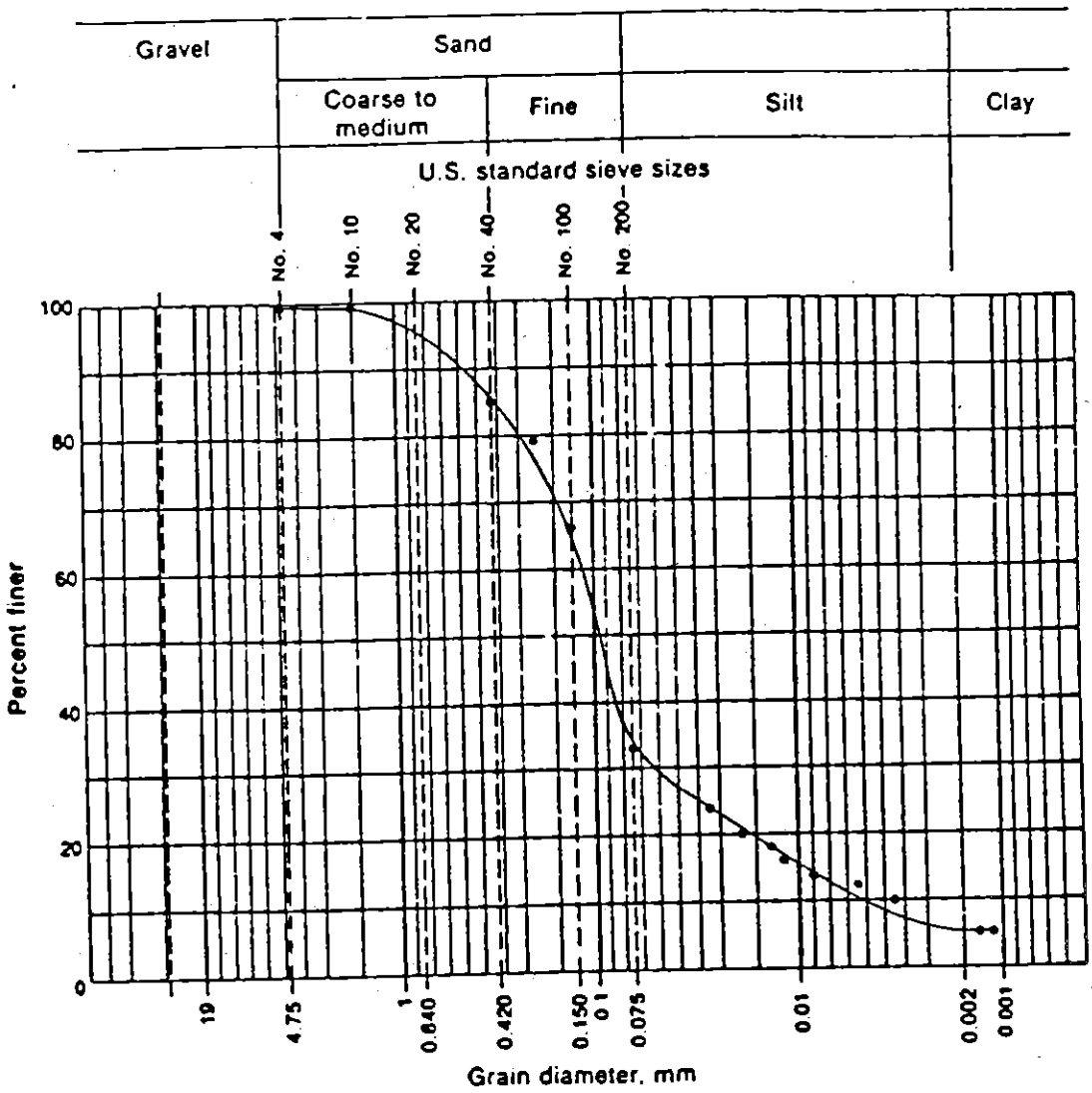
GRAIN SIZE DISTRIBUTION

Project Arent, Fox, Kintner, Plokin Groundwater Services — Job No. 790228

Location of Project – — Boring No. B-1 Deep — Sample No. –

Description of Soil Silty Sand — Depth of Sample 71.5'-72'

Tested By. MJW-LEL — Date of Testing 12/89



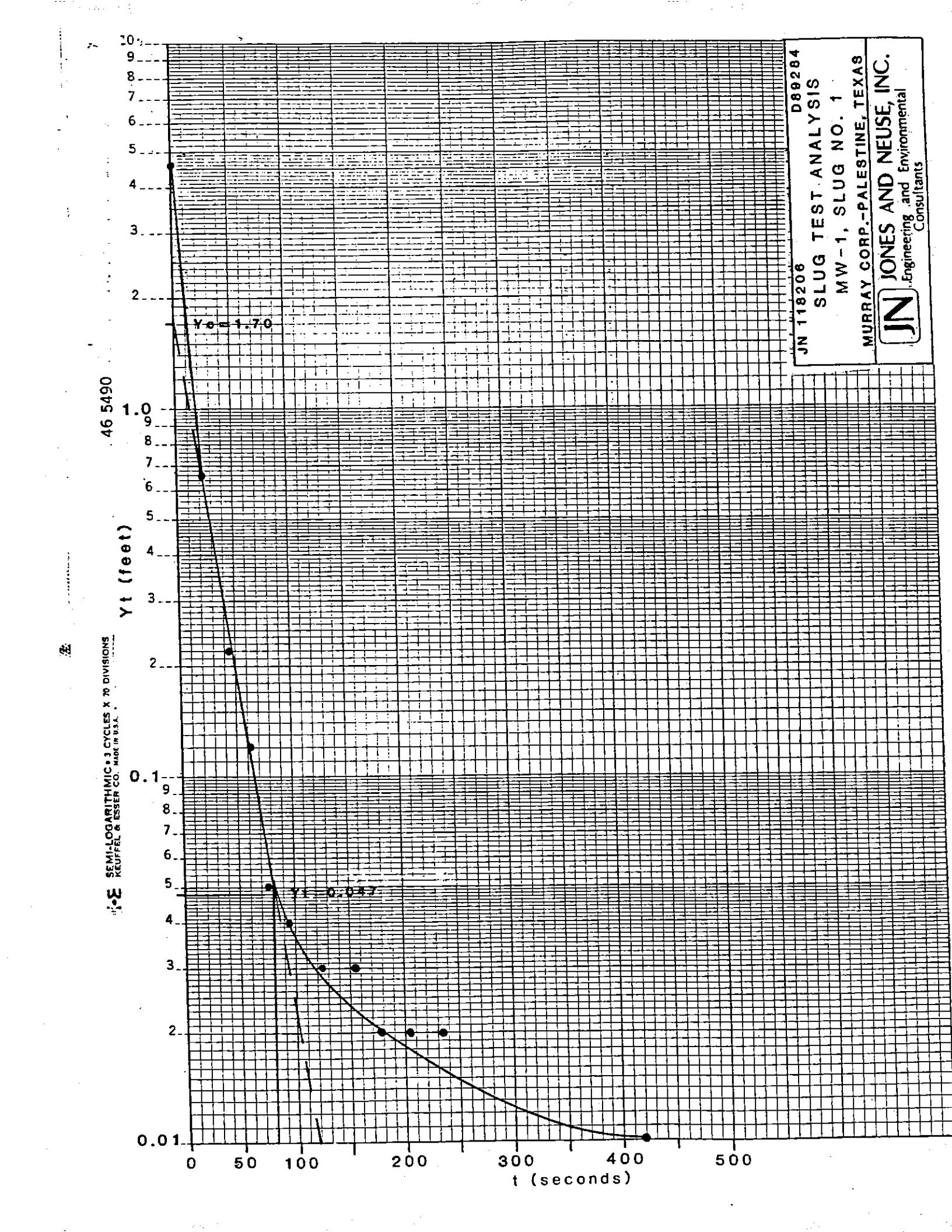
SLUG TEST ANALYSIS

HYDRAULIC CONDUCTIVITY VALUES
DETERMINED FROM SLUG TESTS

Well Number	Hydraulic Conductivity	
	gpd/ft^2	cm/sec
MW-1	17.88	8.43×10^{-4}
MW-3	12.26	5.78×10^{-4}
MW-6	44.29	2.08×10^{-3}
MW-7	3.14	1.48×10^{-4}
MW-9	6.26	2.95×10^{-4}
MW-11	2.18	1.02×10^{-4}

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-1
WELL MATERIAL:	PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	23.54 FEET
SLUG WATER LEVEL:	28.20 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		4.66
22	24.20	0.66
45	23.78	0.24
62	23.66	0.12
78	23.59	0.05
96	23.58	0.04
124	23.57	0.03
154	23.57	0.03
178	23.56	0.02
204	23.56	0.02
234	23.56	0.02
420	23.55	0.01


D80284
JN 118208
SLUG TEST ANALYSIS
MW-1, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo = 1.70
Yt = 0.047
Yt (feet)
t (seconds)
0
50
100
200
300
400
500
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 5490

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

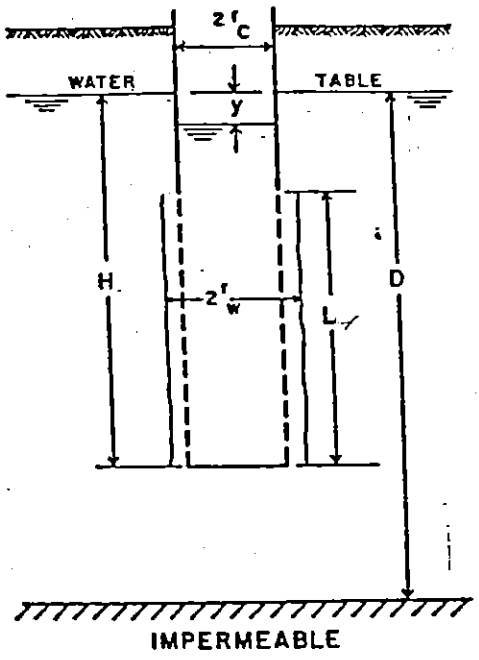
SLUG TEST CALC. FOR MW- 1 By BRIAN MOORE Date 1-22-10 Proj. No. _____
-SLUG NO. 1 Checked Bonnett Bowles

Dimensional Data:

H: 21.43 ft. Yo: 1.70

L: 20 ft. Yt: 0.047

D: 21.43 ft. t: 80 s



2rc: 0.167 ft. 2" I.D.

2rw: 0.5 ft. 6" I.D.

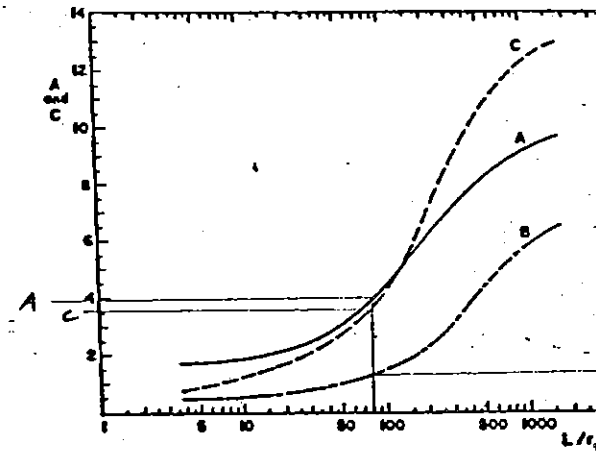
Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$

If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$



L/rw: 80

Then:

A: 4.00

B: 0.75

C: 3.50

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_t}$$

K: 2.683 x10^{-5} FT/SEC

2.3183 FT/DAY

17.34 GPD/FT^2 8.17 x 10^{-4} cm/s

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT: INTERPRETATION OF SLUG TEST DATA FOR MW-1 | SHEET ____ OF ____

PROJECT: MURRAY CORP | DATE: 2-9-90

JOB NO. 118206 LOCATION: PALESTINE, TX | BY: BRIAN MOORE

SUPERSEDED ____ | CHECKED: Bryant Bentels

APPROVED ____

Slug Test Calculation For MW-1

$$\frac{1}{t}\ln\left(\frac{y_o}{y_t}\right) = \left(\frac{1}{80s}\right)\ln\left(\frac{1.70}{0.047}\right) = 0.045\ s^{-1}$$

$$\frac{L}{r_w} = \frac{20\ ft}{0.25\ ft} = 80$$

$$\ln\left(R_e/r_w\right) = \left(\frac{1.1}{\ln(H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(21.43\ ft/0.25)} + \frac{3.50}{80}\right)^{-1}$$

$$= \left(0.2471 + 0.0438\right)^{-1}$$

$$= 3.4372$$

$$K = r_c^2 \frac{\ln\left(R_e/r_w\right)}{2L}\frac{1}{t}\ln\frac{y_o}{y_t}$$

$$= \frac{(0.0833\ ft)^2}{40\ ft}(3.4372)(0.045\ s^{-1})$$

$$= 2.683 \times 10^{-5}\ ft/sec$$

$$= (2.683 \times 10^{-5}\ ft/sec)(86400\ sec/day)$$

$$= 2.3183\ ft/day$$

$$= (2.3183\ ft/day)(7.481\ gal/ft^3)$$

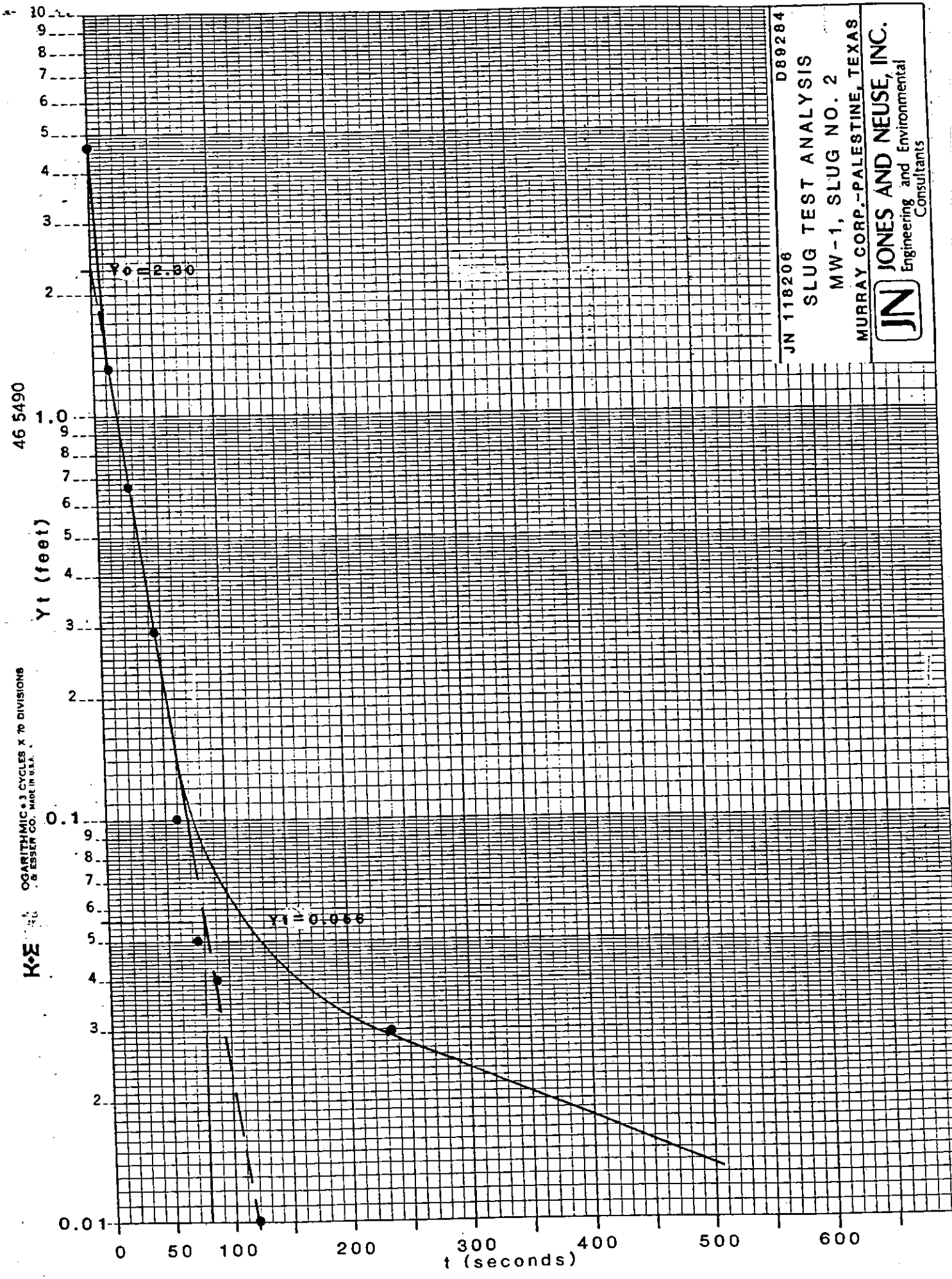
$$= 17.34\ gpd/ft^2$$

$$= 2.683 \times 10^{-5}\ ft/sec\left(30.48\ \frac{cm}{ft}\right)$$

$$= 8.17 \times 10^{-4}\ cm/sec$$

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 2 (OUT)
WELL NUMBER:	MW-1
WELL MATERIAL:	PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	23.53 FEET
SLUG WATER LEVEL:	28.20 FEET

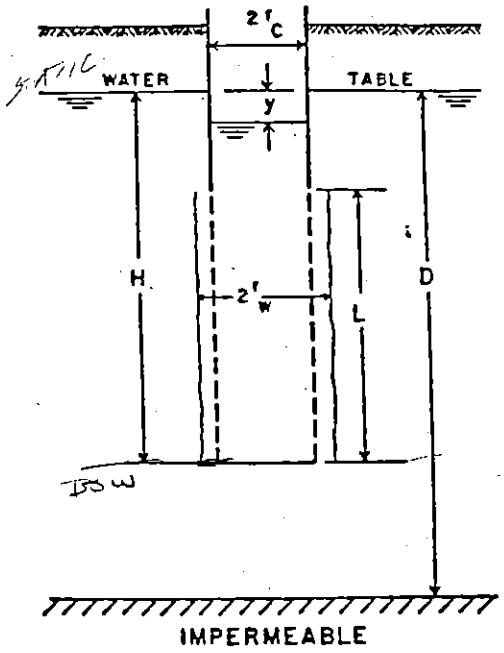
ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		4.68
12	24.83	1.31
28	24.20	0.68
45	23.82	0.30
60	23.63	0.11
75	23.58	0.05
90	23.57	0.05
120	23.54	0.02
150	23.53	0.01
180	23.53	0.01
234	23.56	0.03


D89284
JN 118206
SLUG TEST ANALYSIS
MW-1, SLUG NO. 2
MURRAY CORP.-PALESTINE, TEXAS
JN JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo = 2.80
Y1 = 0.066
Yt (feet)
t (seconds)
0
50
100
200
300
400
500
600
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
K+E
46 5490
LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

SLUG TEST CALC. FOR MW- 1 By BRIAN MOORE Date 1-23-90 Proj. No. 118206
SLUG NO. 2 Checked Bobcat Brackets

Dimensional Data:



H: 21.43 ft. Yo: 2.30

L: 20 ft. Yt: 0.056

D: 21.43 ft. t: 805

2rc: 0.1667 ft. 2" I.D.

2rw: 0.5 ft. 6" I.D.
r_w = 0.25

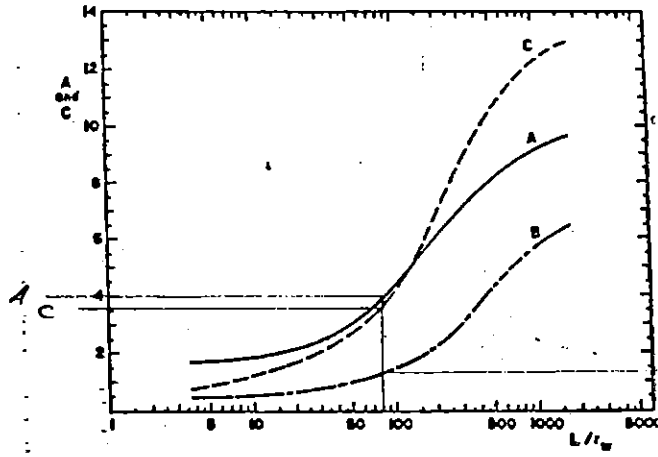
Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$

If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$



L/rw: 80

Then:

A: 4.00

B: 0.75

C: 3.50

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_t}$$

K: 2.767 x 10^{-5} FT/SEC

2.3904 FT/DAY

17.8826 GPD/FT² 8.43 x 10^{-4} cm/sec

2720 Bee Cave Road Austin, Texas 78746 512-327-9840

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT INTERPRETATION OF SLUG TEST DATA FOR MW-1

PROJECT MURRAY CORP.

JOB NO. 118206 LOCATION PALESTINE, TX

SUPERSEDED

SHEET _____ OF _____

DATE 2-9-90

BY BRIAN MOORE

CHECKED BOBCAT + BANKS

APPROVED _____

SLUG TEST (NO. 2) CALCULATION FOR MW-1

$$\ln\left(\frac{R_e}{r_w}\right) = \left(\frac{1.1}{\ln(H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(21.43/0.25)} + \frac{3.50}{80}\right)^{-1}$$

$$= (0.2471 + 0.0438)^{-1}$$

$$= 3.4372$$

$$\frac{1}{t}\ln\left(\frac{y_o}{y_t}\right) = \left(\frac{1}{80s}\right)\ln\left(\frac{2.30}{0.05}\right) = 0.0464\ s^{-1}$$

$$K = \frac{(0.0833\ ft)^2 (3.4372)}{40}(0.0464\ s^{-1})$$

$$= 2.767 \times 10^{-5}\ ft/sec$$

$$= (2.767 \times 10^{-5}\ ft/s)(86400\ s/day)$$

$$= 2.3904\ ft/day$$

$$= (2.3904\ ft/day)(7.481\ gal/ft^3)$$

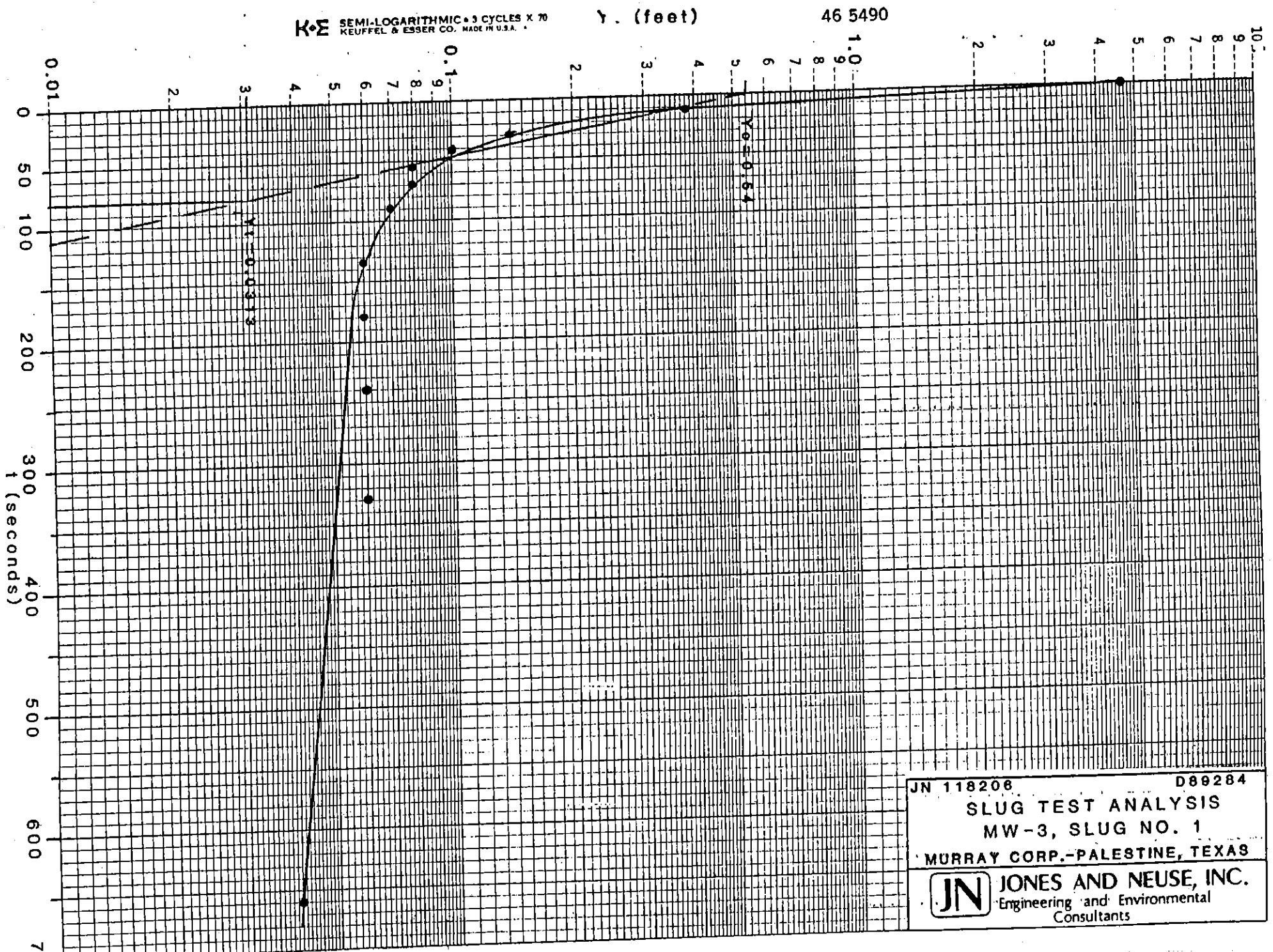
$$= 17.8826\ gpd/ft^2$$

$$= 2.767 \times 10^{-5}\ ft/sec \left(\frac{30.48\ cm}{ft}\right)$$

$$= 8.43 \times 10^{-4}\ cm/sec$$

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-3
WELL MATERIAL:	PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	20.97 FEET
SLUG WATER LEVEL:	25.63 FEET

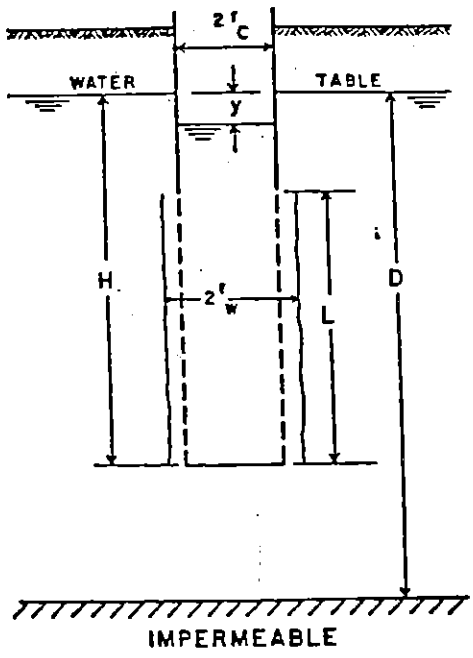
ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		4.66
12	21.35	0.38
30	21.11	0.14
42	21.07	0.10
54	21.05	0.08
70	21.05	0.08
90	21.04	0.07
135	21.03	0.06
180	21.03	0.06
240	21.03	0.06
330	21.03	0.06
660	21.01	0.04
2580	21.00	0.03
3300	20.98	0.01


K&E SEMI-LOGARITHMIC • 3 CYCLES X 70
KEUFFEL & ESSER CO. MADE IN U.S.A.
Y. (feet)
46 5490
0.01
0.1
1.0
10
0
50
100
200
300
400
500
600
700
t (seconds)
Y=0.64
Y=-0.033
JN 118206
D89284
SLUG TEST ANALYSIS
MW-3, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JN JONES AND NEUSE, INC.
Engineering and Environmental Consultants

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

LOW TEST CALC. FOR MW- 3 By BRIAN MOORE Date 1-23-90 Proj. No. 118206
SLUG NO. 1 Checked Robert Brackett

· Dimensional Data:



H: 13.48 ft. Yo: 0.54 ft

L: 20.5 ft. Yt: 0.031 ft

D: 13.48 ft. t: 805

2rc: 0.167 ft. 2" I.D.

2rw: 0.5 ft. 6" I.D.

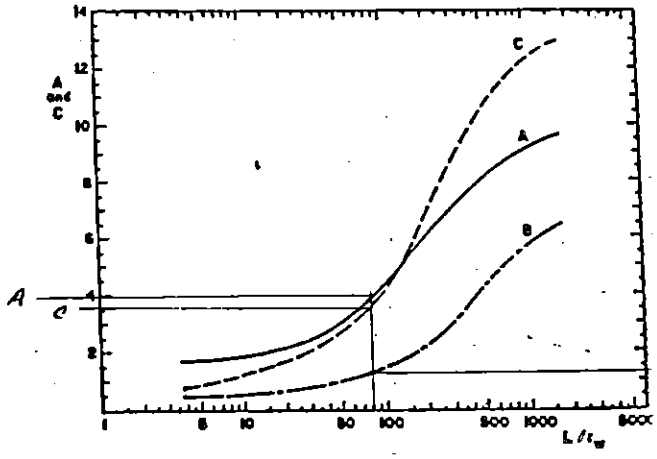
Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$

If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$



L/rw: 82

Then:

A: 4.00

B: 0.66

C: 3.50

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_t}$$

K: 1.8964 x 10^{-5} FT/SEC

1.6384 FT/DAY

12.0576 GPD/FT^2 5.78 x 10^{-4} cm/sec

2720 Bee Cave Road Austin, Texas 78746 512-327-9840

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT INTERPRETATION OF SLUG TEST DATA FOR MW-3

SHEET _____ OF _____

DATE 2-7-96

BY BRIAN MOORE

CHECKED Robert Bartels

APPROVED _____

PROJECT MURRAY CORP

JOB NO. 118206 LOCATION PALESTINE, TX

SUPERSEDED _____

Slug Test Calculation For MW-3

$$\frac{1}{t}\ln\left(\frac{y_0}{y_t}\right) = \left(\frac{1}{80s}\right)\ln\left(\frac{0.54}{0.031}\right) = 0.0357\ s^{-1}$$

$$\ln\left(\frac{Re}{rw}\right) = \left(\frac{1.1}{\ln(H/rw)} + \frac{C}{L/rw}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(13.48/0.25)} + \frac{3.50}{82}\right)^{-1}$$

$$= (0.2759 + 0.0427)^{-1} = 3.1389$$

$$K = \frac{(0.0833\ ft)^2 (3.1389)(0.0357\ s^{-1})}{41\ ft}$$

$$= 1.8964 \times 10^{-5}\ ft/sec$$

$$= (1.8964 \times 10^{-5}\ ft/sec)(86400\ s/day)$$

$$= 1.6385\ ft/day$$

$$= 1.6385\ ft/day\ (7.481\ gal/ft^3)$$

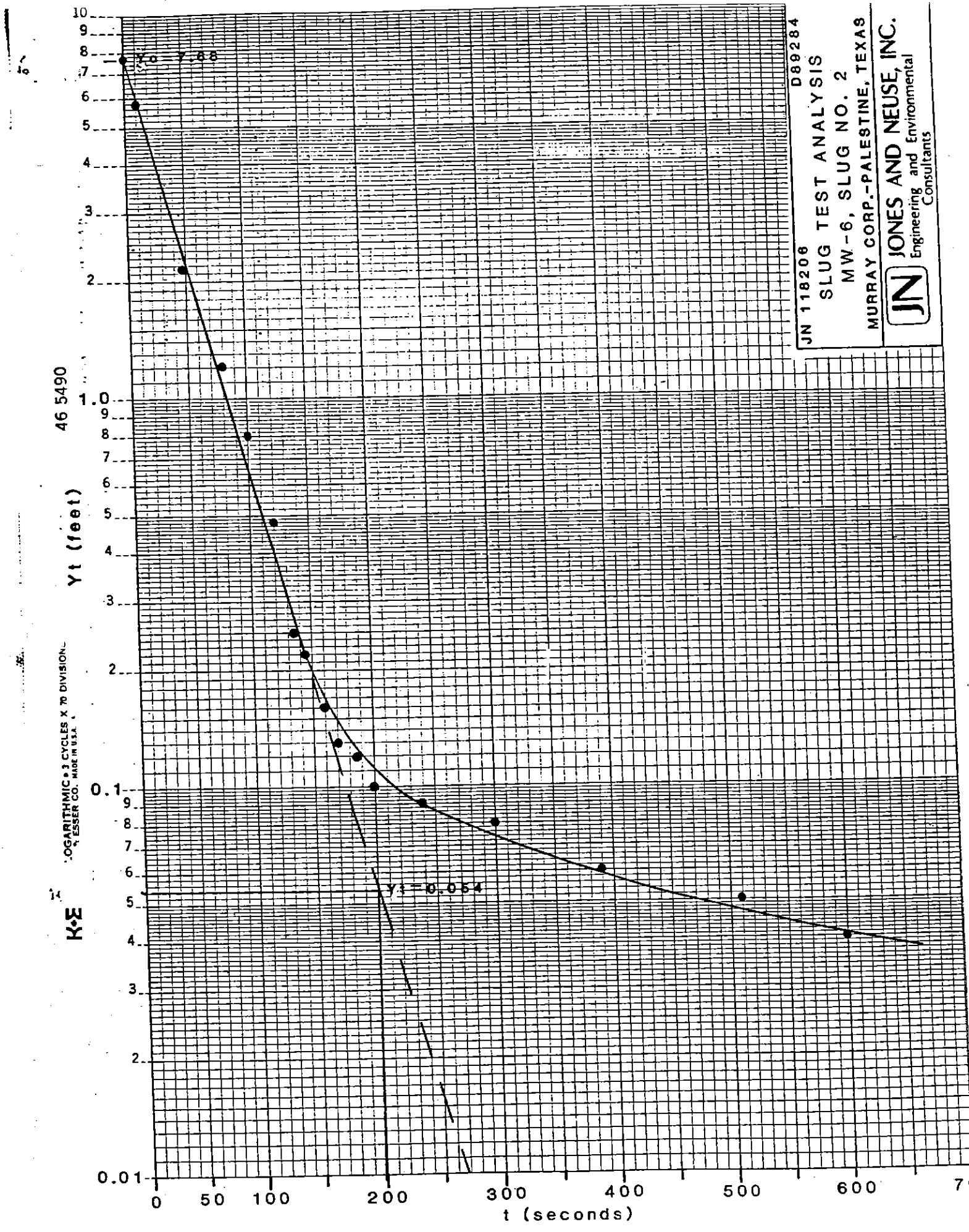
$$= 12.2576\ gpd/ft^2$$

$$= 1.8964 \times 10^{-5}\ ft/sec\ \left(30.48\ \frac{cm}{ft}\right)$$

$$= 5.78 \times 10^{-4}\ cm/sec$$

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 2 (IN)
WELL NUMBER:	MW-6
WELL MATERIAL:	FRE
WELL RADIUS:	0.333 FEET
STATIC WATER LEVEL:	20.85 FEET
SLUG WATER LEVEL:	13.17 FEET

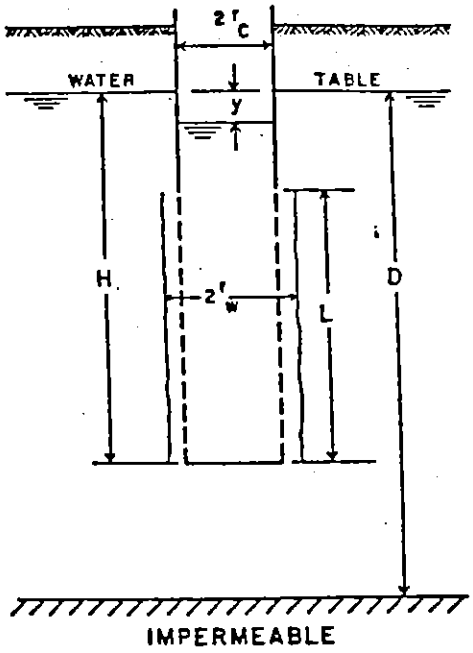
ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		7.68
10	15.00	5.85
47	18.70	2.15
80	19.63	1.22
100	20.04	0.81
120	20.37	0.48
135	20.60	0.25
145	20.63	0.22
160	20.69	0.16
172	20.72	0.13
188	20.73	0.12
200	20.75	0.10
240	20.76	0.09
300	20.77	0.08
390	20.79	0.06
510	20.80	0.05
600	20.81	0.04
750	20.82	0.03


D80284
JN 118206
SLUG TEST ANALYSIS
MW-6, SLUG NO. 2
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yo = 7.68
Yt = 0.054
Yt (feet)
t (seconds)
0
50
100
200
300
400
500
600
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
K+E
46 5490
LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
ESSER CO. MADE IN U.S.A.

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

SLUG TEST CALC. FOR MW- 6 By BRIAN MOORE Date 1-23-90 Proj. No. 118206
Checked Bozant Bratcher

Dimensional Data:



H: 4.11 ft. Yo: 7.68 ft

L: 10 ft. Yt: 0.054 ft

D: 4.11 ft. t: 2005

2rc: 0.333 ft. 4"

2rw: 0.667 ft. 8"

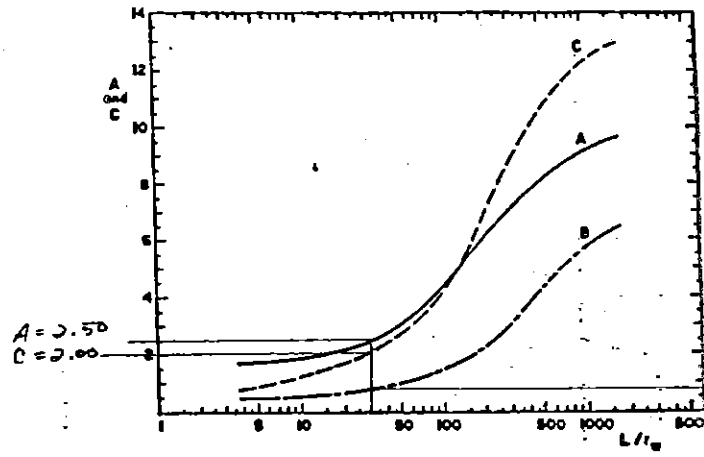
Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$

If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$



L/(rw) 30

Then:

A: 2.50

B: 0.40

C: 2.00

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_t}$$

K: 6.85 x 10^{-5} FT/SEC

5.92 FT/DAY

44.29 GPD/FT^2 2.08 x 10^{-3} cm/sec

2720 Bee Cave Road Austin, Texas 78746 512-327-9840

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT INTERPRETATION OF SLUG TEST DATA FOR MW-6

PROJECT Murray Corp

JOB NO. 118206 LOCATION PALESTINE, TX

SUPERSEDED

SHEET ____ OF ____

DATE 2-7-20

BY BRIAN MOORE

CHECKED Robert Bowles

APPROVED ____

Slug Test Calculation for MW-6

$$\ln\left(\frac{Re}{r_w}\right) = \left(\frac{1.1}{\ln(H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(4.11/0.33)} + \frac{2.9}{30}\right)^{-1}$$

$$= (0.4361 + 0.0667)^{-1} = 1.9887$$

$$\frac{1}{t}\ln\left(\frac{y_0}{y_t}\right) = \left(\frac{1}{200\ s}\right)\ln\left(\frac{7.65}{0.05}\right)$$

$$= 0.0248\ s^{-1}$$

$$K = \frac{(0.1667\ ft^2)(1.9887)}{20}(0.0248\ s^{-1})$$

$$= 6.85 \times 10^{-5}\ ft/sec$$

$$= (6.85 \times 10^{-5}\ ft/sec)(86400\ sec/day)$$

$$= 5.92\ ft/day$$

$$= (5.92\ ft/day)(7.481\ gal/ft^3)$$

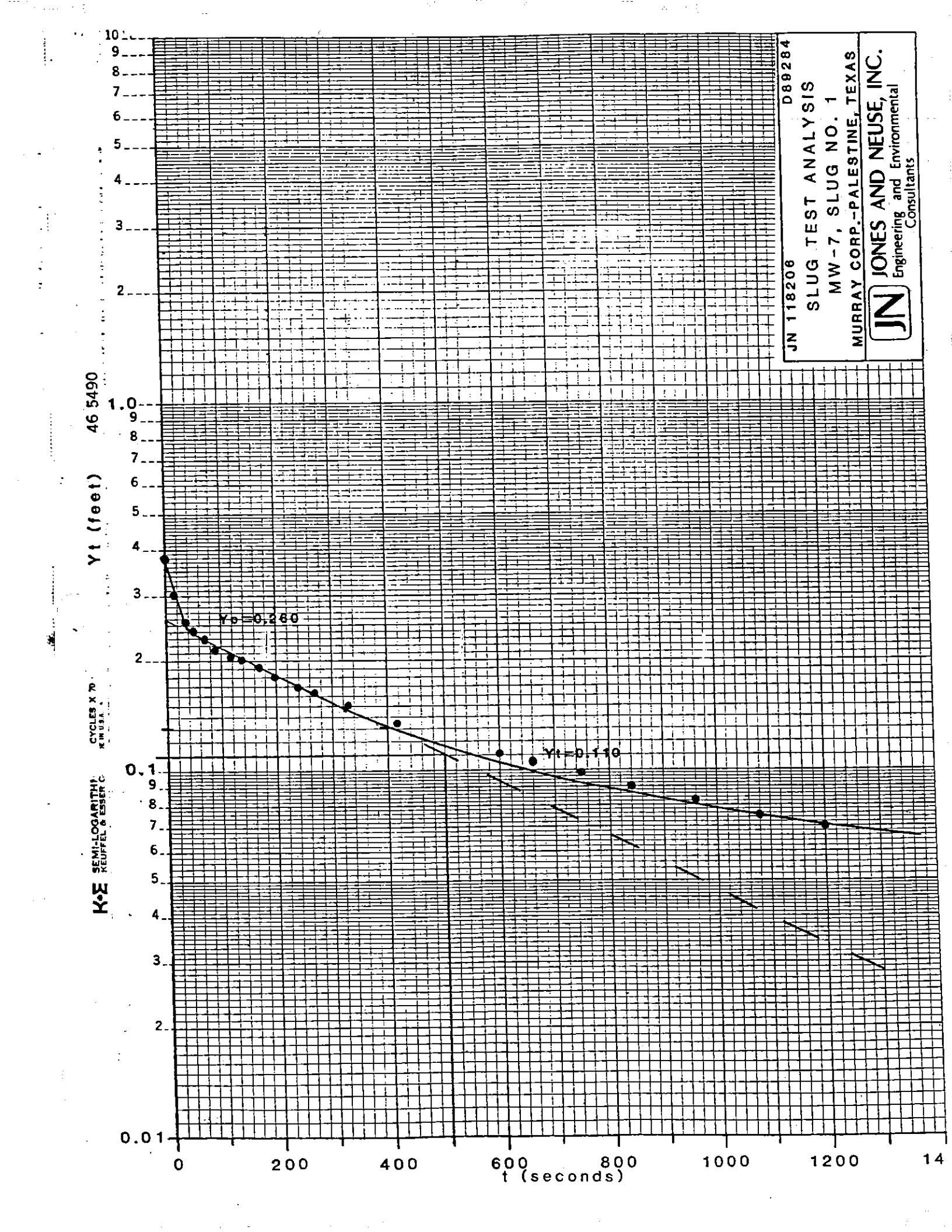
$$= 44.293\ gpd/ft^2$$

$$= 6.85 \times 10^{-5}\ ft/sec\left(\frac{30.48\ cm}{ft}\right)$$

$$= 2.08 \times 10^{-3}\ cm/sec$$

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-7
WELL MATERIAL:	PVC
WELL RADIUS:	0.333 FEET
STATIC WATER LEVEL:	16.02 FEET
SLUG WATER LEVEL:	19.85 FEET

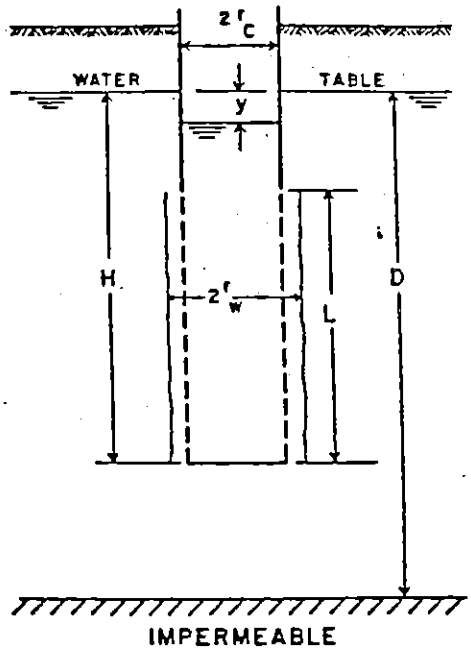
ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		3.83
18	19.02	3.00
38	18.59	2.57
53	18.44	2.42
75	18.32	2.30
95	18.20	2.18
120	18.10	2.08
140	18.04	2.02
170	17.94	1.92
200	17.84	1.82
240	17.72	1.70
270	17.67	1.65
330	17.54	1.52
420	17.38	1.36
600	17.15	1.13
660	17.09	1.07
750	17.00	0.98
840	16.92	0.90
960	16.85	0.83
1080	16.77	0.75
1200	16.72	0.70
1680	16.55	0.53
1860	16.50	0.48
1920	16.48	0.46
1980	16.48	0.46
2520	16.39	0.37
3660	16.27	0.25
3900	16.25	0.23
7440	16.08	0.06


JN 118206
D89284
SLUG TEST ANALYSIS
MW-7, SLUG NO. 1
MURRAY CORP.-PALESTINE, TEXAS
JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yt (feet)
t (seconds)
Yo=0.260
Yt=0.110
0.01
0.1
1.0
10
0
200
400
600
800
1000
1200
SEMI-LOGARITHM
KEUFFEL & ESSER CO.
CYCLES X 70
46 5490

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

SLUG TEST CALC. FOR MW- 7 By BRIAN MOORE Date 1-23-90 Proj. No. 118206
checked Bobant Bankels

· Dimensional Data:



H: 8.29 ft. Yo: 0.26

L: 12.0 ft. Yt: 0.110

D: 8.29 ft. t: 5005

2rc: 0.333 ft. 4" dia

2rw: 0.667 ft. 8" dia

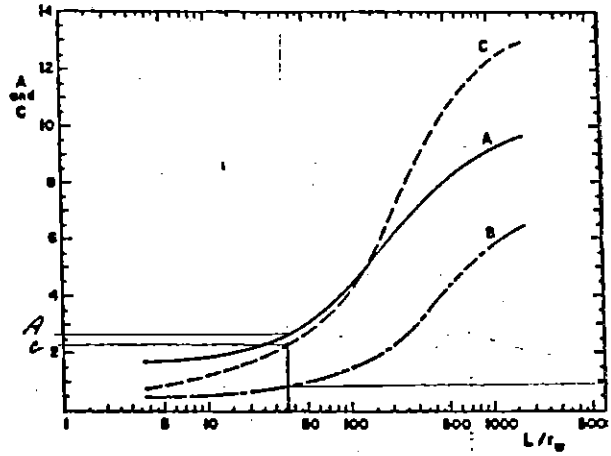
Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$

If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$



L/rw: 36

Then:

A: 2.70

B: 0.49

C: 2.30

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_t}$$

K: 4.858 x 10^{-6} FT/SEC

0.4198 FT/DAY

3.140 GPD/FT² 1.48 x 10^{-4} cm/sec

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT INTERPRETATION OF SLUG TEST DATA FOR MW-7

SHEET _____ OF _____

DATE 2-9-90

PROJECT MURRAY CORP

BY BRIAN MOORE

JOB NO. 118206 LOCATION PALESTINE, TX

CHECKED Bogert + Brantley

SUPERSEDED _____

APPROVED _____

SLUG TEST CALCULATION FOR MW-7

$$\frac{1}{t} \ln\left(\frac{y_0}{y_t}\right) = \frac{1}{500s} \ln\left(\frac{0.26}{0.11}\right) = 0.0017\ s^{-1}$$

$$\ln\left(\frac{R_e}{r_w}\right) = \left(\frac{1.1}{\ln(H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(8.29/0.33)} + \frac{2.30}{36.0}\right)^{-1}$$

$$= (0.3412 + 0.06388)^{-1} = 2.46\ s^{-1}$$

$$K = \frac{(0.1667\ ft)^2 (2.46\ s^{-1})}{24} (0.0017\ s^{-1})$$

$$= 4.858 \times 10^{-6}\ ft/sec$$

$$= 4.858 \times 10^{-6}\ ft/sec\ (8640\ sec/day)$$

$$= 0.4198\ ft/day$$

$$= (0.4198\ ft/day)(7.481\ gal/ft^3)$$

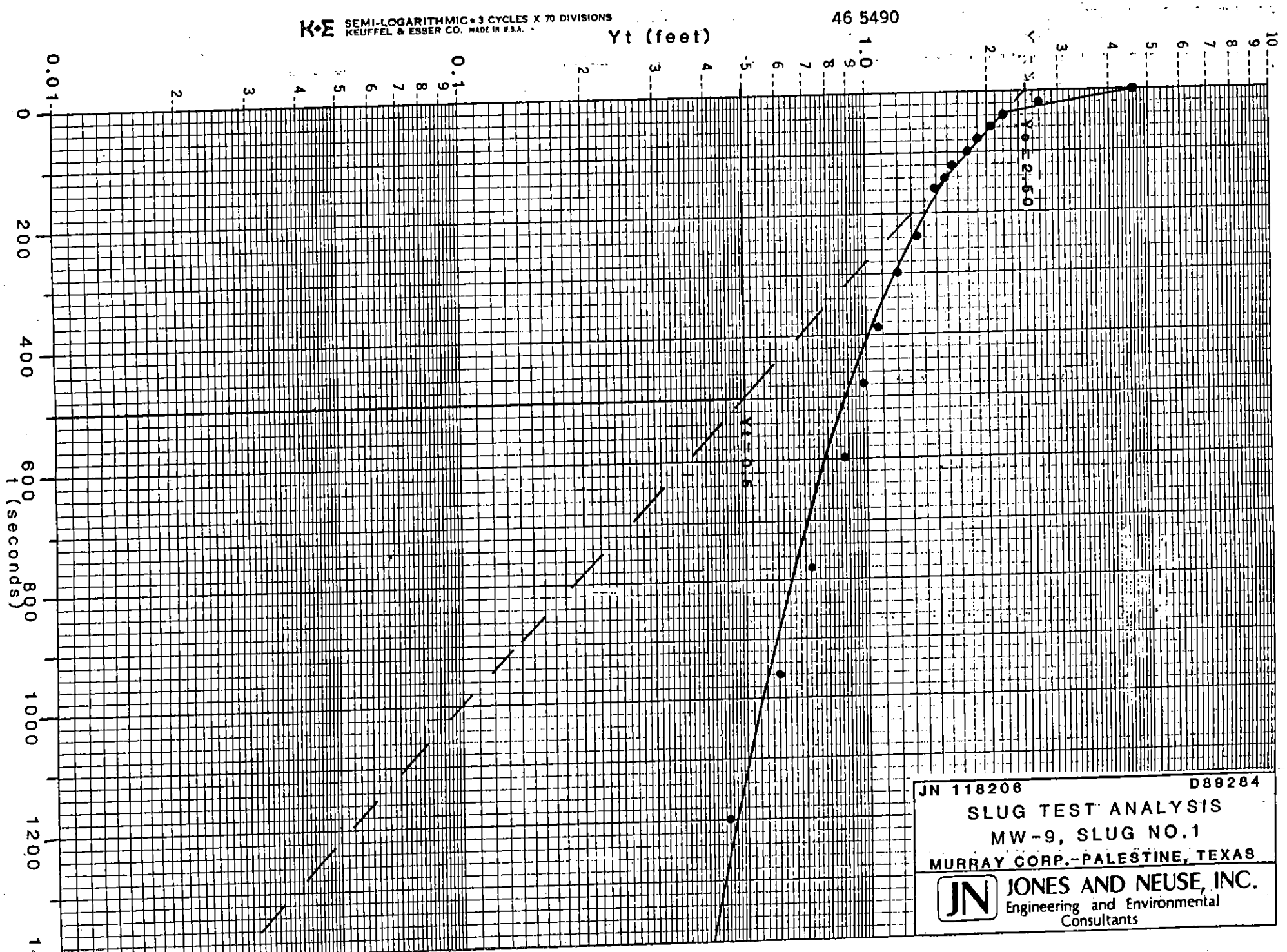
$$= 3.140\ gpd/ft^2$$

$$= 4.858 \times 10^{-6}\ ft/sec\ \left(30.48\ \frac{cm}{ft}\right)$$

$$= 1.48 \times 10^{-4}\ cm/sec$$

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-9
WELL MATERIAL:	PVC
WELL RADIUS:	0.333 FEET
STATIC WATER LEVEL:	17.17 FEET
SLUG WATER LEVEL:	21.83 FEET

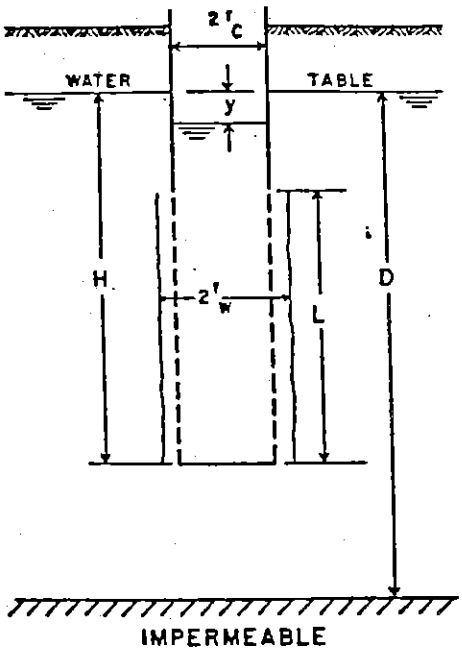
ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		4.66
22	19.86	2.69
42	19.38	2.21
60	19.21	2.04
78	19.07	1.90
100	18.98	1.81
125	18.85	1.68
145	18.78	1.61
180	18.66	1.49
240	18.52	1.35
300	18.39	1.22
390	18.26	1.09
480	18.16	0.99
600	18.06	0.89
780	17.90	0.73
960	17.77	0.60
1200	17.62	0.45
1500	17.51	0.34
1980	17.41	0.24
2400	17.34	0.17
3180	17.25	0.08
5220	17.17	0.00


K+E SEMI-LOGARITHMIC • 3 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 5490
Yt (feet)
0.01
0.1
1.0
10
0
200
400
600
800
1000
1200
t (seconds)
Yo=2.60
Yt=0.6
JN 118206
D89284
SLUG TEST ANALYSIS
MW-9, SLUG NO.1
MURRAY CORP.-PALESTINE, TEXAS
JN
JONES AND NEUSE, INC.
Engineering and Environmental
Consultants

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

SLUG TEST CALC. FOR MW- 9 By BRIAN MOORE Date 1-24-90 Proj. No. 118206
Checked Bob Bandy Bob Bandy

Dimensional Data:



H: 10.10 ft. Yo: 2.50 ft

L: 12 ft. Yt: 0.54 ft

D: 10.10 ft. t: 5005

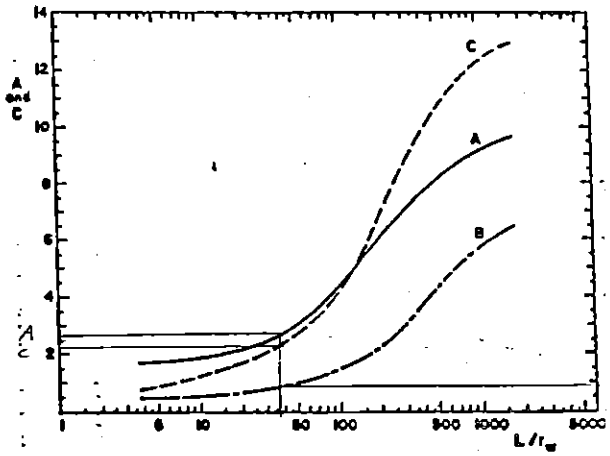
2rc: 0.333 ft. 4" I.D.

2rw: 0.667 ft. 8" I.D.

Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$



If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$

L/rw: 36

Then:

A: 2.60

B: 0.49

C: 2.20

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_o}{y_t}$$

K: 9.683 x 10^{-6} FT/S

0.8367 FT/DAY

6.259 GPD/FT^2 2.954 x 10^{-4} cm/sec

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT INTERPRETATION OF SLUG TEST DATA FOR MW-9

PROJECT MURRAY CORP.

JOB NO. 116206 LOCATION PALESTINE, TX

SUPERSEDED

SHEET _____ OF _____

DATE 2-7-96

BY BRIAN MAGEE

CHECKED Boscant Bonds

APPROVED _____

Slug Test Calculation For MW-9

$$\frac{1}{t}\ln\left(\frac{H_0}{H_t}\right) = \frac{1}{50s}\ln\left(\frac{2.50}{0.5}\right) = 0.0032\ s^{-1}$$

$$\ln\left(\frac{R_e}{r_w}\right) = \left(\frac{1.1}{\ln(L/r_w)} + \frac{L}{L/r_w}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(10.00/0.33)} + \frac{2.2}{36}\right)^{-1} = (0.3215^{-1} + 0.0611)^{-1}$$

$$= 2.6136$$

$$K = \frac{(0.1667)^2 (2.6136)}{24}(0.0032)$$

$$= 9.683 \times 10^{-6}\ ft/s$$

$$= (9.683 \times 10^{-6}\ ft/s)(86400\ s/day)$$

$$= 0.8366\ ft/day$$

$$= (0.8366\ ft/day)(7.481\ gal/ft^3)$$

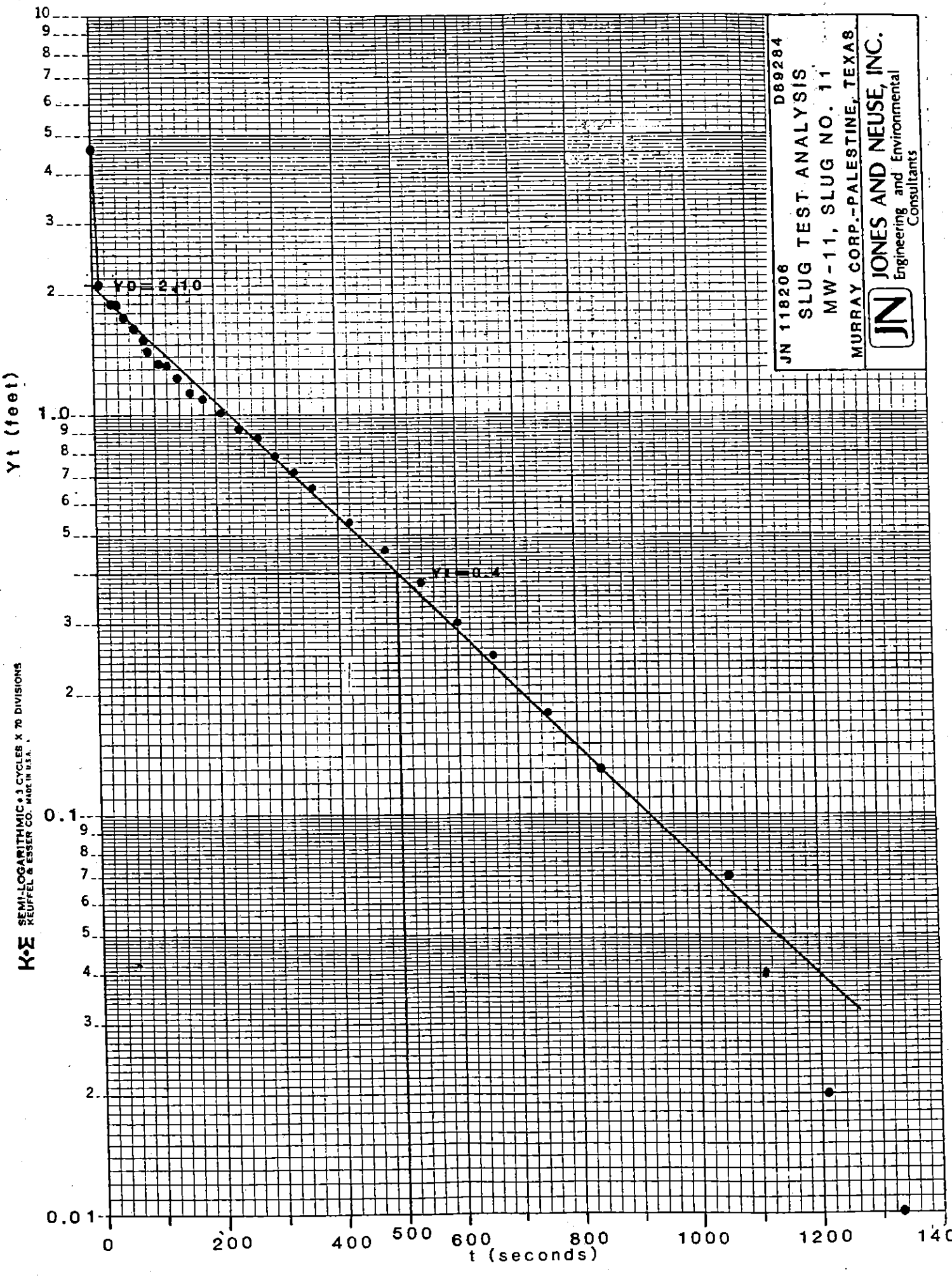
$$= 6.259\ gpd/ft^2$$

$$= 9.683 \times 10^{-6}\ ft/sec \left(\frac{30.48\ cm}{ft}\right)$$

$$= 2.95 \times 10^{-4}\ cm/sec$$

PROJECT NAME:	MURRAY CORPORATION
PROJECT NUMBER:	JN 118206
TEST DATE:	1/19/90
TEST TYPE:	SLUG # 1 (OUT)
WELL NUMBER:	MW-11
WELL MATERIAL:	PVC
WELL RADIUS:	0.167 FEET
STATIC WATER LEVEL:	9.28 FEET
SLUG WATER LEVEL:	13.94 FEET

ELAPSED TIME (SEC)	WATER LEVEL (FEET)	Yt (FEET)
0		4.66
12	11.40	2.12
30	11.20	1.92
41	11.18	1.90
58	11.02	1.74
70	10.92	1.64
84	10.81	1.53
96	10.74	1.46
110	10.66	1.38
121	10.64	1.36
140	10.52	1.24
160	10.44	1.16
181	10.39	1.11
211	10.29	1.01
240	10.20	0.92
272	10.16	0.88
300	10.07	0.79
330	10.00	0.72
360	9.94	0.66
420	9.82	0.54
480	9.74	0.46
540	9.66	0.38
600	9.58	0.30
660	9.53	0.25
750	9.46	0.18
840	9.41	0.13
1027	9.35	0.07
1110	9.32	0.04
1208	9.30	0.02
1333	9.29	0.01
1500	9.29	0.01


D89284
JN 118206
SLUG TEST ANALYSIS
MW-11, SLUG NO. 11
MURRAY CORP.-PALESTINE, TEXAS
JN JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Yt (feet)
t (seconds)
Yo = 2.10
Yt = 0.4
10
9
8
7
6
5
4
3
2
1.0
0.1
0.01
0
200
400
500
600
800
1000
1200
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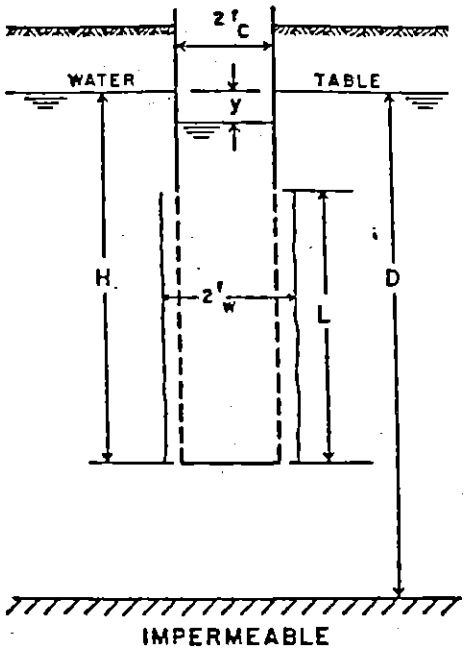
JONES AND NEUSE, INC.
Engineering and Environmental Consultants

SLUG TEST CALC. FOR MW- 11 By Brian Moore Date 1-24-90 Proj. No. 118206
SLUG NO. 1 Checked: Robert Bonnell

Dimensional Data:



H: 13.17 ft. Yo: 2.10 ft

L: 10 ft. Yt: 0.4 ft

D: 13.17 ft. t: 5005

2rc: 0.167 ft. 2" I.D.

2rw: 0.5 ft. 6" I.D.

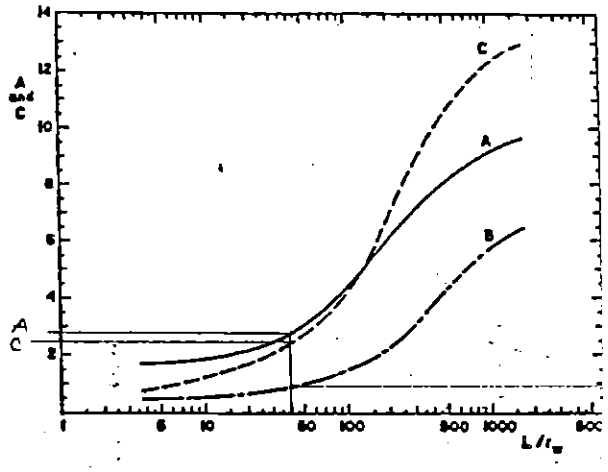
Formulas:

If D>H then use:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D-H)/r_w]}{L/r_w}\right]^{-1}$$

If D=H then use:

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w}\right)^{-1}$$



L/rw: 40

Then:

A: 2.80

B: 0.49

C: 2.50

Hydraulic Conductivity:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_t}$$

K: 3.367 x 10^-6 FT/sec

0.2910 FT/day

2.1766 GPD/FT^2 1.02 x 10^-4 cm/sec

2720 Bee Cave Road Austin, Texas 78746 512-327-9840

JONES & NEUSE, INC.

CALCULATION SHEET

SUBJECT INTERPRETATION OF SLUG TEST DATA FOR MW-11 | SHEET ____ OF ____

PROJECT MURRAY CORP | DATE 2-9-90

JOB NO. 118206 LOCATION PALESTINE, TX | BY BRIAN MOORE

SUPERSEDED ____ | CHECKED Robert Bartels

APPROVED ____

Slug Test Calculation For MW-11

$$\frac{1}{t}\ln\left(\frac{H_0}{H_t}\right) = \frac{1}{500\ s}\ln\left(\frac{2.10}{0.4}\right) = 0.0033\ s^{-1}$$

$$\ln\frac{R_e}{r_w} = \left(\frac{1.1}{\ln(H/r_w)} + \frac{d}{L/r_w}\right)^{-1}$$

$$= \left(\frac{1.1}{\ln(3.17/0.25)} + \frac{2.50}{40}\right)^{-1}$$

$$= \left(0.2775 + 0.0625\right)^{-1} = 2.9413$$

$$K = \frac{(0.0833)^2}{20}(2.9413)(0.0033\ s^{-1})$$

$$= 3.367 \times 10^{-6}\ ft/sec$$

$$= 3.367 \times 10^{-6}\ ft/sec\ (86400\ sec/day)$$

$$= 0.2910\ ft/day$$

$$= (0.2910\ ft/day)(7.481\ gal/ft^3)$$

$$= 2.1766\ gpd/ft^2$$

$$= 2.1766\ gpd/ft^2$$

$$= 3.367 \times 10^{-6}\ ft/sec\left(30.\frac{48\ cm}{ft}\right)$$

$$= 1.02 \times 10^{-4}\ cm/sec$$

JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

Stratigraphy and Migration Pathways Between MW-10 and MW-26 Murray Corporation Palestine, Texas CP-50328

September 1998

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1 Introduction

This report is submitted in accordance with the requirements of Section IX.B of the revised Compliance Plan (CP-50328) for Murray Corporation (Murray) which was issued March 11, 1998. The Compliance Plan requires the submittal of a report that defines the stratigraphy and migration pathway(s) of contaminants in ground-water between monitoring wells MW-10 and MW-26. This report describes the field investigation activities conducted to collect data in support of this report as well as a Baseline Risk Assessment to support alternate concentration limits (ACL) for the ground-water contaminants. In addition, the report presents a refinement of the stratigraphy and migration pathways at the Murray facility.

A field investigation was conducted from September 1 through September 4, 1998. In addition to providing data for the development of this report, the data were collected to support an assessment of natural attenuation of the contaminants detected between monitoring well MW-10 and MW-26. The field investigation included:

- Installation of temporary monitoring wells between monitoring wells MW-10 and MW-25, MW-26, and MW-27

- Collection of ground-water samples for analysis of volatile organic compounds (VOCs) and natural attenuation parameters from the temporary wells

- Collection of ground-water samples for VOCs and natural attenuation parameters from existing wells MW-10, MW-25, MW-26, and MW-27.

The purpose of this report is to present the refined stratigraphy beneath the flood plain of Town Creek and provide an evaluation of the potential migration pathways of the contaminants in the ground-water. No chemical data, however, are presented in this report; evaluation of the chemical data collected as part of the field investigation will be presented in the Baseline Risk Assessment (under separate cover). Field activities conducted to refine the stratigraphy are described in Section 2. Section 3 presents an evaluation of the stratigraphy and migration pathways between MW-10 and Town Creek. Conclusions are presented in Section 4.

2 Field Investigation Activities

A field investigation was conducted to collect lithologic data and ground-water samples for analysis of volatile organic constituents (VOC) and natural attenuation parameters. Four 2-inch diameter borings were advanced using a truck-mounted Geoprobe rig (Figure 1). The borings were pushed to total depths ranging from 24.5 to 27 feet below ground surface (bgs). Total depths were limited by the sloughing of loose soils into the borehole from shallow depths. The borings were terminated when no more than 0.5 feet of native soils could be recovered from each sampling push.

The well borings were continuously sampled for lithologic description of the soils and for headspace screening of the soils at 2-foot intervals with a Shelby tube (containing an acetate liner). The acetate liner was removed from the Shelby tube and laid out on a sampling tray. While on the sampling tray, the top of the acetate liner was cut away to expose the recovered soil core. Soils were placed in zip-lock bags at two-foot intervals for measurement of headspace organics using a photo-ionization detector (PID). No soils were collected for chemical analysis. The field observations and lithologic descriptions were recorded on the boring logs included in Appendix A.

After reaching total depth, the borings were sealed from total depth to about 19 feet bgs with bentonite chips. Temporary wells consisting of ¾-inch diameter PVC with 5-foot screened intervals were set at a depth of approximately 19 feet bgs. Sand was placed in the annulus between the well screen and the boring and topped with a bentonite seal about 2 feet thick. The temporary wells were developed (purged) using a peristaltic pump, sampled, and allowed to equilibrate for water level measurements.

Ground-water samples were collected from the temporary wells and MW-10, MW-25, MW-26, and MW-27. Ground-water samples were measured in the field for pH, temperature, specific conductance, dissolved oxygen, and oxidation-reduction potential. Groundwater samples were collected and shipped to an offsite laboratory for VOC, ferrous iron, nitrate, and sulfate analyses. The laboratory analytical results, however, are not presented in of this report.

Following sample collection, water levels were allowed to equilibrate. Water levels were measured in the four temporary wells and in all on-site wells (Table 1). The temporary wells were pulled after sample collection and measurement of water levels. A stake was placed in the ground at the temporary well locations for surveying of the ground surface elevation and location coordinates.

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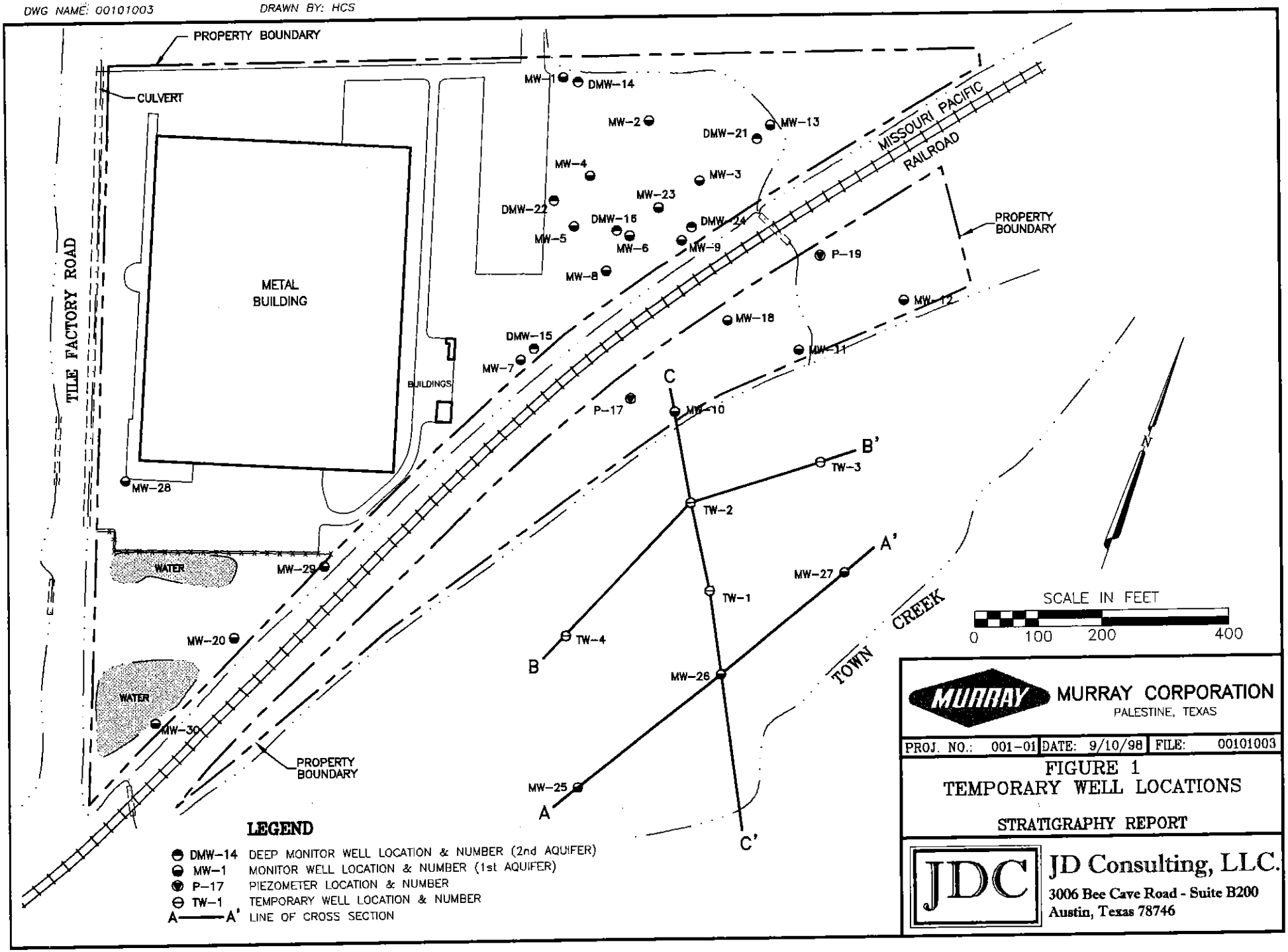

MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: 001-01	DATE: 9/10/98	FILE: 00101003

FIGURE 1
TEMPORARY WELL LOCATIONS

STRATIGRAPHY REPORT

JDC
JD Consulting, LLC.
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

Table 1

September 1998 Water Level Elevations

Monitoring Well Number	TOC Elevation (Feet MSL)	September 1998 Measurement (BTOC)	(MSL)
Shallow Aquifer			
MW-1	374.08	23.51	350.57
MW-2	374.36	24.16	350.20
MW-3	371.23	21.37	349.86
MW-4	373.46	23.40	350.06
MW-5	373.02	22.72	350.30
MW-6	371.07	20.90	350.17
MW-7	368.33	20.00	348.33
MW-8	368.72	19.31	349.41
MW-9	366.96	22.70	344.26
MW-10	340.16	14.06	326.10
MW-11	342.91	16.00	326.91
MW-12	348.14	5.40	342.74
MW-13	367.03	17.15	349.88
MW-18	347.15	20.30	326.85
MW-20	354.79	13.60	341.19
MW-23	371.96	NM	--
MW-25	334.89	13.82	321.07
MW-26	337.11	14.94	322.17
MW-27	337.33	14.83	322.50
MW-28	363.11	14.25	348.86
MW-29	354.31	10.03	344.28
MW-30	343.52	8.80	334.72
P-17	345.63	19.32	326.31
P-19	355.28	7.29	347.99
TW-1	335.8	11.80	324.0
TW-2	337.1	12.00	325.1
TW-3	337.2	12.05	325.2
TW-4	335.8	10.64	325.2
Deep Aquifer			
DMW-14	374.35	31.60	342.75
DMW-15	368.25	29.09	339.16
DMW-16	371.31	24.07	347.24
DMW-21	365.40	33.90	331.50
DMW-22	372.69	39.50	333.19
DMW-24	366.38	34.57	331.81

TOC = Top of Casing
MSL = Mean Sea Level
BTOC = Below Top of Casing
NM = Not Measured
Temporary well elevations are approximate since they have not yet been surveyed.

3 Stratigraphy and Migration Pathways

The objective of this report is to present further definition of the stratigraphy and migration pathways of ground-water contaminants in the area between monitoring wells MW-10 and Town Creek. This objective has been met through the evaluation of lithologic descriptions from the four temporary well locations in the vicinity of Town Creek. The following sections present an overview of the regional and site geology and hydrogeology as well as an assessment of the stratigraphy beneath the flood plain of Town Creek.

3.1 Regional Geology and Hydrogeology

The stratigraphy beneath the Murray facility consists of, from oldest to youngest, the Midway Group, the Wilcox Group, the Reklaw Formation, the Queen City Sand and Quaternary alluvium. The Queen City Sand and the alluvial deposits associated with Town Creek outcrop at the surface beneath the Murray facility. The older sediments were deposited within a geosyncline known as the East Texas Embayment.

The Midway Group consists of thin, poorly bedded clays with slightly increased percentages of silt and sand in the upper portions of the formation. Due to the relatively impermeable nature of the sediments, the Midway Group acts as an aquiclude to the overlying Wilcox Group. The Midway Group occurs at a depth greater than 2,000 feet and is estimated to be 800 feet thick in the Palestine region.

The Wilcox Group a major water-bearing unit in the Palestine and East Texas region. The Wilcox is the product of Eocene deposition by ancient river systems and is composed of irregularly interbedded layers of about 60 percent sandy clays with varying quantities of fine- to medium-grained sands. The Wilcox Group occurs at a depth of about 600 feet in the Palestine region and has an approximate thickness of 1,500 feet.

The Carrizo Sand overlies the Wilcox Group with an unconformable contact that has a paleotopographic surface. The Carrizo Sand varies in thickness from about 40 feet to 100 feet and occurs at a depth of about 500 feet in the region. The lithology of the Carrizo Sand consists primarily of massive, fine- to medium-grained sands interbedded with silty clay layers similar to the Wilcox Group. As a result, the Carrizo Sand is often difficult to distinguish from the Wilcox Group. The Carrizo Sand and the Wilcox Group are in hydraulic communication and are collectively referred to as the Carrizo-Wilcox Aquifer.

The Reklaw Formation conformably overlies the Carrizo Sand. The Reklaw Formation in the Palestine region is composed of the Marquez Shale and the Newby Sand. Soft, silty calcareous clay and shale of the Marquez Shale comprise the upper portion of the Reklaw and act as an aquiclude. The Newby Sand makes up the lower portion of the Reklaw and consists of medium-grained, cross-bedded sand and gravel. The Reklaw occurs at a depth of about 300 feet and is approximately 200 feet thick in the Palestine area.

The Queen City Sand conformably overlies the Reklaw Formation and crops out at the Murray facility. The Queen City is composed of about 80 percent light gray to brown, very fine- to fine-grained sands alternating with beds of gray silt and clays. The sediments are primarily cross-bedded, generally well sorted, and contain minor amounts of lignite. The Queen City Sand is about 300 feet thick in the vicinity of the Murray facility and constitutes the uppermost aquifer in the region.

The alluvial deposits are approximately 10 to 25 feet thick beneath the Town Creek floodplain in the vicinity of the Murray facility. The lithology of the alluvium is quite similar to the Queen City in that source of the alluvial sediments is largely derived from the Queen City Sand which outcrops over large areas of the Town Creek drainage basin. However, the alluvial sediments can be distinguished from the Queen City deposits by a relative increase in silt and clay content and a reddish-brown color.

3.2 Site Geology and Hydrogeology

The Queen City Sand and the alluvial deposits associated with Town Creek comprise the surface geologic units at the Murray facility. The Queen City Sand underlies the entire facility and outcrops north of the Union Pacific (UP) right-of-way. The Queen City is unconformably overlain by alluvial deposits within the floodplain of Town Creek to the south of the railroad right-of-way.

The site geology and hydrogeology have been further refined between monitoring well MW-10 and Town Creek. The geology beneath the Town Creek floodplain is represented on cross sections (Figures 2 through 4). The refined interpretation is based on lithologic information from the temporary well installations and previous boring logs included in Appendix A.

The alluvium is present at the surface of the floodplain. The alluvium is predominantly a loose to compact, medium- to fine-grained silty to clayey sand that varies in color vary from a reddish brown to brown near the ground surface to a dark gray at depth. The alluvial clayey sands occur to a depth of about 20 feet below the ground surface beneath the floodplain. At monitoring well MW-26, the alluvial clayey sand is in direct contact with underlying Queen City clayey sands (Figure 4). The distinctions between the clayey sands that occur in the alluvial deposits and the underlying Queen City deposits are as follows:

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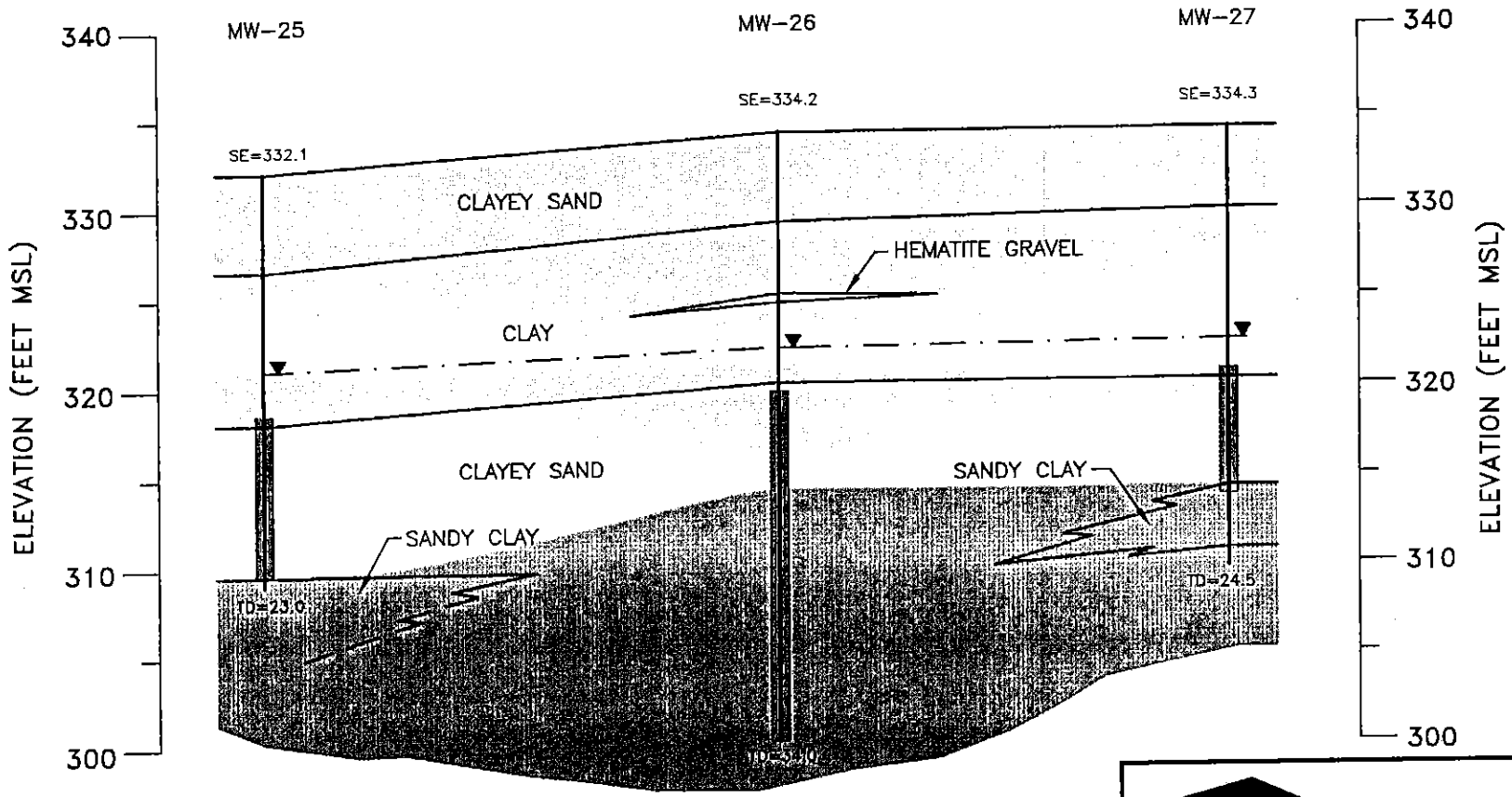

LEGEND

MW-25	WELL IDENTIFICATION
SE=337.0	SURFACE ELEVATION (FEET MSL)
	WELL CASING
	WATER LEVELS
	SCREENED INTERVAL
TD=23.0	TOTAL DEPTH OF WELL (IN FEET)
	ALLUVIUM
	QUEEN CITY FORMATION

HORIZONTAL SCALE IN FEET

0 50 100 200

MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.:	DATE:	FILE:
001-01	9/14/98	00101004

FIGURE 2
CROSS SECTION A-A'

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JD Consulting, LLC.
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Austin, Texas 78746

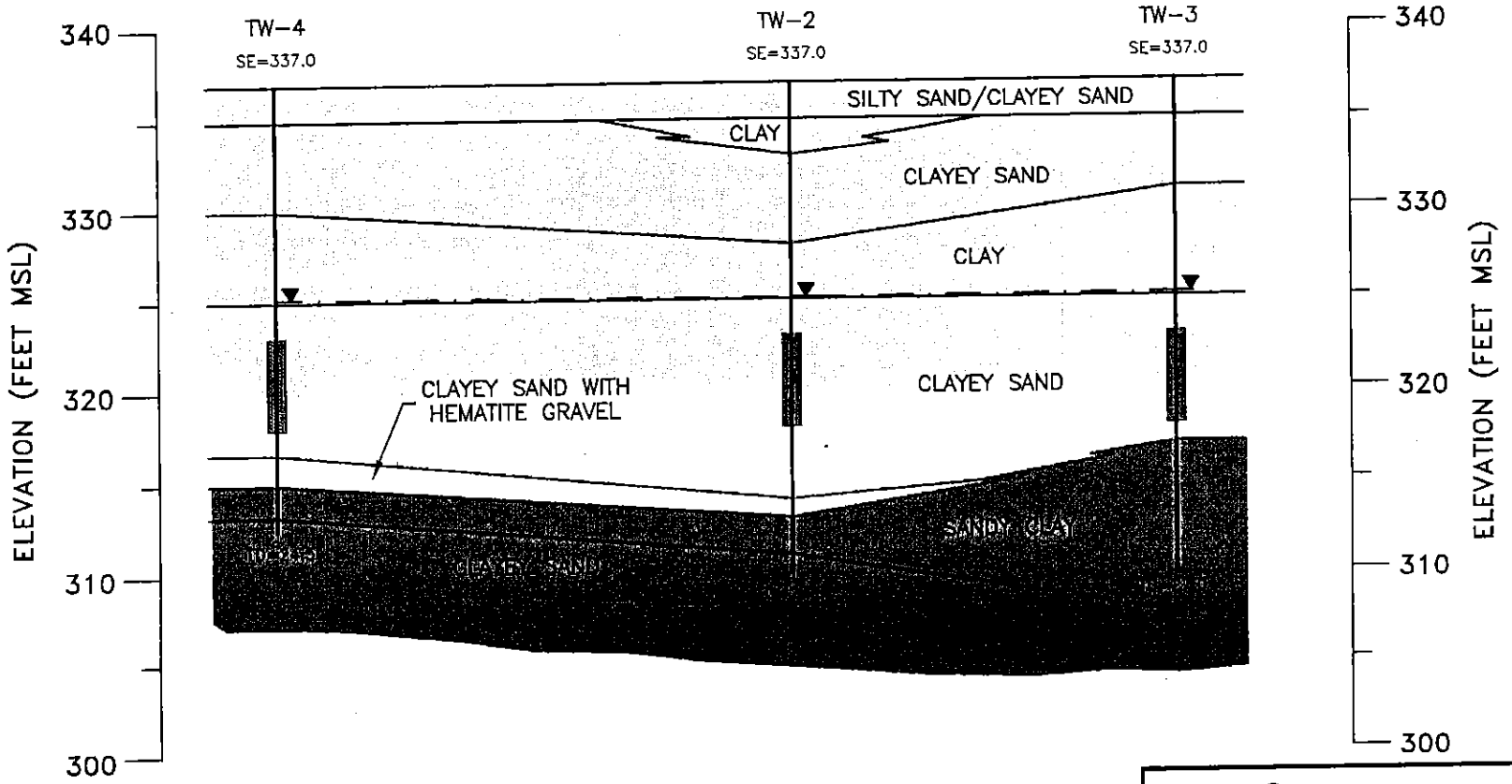
DWG NAME: 00101004 DRAWN BY: WAH

B

SOUTHWEST

B'

NORTHEAST



LEGEND

TW-4	WELL IDENTIFICATION
SE=337.0	SURFACE ELEVATION (FEET MSL)
	WELL CASING
	WATER LEVELS
	SCREENED INTERVAL
TD=24.5	TOTAL DEPTH OF WELL (IN FEET)
	ALLUVIUM
	QUEEN CITY FORMATION

HORIZONTAL
SCALE IN FEET

0 50 100 200

MURRAY CORPORATION
PALESTINE, TEXAS

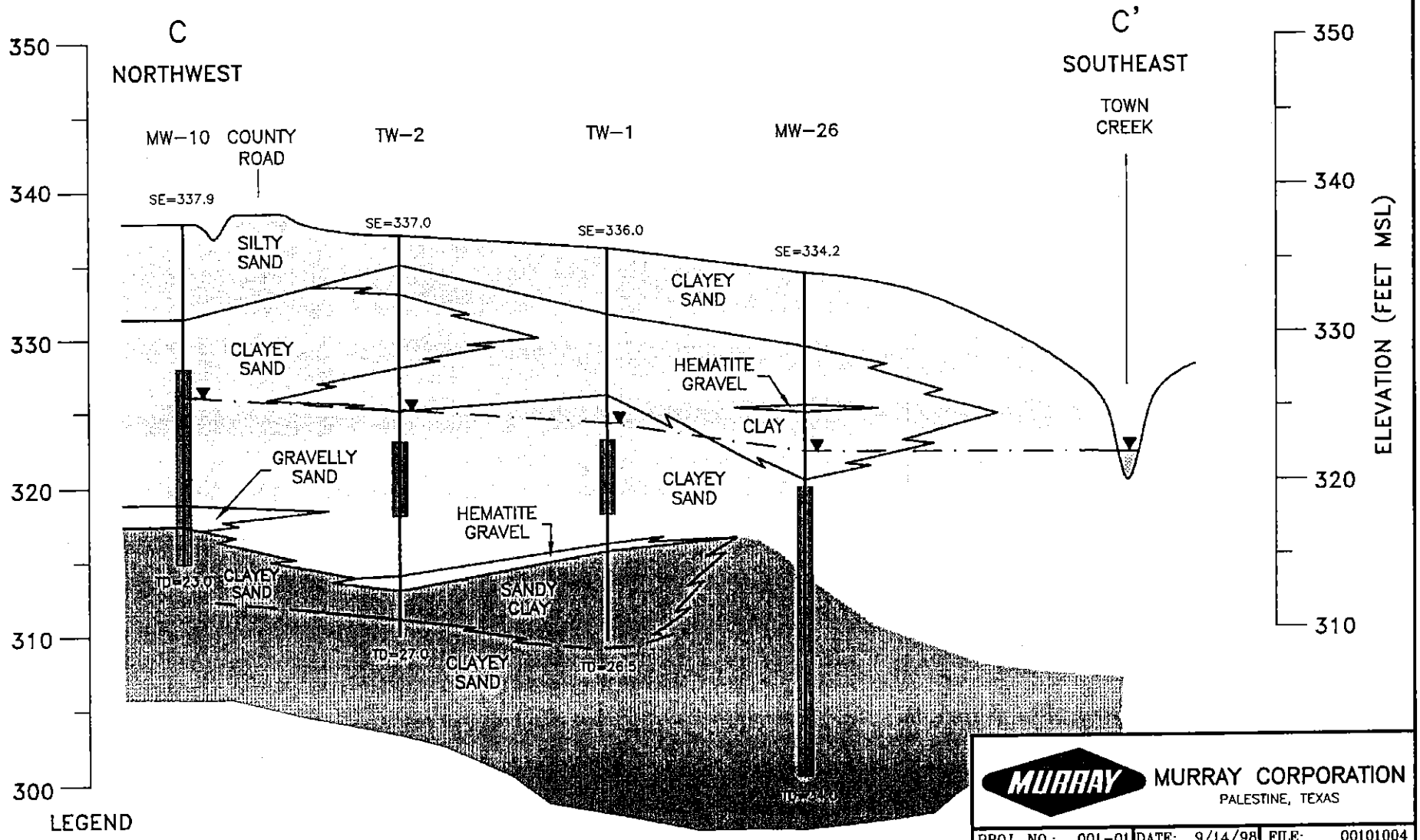
PROJ. NO.:	DATE:	FILE:
001-01	9/14/98	00101004

FIGURE 3
CROSS SECTION B-B'

STRATIGRAPHY REPORT

JD Consulting, LLC.
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

DWG NAME: 00101004 DRAWN BY: WAH



MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.:	DATE:	FILE:
001-01	9/14/98	00101004

FIGURE 4
CROSS SECTION C-C'

STRATIGRAPHY REPORT

JD Consulting, LLC.
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

- Hematite gravels and nodules occur within the alluvial sediments and not within the Queen City sediments;
- the alluvial sediments are red, brown or gray color, whereas the Queen City sediments are gray; and
- the Queen City sediments are laminated and tighter than the alluvial sediments and tend to be dry to damp, rather than saturated.

Also present within the alluvium between monitoring well MW-10 and Town Creek is a dark brown clay layer. This 5- to 9-foot thick clay occurs at a depth of about 2 to 6 feet below ground surface. As presented in Figures 3 and 4, the clay layer known to be present along Town Creek (at monitoring wells MW-25 through MW-27) was found at the temporary well locations.

The Queen City Sand was encountered at a depth of about 20 to 25 feet below ground surface in all the monitoring and temporary well borings within the floodplain (Figures 2 through 4). The uppermost Queen City sediments encountered in the temporary well borings and the monitoring well borings MW-25 and MW-27 consist of dark gray sandy clays interbedded (laminated) with 30 to 50 percent fine-grained sand partings. The sandy clay layer ranges from 2 to greater than 7 feet in thickness. Queen City sediments encountered beneath the alluvium at MW-10 are described as clayey sand containing 30 to 50 percent clay.

Beneath the sandy clay/clayey sand layer, where present, is a fine- to medium-grained clayey sand containing 10 percent clay. This slightly clayey sand was encountered at the bottom of temporary well borings TW-2 and TW-4 and at the bottom of monitoring well borings MW-25 through MW-27 (Figures 2 and 3). In direct contact with the overlying alluvial clayey sand unit in MW-26, this Queen City clayey sand unit was encountered at a depth of about 20 feet below ground surface at this location but with a higher (20 to 30 percent) clay content. As described above, the alluvial clayey sand is differentiated from the Queen City clayey sand unit by the presence of hematite gravel within the alluvium.

Two separate aquifers have been identified beneath the Murray facility. To the north of the railroad right-of-way, the uppermost aquifer occurs within the surficial Queen City clayey sands present from ground surface to a depth of about 25 to 40 feet below ground surface. The uppermost aquifer occurs under water table conditions with a saturated thickness ranging from about 20 feet near MW-1 to less than 5 feet at MW-8. Dense, unsaturated interbedded sandy clays and clayey sands, ranging in thickness from 16 to 23

feet, hydraulically separate the lower confined aquifer from the uppermost aquifer. Potentiometric surface maps of the two aquifers are presented in Appendix B.

The uppermost aquifer of the Queen City Sand is hydraulically connected to the saturated alluvial sediments beneath the Town Creek floodplain (Appendix B). The alluvial (uppermost) aquifer occurs within the alluvial clayey sands screened by monitoring well MW-10 and MW-25 through MW-27 (Figures 2 and 4). The Queen City clayey sand that is in direct contact with the overlying alluvium (as at MW-26) also comprises the uppermost aquifer.

As seen in the potentiometric surface map of Appendix B, ground-water within the uppermost aquifer flows from the northwest to southeast across the site. The water table aquifer generally mimics the land surface topography. As such, the water table exhibits a uniform, low hydraulic gradient in area of the closed landfill (near MW-6) and steepens toward the south in response to the increased slope of the land surface in the vicinity of the railroad right-of-way. Beneath the floodplain, groundwater flows toward the southeast under a low hydraulic gradient and ultimately discharges into Town Creek.

3.3 Potential Migration Pathways

The field investigation was conducted in part to verify that part of the contaminant plume was not escaping detection due to subsurface lithologic conditions. Based on the refined stratigraphy between MW-10 and Town Creek, the potential migration pathway of contaminants at the site are understood and being monitored with the existing ground-water monitoring system. Ground-water contaminants are known to have migrated within the uppermost aquifer (upper Queen City Sand aquifer and alluvial aquifer) in the direction of ground-water flow. Semi-annual sampling of the monitoring well system at Murray has shown that ground-water contamination is limited to the upper aquifer; no contaminants are present within the lower aquifer at the site. The monitoring program has also shown that the contaminant plume has migrated from the vicinity of the closed landfill toward the southeast. The highest concentrations occur along the center of the plume as indicated by the analytical results of monitoring wells MW-6, MW-8, MW-10, and MW-26.

Contaminants detected in the uppermost aquifer screened by monitoring well MW-10 will migrate with the flow of ground-water toward Town Creek (Figure 4). Downward contaminant migration within the uppermost aquifer will be impeded by the presence of the Queen City clayey sand (containing 30 to 50 percent clay) encountered at the bottom of MW-10 and sandy clay encountered at the bottom of the temporary wells and monitoring wells MW-25 and MW-27. Instead, contaminants within the shallow saturated sediments will preferentially migrate toward Town Creek within the higher permeable clayey sand of the alluvial (uppermost) aquifer. As the contaminant plume nears Town Creek it will be detected

by monitoring wells MW-25, MW-26, and MW-27 (Figure 2). In the event that contaminants migrate vertically downward beneath the Queen City sandy clay unit beneath the alluvium, the plume will still migrate toward Town Creek and be detected by monitoring well MW-26 which screens the alluvial sediments as well as the hydraulically interconnected underlying sediments of the Queen City Sand.

4 Conclusions

The objective of this report is to present further definition of the stratigraphy and migration pathways of groundwater contaminants in the area between monitoring wells MW-10 and Town Creek. This objective has been met through the evaluation of lithologic descriptions from the four temporary well locations in the vicinity of Town Creek.

The stratigraphy beneath the Town Creek floodplain has been further defined. The alluvium is present beneath the floodplain to a depth of about 20 feet below ground surface. The saturated alluvial sediments consist of clayey sand that are underlain by lower permeable sandy clay and clayey sand of the Queen City formation. Higher permeable Queen City sands are in direct contact with the alluvial sands at MW-26 (Figure 4). The Queen City Sand is differentiated from the alluvial sediments by the presence of finely interbedded (laminated) sands and clays in the Queen City sediments which tend to be dry to damp rather than saturated, and the presence of hematite gravel in the alluvium.

The potential migration pathway of contaminants at the site are understood and being monitored with the existing ground-water monitoring system. Contaminants detected in the uppermost aquifer screened by monitoring well MW-10 will migrate with the flow of ground-water toward Town Creek (Figure 4). Downward contaminant migration within the uppermost aquifer will be impeded by the presence of the Queen City clayey sand and sandy clay encountered at the base of the alluvium. Therefore, the existing monitoring well system along Town Creek will detect the presence of contaminants within the shallow saturated sediments as they preferentially migrate toward Town Creek within the higher permeable clayey sand of the alluvial (uppermost) aquifer.

Appendix A

Boring Logs

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01	Boring No.: TW-1
Project / Location: MURRAY CORPORATION - PALESTINE, TX		Sheet: 1 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled: Date Drilled: 9-2-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE	Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER		Contractor / Crew: EDSI
Comments:		Time Start: 0815 / Time Finish:

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
0 @ 0					0-4.5	SC	100	CLAYEY SAND - FINE TO MEDIUM, POORLY SORTED, LOOSE, REDDISH BROWN, DRY 10-20% CLAY
0 @ 2'								
0 @ 4'								
0 @ 6'					4.5-8	CH	100	CLAY - HIGH, FIRM, DARK BROWN, 10% SAND IN PARTINGS, ORANGE, DRY
0 @ 8'								
					8-10	CH	100	CLAY - STA, INCREASE IN SAND, 30%
3.6 @ 10'								
1.8 @ 12'					10-12	SC	100	CLAYEY SAND - FINE TO MEDIUM, SUBANGULAR, LOOSE, DARK GRAY, SATURATED, 20-30% CLAY
					12-16	SC	100	CLAYEY SAND - STA, GRAY GRADING TO A OLIVE TAN, SAT.
4.2 @ 14'								
2.0 @ 16'					16-20	SC	100	CLAYEY SAND - STA, TAN, GRAY, ORANGISH TAN SAND
1.0 @ 18'					20-20.5	SC		CLAYEY SAND - STA HEMATITE GRAVEL AT BASE
1.0 @ 20'								
					20.5-22	CL		SANDY CLAY - LOW, STIFF, DARK GRAY, DRY 30% FINE GRAINED SAND PARTINGS, INTERBEDDED
1.0 @ 22'								

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01	Boring No.: TW-1
Project / Location: MURRAY CORPORATION - PALESTINE, TX		Sheet: 2 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled:
		Date Drilled: 9-2-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE	Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER		Contractor / Crew: EDSI
Comments:		Time Start: 0815 / Time Finish: 1050

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
					22-23.5	CL		SANDY CLAY - STA, DAMP TO DRY
0@22'								
					23.5-25	CL		SANDY CLAY - STA, DRY
0@24'								
					25-25.5	CL		SANDY CLAY - STA
0@26'					25.5-26.5	CL		SANDY CLAY - STA
								TD @ 265'
								SET TEMP WELL
								+2 - 13 CASING
								13 - 18 SCREEN

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01		Boring No.: TW-2
Project / Location: MURRAY CORPORATION - PALESTINE, TX			Sheet: 1 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled:	Date Drilled: 9-2-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE		Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER			Contractor / Crew: EDSI
Comments:			Time Start: 1200 / Time Finish: 1400

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
14@0					0-2	SC	100	CLAYEY SAND - FINE TO MEDIUM, POORLY
6@2'								SORTED, LOOSE, REDDISH BROWN,
1@4'								DRY, 10% CLAY
1@6'								
0@8'					2-4	CH	100	CLAY - HIGH, FIRM, DARK BROWN, 10-20%
								SAND IN PARTINGS (ORANGE) DRY
					4-8	SC	100	CLAYEY SAND - FINE TO MEDIUM, SUBANGULAR,
								LOOSE, REDDISH TAN GRADING TO
								TAN @ 6' WITH HEMATITE NODULES,
								DRY, 20% CLAY
					8-9	SC	100	CLAYEY SAND - STA, EXCEPT 50% CLAY
.5@10'								
					9-12	CH	100	CLAY - HIGH, STIFF, DARK GRAY, DAMP @
								12', HEMATITE NODULES
0@12'					12-16	SC	100	CLAYEY SAND - MEDIUM, COMPACT, DAMP TO
								SAT. @ 14' BGL, GRAY & ORANGISH
1@14'								BROWN, HEMATITE NODULES
								40-50% CLAY
2@16'								
1@18'					16-20	SC	100	CLAYEY SAND - STA, SAT., 20-30% CLAY
0@20'								

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-9243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01	Boring No.: TW-2
Project / Location: MURRAY CORPORATION - PALESTINE, TX		Sheet: 2 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled: Date Drilled: 9-2-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE	Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER		Contractor / Crew: EDSI
Comments:		Time Start: 1200 / Time Finish: 1400

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
4@22'					20-24	SC	50	CLAYEY SAND - STA, 10-20% CLAY, GRAY, HEMATITE NODULES / GRAVEL @ 24'
11@24'								
					24-26	CL	100	SANDY CLAY - LOW, STIFF, DARK GRAY, 40% SAND IN PARTINGS FINE GRAINED, DAMP, INTERBEDDED
0@26'								
@27'					26-27	SC	100	CLAYEY SAND - FINE TO MED. POORLY SORTED, SUBANGULAR, GRAY, DAMP TO MOIST, 10% CLAY
								TEMP WELL - +1 - 14 CASING 14-19 SCREEN

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01		Boring No.: TW-3
Project / Location: MURRAY CORPORATION - PALESTINE, TX			Sheet: 1 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled:	Date Drilled: 9-2-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE		Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER			Contractor / Crew: EDSI
Comments:			Time Start: 1430 / Time Finish:

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
0@0					0-2	SM	100	SILTY SAND - FINE TO MEDIUM,
0@2'								POORLY SORTED, LOOSE; REDDISH
2@4'								BROWN, 10% SILT, DRY
3.1@6'					2-4	SC	100	CLAYEY SAND - FINE TO MEDIUM
								POORLY SORTED, LOOSE TO
								COMPACT, DRY, BROWN-TAN
								10% CLAY
					4-6	SC	100	CLAYEY SAND - STA
					6-8	CH	100	CLAY - HIGH, STIFF, DARK BROWN, DRY,
2@8'								HEMATITIC NODULES
3@10'								
					8-12	CH	100	CLAY - STA, DAMP @ BASE
2@12'								
2@14'					12-16	SC	100	CLAYEY SAND - MEDIUM GRAINED, COMPACT
0@16'								DAMP TO SAT. @ 13' BGL,
								GRAY & ORANGISH BROWN, HEMATITE
								NODULES, 40-50% CLAY
					16-20	SC	100	CLAYEY SAND - STA, 20-30% CLAY
0@18'								
0@20'					20-22	CL	100	SANDY CLAY - LOW, SOFT, DARK GRAY,
2@22'								40-50% SAND, DAMP, HEMATITE
								NODULES - INTERBEDDED

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01		Boring No.: TW-3
Project / Location: MURRAY CORPORATION - PALESTINE, TX			Sheet: 1 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled:	Date Drilled: 9-2-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE		Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER			Contractor / Crew: EDSI
Comments:			Time Start: 1430 / Time Finish: 1700

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
0@24'					22-24.5	CL	100	SANDY CLAY - STA
0@25.5'					24.5-25.5	CL	100	SANDY CLAY - STA
0@26.5'					25.5-26.5	CL	100	SANDY CLAY - STA
0@27.5'					26.5-27	CL	100	SANDY CLAY - STA
								TD @ 27
								TEMP WELL +1 - 14' CASING
								14 - 19 SCREEN

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01		Boring No.: TW-4
Project / Location: MURRAY CORPORATION - PALESTINE, TX			Sheet: 1 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled:	Date Drilled: 9-3-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE		Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER			Contractor / Crew: EDSI
Comments:			Time Start: 0715 / Time Finish:

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
10@0					0-2	SM	100	SILTY SAND - FINE TO MEDIUM, POORLY
1@2'								SORTED, LOOSE, DRY, REDDISH BROWN,
								10% SILT
					2-4	SC	100	CLAYEY SAND - FINE TO MEDIUM, POORLY
0@4'								SORTED, LOOSE TO COMPACT, DRY,
								BROWN-TAN, 10% CLAY
0@6'					4-7	SC	100	CLAYEY SAND - STA
0@8'					7-8	CH	100	CLAY - HIGH, STIFF, DARK BROWN, DRY,
								HEMATITIC NODULES
0@10'					8-11.75	CH	100	CLAY - STA
0@12'					11.75-12	SC	100	CLAYEY SAND - MEDIUM GRAINED, COMPACT
								DAMP, GRAY, 40-50% CLAY
0@14'					12-16	SC	100	CLAYEY SAND - STA, ORANGISH BROWN &
								GRAY, SAT. @ 13' BGL CLAY
0@16'								CONTENT DECREASES WITH DEPTH
								HEMATITE NODULES
0@18'					16-20	SC	100	CLAYEY SAND - STA, HEMATITIC GRAVEL
								@ 19.5' & 20' BGL
0@20'								

JDC
JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

FIELD BORING LOG

Client: ARENT FOX PLOTKIN KINTNER & KAHN	Job No.: 001-01		Boring No.: TW-4
Project / Location: MURRAY CORPORATION - PALESTINE, TX			Sheet: 1 of 2
Surface Elevation: UNKNOWN	Groundwater Depth/Date:	Total Depth Drilled:	Date Drilled: 9-3-98
Drilling Methods: PERCUSSION / HYDRAULIC PUSH	Drilling Rig: ATV - GEOPROBE		Logged By: TRACY PAYNE
Sample Method: PUSH TUBE WITH PLASTIC LINER			Contractor / Crew: EDSI
Comments:			Time Start: 0715 / Time Finish:

Organic Vapor Reading (ppm) and Depth	Sample No. and Depth	Sample Type	Sample Disposition: Container (J/B/D)	Sample Disposition: No.	Lithologic Interval	Symbol	% Recovery	Sample Description
0@22'					20-22	SC	100	CLAYEY SAND - STA, CLAY CONTENT 10%. HEMATITIC GRAVEL
					22-23	CL	100	SANDY CLAY - LOW, STIFF, DARK GRAY INTERBEDDED, 30-40% SAND, FINE GRAINED, DAMP
0@24'					23-24	CL	100	SANDY CLAY - STA
0@24.5'					24-24.5	SC	100	CLAYEY SAND - FINE TO MED, POORLY SORTED, SUBANGULAR, GRAY, DAMP TO MOIST, 10% CLAY
								TEMP WELL + 1-1/4 CASING 14-19 SCREEN

JD Consulting, LLC
3006 Bee Cave Rd., Suite B200
Austin, Texas 78746
512-347-7588
fax - 512-347-8243

MONITOR WELL INSTALLATION

WELL NO.: MW-10

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

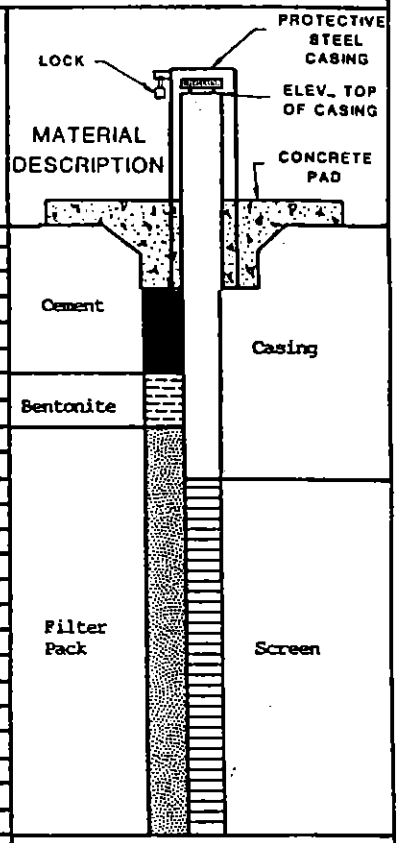
SITE: Palestine, TX ELEVATION: PAD 337.89 TOP OF PVC CASING 340.16

TOTAL DEPTH: 23.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 sl

WATER LEVEL: 11.49' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand – Poorly graded, very fine, subangular, with 20% silt, compact, dense at 4'-5', damp, tan and red, clean.
5					
			SC		Clayey Sand – Poorly graded, very fine to fine, subangular to subrounded, with 30-35% silt and clay, compact, moist, saturated below 9.0', gray and red, clean.
10					
15					Gravelly Sand – Well graded, fine to coarse subangular to subrounded, with 20% granules and 10-20% silt and clay, loose, saturated, reddish brown, clean.
20			SW		
			SC		Clayey Sand – Poorly graded, very fine, subangular, with 30-50% silt and clay laminations, dense, damp, black-gray, clean.
25					Monitor Well terminated at 23 feet below surface.

COMPLETION DATA



JONES AND NEUSE, INC.
Engineering and Environmental Consultants
Austin, Houston, Dallas, Temple, Corpus Christi, Orange

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-25

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 1

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 23.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 332.10 PAD: 332.67 TOC: 334.89 PHOT. OBS.: NA

WATER LEVEL: DEPTH: 6.45 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:11 PM

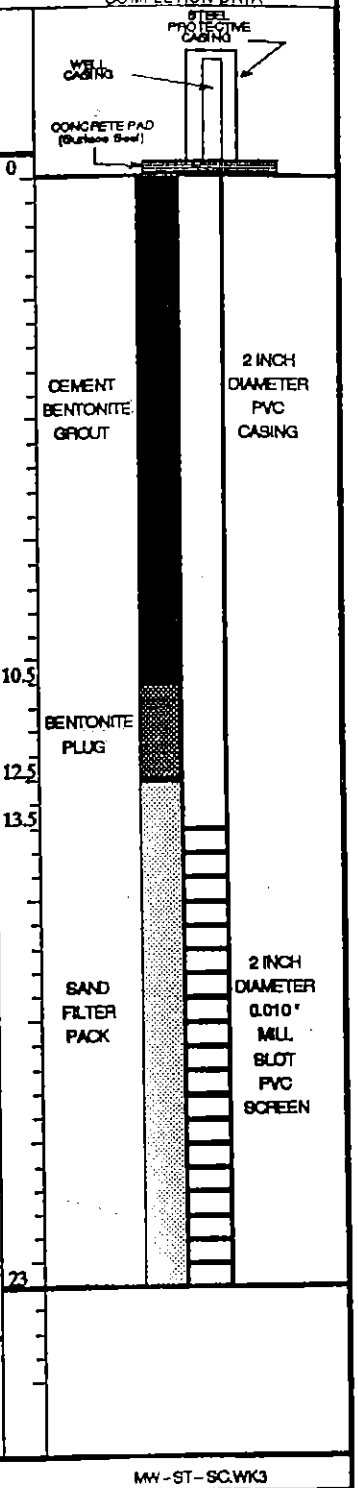
JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)		
0	SC	CLAYEY SAND	10 to 20 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 0 to 1 foot, then dry
5	SC	CLAYEY SAND	similar to above but dark brown with surficial moisture from 4 to 5.5 feet
	CH	CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
10	CH	CLAY	similar to above with increasing sand, 20 to 30%, and sparatic hematite gravel
15	SC	CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, massive, dark gray, saturated, 5" layer of hematite gravel at 18 feet
20	SC	CLAYEY SAND	similar to above
23	CH	CLAY	20 to 30% fine grained sand partings, low to moderate plasticity, very stiff, dry, dark brown clay with gray sand

BORING TERMINATED AT 23.0 FEET BELOW GRADE

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-27

CLIENT: Murray Corporation | JOB NO: 018206.1 | SHEET 1 OF 1

SITE: Palestine, Texas | DATE: START: 4-20-93 | FINISH: 4-20-93

GEOLOGIST: Mark Norman | DRILLER: Jones and Neuse, Inc. | DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample | TOTAL DEPTH: 23.0 Feet | HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA | ELEVATIONS: GROUND: 334.30 | PAD: 334.94 | TOC: 337.33 | PROT. CSG: NA

WATER LEVEL: DEPTH: 6.48 Feet | DATUM: TOC | DATE: 4-29-93 | TIME: 3:20 PM

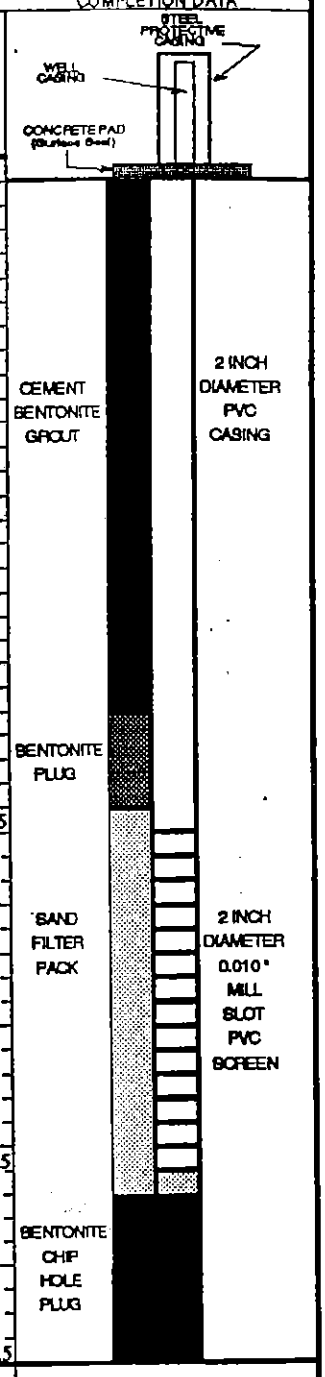
JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY		
0				SC		CLAYEY SAND	20 to 30 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 3.5 to 4.0 feet, then dry
5				CH		CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
10				CH		CLAY	similar to above with increasing sand, 30 to 40%
15				SC		CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, massive, dark gray, saturated, hematite gravel layer at 16.5 to 17.0 feet and lignite seam at 19.0 feet
20				CH		SANDY CLAY	20 to 30% fine grained sand partings, low to moderate plasticity, very stiff, dry, dark brown clay with gray sand
24.5				SC		CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, loose, dark gray, mica, damp

BORING TERMINATED AT 24.5 FEET BELOW GRADE

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-26

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 2

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 34.0 Feet HOLE DIAMETER 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 334.20 PAD: 334.83 TOC: 337.11 PROT. CSG: NA

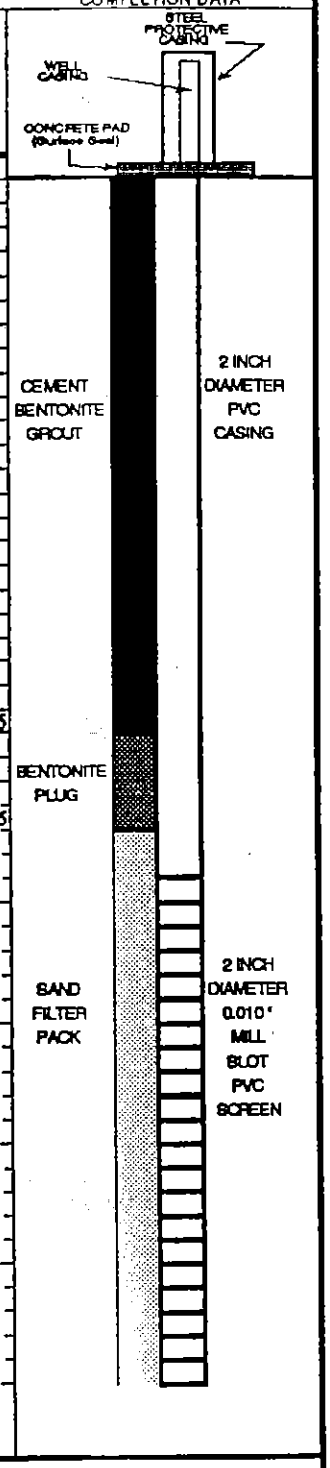
WATER LEVEL: DEPTH: 8.05 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:14 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION	
0	SC	CLAYEY SAND	10 to 20 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 4 to 5 feet, then dry
5	CH	CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
	GW	HEMATITE GRAVEL	well graded, red, saturated
10	CH	CLAY	high plasticity, firm, dark brown with 20 to 30% orange sand partings, damp
15	SC	CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, 20 to 30% hematite gravel, saturated, dark gray sand with red gravel
20	SC	CLAYEY SAND	similar to above but no gravel present
25	SC	CLAYEY SAND	similar to above

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-BC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. MW-26

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 2 OF 2

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 34.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 334.20 PAD: 334.83 TOC: 337.11 PROT. CSG: NA

WATER LEVEL: DEPTH: 8.05 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:14 PM

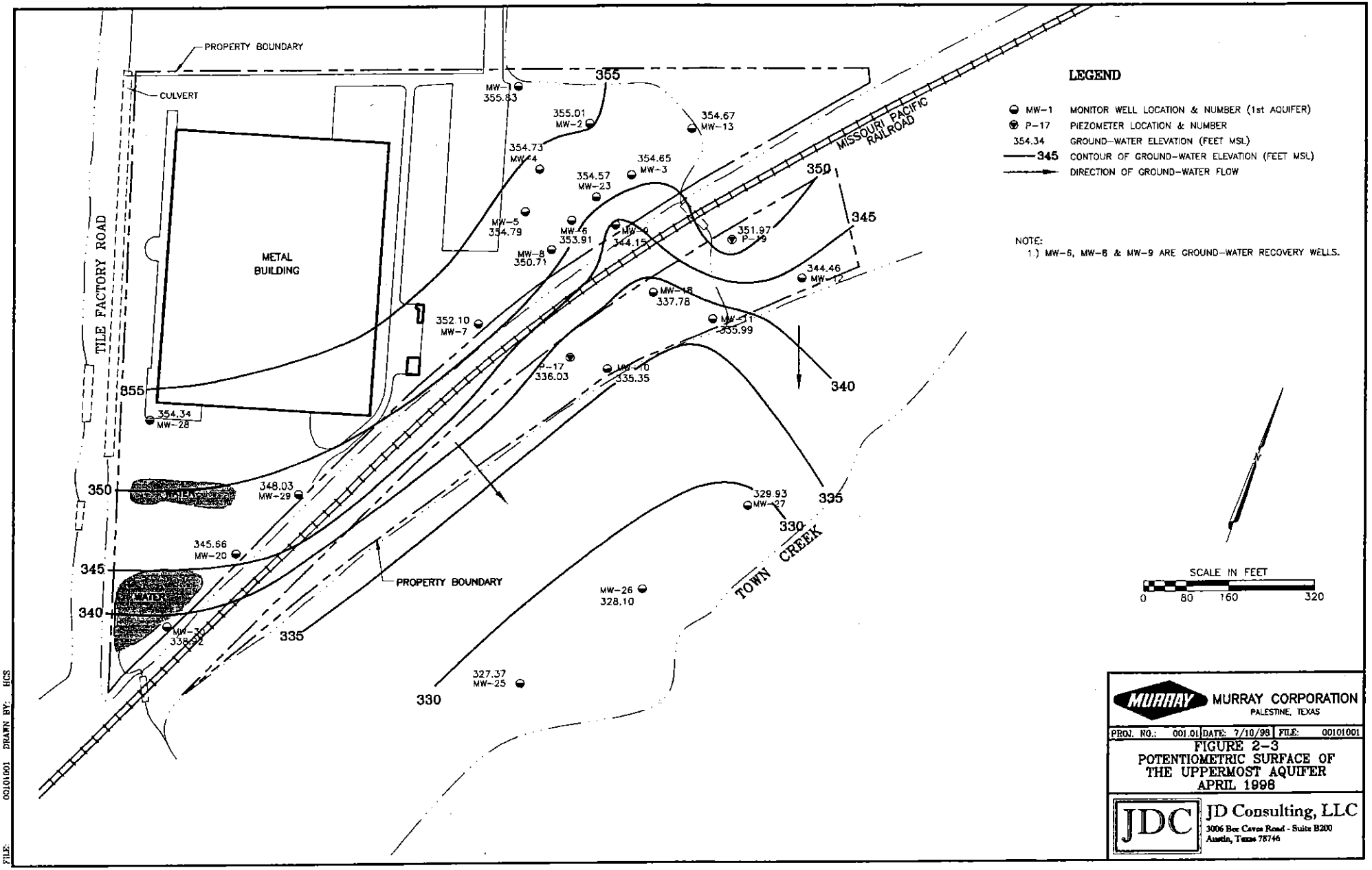
DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION	COMPLETION DATA
25				SC		CLAYEY SAND similar to above	BELOW GRADE MATERIAL COMPLETION CONTINUED FROM PREVIOUS PAGE
30				SC		CLAYEY SAND similar to above	SAND FILTER PACK; 2 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN
34						BORING TERMINATED AT 34.0 FEET BELOW GRADE	

JONES AND NEUSE, INC. Environmental and Engineering Consultants

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

Appendix B

Potentiometric Surface Maps



MURRAY CORPORATION
PALESTINE, TEXAS

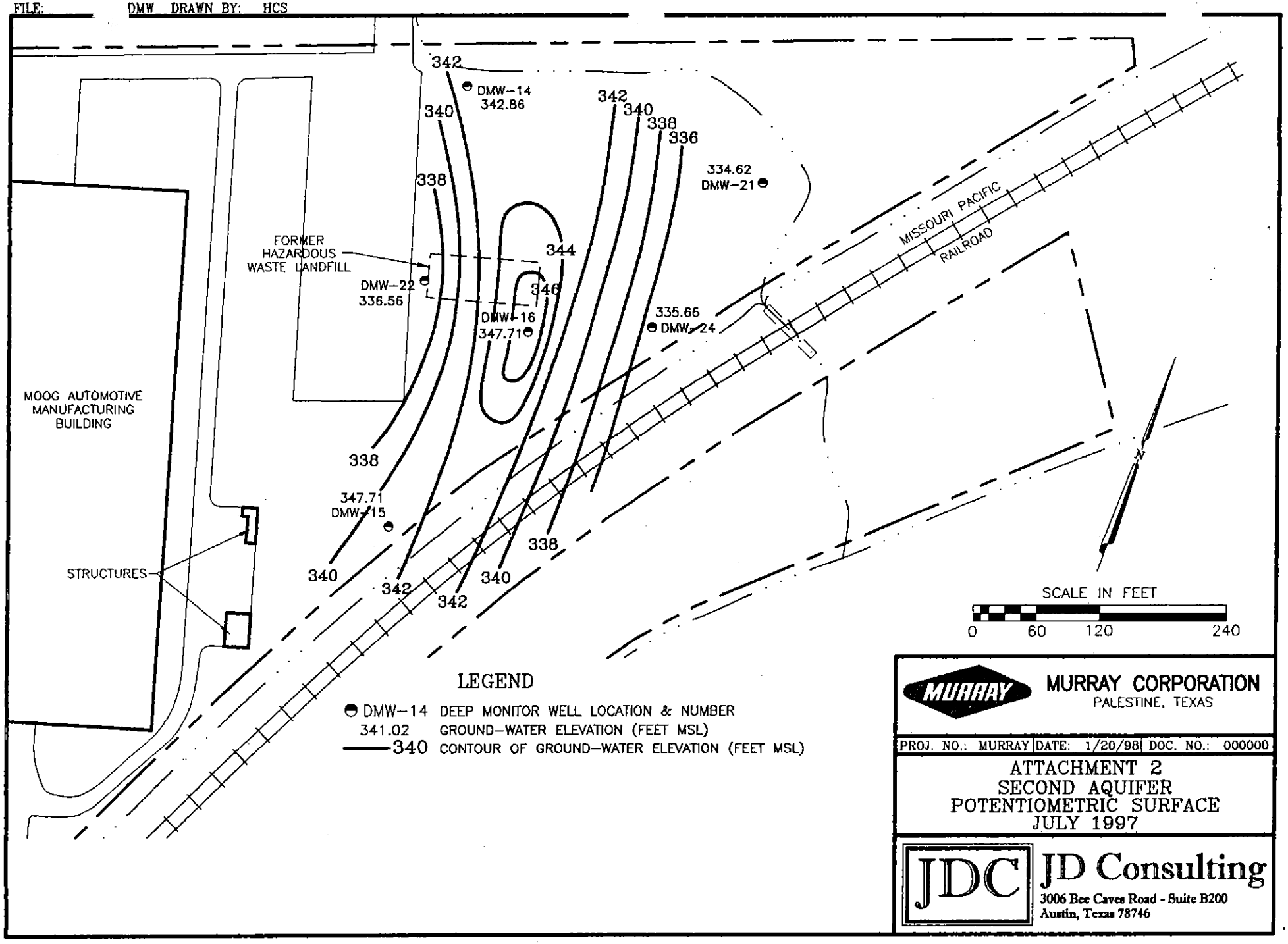
PROJ. NO.:	001.01	DATE: 7/10/98	FILE:	00101001

FIGURE 2-3
POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
APRIL 1998

JD Consulting, LLC
3006 Bee Caves Road - Suite B200
Austin, Texas 78746

FILE: 00101001 DRAWN BY: HCS

FILE: DMW DRAWN BY: HCS



LEGEND

- DMW-14 DEEP MONITOR WELL LOCATION & NUMBER
- 341.02 GROUND-WATER ELEVATION (FEET MSL)
- 340 CONTOUR OF GROUND-WATER ELEVATION (FEET MSL)

MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: MURRAY	DATE: 1/20/98	DOC. NO.: 000000

ATTACHMENT 2
SECOND AQUIFER POTENTIOMETRIC SURFACE JULY 1997

JD Consulting
3006 Bee Caves Road - Suite B200
Austin, Texas 78746

Technical Evaluation of the Stratigraphy and Contaminant Migration Pathways at Murray Corporation Property in Palestine, Texas

On March 23, 1999, the Texas Natural Resource Conservation Commission (TNRCC) issued a letter that approved the Murray Corporation (Murray) report entitled "Stratigraphy and Migration Pathways Between MW-10 and MW-26" (Report). In addition to approving the Report, the TNRCC letter requested that Murray conduct an investigation of the Queen City Formation downgradient of MW-26 (i.e., beyond Town Creek). The purpose of this technical evaluation is to address the TNRCC's comments and issues presented in their letter by clarifying the findings presented in the Report and to show that an additional investigation is not warranted.

In the March 23rd letter, the TNRCC summarizes the findings of the Report as follows:

- The alluvium and the stratigraphically lower Queen City Formation represent the uppermost aquifer beneath the facility;
- The ground water in the alluvium does not have a tendency to migrate vertically to the Queen City Formation because of a sandy clay layer that makes up the bottom portion of the alluvium; and
- Contributing to the predominantly lateral movement of ground water in the alluvium is the strong influence of Town Creek.

The March 23rd letter states that "although there is hydraulic communication between the two transmissive zones (alluvium and Queen City Formation), as supported by the fact that contamination is present in both zones, it appears that hydraulic communication between the two transmissive zones is inhibited by the limited vertical hydraulic conductivity of the sandy clay layer which establishes the lower portion of the alluvium." The letter states that the number of indicator hazardous constituents routinely detected in the two transmissive zones (four in the alluvium and only two in the Queen City) also substantiate the minimal hydraulic communication between the alluvium and Queen City Formation. The TNRCC concluded that because of the minimal hydraulic communication between the two zones, contaminated ground water within the Queen City Formation may not be discharging to Town Creek and may have the potential to migrate beyond Murray's property boundary. Based on these conclusions, the TNRCC requested that Murray conduct an investigation of the Queen City Formation downgradient of MW-26 (i.e., off-site property).

The TNRCC comments and conclusions appear to be based on the assumption that the Queen City Formation (Queen City) referred to in the Report represents a single transmissive zone. However, there

are two distinct transmissive zones (the uppermost aquifer and the lower aquifer) that have been identified within the Queen City:

- The uppermost Queen City aquifer is contaminated and in hydraulic communication with the contaminated alluvium (Figure 1). The contact between the uppermost Queen City and the alluvium is in the vicinity of the Missouri Pacific (MP) right-of-way. The uppermost Queen City deposits observed in the area of the landfill do not exist beneath the Town Creek floodplain because they have been removed by the creek through erosion and replaced by alluvial deposits. The uppermost aquifer, consisting of the Queen City in the area of the landfill and alluvium in the Town Creek floodplain, is subject to corrective action under Murray's Compliance Plan (CP-50328).

- The lower Queen City aquifer, which occurs at approximately the same elevation beneath the area of the landfill as the alluvium and the Queen City strata underlying the alluvium in the Town Creek floodplain, is not, contaminated. The lower Queen City is subject to a detection-monitoring program under Murray's Permit (HW-50328).

A stratigraphic cross-section that depicts the relationships between the uppermost and lower aquifers at the Murray site is provided as Figure 1.

The points of clarification that are presented below concern the definition of the uppermost aquifer and the reference to "two transmissive zones" by the TNRCC, the direction of ground-water flow, and the occurrence of ground-water contamination. Clarification of these points will demonstrate that additional investigation is not necessary at the Murray facility.

Definition of the Uppermost Aquifer and Reference to Two Transmissive Zones

As indicated in the Report, two separate aquifers have been identified beneath the Murray site - the uppermost aquifer and the lower aquifer (see Figure 1). The uppermost aquifer consists of the unconfined saturated clayey sands of the upper Queen City that occur to the north of the MP right-of-way and the unconfined alluvium that only occurs within the flood plain of Town Creek to the south of the MP right-of-way. While the Queen City, as a whole, constitutes the uppermost aquifer in the region, it is only the upper saturated clayey sands that are considered part of the uppermost aquifer at the site. The Queen City portion of the uppermost aquifer is hydraulically connected to the alluvium, which has replaced the uppermost Queen City in the Town Creek floodplain. Although the Queen City is stratigraphically lower (i.e., "older") than the alluvium, the Queen City portion of the uppermost aquifer is higher in elevation than the alluvium at the Murray site (see Table 1).

The lower aquifer consists of the confined portion of the Queen City. As stated in Section 3.2 of the Report, dense, unsaturated, interbedded sandy clays and clayey sands of the Queen City hydraulically separate the lower confined aquifer from the Queen City portion of the uppermost aquifer (Figure 1). The lower confined aquifer in the Queen City to the north of the right-of-way occurs across the elevations of the alluvium and the underlying Queen City to the south of the right-of-way. For example, portions of the lower confined aquifer to the north of the right-of-way (such as at DMW-14) occur at the same elevation as the Queen City underlying the alluvium to the south of the right-of-way, whereas other portions of the lower confined aquifer (such as at DMW-16) occur at the same elevation as the alluvium.

An unsaturated sandy clay layer also occurs at the top of the Queen City underlying the alluvium in the Town Creek floodplain. This sandy clay layer is an extension of the sandy clays that separate the Queen City portion of the uppermost aquifer from the lower confined aquifer to the north of the MP right-of-way. This sandy clay layer inhibits the vertical flow of ground water from the alluvium to the underlying Queen City Formation. However, this sandy clay layer does not completely inhibit the hydraulic communication between the Queen City and alluvium portions of the uppermost aquifer as implied in the TNRCC's March 23rd letter. In those areas of the Town Creek floodplain where this sandy clay layer is absent (as at MW-26 near Town Creek), the Queen City underlying the alluvium is in direct contact and hydraulic communication with the overlying alluvium (Figure 1). (As a note, the sediments screened by MW-26 have been reinterpreted to be all alluvium as indicated by the lack of references to "interbedding or partings" within the clayey sand.)

Direction of Ground-Water Flow

Ground water in the uppermost aquifer flows from the landfill area toward the southeast in the Queen City portion of the uppermost aquifer and into the alluvium. Groundwater elevations from monitor wells in the uppermost aquifer generally range from 345 feet above mean sea level (ft msl) to 355 ft msl in the Queen City portion and generally range from 320 to 330 ft msl in the alluvium. Water levels in the lower confined aquifer generally range from 333 to 348 ft msl. The water levels in the lower aquifer are always higher in elevation than the water levels in the alluvium, which indicates that ground water will tend to flow from the lower portions of the Queen City to the alluvium. Ground water in the alluvium ultimately discharges into Town Creek.

Occurrence of Ground-Water Contamination

Hazardous constituents have only been detected in the uppermost aquifer (in the upper Queen City and alluvium). As indicated in the TNRCC's March 23rd letter, the presence of contamination in both of these

components of the uppermost aquifer supports the fact that there is hydraulic communication between the units. However, no hazardous constituents are present in the lower aquifer of the Queen City.

The five indicator constituents routinely analyzed in samples collected from uppermost aquifer wells on a semiannual basis are 1,1-dichloroethane (DCA), 1,1-dichloroethene (DCE), methylene chloride (dichloromethane or DCM), 1,1,1-trichloroethane (TCA), and trichloroethene (TCE). Of these constituents, three constituents (DCA, DCE, and TCA) have been routinely detected in the alluvium portion of the uppermost aquifer (e.g., corrective action observation wells MW-10 and MW-18). These same three constituents have also been routinely detected in the Queen City portion of the uppermost aquifer (e.g., point of compliance wells MW-5 and MW-6, recovery wells MW-8 and MW-9 and corrective action observation well MW-4). The concentrations of the monitored constituents identified from the most recent semiannual event (April 1999) in samples collected from uppermost aquifer monitor wells are summarized in Table 2. As shown in the table, the relative concentrations of DCA, DCE and TCA in both the Queen City and alluvium portions of the uppermost aquifer indicate that they are the dominant contaminants associated with both components of the uppermost aquifer.

Conclusions

The TNRCC concluded in their March 23rd letter that contamination within the Queen City might have the potential to migrate beyond Murray's property boundary due to the minimal hydraulic communication between the alluvium and the Queen City. As presented above, the Queen City contains two separate aquifers. Contamination only exists within the uppermost aquifer of the Queen City and not in the lower aquifer of the Queen City. While there is minimal hydraulic communication between the alluvium and the underlying portion of the Queen City, it is unlikely that contaminated ground water in the uppermost aquifer of the Queen City will flow into the portion of the Queen City beneath the alluvium for the following reasons:

- The Queen City portion of the uppermost aquifer is only located to the north of the MP right-of-way and is at a higher elevation than the alluvium within the Town Creek floodplain to the south of the right-of-way. The contaminated ground water in the Queen City portion of the uppermost aquifer flows to the southeast into the alluvium portion of the uppermost aquifer. Ground water within the alluvium beneath Murray's property discharges into and does not migrate beyond Town Creek.

- The lower confined and uncontaminated portion of the Queen City to the north of the right-of-way occurs across the elevations of the alluvium and the Queen City underlying the alluvium to the south of the right-of-way. Higher water level elevations in the lower aquifer of the Queen City than in the

alluvium indicate a potential for uncontaminated ground-water flow from the lower Queen City into the alluvium.

- The sandy clay layer that exists beneath portions of the alluvium to the south of the MP right-of-way is an extension of the dense sandy clay layers that have prevented vertical migration of contamination from the uppermost aquifer of the Queen City into the lower aquifer of the Queen City to the north of the MP right-of-way. The potential flow of uncontaminated ground water from the lower Queen City into the alluvium further reduces the potential for contamination within the uppermost portion of the Queen City to migrate into the portion of the Queen City underlying the alluvium. Since the sandy clay layer is absent at MW-26, the lower portion of the Queen City is in direct contact with the alluvium in the vicinity of Town Creek. Therefore, ground water within the lower portions of the Queen City will ultimately discharge to Town Creek along with the alluvial ground water.

Based on the information presented in this technical evaluation, contamination should neither migrate into the Queen City Formation beneath the alluvium nor have the potential to migrate beyond Murray's property within the Queen City Formation. Therefore, additional investigation down-gradient of MW-26 is not warranted.

Table 1

Lithologic and Water-Bearing Characteristics of Geologic Units Beneath Murray Corporation

Geologic Unit	Approximate Elevation of Unit (Ft-MSL)	Generalized Lithologic Characteristics	Water-Bearing Unit and Characteristics
Alluvium	335 to 310 (< 300 at MW-26)	Terrace and flood plain deposits of surficial silty sands and underlying clay and clayey sands with hematitic gravels	Uppermost Aquifer Occurs under water table conditions, ground water flows toward and discharges into Town Creek
Upper Queen City	370 to 340	Clayey sands with minor amounts of sand and gravelly sands and clay; reddish to gray	
Lower Queen City	340 to < 300	Clay, sandy clays, clayey sands, and silty sands; characteristic laminations/ interbedded gray sediments	Lower Aquifer Occurs under confined conditions; saturation occurs mainly within the silty sands

Ft-MSL – Feet above mean sea level

Table 2

Concentrations of Monitored Constituents

From Upper Queen City and Alluvial Monitor Wells – April 1999

UPPER QUEEN CITY WELLS	DCA (mg/L)	DCE (mg/L)	DCM (mg/L)	TCA (mg/L)	TCE (mg/L)
MW-4	0.061	0.089	<0.020	0.015	<0.005
MW-6	0.350	1.10	0.078	3.50	0.042
MW-8	0.036	1.20	0.051	6.80	0.059
MW-9	0.059	0.320	<0.020	0.042	<0.005
MW-23	0.250	0.495	<0.100	0.210	<0.025
ALLUVIAL WELLS					
MW-10	0.440	3.20	<0.100	1.80	0.034
MW-18	0.047	0.140	<0.020	0.021	<0.005
MW-26	0.072	0.210	<0.100	<0.025	<0.025

Notes:

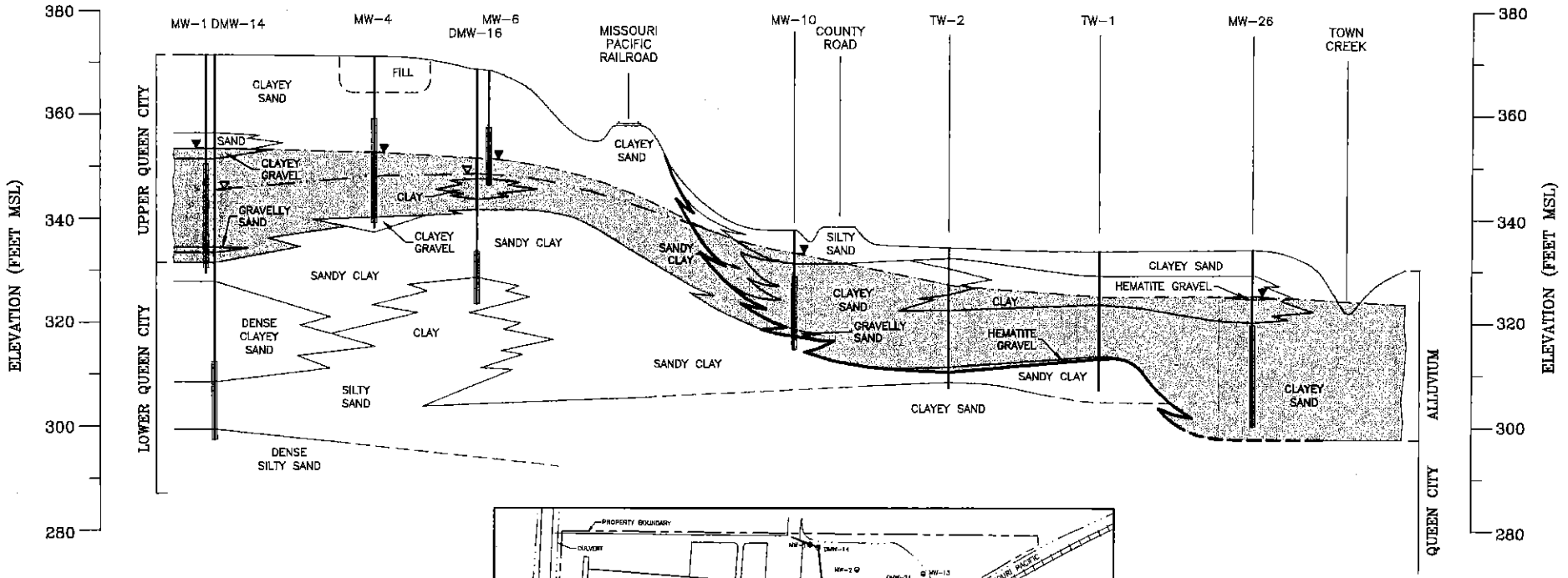
DCA - 1,1-Dichloroethane

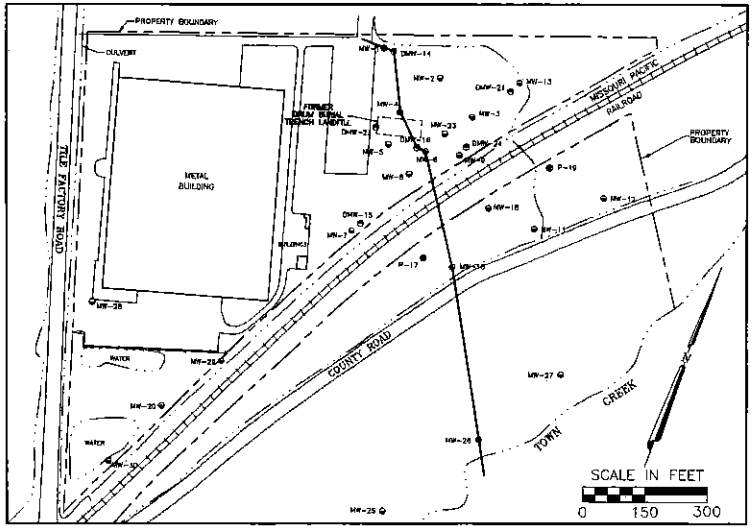
DCE - 1,1-Dichloroethene

DCM - Methylene Chloride

TCA - 1,1,1-Trichloroethane

TCE - Trichloroethene





LEGEND

- MW-1 — WELL IDENTIFICATION
- WELL CASING
- WATER LEVEL IN UPPERMOST AQUIFER (JULY 1999)
- WATER LEVEL IN LOWER AQUIFER (JULY 1999)
- SCREENED INTERVAL
- GROUND-WATER ELEVATION UPPERMOST AQUIFER (JULY 1999)
- GROUND-WATER ELEVATION LOWER AQUIFER (JULY 1999)
- LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
- STRATIGRAPHIC CONTACT BETWEEN QUEEN CITY AND ALLUVIUM
- SATURATED ZONE OF UPPERMOST AQUIFER

HORIZONTAL SCALE IN FEET
0 50 100 200

MURRAY CORPORATION
PALESTINE, TEXAS

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FIGURE 1
NORTH-SOUTH CROSS SECTION
OF SHALLOW STRATIGRAPHY

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Austin, Texas 78746

NORTH

SOUTH

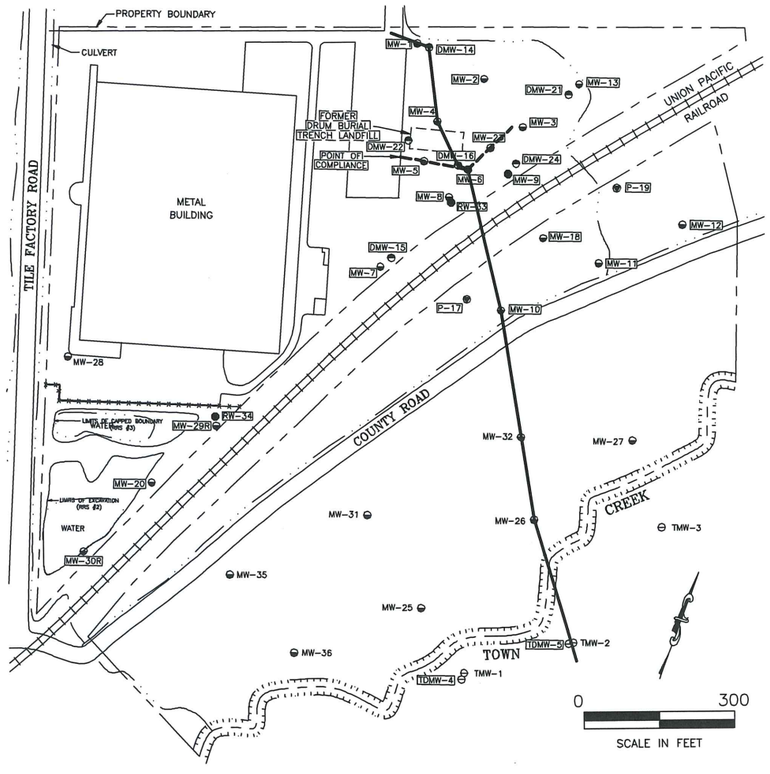
ELEVATION (FEET MSL)

380
360
340
320
300
280

MW–1 DMW–14
MW–4
MW–6 DMW–16
UNION PACIFIC RAILROAD
MW–10
COUNTY ROAD
TW–2
MW–32
TW–1
MW–26
TOWN CREEK
TMW–2 TDMW–5

UPPER QUEEN CITY
LOWER QUEEN CITY
QUEEN CITY
ALLUVIUM

CLAYEY SAND
FILL
SAND
CLAYEY GRAVEL
CLAY
GRAVELLY SAND
SANDY CLAY
DENSE CLAYEY SAND
SILTY SAND
DENSE SILTY SAND
SILTY SAND
HEMATITE GRAVEL
SANDY CLAY
CLAYEY SAND
SILTY SAND
SANDY CLAY



LEGEND

MW–1 WELL IDENTIFICATION
WELL CASING
WATER LEVEL IN UPPERMOST AQUIFER (APRIL/MAY 2003)
WATER LEVEL IN LOWER AQUIFER (MARCH 2003)
SCREENED INTERVAL
GROUND–WATER ELEVATION UPPERMOST AQUIFER (APRIL/MAY 2003)
GROUND–WATER ELEVATION LOWER AQUIFER (MARCH 2003)
LITHOLOGIC CONTACT (DASHED WHERE INFERRED)
STRATIGRAPHIC CONTACT BETWEEN QUEEN CITY AND ALLUVIUM
SATURATED ZONE OF UPPERMOST AQUIFER

STATE OF TEXAS
MARK S. KATTERJOHN
Geology
2801
LICENSED
PROFESSIONAL GEOSCIENTIST

0 100
HORIZONTAL SCALE IN FEET

MURRAY CORPORATION
PALESTINE, TEXAS

Proj#: 001–01 | Date: 2/04/04 | File: 001010–48

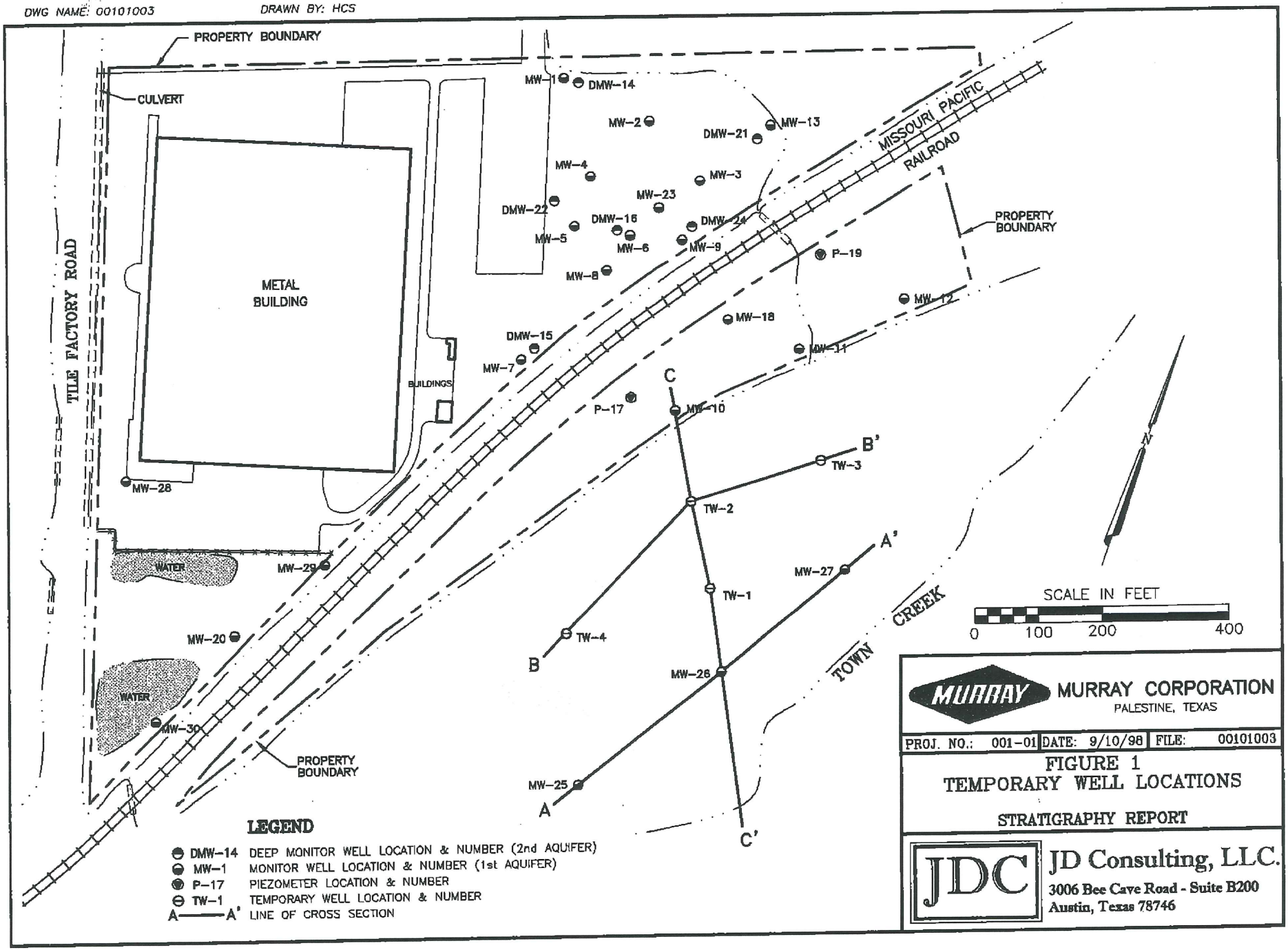
FIGURE 1

NORTH-SOUTH CROSS SECTION OF SHALLOW STRATIGRAPHY

JDC
JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

001010–48.dwg 2/04/04 Hunter CAD Services

DWG NAME: 00101003 DRAWN BY: HCS



LEGEND

- DMW-14 DEEP MONITOR WELL LOCATION & NUMBER (2nd AQUIFER)
- MW-1 MONITOR WELL LOCATION & NUMBER (1st AQUIFER)
- P-17 PIEZOMETER LOCATION & NUMBER
- TW-1 TEMPORARY WELL LOCATION & NUMBER
- A——A' LINE OF CROSS SECTION

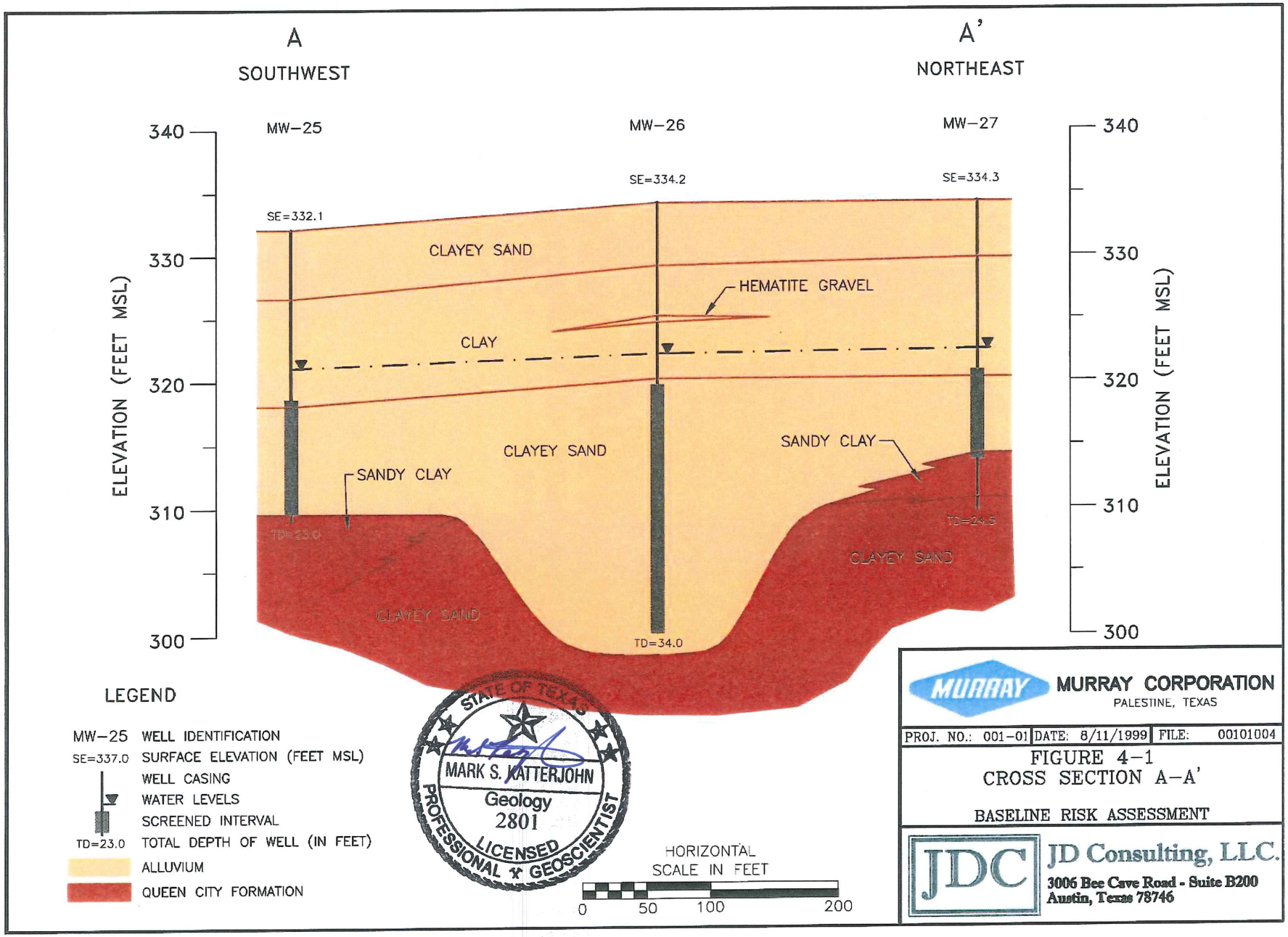
MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.:	DATE:	FILE:
001-01	9/10/98	00101003

FIGURE 1
TEMPORARY WELL LOCATIONS

STRATIGRAPHY REPORT

JD Consulting, LLC.
3006 Bee Cave Road - Suite B200
Austin, Texas 78746



MURRAY CORPORATION
PALESTINE, TEXAS

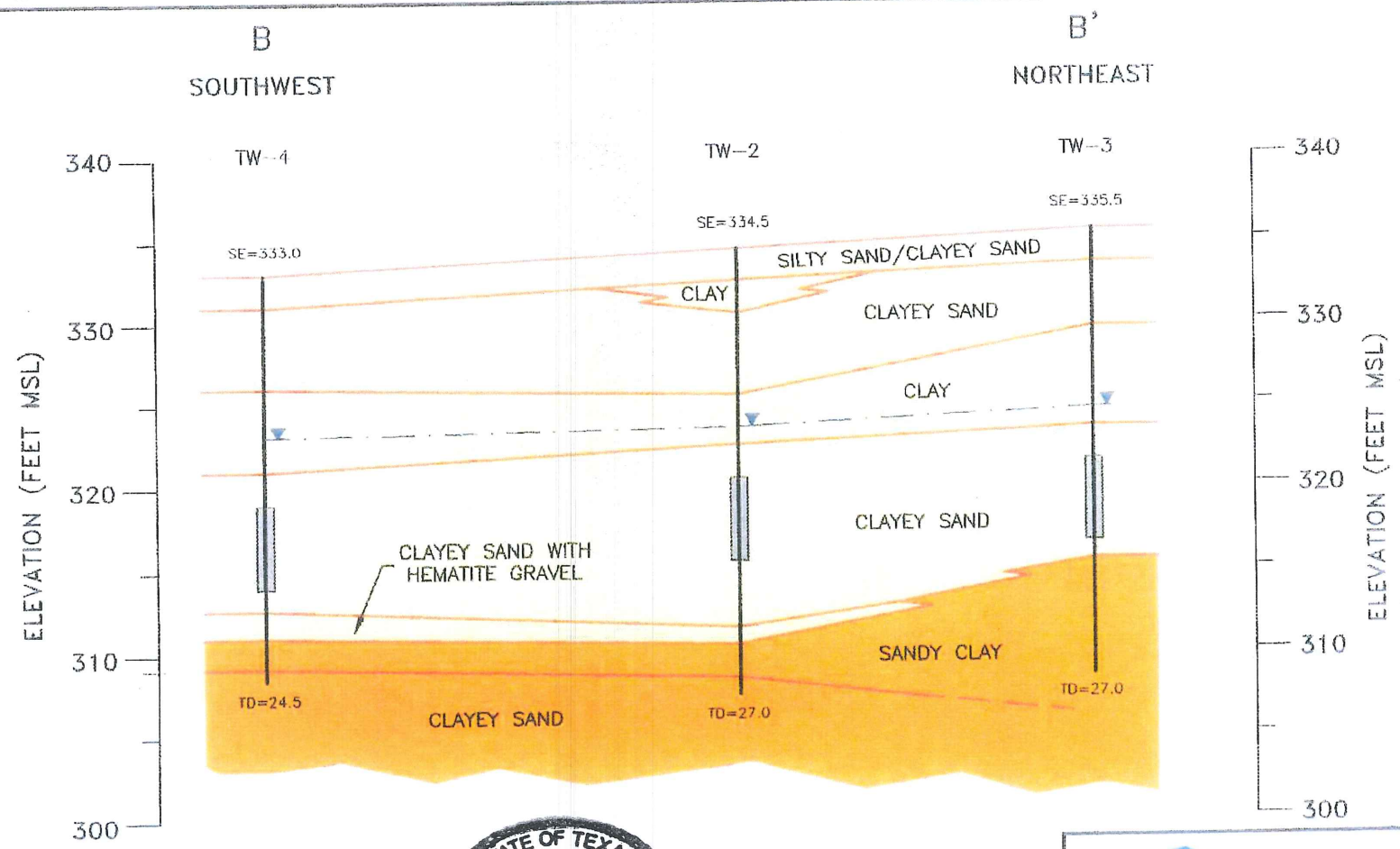
PROJ. NO.: 001-01	DATE: 8/11/1999	FILE: 00101004

FIGURE 4-1
CROSS SECTION A-A'

BASELINE RISK ASSESSMENT

JD Consulting, LLC.
3006 Bee Cave Road - Suite B200
Austin, Texas 78746

DWG NAME: 00101004 DRAWN BY: WAH



LEGEND

TW-4	WELL IDENTIFICATION
SE=337.0	SURFACE ELEVATION (FEET MSL)
	WELL CASING
	WATER LEVELS
	SCREENED INTERVAL
TD=24.5	TOTAL DEPTH OF WELL (IN FEET)
	ALLUVIUM
	QUEEN CITY FORMATION

STATE OF TEXAS
MARK S. KATTERJOHN
Geology
2801
LICENSED
PROFESSIONAL GEOSCIENTIST

HORIZONTAL SCALE IN FEET
0 50 100 200

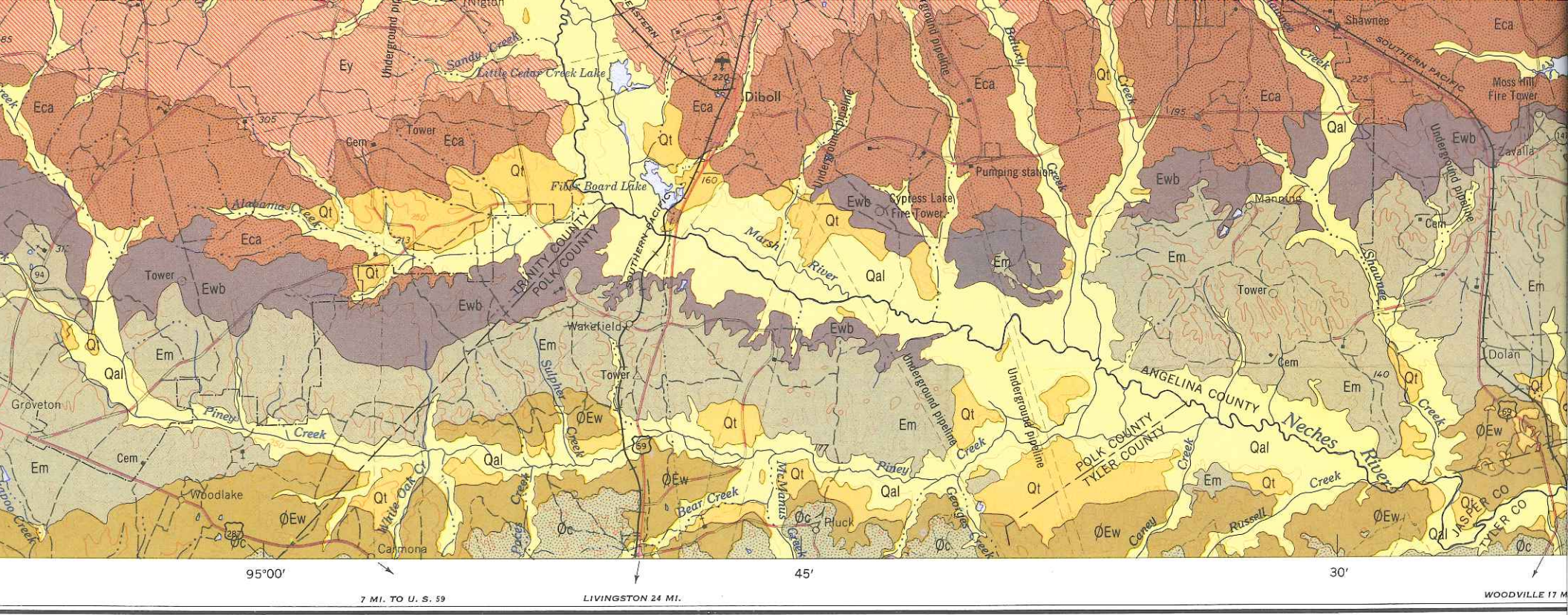
MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.:	DATE:	FILE:
001-01	10/15/98	00101004

FIGURE 4-2
CROSS SECTION B-B'

BASELINE RISK ASSESSMENT

JDC JD Consulting, L.L.C.
3006 Bee Cave Road - Suite B200
Austin, Texas 78746



Scale 1:250,000

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers

5 0 5 10 Nautical Miles

CONTOUR INTERVAL 50 FEET
WITH SUPPLEMENTARY CONTOURS AT 25 FOOT INTERVALS

TRANSVERSE MERCATOR PROJECTION

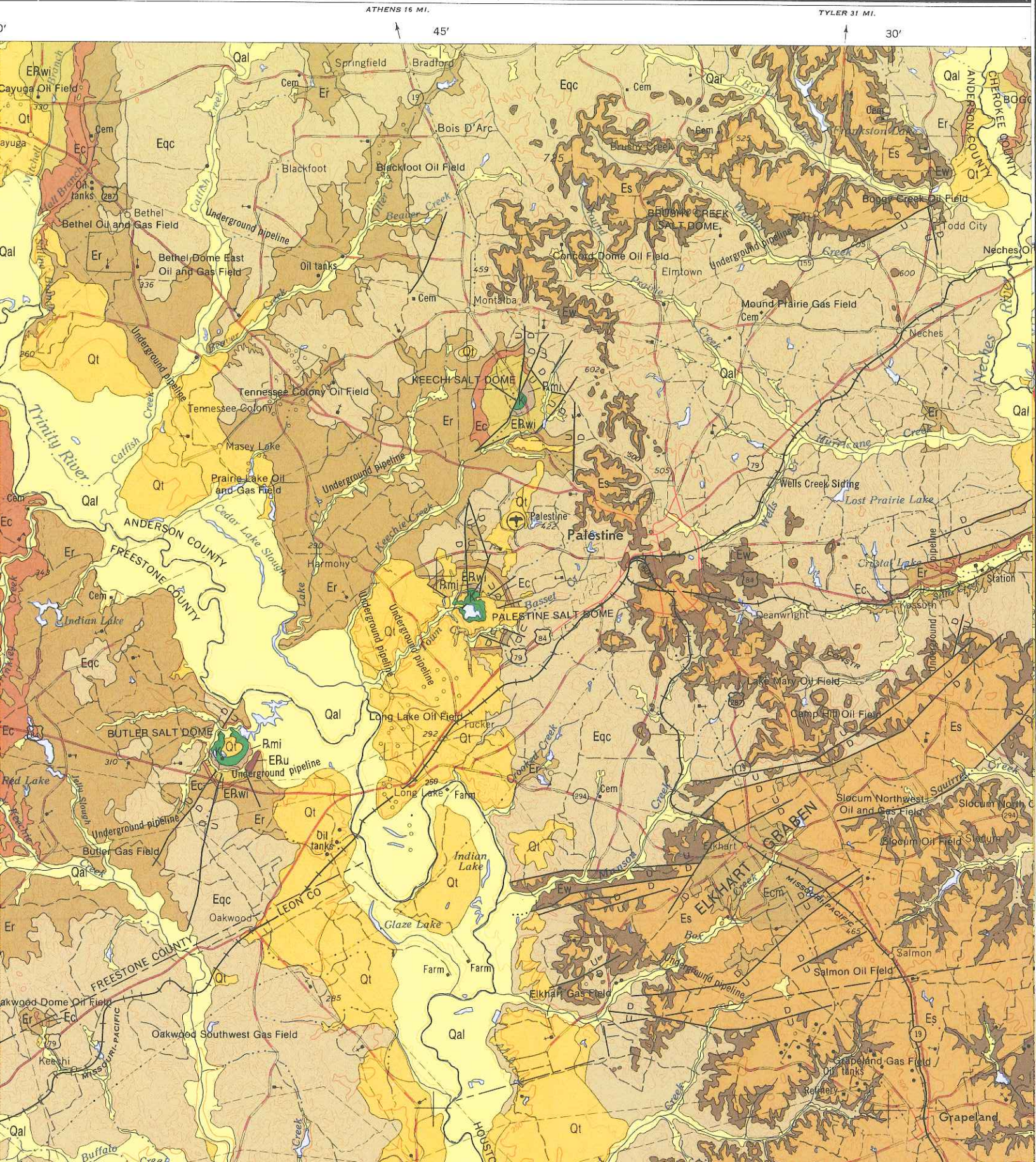
1992 MAGNETIC DECLINATION FOR CENTER OF THIS SHEET
IS 5°14′ E. MEAN ANNUAL CHANGE IS 6.2′ WESTERLY

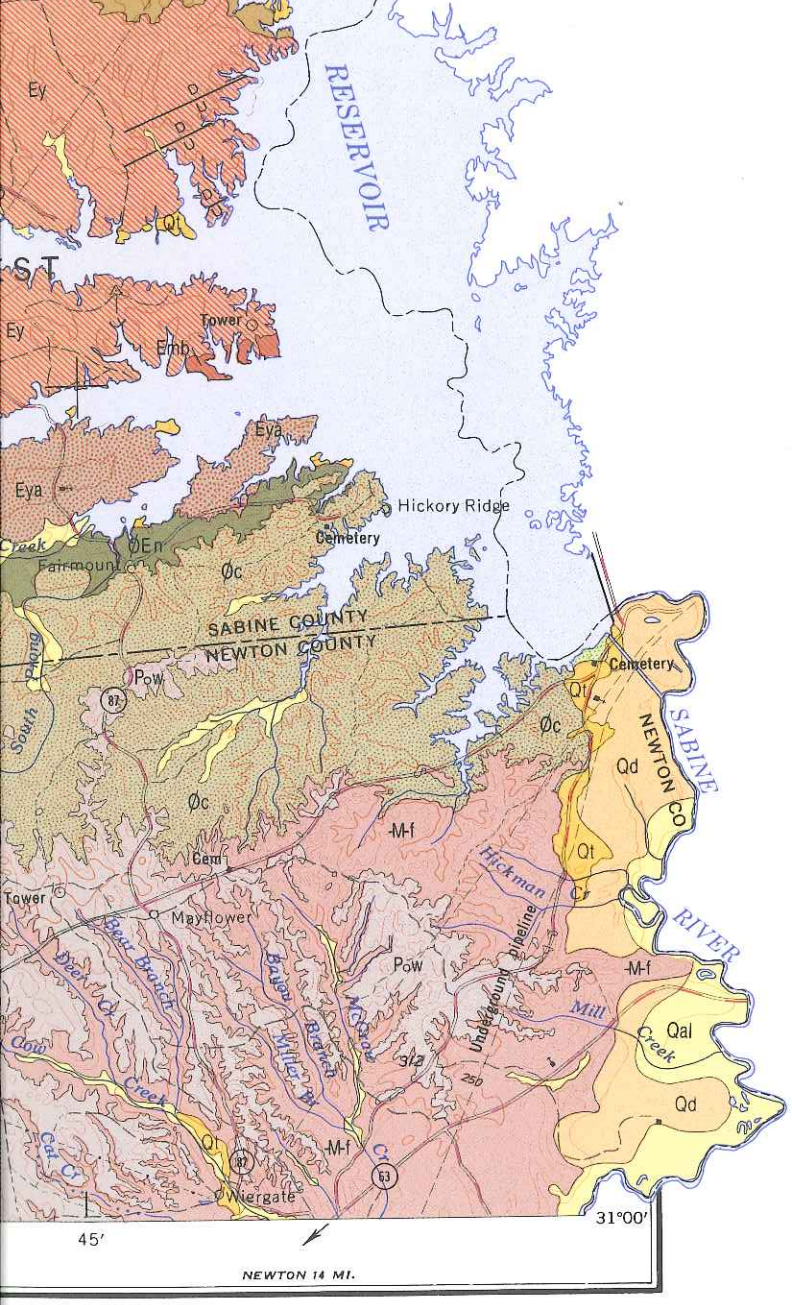
GEOLOGIC ATLAS OF TEXAS, PALESTINE SHEET

SIDNEY POWERS MEMORIAL EDITION

REVISED 1993

UNIVERSITY OF TEXAS AT AUSTIN
UREAU OF ECONOMIC GEOLOGY
W. L. FISHER, DIRECTOR





VIRGIL E. BARNES, PROJECT DIRECTOR

C. A. SHELBY, M.K. PIEPER, and V.E. BARNES, Bureau of Economic Geology, The University of Texas at Austin, and EAST TEXAS GEOLOGICAL SOCIETY GEOLOGIC ATLAS COMMITTEE, A. C. WRIGHT, Chairman.

Geologic mapping mostly by Shell Oil Company and Humble Oil & Refining Company, supplemented by mapping from Pan American Petroleum Corporation, Mobil Oil Company, and sources shown on Index of Geologic Mapping. Oil company mapping mostly compiled and in part field checked by members of Geologic Atlas Project Committee, East Texas Geological Society, A. C. Wright (Shell Oil Company, retired), Chairman, H. D. McCallum, E. A. Wendlandt, and S. O. Burford (Humble Oil & Refining Company, retired), T. H. Shelby, Jr. (Humble Oil & Refining Company), D. T. Gibson (Pan American Petroleum Company), and R. W. Eaton (P. G. Lake, Incorporated). Unmapped areas compiled by C. A. Shelby from high altitude aerial photographs, alluvium and terraces along Trinity River compiled by Mary Kathryn Pieper; field checked by C. A. Shelby. Appreciation is expressed to D. H. Eargle, U.S. Geological Survey, for field consultation on Willis and Fleming rocks.

Cartography by J. W. Macon, Barbara K. Hartmann, D.F. Scranton, and W. G. Jones.

For 1993 revision Quaternary units were remapped by V.E. Barnes using U.S. Geological Survey, 1:24,000 scale, 7 1/2 minute topographic quadrangle maps on file in Bureau of Economic Geology, Geologic Atlas of Texas file.

Cartography by Barbara K. Hartmann.

Includes from top down Therrill, Viesca, and Tyus Members, not separately mapped, glauconite, glauconitic marl, quartz sand, and clay, grayish green; weathers to yellowish brown and reddishbrown, limonitic, banded, clay-ironstone; marine megafossils abundant; forms scarp; thickness 50-90 feet; lower part equivalent to upper part of Cane River Formation in Louisiana

Eqc

Queen City Sand

Quartz sand, fine grained, brownish gray; thin irregular interbeds of light brown to light gray clay; a few glauconitic lentils; clay-ironstone beds and concretions common. Sand weathers pale red to grayish orange, clay weathers brownish gray to very light gray, resulting in a distinctive intermixing of colors characteristic of the formation. Thickness 325 feet in southwestern Anderson County, feathers out eastward in western San Augustine County

Er

Reklaw Formation

Includes from top down Marquez and Newby Members, not separately mapped; thickness 30-130 feet, thins eastward. Marquez Member, clay and silt, carbonaceous, lentils of glauconitic clay-ironstone contain marine megafossil imprints, calcite and glauconite more abundant in eastern Nacogdoches County, brownish black, brownish gray, and reddish brown; weathers light brown to light gray; merges eastward in Louisiana with light yellowish-gray clay of the lower part of the Cane River Formation. Newby Member, glauconite, quartz sand, and clay, grayish green; weathers to moderate brown and yellowish-brown clay-ironstone; marine megafossils common; forms low scarp; thickness 5-40 feet

Ec

Carrizo Sand

Quartz sand, some feldspar and chert grains. Upper part—sand, fine grained, some medium gray to dark gray clay and silt interbeds and black carbonaceous partings, some sparry calcite cement, thinly bedded, light gray to brownish gray; weathers pale red to reddish brown and light gray. Lower part—sand, fine to medium grained, thickly bedded to massive. Thickness 60-150 feet.

ERu

Carrizo Sand and Wilcox Group undivided on Butler dome

ERwi

Wilcox Group undivided

Northeastern area—Upper 325 feet, quartz sand, glauconite, silt, clay, lignitic clay, and lignite. Lower 300 feet, quartz sand, lignitic clay, calcareous silt and clay, glauconitic units in upper and lower parts. Marine megafossils. Thickness 625 feet

Northwestern area—Quartz sand, fine to coarse grained, argillaceous, silt interbeds, large sandstone concretions, gray; weathers reddish brown; upper few feet crop out within map area. Subsurface thickness in southwestern Anderson County about 2,000 feet

Paleocene

Rmi

Midway Group

Clay and marl on Keechi, Palestine, and Butler domes; may include some Wilcox rocks

K

Cretaceous rocks undivided

On Palestine dome, limestone, sandstone, shale, clay, and marl. Strata identified include Navarro, Taylor, Austin, Eagle Ford, Woodbine, and Buda rocks; may contain some Midway rocks of Paleocene age

On Butler and Keechi domes, chalk, clay, and marl. Strata identified include (Keechi dome) Navarro and Taylor rocks, including Pecan Gap Chalk; (Butler dome) Navarro rocks; low-lying central part of dome outlined by dashed contact may be underlain by soft Taylor rocks

Upper Cretaceous

CRETACEOUS

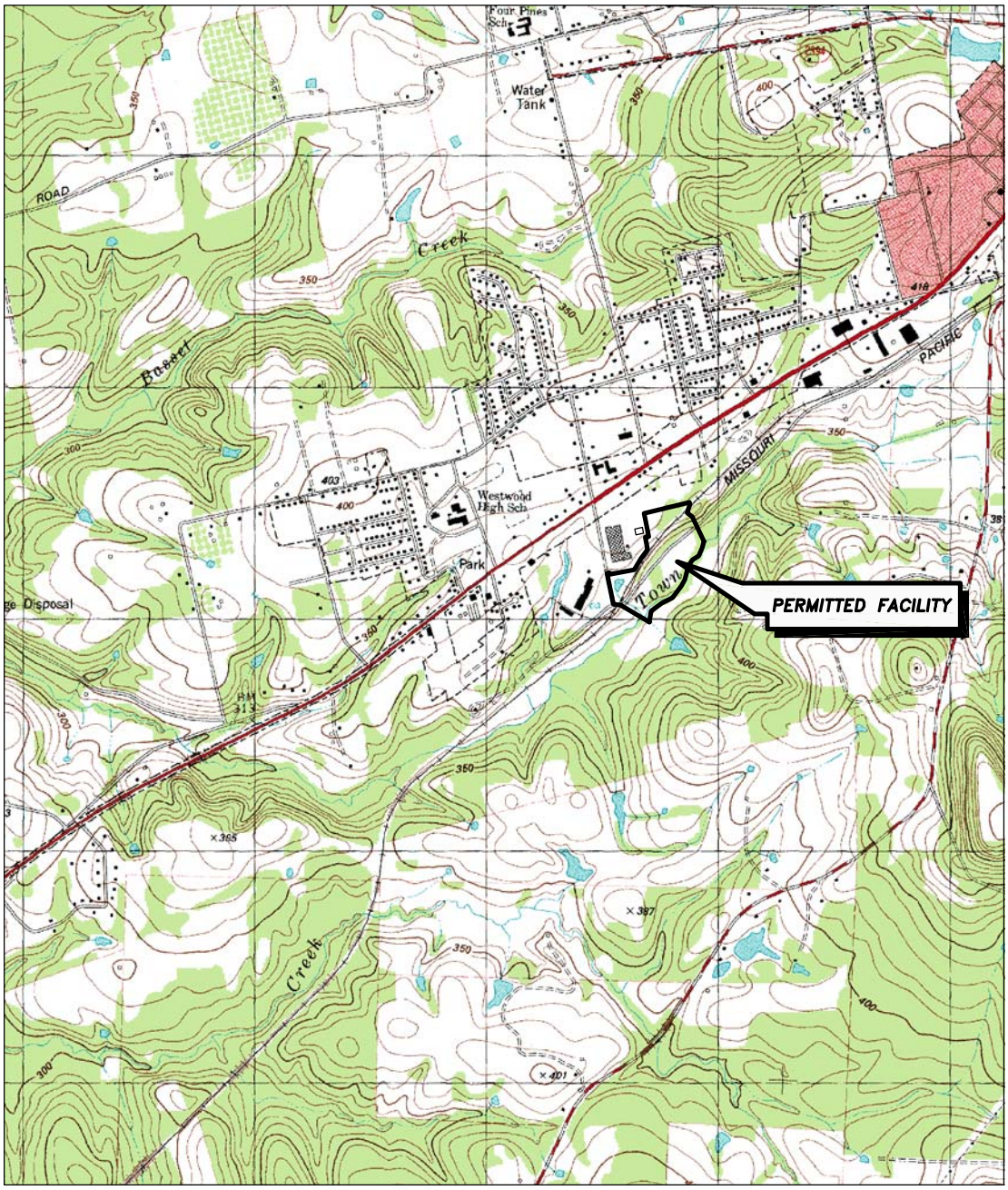
U
D

Fault

U, upthrown side; D, downthrown side; dotted where concealed

Attachment XI.A.1

Compliance Plan Figures



MAP SOURCES:

SOUTHWEST PALESTINE, TEX.
7.5 MINUTE SERIES U.S.G.S MAP

0 2000
SCALE IN FEET

MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 6/12/13 | 001010-50B.dwg

CP ATTACHMENT A
FACILITY LOCATION MAP

SHEET 1 OF 2

RPS
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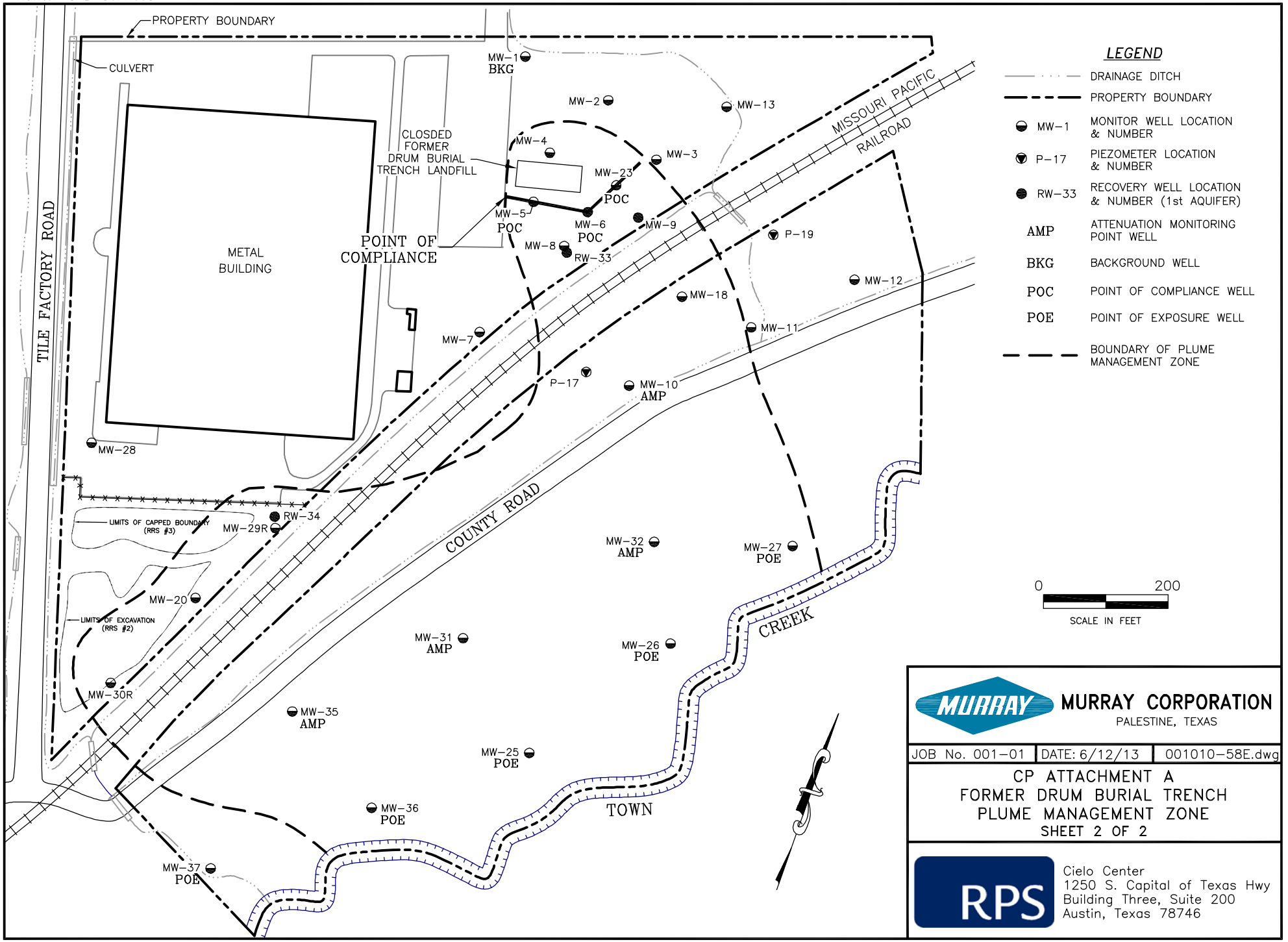
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/12/13	001010-58E.dwg

CP ATTACHMENT A
FORMER DRUM BURIAL TRENCH
PLUME MANAGEMENT ZONE
SHEET 2 OF 2

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Attachment XI.A.1.d

Historical Aerial Photographs

1/22/1995
600 ft
Image U.S. Geological Survey
Google earth
Imagery Date: 1/22/1995 31°43'43.40" N 95°40'24.02" W elev 340 ft eye alt 2599 ft

10/21/2005
1995
2012
N
600 ft
Image USDA Farm Service Agency
Google earth
Imagery Date: 6/27/2005 31°43'52.61" N 95°40'40.30" W elev 384 ft eye alt 2599 ft

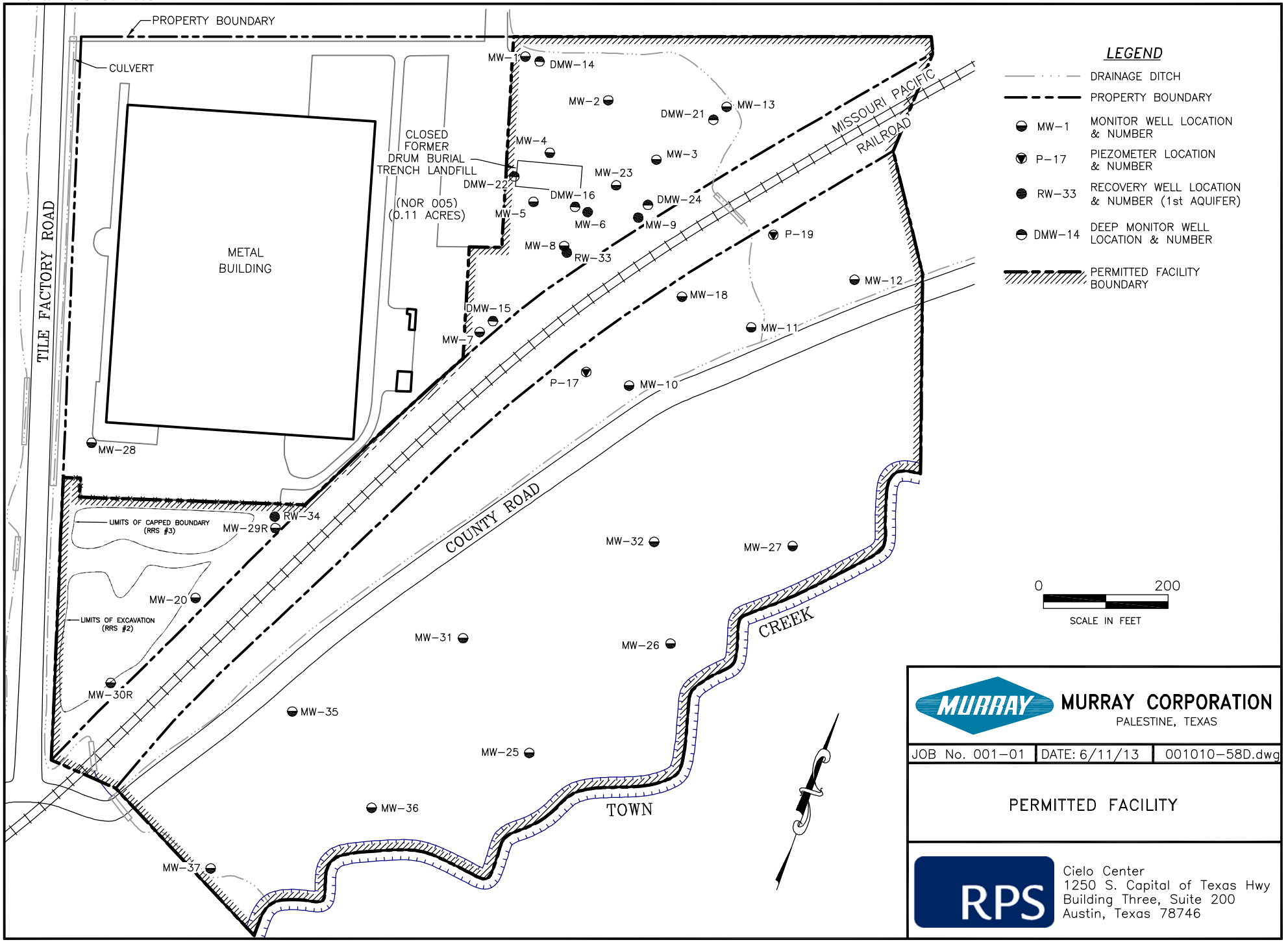
11/28/2011
600 ft
Texas Orthoimagery Program
Google earth
Imagery Date: 12/31/2008 31°43'53.70" N 95°40'32.54" W elev 381 ft eye alt 2599 ft

N
600 ft
Google earth
Imagery Date: 10/17/2012 31°43'52.70" N 95°40'34.61" W elev 380 ft eye alt 2599 ft

Attachment XI.A.2

Waste Management Unit Maps

Hunter CAD Services



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PERMITTED FACILITY

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Attachment XI.A.4

Current Contaminant Plume Maps

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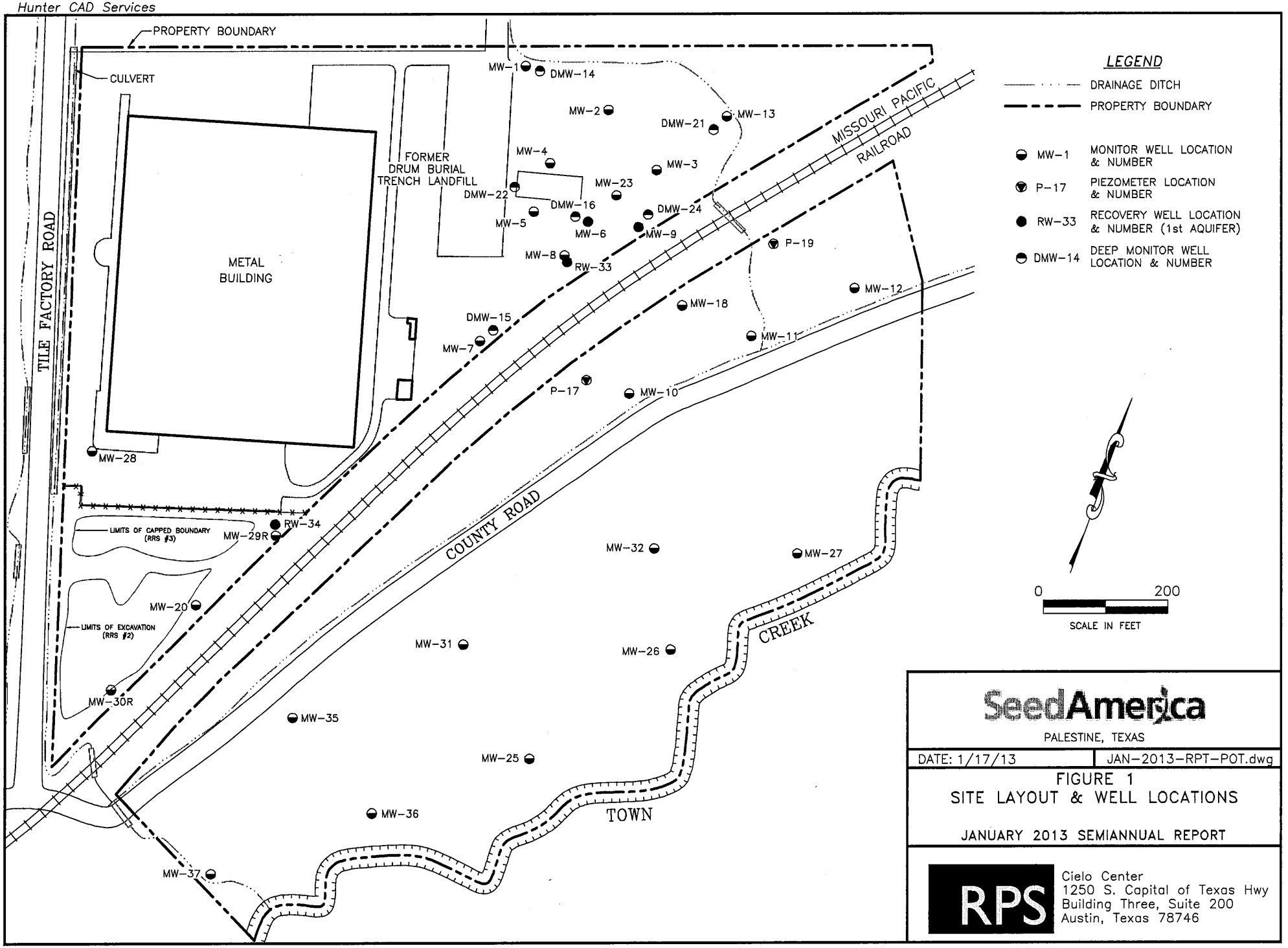

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FIGURE 1
SITE LAYOUT & WELL LOCATIONS

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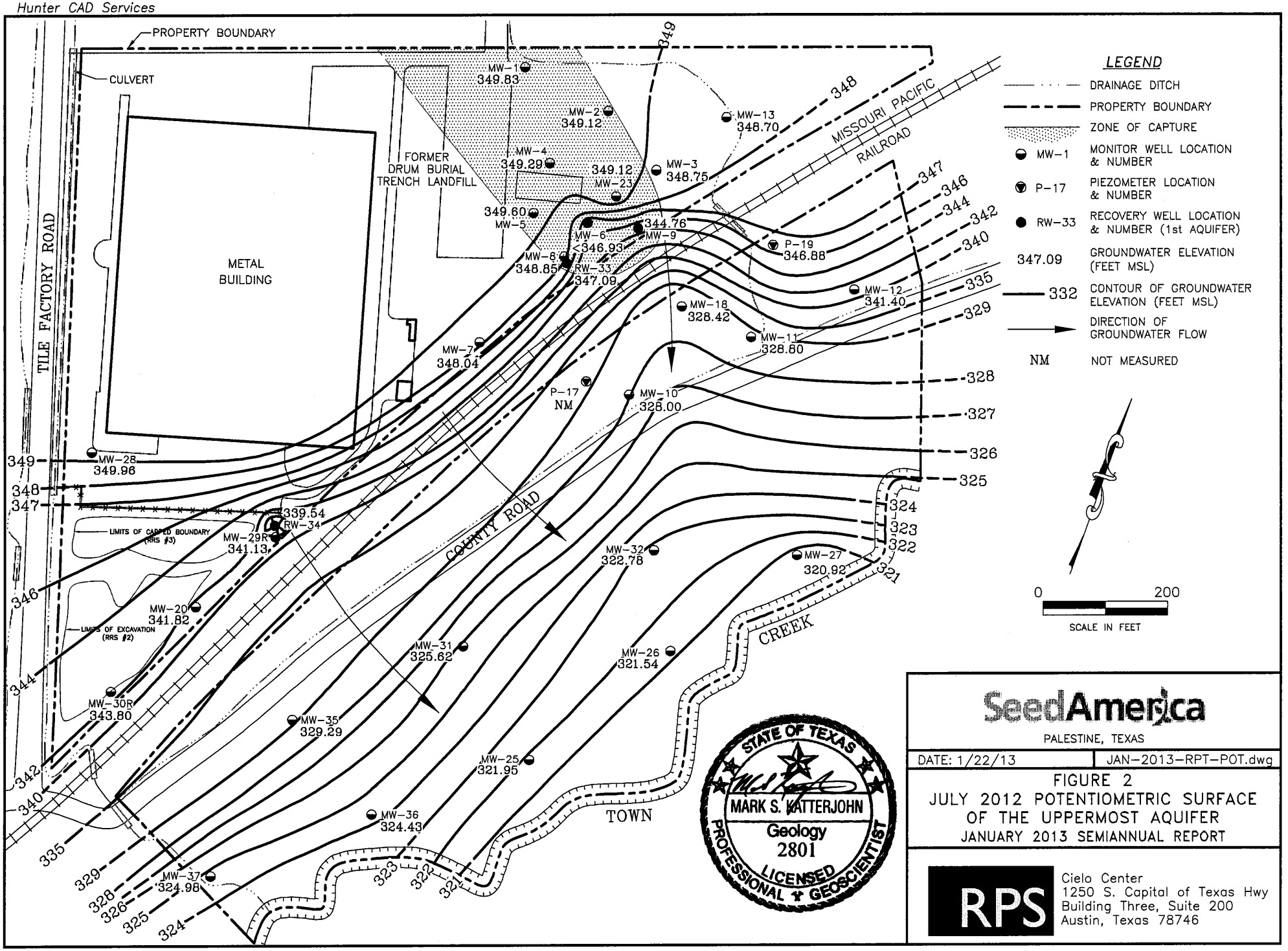

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- ZONE OF CAPTURE
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 347.09 — GROUNDWATER ELEVATION (FEET MSL)
- 332 — CONTOUR OF GROUNDWATER ELEVATION (FEET MSL)
- DIRECTION OF GROUNDWATER FLOW
- NM — NOT MEASURED

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FIGURE 2
JULY 2012 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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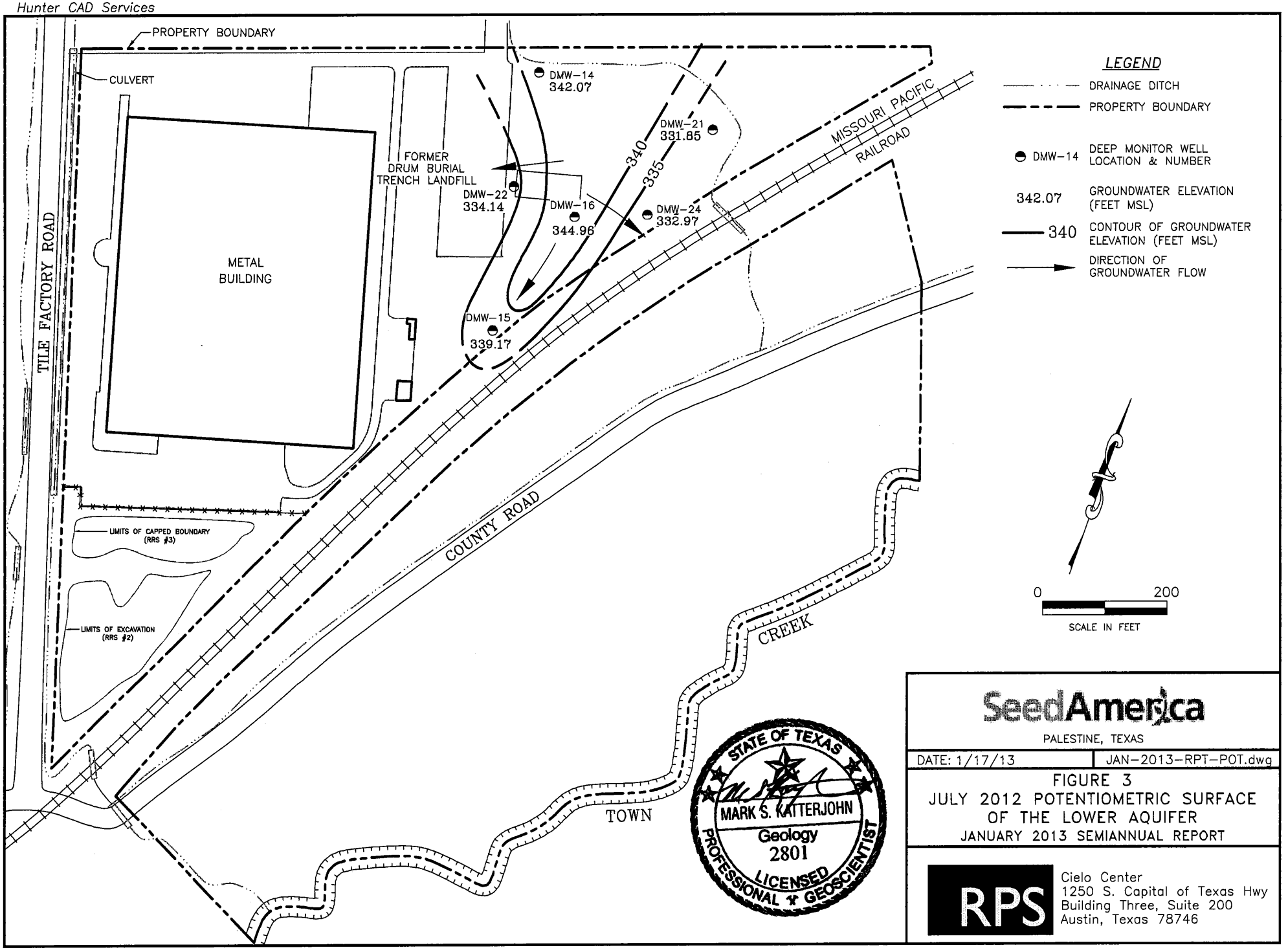

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FIGURE 3
JULY 2012 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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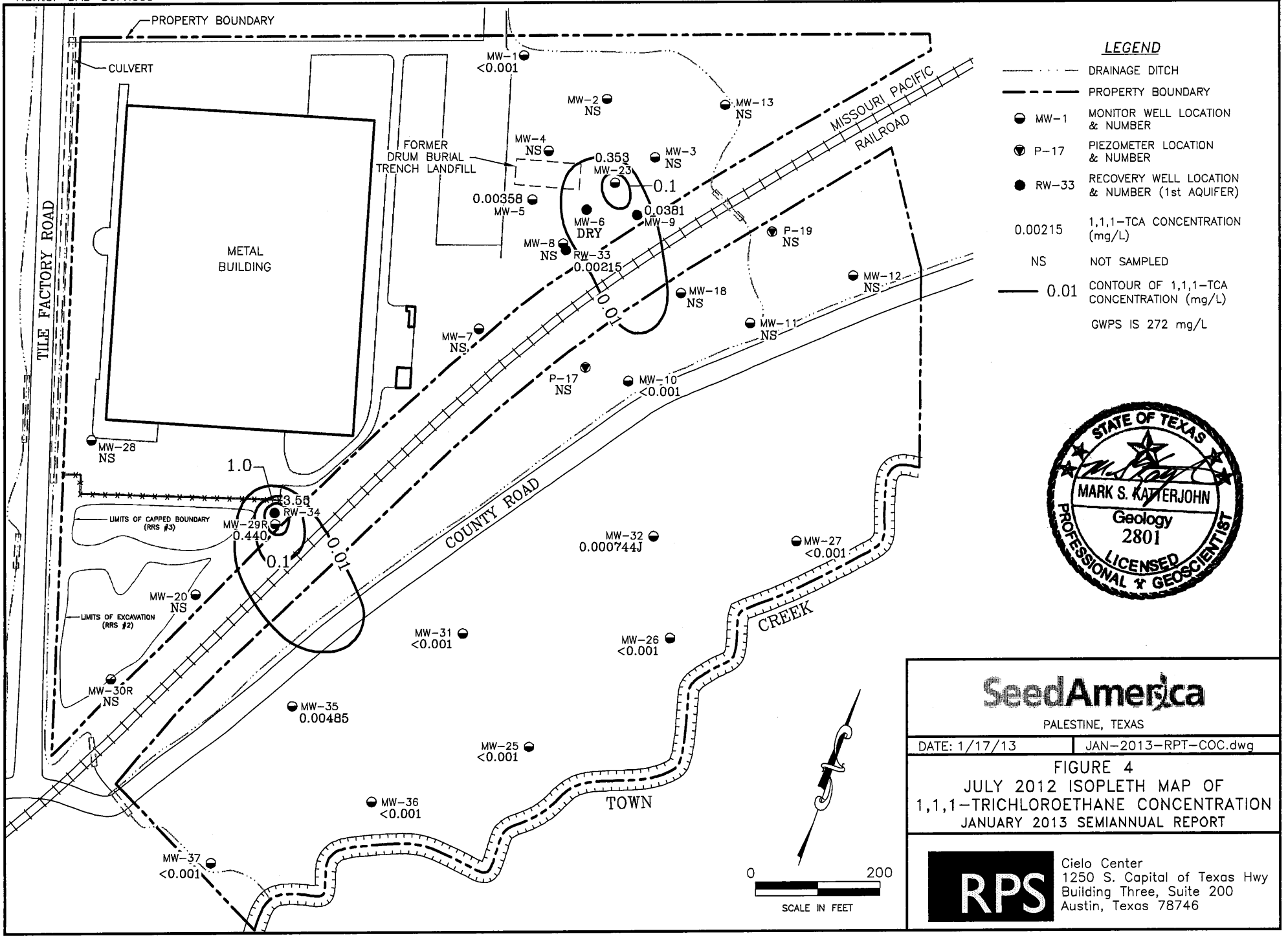

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00215 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)
- GWPS IS 272 mg/L

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FIGURE 4
JULY 2012 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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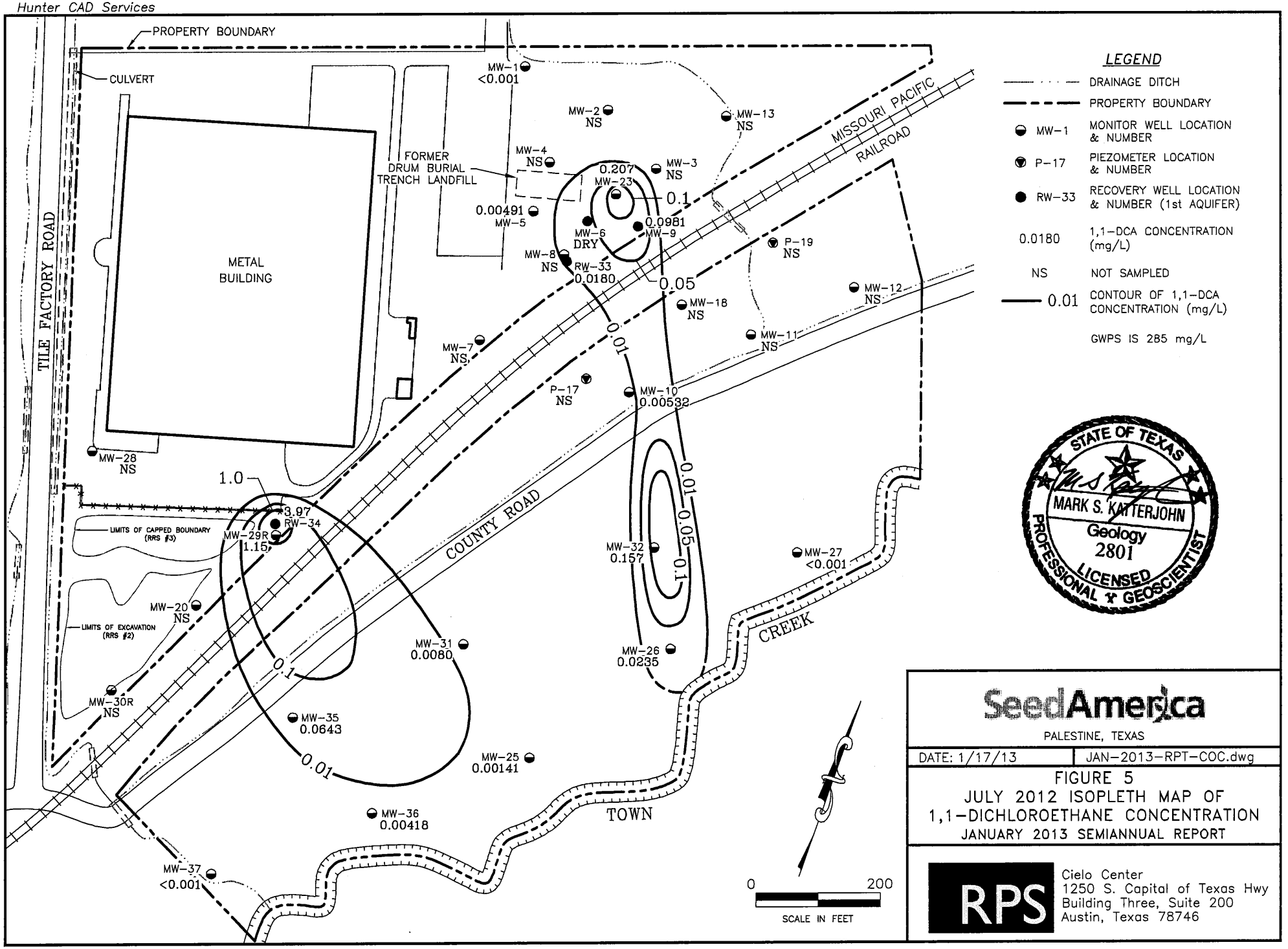

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0180 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)

GWPS IS 285 mg/L

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FIGURE 5
JULY 2012 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
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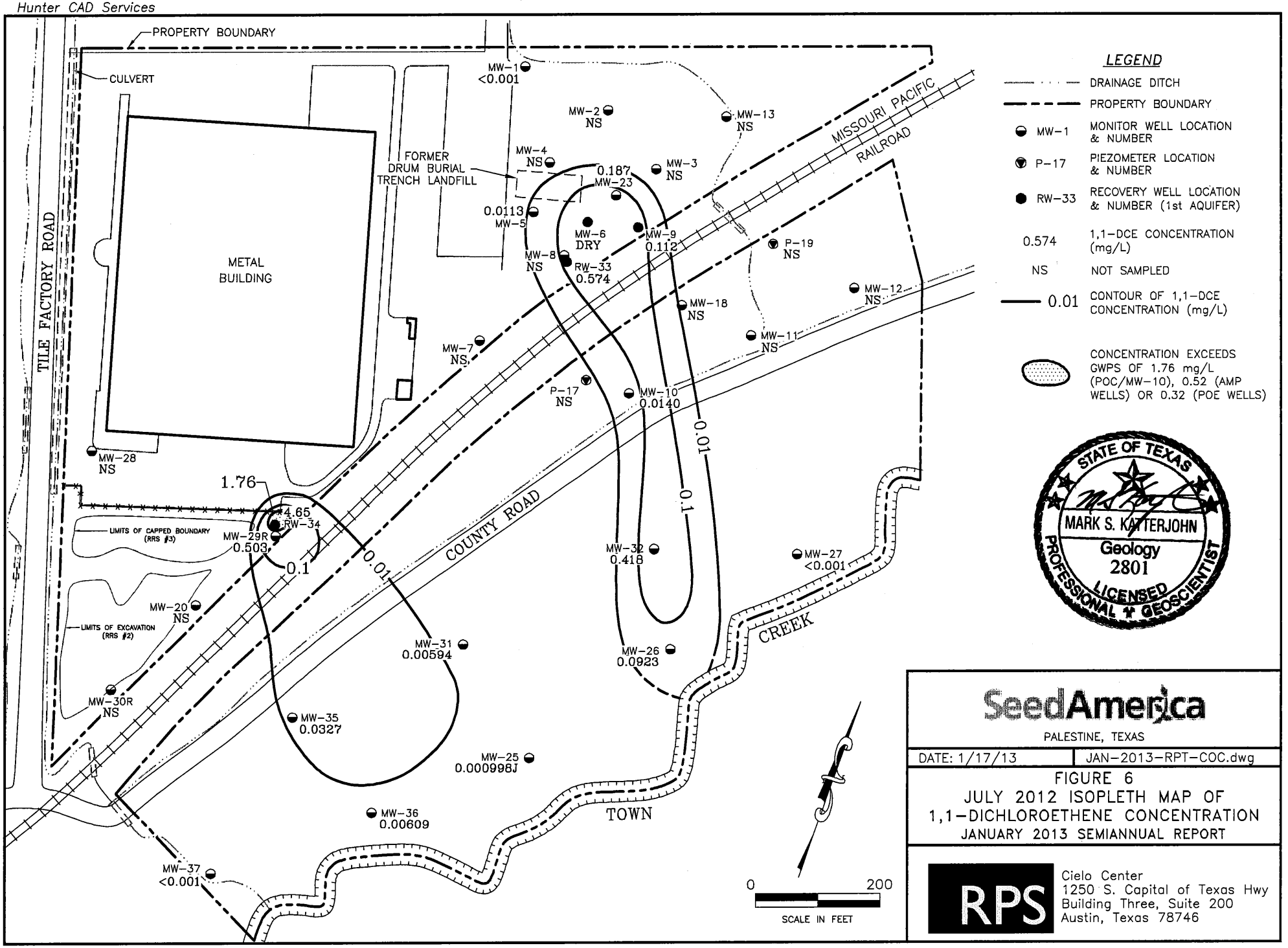

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.574 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)
- CONCENTRATION EXCEEDS GWPS OF 1.76 mg/L (POC/MW-10), 0.52 (AMP WELLS) OR 0.32 (POE WELLS)

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FIGURE 6
JULY 2012 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
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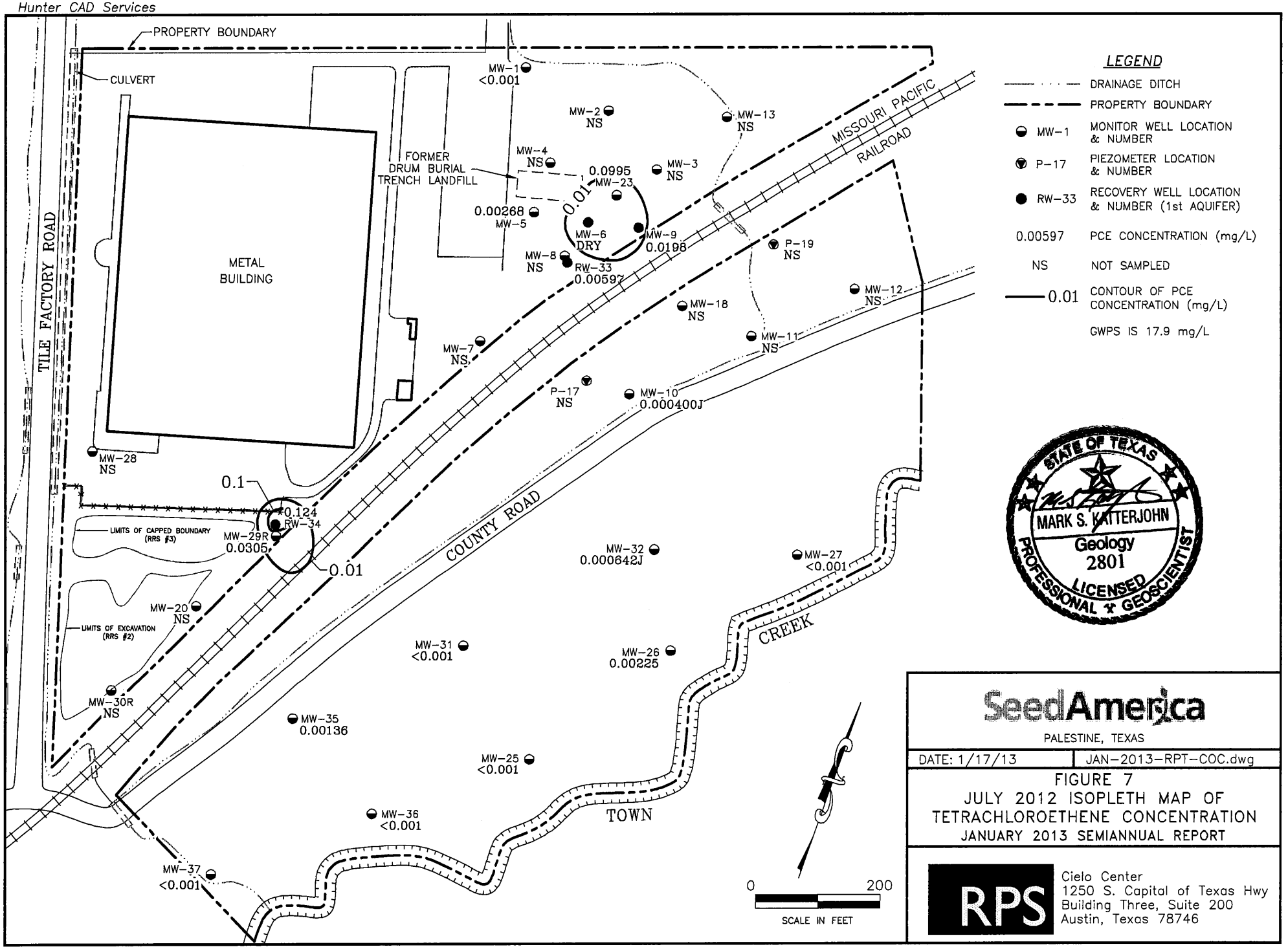

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00597 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L)

GWPS IS 17.9 mg/L

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FIGURE 7
JULY 2012 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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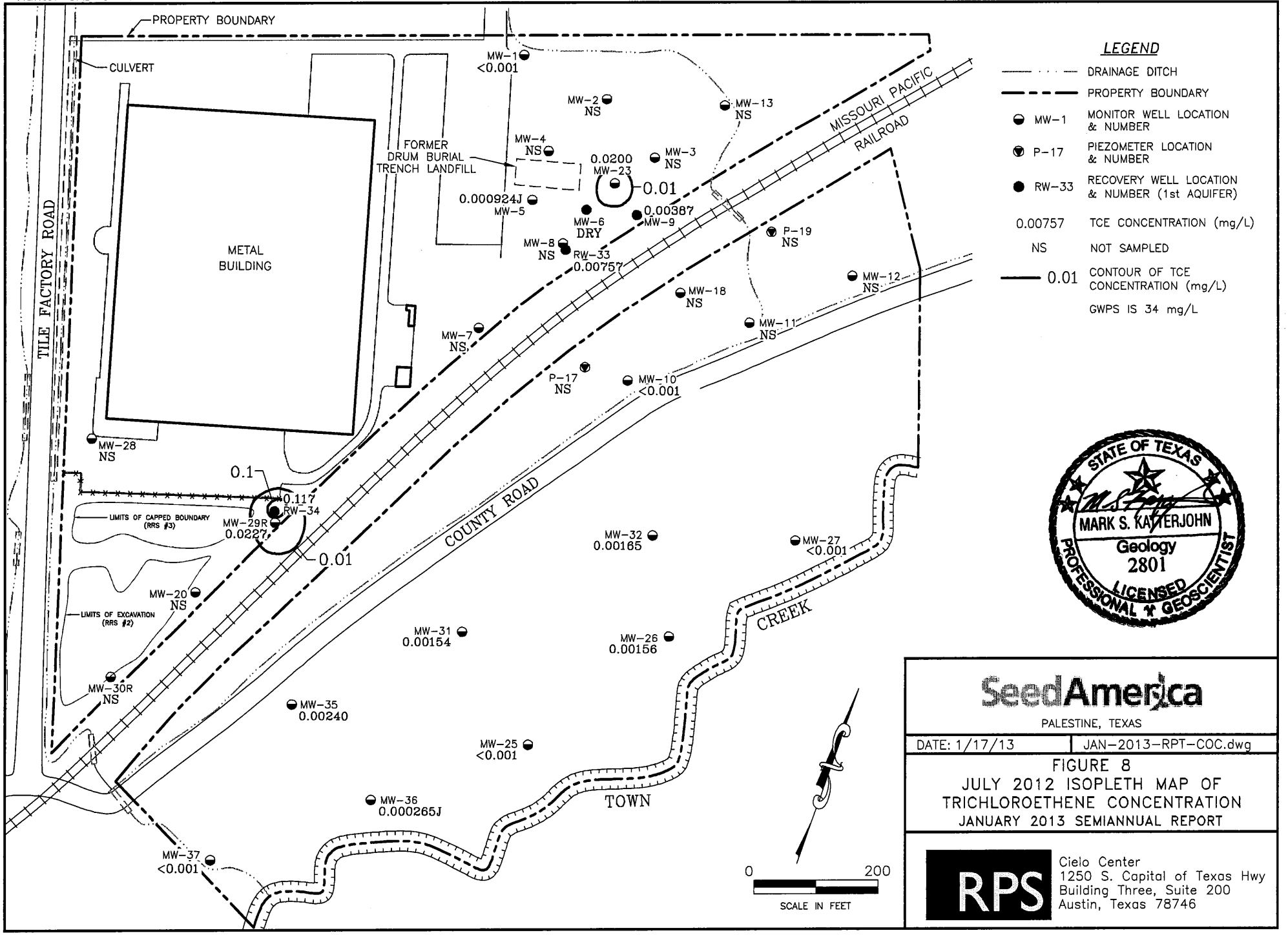

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00757 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 34 mg/L

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FIGURE 8
JULY 2012 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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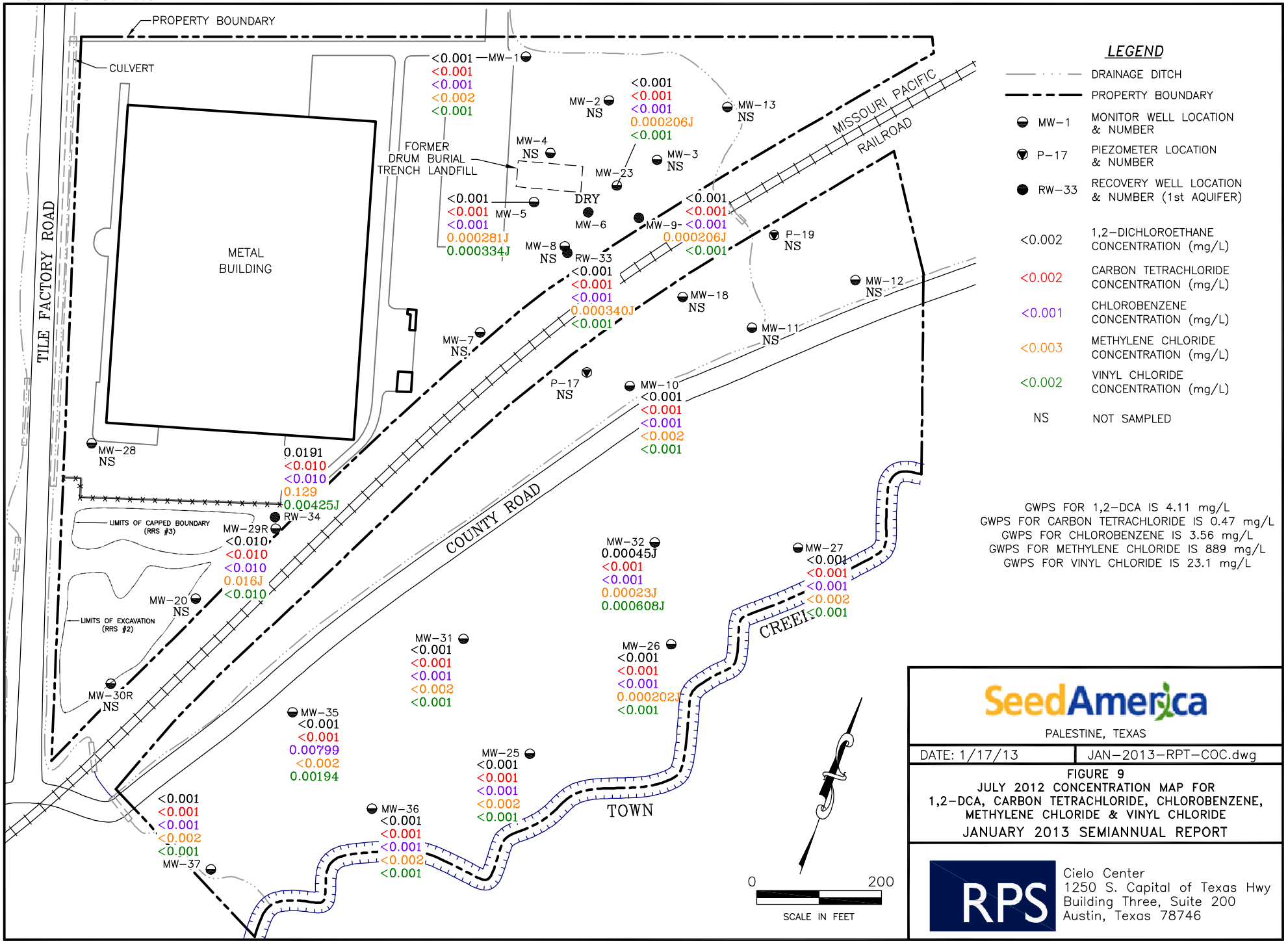

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- <0.002 — 1,2-DICHLOROETHANE CONCENTRATION (mg/L)
- <0.002 — CARBON TETRACHLORIDE CONCENTRATION (mg/L)
- <0.001 — CHLOROBENZENE CONCENTRATION (mg/L)
- <0.003 — METHYLENE CHLORIDE CONCENTRATION (mg/L)
- <0.002 — VINYL CHLORIDE CONCENTRATION (mg/L)
- NS — NOT SAMPLED

GWPS FOR 1,2-DCA IS 4.11 mg/L
GWPS FOR CARBON TETRACHLORIDE IS 0.47 mg/L
GWPS FOR CHLOROBENZENE IS 3.56 mg/L
GWPS FOR METHYLENE CHLORIDE IS 889 mg/L
GWPS FOR VINYL CHLORIDE IS 23.1 mg/L

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FIGURE 9
JULY 2012 CONCENTRATION MAP FOR
1,2-DCA, CARBON TETRACHLORIDE, CHLOROBENZENE,
METHYLENE CHLORIDE & VINYL CHLORIDE
JANUARY 2013 SEMIANNUAL REPORT

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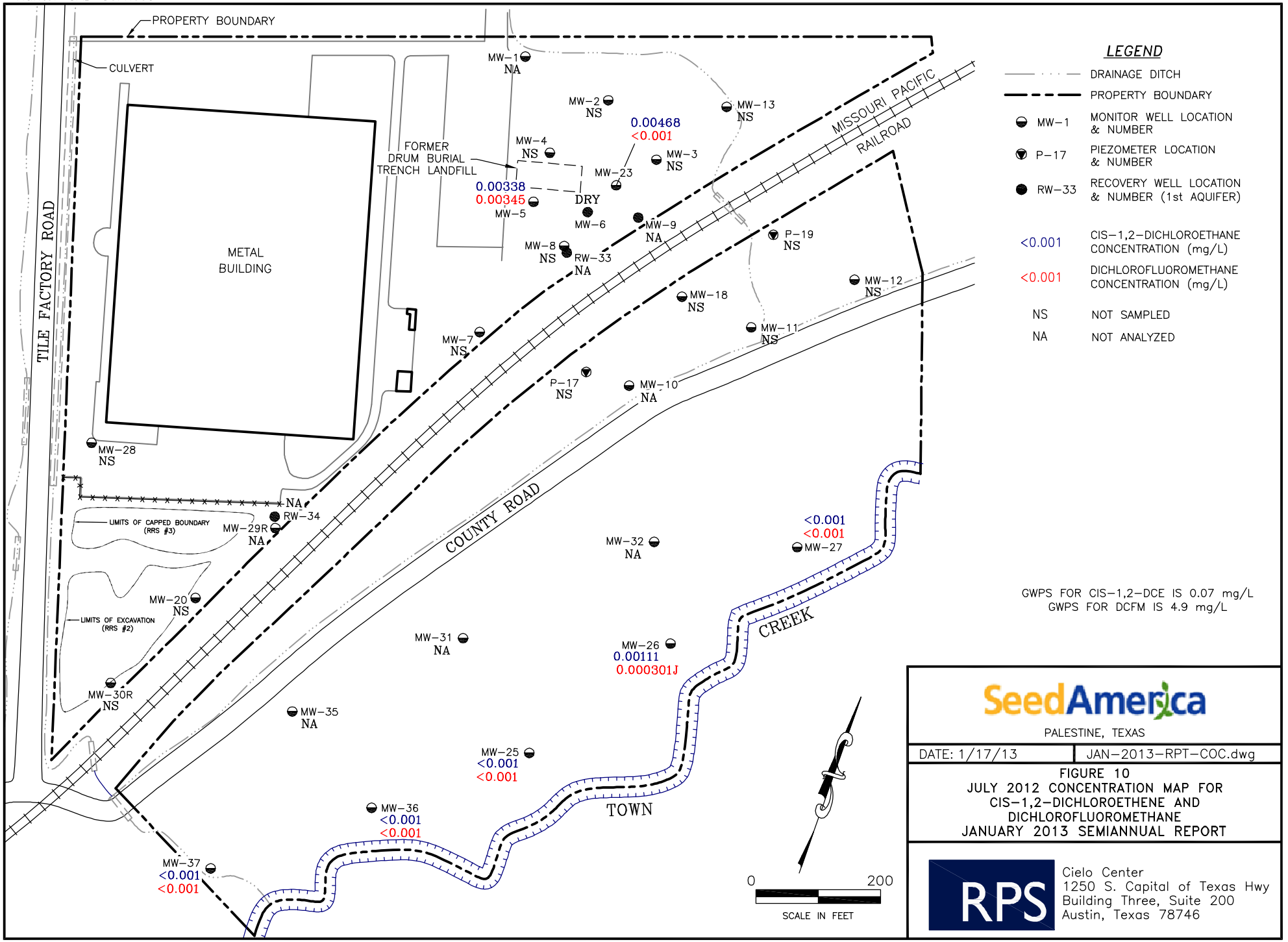

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- <0.001 — CIS-1,2-DICHLOROETHANE CONCENTRATION (mg/L)
- <0.001 — DICHLOROFLUOROMETHANE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED

GWPS FOR CIS-1,2-DCE IS 0.07 mg/L
GWPS FOR DCFM IS 4.9 mg/L

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FIGURE 10
JULY 2012 CONCENTRATION MAP FOR
CIS-1,2-DICHLOROETHENE AND
DICHLOROFLUOROMETHANE
JANUARY 2013 SEMIANNUAL REPORT

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Attachment XI.B

Hazardous Constituents in Groundwater

AnalySys Inc.

Sample Analysis Case Narrative & Exceptions Report

Client: RPS JDC, Inc. **Project ID:** Murray Corp
Attn: Mark S. Katterjohn
for Sample #'s: 537872-537895
Analyzed by AnalySys, Inc.
Final Review Date: 2/11/2013 **By:** (Melanie Molien)

Exception Reports:

1. **As presented in the Laboratory ID# and Chain of Custody Cross Reference and Sample Acceptance Documentation/Exception Report – (Ref: R1[1],[2] & R2[1]) attached**, No pH 4-5 VOA(s) submitted as required by SW846 & 40CFR136 for Acrolein &/or Acrylonitrile analysis. Results for these compounds may be impacted.
2. **As presented in the Surrogate Recovery Documentation/Exception Report – (Ref: R4[2]) attached**, the volatile surrogate results for sample 537891 was higher than normal range. The sample was not reanalyzed for confirmation due to clearly apparent matrix interference. The CCV1 and CCV2 for the semi-volatiles analysis were slightly high although the target compounds were within range. The MSD surrogate for the volatiles analysis was slightly high although the recoveries were within range.
3. **As presented in the Documentation/Exception Report for MS/MSD – (Ref: R7[1], [3] & [4]) attached**, the MS/MSD precisions for two volatiles analyses were out of range. The LCS was within range, indicating that the method was in control; therefore, there should be no impact on the data.

Definitions:

CCB Continuing Calibration Blank.
MS and MSD Matrix spike and matrix spike duplicate (a spiked sample).
LCS Laboratory control sample (a "same-matrix" spiked blank).
MQL Method quantitation limit (equivalent to the "sample factor (SF) adjusted low standard.)
SDL Sample quantitation limit (equivalent to the "sample factor (SF) adjusted Method detection limit (MDL).

ANALYSYS INC.

Appendix A Laboratory Data Package Cover Page

This data package consists of:

This signature page, the laboratory review checklist, and the following reportable data:

R1 Field chain-of-custody documentation;

R2 Sample identification cross-reference;

R3 Test reports (analytical data sheets) for each environmental sample that includes:

a) Items consistent with NELAC 5.13 or ISO/IEC 17025 Section 5.10
b) dilution factors,
c) preparation methods,
d) cleanup methods, and
e) if required for the project, tentatively identified compounds (TICs).

R4 Surrogate recovery data including:

a) Calculated recovery (%R), and
b) The laboratory's surrogate QC limits.

R5 Test reports/summary forms for blank samples;

R6 Test reports/summary forms for laboratory control samples (LCSs) including:

a) LCS spiking amounts,
b) Calculated %R for each analyte, and
c) The laboratory's LCS QC limits.

R7 Test reports for project matrix spike/matrix spike duplicates (MS/MSDs) including:

a) Samples associated with the MS/MSD clearly identified,
b) MS/MSD spiking amounts,
c) Concentration of each MS/MSD analyte measured in the parent and spiked samples,
d) Calculated %Rs and relative percent differences (RPDs), and
e) The laboratory's MS/MSD QC limits

R8 Laboratory analytical duplicate (if applicable) recovery and precision:

a) the amount of analyte measured in the duplicate,
b) the calculated RPD, and
c) the laboratory's QC limits for analytical duplicates.

R9 List of method quantitation limits (MQLs) for each analyte for each method and matrix;

R10 Other problems or anomalies.

The Exception Report for every "No" or "Not Reviewed (NR)" item in laboratory review checklist.

Release Statement: I am responsible for the release of this laboratory data package. This data package has been reviewed by the laboratory and is, to the best of my knowledge, complete and technically compliant with the requirements of the methods used, except where noted by the laboratory in the attached exception reports. By my signature below, I affirm to the best of my knowledge, all problems/anomalies, observed by the laboratory as having the potential to affect the quality of the data, have been identified by the laboratory in the Laboratory Review Checklist, and no information or data have been knowingly withheld that would affect the quality of the data.

Client: RPS JDC, Inc. Attn: Mark S. Katterjohn

Project ID: Murray Corp

Report #s: 537872-537895

Melanie Molien: _____ Quality Manager 2/11/2013

Signature Date

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: AnalySys, Inc.	LRC Date: 2/11/2013
Project Name: Murray Corp	Laboratory Job Number: NA
Reviewer Name: Melanie Molien	Prep Batch Number(s): NA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
		Chain-of-custody (C-O-C)					
R1	OI	Did samples meet the laboratory's standard conditions of sample acceptability upon receipt?		X			ER # 1
		Were all departures from standard conditions described in an exception report?	X				
R2	OI	**Sample and quality control (QC) identification**					
		Are all field sample ID numbers cross-referenced to the laboratory ID numbers?	X				
		Are all laboratory ID numbers cross-referenced to the corresponding QC data?	X				
R3	OI	**Test reports**					
		Were all samples prepared and analyzed within holding times?	X				
		Other than those results < MQL, were all other raw values bracketed by calibration standards?	X				
		Were calculations checked by a peer or supervisor?	X				
		Were all analyte identifications checked by a peer or supervisor?	X				
		Were sample quantitation limits reported for all analytes not detected?	X				
		Were all results for soil and sediment samples reported on a dry weight basis?			X		
		Were % moisture (or solids) reported for all soil and sediment samples?			X		
		If required for the project, TICs reported?			X		
R4	O	**Surrogate recovery data**					
		Were surrogates added prior to extraction?	X				
		Were surrogate percent recoveries in all samples within the laboratory QC limits?		X			ER # 2
R5	OI	**Test reports/summary forms for blank samples**					
		Were appropriate type(s) of blanks analyzed?	X				
		Were blanks analyzed at the appropriate frequency?	X				
		Were method blanks taken through the entire analytical process, including preparation and, if applicable, cleanup procedures?	X				
		Were blank concentrations < MQL?	X				
R6	OI	**Laboratory control samples (LCS):**					
		Were all COCs included in the LCS?	X				
		Was each LCS taken through the entire analytical procedure, including prep and cleanup steps?	X				
		Were LCSs analyzed at the required frequency?	X				
		Were LCS (and LCSD, if applicable) %Rs within the laboratory QC limits?	X				
		Does the detectability data document the laboratory's capability to detect the COCs at the MDL used to calculate the SQLs?	X				
		Was the LCSD RPD within QC limits?			X		
R7	OI	**Matrix spike (MS) and matrix spike duplicate (MSD) data**					
		Were the project/method specified analytes included in the MS and MSD?	X				
		Were MS/MSD analyzed at the appropriate frequency?	X				
		Were MS (and MSD, if applicable) %Rs within the laboratory QC limits?	X				
		Were MS/MSD RPDs within laboratory QC limits?		X			ER # 3
R8	OI	**Analytical duplicate data**					
		Were appropriate analytical duplicates analyzed for each matrix?	X				
		Were analytical duplicates analyzed at the appropriate frequency?	X				
		Were RPDs or relative standard deviations within the laboratory QC limits?	X				
R9	OI	**Method quantitation limits (MQLs)**					
		Are the MQLs for each method analyte included in the laboratory data package?	X				
		Do the MQLs correspond to the concentration of the lowest non-zero calibration standard?	X				
		Are unadjusted MQLs included in the laboratory data package?	X				
R10	OI	**Other problems/anomalies**					
		Are all known problems/anomalies/special conditions noted in this LRC and ER?	X				
		Were all necessary corrective actions performed for the reported data?	X				
		Was applicable and available technology used to lower the SQL minimize the matrix interference affects on the sample results?	X				

1. Items identified by the letter "R" must be included in the laboratory data package submitted in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2. = organic analyses; I = inorganic analyses (and general chemistry, when applicable);
3. NA = Not applicable;
4. NR = Not reviewed;
5. ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

Appendix A (cont'd): Laboratory Review Checklist: Reportable Data

Laboratory Name: AnalySys, Inc.	LRC Date: 2/11/2013
Project Name: Murray Corp	Laboratory Job Number: NA
Reviewer Name: Melanie Molien	Prep Batch Number(s): NA

#[1]	A[2]	Description	Yes	No	NA[3]	NR[4]	ER#[5]
S1	OI	**Initial calibration (ICAL)**					
		Were response factors and/or relative response factors for each analyte within QC limits?	X				
		Were percent RSDs or correlation coefficient criteria met?	X				
		Was the number of standards recommended in the method used for all analytes?	X				
		Were all points generated between the lowest and highest standard used to calculate the curve?	X				
		Are ICAL data available for all instruments used?	X				
		Has the initial calibration curve been verified using an appropriate second source standard?	X				
S2	OI	**Initial and continuing calibration verification (ICCV and CCV) and continuing calibration**					
		Was the CCV analyzed at the method-required frequency?	X				
		Were percent differences for each analyte within the method-required QC limits?	X				
		Was the ICAL curve verified for each analyte?	X				
		Was the absolute value of the analyte concentration in the inorganic CCB < MDL?	X				
S3	O	**Mass spectral tuning:**					
		Was the appropriate compound for the method used for tuning?	X				
		Were ion abundance data within the method-required QC limits?	X				
S4	O	**Internal standards (IS):**					
		Were IS area counts and retention times within the method-required QC limits?	X				
S5	OI	**Raw data (NELAC section 1 appendix A glossary, and section 5.12 or ISO/IEC 17025 section**					
		Were the raw data (for example, chromatograms, spectral data) reviewed by an analyst?	X				
		Were data associated with manual integrations flagged on the raw data?	X				
S6	O	**Dual column confirmation**					
		Did dual column confirmation results meet the method-required QC?			X		
S7	O	**Tentatively identified compounds (TICs):**					
		If TICs were requested, were the mass spectra and TIC data subject to appropriate checks?			X		
S8	I	**Interference Check Sample (ICS) results:**					
		Were percent recoveries within method QC limits?			X		
S9	I	**Serial dilutions, post digestion spikes, and method of standard additions**					
		Were percent differences, recoveries, and the linearity within the QC limits specified in the method?			X		
S10	OI	**Method detection limit (MDL) studies**					
		Was a MDL study performed for each reported analyte?	X				
		Is the MDL either adjusted or supported by the analysis of DCSs?	X				
S11	OI	**Proficiency test reports:**					
		Was the laboratory's performance acceptable on the applicable proficiency tests or evaluation studies?	X				
S12	OI	**Standards documentation**					
		Are all standards used in the analyses NIST-traceable or obtained from other appropriate sources?	X				
S13	OI	**Compound/analyte identification procedures**					
		Are the procedures for compound/analyte identification documented?	X				
S14	OI	**Demonstration of analyst competency (DOC)**					
		Was DOC conducted consistent with NELAC Chapter 5C or ISO/IEC 4?	X				
		Is documentation of the analyst's competency up-to-date and on file?	X				
S15	OI	**Verification/validation documentation for methods** (NELAC Chap 5 or ISO/IEC 17025 Section 5)					
		Are all the methods used to generate the data documented, verified, and validated, where applicable?	X				
S16	OI	**Laboratory standard operating procedures (SOPs):**					
		Are laboratory SOPs current and on file for each method performed?	X				

1 Items identified by the letter "R" should be included in the laboratory data package submitted to the TCEQ in the TRRP-required report(s). Items identified by the letter "S" should be retained and made available upon request for the appropriate retention period.
2 O = organic analyses; I = inorganic analyses (and general chemistry, when applicable).
3 NA = Not applicable.
4 NR = Not Reviewed.
5 ER# = Exception Report identification number (an Exception Report should be completed for an item if "NR" or "No" is checked).

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537872 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-1
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 15:00

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 20:00	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 20:00	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 20:00	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 20:00	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 20:00	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 20:00	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.472 J**	µg/L	1	0.188	02/07/13 20:00	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/07/13 20:00	8260B	1	B0207131651.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/07/13 20:00	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 20:00	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-1

Report#/Lab ID#: 537872
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	101.5	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	109.2	80-115	B0207131651.VOLC
Toluene-d8	8260B	100.9	78-115	B0207131651.VOLC

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537873 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: DMW-15
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 15:25

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 20:20	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 20:20	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 20:20	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 20:20	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 20:20	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 20:20	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.587 J**	µg/L	1	0.188	02/07/13 20:20	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/07/13 20:20	8260B	1	B0207131651.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/07/13 20:20	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 20:20	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: DMW-15

Report#/Lab ID#: 537873
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	102.7	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	109.6	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.3	78-115	B0207131651.VOLC

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537874 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: DMW-16
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 15:35

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 20:41	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 20:41	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 20:41	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 20:41	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 20:41	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 20:41	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.661 J**	µg/L	1	0.188	02/07/13 20:41	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/07/13 20:41	8260B	1	B0207131651.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/07/13 20:41	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 20:41	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: DMW-16

Report#/Lab ID#: 537874
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	102.2	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	111.1	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.1	78-115	B0207131651.VOLC

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537875 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: DMW-22
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 15:15

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 21:01	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 21:01	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 21:01	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 21:01	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 21:01	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 21:01	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.603 J**	µg/L	1	0.188	02/07/13 21:01	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/07/13 21:01	8260B	1	B0207131651.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/07/13 21:01	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 21:01	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: DMW-22

Report#/Lab ID#: 537875
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	101.8	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	111	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.4	78-115	B0207131651.VOLC

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T104704268-08-TX

Report#/Lab ID#: 537876 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: Equipment Blank
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 14:20

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 19:20	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 19:20	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 19:20	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 19:20	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 19:20	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 19:20	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.243 J**	µg/L	1	0.188	02/07/13 19:20	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/07/13 19:20	8260B	1	B0207131651.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/07/13 19:20	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 19:20	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Equipment Blank

Report#/Lab ID#: 537876
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	103.4	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	112	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.3	78-115	B0207131651.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537877 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-5
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 11:40

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/06/13 12:56	3510	NA	B0206131256.ABN
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**2.1**	µg/L	1	0.34	02/07/13 17:38	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**7.51**	µg/L	1	0.19	02/07/13 17:38	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**1.61**	µg/L	1	0.58	02/07/13 17:38	8260B	1	B0207131651.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/07/13 17:38	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/07/13 17:38	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 17:38	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/07/13 17:38	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/07/13 17:38	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/07/13 17:38	8260B	1	B0207131651.VOLC
Benzene	**ND**	µg/L	1	0.16	02/07/13 17:38	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 17:38	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 17:38	8260B	1	B0207131651.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/07/13 17:38	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	**ND**	µg/L	1	0.22	02/07/13 17:38	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/07/13 17:38	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	**0.84 J**	µg/L	1	0.2	02/07/13 17:38	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/07/13 17:38	8260B	1	B0207131651.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/07/13 17:38	8260B	1	B0207131651.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/07/13 17:38	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-5

Report#/Lab ID#: 537877
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	**0.257 J**	µg/L	1	0.188	02/07/13 17:38	8260B	1	B0207131651.VOLC
o-Xylene	**ND**	µg/L	1	0.23	02/07/13 17:38	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**2.47**	µg/L	1	0.24	02/07/13 17:38	8260B	1	B0207131651.VOLC
Toluene	**ND**	µg/L	1	0.26	02/07/13 17:38	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 17:38	8260B	1	B0207131651.VOLC
Trichloroethene	**0.474 J**	µg/L	1	0.23	02/07/13 17:38	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	**ND**	µg/L	1	0.157	02/07/13 17:38	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 17:38	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	**ND**	µg/L	10	2.67	02/04/13 17:11	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	**ND**	µg/L	10	2.52	02/04/13 17:11	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	**ND**	µg/L	10	2.73	02/04/13 17:11	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	**ND**	µg/L	10	1.99	02/04/13 17:11	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	**ND**	µg/L	10	1.68	02/04/13 17:11	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	**ND**	µg/L	10	1.92	02/04/13 17:11	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	**ND**	µg/L	10	1.79	02/04/13 17:11	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	**ND**	µg/L	20	1.9	02/04/13 17:11	8270c	1	B0204130959.ExtF
Acenaphthene	**ND**	µg/L	10	1.21	02/04/13 17:11	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	**ND**	µg/L	10	3.26	02/04/13 17:11	8270c	1	B0204130959.ExtF
Naphthalene	**ND**	µg/L	10	2.33	02/04/13 17:11	8270c	1	B0204130959.ExtF
Phenanthrene	**ND**	µg/L	10	1.65	02/04/13 17:11	8270c	1	B0204130959.ExtF
Phenol	**ND**	µg/L	10	0.879	02/04/13 17:11	8270c	1	B0204130959.ExtF
Pyrene	**ND**	µg/L	10	1.53	02/04/13 17:11	8270c	1	B0204130959.ExtF

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-5

Report#/Lab ID#: 537877
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	99.6	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	109.9	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.5	78-115	B0207131651.VOLC
2-Fluorobiphenyl	8270c	50.1	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	30.2	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	40.5	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	51.1	10-110	B0204130959.ExtF
Phenol-d6	8270c	19.7	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	41.6	10-115	B0204130959.ExtF
2-Fluorobiphenyl	8270c	43.5	15-110	B0206131244.ExtJ
2-Fluorophenol	8270c	23.5	10-110	B0206131244.ExtJ
2,4,6-Tribromophenol	8270c	59.6	10-110	B0206131244.ExtJ
Nitrobenzene-d5	8270c	55.5	15-115	B0206131244.ExtJ
Phenol-d6	8270c	19.5	10-110	B0206131244.ExtJ
Terphenyl-d14	8270c	43.8	20-115	B0206131244.ExtJ

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537878 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-6
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 12:25

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**49.4**	µg/L	1	0.34	02/07/13 21:21	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**90.1**	µg/L	1	0.19	02/07/13 21:21	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**133**	µg/L	10	5.8	02/08/13 15:10	8260B	10	B0208131128.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/07/13 21:21	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/07/13 21:21	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 21:21	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/07/13 21:21	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/07/13 21:21	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/07/13 21:21	8260B	1	B0207131651.VOLC
Benzene	**ND**	µg/L	1	0.16	02/07/13 21:21	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 21:21	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 21:21	8260B	1	B0207131651.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/07/13 21:21	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	**0.47 J**	µg/L	1	0.22	02/07/13 21:21	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/07/13 21:21	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	**3.3**	µg/L	1	0.2	02/07/13 21:21	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/07/13 21:21	8260B	1	B0207131651.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/07/13 21:21	8260B	1	B0207131651.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/07/13 21:21	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis.
5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-6

Report#/Lab ID#: 537878
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	0.373 J	µg/L	1	0.188	02/07/13 21:21	8260B	1	B0207131651.VOLC
o-Xylene	ND	µg/L	1	0.23	02/07/13 21:21	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	139	µg/L	10	2.4	02/08/13 15:10	8260B	10	B0208131128.VOLC
Toluene	ND	µg/L	1	0.26	02/07/13 21:21	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/07/13 21:21	8260B	1	B0207131651.VOLC
Trichloroethene	14.6	µg/L	1	0.23	02/07/13 21:21	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	ND	µg/L	1	0.157	02/07/13 21:21	8260B	1	B0207131651.VOLC
Vinyl chloride	1.15	µg/L	1	0.281	02/07/13 21:21	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	ND	µg/L	10	2.67	02/04/13 14:00	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	ND	µg/L	10	2.52	02/04/13 14:00	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	ND	µg/L	10	2.73	02/04/13 14:00	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	ND	µg/L	10	1.99	02/04/13 14:00	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	ND	µg/L	10	1.68	02/04/13 14:00	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	ND	µg/L	10	1.92	02/04/13 14:00	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	ND	µg/L	10	1.79	02/04/13 14:00	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	ND	µg/L	20	1.9	02/04/13 14:00	8270c	1	B0204130959.ExtF
Acenaphthene	ND	µg/L	10	1.21	02/04/13 14:00	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	ND	µg/L	10	3.26	02/04/13 14:00	8270c	1	B0204130959.ExtF
Naphthalene	ND	µg/L	10	2.33	02/04/13 14:00	8270c	1	B0204130959.ExtF
Phenanthrene	ND	µg/L	10	1.65	02/04/13 14:00	8270c	1	B0204130959.ExtF
Phenol	ND	µg/L	10	0.879	02/04/13 14:00	8270c	1	B0204130959.ExtF
Pyrene	ND	µg/L	10	1.53	02/04/13 14:00	8270c	1	B0204130959.ExtF

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(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-6

Report#/Lab ID#: 537878
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	102.4	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	112.2	80-115	B0207131651.VOLC
Toluene-d8	8260B	99.7	78-115	B0207131651.VOLC
1,2-Dichloroethane-d4	8260B	115.6	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	104.8	80-115	B0208131128.VOLC
Toluene-d8	8260B	100.3	78-115	B0208131128.VOLC
2-Fluorobiphenyl	8270c	51.4	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	33.5	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	55	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	47.8	10-110	B0204130959.ExtF
Phenol-d6	8270c	21.8	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	57.9	10-115	B0204130959.ExtF

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537879 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-9
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 13:25

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**63.5**	µg/L	1	0.34	02/07/13 21:42	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**65.8**	µg/L	1	0.19	02/07/13 21:42	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**31**	µg/L	1	0.58	02/07/13 21:42	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 21:42	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 21:42	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 21:42	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.298 J**	µg/L	1	0.188	02/07/13 21:42	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**25.4**	µg/L	1	0.24	02/07/13 21:42	8260B	1	B0207131651.VOLC
Trichloroethene	**4.16**	µg/L	1	0.23	02/07/13 21:42	8260B	1	B0207131651.VOLC
Vinyl chloride	**1.27**	µg/L	1	0.281	02/07/13 21:42	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-9

Report#/Lab ID#: 537879
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.5	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	107.9	80-115	B0207131651.VOLC
Toluene-d8	8260B	99.5	78-115	B0207131651.VOLC

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537880 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-10
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 10:50

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**6.78**	µg/L	1	0.34	02/07/13 22:02	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**20.1**	µg/L	1	0.19	02/07/13 22:02	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 22:02	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 22:02	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 22:02	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 22:02	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.245 J**	µg/L	1	0.188	02/07/13 22:02	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**0.443 J**	µg/L	1	0.24	02/07/13 22:02	8260B	1	B0207131651.VOLC
Trichloroethene	**0.368 J**	µg/L	1	0.23	02/07/13 22:02	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 22:02	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-10

Report#/Lab ID#: 537880
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	102	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	109	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.2	78-115	B0207131651.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537881 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-23
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 13:00

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**84.5**	µg/L	1	0.34	02/07/13 22:22	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**83.4**	µg/L	1	0.19	02/07/13 22:22	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**141**	µg/L	10	5.8	02/08/13 15:30	8260B	10	B0208131128.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/07/13 22:22	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/07/13 22:22	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 22:22	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/07/13 22:22	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/07/13 22:22	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/07/13 22:22	8260B	1	B0207131651.VOLC
Benzene	**ND**	µg/L	1	0.16	02/07/13 22:22	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 22:22	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 22:22	8260B	1	B0207131651.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/07/13 22:22	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	**0.412 J**	µg/L	1	0.22	02/07/13 22:22	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/07/13 22:22	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	**0.959 J**	µg/L	1	0.2	02/07/13 22:22	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/07/13 22:22	8260B	1	B0207131651.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/07/13 22:22	8260B	1	B0207131651.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/07/13 22:22	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-23

Report#/Lab ID#: 537881
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	0.335 J	µg/L	1	0.188	02/07/13 22:22	8260B	1	B0207131651.VOLC
o-Xylene	ND	µg/L	1	0.23	02/07/13 22:22	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	67.5	µg/L	1	0.24	02/07/13 22:22	8260B	1	B0207131651.VOLC
Toluene	ND	µg/L	1	0.26	02/07/13 22:22	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/07/13 22:22	8260B	1	B0207131651.VOLC
Trichloroethene	8.82	µg/L	1	0.23	02/07/13 22:22	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	ND	µg/L	1	0.157	02/07/13 22:22	8260B	1	B0207131651.VOLC
Vinyl chloride	1.64	µg/L	1	0.281	02/07/13 22:22	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	ND	µg/L	10	2.67	02/04/13 17:43	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	ND	µg/L	10	2.52	02/04/13 17:43	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	ND	µg/L	10	2.73	02/04/13 17:43	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	ND	µg/L	10	1.99	02/04/13 17:43	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	ND	µg/L	10	1.68	02/04/13 17:43	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	ND	µg/L	10	1.92	02/04/13 17:43	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	ND	µg/L	10	1.79	02/04/13 17:43	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	ND	µg/L	20	1.9	02/04/13 17:43	8270c	1	B0204130959.ExtF
Acenaphthene	ND	µg/L	10	1.21	02/04/13 17:43	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	ND	µg/L	10	3.26	02/04/13 17:43	8270c	1	B0204130959.ExtF
Naphthalene	ND	µg/L	10	2.33	02/04/13 17:43	8270c	1	B0204130959.ExtF
Phenanthrene	ND	µg/L	10	1.65	02/04/13 17:43	8270c	1	B0204130959.ExtF
Phenol	ND	µg/L	10	0.879	02/04/13 17:43	8270c	1	B0204130959.ExtF
Pyrene	ND	µg/L	10	1.53	02/04/13 17:43	8270c	1	B0204130959.ExtF

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-23

Report#/Lab ID#: 537881
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.6	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	112.1	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.6	78-115	B0207131651.VOLC
1,2-Dichloroethane-d4	8260B	113.8	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	106.4	80-115	B0208131128.VOLC
Toluene-d8	8260B	99.3	78-115	B0208131128.VOLC
2-Fluorobiphenyl	8270c	40.8	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	16.8	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	29.7	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	39.1	10-110	B0204130959.ExtF
Phenol-d6	8270c	11.1	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	30	10-115	B0204130959.ExtF

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537882 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-25
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 08:35

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	1.5	µg/L	1	0.34	02/07/13 22:42	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	0.924 J	µg/L	1	0.19	02/07/13 22:42	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/07/13 22:42	8260B	1	B0207131651.VOLC
1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/07/13 22:42	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/07/13 22:42	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	ND	µg/L	1	0.3	02/07/13 22:42	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	ND	µg/L	2	1.3	02/07/13 22:42	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/07/13 22:42	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	ND	µg/L	10	3.86	02/07/13 22:42	8260B	1	B0207131651.VOLC
Benzene	ND	µg/L	1	0.16	02/07/13 22:42	8260B	1	B0207131651.VOLC
Carbon tetrachloride	ND	µg/L	1	0.7	02/07/13 22:42	8260B	1	B0207131651.VOLC
Chlorobenzene	ND	µg/L	1	0.19	02/07/13 22:42	8260B	1	B0207131651.VOLC
Chloroethane	ND	µg/L	1	0.53	02/07/13 22:42	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/07/13 22:42	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/07/13 22:42	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/07/13 22:42	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	ND	µg/L	1	0.22	02/07/13 22:42	8260B	1	B0207131651.VOLC
Ethylbenzene	ND	µg/L	1	0.19	02/07/13 22:42	8260B	1	B0207131651.VOLC
m,p-Xylenes	ND	µg/L	2	0.38	02/07/13 22:42	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-25

Report#/Lab ID#: 537882
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	0.207 J	µg/L	1	0.188	02/07/13 22:42	8260B	1	B0207131651.VOLC
o-Xylene	ND	µg/L	1	0.23	02/07/13 22:42	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/07/13 22:42	8260B	1	B0207131651.VOLC
Toluene	ND	µg/L	1	0.26	02/07/13 22:42	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/07/13 22:42	8260B	1	B0207131651.VOLC
Trichloroethene	ND	µg/L	1	0.23	02/07/13 22:42	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	ND	µg/L	1	0.157	02/07/13 22:42	8260B	1	B0207131651.VOLC
Vinyl chloride	ND	µg/L	1	0.281	02/07/13 22:42	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	ND	µg/L	10	2.67	02/04/13 18:15	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	ND	µg/L	10	2.52	02/04/13 18:15	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	ND	µg/L	10	2.73	02/04/13 18:15	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	ND	µg/L	10	1.99	02/04/13 18:15	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	ND	µg/L	10	1.68	02/04/13 18:15	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	ND	µg/L	10	1.92	02/04/13 18:15	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	ND	µg/L	10	1.79	02/04/13 18:15	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	ND	µg/L	20	1.9	02/04/13 18:15	8270c	1	B0204130959.ExtF
Acenaphthene	ND	µg/L	10	1.21	02/04/13 18:15	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	ND	µg/L	10	3.26	02/04/13 18:15	8270c	1	B0204130959.ExtF
Naphthalene	ND	µg/L	10	2.33	02/04/13 18:15	8270c	1	B0204130959.ExtF
Phenanthrene	ND	µg/L	10	1.65	02/04/13 18:15	8270c	1	B0204130959.ExtF
Phenol	ND	µg/L	10	0.879	02/04/13 18:15	8270c	1	B0204130959.ExtF
Pyrene	ND	µg/L	10	1.53	02/04/13 18:15	8270c	1	B0204130959.ExtF

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-25

Report#/Lab ID#: 537882
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	102.7	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	112.2	80-115	B0207131651.VOLC
Toluene-d8	8260B	101	78-115	B0207131651.VOLC
2-Fluorobiphenyl	8270c	43.5	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	30.6	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	35	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	44.4	10-110	B0204130959.ExtF
Phenol-d6	8270c	19	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	34.8	10-115	B0204130959.ExtF

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537883 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-26
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 09:10

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**6.46**	µg/L	1	0.34	02/07/13 23:03	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**31.3**	µg/L	1	0.19	02/07/13 23:03	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 23:03	8260B	1	B0207131651.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/07/13 23:03	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/07/13 23:03	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 23:03	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/07/13 23:03	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/07/13 23:03	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/07/13 23:03	8260B	1	B0207131651.VOLC
Benzene	**ND**	µg/L	1	0.16	02/07/13 23:03	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 23:03	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 23:03	8260B	1	B0207131651.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/07/13 23:03	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	**ND**	µg/L	1	0.22	02/07/13 23:03	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/07/13 23:03	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	**0.34 J**	µg/L	1	0.2	02/07/13 23:03	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/07/13 23:03	8260B	1	B0207131651.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/07/13 23:03	8260B	1	B0207131651.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/07/13 23:03	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-26

Report#/Lab ID#: 537883
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	**0.3 J**	µg/L	1	0.188	02/07/13 23:03	8260B	1	B0207131651.VOLC
o-Xylene	**ND**	µg/L	1	0.23	02/07/13 23:03	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**1.41**	µg/L	1	0.24	02/07/13 23:03	8260B	1	B0207131651.VOLC
Toluene	**ND**	µg/L	1	0.26	02/07/13 23:03	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 23:03	8260B	1	B0207131651.VOLC
Trichloroethene	**0.881 J**	µg/L	1	0.23	02/07/13 23:03	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	**ND**	µg/L	1	0.157	02/07/13 23:03	8260B	1	B0207131651.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/07/13 23:03	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	**ND**	µg/L	10	2.67	02/04/13 18:47	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	**ND**	µg/L	10	2.52	02/04/13 18:47	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	**ND**	µg/L	10	2.73	02/04/13 18:47	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	**ND**	µg/L	10	1.99	02/04/13 18:47	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	**ND**	µg/L	10	1.68	02/04/13 18:47	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	**ND**	µg/L	10	1.92	02/04/13 18:47	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	**ND**	µg/L	10	1.79	02/04/13 18:47	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	**ND**	µg/L	20	1.9	02/04/13 18:47	8270c	1	B0204130959.ExtF
Acenaphthene	**ND**	µg/L	10	1.21	02/04/13 18:47	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	**ND**	µg/L	10	3.26	02/04/13 18:47	8270c	1	B0204130959.ExtF
Naphthalene	**ND**	µg/L	10	2.33	02/04/13 18:47	8270c	1	B0204130959.ExtF
Phenanthrene	**ND**	µg/L	10	1.65	02/04/13 18:47	8270c	1	B0204130959.ExtF
Phenol	**ND**	µg/L	10	0.879	02/04/13 18:47	8270c	1	B0204130959.ExtF
Pyrene	**ND**	µg/L	10	1.53	02/04/13 18:47	8270c	1	B0204130959.ExtF

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-26

Report#/Lab ID#: 537883
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	103.6	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	109	80-115	B0207131651.VOLC
Toluene-d8	8260B	100.6	78-115	B0207131651.VOLC
2-Fluorobiphenyl	8270c	50.1	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	34.7	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	40.5	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	49.8	10-110	B0204130959.ExtF
Phenol-d6	8270c	21.2	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	44.4	10-115	B0204130959.ExtF

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537884 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-27
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 16:48

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 23:23	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/07/13 23:23	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 23:23	8260B	1	B0207131651.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/07/13 23:23	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/07/13 23:23	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 23:23	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/07/13 23:23	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/07/13 23:23	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/07/13 23:23	8260B	1	B0207131651.VOLC
Benzene	**ND**	µg/L	1	0.16	02/07/13 23:23	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 23:23	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 23:23	8260B	1	B0207131651.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/07/13 23:23	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	**ND**	µg/L	1	0.22	02/07/13 23:23	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/07/13 23:23	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	**ND**	µg/L	1	0.2	02/07/13 23:23	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/07/13 23:23	8260B	1	B0207131651.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/07/13 23:23	8260B	1	B0207131651.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/07/13 23:23	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis.
5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-27

Report#/Lab ID#: 537884
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	0.225 J	µg/L	1	0.188	02/07/13 23:23	8260B	1	B0207131651.VOLC
o-Xylene	ND	µg/L	1	0.23	02/07/13 23:23	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/07/13 23:23	8260B	1	B0207131651.VOLC
Toluene	ND	µg/L	1	0.26	02/07/13 23:23	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/07/13 23:23	8260B	1	B0207131651.VOLC
Trichloroethene	ND	µg/L	1	0.23	02/07/13 23:23	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	ND	µg/L	1	0.157	02/07/13 23:23	8260B	1	B0207131651.VOLC
Vinyl chloride	ND	µg/L	1	0.281	02/07/13 23:23	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	ND	µg/L	10	2.67	02/04/13 16:07	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	ND	µg/L	10	2.52	02/04/13 16:07	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	ND	µg/L	10	2.73	02/04/13 16:07	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	ND	µg/L	10	1.99	02/04/13 16:07	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	ND	µg/L	10	1.68	02/04/13 16:07	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	ND	µg/L	10	1.92	02/04/13 16:07	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	ND	µg/L	10	1.79	02/04/13 16:07	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	ND	µg/L	20	1.9	02/04/13 16:07	8270c	1	B0204130959.ExtF
Acenaphthene	ND	µg/L	10	1.21	02/04/13 16:07	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	ND	µg/L	10	3.26	02/04/13 16:07	8270c	1	B0204130959.ExtF
Naphthalene	ND	µg/L	10	2.33	02/04/13 16:07	8270c	1	B0204130959.ExtF
Phenanthrene	ND	µg/L	10	1.65	02/04/13 16:07	8270c	1	B0204130959.ExtF
Phenol	ND	µg/L	10	0.879	02/04/13 16:07	8270c	1	B0204130959.ExtF
Pyrene	ND	µg/L	10	1.53	02/04/13 16:07	8270c	1	B0204130959.ExtF

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-27

Report#/Lab ID#: 537884
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	105.4	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	112.7	80-115	B0207131651.VOLC
Toluene-d8	8260B	102.4	78-115	B0207131651.VOLC
2-Fluorobiphenyl	8270c	52.8	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	23.8	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	47.7	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	50	10-110	B0204130959.ExtF
Phenol-d6	8270c	17.5	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	38.5	10-115	B0204130959.ExtF

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537885 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-29R
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 15:00

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/07/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/07/13 23:44	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**89.3**	µg/L	10	1.9	02/08/13 16:11	8260B	10	B0208131128.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/07/13 23:44	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/07/13 23:44	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/07/13 23:44	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/07/13 23:44	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**ND**	µg/L	1	0.188	02/07/13 23:44	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**7.82**	µg/L	1	0.24	02/07/13 23:44	8260B	1	B0207131651.VOLC
Trichloroethene	**5.35**	µg/L	1	0.23	02/07/13 23:44	8260B	1	B0207131651.VOLC
Vinyl chloride	**13.3**	µg/L	1	0.281	02/07/13 23:44	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-29R

Report#/Lab ID#: 537885
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.2	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	109.8	80-115	B0207131651.VOLC
Toluene-d8	8260B	100.1	78-115	B0207131651.VOLC
1,2-Dichloroethane-d4	8260B	104.7	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	104.3	80-115	B0208131128.VOLC
Toluene-d8	8260B	100.9	78-115	B0208131128.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537886 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-31
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 09:45

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**22.1**	µg/L	1	0.34	02/08/13 00:05	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**28.1**	µg/L	1	0.19	02/08/13 00:05	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 00:05	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 00:05	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 00:05	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 00:05	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.265 J**	µg/L	1	0.188	02/08/13 00:05	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/08/13 00:05	8260B	1	B0207131651.VOLC
Trichloroethene	**3.57**	µg/L	1	0.23	02/08/13 00:05	8260B	1	B0207131651.VOLC
Vinyl chloride	**0.565 J**	µg/L	1	0.281	02/08/13 00:05	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-31

Report#/Lab ID#: 537886
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	103.4	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	108.4	80-115	B0207131651.VOLC
Toluene-d8	8260B	101	78-115	B0207131651.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537887 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-32
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 09:30

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	181	µg/L	5	1.7	02/08/13 14:50	8260B	5	B0208131128.VOLC
1,1-Dichloroethene	ND	µg/L	1	0.19	02/08/13 00:25	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/08/13 00:25	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	ND	µg/L	1	0.3	02/08/13 00:25	8260B	1	B0207131651.VOLC
Carbon tetrachloride	ND	µg/L	1	0.7	02/08/13 00:25	8260B	1	B0207131651.VOLC
Chlorobenzene	ND	µg/L	1	0.19	02/08/13 00:25	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	ND	µg/L	1	0.188	02/08/13 00:25	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	0.322 J	µg/L	1	0.24	02/08/13 00:25	8260B	1	B0207131651.VOLC
Trichloroethene	1.56	µg/L	1	0.23	02/08/13 00:25	8260B	1	B0207131651.VOLC
Vinyl chloride	2.93	µg/L	1	0.281	02/08/13 00:25	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-32

Report#/Lab ID#: 537887
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.7	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	108.8	80-115	B0207131651.VOLC
Toluene-d8	8260B	100.2	78-115	B0207131651.VOLC
1,2-Dichloroethane-d4	8260B	120	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	105.2	80-115	B0208131128.VOLC
Toluene-d8	8260B	98.6	78-115	B0208131128.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537888 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: RW-33
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 14:10

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**7.97**	µg/L	1	0.34	02/08/13 00:45	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**264**	µg/L	10	1.9	02/08/13 15:50	8260B	10	B0208131128.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 00:45	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 00:45	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 00:45	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 00:45	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**ND**	µg/L	1	0.188	02/08/13 00:45	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**2.48**	µg/L	1	0.24	02/08/13 00:45	8260B	1	B0207131651.VOLC
Trichloroethene	**3.58**	µg/L	1	0.23	02/08/13 00:45	8260B	1	B0207131651.VOLC
Vinyl chloride	**0.337 J**	µg/L	1	0.281	02/08/13 00:45	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: RW-33

Report#/Lab ID#: 537888
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	105.7	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	107.8	80-115	B0207131651.VOLC
Toluene-d8	8260B	100.7	78-115	B0207131651.VOLC
1,2-Dichloroethane-d4	8260B	116.9	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	106.3	80-115	B0208131128.VOLC
Toluene-d8	8260B	100.3	78-115	B0208131128.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537889 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: RW-34
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 14:30

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**1540**	µg/L	1000	340	02/10/13 18:12	8260B	1000	B0208131128.VOLC
1,1-Dichloroethene	**1600**	µg/L	1000	190	02/10/13 18:12	8260B	1000	B0208131128.VOLC
1,1,1-Trichloroethane	**1560**	µg/L	1000	580	02/10/13 18:12	8260B	1000	B0208131128.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 22:24	8260B	1	B0208131128.VOLC
Carbon tetrachloride	**8.49**	µg/L	1	0.7	02/08/13 22:24	8260B	1	B0208131128.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 22:24	8260B	1	B0208131128.VOLC
Methylene chloride (Dichloromethane)	**120**	µg/L	100	18.8	02/11/13 09:01	8260B	100	B0208131128.VOLC
Tetrachloroethene (Perchlorethylene)	**1310**	µg/L	1000	240	02/10/13 18:12	8260B	1000	B0208131128.VOLC
Trichloroethene	**105**	µg/L	100	23	02/11/13 09:01	8260B	100	B0208131128.VOLC
Vinyl chloride	**13.7**	µg/L	1	0.281	02/08/13 22:24	8260B	1	B0208131128.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: RW-34

Report#/Lab ID#: 537889
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	99.1	70-125	B0208131128.VOLC
1,2-Dichloroethane-d4	8260B	114.9	70-125	B0208131128.VOLC
1,2-Dichloroethane-d4	8260B	97.7	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	98.9	80-115	B0208131128.VOLC
4-Bromofluorobenzene	8260B	100.4	80-115	B0208131128.VOLC
4-Bromofluorobenzene	8260B	105.9	80-115	B0208131128.VOLC
Toluene-d8	8260B	96.3	78-115	B0208131128.VOLC
Toluene-d8	8260B	90.6	78-115	B0208131128.VOLC
Toluene-d8	8260B	97.4	78-115	B0208131128.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537890 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-35
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 10:15

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**44**	µg/L	1	0.34	02/08/13 01:06	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**4.14**	µg/L	1	0.19	02/08/13 01:06	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 01:06	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 01:06	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 01:06	8260B	1	B0207131651.VOLC
Chlorobenzene	**6.04**	µg/L	1	0.19	02/08/13 01:06	8260B	1	B0207131651.VOLC
Methylene chloride (Dichloromethane)	**0.251 J**	µg/L	1	0.188	02/08/13 01:06	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	**0.243 J**	µg/L	1	0.24	02/08/13 01:06	8260B	1	B0207131651.VOLC
Trichloroethene	**0.375 J**	µg/L	1	0.23	02/08/13 01:06	8260B	1	B0207131651.VOLC
Vinyl chloride	**2.18**	µg/L	1	0.281	02/08/13 01:06	8260B	1	B0207131651.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-35

Report#/Lab ID#: 537890
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	108.1	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	113.7	80-115	B0207131651.VOLC
Toluene-d8	8260B	101.5	78-115	B0207131651.VOLC

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537891 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-36
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 08:05

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**5.68**	µg/L	1	0.34	02/08/13 01:26	8260B	1	B0207131651.VOLC
1,1-Dichloroethene	**7.85**	µg/L	1	0.19	02/08/13 01:26	8260B	1	B0207131651.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 01:26	8260B	1	B0207131651.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/08/13 01:26	8260B	1	B0207131651.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/08/13 01:26	8260B	1	B0207131651.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 01:26	8260B	1	B0207131651.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/08/13 01:26	8260B	1	B0207131651.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/08/13 01:26	8260B	1	B0207131651.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/08/13 01:26	8260B	1	B0207131651.VOLC
Benzene	**ND**	µg/L	1	0.16	02/08/13 01:26	8260B	1	B0207131651.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 01:26	8260B	1	B0207131651.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 01:26	8260B	1	B0207131651.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/08/13 01:26	8260B	1	B0207131651.VOLC
Chloroform (Trichloromethane)	**ND**	µg/L	1	0.22	02/08/13 01:26	8260B	1	B0207131651.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/08/13 01:26	8260B	1	B0207131651.VOLC
cis-1,2-Dichloroethene	**ND**	µg/L	1	0.2	02/08/13 01:26	8260B	1	B0207131651.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/08/13 01:26	8260B	1	B0207131651.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/08/13 01:26	8260B	1	B0207131651.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/08/13 01:26	8260B	1	B0207131651.VOLC

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(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-36

Report#/Lab ID#: 537891
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	0.328 J	µg/L	1	0.188	02/08/13 01:26	8260B	1	B0207131651.VOLC
o-Xylene	ND	µg/L	1	0.23	02/08/13 01:26	8260B	1	B0207131651.VOLC
Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/08/13 01:26	8260B	1	B0207131651.VOLC
Toluene	ND	µg/L	1	0.26	02/08/13 01:26	8260B	1	B0207131651.VOLC
trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/08/13 01:26	8260B	1	B0207131651.VOLC
Trichloroethene	ND	µg/L	1	0.23	02/08/13 01:26	8260B	1	B0207131651.VOLC
Trichlorofluoromethane	ND	µg/L	1	0.157	02/08/13 01:26	8260B	1	B0207131651.VOLC
Vinyl chloride	ND	µg/L	1	0.281	02/08/13 01:26	8260B	1	B0207131651.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	ND	µg/L	10	2.67	02/04/13 19:19	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	ND	µg/L	10	2.52	02/04/13 19:19	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	ND	µg/L	10	2.73	02/04/13 19:19	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	ND	µg/L	10	1.99	02/04/13 19:19	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	ND	µg/L	10	1.68	02/04/13 19:19	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	ND	µg/L	10	1.92	02/04/13 19:19	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	ND	µg/L	10	1.79	02/04/13 19:19	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	ND	µg/L	20	1.9	02/04/13 19:19	8270c	1	B0204130959.ExtF
Acenaphthene	ND	µg/L	10	1.21	02/04/13 19:19	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	ND	µg/L	10	3.26	02/04/13 19:19	8270c	1	B0204130959.ExtF
Naphthalene	ND	µg/L	10	2.33	02/04/13 19:19	8270c	1	B0204130959.ExtF
Phenanthrene	ND	µg/L	10	1.65	02/04/13 19:19	8270c	1	B0204130959.ExtF
Phenol	ND	µg/L	10	0.879	02/04/13 19:19	8270c	1	B0204130959.ExtF
Pyrene	ND	µg/L	10	1.53	02/04/13 19:19	8270c	1	B0204130959.ExtF

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-36

Report#/Lab ID#: 537891
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	111.6	70-125	B0207131651.VOLC
4-Bromofluorobenzene	8260B	**128.9**	80-115	B0207131651.VOLC
Toluene-d8	8260B	104.4	78-115	B0207131651.VOLC
2-Fluorobiphenyl	8270c	50.8	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	29.7	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	36.8	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	49.1	10-110	B0204130959.ExtF
Phenol-d6	8270c	18.1	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	38.4	10-115	B0204130959.ExtF

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537892 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: MW-37
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 16:15

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/08/13 19:01	8260B	1	B0208131128.VOLC
1,1-Dichloroethene	**0.339 J**	µg/L	1	0.19	02/08/13 19:01	8260B	1	B0208131128.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 19:01	8260B	1	B0208131128.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/08/13 19:01	8260B	1	B0208131128.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/08/13 19:01	8260B	1	B0208131128.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 19:01	8260B	1	B0208131128.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/08/13 19:01	8260B	1	B0208131128.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/08/13 19:01	8260B	1	B0208131128.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/08/13 19:01	8260B	1	B0208131128.VOLC
Benzene	**ND**	µg/L	1	0.16	02/08/13 19:01	8260B	1	B0208131128.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 19:01	8260B	1	B0208131128.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 19:01	8260B	1	B0208131128.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/08/13 19:01	8260B	1	B0208131128.VOLC
Chloroform (Trichloromethane)	**0.255 J**	µg/L	1	0.22	02/08/13 19:01	8260B	1	B0208131128.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/08/13 19:01	8260B	1	B0208131128.VOLC
cis-1,2-Dichloroethene	**ND**	µg/L	1	0.2	02/08/13 19:01	8260B	1	B0208131128.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/08/13 19:01	8260B	1	B0208131128.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/08/13 19:01	8260B	1	B0208131128.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/08/13 19:01	8260B	1	B0208131128.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-37

Report#/Lab ID#: 537892
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	**ND**	µg/L	1	0.188	02/08/13 19:01	8260B	1	B0208131128.VOLC
o-Xylene	**ND**	µg/L	1	0.23	02/08/13 19:01	8260B	1	B0208131128.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/08/13 19:01	8260B	1	B0208131128.VOLC
Toluene	**ND**	µg/L	1	0.26	02/08/13 19:01	8260B	1	B0208131128.VOLC
trans-1,2-Dichloroethene	**ND**	µg/L	1	0.19	02/08/13 19:01	8260B	1	B0208131128.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/08/13 19:01	8260B	1	B0208131128.VOLC
Trichlorofluoromethane	**ND**	µg/L	1	0.157	02/08/13 19:01	8260B	1	B0208131128.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/08/13 19:01	8260B	1	B0208131128.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	NA	
1,2-Dichlorobenzene	**ND**	µg/L	10	2.67	02/04/13 16:39	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	**ND**	µg/L	10	2.52	02/04/13 16:39	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	**ND**	µg/L	10	2.73	02/04/13 16:39	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	**ND**	µg/L	10	1.99	02/04/13 16:39	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	**ND**	µg/L	10	1.68	02/04/13 16:39	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	**ND**	µg/L	10	1.92	02/04/13 16:39	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	**ND**	µg/L	10	1.79	02/04/13 16:39	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	**ND**	µg/L	20	1.9	02/04/13 16:39	8270c	1	B0204130959.ExtF
Acenaphthene	**ND**	µg/L	10	1.21	02/04/13 16:39	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	**ND**	µg/L	10	3.26	02/04/13 16:39	8270c	1	B0204130959.ExtF
Naphthalene	**ND**	µg/L	10	2.33	02/04/13 16:39	8270c	1	B0204130959.ExtF
Phenanthrene	**ND**	µg/L	10	1.65	02/04/13 16:39	8270c	1	B0204130959.ExtF
Phenol	**ND**	µg/L	10	0.879	02/04/13 16:39	8270c	1	B0204130959.ExtF
Pyrene	**ND**	µg/L	10	1.53	02/04/13 16:39	8270c	1	B0204130959.ExtF

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(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: MW-37

Report#/Lab ID#: 537892
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.9	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	105.3	80-115	B0208131128.VOLC
Toluene-d8	8260B	102.3	78-115	B0208131128.VOLC
2-Fluorobiphenyl	8270c	46.6	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	23.1	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	41.9	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	47.4	10-110	B0204130959.ExtF
Phenol-d6	8270c	16.5	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	37.4	10-115	B0204130959.ExtF

3512 Montopolis Drive, Austin, TX 78744 &
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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537893 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: Duplicate
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 00:00

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
A/BN extraction-625/8270	---	---	---	---	02/04/13 13:00	3510	NA	B0204131300.1002
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	6.26	µg/L	1	0.34	02/08/13 19:21	8260B	1	B0208131128.VOLC
1,1-Dichloroethene	28.7	µg/L	1	0.19	02/08/13 19:21	8260B	1	B0208131128.VOLC
1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/08/13 19:21	8260B	1	B0208131128.VOLC
1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/08/13 19:21	8260B	1	B0208131128.VOLC
1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/08/13 19:21	8260B	1	B0208131128.VOLC
1,2-Dichloroethane	ND	µg/L	1	0.3	02/08/13 19:21	8260B	1	B0208131128.VOLC
2-Butanone (MEK)	ND	µg/L	2	1.3	02/08/13 19:21	8260B	1	B0208131128.VOLC
4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/08/13 19:21	8260B	1	B0208131128.VOLC
Acetone (2-Propanone)	ND	µg/L	10	3.86	02/08/13 19:21	8260B	1	B0208131128.VOLC
Benzene	ND	µg/L	1	0.16	02/08/13 19:21	8260B	1	B0208131128.VOLC
Carbon tetrachloride	ND	µg/L	1	0.7	02/08/13 19:21	8260B	1	B0208131128.VOLC
Chlorobenzene	ND	µg/L	1	0.19	02/08/13 19:21	8260B	1	B0208131128.VOLC
Chloroethane	ND	µg/L	1	0.53	02/08/13 19:21	8260B	1	B0208131128.VOLC
Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/08/13 19:21	8260B	1	B0208131128.VOLC
Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/08/13 19:21	8260B	1	B0208131128.VOLC
cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/08/13 19:21	8260B	1	B0208131128.VOLC
Dichlorodifluoromethane	ND	µg/L	1	0.22	02/08/13 19:21	8260B	1	B0208131128.VOLC
Ethylbenzene	ND	µg/L	1	0.19	02/08/13 19:21	8260B	1	B0208131128.VOLC
m,p-Xylenes	ND	µg/L	2	0.38	02/08/13 19:21	8260B	1	B0208131128.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Duplicate

Report#/Lab ID#: 537893
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Methylene chloride (Dichloromethane)	**ND**	µg/L	1	0.188	02/08/13 19:21	8260B	1	B0208131128.VOLC
o-Xylene	**ND**	µg/L	1	0.23	02/08/13 19:21	8260B	1	B0208131128.VOLC
Tetrachloroethene (Perchlorethylene)	**1.37**	µg/L	1	0.24	02/08/13 19:21	8260B	1	B0208131128.VOLC
Toluene	**ND**	µg/L	1	0.26	02/08/13 19:21	8260B	1	B0208131128.VOLC
trans-1,2-Dichloroethene	**ND**	µg/L	1	0.19	02/08/13 19:21	8260B	1	B0208131128.VOLC
Trichloroethene	**0.882 J**	µg/L	1	0.23	02/08/13 19:21	8260B	1	B0208131128.VOLC
Trichlorofluoromethane	**ND**	µg/L	1	0.157	02/08/13 19:21	8260B	1	B0208131128.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/08/13 19:21	8260B	1	B0208131128.VOLC
Extractable Organics-625/8270	---	---	---	---	02/04/13	8270c	8270625	
1,2-Dichlorobenzene	**ND**	µg/L	10	2.67	02/04/13 19:51	8270c	1	B0204130959.ExtF
1,2,4-Trichlorobenzene	**ND**	µg/L	10	2.52	02/04/13 19:51	8270c	1	B0204130959.ExtF
1,4-Dichlorobenzene	**ND**	µg/L	10	2.73	02/04/13 19:51	8270c	1	B0204130959.ExtF
2-Methylnaphthalene	**ND**	µg/L	10	1.99	02/04/13 19:51	8270c	1	B0204130959.ExtF
2-Methylphenol (o-Cresol)	**ND**	µg/L	10	1.68	02/04/13 19:51	8270c	1	B0204130959.ExtF
2,4-Dichlorophenol	**ND**	µg/L	10	1.92	02/04/13 19:51	8270c	1	B0204130959.ExtF
2,4-Dimethylphenol	**ND**	µg/L	10	1.79	02/04/13 19:51	8270c	1	B0204130959.ExtF
3&4 Methylphenol (m&p-Cresol)	**ND**	µg/L	20	1.9	02/04/13 19:51	8270c	1	B0204130959.ExtF
Acenaphthene	**ND**	µg/L	10	1.21	02/04/13 19:51	8270c	1	B0204130959.ExtF
bis(2-Ethylhexyl)phthalate	**ND**	µg/L	10	3.26	02/04/13 19:51	8270c	1	B0204130959.ExtF
Naphthalene	**ND**	µg/L	10	2.33	02/04/13 19:51	8270c	1	B0204130959.ExtF
Phenanthrene	**ND**	µg/L	10	1.65	02/04/13 19:51	8270c	1	B0204130959.ExtF
Phenol	**ND**	µg/L	10	0.879	02/04/13 19:51	8270c	1	B0204130959.ExtF
Pyrene	**ND**	µg/L	10	1.53	02/04/13 19:51	8270c	1	B0204130959.ExtF

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(512) 385-5886 • FAX (512) 385-7411

T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Duplicate

Report#/Lab ID#: 537893
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.4	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	104.9	80-115	B0208131128.VOLC
Toluene-d8	8260B	102.4	78-115	B0208131128.VOLC
2-Fluorobiphenyl	8270c	41.5	10-110	B0204130959.ExtF
2-Fluorophenol	8270c	20.3	10-110	B0204130959.ExtF
2,4,6-Tribromophenol	8270c	31.1	10-115	B0204130959.ExtF
Nitrobenzene-d5	8270c	38	10-110	B0204130959.ExtF
Phenol-d6	8270c	13.4	10-110	B0204130959.ExtF
Terphenyl-d14	8270c	33.2	10-115	B0204130959.ExtF

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Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537894 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: Trip Blank 1
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/30/2013 **Time:** 00:00

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/08/13 19:42	8260B	1	B0208131128.VOLC
1,1-Dichloroethene	**0.238 J**	µg/L	1	0.19	02/08/13 19:42	8260B	1	B0208131128.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 19:42	8260B	1	B0208131128.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/08/13 19:42	8260B	1	B0208131128.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/08/13 19:42	8260B	1	B0208131128.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 19:42	8260B	1	B0208131128.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/08/13 19:42	8260B	1	B0208131128.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/08/13 19:42	8260B	1	B0208131128.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/08/13 19:42	8260B	1	B0208131128.VOLC
Benzene	**ND**	µg/L	1	0.16	02/08/13 19:42	8260B	1	B0208131128.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 19:42	8260B	1	B0208131128.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 19:42	8260B	1	B0208131128.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/08/13 19:42	8260B	1	B0208131128.VOLC
Chloroform (Trichloromethane)	**ND**	µg/L	1	0.22	02/08/13 19:42	8260B	1	B0208131128.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/08/13 19:42	8260B	1	B0208131128.VOLC
cis-1,2-Dichloroethene	**ND**	µg/L	1	0.2	02/08/13 19:42	8260B	1	B0208131128.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/08/13 19:42	8260B	1	B0208131128.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/08/13 19:42	8260B	1	B0208131128.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/08/13 19:42	8260B	1	B0208131128.VOLC
Methylene chloride (Dichloromethane)	**0.699 J**	µg/L	1	0.188	02/08/13 19:42	8260B	1	B0208131128.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Trip Blank 1

Report#/Lab ID#: 537894
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
o-Xylene	**ND**	µg/L	1	0.23	02/08/13 19:42	8260B	1	B0208131128.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/08/13 19:42	8260B	1	B0208131128.VOLC
Toluene	**ND**	µg/L	1	0.26	02/08/13 19:42	8260B	1	B0208131128.VOLC
trans-1,2-Dichloroethene	**ND**	µg/L	1	0.19	02/08/13 19:42	8260B	1	B0208131128.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/08/13 19:42	8260B	1	B0208131128.VOLC
Trichlorofluoromethane	**ND**	µg/L	1	0.157	02/08/13 19:42	8260B	1	B0208131128.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/08/13 19:42	8260B	1	B0208131128.VOLC

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Trip Blank 1

Report#/Lab ID#: 537894
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	103.5	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	105.3	80-115	B0208131128.VOLC
Toluene-d8	8260B	102.3	78-115	B0208131128.VOLC

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Attn: Mark S. Katterjohn
Address: 404 Camp Craft Rd
Austin TX 78746
Phone: 512-347-7588 **FAX:** 512-347-8243

T104704268-08-TX

Report#/Lab ID#: 537895 **Report Date:** 02/11/13
Project ID: Murray Corp
Sample Name: Trip Blank 2
Sample Matrix: water
Date Received: 02/01/2013 **Time:** 15:50
Date Sampled: 01/31/2013 **Time:** 00:00

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
Volatile organics-8260	---	---	---	---	02/08/13	8260b(5030/5035)	NA	
1,1-Dichloroethane	**ND**	µg/L	1	0.34	02/08/13 20:02	8260B	1	B0208131128.VOLC
1,1-Dichloroethene	**ND**	µg/L	1	0.19	02/08/13 20:02	8260B	1	B0208131128.VOLC
1,1,1-Trichloroethane	**ND**	µg/L	1	0.58	02/08/13 20:02	8260B	1	B0208131128.VOLC
1,1,2-Trichloroethane	**ND**	µg/L	1	0.18	02/08/13 20:02	8260B	1	B0208131128.VOLC
1,1,2,2-Tetrachloroethane	**ND**	µg/L	1	0.123	02/08/13 20:02	8260B	1	B0208131128.VOLC
1,2-Dichloroethane	**ND**	µg/L	1	0.3	02/08/13 20:02	8260B	1	B0208131128.VOLC
2-Butanone (MEK)	**ND**	µg/L	2	1.3	02/08/13 20:02	8260B	1	B0208131128.VOLC
4-Methyl-2-pentanone (MIBK)	**ND**	µg/L	1	0.252	02/08/13 20:02	8260B	1	B0208131128.VOLC
Acetone (2-Propanone)	**ND**	µg/L	10	3.86	02/08/13 20:02	8260B	1	B0208131128.VOLC
Benzene	**ND**	µg/L	1	0.16	02/08/13 20:02	8260B	1	B0208131128.VOLC
Carbon tetrachloride	**ND**	µg/L	1	0.7	02/08/13 20:02	8260B	1	B0208131128.VOLC
Chlorobenzene	**ND**	µg/L	1	0.19	02/08/13 20:02	8260B	1	B0208131128.VOLC
Chloroethane	**ND**	µg/L	1	0.53	02/08/13 20:02	8260B	1	B0208131128.VOLC
Chloroform (Trichloromethane)	**ND**	µg/L	1	0.22	02/08/13 20:02	8260B	1	B0208131128.VOLC
Chloromethane (Methyl chloride)	**ND**	µg/L	1	0.242	02/08/13 20:02	8260B	1	B0208131128.VOLC
cis-1,2-Dichloroethene	**ND**	µg/L	1	0.2	02/08/13 20:02	8260B	1	B0208131128.VOLC
Dichlorodifluoromethane	**ND**	µg/L	1	0.22	02/08/13 20:02	8260B	1	B0208131128.VOLC
Ethylbenzene	**ND**	µg/L	1	0.19	02/08/13 20:02	8260B	1	B0208131128.VOLC
m,p-Xylenes	**ND**	µg/L	2	0.38	02/08/13 20:02	8260B	1	B0208131128.VOLC
Methylene chloride (Dichloromethane)	**0.816 J**	µg/L	1	0.188	02/08/13 20:02	8260B	1	B0208131128.VOLC

1. MQL the "sample factor (SF)" adjusted low standard. The SF reflects all corrections for dilutions (and for soils moisture as well). 2. Sample Detection Limit (SDL), the SF adjusted Method Detection Limit (MDL). 3. Method numbers typically denote USEPA procedures. 4. DWB indicates result is on a "dry weight basis" for soil/sediment samples. For all other matrices the result is on an "as received" basis. 5. "ND" indicates result is below the SDL. Values between the MQL and the SDL are identified with a "J" flag. Other quantitations are above the MQL. The enclosed results reflect only the sample identified above. The results have been carefully reviewed and are, unless otherwise indicated, believed to meet NELAC requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program.

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Trip Blank 2

Report#/Lab ID#: 537895
Sample Matrix: water

REPORT OF ANALYSIS

Parameter	Result(as rec.) [4,5]	Units	MQL [1]	SDL [2]	Date/Time Analyzed	Method [3]	Dilution	ASI Batch#
o-Xylene	**ND**	µg/L	1	0.23	02/08/13 20:02	8260B	1	B0208131128.VOLC
Tetrachloroethene (Perchlorethylene)	**ND**	µg/L	1	0.24	02/08/13 20:02	8260B	1	B0208131128.VOLC
Toluene	**ND**	µg/L	1	0.26	02/08/13 20:02	8260B	1	B0208131128.VOLC
trans-1,2-Dichloroethene	**ND**	µg/L	1	0.19	02/08/13 20:02	8260B	1	B0208131128.VOLC
Trichloroethene	**ND**	µg/L	1	0.23	02/08/13 20:02	8260B	1	B0208131128.VOLC
Trichlorofluoromethane	**ND**	µg/L	1	0.157	02/08/13 20:02	8260B	1	B0208131128.VOLC
Vinyl chloride	**ND**	µg/L	1	0.281	02/08/13 20:02	8260B	1	B0208131128.VOLC

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T104704268-08-TX

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn

Project ID: Murray Corp
Sample Name: Trip Blank 2

Report#/Lab ID#: 537895
Sample Matrix: water

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Batch Number
1,2-Dichloroethane-d4	8260B	104.1	70-125	B0208131128.VOLC
4-Bromofluorobenzene	8260B	105.6	80-115	B0208131128.VOLC
Toluene-d8	8260B	101.6	78-115	B0208131128.VOLC

ANALYSYS INC.

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Laboratory ID# and Chain of Custody Cross Reference and Sample Acceptance Documentation/Exception Report - (Ref: R1[1],[2] & R2[1])

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Lab ID#	Sample Name (COC identifier)	Sample Matrix	Date Sampled	Sample Temp.	Acceptance Criteria Met?	Project Name
537872	MW-1	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537873	DMW-15	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537874	DMW-16	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537875	DMW-22	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537876	Equipment Blank	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537877	MW-5	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					

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Laboratory ID# and Chain of Custody Cross Reference and Sample Acceptance Documentation/Exception Report - (Ref: R1[1],[2] & R2[1])

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Lab ID#	Sample Name (COC identifier)	Sample Matrix	Date Sampled	Sample Temp.	Acceptance Criteria Met?	Project Name
537878	MW-6	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537879	MW-9	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537880	MW-10	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537881	MW-23	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537882	MW-25	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537883	MW-26	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					

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Laboratory ID# and Chain of Custody Cross Reference and Sample Acceptance Documentation/Exception Report - (Ref: R1[1],[2] & R2[1])

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Lab ID#	Sample Name (COC identifier)	Sample Matrix	Date Sampled	Sample Temp.	Acceptance Criteria Met?	Project Name
537884	MW-27	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537885	MW-29R	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537886	MW-31	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537887	MW-32	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537888	RW-33	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537889	RW-34	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Laboratory ID# and Chain of Custody Cross Reference and Sample Acceptance Documentation/Exception Report - (Ref: R1[1],[2] & R2[1])

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Lab ID#	Sample Name (COC identifier)	Sample Matrix	Date Sampled	Sample Temp.	Acceptance Criteria Met?	Project Name
537890	MW-35	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537891	MW-36	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537892	MW-37	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537893	Duplicate	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537894	Trip Blank 1	water	01/30/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					
537895	Trip Blank 2	water	01/31/13	≤6°C	YES	Murray Corp
	Exception Description (if applicable) No un-preserved VOA(s) submitted as required by SW846 & 40CFR136 for 2-chloroethyl vinyl ether, Styrene & Vinyl chloride analysis. Results for these compounds may be impacted.					

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Surrogate Recovery Documentation/Exception Report - (Ref: R4[2])

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Lab ID#	Parameter	Method	Recov	Low-Lim	Lim-Hi	Comments
537891	4-Bromofluorobenzene	8260B & 624	128.9	80	115	Mt intf high additive organic content causing surr out of range
	BatchNO: B0207131651.VOLC					
CCV1	2,4,6-Tribromophenol	8270c & 625	112.9	10	110	
	BatchNO: B0206131244.ExtJ					
CCV2	2,4,6-Tribromophenol	8270c & 625	119.2	10	110	
	BatchNO: B0206131244.ExtJ					
MSD	4-Bromofluorobenzene	8260B & 624	115.6	80	115	
	BatchNO: B0207131651.VOLC • Sample #spiked= 537877+1					

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Documentation/Exception Report for MS/MSD - (Ref: R7(1), (3) & (4))

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Batch#	MS %R	MS %R Limits	MSD %R	MS %R Limits	Prec. %RPD	Prec. Limits	Potentially Impacted Samples
1,1,2,2-Tetrachloroethane	B0207131651.VOLC	96.5	75-135	121.6	75-135	23	16	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Exception-Description MS/MSD precision (RPD) high.								
4-Methyl-2-pentanone (MIBK)	B0207131651.VOLC	83.2	65-140	104.5	65-140	22.7	20	537878, 537881, 537882, 537883, 537884, 537891, 537877,
Exception-Description MS/MSD precision (RPD) high.								

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Batch Contents Report

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Batch & Calibration #'s	CAS #	Method #	Analyst	Sample #'s in Batch
A/BN extraction-625/8270	B0204131300.1002	NA	3510	bh	537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
A/BN extraction-625/8270	B0206131256.ABN	NA	3510	CB	537877,
1,1-Dichloroethane	B0207131651.VOLC C0207131007.VOLC	75-34-3	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537888, 537890, 537891,
1,1-Dichloroethane	B0208131128.VOLC C0207131007.VOLC	75-34-3	8260B	BSC	537887, 537889, 537892, 537893, 537894, 537895,
1,1-Dichloroethene	B0207131651.VOLC C0207131007.VOLC	75-35-4	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537886, 537887, 537890, 537891,
1,1-Dichloroethene	B0208131128.VOLC C0207131007.VOLC	75-35-4	8260B	BSC	537885, 537888, 537889, 537892, 537893, 537894, 537895,
1,1,1-Trichloroethane	B0207131651.VOLC C0207131007.VOLC	71-55-6	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537879, 537880, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
1,1,1-Trichloroethane	B0208131128.VOLC C0207131007.VOLC	71-55-6	8260B	BSC	537878, 537881, 537889, 537892, 537893, 537894, 537895,
1,1,2-Trichloroethane	B0207131651.VOLC C0207131007.VOLC	79-00-5	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
1,1,2-Trichloroethane	B0208131128.VOLC C0207131007.VOLC	79-00-5	8260B	BSC	537892, 537893, 537894, 537895,
1,1,2,2-Tetrachloroethane	B0207131651.VOLC C0207131007.VOLC	79-34-5	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
1,1,2,2-Tetrachloroethane	B0208131128.VOLC C0207131007.VOLC	79-34-5	8260B	BSC	537892, 537893, 537894, 537895,
1,2-Dichloroethane	B0207131651.VOLC C0207131007.VOLC	107-06-2	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
1,2-Dichloroethane	B0208131128.VOLC C0207131007.VOLC	107-06-2	8260B	BSC	537889, 537892, 537893, 537894, 537895,
2-Butanone (MEK)	B0207131651.VOLC C0207131007.VOLC	78-93-3	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
2-Butanone (MEK)	B0208131128.VOLC C0207131007.VOLC	78-93-3	8260B	BSC	537892, 537893, 537894, 537895,
4-Methyl-2-pentanone (MIBK)	B0207131651.VOLC C0207131007.VOLC	108-10-1	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
4-Methyl-2-pentanone (MIBK)	B0208131128.VOLC C0207131007.VOLC	108-10-1	8260B	BSC	537892, 537893, 537894, 537895,

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Batch Contents Report

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Batch & Calibration #'s	CAS #	Method #	Analyst	Sample #'s in Batch
Acetone (2-Propanone)	B0207131651.VOLC C0207131007.VOLC	67-64-1	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Acetone (2-Propanone)	B0208131128.VOLC C0207131007.VOLC	67-64-1	8260B	BSC	537892, 537893, 537894, 537895,
Benzene	B0207131651.VOLC C0207131007.VOLC	71-43-2	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Benzene	B0208131128.VOLC C0207131007.VOLC	71-43-2	8260B	BSC	537892, 537893, 537894, 537895,
Carbon tetrachloride	B0207131651.VOLC C0207131007.VOLC	56-23-5	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
Carbon tetrachloride	B0208131128.VOLC C0207131007.VOLC	56-23-5	8260B	BSC	537889, 537892, 537893, 537894, 537895,
Chlorobenzene	B0207131651.VOLC C0207131007.VOLC	108-90-7	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
Chlorobenzene	B0208131128.VOLC C0207131007.VOLC	108-90-7	8260B	BSC	537889, 537892, 537893, 537894, 537895,
Chloroethane	B0207131651.VOLC C0207131007.VOLC	75-00-3	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Chloroethane	B0208131128.VOLC C0207131007.VOLC	75-00-3	8260B	BSC	537892, 537893, 537894, 537895,
Chloroform (Trichloromethane)	B0207131651.VOLC C0207131007.VOLC	67-66-3	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Chloroform (Trichloromethane)	B0208131128.VOLC C0207131007.VOLC	67-66-3	8260B	BSC	537892, 537893, 537894, 537895,
Chloromethane (Methyl chloride)	B0207131651.VOLC C0207131007.VOLC	74-87-3	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Chloromethane (Methyl chloride)	B0208131128.VOLC C0207131007.VOLC	74-87-3	8260B	BSC	537892, 537893, 537894, 537895,
cis-1,2-Dichloroethene	B0207131651.VOLC C0207131007.VOLC	156-59-2	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
cis-1,2-Dichloroethene	B0208131128.VOLC C0207131007.VOLC	156-59-2	8260B	BSC	537892, 537893, 537894, 537895,
Dichlorodifluoromethane	B0207131651.VOLC C0207131007.VOLC	75-71-8	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Dichlorodifluoromethane	B0208131128.VOLC C0207131007.VOLC	75-71-8	8260B	BSC	537892, 537893, 537894, 537895,

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Batch Contents Report

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Batch & Calibration #'s	CAS #	Method #	Analyst	Sample #'s in Batch
Ethylbenzene	B0207131651.VOLC C0207131007.VOLC	100-41-4	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Ethylbenzene	B0208131128.VOLC C0207131007.VOLC	100-41-4	8260B	BSC	537892, 537893, 537894, 537895,
m,p-Xylenes	B0207131651.VOLC C0207131007.VOLC	108-38-3	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
m,p-Xylenes	B0208131128.VOLC C0207131007.VOLC	108-38-3	8260B	BSC	537892, 537893, 537894, 537895,
Methylene chloride (Dichloromethane)	B0207131651.VOLC C0207131007.VOLC	75-09-2	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
Methylene chloride (Dichloromethane)	B0208131128.VOLC C0207131007.VOLC	75-09-2	8260B	BSC	537889, 537892, 537893, 537894, 537895,
o-Xylene	B0207131651.VOLC C0207131007.VOLC	95-47-6	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
o-Xylene	B0208131128.VOLC C0207131007.VOLC	95-47-6	8260B	BSC	537892, 537893, 537894, 537895,
Tetrachloroethene (Perchlorethylene)	B0207131651.VOLC C0207131007.VOLC	127-18-4	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
Tetrachloroethene (Perchlorethylene)	B0208131128.VOLC C0207131007.VOLC	127-18-4	8260B	BSC	537878, 537889, 537892, 537893, 537894, 537895,
Toluene	B0207131651.VOLC C0207131007.VOLC	108-88-3	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Toluene	B0208131128.VOLC C0207131007.VOLC	108-88-3	8260B	BSC	537892, 537893, 537894, 537895,
trans-1,2-Dichloroethene	B0207131651.VOLC C0207131007.VOLC	156-60-5	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
trans-1,2-Dichloroethene	B0208131128.VOLC C0207131007.VOLC	156-60-5	8260B	BSC	537892, 537893, 537894, 537895,
Trichloroethene	B0207131651.VOLC C0207131007.VOLC	79-01-6	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
Trichloroethene	B0208131128.VOLC C0207131007.VOLC	79-01-6	8260B	BSC	537889, 537892, 537893, 537894, 537895,
Trichlorofluoromethane	B0207131651.VOLC C0207131007.VOLC	75-69-4	8260B	BSC	537877, 537878, 537881, 537882, 537883, 537884, 537891,
Trichlorofluoromethane	B0208131128.VOLC C0207131007.VOLC	75-69-4	8260B	BSC	537892, 537893, 537894, 537895,

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Batch Contents Report

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Batch & Calibration #'s	CAS #	Method #	Analyst	Sample #'s in Batch
Vinyl chloride	B0207131651.VOLC C0207131007.VOLC	75-01-4	8260B	BSC	537872, 537873, 537874, 537875, 537876, 537877, 537878, 537879, 537880, 537881, 537882, 537883, 537884, 537885, 537886, 537887, 537888, 537890, 537891,
Vinyl chloride	B0208131128.VOLC C0207131007.VOLC	75-01-4	8260B	BSC	537889, 537892, 537893, 537894, 537895,
1,2-Dichlorobenzene	B0204130959.ExtF C0129131603.ExtF	95-50-1	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
1,2,4-Trichlorobenzene	B0204130959.ExtF C0129131603.ExtF	120-82-1	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
1,4-Dichlorobenzene	B0204130959.ExtF C0129131603.ExtF	106-46-7	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
2-Methylnaphthalene	B0204130959.ExtF C0129131603.ExtF	91-57-6	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
2-Methylphenol (o-Cresol)	B0204130959.ExtF C0129131603.ExtF	95-48-7	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
2,4-Dichlorophenol	B0204130959.ExtF C0129131603.ExtF	120-83-2	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
2,4-Dimethylphenol	B0204130959.ExtF C0129131603.ExtF	105-67-9	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
3&4 Methylphenol (m&p-Cresol)	B0204130959.ExtF C0129131603.ExtF	108-39-4	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
Acenaphthene	B0204130959.ExtF C0129131603.ExtF	83-32-9	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
bis(2-Ethylhexyl)phthalate	B0204130959.ExtF C0129131603.ExtF	117-81-7	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
Naphthalene	B0204130959.ExtF C0129131603.ExtF	91-20-3	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
Phenanthrene	B0204130959.ExtF C0129131603.ExtF	85-01-8	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
Phenol	B0204130959.ExtF C0129131603.ExtF	108-95-2	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,
Pyrene	B0204130959.ExtF C0129131603.ExtF	129-00-0	8270c	KMF	537877, 537878, 537881, 537882, 537883, 537884, 537891, 537892, 537893,

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Blanks Report

Batch No.: B0207131651.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	MQL	SQL	Date Analyz	Recovery (if applic.)	Recovery Limits	True Value
CCB1	1,1-Dichloroethane	ND	µg/L	1	0.34	02/07/13	-NA-	-NA-	-NA-
CCB1	1,1-Dichloroethene	ND	µg/L	1	0.19	02/07/13	-NA-	-NA-	-NA-
CCB1	1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/07/13	-NA-	-NA-	-NA-
CCB1	1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/07/13	-NA-	-NA-	-NA-
CCB1	1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/07/13	-NA-	-NA-	-NA-
CCB1	1,2-Dichloroethane	ND	µg/L	1	0.3	02/07/13	-NA-	-NA-	-NA-
CCB1	2-Butanone (MEK)	ND	µg/L	2	1.3	02/07/13	-NA-	-NA-	-NA-
CCB1	4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/07/13	-NA-	-NA-	-NA-
CCB1	Acetone (2-Propanone)	ND	µg/L	10	3.86	02/07/13	-NA-	-NA-	-NA-
CCB1	Benzene	ND	µg/L	1	0.16	02/07/13	-NA-	-NA-	-NA-
CCB1	Carbon tetrachloride	ND	µg/L	1	0.7	02/07/13	-NA-	-NA-	-NA-
CCB1	Chlorobenzene	ND	µg/L	1	0.19	02/07/13	-NA-	-NA-	-NA-
CCB1	Chloroethane	ND	µg/L	1	0.53	02/07/13	-NA-	-NA-	-NA-
CCB1	Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/07/13	-NA-	-NA-	-NA-
CCB1	Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/07/13	-NA-	-NA-	-NA-
CCB1	cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/07/13	-NA-	-NA-	-NA-
CCB1	Dichlorodifluoromethane	ND	µg/L	1	0.22	02/07/13	-NA-	-NA-	-NA-
CCB1	Ethylbenzene	ND	µg/L	1	0.19	02/07/13	-NA-	-NA-	-NA-
CCB1	m,p-Xylenes	ND	µg/L	2	0.38	02/07/13	-NA-	-NA-	-NA-
CCB1	Methylene chloride (Dichloromethane)	0.311J	µg/L	1	0.188	02/07/13	-NA-	-NA-	-NA-
CCB1	o-Xylene	ND	µg/L	1	0.23	02/07/13	-NA-	-NA-	-NA-
CCB1	Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/07/13	-NA-	-NA-	-NA-
CCB1	Toluene	ND	µg/L	1	0.26	02/07/13	-NA-	-NA-	-NA-
CCB1	trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/07/13	-NA-	-NA-	-NA-
CCB1	Trichloroethene	ND	µg/L	1	0.23	02/07/13	-NA-	-NA-	-NA-
CCB1	Trichlorofluoromethane	ND	µg/L	1	0.157	02/07/13	-NA-	-NA-	-NA-
CCB1	Vinyl chloride	ND	µg/L	1	0.281	02/07/13	-NA-	-NA-	-NA-
CCB2	1,1-Dichloroethane	ND	µg/L	1	0.34	02/08/13	-NA-	-NA-	-NA-
CCB2	1,1-Dichloroethene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB2	1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/08/13	-NA-	-NA-	-NA-
CCB2	1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/08/13	-NA-	-NA-	-NA-
CCB2	1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/08/13	-NA-	-NA-	-NA-
CCB2	1,2-Dichloroethane	ND	µg/L	1	0.3	02/08/13	-NA-	-NA-	-NA-
CCB2	2-Butanone (MEK)	ND	µg/L	2	1.3	02/08/13	-NA-	-NA-	-NA-

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Blanks Report

Client: RPS JDC, Inc.
Batch No.: B0207131651.VOLC
Attn: Mark S. Katterjohn
Method: 8260B
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	MQL	SQL	Date Analyz	Recovery (if applic.)	Recovery Limits	True Value
CCB2	4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/08/13	-NA-	-NA-	-NA-
CCB2	Acetone (2-Propanone)	ND	µg/L	10	3.86	02/08/13	-NA-	-NA-	-NA-
CCB2	Benzene	ND	µg/L	1	0.16	02/08/13	-NA-	-NA-	-NA-
CCB2	Carbon tetrachloride	ND	µg/L	1	0.7	02/08/13	-NA-	-NA-	-NA-
CCB2	Chlorobenzene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB2	Chloroethane	ND	µg/L	1	0.53	02/08/13	-NA-	-NA-	-NA-
CCB2	Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/08/13	-NA-	-NA-	-NA-
CCB2	Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/08/13	-NA-	-NA-	-NA-
CCB2	cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/08/13	-NA-	-NA-	-NA-
CCB2	Dichlorodifluoromethane	ND	µg/L	1	0.22	02/08/13	-NA-	-NA-	-NA-
CCB2	Ethylbenzene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB2	m,p-Xylenes	ND	µg/L	2	0.38	02/08/13	-NA-	-NA-	-NA-
CCB2	Methylene chloride (Dichloromethane)	0.408J	µg/L	1	0.188	02/08/13	-NA-	-NA-	-NA-
CCB2	o-Xylene	ND	µg/L	1	0.23	02/08/13	-NA-	-NA-	-NA-
CCB2	Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/08/13	-NA-	-NA-	-NA-
CCB2	Toluene	ND	µg/L	1	0.26	02/08/13	-NA-	-NA-	-NA-
CCB2	trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB2	Trichloroethene	ND	µg/L	1	0.23	02/08/13	-NA-	-NA-	-NA-
CCB2	Trichlorofluoromethane	ND	µg/L	1	0.157	02/08/13	-NA-	-NA-	-NA-
CCB2	Vinyl chloride	ND	µg/L	1	0.281	02/08/13	-NA-	-NA-	-NA-
CCB1	1,2-Dichloroethane-d4(Surr.)	50.5	µg/L	---	---	02/07/13	101	70-125	50
CCB1	4-Bromofluorobenzene(Surr.)	54.5	µg/L	---	---	02/07/13	109.1	80-115	50
CCB1	Toluene-d8(Surr.)	51.6	µg/L	---	---	02/07/13	103.3	78-115	50
CCB2	1,2-Dichloroethane-d4(Surr.)	50.6	µg/L	---	---	02/08/13	101.3	70-125	50
CCB2	4-Bromofluorobenzene(Surr.)	53.2	µg/L	---	---	02/08/13	106.4	80-115	50
CCB2	Toluene-d8(Surr.)	52.4	µg/L	---	---	02/08/13	104.9	78-115	50

PB indicates a prep blank. CCB indicates a continuing calibration blank (NOTE for GC and GC/MS methods, all blanks are prep blanks.

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Matrix Spikes Report

Batch No.: B0207131651.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
MS	1,1-Dichloroethane	26.8	µg/L	1	1	02/07/13	98.8	75-130	-NA-	-NA-	27	537877+1	2.1
MS	1,1-Dichloroethene	31.7	µg/L	1	1	02/07/13	96.8	70-130	-NA-	-NA-	33	537877+1	7.51
MS	1,1,1-Trichloroethane	25.9	µg/L	1	1	02/07/13	97.3	80-125	-NA-	-NA-	27	537877+1	1.61
MS	1,1,2-Trichloroethane	24.7	µg/L	1	1	02/07/13	99.1	85-130	-NA-	-NA-	25	537877+1	-ND-
MS	1,1,2,2-Tetrachloroethane	24.1	µg/L	1	1	02/07/13	96.5	75-135	-NA-	-NA-	25	537877+1	0.01367
MS	1,2-Dichloroethane	24	µg/L	1	1	02/07/13	96.1	75-135	-NA-	-NA-	25	537877+1	-ND-
MS	2-Butanone (MEK)	21.3	µg/L	2	1	02/07/13	85.1	55-140	-NA-	-NA-	25	537877+1	0.05222
MS	4-Methyl-2-pentanone (MIBK)	20.8	µg/L	2	1	02/07/13	83.2	65-140	-NA-	-NA-	25	537877+1	-ND-
MS	Acetone (2-Propanone)	223	µg/L	10	1	02/07/13	89.3	65-140	-NA-	-NA-	250	537877+1	-ND-
MS	Benzene	24.9	µg/L	1	1	02/07/13	99.5	75-125	-NA-	-NA-	25	537877+1	0.04286
MS	Carbon tetrachloride	20.8	µg/L	1	1	02/07/13	83.1	75-130	-NA-	-NA-	25	537877+1	0.00605
MS	Chlorobenzene	25.1	µg/L	1	1	02/07/13	100.4	85-125	-NA-	-NA-	25	537877+1	0.01131
MS	Chloroethane	18.6	µg/L	2	1	02/07/13	74.3	55-130	-NA-	-NA-	25	537877+1	0.04352
MS	Chloroform (Trichloromethane)	24.6	µg/L	1	1	02/07/13	98.3	75-125	-NA-	-NA-	25	537877+1	0.0252
MS	Chloromethane (Methyl chloride)	17.2	µg/L	2	1	02/07/13	68.8	35-130	-NA-	-NA-	25	537877+1	-ND-
MS	cis-1,2-Dichloroethene	25.6	µg/L	1	1	02/07/13	99.2	75-130	-NA-	-NA-	26	537877+1	0.8399
MS	Dichlorodifluoromethane	10.2	µg/L	1	1	02/07/13	40.9	5-145	-NA-	-NA-	25	537877+1	-ND-
MS	Ethylbenzene	24.4	µg/L	1	1	02/07/13	97.9	80-130	-NA-	-NA-	25	537877+1	0.01067
MS	m,p-Xylenes	51.3	µg/L	2	1	02/07/13	102.7	80-130	-NA-	-NA-	50	537877+1	0.02659
MS	Methylene chloride (Dichloromethane)	27.4	µg/L	2	1	02/07/13	108.6	60-135	-NA-	-NA-	25	537877+1	0.25684
MS	o-Xylene	27.4	µg/L	1	1	02/07/13	109.6	85-125	-NA-	-NA-	25	537877+1	0.00296
MS	Tetrachloroethene (Perchlorethylene)	25.2	µg/L	1	1	02/07/13	91.1	80-130	-NA-	-NA-	27	537877+1	2.47
MS	Toluene	25.4	µg/L	1	1	02/07/13	101.6	80-125	-NA-	-NA-	25	537877+1	0.05909
MS	trans-1,2-Dichloroethene	26	µg/L	1	1	02/07/13	104.2	70-125	-NA-	-NA-	25	537877+1	0.01268
MS	Trichloroethene	25.1	µg/L	1	1	02/07/13	98.5	75-130	-NA-	-NA-	25	537877+1	0.47434
MS	Trichlorofluoromethane	23	µg/L	1	1	02/07/13	92	70-125	-NA-	-NA-	25	537877+1	-ND-
MS	Vinyl chloride	15.7	µg/L	1	1	02/07/13	62.9	45-140	-NA-	-NA-	25	537877+1	-ND-
MSD	1,1-Dichloroethane	28.9	µg/L	1	1	02/07/13	107.4	75-130	7.7	16	27	537877+1	2.1
MSD	1,1-Dichloroethene	33.6	µg/L	1	1	02/07/13	104.3	70-130	5.8	15	33	537877+1	7.51
MSD	1,1,1-Trichloroethane	28.3	µg/L	1	1	02/07/13	107	80-125	8.9	16	27	537877+1	1.61
MSD	1,1,2-Trichloroethane	28.3	µg/L	1	1	02/07/13	113.4	85-130	13.5	15	25	537877+1	-ND-
MSD	1,1,2,2-Tetrachloroethane	30.4	µg/L	1	1	02/07/13	121.6	75-135	23	16	25	537877+1	0.01367
MSD	1,2-Dichloroethane	27.3	µg/L	1	1	02/07/13	109.3	75-135	12.9	18	25	537877+1	-ND-
MSD	2-Butanone (MEK)	24.4	µg/L	2	1	02/07/13	97.6	55-140	13.6	22	25	537877+1	0.05222
MSD	4-Methyl-2-pentanone (MIBK)	26.1	µg/L	2	1	02/07/13	104.5	65-140	22.7	20	25	537877+1	-ND-
MSD	Acetone (2-Propanone)	260	µg/L	10	1	02/07/13	104.1	65-140	15.3	20	250	537877+1	-ND-

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Matrix Spikes Report

Batch No.: B0207131651.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
MSD	Benzene	26.8	µg/L	1	1	02/07/13	107.1	75-125	7.4	15	25	537877+1	0.04286
MSD	Carbon tetrachloride	23.1	µg/L	1	1	02/07/13	92.4	75-130	10.6	15	25	537877+1	0.00605
MSD	Chlorobenzene	26.1	µg/L	1	1	02/07/13	104.3	85-125	3.8	15	25	537877+1	0.01131
MSD	Chloroethane	17.5	µg/L	2	1	02/07/13	70.2	55-130	5.6	18	25	537877+1	0.04352
MSD	Chloroform (Trichloromethane)	27.2	µg/L	1	1	02/07/13	109	75-125	10.3	15	25	537877+1	0.0252
MSD	Chloromethane (Methyl chloride)	18.3	µg/L	2	1	02/07/13	73.3	35-130	6.4	20	25	537877+1	-ND-
MSD	cis-1,2-Dichloroethene	27.9	µg/L	1	1	02/07/13	108.5	75-130	8.7	16	26	537877+1	0.8399
MSD	Dichlorodifluoromethane	11.6	µg/L	1	1	02/07/13	46.4	5-145	12.7	16	25	537877+1	-ND-
MSD	Ethylbenzene	24.3	µg/L	1	1	02/07/13	97.2	80-130	0.6	15	25	537877+1	0.01067
MSD	m,p-Xylenes	50.1	µg/L	2	1	02/07/13	100.3	80-130	2.3	15	50	537877+1	0.02659
MSD	Methylene chloride (Dichloromethane)	29.8	µg/L	2	1	02/07/13	118.3	60-135	8.5	16	25	537877+1	0.25684
MSD	o-Xylene	27.5	µg/L	1	1	02/07/13	110.3	85-125	0.6	15	25	537877+1	0.00296
MSD	Tetrachloroethene (Perchlorethylene)	25.3	µg/L	1	1	02/07/13	91.6	80-130	0.5	15	27	537877+1	2.47
MSD	Toluene	26.5	µg/L	1	1	02/07/13	105.9	80-125	4.1	15	25	537877+1	0.05909
MSD	trans-1,2-Dichloroethene	27.6	µg/L	1	1	02/07/13	110.5	70-125	5.9	16	25	537877+1	0.01268
MSD	Trichloroethene	26.7	µg/L	1	1	02/07/13	105.2	75-130	6.5	15	25	537877+1	0.47434
MSD	Trichlorofluoromethane	25.5	µg/L	1	1	02/07/13	102.1	70-125	10.4	15	25	537877+1	-ND-
MSD	Vinyl chloride	16.4	µg/L	1	1	02/07/13	65.9	45-140	4.7	18	25	537877+1	-ND-
MS	1,2-Dichloroethane-d4(Surr.)	53.4	µg/L	---	1	02/07/13	106.8	70-125	-NA-	-NA-	50	-NA-	-NA-
MS	4-Bromofluorobenzene(Surr.)	53.4	µg/L	---	1	02/07/13	106.9	80-115	-NA-	-NA-	50	-NA-	-NA-
MS	Toluene-d8(Surr.)	50.1	µg/L	---	1	02/07/13	100.3	78-115	-NA-	-NA-	50	-NA-	-NA-
MSD	1,2-Dichloroethane-d4(Surr.)	57.1	µg/L	---	1	02/07/13	114.2	70-125	-NA-	-NA-	50	-NA-	-NA-
MSD	4-Bromofluorobenzene(Surr.)	57.8	µg/L	---	1	02/07/13	115.6	80-115	-NA-	-NA-	50	-NA-	-NA-
MSD	Toluene-d8(Surr.)	49.9	µg/L	---	1	02/07/13	99.9	78-115	-NA-	-NA-	50	-NA-	-NA-

ANALYSYS INC.
3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 385-7411

Laboratory Control Sample Report

Client: RPS JDC, Inc.
Batch No.: B0207131651.VOLC
Attn: Mark S. Katterjohn
Method: 8260B
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
LCS	1,1-Dichloroethane	27	µg/L	1	1	02/07/13	108.3	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1-Dichloroethene	25.4	µg/L	1	1	02/07/13	101.8	70-125	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1,1-Trichloroethane	26.9	µg/L	1	1	02/07/13	107.7	80-125	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1,2-Trichloroethane	27.2	µg/L	1	1	02/07/13	109.1	85-130	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1,2,2-Tetrachloroethane	26.6	µg/L	1	1	02/07/13	106.6	75-135	-NA-	-NA-	25	-NA-	-NA-
LCS	1,2-Dichloroethane	26.5	µg/L	1	1	02/07/13	106.1	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	2-Butanone (MEK)	28.1	µg/L	2	1	02/07/13	112.4	60-140	-NA-	-NA-	25	-NA-	-NA-
LCS	4-Methyl-2-pentanone (MIBK)	25	µg/L	2	1	02/07/13	100.2	65-140	-NA-	-NA-	25	-NA-	-NA-
LCS	Acetone (2-Propanone)	244	µg/L	10	1	02/07/13	97.6	65-140	-NA-	-NA-	250	-NA-	-NA-
LCS	Benzene	26.4	µg/L	1	1	02/07/13	105.9	75-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Carbon tetrachloride	23.5	µg/L	1	1	02/07/13	94.2	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Chlorobenzene	26.4	µg/L	1	1	02/07/13	105.7	85-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Chloroethane	18.8	µg/L	2	1	02/07/13	75.5	55-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Chloroform (Trichloromethane)	26.9	µg/L	1	1	02/07/13	107.9	75-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Chloromethane (Methyl chloride)	18.8	µg/L	2	1	02/07/13	75.3	35-130	-NA-	-NA-	25	-NA-	-NA-
LCS	cis-1,2-Dichloroethene	27.9	µg/L	1	1	02/07/13	111.7	75-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Dichlorodifluoromethane	11.9	µg/L	1	1	02/07/13	47.7	5-145	-NA-	-NA-	25	-NA-	-NA-
LCS	Ethylbenzene	25.8	µg/L	1	1	02/07/13	103.3	80-130	-NA-	-NA-	25	-NA-	-NA-
LCS	m,p-Xylenes	53.5	µg/L	2	1	02/07/13	107.1	80-130	-NA-	-NA-	50	-NA-	-NA-
LCS	Methylene chloride (Dichloromethane)	29.9	µg/L	2	1	02/07/13	119.6	60-135	-NA-	-NA-	25	-NA-	-NA-
LCS	o-Xylene	28.8	µg/L	1	1	02/07/13	115.5	85-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Tetrachloroethene (Perchlorethylene)	24.1	µg/L	1	1	02/07/13	96.4	85-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Toluene	26.8	µg/L	1	1	02/07/13	107.5	80-125	-NA-	-NA-	25	-NA-	-NA-
LCS	trans-1,2-Dichloroethene	28	µg/L	1	1	02/07/13	112.1	70-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Trichloroethene	26.3	µg/L	1	1	02/07/13	105.5	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Trichlorofluoromethane	24.7	µg/L	1	1	02/07/13	99.1	70-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Vinyl chloride	16.3	µg/L	1	1	02/07/13	65.4	45-140	-NA-	-NA-	25	-NA-	-NA-
LCS	1,2-Dichloroethane-d4(Surr.)	56.5	µg/L	---	1	02/07/13	113	70-125	-NA-	-NA-	50	-NA-	-NA-
LCS	4-Bromofluorobenzene(Surr.)	53.9	µg/L	---	1	02/07/13	107.8	80-115	-NA-	-NA-	50	-NA-	-NA-
LCS	Toluene-d8(Surr.)	50	µg/L	---	1	02/07/13	100	78-115	-NA-	-NA-	50	-NA-	-NA-

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Blanks Report

Batch No.: B0208131128.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	MQL	SQL	Date Analyz	Recovery (if applic.)	Recovery Limits	True Value
CCB1	1,1-Dichloroethane	ND	µg/L	1	0.34	02/08/13	-NA-	-NA-	-NA-
CCB1	1,1-Dichloroethene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB1	1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/08/13	-NA-	-NA-	-NA-
CCB1	1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/08/13	-NA-	-NA-	-NA-
CCB1	1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/08/13	-NA-	-NA-	-NA-
CCB1	1,2-Dichloroethane	ND	µg/L	1	0.3	02/08/13	-NA-	-NA-	-NA-
CCB1	2-Butanone (MEK)	ND	µg/L	2	1.3	02/08/13	-NA-	-NA-	-NA-
CCB1	4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/08/13	-NA-	-NA-	-NA-
CCB1	Acetone (2-Propanone)	ND	µg/L	10	3.86	02/08/13	-NA-	-NA-	-NA-
CCB1	Benzene	ND	µg/L	1	0.16	02/08/13	-NA-	-NA-	-NA-
CCB1	Carbon tetrachloride	ND	µg/L	1	0.7	02/08/13	-NA-	-NA-	-NA-
CCB1	Chlorobenzene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB1	Chloroethane	ND	µg/L	1	0.53	02/08/13	-NA-	-NA-	-NA-
CCB1	Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/08/13	-NA-	-NA-	-NA-
CCB1	Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/08/13	-NA-	-NA-	-NA-
CCB1	cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/08/13	-NA-	-NA-	-NA-
CCB1	Dichlorodifluoromethane	ND	µg/L	1	0.22	02/08/13	-NA-	-NA-	-NA-
CCB1	Ethylbenzene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB1	m,p-Xylenes	ND	µg/L	2	0.38	02/08/13	-NA-	-NA-	-NA-
CCB1	Methylene chloride (Dichloromethane)	0.408J	µg/L	1	0.188	02/08/13	-NA-	-NA-	-NA-
CCB1	o-Xylene	ND	µg/L	1	0.23	02/08/13	-NA-	-NA-	-NA-
CCB1	Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/08/13	-NA-	-NA-	-NA-
CCB1	Toluene	ND	µg/L	1	0.26	02/08/13	-NA-	-NA-	-NA-
CCB1	trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/08/13	-NA-	-NA-	-NA-
CCB1	Trichloroethene	ND	µg/L	1	0.23	02/08/13	-NA-	-NA-	-NA-
CCB1	Trichlorofluoromethane	ND	µg/L	1	0.157	02/08/13	-NA-	-NA-	-NA-
CCB1	Vinyl chloride	ND	µg/L	1	0.281	02/08/13	-NA-	-NA-	-NA-
CCB2	1,1-Dichloroethane	ND	µg/L	1	0.34	02/10/13	-NA-	-NA-	-NA-
CCB2	1,1-Dichloroethene	ND	µg/L	1	0.19	02/10/13	-NA-	-NA-	-NA-
CCB2	1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/10/13	-NA-	-NA-	-NA-
CCB2	1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/10/13	-NA-	-NA-	-NA-
CCB2	1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/10/13	-NA-	-NA-	-NA-
CCB2	1,2-Dichloroethane	ND	µg/L	1	0.3	02/10/13	-NA-	-NA-	-NA-
CCB2	2-Butanone (MEK)	ND	µg/L	2	1.3	02/10/13	-NA-	-NA-	-NA-

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Blanks Report

Client: RPS JDC, Inc.
Batch No.: B0208131128.VOLC
Attn: Mark S. Katterjohn
Method: 8260B
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	MQL	SQL	Date Analyz	Recovery (if applic.)	Recovery Limits	True Value
CCB2	4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/10/13	-NA-	-NA-	-NA-
CCB2	Acetone (2-Propanone)	ND	µg/L	10	3.86	02/10/13	-NA-	-NA-	-NA-
CCB2	Benzene	ND	µg/L	1	0.16	02/10/13	-NA-	-NA-	-NA-
CCB2	Carbon tetrachloride	ND	µg/L	1	0.7	02/10/13	-NA-	-NA-	-NA-
CCB2	Chlorobenzene	ND	µg/L	1	0.19	02/10/13	-NA-	-NA-	-NA-
CCB2	Chloroethane	ND	µg/L	1	0.53	02/10/13	-NA-	-NA-	-NA-
CCB2	Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/10/13	-NA-	-NA-	-NA-
CCB2	Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/10/13	-NA-	-NA-	-NA-
CCB2	cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/10/13	-NA-	-NA-	-NA-
CCB2	Dichlorodifluoromethane	ND	µg/L	1	0.22	02/10/13	-NA-	-NA-	-NA-
CCB2	Ethylbenzene	ND	µg/L	1	0.19	02/10/13	-NA-	-NA-	-NA-
CCB2	m,p-Xylenes	ND	µg/L	2	0.38	02/10/13	-NA-	-NA-	-NA-
CCB2	Methylene chloride (Dichloromethane)	0.285J	µg/L	1	0.188	02/10/13	-NA-	-NA-	-NA-
CCB2	o-Xylene	ND	µg/L	1	0.23	02/10/13	-NA-	-NA-	-NA-
CCB2	Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/10/13	-NA-	-NA-	-NA-
CCB2	Toluene	ND	µg/L	1	0.26	02/10/13	-NA-	-NA-	-NA-
CCB2	trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/10/13	-NA-	-NA-	-NA-
CCB2	Trichloroethene	ND	µg/L	1	0.23	02/10/13	-NA-	-NA-	-NA-
CCB2	Trichlorofluoromethane	ND	µg/L	1	0.157	02/10/13	-NA-	-NA-	-NA-
CCB2	Vinyl chloride	ND	µg/L	1	0.281	02/10/13	-NA-	-NA-	-NA-
CCB3	1,1-Dichloroethane	ND	µg/L	1	0.34	02/11/13	-NA-	-NA-	-NA-
CCB3	1,1-Dichloroethene	ND	µg/L	1	0.19	02/11/13	-NA-	-NA-	-NA-
CCB3	1,1,1-Trichloroethane	ND	µg/L	1	0.58	02/11/13	-NA-	-NA-	-NA-
CCB3	1,1,2-Trichloroethane	ND	µg/L	1	0.18	02/11/13	-NA-	-NA-	-NA-
CCB3	1,1,2,2-Tetrachloroethane	ND	µg/L	1	0.123	02/11/13	-NA-	-NA-	-NA-
CCB3	1,2-Dichloroethane	ND	µg/L	1	0.3	02/11/13	-NA-	-NA-	-NA-
CCB3	2-Butanone (MEK)	ND	µg/L	2	1.3	02/11/13	-NA-	-NA-	-NA-
CCB3	4-Methyl-2-pentanone (MIBK)	ND	µg/L	1	0.252	02/11/13	-NA-	-NA-	-NA-
CCB3	Acetone (2-Propanone)	4.63J	µg/L	10	3.86	02/11/13	-NA-	-NA-	-NA-
CCB3	Benzene	ND	µg/L	1	0.16	02/11/13	-NA-	-NA-	-NA-
CCB3	Carbon tetrachloride	ND	µg/L	1	0.7	02/11/13	-NA-	-NA-	-NA-
CCB3	Chlorobenzene	ND	µg/L	1	0.19	02/11/13	-NA-	-NA-	-NA-
CCB3	Chloroethane	ND	µg/L	1	0.53	02/11/13	-NA-	-NA-	-NA-
CCB3	Chloroform (Trichloromethane)	ND	µg/L	1	0.22	02/11/13	-NA-	-NA-	-NA-

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Blanks Report

Batch No.: B0208131128.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	MQL	SQL	Date Analyz	Recovery (if applic.)	Recovery Limits	True Value
CCB3	Chloromethane (Methyl chloride)	ND	µg/L	1	0.242	02/11/13	-NA-	-NA-	-NA-
CCB3	cis-1,2-Dichloroethene	ND	µg/L	1	0.2	02/11/13	-NA-	-NA-	-NA-
CCB3	Dichlorodifluoromethane	ND	µg/L	1	0.22	02/11/13	-NA-	-NA-	-NA-
CCB3	Ethylbenzene	ND	µg/L	1	0.19	02/11/13	-NA-	-NA-	-NA-
CCB3	m,p-Xylenes	ND	µg/L	2	0.38	02/11/13	-NA-	-NA-	-NA-
CCB3	Methylene chloride (Dichloromethane)	ND	µg/L	1	0.188	02/11/13	-NA-	-NA-	-NA-
CCB3	o-Xylene	ND	µg/L	1	0.23	02/11/13	-NA-	-NA-	-NA-
CCB3	Tetrachloroethene (Perchlorethylene)	ND	µg/L	1	0.24	02/11/13	-NA-	-NA-	-NA-
CCB3	Toluene	ND	µg/L	1	0.26	02/11/13	-NA-	-NA-	-NA-
CCB3	trans-1,2-Dichloroethene	ND	µg/L	1	0.19	02/11/13	-NA-	-NA-	-NA-
CCB3	Trichloroethene	ND	µg/L	1	0.23	02/11/13	-NA-	-NA-	-NA-
CCB3	Trichlorofluoromethane	ND	µg/L	1	0.157	02/11/13	-NA-	-NA-	-NA-
CCB3	Vinyl chloride	ND	µg/L	1	0.281	02/11/13	-NA-	-NA-	-NA-
CCB1	1,2-Dichloroethane-d4(Surr.)	50.6	µg/L	---	---	02/08/13	101.3	70-125	50
CCB1	4-Bromofluorobenzene(Surr.)	53.2	µg/L	---	---	02/08/13	106.4	80-115	50
CCB1	Toluene-d8(Surr.)	52.4	µg/L	---	---	02/08/13	104.9	78-115	50
CCB2	1,2-Dichloroethane-d4(Surr.)	49.5	µg/L	---	---	02/10/13	99	70-125	50
CCB2	4-Bromofluorobenzene(Surr.)	53.3	µg/L	---	---	02/10/13	106.7	80-115	50
CCB2	Toluene-d8(Surr.)	50.3	µg/L	---	---	02/10/13	100.6	78-115	50
CCB3	1,2-Dichloroethane-d4(Surr.)	47.5	µg/L	---	---	02/11/13	95	70-125	50
CCB3	4-Bromofluorobenzene(Surr.)	53.2	µg/L	---	---	02/11/13	106.4	80-115	50
CCB3	Toluene-d8(Surr.)	50.2	µg/L	---	---	02/11/13	100.5	78-115	50

PB indicates a prep blank. CCB indicates a continuing calibration blank (NOTE for GC and GC/MS methods, all blanks are prep blanks.

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Matrix Spikes Report

Batch No.: B0208131128.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
MS	1,1-Dichloroethane	1410	µg/L	50	50	02/08/13	113.4	75-130	-NA-	-NA-	1250	377189+1R	0.13007
MS	1,1-Dichloroethene	1290	µg/L	50	50	02/08/13	103.2	70-130	-NA-	-NA-	1250	377189+1R	0.13278
MS	1,1,1-Trichloroethane	1400	µg/L	50	50	02/08/13	112.7	80-125	-NA-	-NA-	1250	377189+1R	-ND-
MS	1,1,2-Trichloroethane	1300	µg/L	50	50	02/08/13	104.1	85-130	-NA-	-NA-	1250	377189+1R	-ND-
MS	1,1,2,2-Tetrachloroethane	1220	µg/L	50	50	02/08/13	98.2	75-135	-NA-	-NA-	1250	377189+1R	0.45175
MS	1,2-Dichloroethane	1330	µg/L	50	50	02/08/13	106.4	75-135	-NA-	-NA-	1250	377189+1R	-ND-
MS	2-Butanone (MEK)	1400	µg/L	100	50	02/08/13	111.8	55-140	-NA-	-NA-	1256	377189+1R	5.6
MS	4-Methyl-2-pentanone (MIBK)	1150	µg/L	100	50	02/08/13	91.8	65-140	-NA-	-NA-	1255	377189+1R	4.74
MS	Acetone (2-Propanone)	12100	µg/L	500	50	02/08/13	96.4	65-140	-NA-	-NA-	12619	377189+1R	118.67
MS	Benzene	1380	µg/L	50	50	02/08/13	109.2	75-125	-NA-	-NA-	1268	377189+1R	18.47
MS	Carbon tetrachloride	1330	µg/L	50	50	02/08/13	106.5	75-130	-NA-	-NA-	1250	377189+1R	0.15379
MS	Chlorobenzene	1310	µg/L	50	50	02/08/13	104.9	85-125	-NA-	-NA-	1250	377189+1R	0.34321
MS	Chloroethane	1210	µg/L	100	50	02/08/13	96.7	55-130	-NA-	-NA-	1251	377189+1R	1.06
MS	Chloroform (Trichloromethane)	1380	µg/L	50	50	02/08/13	110.9	75-125	-NA-	-NA-	1252	377189+1R	1.63
MS	Chloromethane (Methyl chloride)	1200	µg/L	100	50	02/08/13	95.9	35-130	-NA-	-NA-	1253	377189+1R	3.13
MS	cis-1,2-Dichloroethene	1430	µg/L	50	50	02/08/13	114.8	75-130	-NA-	-NA-	1250	377189+1R	-ND-
MS	Dichlorodifluoromethane	1340	µg/L	50	50	02/08/13	107.4	5-145	-NA-	-NA-	1251	377189+1R	0.55328
MS	Ethylbenzene	1340	µg/L	50	50	02/08/13	107.2	80-130	-NA-	-NA-	1256	377189+1R	6.31
MS	m,p-Xylenes	2830	µg/L	100	50	02/08/13	112.8	80-130	-NA-	-NA-	2513	377189+1R	12.8
MS	Methylene chloride (Dichloromethane)	1470	µg/L	100	50	02/08/13	115.4	60-135	-NA-	-NA-	1281	377189+1R	31.3
MS	o-Xylene	1440	µg/L	50	50	02/08/13	114.8	85-125	-NA-	-NA-	1254	377189+1R	4.25
MS	Tetrachloroethene (Perchlorethylene)	1230	µg/L	50	50	02/08/13	99	80-130	-NA-	-NA-	1250	377189+1R	0.13227
MS	Toluene	1410	µg/L	50	50	02/08/13	112.8	80-125	-NA-	-NA-	1251	377189+1R	0.5428
MS	trans-1,2-Dichloroethene	1310	µg/L	50	50	02/08/13	105.3	70-125	-NA-	-NA-	1250	377189+1R	0.11504
MS	Trichloroethene	1380	µg/L	50	50	02/08/13	111.1	75-130	-NA-	-NA-	1250	377189+1R	-ND-
MS	Trichlorofluoromethane	1280	µg/L	50	50	02/08/13	102.9	70-125	-NA-	-NA-	1250	377189+1R	-ND-
MS	Vinyl chloride	1430	µg/L	50	50	02/08/13	114.3	45-140	-NA-	-NA-	1250	377189+1R	0.20483
MSD	1,1-Dichloroethane	1430	µg/L	50	50	02/08/13	114.6	75-130	1.1	16	1250	377189+1R	0.13007
MSD	1,1-Dichloroethene	1360	µg/L	50	50	02/08/13	109	70-130	5.4	15	1250	377189+1R	0.13278
MSD	1,1,1-Trichloroethane	1430	µg/L	50	50	02/08/13	114.9	80-125	1.9	16	1250	377189+1R	-ND-
MSD	1,1,2-Trichloroethane	1380	µg/L	50	50	02/08/13	110.7	85-130	6.1	15	1250	377189+1R	-ND-
MSD	1,1,2,2-Tetrachloroethane	1370	µg/L	50	50	02/08/13	109.6	75-135	11	16	1250	377189+1R	0.45175
MSD	1,2-Dichloroethane	1430	µg/L	50	50	02/08/13	114.5	75-135	7.3	18	1250	377189+1R	-ND-
MSD	2-Butanone (MEK)	1540	µg/L	100	50	02/08/13	123	55-140	9.5	22	1256	377189+1R	5.6
MSD	4-Methyl-2-pentanone (MIBK)	1300	µg/L	100	50	02/08/13	103.7	65-140	12.1	20	1255	377189+1R	4.74
MSD	Acetone (2-Propanone)	13700	µg/L	500	50	02/08/13	108.9	65-140	12.1	20	12619	377189+1R	118.67

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Matrix Spikes Report

Batch No.: B0208131128.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
MSD	Benzene	1390	µg/L	50	50	02/08/13	110	75-125	0.7	15	1268	377189+1R	18.47
MSD	Carbon tetrachloride	1280	µg/L	50	50	02/08/13	102.9	75-130	3.4	15	1250	377189+1R	0.15379
MSD	Chlorobenzene	1320	µg/L	50	50	02/08/13	105.7	85-125	0.8	15	1250	377189+1R	0.34321
MSD	Chloroethane	1240	µg/L	100	50	02/08/13	99.7	55-130	3.1	18	1251	377189+1R	1.06
MSD	Chloroform (Trichloromethane)	1390	µg/L	50	50	02/08/13	111.5	75-125	0.6	15	1252	377189+1R	1.63
MSD	Chloromethane (Methyl chloride)	1290	µg/L	100	50	02/08/13	103.3	35-130	7.4	20	1253	377189+1R	3.13
MSD	cis-1,2-Dichloroethene	1460	µg/L	50	50	02/08/13	117.2	75-130	2	16	1250	377189+1R	-ND-
MSD	Dichlorodifluoromethane	1280	µg/L	50	50	02/08/13	102.8	5-145	4.3	16	1251	377189+1R	0.55328
MSD	Ethylbenzene	1350	µg/L	50	50	02/08/13	107.8	80-130	0.5	15	1256	377189+1R	6.31
MSD	m,p-Xylenes	2810	µg/L	100	50	02/08/13	111.9	80-130	0.7	15	2513	377189+1R	12.8
MSD	Methylene chloride (Dichloromethane)	1540	µg/L	100	50	02/08/13	120.7	60-135	4.4	16	1281	377189+1R	31.3
MSD	o-Xylene	1440	µg/L	50	50	02/08/13	115.1	85-125	0.2	15	1254	377189+1R	4.25
MSD	Tetrachloroethene (Perchlorethylene)	1220	µg/L	50	50	02/08/13	98	80-130	0.9	15	1250	377189+1R	0.13227
MSD	Toluene	1400	µg/L	50	50	02/08/13	112.4	80-125	0.2	15	1251	377189+1R	0.5428
MSD	trans-1,2-Dichloroethene	1360	µg/L	50	50	02/08/13	108.9	70-125	3.4	16	1250	377189+1R	0.11504
MSD	Trichloroethene	1380	µg/L	50	50	02/08/13	111	75-130	0	15	1250	377189+1R	-ND-
MSD	Trichlorofluoromethane	1360	µg/L	50	50	02/08/13	108.8	70-125	5.6	15	1250	377189+1R	-ND-
MSD	Vinyl chloride	1400	µg/L	50	50	02/08/13	112.1	45-140	1.9	18	1250	377189+1R	0.20483
MS	1,2-Dichloroethane-d4(Surr.)	55.9	µg/L	---	1	02/08/13	111.8	70-125	-NA-	-NA-	50	-NA-	-NA-
MS	4-Bromofluorobenzene(Surr.)	51.4	µg/L	---	1	02/08/13	102.9	80-115	-NA-	-NA-	50	-NA-	-NA-
MS	Toluene-d8(Surr.)	50	µg/L	---	1	02/08/13	100.1	78-115	-NA-	-NA-	50	-NA-	-NA-
MSD	1,2-Dichloroethane-d4(Surr.)	57.7	µg/L	---	1	02/08/13	115.4	70-125	-NA-	-NA-	50	-NA-	-NA-
MSD	4-Bromofluorobenzene(Surr.)	52.4	µg/L	---	1	02/08/13	104.8	80-115	-NA-	-NA-	50	-NA-	-NA-
MSD	Toluene-d8(Surr.)	49.6	µg/L	---	1	02/08/13	99.2	78-115	-NA-	-NA-	50	-NA-	-NA-

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Laboratory Control Sample Report

Batch No.: B0208131128.VOLC
Method: 8260B

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
LCS	1,1-Dichloroethane	24.3	µg/L	1	1	02/08/13	97.3	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1-Dichloroethene	24	µg/L	1	1	02/08/13	96.2	70-125	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1,1-Trichloroethane	25.3	µg/L	1	1	02/08/13	101.5	80-125	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1,2-Trichloroethane	24.7	µg/L	1	1	02/08/13	99	85-130	-NA-	-NA-	25	-NA-	-NA-
LCS	1,1,2,2-Tetrachloroethane	23.6	µg/L	1	1	02/08/13	94.7	75-135	-NA-	-NA-	25	-NA-	-NA-
LCS	1,2-Dichloroethane	24	µg/L	1	1	02/08/13	96.3	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	2-Butanone (MEK)	25.9	µg/L	2	1	02/08/13	103.9	60-140	-NA-	-NA-	25	-NA-	-NA-
LCS	4-Methyl-2-pentanone (MIBK)	22.7	µg/L	2	1	02/08/13	90.8	65-140	-NA-	-NA-	25	-NA-	-NA-
LCS	Acetone (2-Propanone)	225	µg/L	10	1	02/08/13	90	65-140	-NA-	-NA-	250	-NA-	-NA-
LCS	Benzene	24	µg/L	1	1	02/08/13	96.1	75-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Carbon tetrachloride	24	µg/L	1	1	02/08/13	96.1	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Chlorobenzene	23.3	µg/L	1	1	02/08/13	93.5	85-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Chloroethane	20.4	µg/L	2	1	02/08/13	81.7	55-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Chloroform (Trichloromethane)	23.4	µg/L	1	1	02/08/13	93.9	75-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Chloromethane (Methyl chloride)	24.1	µg/L	2	1	02/08/13	96.4	35-130	-NA-	-NA-	25	-NA-	-NA-
LCS	cis-1,2-Dichloroethene	24.5	µg/L	1	1	02/08/13	98.2	75-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Dichlorodifluoromethane	25.9	µg/L	1	1	02/08/13	103.8	5-145	-NA-	-NA-	25	-NA-	-NA-
LCS	Ethylbenzene	24.3	µg/L	1	1	02/08/13	97.2	80-130	-NA-	-NA-	25	-NA-	-NA-
LCS	m,p-Xylenes	50.2	µg/L	2	1	02/08/13	100.4	80-130	-NA-	-NA-	50	-NA-	-NA-
LCS	Methylene chloride (Dichloromethane)	25.7	µg/L	2	1	02/08/13	102.9	60-135	-NA-	-NA-	25	-NA-	-NA-
LCS	o-Xylene	25.5	µg/L	1	1	02/08/13	102.1	85-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Tetrachloroethene (Perchlorethylene)	23.8	µg/L	1	1	02/08/13	95.4	85-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Toluene	24.4	µg/L	1	1	02/08/13	97.7	80-125	-NA-	-NA-	25	-NA-	-NA-
LCS	trans-1,2-Dichloroethene	23.7	µg/L	1	1	02/08/13	95	70-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Trichloroethene	24.7	µg/L	1	1	02/08/13	99.1	75-130	-NA-	-NA-	25	-NA-	-NA-
LCS	Trichlorofluoromethane	25.1	µg/L	1	1	02/08/13	100.4	70-125	-NA-	-NA-	25	-NA-	-NA-
LCS	Vinyl chloride	25	µg/L	1	1	02/08/13	100.1	45-140	-NA-	-NA-	25	-NA-	-NA-
LCS	1,2-Dichloroethane-d4(Surr.)	54.1	µg/L	---	1	02/08/13	108.2	70-125	-NA-	-NA-	50	-NA-	-NA-
LCS	4-Bromofluorobenzene(Surr.)	51.6	µg/L	---	1	02/08/13	103.3	80-115	-NA-	-NA-	50	-NA-	-NA-
LCS	Toluene-d8(Surr.)	51.1	µg/L	---	1	02/08/13	102.3	78-115	-NA-	-NA-	50	-NA-	-NA-

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Blanks Report

Client: RPS JDC, Inc.
Batch No.: B0204130959.ExtF
Attn: Mark S. Katterjohn
Method: 8270c
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	MQL	SQL	Date Analyz	Recovery (if applic.)	Recovery Limits	True Value
CCB1	1,2-Dichlorobenzene	ND	µg/L	10	2.67	02/04/13	-NA-	-NA-	-NA-
CCB1	1,2,4-Trichlorobenzene	ND	µg/L	10	2.52	02/04/13	-NA-	-NA-	-NA-
CCB1	1,4-Dichlorobenzene	ND	µg/L	10	2.73	02/04/13	-NA-	-NA-	-NA-
CCB1	2-Methylnaphthalene	ND	µg/L	10	1.99	02/04/13	-NA-	-NA-	-NA-
CCB1	2-Methylphenol (o-Cresol)	ND	µg/L	10	1.68	02/04/13	-NA-	-NA-	-NA-
CCB1	2,4-Dichlorophenol	ND	µg/L	10	1.92	02/04/13	-NA-	-NA-	-NA-
CCB1	2,4-Dimethylphenol	ND	µg/L	10	1.79	02/04/13	-NA-	-NA-	-NA-
CCB1	3&4 Methylphenol (m&p-Cresol)	ND	µg/L	20	1.9	02/04/13	-NA-	-NA-	-NA-
CCB1	Acenaphthene	ND	µg/L	10	1.21	02/04/13	-NA-	-NA-	-NA-
CCB1	bis(2-Ethylhexyl)phthalate	ND	µg/L	10	3.26	02/04/13	-NA-	-NA-	-NA-
CCB1	Naphthalene	ND	µg/L	10	2.33	02/04/13	-NA-	-NA-	-NA-
CCB1	Phenanthrene	ND	µg/L	10	1.65	02/04/13	-NA-	-NA-	-NA-
CCB1	Phenol	ND	µg/L	10	0.879	02/04/13	-NA-	-NA-	-NA-
CCB1	Pyrene	ND	µg/L	10	1.53	02/04/13	-NA-	-NA-	-NA-
CCB1	2-Fluorobiphenyl(Surr.)	36.5	µg/L	---	---	02/04/13	36.5	10-110	100
CCB1	2-Fluorophenol(Surr.)	15.4	µg/L	---	---	02/04/13	15.4	10-110	100
CCB1	2,4,6-Tribromophenol(Surr.)	32.7	µg/L	---	---	02/04/13	32.7	10-115	100
CCB1	Nitrobenzene-d5(Surr.)	34.7	µg/L	---	---	02/04/13	34.7	10-110	100
CCB1	Phenol-d6(Surr.)	13.2	µg/L	---	---	02/04/13	13.2	10-110	100
CCB1	Terphenyl-d14(Surr.)	42.5	µg/L	---	---	02/04/13	42.5	10-115	100

PB indicates a prep blank. CCB indicates a continuing calibration blank (NOTE for GC and GC/MS methods, all blanks are prep blanks.

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Matrix Spikes Report

Batch No.: B0204130959.ExtF
Method: 8270c

Client: RPS JDC, Inc.
Attn: Mark S. Katterjohn
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
MS	1,2-Dichlorobenzene	29.3	µg/L	10	1	02/04/13	48.8	10-110	-NA-	-NA-	60	537878+3D	-ND-
MS	1,2,4-Trichlorobenzene	28.9	µg/L	10	1	02/04/13	48.1	15-110	-NA-	-NA-	60	537878+3D	-ND-
MS	1,4-Dichlorobenzene	27.2	µg/L	10	1	02/04/13	45.4	10-105	-NA-	-NA-	60	537878+3D	-ND-
MS	2-Methylnaphthalene	33.7	µg/L	10	1	02/04/13	56.2	15-105	-NA-	-NA-	60	537878+3D	-ND-
MS	2-Methylphenol (o-Cresol)	28.2	µg/L	10	1	02/04/13	47.1	1-110	-NA-	-NA-	60	537878+3D	-ND-
MS	2,4-Dichlorophenol	36.7	µg/L	10	1	02/04/13	61.3	5-105	-NA-	-NA-	60	537878+3D	-ND-
MS	2,4-Dimethylphenol	35.2	µg/L	10	1	02/04/13	58.6	1-110	-NA-	-NA-	60	537878+3D	-ND-
MS	3&4 Methylphenol (m&p-Cresol)	50	µg/L	20	1	02/04/13	41.7	1-115	-NA-	-NA-	120	537878+3D	-ND-
MS	Acenaphthene	36	µg/L	10	1	02/04/13	60.1	20-105	-NA-	-NA-	60	537878+3D	-ND-
MS	bis(2-Ethylhexyl)phthalate	38.6	µg/L	10	1	02/04/13	62.3	25-105	-NA-	-NA-	61	537878+3D	1.23
MS	Naphthalene	36	µg/L	10	1	02/04/13	60	15-105	-NA-	-NA-	60	537878+3D	0.03777
MS	Phenanthrene	37.3	µg/L	10	1	02/04/13	62.2	25-110	-NA-	-NA-	60	537878+3D	-ND-
MS	Phenol	13.1	µg/L	10	1	02/04/13	21.9	1-105	-NA-	-NA-	60	537878+3D	-ND-
MS	Pyrene	38	µg/L	10	1	02/04/13	63.3	20-105	-NA-	-NA-	60	537878+3D	0.09014
MSD	1,2-Dichlorobenzene	27	µg/L	10	1	02/04/13	45.1	10-110	7.9	56	60	537878+3D	-ND-
MSD	1,2,4-Trichlorobenzene	24.8	µg/L	10	1	02/04/13	41.3	15-110	15.2	52	60	537878+3D	-ND-
MSD	1,4-Dichlorobenzene	25.6	µg/L	10	1	02/04/13	42.6	10-105	6.3	58	60	537878+3D	-ND-
MSD	2-Methylnaphthalene	27.6	µg/L	10	1	02/04/13	46	15-105	19.9	55	60	537878+3D	-ND-
MSD	2-Methylphenol (o-Cresol)	17.2	µg/L	10	1	02/04/13	28.7	1-110	48.5	60	60	537878+3D	-ND-
MSD	2,4-Dichlorophenol	24.7	µg/L	10	1	02/04/13	41.2	5-105	39.2	52	60	537878+3D	-ND-
MSD	2,4-Dimethylphenol	25.5	µg/L	10	1	02/04/13	42.6	1-110	31.6	58	60	537878+3D	-ND-
MSD	3&4 Methylphenol (m&p-Cresol)	30.1	µg/L	20	1	02/04/13	25	1-115	49.7	60	120	537878+3D	-ND-
MSD	Acenaphthene	33.2	µg/L	10	1	02/04/13	55.4	20-105	8	45	60	537878+3D	-ND-
MSD	bis(2-Ethylhexyl)phthalate	35.8	µg/L	10	1	02/04/13	57.7	25-105	7.4	40	61	537878+3D	1.23
MSD	Naphthalene	32.4	µg/L	10	1	02/04/13	54	15-105	10.5	55	60	537878+3D	0.03777
MSD	Phenanthrene	33.7	µg/L	10	1	02/04/13	56.3	25-110	10	40	60	537878+3D	-ND-
MSD	Phenol	<10	µg/L	10	1	02/04/13	12.6	1-105	54	60	60	537878+3D	-ND-
MSD	Pyrene	34.2	µg/L	10	1	02/04/13	56.9	20-105	10.5	45	60	537878+3D	0.09014
MS	2-Fluorobiphenyl(Surr.)	47.8	µg/L	---	1	02/04/13	47.8	10-110	-NA-	-NA-	100	-NA-	-NA-
MS	2-Fluorophenol(Surr.)	26	µg/L	---	1	02/04/13	26	10-110	-NA-	-NA-	100	-NA-	-NA-
MS	2,4,6-Tribromophenol(Surr.)	54.7	µg/L	---	1	02/04/13	54.7	10-115	-NA-	-NA-	100	-NA-	-NA-
MS	Nitrobenzene-d5(Surr.)	49.6	µg/L	---	1	02/04/13	49.6	10-110	-NA-	-NA-	100	-NA-	-NA-
MS	Phenol-d6(Surr.)	19.6	µg/L	---	1	02/04/13	19.6	10-110	-NA-	-NA-	100	-NA-	-NA-
MS	Terphenyl-d14(Surr.)	44.4	µg/L	---	1	02/04/13	44.4	10-115	-NA-	-NA-	100	-NA-	-NA-
MSD	2-Fluorobiphenyl(Surr.)	44.3	µg/L	---	1	02/04/13	44.3	10-110	-NA-	-NA-	100	-NA-	-NA-

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Matrix Spikes Report

Client: RPS JDC, Inc.
Batch No.: B0204130959.ExtF
Attn: Mark S. Katterjohn
Method: 8270c
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
MSD	2-Fluorophenol(Surr.)	15.1	µg/L	---	1	02/04/13	15.1	10-110	-NA-	-NA-	100	-NA-	-NA-
MSD	2,4,6-Tribromophenol(Surr.)	39.8	µg/L	---	1	02/04/13	39.8	10-115	-NA-	-NA-	100	-NA-	-NA-
MSD	Nitrobenzene-d5(Surr.)	45.6	µg/L	---	1	02/04/13	45.6	10-110	-NA-	-NA-	100	-NA-	-NA-
MSD	Phenol-d6(Surr.)	11	µg/L	---	1	02/04/13	11	10-110	-NA-	-NA-	100	-NA-	-NA-
MSD	Terphenyl-d14(Surr.)	39	µg/L	---	1	02/04/13	39	10-115	-NA-	-NA-	100	-NA-	-NA-

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Laboratory Control Sample Report

Client: RPS JDC, Inc.
Batch No.: B0204130959.ExtF
Attn: Mark S. Katterjohn
Method: 8270c
Project: Murray Corp

QC Smpl Type	Parameter	Result	Units	RQL	Dil.	Date	Recovery (if applic.)	Recovery Limits	Precision (if applic.)	Prec. Limits	True Value	Sample # Spike/DUP	Sample # Result
LCS	1,2-Dichlorobenzene	46.1	µg/L	10	1	02/04/13	76.9	15-105	-NA-	-NA-	60	-NA-	-NA-
LCS	1,2,4-Trichlorobenzene	44.1	µg/L	10	1	02/04/13	73.5	15-105	-NA-	-NA-	60	-NA-	-NA-
LCS	1,4-Dichlorobenzene	43.1	µg/L	10	1	02/04/13	71.8	15-105	-NA-	-NA-	60	-NA-	-NA-
LCS	2-Methylnaphthalene	50.5	µg/L	10	1	02/04/13	84.1	20-105	-NA-	-NA-	60	-NA-	-NA-
LCS	2-Methylphenol (o-Cresol)	51.3	µg/L	10	1	02/04/13	85.5	10-105	-NA-	-NA-	60	-NA-	-NA-
LCS	2,4-Dichlorophenol	58.7	µg/L	10	1	02/04/13	97.8	20-105	-NA-	-NA-	60	-NA-	-NA-
LCS	2,4-Dimethylphenol	60.4	µg/L	10	1	02/04/13	100.7	20-110	-NA-	-NA-	60	-NA-	-NA-
LCS	3&4 Methylphenol (m&p-Cresol)	90.1	µg/L	20	1	02/04/13	75	5-110	-NA-	-NA-	120	-NA-	-NA-
LCS	Acenaphthene	54.9	µg/L	10	1	02/04/13	91.5	25-105	-NA-	-NA-	60	-NA-	-NA-
LCS	bis(2-Ethylhexyl)phthalate	58.4	µg/L	10	1	02/04/13	97.3	30-105	-NA-	-NA-	60	-NA-	-NA-
LCS	Naphthalene	58.3	µg/L	10	1	02/04/13	97.2	20-105	-NA-	-NA-	60	-NA-	-NA-
LCS	Phenanthrene	53.7	µg/L	10	1	02/04/13	89.5	30-110	-NA-	-NA-	60	-NA-	-NA-
LCS	Phenol	25.8	µg/L	10	1	02/04/13	43	5-105	-NA-	-NA-	60	-NA-	-NA-
LCS	Pyrene	56.8	µg/L	10	1	02/04/13	94.7	30-105	-NA-	-NA-	60	-NA-	-NA-
LCS	2-Fluorobiphenyl(Surr.)	76.1	µg/L	---	1	02/04/13	76.1	10-110	-NA-	-NA-	100	-NA-	-NA-
LCS	2-Fluorophenol(Surr.)	49.6	µg/L	---	1	02/04/13	49.6	10-110	-NA-	-NA-	100	-NA-	-NA-
LCS	2,4,6-Tribromophenol(Surr.)	73.8	µg/L	---	1	02/04/13	73.8	10-115	-NA-	-NA-	100	-NA-	-NA-
LCS	Nitrobenzene-d5(Surr.)	84.9	µg/L	---	1	02/04/13	84.9	10-110	-NA-	-NA-	100	-NA-	-NA-
LCS	Phenol-d6(Surr.)	37.5	µg/L	---	1	02/04/13	37.5	10-110	-NA-	-NA-	100	-NA-	-NA-
LCS	Terphenyl-d14(Surr.)	79.5	µg/L	---	1	02/04/13	79.5	10-115	-NA-	-NA-	100	-NA-	-NA-

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TRRP Project MQL Report

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Matrix	Method No.	RQL [1]	Low Calib. Std.	Typical Matrix Dilution	Project MQL	Units
1,1-Dichloroethane	water	8260B & 624	1	1	1	1	µg/L
1,1-Dichloroethene	water	8260B & 624	1	1	1	1	µg/L
1,1,1-Trichloroethane	water	8260B & 624	1	1	1	1	µg/L
1,1,2-Trichloroethane	water	8260B & 624	1	1	1	1	µg/L
1,1,2,2-Tetrachloroethane	water	8260B & 624	1	1	1	1	µg/L
1,2-Dichloroethane	water	8260B & 624	1	1	1	1	µg/L
2-Butanone (MEK)	water	8260B & 624	2	2	1	2	µg/L
4-Methyl-2-pentanone (MIBK)	water	8260B & 624	2	1	1	1	µg/L
Acetone (2-Propanone)	water	8260B & 624	10	10	1	10	µg/L
Benzene	water	8260B & 624	1	1	1	1	µg/L
Carbon tetrachloride	water	8260B & 624	1	1	1	1	µg/L
Chlorobenzene	water	8260B & 624	1	1	1	1	µg/L
Chloroethane	water	8260B & 624	2	1	1	1	µg/L
Chloroform (Trichloromethane)	water	8260B & 624	1	1	1	1	µg/L
Chloromethane (Methyl chloride)	water	8260B & 624	2	1	1	1	µg/L
cis-1,2-Dichloroethene	water	8260B & 624	1	1	1	1	µg/L
Dichlorodifluoromethane	water	8260B & 624	1	1	1	1	µg/L
Ethylbenzene	water	8260B & 624	1	1	1	1	µg/L
m,p-Xylenes	water	8260B & 624	2	2	1	2	µg/L
Methylene chloride (Dichloromethane)	water	8260B & 624	2	1	1	1	µg/L
o-Xylene	water	8260B & 624	1	1	1	1	µg/L
Tetrachloroethene (Perchlorethylene)	water	8260B & 624	1	1	1	1	µg/L
Toluene	water	8260B & 624	1	1	1	1	µg/L
trans-1,2-Dichloroethene	water	8260B & 624	1	1	1	1	µg/L
Trichloroethene	water	8260B & 624	1	1	1	1	µg/L
Trichlorofluoromethane	water	8260B & 624	1	1	1	1	µg/L
Vinyl chloride	water	8260B & 624	1	1	1	1	µg/L
1,2-Dichlorobenzene	water	8270c & 625	10	10	1	10	µg/L
1,2,4-Trichlorobenzene	water	8270c & 625	10	10	1	10	µg/L
1,4-Dichlorobenzene	water	8270c & 625	10	10	1	10	µg/L
2-Methylnaphthalene	water	8270c & 625	10	10	1	10	µg/L

1. RQL is the typical quantitation limit for the analyte/test. Typically the RQL is no less than the MQL.

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TRRP Project MQL Report

Client: RPS JDC, Inc. **Attn:** Mark S. Katterjohn **Project:** Murray Corp

Parameter	Matrix	Method No.	RQL [1]	Low Calib. Std.	Typical Matrix Dilution	Project MQL	Units
2-Methylphenol (o-Cresol)	water	8270c & 625	10	10	1	10	µg/L
2,4-Dichlorophenol	water	8270c & 625	10	10	1	10	µg/L
2,4-Dimethylphenol	water	8270c & 625	10	10	1	10	µg/L
3&4 Methylphenol (m&p-Cresol)	water	8270c & 625	20	20	1	20	µg/L
Acenaphthene	water	8270c & 625	10	10	1	10	µg/L
bis(2-Ethylhexyl)phthalate	water	8270c & 625	10	10	1	10	µg/L
Naphthalene	water	8270c & 625	10	10	1	10	µg/L
Phenanthrene	water	8270c & 625	10	10	1	10	µg/L
Phenol	water	8270c & 625	10	10	1	10	µg/L
Pyrene	water	8270c & 625	10	10	1	10	µg/L

1. RQL is the typical quantitation limit for the analyte/test. Typically the RQL is no less than the MQL.

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Austin, TX 78744
Ph: (512) 385-5886 Fax: (512) 385-7411

2209 N. Padre Island Dr., Ste K
Corpus Christi, TX 78408
Ph: (361) 289-6384 Fax: (361) 289-0875

Send Reports To:

Company Name: RPS
Address: 1250 S Capital of TX Hwy, Bldg 3 Suite 200
City: Austin State: TX Zip: 78746
ATTN: Mark Kattergjohn
Phone: 512.347.7588 Fax/E-mail: kattergjohnm@rpsgroup.com
Project Name/PO#: Murray Corp

Bill To (if different):

Company Name:
Address:
City: State: Zip:
ATTN:
Phone: Fax/E-mail:
Sampler: Mark Kattergjohn

Samples/projects intended for **TCEQ-TRRP** completion require special handling, QC requirements and pricing. To Be successfully completed such projects should be identified and discussed prior to receipt and **MUST BE IDENTIFIED** on this Chain-of Custody under "special instructions".

Client Sample No. Description/Identification	Date Sampled	Time Sampled	# of Containers	Grab	Composite	Lab I.D. # (Lab Only)	No. of Containers and Preservative (TRRP-13 Mandatory): Ice	HNO3	HCL	ZnAc/NaOH	H2SO4 Glass	None	Other (Specify)	Matrix: Water-W, Wastewater-WW, Soil-S, Air-A, Waste-WST, Other-Specify	TRRP	EDD/Spreadsheet	Analyze For(1): Attachment 1 VOCs	Attachment 1 SVOCs	Attachment 2 VOCs	TAT*: 24hr / 48hr / 72hr / Standard
MW-1	1/30/13	3:00	2	X		537872	2		2					W	X				X	Std
DMW-15	1/30/13	3:25	2	X		537873	2		2					W	X				X	Std
DMW-16	1/30/13	3:35	2	X		537874	2		2					W	X				X	Std
DMW-22	1/30/13	3:15	2	X		537875	2		2					W	X				X	Std
EQUIPMENT BLANK	1/30/13	2:20	2	X		537876	2		2					W	X				X	Std
MW-5	1/31/13	11:40	4	X		537877	4		2			2		W	X		X	X		Std
MW-6	1/31/13	12:25	4	X		537878	4		2			2		W	X		X	X		Std
MW-9	1/31/13	1:25	2	X		537879	2		2					W	X				X	Std
MW-10	1/31/13	10:50	2	X		537880	2		2					W	X				X	Std
MW-23	1/31/13	1:00	4	X		537881	4		2			2		W	X		X	X		Std

Special Instructions (such as special QC requirements, lists, methods, etc...)

Additional reports to:

(1)Unless specifically requested otherwise on this Chain-of-custody and/or attached documentation, all analyses will be conducted using ASI's method of choice and all data will be reported to ASI's normal reporting limits (MDL/PQL). For GC/MS volatiles and extractables, unless specific analytical parameter lists are specified on this chain-of-custody or attached to this chain-of-custody, ASI will default to Priority Pollutants or ASI's HSL list at ASI's option. Specific compound lists must be supplied for all GC procedures.

Temperature upon receipt (Consistant with NELAC sec. 5.11) (>0-6°C)

Sample Relinquished By: Name	Affiliation	Date	Time	Sample Received By: Name	Affiliation	Date	Time
[signature]	RPS	2/1/13	3:50	[signature]	ASI	2/1/13	1550

YES [X] T#: 41
NO [ ] °C: 1.5
Air: Ambient [ ]

[Tendering of above described samples to AnalySys, Inc. for analytical testing constitutes agreement by buyer/sampler to AnalySys, Inc.'s standard terms.]
* By selecting RUSH/Accelerated TAT, client agrees to additional fees. Please call your Project Manager. ASI will make all reasonable efforts to meet rush requests.

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Corpus Christi, TX 78408
Ph: (361) 289-6384 Fax: (361) 289-0875

Send Reports To:

Company Name: RPS
Address: 1250 S Capital of TX Hwy, Bldg 3, Suite 200
City: Austin State: TX Zip: 78746
ATTN: Mark Kotterjohn
Phone: 512.347.7588 Fax/E-mail: kotterjohn@rpsgroup.com
Project Name/PO#: Murray Corp

Bill To (if different):

Company Name:
Address:
City: State: Zip:
ATTN:
Phone: Fax/E-mail:
Sampler: Mark S. Kotterjohn

Samples/projects intended for **TCEQ-TRRP** completion require special handling, QC requirements and pricing. To Be successfully completed such projects should be identified and discussed prior to receipt and **MUST BE IDENTIFIED** on this Chain-of Custody under "special instructions".

Client Sample No. Description/Identification	Date Sampled	Time Sampled	# of Containers	Grab	Composite	Lab I.D. # (Lab Only)	No. of Containers and Preservative (TRRP-13 Mandatory): Ice	HNO3	HCL	ZnAc/NaOH	H2SO4	Glass	None	Other (Specify)	Matrix: Water-W, Wastewater-WW, Soil-S, Air-A, Waste-WST, Other-Specify	TRRP	EDD/Spreadsheet	Analyze For(1): Attachment 1 VOCs	Attachment 1 SVOCs	Attachment 2 VOCs	TAT*: 24hr	48hr	72hr	Standard
MW-25	1/31/13	8:35	4	X		537882	4		2				2		W	X		X	X					Std
MW-26	1/31/13	9:10	4	X		537883	4		2				2		W	X		X	X					Std
MW-27	1/30/13	4:48	4	X		537884	4		2				2		W	X		X	X					Std
MW-29R	1/31/13	3:00	2	X		537885	2		2						W	X				X				Std
MW-31	1/31/13	9:45	2	X		537886	2		2						W	X				X				Std
MW-32	1/31/13	9:30	2	X		537887	2		2						W	X				X				Std
RW-33	1/31/13	2:10	2	X		537888	2		2						W	X				X				Std
RW-34	1/31/13	2:30	2	X		537889	2		2						W	X				X				Std
MW-35	1/31/13	10:15	2	X		537890	2		2						W	X				X				Std
MW-36	1/31/13	8:05	4	X		537891	4		2				2		W	X		X	X					Std

Special Instructions (such as special QC requirements, lists, methods, etc...)

Additional reports to:

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Temperature upon receipt (Consistant with NELAC sec. 5.11) (>0-6°C)

Sample Relinquished By				Sample Received By						
Name	Affiliation	Date	Time	Name	Affiliation	Date	Time	YES	X	T#: 41
Mark S Kotterjohn	RPS	2/1/13	3:50		ASI	2/1/13	1550	NO		°C: 1.5
										Air: Ambient ☐

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F-0026R
Revised 9/27/11

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Phone: 512.347.7588 Fax/E-mail: kattenjohn@rpsgroup.com
Project Name/PO#: Murray Corp

Bill To (if different):

Company Name:
Address:
City: State: Zip:
ATTN:
Phone: Fax/E-mail:
Sampler: Mark Kattenjohn

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Client Sample No. Description/Identification	Date Sampled	Time Sampled	# of Containers	Grab	Composite	Lab I.D. # (Lab Only)	No. of Containers and Preservative (TRRP-13 Mandatory): Ice	HNO3	HCL	ZnAc/NaOH	H2SO4 Glass	None	Other (Specify)	Matrix: (Water-W, Wastewater-WW, Soil-S, Air-A, Waste-WST, Other-Specify)	TRRP	EDD/Spreadsheet	Analyze For[1]: VOCs Attachment 1	SVOCs Attachment 1	VOCs Attachment 2	TAT*: 24hr / 48hr / 72hr / Standard
MW-37	1/30/13	4:15	4	X		537892	4		2			2		W	X		X	X		Std
Duplicate	1/31/13	—	4	X		537893	4		2			2		W	X		X	X		Std
Trip Blank	—	—	2			537894	2		2					W	X		X			Std
Trip Blank	—	—	2			537895	2		2					W	X		X			Std

Special Instructions (such as special QC requirements, lists, methods, etc…)

Additional reports to:

(1)Unless specifically requested otherwise on this Chain-of-custody and/or attached documentation, all analyses will be conducted using ASI's method of choice and all data will be reported to ASI's normal reporting limits (MDL/PQL). For GC/MS volatiles and extractables, unless specific analytical parameter lists are specified on this chain-of-custody or attached to this chain-of-custody, ASI will default to Priority Pollutants or ASI's HSL list at ASI's option. Specific compound lists must be supplied for all GC procedures.

Temperature upon receipt (Consistant with NELAC sec. 5.11) (>0-6°C)

Sample Relinquished By: Name	Affiliation	Date	Time	Sample Received By: Name	Affiliation	Date	Time
Mark Katt	RPS	2/1/13	3:50		AS1	2/1/13	1550

YES X T#: 41
NO °C: 1.5
Air: Ambient ☐

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F-0026R
Revised 9/27/11

Attachment 1

Table of Hazardous and Solid Waste Constituents and Concentrations Limits for the Groundwater Protection Standard

Hazardous Constituent[1]	Concentration Limits (mg/L)[1]		Analytical Method EPA/SW-846	Holding Time (Days)	Container Type	Number of Containers	Container Size
	POC Wells MW-5, MW-6, and MW-23	POE Wells MW-25, MW-26, MW-27, MW-36 and MW-37					
Volatile Organic Compounds							
Acetone	2.4	2.4	8260	14	Glass VOA vials	2	40 ml
Benzene	0.005	0.005	8260	14	Glass VOA vials	2	40 ml
2-Butanone (MEK)	15	15	8260	14	Glass VOA vials	2	40 ml
Carbon Tetrachloride	0.47	0.47	8260	14	Glass VOA vials	2	40 ml
Chlorobenzene	3.56	3.56	8260	14	Glass VOA vials	2	40 ml
Chloroethane	9.8	9.8	8260	14	Glass VOA vials	2	40 ml
Chloroform	0.10	0.10	8260	14	Glass VOA vials	2	40 ml
Chloromethane	0.07	0.07	8260	14	Glass VOA vials	2	40 ml
Dichlorodifluoromethane	4.9	4.9	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethane	285	285	8260	14	Glass VOA vials	2	40 ml
1,2-Dichloroethane	4.11	4.11	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethene	1.76	0.32	8260	14	Glass VOA vials	2	40 ml
cis-1,2-Dichloroethene	0.07	0.07	8260	14	Glass VOA vials	2	40 ml
trans-1,2-Dichloroethene	0.1	0.1	8260	14	Glass VOA vials	2	40 ml
Ethylbenzene	0.7	0.7	8260	14	Glass VOA vials	2	40 ml
Methylene chloride	889	889	8260	14	Glass VOA vials	2	40 ml
4-Methyl-2-pentanone	2.0	2.0	8260	14	Glass VOA vials	2	40 ml
1,1,2,2-Tetrachloroethane	0.0046	0.0046	8260	14	Glass VOA vials	2	40 ml
Tetrachloroethene	17.9	17.9	8260	14	Glass VOA vials	2	40 ml
Toluene	1.0	1.0	8260	14	Glass VOA vials	2	40 ml
1,1,1-Trichloroethane	272	272	8260	14	Glass VOA vials	2	40 ml

Attachment 1

Table of Hazardous and Solid Waste Constituents and Concentrations Limits for the Groundwater Protection Standard

Hazardous Constituent[1]	Concentration Limits (mg/L)[1]		Analytical Method EPA/SW-846	Holding Time (Days)	Container Type	Number of Containers	Container Size
	POC Wells MW-5, MW-6 and MW-23	POE Wells MW-25, MW-26, MW-27, MW-36 and MW-37					
Volatile Organic Compounds (Continued)							
1,1,2-Trichloroethane	0.005	0.005	8260	14	Glass VOA vials	2	40 ml
Trichloroethene	34	34	8260	14	Glass VOA vials	2	40 ml
Trichlorotrifluoroethane	730	730	8260	14	Glass VOA vials	2	40 ml
Vinyl chloride	23.1	23.1	8260	14	Glass VOA vials	2	40 ml
Xylenes, total	10	10	8260	14	Glass VOA vials	2	40 ml
Semivolatile Organic Compounds							
Acenaphthene	1.5	1.5	8270	7/40*	Amber Glass	1	1 liter
bis(2-ethylhexyl)phthalate	0.39	0.39	8270	7/40*	Amber Glass	1	1 liter
1,2-Dichlorobenzene	6.11	6.11	8270	7/40*	Amber Glass	1	1 liter
1,4-Dichlorobenzene	6.11	6.11	8270	7/40*	Amber Glass	1	1 liter
2,4-Dichlorophenol	0.073	0.073	8270	7/40*	Amber Glass	1	1 liter
2,4-Dimethlyphenol	0.49	0.49	8270	7/40*	Amber Glass	1	1 liter
2-Methylnaphthalene	0.49	0.49	8270	7/40*	Amber Glass	1	1 liter
2-Methylphenol (o-cresol)	1.2	1.2	8270	7/40*	Amber Glass	1	1 liter
3&4-Methylphenol (m&p-cresol)	0.12	0.12	8270	7/40*	Amber Glass	1	1 liter
Naphthalene	0.49	0.49	8270	7/40*	Amber Glass	1	1 liter
Phenanthrene	0.73	0.73	8270	7/40*	Amber Glass	1	1 liter
Phenol	7.3	7.3	8270	7/40*	Amber Glass	1	1 liter
Pyrene	0.73	0.73	8270	7/40*	Amber Glass	1	1 liter
1,2,4-Trichlorobenzene	0.07	0.07	8270	7/40*	Amber Glass	1	1 liter

(1) Hazardous Constituents and Concentration Limits are listed in Table III of Class 3 Modification of CP-50328 issued September 8, 2005.

7/40* - 7 days holding time prior to extraction and 40 days holding time past extraction

Attachment 2
Indicator Parameters and Concentration Limits for the Groundwater Protection Standard

Hazardous Constituent[1]	Concentration Limits (mg/L)[1]			Analytical Method EPA SW-846	Holding Time (Days)	Container Type	Number of Containers	Container Size
	MW-9, MW-10, MW-29R, RW-33, and RW-34	MW-31, MW-32, and MW-35	MW-1 DMW-15, DMW-16 and DMW-17					
Carbon Tetrachloride	0.47	0.47	0.005	8260	14	Glass VOA vials	2	40 ml
Chlorobenzene	3.56	3.56	0.10	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethane	285	285	2.4	8260	14	Glass VOA vials	2	40 ml
1,2-Dichloroethane	4.11	4.11	0.005	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethene	1.76	0.52	0.007	8260	14	Glass VOA vials	2	40 ml
Methylene chloride	889	889	0.005	8260	14	Glass VOA vials	2	40 ml
Tetrachloroethene	17.9	17.9	0.005	8260	14	Glass VOA vials	2	40 ml
1,1,1-Trichloroethane	272	272	0.2	8260	14	Glass VOA vials	2	40 ml
Trichloroethene	34.0	34.0	0.005	8260	14	Glass VOA vials	2	40 ml
Vinyl chloride	23.1	23.1	0.002	8260	14	Glass VOA vials	2	40 ml

Hazardous Constituents and Concentration Limits within the Class 3 Compliance Plan Modification dated September 8, 2005. (1)

ASI Lab ID #'s: 537872 - ~~895~~ 881 12 SAMPLE CHECK-IN

Samples delivered by: ☒ Client ☐ Bus ☐ LSO ☐ UPS ☐ Fed-Ex ☐ ASI/PU ☐ Courier ☐ Other

Samples Checked-in by:

Houston	Date	T: Obs/Corr	Corpus	Date	T: Obs/Corr	Austin	Date	T: Obs/Corr
		°C			°C	JPZ	2/1/13	1.5/1.4 °C
☐ T Blank		T#:	☐ T Blank		T#:	☒ T Blank		T#: 41

COC Entry Line	1	pH	2	pH	3	pH	4	pH	5	pH	6	pH	7	pH	8	pH	9	pH	10	pH
a. 4 oz soil jar																				
b. 8 oz soil jar																				
c. 16 oz soil jar																				
d. 32 oz soil jar																				
e. 40 mL VOA vials (unpres)																				
f. 40 mL VOA vials (HCl)	2		2		2		2		2		2		2		2		2		2	
g. 120 mL amber (unpres)																				
h. 120 mL amber (H2SO4)																				
i. 250 mL amber (H2SO4)																				
j. 500 mL amber (unpres)																				
k. 500 mL amber (H2SO4)																				
l. 950 mL amber (unpres)											2		2						2	
m. 8 oz HDPE (unpres)																				
n. 8 oz Nalgene (HNO3)																				
o. 16 oz HDPE (unpres)																				
p. 16 oz Nalgene (HNO3)																				
q. 16 oz HDPE (ZnAc/NaOH)																				
r. 32 oz HDPE (unpres)																				
s. 32 oz Nalgene (HNO3)																				
t. 32 oz HDPE (Ascorbic acid)																				
u. Tedlar bag/SUMA canister																				
v. Sterile Bottle																				
w. Other																				
Splits to Austin	F										FL		FL						FL	
Splits to Corpus Christi																				
Splits to Subcontract Lab(s)																				

ASI Lab ID #'s: 537882 - 891 SAMPLE CHECK-IN

Samples delivered by: ☑ Client ☐ Bus ☐ LSO ☐ UPS ☐ Fed-Ex ☐ ASI/PU ☐ Courier ☐ Other

Samples Checked-in by:

Houston	Date	T: Obs/Corr	Corpus	Date	T: Obs/Corr	Austin	Date	T: Obs/Corr
		°C			°C	JPZ	2/1/13	1.5/1.7 °C
☐ T Blank		T#:	☐ T Blank		T#:	☒ T Blank		T#: 41

COC Entry Line	1	pH	2	pH	3	pH	4	pH	5	pH	6	pH	7	pH	8	pH	9	pH	10	pH
a. 4 oz soil jar																				
b. 8 oz soil jar																				
c. 16 oz soil jar																				
d. 32 oz soil jar																				
e. 40 mL VOA vials (unpres)																				
f. 40 mL VOA vials (HCl)	2		2		2		2		2		2		2		2		2		2	
g. 120 mL amber (unpres)																				
h. 120 mL amber (H2SO4)																				
i. 250 mL amber (H2SO4)																				
j. 500 mL amber (unpres)																				
k. 500 mL amber (H2SO4)																				
l. 950 mL amber (unpres)	2		2		2														2	
m. 8 oz HDPE (unpres)																				
n. 8 oz Nalgene (HNO3)																				
o. 16 oz HDPE (unpres)																				
p. 16 oz Nalgene (HNO3)																				
q. 16 oz HDPE (ZnAc/NaOH)																				
r. 32 oz HDPE (unpres)																				
s. 32 oz Nalgene (HNO3)																				
t. 32 oz HDPE (Ascorbic acid)																				
u. Tedlar bag/SUMA canister																				
v. Sterile Bottle																				
w. Other																				
Splits to Austin	F L		F L		F L		F		—		—		—		—		F		F L	
Splits to Corpus Christi																				
Splits to Subcontract Lab(s)																				

ASI Lab ID #'s: 537892-895

SAMPLE CHECK-IN

Samples delivered by: ☑ Client ☐ Bus ☐ LSO ☐ UPS ☐ Fed-Ex ☐ ASI/PU ☐ Courier ☐ Other

Samples Checked-in by:

Houston	Date	T: Obs/Corr	Corpus	Date	T: Obs/Corr	Austin	Date	T: Obs/Corr
		°C			°C	JP2	2/1/13	1.5/1.4 °C
☐ T Blank		T#:	☐ T Blank		T#:	☒ T Blank		T#: 71

COC Entry Line	1	pH	2	pH	3	pH	4	pH	5	pH	6	pH	7	pH	8	pH	9	pH	10	pH
a. 4 oz soil jar																				
b. 8 oz soil jar																				
c. 16 oz soil jar																				
d. 32 oz soil jar																				
e. 40 mL VOA vials (unpres)					2		2													
f. 40 mL VOA vials (HCl)	2		2																	
g. 120 mL amber (unpres)																				
h. 120 mL amber (H2SO4)																				
i. 250 mL amber (H2SO4)																				
j. 500 mL amber (unpres)																				
k. 500 mL amber (H2SO4)																				
l. 950 mL amber (unpres)	2		2																	
m. 8 oz HDPE (unpres)																				
n. 8 oz Nalgene (HNO3)																				
o. 16 oz HDPE (unpres)																				
p. 16 oz Nalgene (HNO3)																				
q. 16 oz HDPE (ZnAc/NaOH)																				
r. 32 oz HDPE (unpres)																				
s. 32 oz Nalgene (HNO3)																				
t. 32 oz HDPE (Ascorbic acid)																				
u. Tedlar bag/SUMA canister																				
v. Sterile Bottle																				
w. Other																				
Splits to Austin	FL		FL		E		E													
Splits to Corpus Christi																				
Splits to Subcontract Lab(s)																				

☐ RUSH _____ Date Due

F-0029- Rev. 3 Pg. 1
Prepared: 08/19/2011
Effective: 09/18/2012

ASI Sample Evaluation and Comment Tracking

Sample #'s: 537872-881 **Client:** RPS **Date:** 2/1/13 **Proj. Name:** Murray Corp **# of C-O-C's:** 3

In compliance with the NELAC standard, ASI is notifying you that the **SAMPLES** identified here and on the attached Chain-of-Custody were received by AnalySys, Inc. (ASI) with the followin **INTEGRITY ISSUES** (any NO responses indicated below). In order to assure that ASI will meet your testing needs in a timely manner, **ASI WILL PROCEED WITH THE TESTING** of thes samples as directed and comment on the final reports per NELAC requirements. **PLEASE NOTIFY ASI IMMEDIATELY** if you wish to **SUSPEND** analysis, **MAKE ANY CHANGES** to th requested testing services or if the action indicated **IS INCORRECT**.

Sample Integrity Evaluation on Receipt

Item	Y	N	N/A		Item	Y	N	N/A	
1	✓			C-O-C Received w/samples?	9			✓	Dissolved metal samples field filtered and preserved?
2	✓			C-O-C complete with adequate info?	10			✓	Special Compound VOAs for water not required or provided?
3	✓	✓		C-O-C and samples match (# and descrip.)?					(See Attached for Volatiles acceptance criteria)
4			✓	Custody Seals (if present) intact?	11			✓	Other sample preservation OK?
5	✓			Sample Integrity OK?	12	✓			Other Sample Containers Appropriate?
6	✓			Sample Preservation-Temp OK?	13	✓			VOA headspace OK?
7	✓			Samples received on ice or from client refrigerator?	14			✓	Client Indicated NO bulk soil/solid samples for volatile analysis?
8			✓	Receipt criteria following intra-lab transfer is consistent with original receipt?	15			✓	Client Indicated NO bulk soil/solid samples for TPH-1005 analysis?

Comment: _____

☐ ASI Personnel assisted with completion of the C-O-C (in-person or by phone/e-mail).
☐ Additional information supplied w/C-O-C by client.
☐ Samples submitted significantly after (>2 days) sampling, potentially affecting ability to meet holding times.

Comment: _____

Project Management Observations or Discrepancies

☐ Insufficient information supplied to determine target analytes required. ASI standard lists will be used.
☐ Special report formats **REQUIRED**. ☐ TRRP ☐ Landfill ☐ Other
☐ Historical project data available for review.
☐ Target analyte list attached.

Comment: _____

Form Sent to Client on: _____ at _____ by ☐ FAX ☐ E-Mail ☐ mail
Client Response Recd.: _____ at _____ by ☐ FAX ☐ E-Mail ☐ VERBAL

Client Response: ☐ Proceed w/analysis ☐ Resample and re-submit _____

Authorized by (Client Signature): _____ **Date** _____

RPS

Cielo Center, 1250 South Capital of Texas Highway, Building Three, Suite 200, Austin, Texas 78746, USA
T +1 512 347 7588 F +1 512 347 8243 W www.rpsgroup.com

Groundwater Corrective Action Monitoring Program and System Plan

Murray Corporation
Palestine, Texas

June 2013

Prepared By:

Mark S. Katterjohn, P.G.
Hydrogeologist

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Attachment 1 Corrective Action Monitoring System Information

Section 1
Introduction

Murray Corporation (Murray) conducts a groundwater corrective action program at their former facility in Palestine, Texas under Compliance Plan CP-50328. The Compliance Plan specifies corrective action monitoring and reporting requirements for the uppermost (shallow) aquifer and groundwater monitoring of the lower (deep) aquifer. The corrective action program incorporates a plume management zone (PMZ) as described in the Response Action Plan (RAP) provided in Attachment XI.D.6 of the Part B application. The PMZ also covers groundwater contamination from a historical leak associated with the closed landfill's groundwater recovery discharge line.

The corrective action program originally included an active approved groundwater recovery system for the permitted unit (Landfill – Former Drum Burial Trench), which began operation in 1993 and consisted of three recovery wells (MW-6, MW-9 and RW-33). An additional recovery well (RW-34) began operation in 2003 to address groundwater contamination associated with a historical leak associated with the closed landfill's groundwater recovery discharge line. The recovery system is currently inactive after being shut down (with TCEQ approval) in April 2013 after the GWPS were met for 3 consecutive years.

This document describes the groundwater monitoring program for the Plume Management Zone. The groundwater corrective action monitoring program utilizes semiannual sampling at the point of compliance (POC), point of exposure (POE), attenuation monitoring point (AMP), and corrective action observation (CAO) wells to demonstrate compliance with the applicable groundwater protection standards (GWPS) specified within application tables CP Table III and CP Table IIIA.

This document presents the following information for the monitoring system:

- The number, depth and location of the Groundwater Monitoring and Corrective Action System wells;
- The proposed hazardous constituent monitoring list which is based on constituents that were detected in the groundwater in accordance with 30 TAC 335.164;
- The proposed indicator parameter monitoring list;
- Monitoring frequency;
- Provisions for reporting of ground-water data on a semiannual basis;
- Annual determination of contamination plume rate and direction of migration; and
- Compliance period.

Section 2
Description of Corrective Action Monitoring Systems

The following section describes the types of wells, the well locations, and the monitoring well construction specifications for the wells applicable to the corrective action program. Detailed information regarding groundwater conditions in the vicinity of the corrective action unit is provided in Attachment VI of the Part B application.

The corrective action program consists of background, point of compliance (POC), recovery (currently inactive), AMP, and corrective action observation (CAO) wells listed in Table 1. The background, POC, and CAO wells are used to monitor the groundwater quality in the vicinity of the Former Drum Burial Trench and the historical line leak. The groundwater monitoring well system consists of one upgradient background well, three POC wells completed in the shallow (uppermost aquifer), and three wells completed in the lower aquifer. The corrective action program also incorporates a PMZ that includes five point of exposure wells and four attenuation monitoring points to address groundwater contamination within the shallow aquifer. Well locations are shown on CP Attachment A – Sheet 2 of 2 provided in Appendix A.

The groundwater monitoring system wells have been approved by TCEQ per issuance of Compliance Plan CP-50328. Well completion information is provided in Appendix A. No new wells are proposed for the Corrective Action Monitoring System. However, if new or replacement wells are required, the wells will be installed in accordance with the specifications outlined in Attachment B to the Compliance Plan application.

Section 3
Description of Corrective Action Groundwater Monitoring Program

The following section describes additional aspects of the monitoring programs for the corrective action program.

3.1 Hazardous Constituent Monitoring List

The hazardous constituent monitoring list is based on constituents detected in accordance with 30 TAC 335.164. These constituents are the same as in existing Compliance Plan CP-50328. These constituents are incorporated into CP Table III – Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard of the application. The groundwater protection standards (GWPS) presented within CP Table III are either the Tier 1 protective concentration levels (PCLs) for groundwater ingestion for those constituents not historically detected at the POE or are based on Tier 2 groundwater-to-surface water (^{SW}GW) PCLs developed in the revised RAP. Some of the GWPS have been revised to reflect the current Tier 1 PCLs in the June 29, 2012 Texas Risk Reduction Program (TRRP) tables and surface water (SW) risk-based exposure limits (RBELs) or the Texas Surface Water Quality Standards in Figure 30 TAC§307.6(d)(1).

3.2 Indicator List

The indicator list parameters are the same as in the existing Compliance Plan. These constituents are incorporated into CP Table IIIA – Corrective Action Program Table of Indicator Parameters and Groundwater Protection Standard. The groundwater protection standards (GWPS) presented within CP Table IIIA are based on Tier 2 groundwater-to-surface water (^{SW}GW) PCLs developed in the revised RAP. Some of the GWPS have been revised to reflect the current surface water (SW) risk-based exposure levels (RBELs) or the Texas Surface Water Quality Standards in Figure 30 TAC§307.6(d)(1).

3.3 Monitoring Frequency

Samples of groundwater collected from the groundwater monitoring well system on a semiannual basis. The samples will be collected within the first 30 days of the first and third quarters of the calendar year. Groundwater samples from corrective action system (recovery) wells listed on Table 1 are only collected when the recovery system is operational.

3.4 Compliance Period

Beginning in 1986, approximately 350 drums containing spent solvents were crushed and buried in the approximately 120 feet by 40 feet landfill (0.11 acres). In June 1988, Murray removed the crushed drums and approximately 1,040 tons of waste materials and associated contaminated soils from the landfill and disposed of the waste at an off-site hazardous waste disposal facility. In January 1996, the unit was closed in accordance with an approved Closure Plan and consisted of installing a composite cap and asphalt cover system. The Former Drum Burial Trench was certified closed on March 7, 1996 and approved by TCEQ on April 29, 1996.

Although the disposal activities were stopped and the waste removed in 1988, the compliance period established within the Compliance Plan is seven (7) years which began in 1992 with issuance of the original Part B permit. The compliance period ended in 1999.

3.5 Sampling and Analysis Procedures

Groundwater samples will be collected in accordance with the Revised Sampling and Analysis Plan (SAP) provided in Attachment XI.D.3.c of the Part B permit application. The SAP describes the procedures that are used for well purging, sample collection, analytical methods, sample handling and chain-of-custody procedures, and the field and laboratory quality assurance programs. At the time of groundwater sampling, static water levels will be measured in each of the groundwater monitoring system wells identified in Table to determine the potentiometric surface of the groundwater beneath the unit and facility. Each well will also be inspected during each sampling event in accordance with the specifications in the Sampling and Analysis Plan.

The analytical methods, container and preservation type and maximum holding times for the groundwater monitoring parameters are provided in the Revised Groundwater Sampling and Analysis Plan.

3.6 Data Evaluation

Murray will evaluate the analytical data within 60 days of sample collection. Murray will follow the method of direct comparison of the POC, POE and AMP samples to the GWPS in the Compliance Plan (CP Tables III and IIIA). One sample will be collected from each well for comparison to the GWPS. The wells are considered compliant with the GWPS, if the values for all the constituents are less than or equal to the respective concentration limits presented within

the Compliance Plan. If one or more constituent value is greater than the respective concentration limit, then the well shall be considered non-compliant with the GWPS for the sampling event.

Because all of the POC and POE wells were compliant with the GWPS for two consecutive events (in January and July 2006), the POC and POE wells have been sampled and analyzed semiannually for the constituents of CP Table III. According to the Compliance Plan, since the GWPS was not achieved during the Compliance Period, the Corrective Action Program was to continue until the GWPS was not exceeded in all corrective action system and monitoring wells for three (3) consecutive years which was accomplished with the July 2012 sampling results. Although operation of the active recovery system was discontinued in April 2013, the groundwater is still subject to the Corrective Action Program described within the RAP. Therefore, groundwater monitoring for the closed Former Drum Burial Trench will continue under a Corrective Action Monitoring Program until the end of the 30-year post closure care period.

As outlined in the RAP, the PMZ response action (groundwater recovery) was complete when the concentrations of 1,1-DCE and all other COCs in the groundwater within the PMZ did not exceed their critical PCLs (GWPS established within the Compliance Plan) in all POC, POE, AMP and COA wells. As such, groundwater monitoring entered the two year confirmation sampling period starting with the July 2013 sampling event. If the COC concentrations within all POC, POE, AMP, and COA wells remain below the critical PCLs during the confirmation sampling period, a Response Action Completion Report (RACR) will be submitted in the semiannual report. Upon approval of the RACR, post-response action care (PRAC) monitoring activities (RAP Worksheet 5.0) will begin.

PRAC monitoring will initially overlap with the groundwater monitoring requirements specified within the Compliance Plan. In accordance with the Compliance Plan, groundwater monitoring is required through the end of the 30-year post closure care period for all background, POC and POE wells specified within CP Table V of the Compliance Plan. After the 30-year post closure care period ends in April 2026, only PRAC monitoring will be conducted.

3.7 Record-Keeping and Reporting Procedures

Records of all field and laboratory measurements conducted under the Groundwater Monitoring Program will be maintained with the Murray facility records for at least three years after the submittal date.

Semiannual corrective action reports with supporting maps and tables will be submitted to the TCEQ by January 21 and July 21 of each year. The reporting covered by the semiannual reports are January 1 through June 30 and July 1 through December 31, respectively. Each semiannual report will include the reporting requirements specified within CP Table VII of the renewed Compliance Plan. At a minimum, the report will include the following information determined or collected since the previously submitted report:

- Summary of the evaluations made during the reporting period including the effectiveness of the corrective action system, and estimation of the rate and direction of contaminant plume migration;
- Methods used for management of the recovered/purged groundwater;
- An updated table and map of all monitoring and corrective action system wells including a list, in chronological order, of wells added or deleted from the groundwater monitoring and remediation systems since submittal of the previous semiannual report;
- Tabulated results of the chemical analyses that indicates each parameter that exceeds the GWPS;
- Copies of the analytical laboratory reports showing detection limits and quality control and quality assurance data, if requested by the Executive Director;
- Tabulation of all water-level elevations (mean sea level), depth to water measurements, and total depth measurements recorded during the reporting period;
- Potentiometric surface maps showing the elevation of the water table during each semiannual sampling event, delineation of the radius of influence (capture zone) of the recovery system (when operational), and the direction of groundwater flow gradients outside the radius of influence (capture zone) of the recovery system;
- A notation of the presence (including thickness of the NAPL) or absence of NAPLs in each well during each sampling event since the last event covered in the previous semiannual report;

- Summary of well recovery volumes of groundwater and NAPL and tabulation of total contaminant mass recovered (if groundwater recovery is required);
- Results of data evaluation and status of each well with regard to compliance with the Corrective Action objectives and compliance with the GWPS;
- Isopleth concentration maps of the COCs listed in CP Tables III or IIIA;
- Map(s) indicating the extent and thickness of the NAPLs, if detected;
- Updated schedule summary;
- Summary of changes made in the monitoring/corrective action program;
- Table of modifications made to the Compliance Plan;
- Tabulation of well casing elevations;
- Certification and well installation diagrams for any new wells and certifications for any plugged and abandoned wells;
- Recommendation for any changes; and
- Any other items requested by the Executive Director.

Tables

Attachment XI.D.3.a - Table 3
Groundwater Monitoring System Wells
Groundwater Region 7 Plume Management Zone

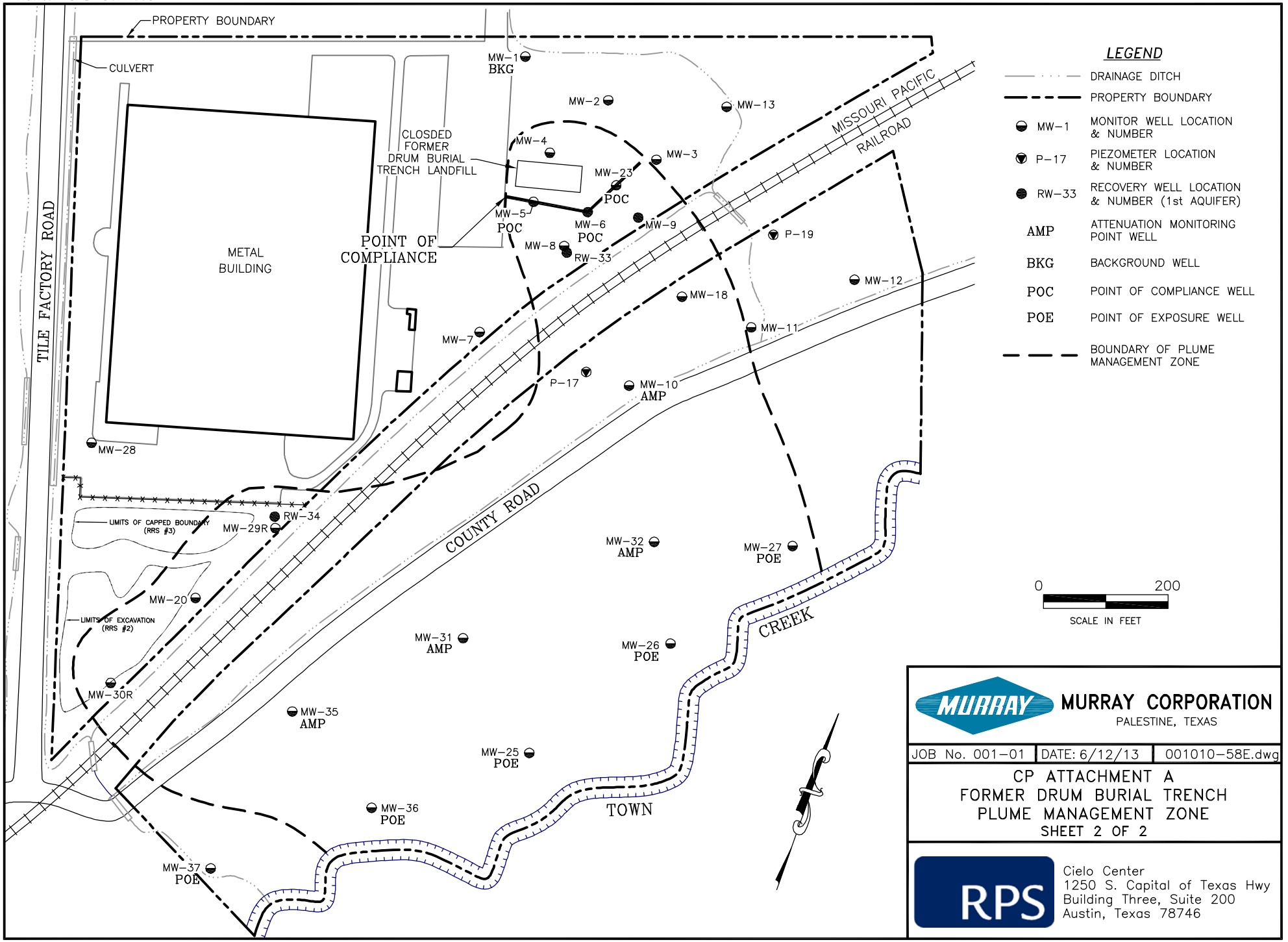
Monitor Well Classification	Well Number		Sampling Frequency
Uppermost (Shallow) Aquifer			
Background	MW-1		Semiannual groundwater samples Semiannual water-level measurements
Point of Compliance	MW-5 MW-23	MW-6*	Semiannual groundwater samples Semiannual water-level measurements
Recovery	(MW-6*) MW-9	RW-33 RW-34	Semiannual water-level measurements Semiannual groundwater samples (only when recovery is required)
Corrective Action Observation	MW-29R		Semiannual groundwater samples Semiannual water-level measurements
Point of Exposure	MW-25 MW-27 MW-37	MW-26 MW-36	Semiannual groundwater samples Semiannual water-level measurements
Attenuation Monitoring Point	MW-10 MW-32	MW-31 MW-35	Semiannual groundwater samples Semiannual water-level measurements
Potentiometric Surface	MW-2 MW-4 MW-8 MW-12 P-17 P-19 MW-28	MW-3 MW-7 MW-11 MW-13 MW-18 MW-20 MW-30R	Semiannual water-level measurements
Lower (Deep) Aquifer			
Deep Aquifer Supplemental	DMW-15 DMW-22	DMW-16	Semiannual groundwater samples Semiannual water-level measurements
Deep Aquifer Potentiometric Surface	DMW-14 DMW-24	DMW-21	Semiannual water-level measurements

* Monitoring well MW-6 is a Point of Compliance and a recovery well when groundwater recovery is required.

Appendix A

Corrective Action Monitoring Systems Information

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/12/13	001010-58E.dwg

CP ATTACHMENT A
FORMER DRUM BURIAL TRENCH
PLUME MANAGEMENT ZONE
SHEET 2 OF 2

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

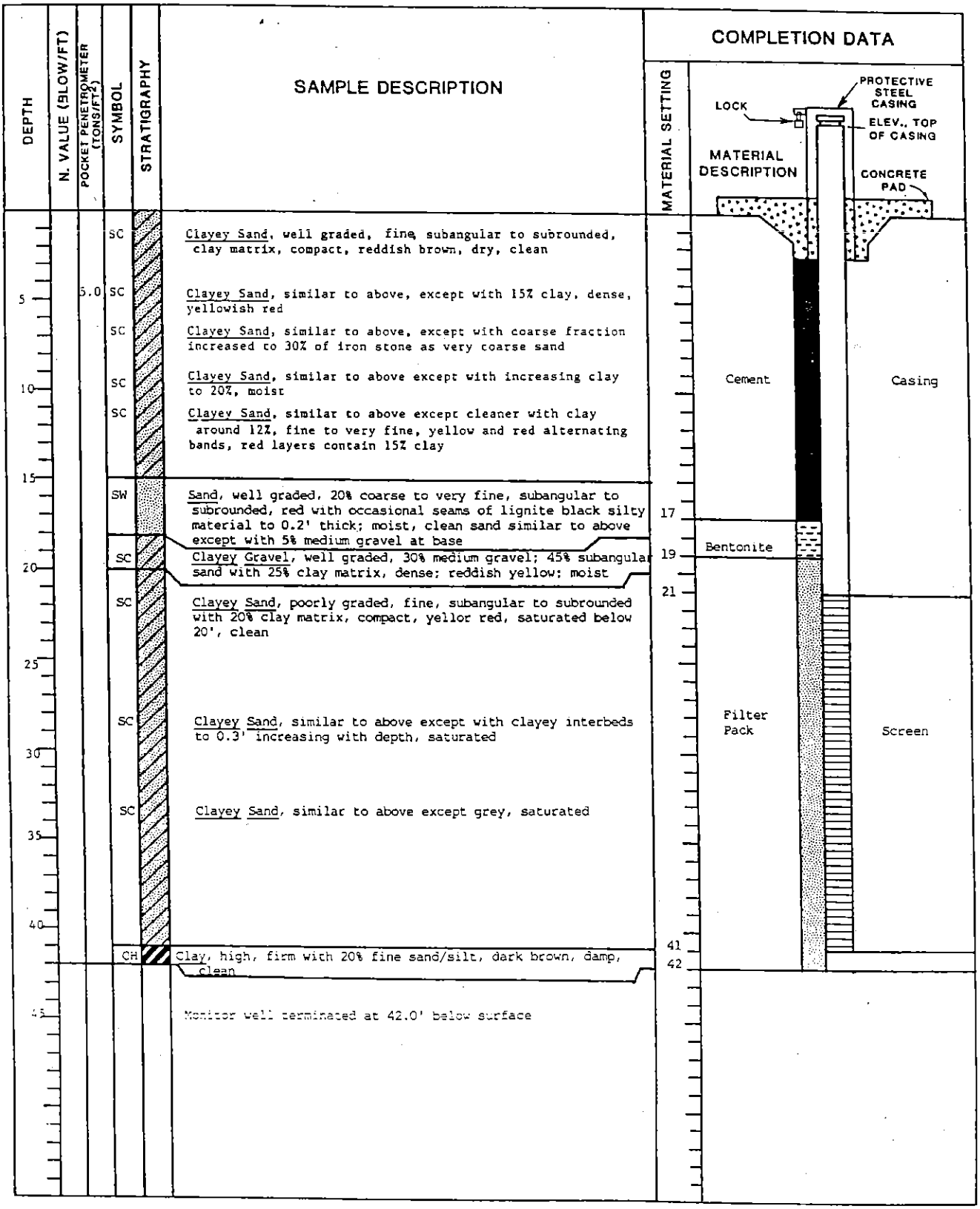
Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-11-88 WELL NO.: MW-1

SITE: Palestine, Texas ELEVATION: PAD 371.58 TOP OF PVC CASING 374.08

TOTAL DEPTH: 41' CASING SIZE & TYPE: 2" Sch. 40 PVC SCREEN SIZE: 2"-0.01 mill slot

WATER LEVEL: 22.68 REF.: BTOC DATE: 8-4-88 TIME: GEOLOGIST: Curt Black



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-12-88 WELL NO.: MW-2

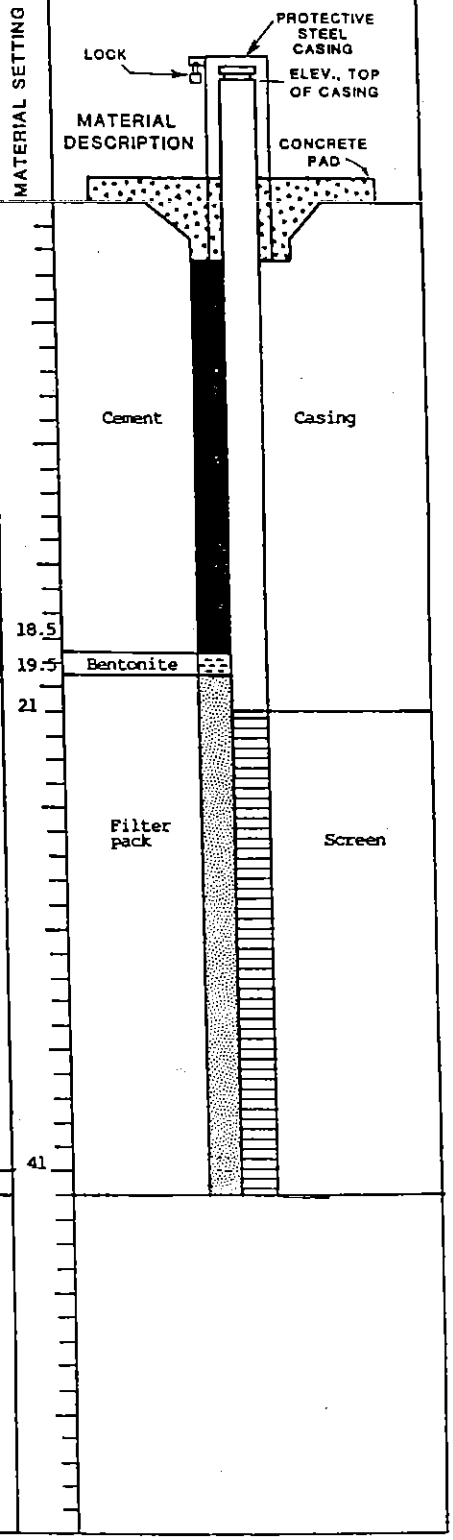
SITE: Palestine, TX ELEVATION: PAD 371.74 , TOP OF PVC CASING 374.36

TOTAL DEPTH: 41' CASING SIZE & TYPE: 2" Sch. 40 PVC SCREEN SIZE: 2" PVC 0.01 Mill slot

WATER LEVEL: 22.44' REF.: BTOC DATE: 8-4-88 TIME: _____ GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand, well graded, medium to very fine, subrounded to subangular, with 20% clay matrix; loose at surface to compact at 1', organic brown at surface to iron red at 1', damp, clean with disseminated lignite below 1'
5					Clayey Sand, similar to above except alternating 0.2' bands of 35% clay matrix, firm, green grey, damp
10					Clayey Sand, similar to above, except clayey fraction increases to 45%
15			SW		Gravelly Sand, well graded, medium iron stained gravel 5% with 10% coarse to very fine, subangular, dark red sand, damp clean
20			SC		Clayey Sand, poorly graded, fine and very fine, subangular with 15% clay in matrix, compact, red, very moist, saturated by 21', clean
25					Clayey Sand, similar to above, except with grey clayey interbeds
30					
35					
40			CH		Clay, highly plastic, firm with 30% fine sand, dark brown, damp, clean
					Monitor well terminated at 41.0' below surface

COMPLETION DATA



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AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-13-88 WELL NO.: MW-3

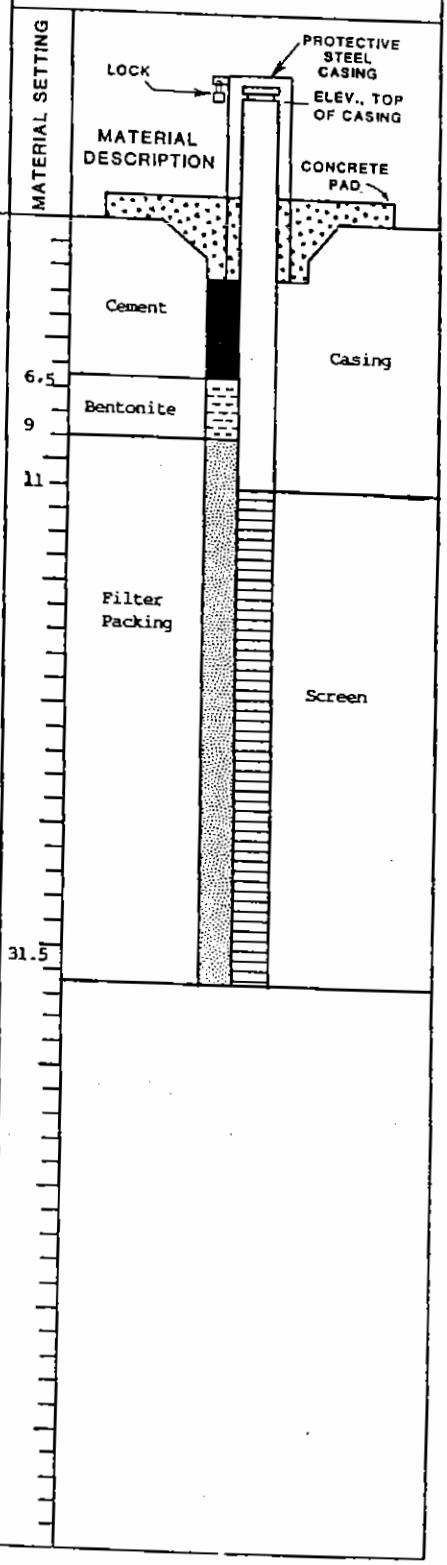
SITE: Palestine, TX ELEVATION: PAD 368.63 TOP OF PVC CASING 371.23

TOTAL DEPTH: 31.5 CASING SIZE & TYPE: 2" Sch 40 PVC SCREEN SIZE: 2" PVC 0.01 Mill slot

WATER LEVEL: 20.55' REF.: BTOC DATE: 8-4-88 TIME: _____ GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand, well graded medium to very fine, subangular with 35% clay in matrix, compact, reddish brown at surface to reddish tan laminated with green grey at 4', damp, clean
5			SC		Clayey Sand, similar to above, except 45% clay in layers 0.2' thick, near saturated at 12' above dense grey green layer at 12 to 13.5'
10			SC		Clayey Sand, similar to above except less clay (around 15%) below 13.5 feet; more fine sand, moisture increasing to saturation at 18'
15					
20			SC		Clayey Sand, well graded, 15% red gravel to very fine subrounded sand with 15% clay in matrix, compact interbedded red with yellow and brown layers, saturated clean
25					
30			CH		Clay, highly plastic, firm with 25% pea gravel, 20% fine sand, dark brown, damp, clean
					Monitor well terminated at 31.5' below surface

COMPLETION DATA



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Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-13-88 WELL NO.: MW-4

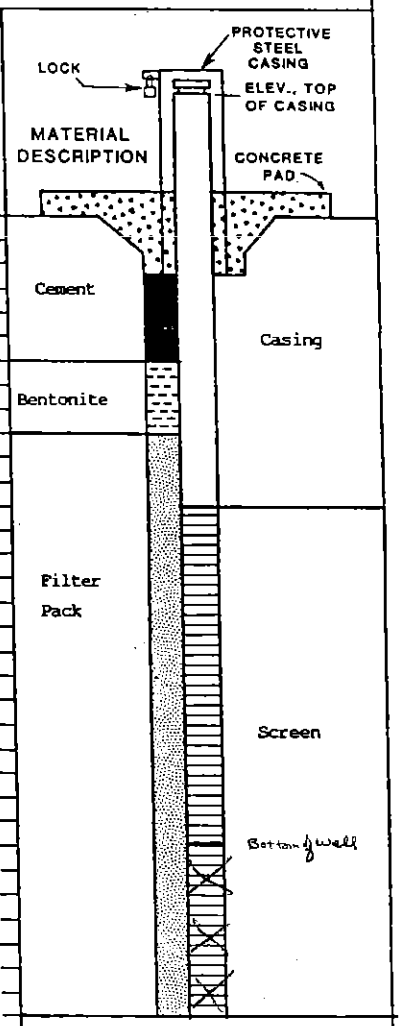
SITE: Palestine, TX ELEVATION: PAD 371.25 TOP OF PVC CASING 373.46

TOTAL DEPTH: 32' CASING SIZE & TYPE: 2" Sch 40 PVC SCREEN SIZE: 2" PVC 0.01 Mill slot

WATER LEVEL: -22.36' REF.: BTOC DATE: 8-4-88 TIME: GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
5			CH		Clay, highly plastic, firm, with fine sand 25%, mixed with tree roots, branches, lumber, all partially decomposed, light grey, damp odor of organic decay, possibly solvents, fill material
10			SC		Clayey Sand, well graded, fine gravel (around 10%) to fine sand (60%) subangular in clay matrix (20%), compact, alternating bands of grey green and ochre red, damp, odor of decaying vegetation
15			SC		Clayey Sand, similar to above, except without gravel fraction and with only 15% clay, odor diminished to absence at 22' saturated at 19'
20			SC		Clayey Sand, similar to above except 0.2' interbeds of 30% greenish-grey clay
25			SC		Clayey Sand, similar to above, except with coarse to fine gravel around 30%
30			GC		Clayey Gravel, well graded, medium to fine, subangular with 35% clay in matrix, firm, brown, damp, clean
35					Monitor well terminated 32.0' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-13-88 WELL NO.: MW-5

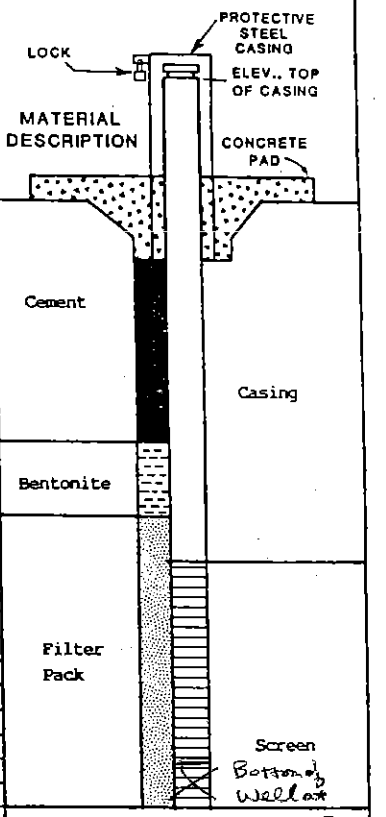
SITE: Palestine, TX ELEVATION: PAD 370.78 TOP OF PVC CASING 373.02

TOTAL DEPTH: 21.96 CASING SIZE & TYPE: 4" fibergalss SCREEN SIZE: 4" - 0.01 mill slot

WATER LEVEL: 21.96 REF.: BTOC DATE: 8-4-88 TIME: GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
5			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded sand, 20% clay in matrix, compact, red and ochre, damp, clean
10			SC		Clayey Sand, similar to above, except with 20% fine gravel and very coarse sand
15			SC		Clayey Sand, similar to above, except without gravel, all medium and very fine sand
20			SC		Clayey Sand, similar to above except 40% very coarse to fine sand with 20% clay in matrix, saturated at 20' moderate odor of solvents
25			CH		Clay, highly plastic, firm with 35% fine sand, dark brown, moist, clean
30					Monitor well terminated at 25.0' below surface
35					

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-15-88 WELL NO.: MW-6

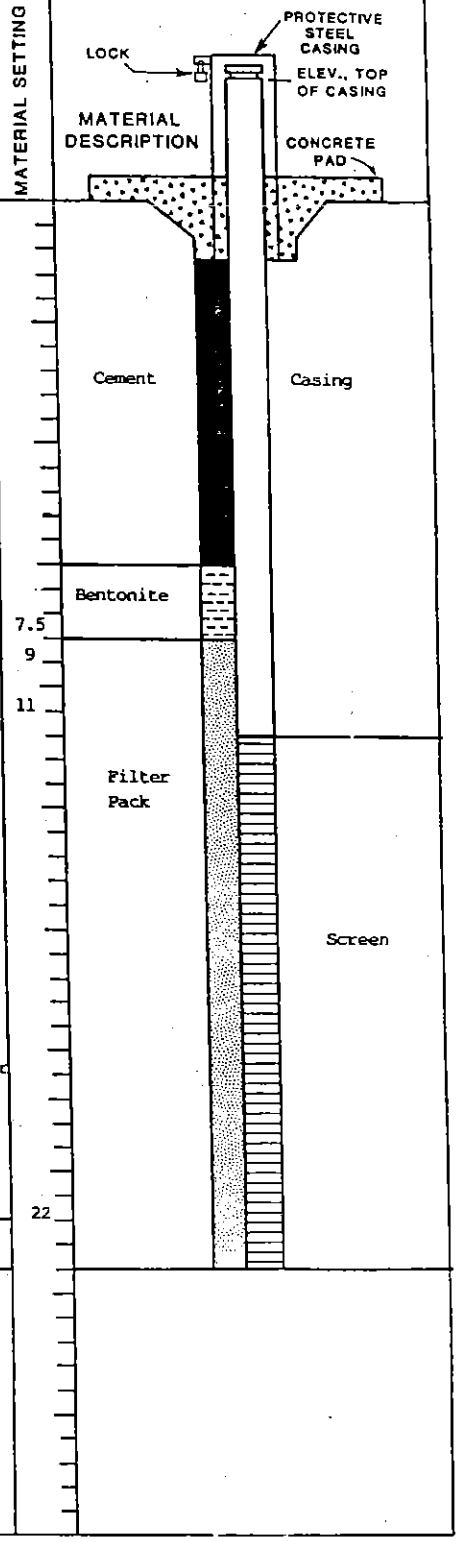
SITE: Palestine, TX ELEVATION: PAD 368.47 TOP OF PVC CASING 371.07

TOTAL DEPTH: 22' CASING SIZE & TYPE: 4" FRP SCREEN SIZE: 4"-0.01 Mill slot

WATER LEVEL: 21.19 REF.: BTOC DATE: 9-23-88 TIME: 1:30 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, with 20% clay in matrix, compact, red, damp, no odor, clean
5			SC		Clayey Sand, similar to above except with very coarse sand 30%
			SC		Clayey Sand, similar to above except without coarse sand, cleaner with 15% clay in matrix
10			SC		Clayey Sand, similar to above except with 55% coarse sand and silt, red, damp, clean
			SC		Clayey Sand, similar to above, except with medium and fine gravel around 5% with 25% clay in matrix
15					
			SC		Clayey Sand, similar to above except without coarse fraction clay 15%, greenish grey and red alternating bands possible odor 15%, saturation at 16', substantial odor at 11'
20			CH		Clay, highly plastic, firm with 20% fine sand, green grey, damp, slight odor
					Monitor well terminated at 22.0 feet below surface

COMPLETION DATA



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Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-18-88 WELL NO.: MW-7

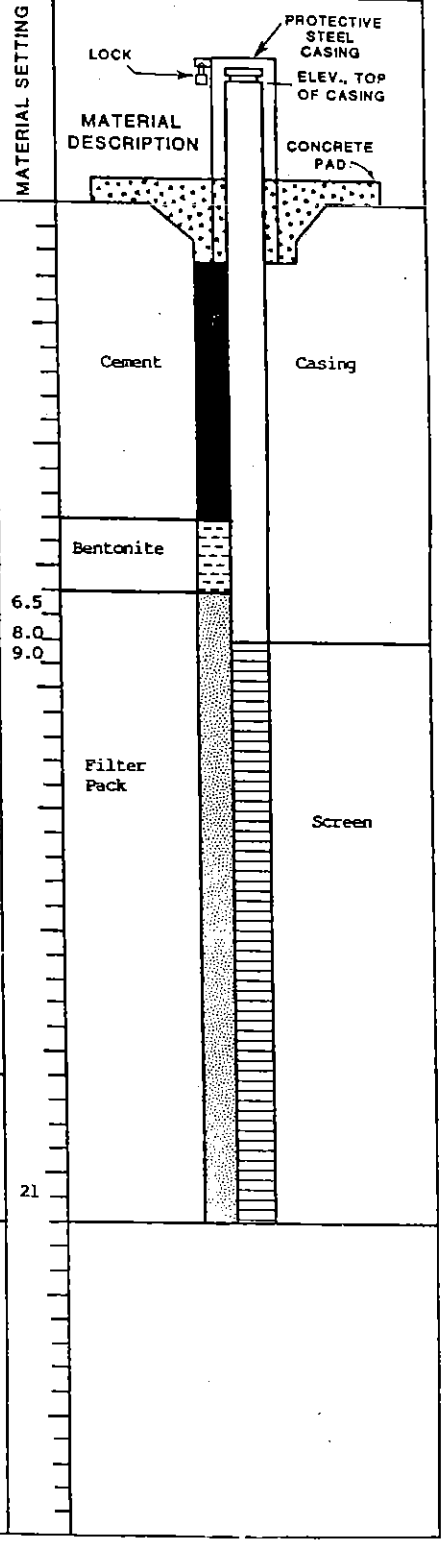
SITE: Palestine, TX ELEVATION: PAD 365.42 TOP OF PVC CASING 368.36

TOTAL DEPTH: 21.0' CASING SIZE & TYPE: 4" FRP SCREEN SIZE: 4" 0.01 Mill slot

WATER LEVEL: 19.95 REF.: BTOC DATE: 9-23-88 TIME: 2:30 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SP		Sand, poorly graded, fine and very fine, subangular, clean loose, tan and red, dry, clean
5			SC		Clayey Sand, well graded, medium to very fine, subangular with 20% clay as matrix, compact, red and tan, damp, clean
			CH		Clay, high plasticity, no visible coarse constituents, grey, firm, damp, clean, silty toward base
10			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, compact, grey and rusty interbeds, moist slight odor
			SC		Clayey Sand, similar to above, except 35% clay, micaceous, brown streaked, damp, solvent odor
15			SC		Clayey Sand, similar to above, except saturated at 18'
					Saturation at 18.0 feet below surface
			SC		Clayey Sand, similar to above except with less mica cleaner with 20% clay in matrix
20			SC		Clayey Sand, similar to above except 40% clay dense, moist
					Monitor Well terminated at 21.0' below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-18-88 WELL NO.: MW-8

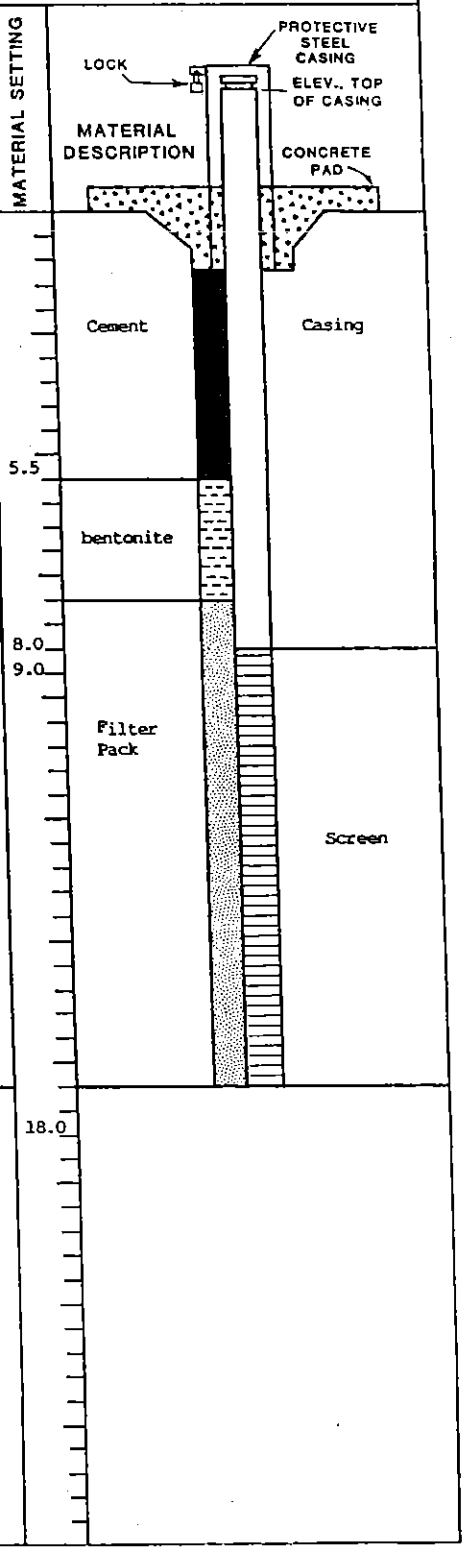
SITE: Palestine, TX ELEVATION: PAD 366.03 TOP OF PVC CASING 368.72

TOTAL DEPTH: 18.0 feet CASING SIZE & TYPE: 4" Dia FRP SCREEN SIZE: 4" - 0.01 mill slot

WATER LEVEL: 18.35 REF.: BTOC DATE: 9-23-88 TIME: 3:05 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
5			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, 20% clay in matrix, compact, rusty red, moist, slight odor of solvent
			SC		Clayey Sand, similar to above, except strong solvent odor and color change to tan
10			SC		Clayey Sand, similar to above except with very coarse sand, dark red, and 5% medium gravel, very strong odor
			SC		Clayey Sand, similar to above except gravel absent, very hard, hemetite cemented layer
15			SC		Clayey Sand, similar to above except medium to very fine, grey and red laminated with continued odor saturated
			SC		Clayey Sand, similar to above except all grey, micaceous, firm, damp
20					Monitor well terminated at 18.0 feet below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

LOG OF BORING

CLIENT: Murray Corporation
JOB NO: 018206.1
BORING NO. 3rd Aquifer Exp–1
SITE: Adjacent to MW–8
DATE: START: 10/2/91
SHEET: 1 OF: 2
FINISH: 10/8/91
GEOLOGIST: J. Hughes
DRILLER: Rone Engineering
DRILLING RIG TYPE: CME–75
DRILLING METHODS: Hollow–stem Augers – Continuous Sample
TOTAL DEPTH: 72'
HOLE DIAMETER: 16"/7 1/2"
SITE COORDINATES:
ELEVATION:
GROUND–WATER LEVEL: DEPTH:
DATUM:
DATE:
TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
0				CL		Sandy Clay – Moderately plastic, with 30–40% very fine sand as matrix, firm, damp, brownish–red.
5				SC		Clayey Sand – Very fine, subrounded with 30–40% silt and clay as matrix, compact, damp, brownish–red, hematite gravel at 7'–8'.
10						
15				SC		Clayey Sand – Similar to above except with 20–30% coarse sand and fine gravel as thin seams and matrix, thin gravel seams are partially hemotite cemented. Saturated at 12'.
				SC		Clayey Sand – Very fine, with 30–40% silt and clay as matrix, compact, saturated, gray.
20				CL		Sandy Clay – Low plasticity, very stiff to hard, with 20–30% very fine sand as partings, damp, gray to brown.
25						
30				CL		Sandy Clay – Similar to above except with 10–20% very fine sand partings, gray.
35						
40						
45						
50				SM		Silty Sand – Very fine, subrounded with 30–40% silt and clay partings, dense, saturated, gray.

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

B–LOG.WK3

LOG OF BORING

BORING NO. 3rd Aquifer Exp–1

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET: 2 OF: 2

SITE: Adjacent to MW–8 DATE: START: 10/2/91 FINISH: 10/8/91

GEOLOGIST: J. Hughes DRILLER: Rone Engineering DRILLING RIG TYPE: CME–75

DRILLING METHODS: Hollow–stem Augers – Continuous Sample TOTAL DEPTH: 72' HOLE DIAMETER: 16"/7 1/2"

SITE COORDINATES: ELEVATION:

GROUND–WATER LEVEL: DEPTH: DATUM: DATE: TIME:

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
50				CL		Sandy Clay – Low plasticity, very stiff, with 20–30% very fine sand partings, moist, sand partings are saturated.
55						
60						
65				SM		Silty Sand – Very fine, subrounded, with 30–40% silt and clay partings, dense, saturated, gray, auger refusal at 72' encountered hard cemented horizon.
70						
75						Broing terminated at 72' below ground level.

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(1) UNIFIED SOIL CLASSIFICATION SYSTEM

B–LOG.WK3

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-15-88 WELL NO.: MW-9

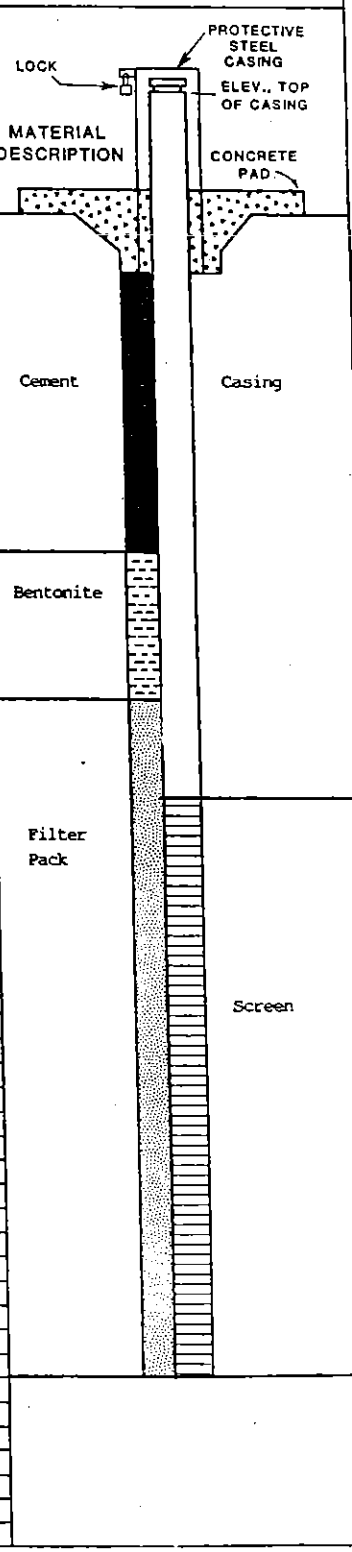
SITE: Palestine, TX ELEVATION: PAD 363.98 TOP OF PVC CASING 366.96

TOTAL DEPTH: 24.0' CASING SIZE & TYPE: 4" Dia FRP SCREEN SIZE: 4" - 0.01 Mill slot

WATER LEVEL: 18.01 REF.: BTOC DATE: 9-23-88 TIME: 4:00 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand, well graded, very coarse to very fine, subangular to subrounded, 20% clay in matrix, loose to 3' then compact, rusty red, dry at surface to 3' then damp, clean
5			SC		Clayey Sand, similar to above, except firmer, without coarse components above medium sand, interbedded grey with red
10			CH		Clay, high plasticity, stiff, with 30% medium and fine sand, light grey, damp clean
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, 25% clay in matrix, compact, rusty red interbeds with grey, moist, clean
15			SC		Clayey Sand, similar to above except with 35% clay, firm, grey
			SC		Clayey Sand, similar to above except 30% clay in matrix increasing to 45% at base, firm to stiff at base, damp, no odor
20					
24.0					Monitor well terminated at 24.0 feet below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

MONITOR WELL INSTALLATION

WELL NO.: MW-10

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

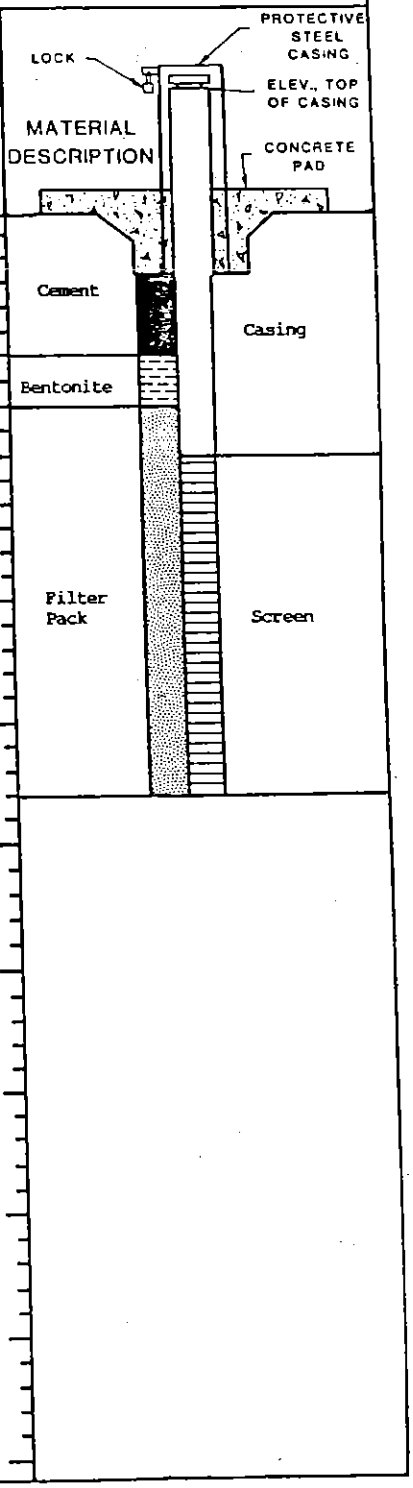
SITE: Palestine, TX ELEVATION: PAD 337.89 TOP OF PVC CASING 340.16

TOTAL DEPTH: 23.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 11.49' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - Poorly graded, very fine, subangular, with 20% silt, compact, dense at 4'-5', damp, tan and red, clean.
5					
10			SC		Clayey Sand - Poorly graded, very fine to fine, subangular to subrounded, with 30-35% silt and clay, compact, moist, saturated below 9.0', gray and red, clean.
15					Gravelly Sand - Well graded, fine to coarse subangular to subrounded, with 20% granules and 10-20% silt and clay, loose, saturated, reddish brown, clean.
20			SW		
			SC		Clayey Sand - Poorly graded, very fine, subangular, with 30-50% silt and clay laminations, dense, damp, black-gray, clean.
25					Monitor Well terminated at 23 feet below surface.

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-11

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

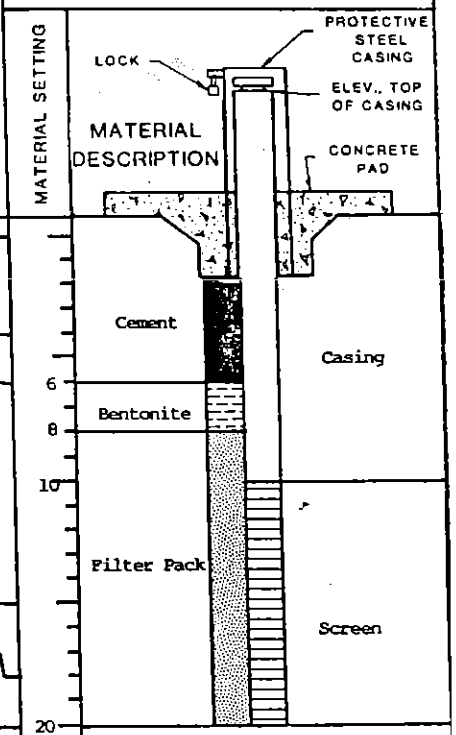
SITE: Palestine, TX ELEVATION: PAD 340.95 TOP OF PVC CASING 342.91

TOTAL DEPTH: 20.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 13.40' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - Poorly graded, very fine, subangular to subrounded, with 20-25% silt, loose to compact, damp, tannish red to brown, clean.
5			SM		Silty Sand - Similar to above except with 5-10% granules.
			SC		Clayey Sand - Poorly graded, very fine to fine, subangular to subrounded, with 30-40% silt and clay, dense to very dense, damp, moist at 9.5', saturated at 10.5', tan and red, clean.
15			SC		Clayey Sand - Similar to above except gray with red streaks.
			CH		Sandy Clay - High plasticity, very stiff, with 20-40% fine sand, damp, gray with red streaks, clean.
20					Monitor Well terminated at 20 feet below surface.

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-12

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/22/89 SHEET 1 of 1

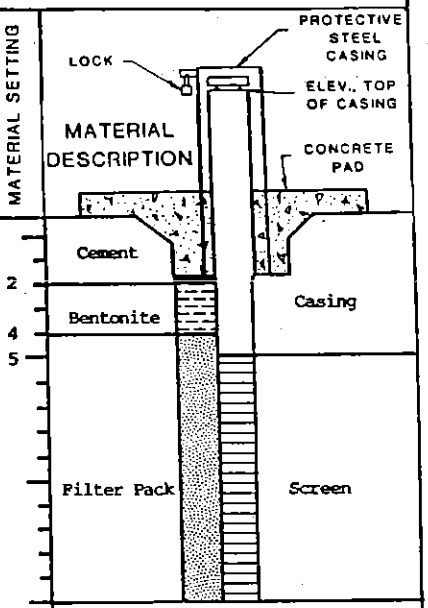
SITE: Palestine, TX ELEVATION: PAD 346.16 TOP OF PVC CASING 348.14

TOTAL DEPTH: 15.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 4.44' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand - Poorly graded, very fine to fine, subangular to subrounded, with 20-30% silt and clay, loose, damp, reddish brown, clean
			CL		Sandy Clay - Moderate to high plasticity, stiff, with 25-45% fine sand laminations increasing downward, damp, gray and yellow, clean.
5			CL		Sandy Clay - Similar to above except with 35-50%, fine sand interbeds and laminations, saturated at 7.0', clean.
10			CL		Sandy Clay - Similar to above except with 10-25% fine sand laminations decreasing downward, clean.
15					Monitor Well terminated at 15 feet below surface.

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-13

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 11/21/89 SHEET 1 of 1

SITE: Palestine, TX ELEVATION: PAD 364.58 TOP OF PVC CASING 367.03

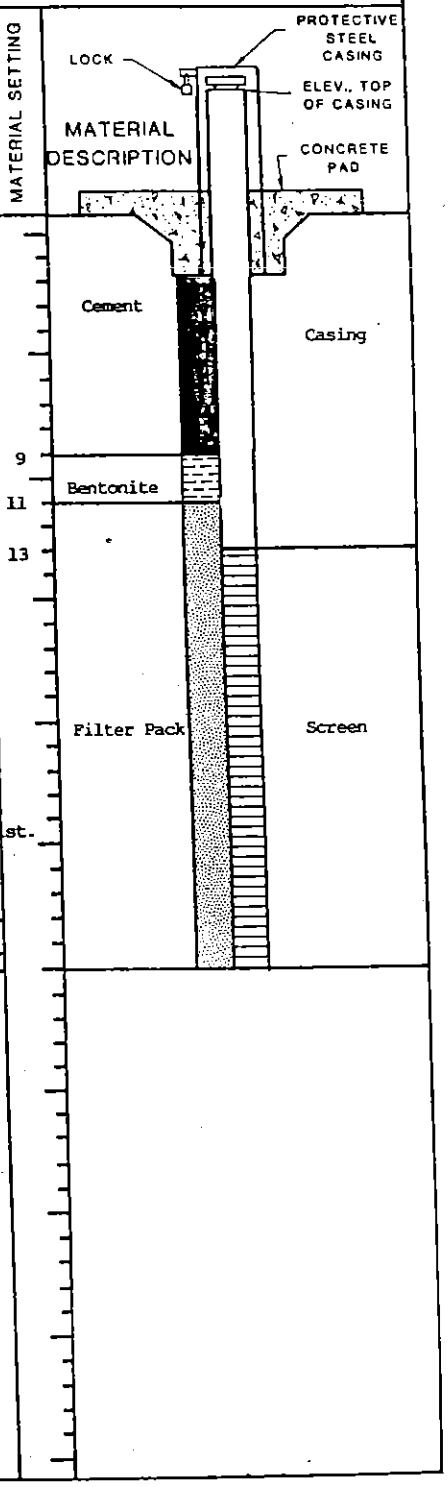
TOTAL DEPTH: 30.0' CASING SIZE & TYPE: 2" PVC SCREEN SIZE: 0.01 ml

WATER LEVEL: 16.73' REF.: TOC DATE: 12/01/89 TIME: GEOLOGIST: J. Bughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand – Poorly graded, very fine, subrounded, with 10–20% silt, loose, damp, reddish brown, clean.
			SC		Clayey Sand – Poorly graded, very fine to fine, subrounded, with 20–30% silt and clay, dense, damp, red, clean.
5					
			SM		Silty Sand – Poorly graded, fine, subangular to subrounded, with 10–20% silt, loose, damp, moist below 10.0', yellow to red, clean.
10					
			SC		Clayey Sand – Poorly graded, very fine to fine, subrounded, with 40–50% silt and clay, dense, saturated, gray, clean.
15			SC		Clayey Sand – Similar to above except with 20–30% silt and clay, compact, gray with red laminations.
			SW		Gravelly Sand – Well graded, very fine to coarse subangular, with 20–30% granules and 20–30% silt and clay, compact, saturated, reddish brown, clean.
20			SC		Clayey Sand – Poorly graded, very fine to fine, subrounded with 25% silt and clay, compact, saturated, tan and red, clean
			SC		Clayey Sand – Similar to above except w/40–45% silt & clay, moist.
25			SC		Clayey Sand – Poorly graded, very fine to fine, subangular to subrounded, with 20% silt and clay, compact, saturated, reddish brown, clean.
			SC		Clayey Sand – Similar to above except gray.
30			CL		Sandy Clay – Moderate plasticity, very stiff to hard, with 30% fine sand laminations, damp, gray to brown, clean.

Monitor Well terminated at 30 feet below surface.

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: DMW-14

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-30-90 SHEET 1 of 2

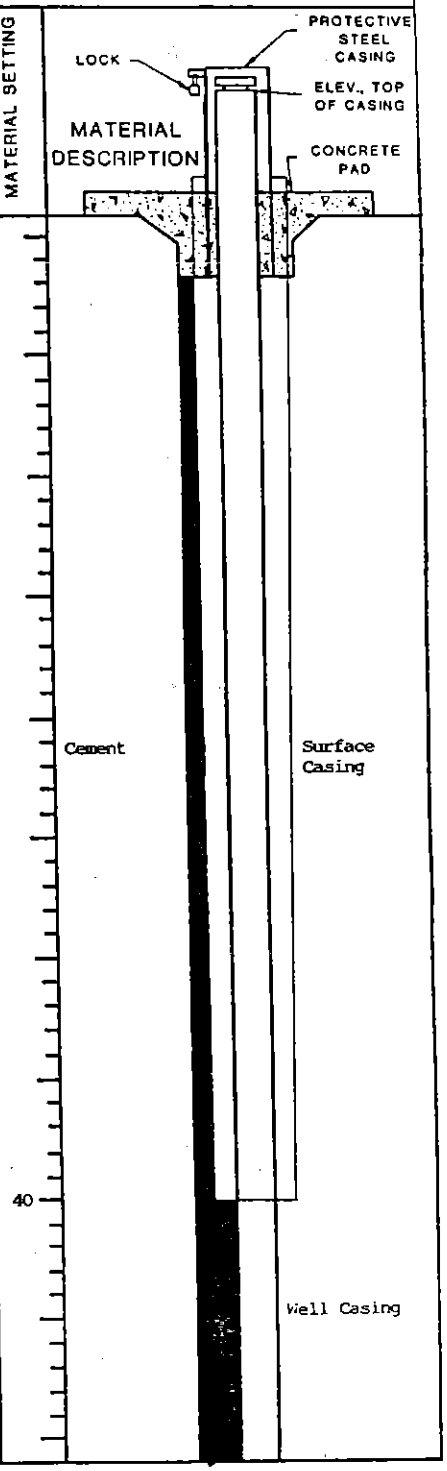
SITE: Palestine, TX ELEVATION: PAD 371.97 TOP OF PVC CASING 374.35

TOTAL DEPTH: 74.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch PVC SCREEN SIZE: 0.01 mil slot

WATER LEVEL: REF.: DATE: TIME: GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TON8/FT2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand - poorly graded, fine, subangular to subrounded, with 10 to 20% clay and silt, compact, damp, dark brown to dark gray, clean
10			SC		Clayey Sand - similar to above except with 10% clay and silt light red-brown, moist
20			SC		Clayey Sand - similar to above except with 30% silt and clay, saturated, gray-brown
35			SW		Gravelly Sand - moderately graded, fine to very coarse, subrounded to rounded with 20% silt and 30% gravel, compact, saturated, reddish brown, clean
40			SC		Clayey Sand - poorly graded, fine, subangular to subrounded, with 20 to 30% silt and clay, compact, saturated, gray-brown, clean
45			SC		Clayey Sand - poorly graded, very fine to fine, subangular to subrounded, with 30 to 50% silt and clay and interbedded lignite, dense, damp, gray, clean
50					

COMPLETION DATA



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Austin, Houston, Belton, Temple, Corpus Christi, Orange

MONITOR WELL INSTALLATION

WELL NO.: DMW-14

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-30-90 SHEET 2 of 2

SITE: Palestine, TX ELEVATION: PAD 371.97 TOP OF PVC CASING 374.35

TOTAL DEPTH: 74.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch PVC SCREEN SIZE: 0.01

WATER LEVEL :_____ REF.:_____ DATE:_____ TIME:_____ GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT.)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
50			SC		Clayey Sand - poorly graded, very fine to fine, subangular to subrounded, with 30 to 50% silt and clay and interbedded lignite, dense, damp, gray, clean
55					
60			SC		Clayey Sand - similar to above except clayey sands and sandy clays are finely interbedded. Increase in clay interbeds at 59 to 60 feet
65			SM		Silty Sand - poorly graded, very fine to fine, subrounded with 10 to 20% silt increasing to 20 to 30% silt at 72 feet, dense, saturated, gray, clean
70			SM		Silty Sand - poorly graded, very fine, subrounded to subangular with 40 to 50% silt and clay, dense to very dense, damp, gray-black
75					Boring terminated at 74.0 feet below surface

COMPLETION DATA

MATERIAL SETTING	MATERIAL DESCRIPTION CONT.
52	Cement
	Bentonite
56	Well Casing
59	Filter Pack
	Screen
74	

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MONITOR WELL INSTALLATION

WELL NO.: DMW-15

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-31-90 SHEET 1 of 1

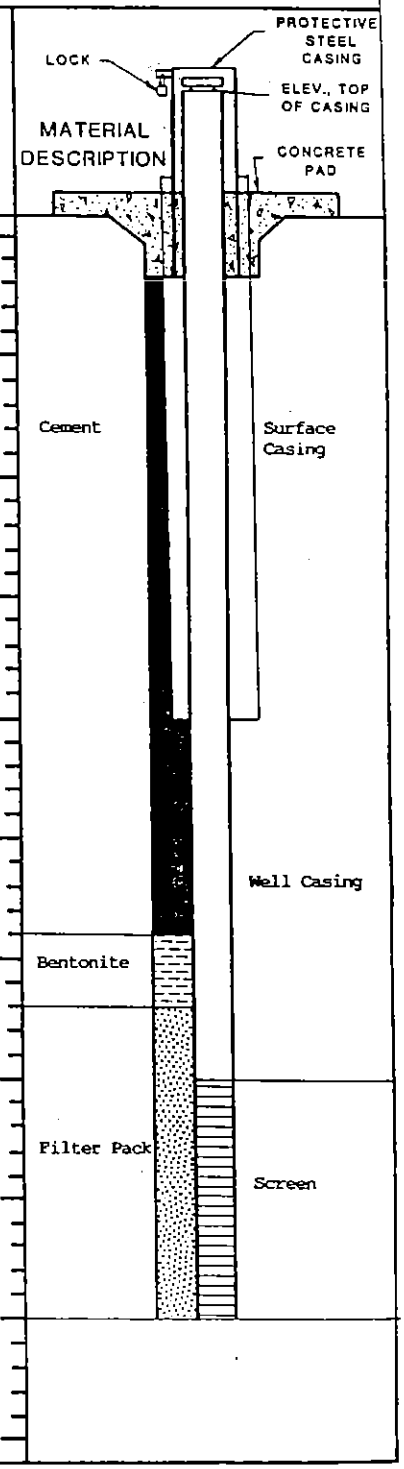
SITE: Palestine, TX ELEVATION: PAD 366.23 TOP OF PVC CASING 368.25

TOTAL DEPTH: 45.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch PVC SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand - moderately graded, fine to very fine, subangular to subrounded with 20% clay as matrix, compact, red and tan, damp
5					
			CH		Clay - high plasticity, firm, gray, damp
10			SS		Sandstone - moderately crystalline, highly cemented with hematite, reddish-brown
			GC		
			SC		Clayey Gravel - moderately graded, granular, angular to subrounded, with 40 to 50% sand and clay, loose, reddish-brown, moist
15					Clayey Sand - poorly graded, fine, subangular to subrounded, with 30 to 35% clay and silt as matrix and interbeds, compact, reddish-brown 10.5 to 11.5 ft, otherwise gray-brown, moist, slight odor
			CL		Clayey Sand - poorly graded, very fine, subangular to subrounded with 40 to 50% clay and silt, dense, brown, damp, saturated at 18 ft
20			CL		Silty Clay - low plasticity, very stiff, with 0.1 mm thick, very fine sand interbeds, brown, damp
25					
			CL		Silty Clay - similar to above, except without sand interbeds
30					
35			SM		Silty Sand - poorly graded, fine to very fine, subangular to subrounded, with 25 % silt and clay as matrix, dense, dark gray, saturated, no odor
			SM		Silty Sand - similar to above, except with increase in silt, approximately 50% silt at 45 ft., dark gray, transition to moist at 44 ft.
40					
45					Monitor Well terminated at 45.0 feet below surface

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: DMW-16

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 1-31-90 SHEET 1 of 1

SITE: Palestine, TX ELEVATION: PAD 368.74 TOP OF PVC CASING 371.31

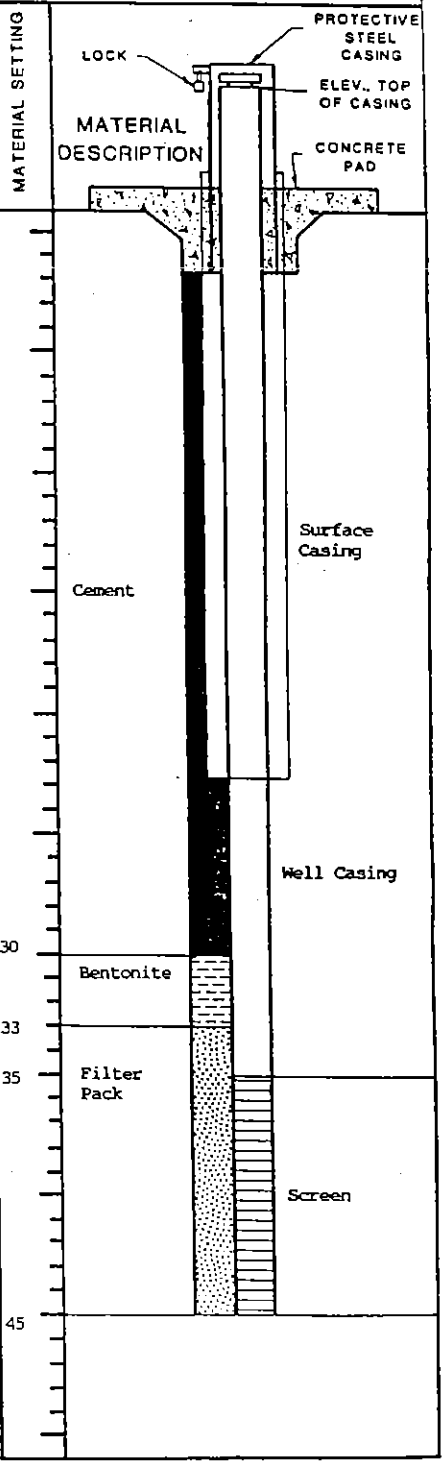
TOTAL DEPTH: 45.0 feet CASING SIZE & TYPE: Surface - 8-Inch Steel Well - 4-Inch FRE SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: J. Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand - poorly graded, fine to very fine, subsangular to subrounded with 20% clay as matrix, compact, red, damp
10			SC		Clayey Sand - similar to above, except with medium to fine sand
15			SC		Clayey Sand - poorly graded, fine, subrounded, with 20 to 30% silt and clay as matrix, compact, red-gray, moist, saturated at 17 ft, odor
20			CH		Clay - highly plastic, firm with 20% very fine sand, gray, damp, slight odor
25			SC		Clayey Sand - poorly graded, fine, subrounded with 20 to 30% silt and clay as matrix, some 1 to 10 mm thick, clay and silt interbeds, compact, gray with red streaks, moist, slight odor
			CL		
30			CL		Sandy Clay - low plasticity, very stiff, with 20% fine sand interbeds, brown, damp
					Sandy Clay - similar to above, except with 10% fine sand interbeds
35			CL		Sandy Clay - similar to above, except gray
40			SM		Silty Sand - poorly graded, fine, subangular to subrounded, with 30% silt and clay as matrix increasing to 50% at base, compact, gray, saturated, damp at 45 ft.
45					Monitor Well terminated at 45.0 feet below surface
50					

COMPLETION DATA

MATERIAL SETTING	MATERIAL DESCRIPTION
0	Cement
30	Bentonite
33	
35	Filter Pack
45	



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PIEZOMETER INSTALLATION

WELL NO.: P-17

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 06-14-90 SHEET 1 of 1

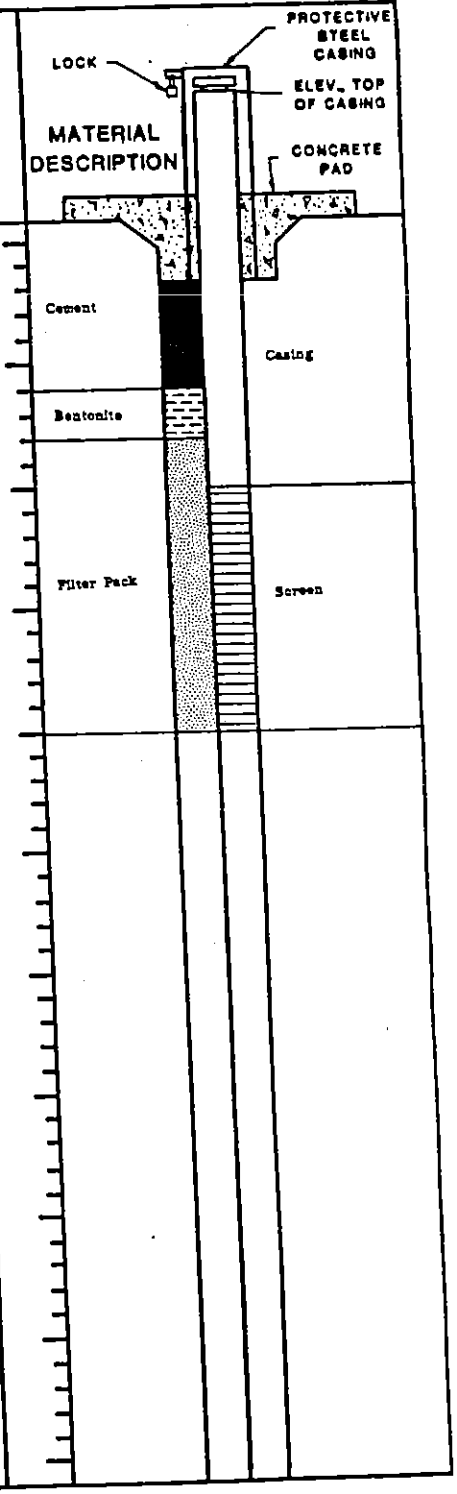
SITE: Palestine, Texas ELEVATION: PAD _____ TOP OF PVC CASING _____

TOTAL DEPTH: 20 feet CASING SIZE & TYPE: 4-inch PVC SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF: _____ DATE: _____ TIME: _____ GEOLOGIST: Johnny Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - poorly graded, very fine to fine, subangular to subrounded, with 20 to 30% silt and clay as matrix, loose, moist, reddish brown, no odor
			SM		Silty Sand - similar to above except with 10 to 20% granules and coarse sand
5			CL		Sandy Clay - moderate plasticity, stiff with 30 to 35% very fine sand as matrix, moist, tan and red, no odor
			CL		Sandy Clay - similar to above except brown
10			SC		Clayey Sand - poorly graded, very fine to fine, with 20 to 30% silt and clay laminations, compact moist, saturated at 13 feet, light brown, no odor
15			CL		Sandy Clay - low to moderate plasticity, very stiff, with 30 to 40% very fine sand as laminations and matrix, damp, grey, no odor
20					Boring terminated at 20.0 feet below ground surface

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-18

CLIENT: Murray Corperation JOB NO.: 118306 DATE DRILLED: 06-14-90 SHEET 1 of 1

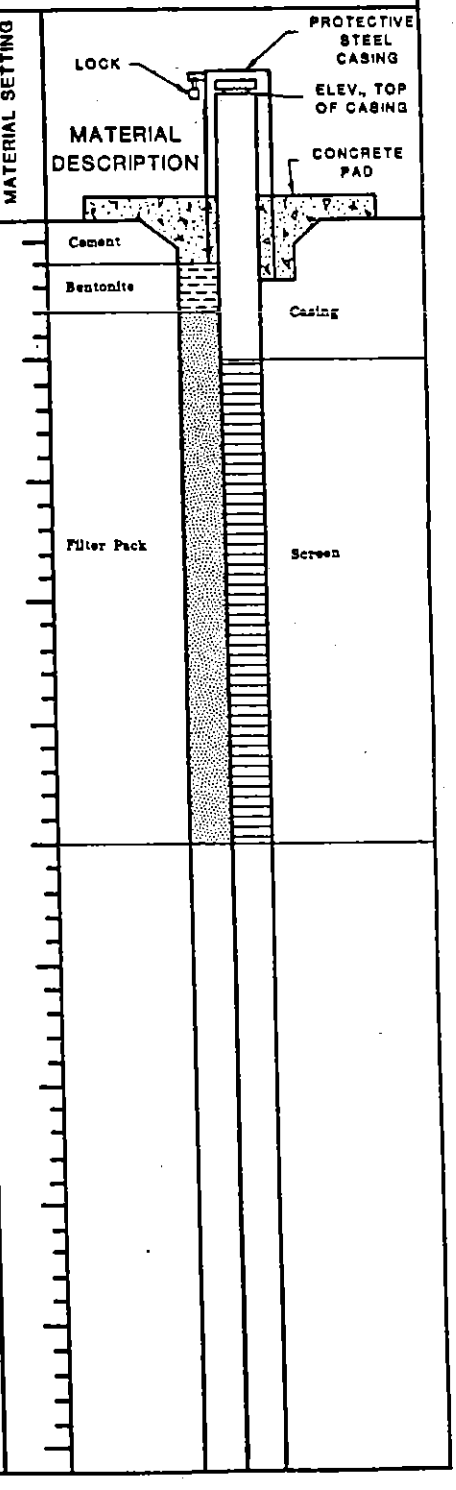
SITE: Palestine, Texas ELEVATION: PAD _____ TOP OF PVC CASING _____

TOTAL DEPTH: 25 feet CASING SIZE & TYPE: 4-inch PVC SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: Johnny Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - poorly graded, very fine to fine, subrounded with 20 to 25% silt and clay as matrix, loose, moist, reddish-brown, no odor
			SM		Silty Sand - similar to above except with 10% granules and coarse sand, saturated
5			CL		Sandy Clay - moderate plasticity, stiff, with 30 to 40% very fine sand as matrix, moist to saturated, tan and red, no odor
			SM		Silty Sand - poorly graded, very fine to fine, subrounded with 20 to 30% silt and clay as matrix, loose, saturated, no odor
10			CL		Sandy Clay - moderate plasticity, stiff, with 30 to 40% very fine sand, saturated, gray, no odor
			SC		Clayey Sand - poorly graded, fine, subrounded to subangular with 25 to 35% silt and clay and <10% granules as matrix, compact, saturated, tan-grey-red, no odor
			CL		Sandy Clay - low plasticity, very stiff, with 20 to 30% very fine sand laminations, moist to saturated, dark reddish-brown, no odor
15			SC		Clayey Sand - poorly graded, very fine to fine, subrounded to subangular with 30 to 40% silt and clay laminations, compact, saturated, dark reddish-brown, no odor
20			CL		Sandy Clay - low plasticity, stiff, with 40 to 50% very fine sand as matrix, damp, gray, no odor
25					Boring terminated at 25.0 feet below ground surface

COMPLETION DATA



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PIEZOMETER INSTALLATION

WELL NO.: P-19

CLIENT: Murray Corperation JOB NO.: 118306 DATE DRILLED: 06-14-90 SHEET 1 of 1

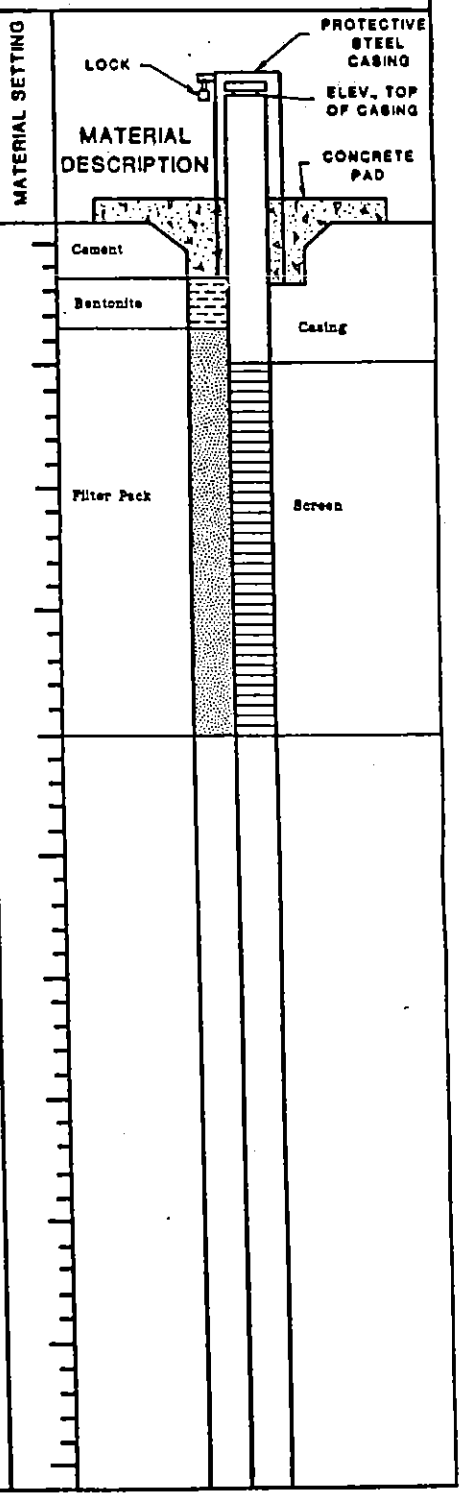
SITE: Palestine, Texas ELEVATION: PAD _____ TOP OF PVC CASING _____

TOTAL DEPTH: 20 feet CASING SIZE & TYPE: 4-inch PVC SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF.: _____ DATE: _____ TIME: _____ GEOLOGIST: Johnny Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SM		Silty Sand - poorly graded, very fine to fine, subrounded with 20 to 25% silt and clay as matrix, loose, damp, reddish-brown, no odor
			SC		Clayey Sand - poorly graded, very fine, subangular to subrounded with 30 to 40% silt and clay as matrix, compact moist, red-yellow, no odor
8			SC		Clayey Sand - similar to above except saturated and gray-yellow
			SM		Silty Sand - poorly graded, very fine to fine, subrounded to subangular with 20% silt and clay as matrix, saturated, reddish-brown, no odor
10			SM		Silty Sand - similar to above except with 30% silt and clay
15			CL		Sandy Clay - low plasticity, very stiff with 20% very fine sand as matrix, damp, yellow-brown, no odor
20					Boring terminated at 20.0 feet below ground surface

COMPLETION DATA



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MONITOR WELL INSTALLATION

WELL NO.: MW-20

CLIENT: Murray Corporation JOB NO.: 118206 DATE DRILLED: 06-15-90 SHEET 1 of 1

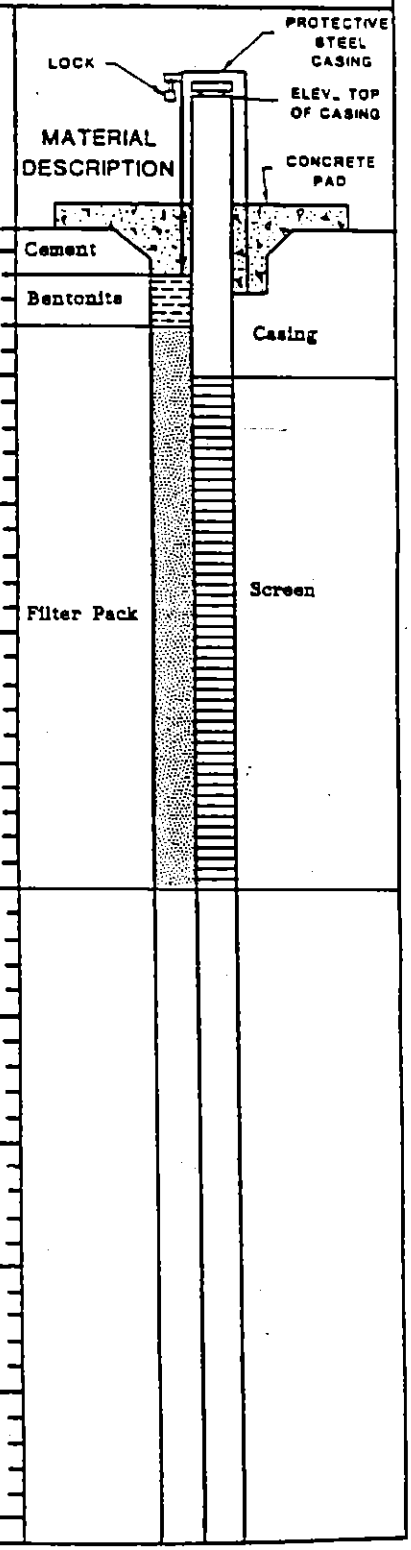
SITE: Palestine, Texas ELEVATION: PAD 352.63 TOP OF PVC CASING 354.79

TOTAL DEPTH: 25 feet CASING SIZE & TYPE: 2-inch PVC SCREEN SIZE: 0.01 mil

WATER LEVEL: _____ REF: _____ DATE: _____ TIME: _____ GEOLOGIST: Johnny Hughes

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand Fill - poorly graded, very fine to fine, subrounded with 30 to 40% silt and clay as matrix, compact, damp, moist at 2.0 feet, red, no odor
5			SM		Silty Sand - poorly graded, very fine, subrounded with 10 to 20% silt and clay as matrix, loose, saturated, gray-black, odor
10			SM		Silty Sand - similar to above except with 40% silt and clay, compact
15			CL		Sandy Clay - low plasticity, stiff, with 30 to 40% very fine sand laminations and matrix, saturated, dark brown-red-yellow, slight odor
20			CL		Sandy Clay - similar to above except decrease in moisture to damp at 24 feet
25					Boring terminated at 25.0 feet below ground surface

COMPLETION DATA



JONES AND NEUSE, INC.
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MONITOR WELL CONSTRUCTION

WELL NO. DMW-21

CLIENT: Murray Corporation | JOB NO: 018206.1 | SHEET 1 OF 2

SITE: Palestine, Texas | DATE: START: 10/1/91 | FINISH: 10/5/91

GEOLOGIST: J. Hughes | DRILLER: Roac Engineering | DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollowstem auger - Continuous | TOTAL DEPTH: 60' | HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: Adjacent to MW-13 | ELEVATIONS: GROUND: 362.53 | PAD: 363.02 | TOC: 365.40 | PROT. CAS.: ---

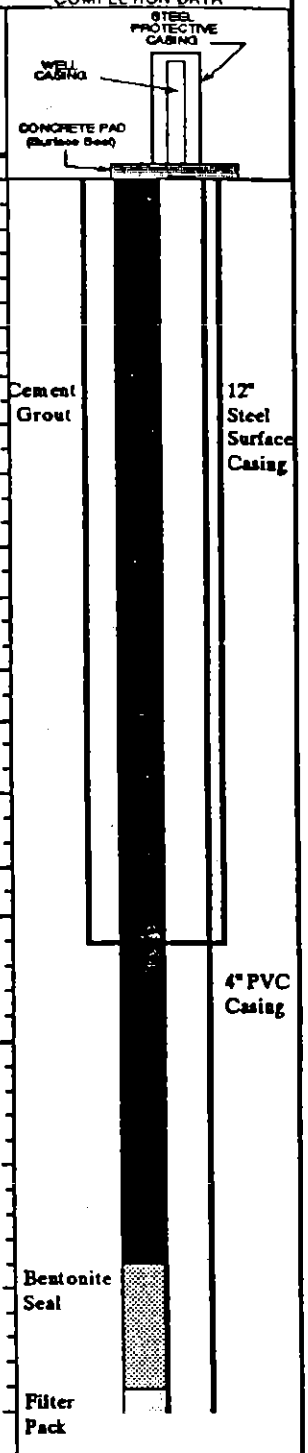
WATER LEVEL: DEPTH: 21.09 | DATUM: TOC | DATE: 10/8/91 | TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION
0	SC	Clayey Sand - Very fine to fine, subrounded, with 20-30% silt and clay as matrix, compact, damp, brownish-red.
10	SM	Silty Sand - Fine, subangular to subrounded, with 20-30% silt as matrix, damp, saturated at 11.0', yellow to red.
15	SC	Clayey Sand - Very fine to fine, subrounded with 40-50% silt and clay as matrix, dense, saturated, gray.
	SC	Clayey Sand - Fine, subrounded with 20-30% silt and clay and 10% coarse sand and granules as matrix, very compact, saturated, reddish-brown.
20	SM	Gravelly Silty Sand - Very fine to coarse, subrounded to round, with 10% granules, amd 10-20% silt as thin seams, minor or hematite cemented zones saturated, very reddish brown.
25	SC	Clayey Sand - Very fine to fine, subrounded with 30-40% silt and clay as matrix, very moist, compact, saturated, reddish-brown.
30	SM	Gravelly Silty Sand - Very fine to coarse, subrounded to round with 10% granules, 10-20% silt as thin seams, saturated, reddish-brown.
	CL	Sandy Clay - Low plasticity, very stiff to hard, with 20-30% very fine sand partings, damp, gray to brown.
35	CL	Sandy Clay - Similar to above except with 40-50% very fine sand partings, gray, minor lignite.
40		
45		
50		

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-21

CLIENT: Murray Corporation — JOB NO: 018206.1 — SHEET 2 OF 2

SITE: Palestine, Texas — DATE: START: 10/1/91 — FINISH: 10/5/91

GEOLOGIST: J. Hughes — DRILLER: Rone Engineering — DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollow stem auger – Continuous — TOTAL DEPTH: 60' — HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: Adjacent to MW-13 — ELEVATIONS: GROUND: 362.53 — PAD: 363.02 — TOC: 365.40 — PROT. CSG: ---

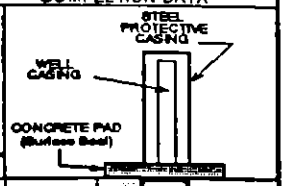
WATER LEVEL: DEPTH: 21.09 — DATUM: TOC — DATE: 10/8/91 — TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY		
50				CL		Sandy Clay –	Similar to above.
				CL SM		Silty Sand –	Very fine to fine, subrounded, with 30–40% silt and clay partings, and seams, dense, saturated, gray.
55							
60				CL		Sandy Clay –	Low plasticity, very stiff to hard, with 20–30% very fine sand partings, damp, gray.
							Boring terminated at 61' below ground surface.

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-22

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 2

SITE: Palestine, Texas DATE: START: 10/1/91 FINISH: 10/5/91

GEOLOGIST: J. Hughes DRILLER: Rose Engineering DRILLING RIG TYPE: CME-75

DRILLING METHODS: Hollowstem auger – Continuous TOTAL DEPTH: 64' HOLE DIAMETER: 18"/11 1/2"

SITE COORDINATES: West of Closure Area ELEVATIONS: GROUND: 370.03 PAD: 370.56 TOC: 372.69 PROT. CSG: ---

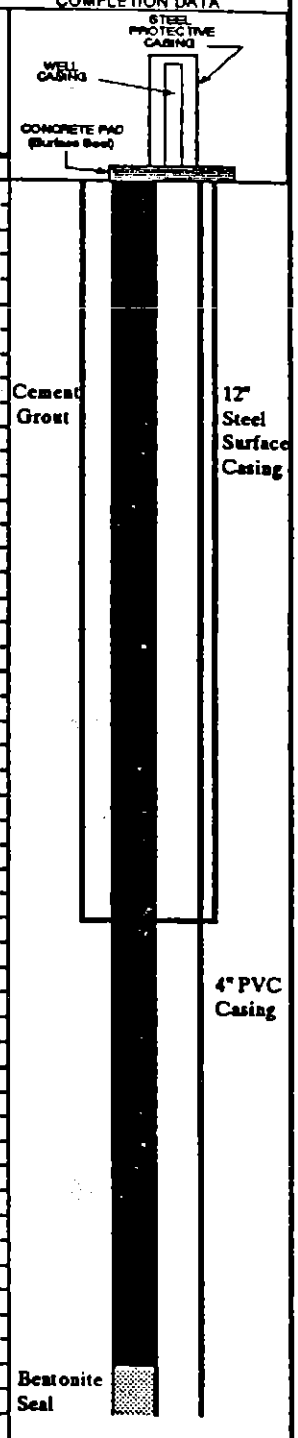
WATER LEVEL: DEPTH: 26.23' DATUM: TOC DATE: 10/8/91 TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
0				SM		Silty Sand – Very fine to fine, subrounded, with 10–20% silt as matrix, loose, damp.
				CL		Sandy Clay – Medium plasticity, with 20–30% very fine sand as matrix, 1–2" thick seams of fine sand to gravel at 7–8', damp, red to reddish–brown.
10				CS		Clayey Sand – Very fine, subrounded, with 30–40% silt and clay as matrix, compact damp, saturated at 17', reddish–brown.
20				SC		Gravelly, Clayey Sand – Similar to above, except with 10–20% silt and clay, and 10% granules at 25'–28'.
30				CL		Sandy Clay – Low plasticity, very stiff to hard, with 20–30% very fine sand partings, damp, gray to brown.
40				CL		Sandy Clay – Similar to above except with 40–50% very fine sand partings, gray, minor lignite.

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

CLIENT: Murray Corporation | JOB NO: 018206.1 | WELL NO. DMW-22
SITE: Palestine, Texas | DATE: START: 10/1/91 | SHEET 2 OF 2 | FINISH: 10/5/91
GEOLOGIST: J. Hughes | DRILLER: Rose Engineering | DRILLING RIG TYPE: CME-75
DRILLING METHODS: Hollowstem auger – Continuous | TOTAL DEPTH: 64' | HOLE DIAMETER: 18"/11 1/2"
SITE COORDINATES: West of Closure Area | ELEVATIONS: GROUND: 370.03 | PAD: 370.56 | TOC: 372.69 | PROT. CSG: ---
WATER LEVEL: DEPTH: 26.23' | DATUM: TOC | DATE: 10/8/91 | TIME:

JONES AND NEUSE, INC.
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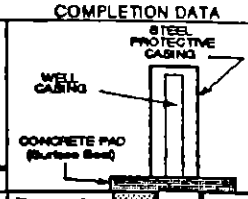
LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
50						
55				SM		Silty Sand – Very fine, subrounded with 30–40% silt and clay partings and seams, dense, saturated, gray.
60						
65				CL		Sandy Clay – Low plasticity, very stiff to hard, with 20–30% very fine sand partings, damp to moist, gray.
70						Boring terminated at 70' below ground surface.

COMPLETION DATA



50	Bentonite Seal	4" PVC Casing
53		
54		
59	Filter Pack	0.01 inch mill slot screen
63		
64		Blank
70		

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-23

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 1

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-26-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 24.0 Feet HOLE DIAMETER: 11.5 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 369.20 PAD: 369.75 TOC: 371.96 PROT. CSG: 372.30

WATER LEVEL: DEPTH: 17.41 Feet DATUM: TOC DATE: 1-28-93 TIME: 8:30 AM

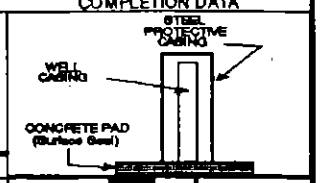
JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION
0	SC	CLAYEY SAND — 10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, dense, dry, red, no odor
5	SC	CLAYEY SAND — similar to above with hematite gravel at 9.0 feet, lignite flakes
10	SC	CLAYEY SAND — similar to above but no hematite gravel or lignite present
15	GP	HEMATITE GRAVEL — well graded, red, saturated
20	SC	CLAYEY SAND — 10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose, red, saturated, odor
24	GP	HEMATITE GRAVEL — well graded, red, saturated, odor
	CH	CLAY — 20 to 30% fine grained sand, moderate to high plasticity, firm, damp, light gray

BORING TERMINATED AT 24.0 FEET BELOW GRADE

COMPLETION DATA



DEPTH (FEET)	
0	CEMENT BENTONITE GROUT
4.5	BENTONITE PLUG
6.5	SAND FILTER PACK
8.5	
24	

4 INCH DIAMETER FIBERGLASS CASING

4 INCH DIAMETER 0.010" MILL SLOT FIBERGLASS SCREEN

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-24

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 3

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-28-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 55.5 Feet HOLE DIAMETER: 16.0 In. / 11.5 In.

SITE COORDINATES: NA ELEVATIONS: GROUND: 363.30 PAD: 364.52 TOC: 366.38 PROT. CSG: 366.61

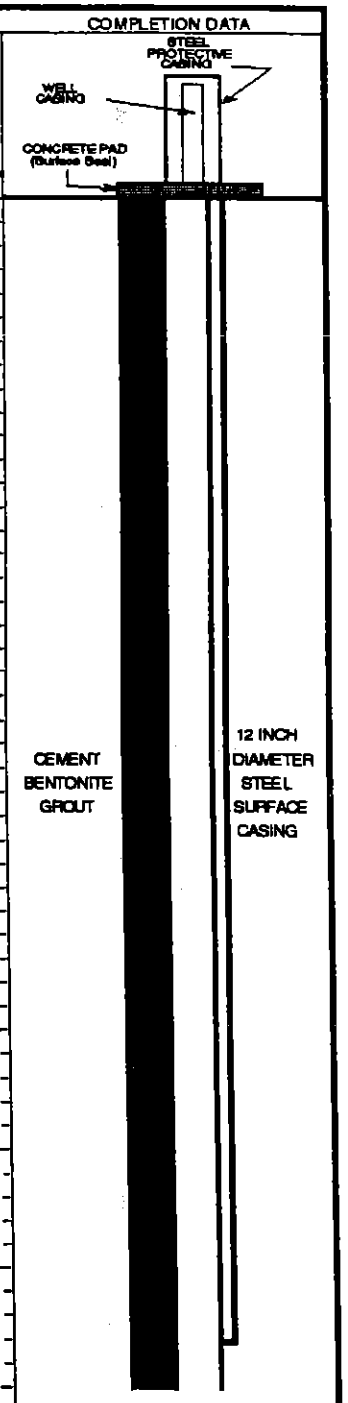
WATER LEVEL: DEPTH: 27.11 Feet DATUM: TOC DATE: 2-8-93 TIME: 1:29 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	STRATIGRAPHY		
0	SC		CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose in top 1 foot then dense, damp, red, no odor, hematite nodules at 4.0 to 4.5 feet
5	SC		CLAYEY SAND	similar to above
	CH		CLAY	10 to 20% fine grained sand, moderate to high plasticity, very stiff, dry, light gray with red hematite staining, hematite nodules, clayey sand seams at 9.0 feet
10	SC		CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose, moist, red and light gray marbled
	CH		CLAY	10 to 20% fine grained sand, moderate to high plasticity, very stiff, dry, light gray
15	CH		CLAY	similar to above
20	SC		CLAYEY SAND	10 to 20 % clay in matrix, medium to fine grained, subangular to subrounded, loose, saturated, red and light gray marbled
	CH		CLAY	10 to 20% fine grained sand, moderate to high plasticity, very stiff, dry, light gray
25	CH		CLAY	similar to above

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. DMW-24

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 2 OF 3

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-28-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 55.5 Feet HOLE DIAMETER: 16.0 In. / 11.5 In.

SITE COORDINATES: NA ELEVATIONS: GROUND: 363.30 PAD: 364.52 TOC: 366.38 PROT. CSG: 366.61

WATER LEVEL: DEPTH: 27.11 Feet DATUM: TOC DATE: 2-8-93 TIME: 1:29 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	STRATIGRAPHY		
25	CH		CLAY	similar to above
30	CL		SANDY CLAY	20 to 30% fine grained sand, low plasticity, stiff dark gray clay with saturated sand partings, minor lignite seams
35	CL		SANDY CLAY	similar to above
40	CL		SANDY CLAY	similar to above
45	CL		SANDY CLAY	similar to above
50	CL		SANDY CLAY	similar to above

COMPLETION DATA

BELOW GRADE MATERIAL COMPLETIONS CONTINUED FROM PREVIOUS PAGE

CEMENT BENTONITE GROUT

4 INCH DIAMETER PVC CASING

38

BENTONITE PLUG

40

41

SAND FILTER PACK

4 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN

50

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MONITOR WELL CONSTRUCTION

WELL NO. DMW-24

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 3 OF 3

SITE: Palestine, Texas DATE: START: 1-26-93 FINISH: 1-28-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: Mobil B-57

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 55.5 Feet HOLE DIAMETER: 16.0 In. / 11.5 In

SITE COORDINATES: NA ELEVATIONS: GROUND: 363.30 PAD: 364.52 TOC: 366.38 PROT. CSG: 366.61

WATER LEVEL: DEPTH: 27.11 Feet DATUM: TOC DATE: 2-8-93 TIME: 1:29 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
50				CH		CLAY similar to above
55						
55.5				CH		CLAY similar to above
						BORING TERMINATED AT 55.5 FEET BELOW GRADE

COMPLETION DATA

BELOW GRADE MATERIAL COMPLETIONS CONTINUED FROM PREVIOUS PAGE

SAND FILTER PACK

4 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN

55.5

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-PG2.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-25

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 1

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 23.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 332.10 PAD: 332.67 TOC: 334.89 PROT. CSG: NA

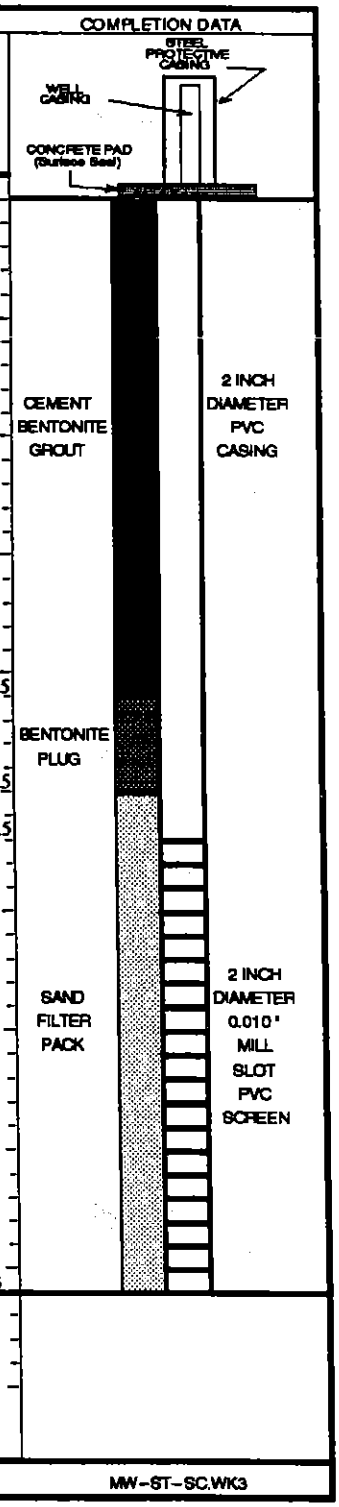
WATER LEVEL: DEPTH: 6.45 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:11 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION	
0	SC	CLAYEY SAND	10 to 20 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 0 to 1 foot, then dry
5	SC	CLAYEY SAND	similar to above but dark brown with surficial moisture from 4 to 5.5 feet
	CH	CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
10	CH	CLAY	similar to above with increasing sand, 20 to 30%, and sparatic hematite gravel
15	SC	CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, massive, dark gray, saturated, 5 " layer of hematite gravel at 18 feet
20	SC	CLAYEY SAND	similar to above
23	CH	CLAY	20 to 30% fine grained sand partings, low to moderate plasticity, very stiff, dry, dark brown clay with gray sand

BORING TERMINATED AT 23.0 FEET BELOW GRADE



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-26

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 1 OF 2

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 34.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 334.20 PAD: 334.83 TOC: 337.11 PROT. CSG: NA

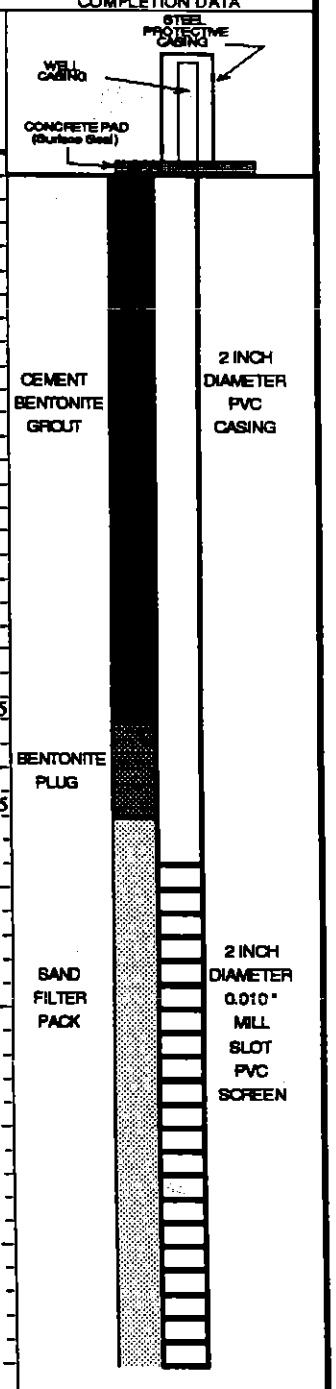
WATER LEVEL: DEPTH: 8.05 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:14 PM

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	LITHOLOGIC DESCRIPTION
0	SC	CLAYEY SAND — 10 to 20 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 4 to 5 feet, then dry
5	CH	CLAY — high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp
10	GW	HEMATITE GRAVEL — well graded, red, saturated
	CH	CLAY — high plasticity, firm, dark brown with 20 to 30% orange sand partings, damp
15	SC	CLAYEY SAND — 20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, 20 to 30% hematite gravel, saturated, dark gray sand with red gravel
20	SC	CLAYEY SAND — similar to above but no gravel present
25	SC	CLAYEY SAND — similar to above

COMPLETION DATA



(1) UNIFIED SOIL CLASSIFICATION SYSTEM

MW-ST-SC.WK3

MONITOR WELL CONSTRUCTION

WELL NO. MW-26

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET 2 OF 2

SITE: Palestine, Texas DATE: START: 4-19-93 FINISH: 4-19-93

GEOLOGIST: Mark Norman DRILLER: Jones and Neuse, Inc. DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample TOTAL DEPTH: 34.0 Feet HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA ELEVATIONS: GROUND: 334.20 PAD: 334.83 TOC: 337.11 PROT. CSG: NA

WATER LEVEL: DEPTH: 8.05 Feet DATUM: TOC DATE: 4-29-93 TIME: 3:14 PM

DEPTH (FEET)	SAMPLE TYPE	SATURATED	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	JONES AND NEUSE, INC. Environmental and Engineering Consultants LITHOLOGIC DESCRIPTION	COMPLETION DATA
							BELOW GRADE MATERIAL COMPLETIONS CONTINUED FROM PREVIOUS PAGE
25				SC		CLAYEY SAND similar to above	SAND FILTER PACK; 2 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN
30				SC		CLAYEY SAND similar to above	
34						BORING TERMINATED AT 34.0 FEET BELOW GRADE	

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

RPS JDC

WELL INSTALLATION

Client: SeedAmerica
Site: Palestine, Texas - Groundwater
Job No.: 469
Geologist: Mark Katterjohn
Driller: ETTL, Inc.
Drilling Rig:
Drilling Method: Hollow-Stem Auger
Sampling Method: None. Lithology from MW-27.
Comments: Located 8.1' SSE of MW-27 (MW-27 P&A'd on 7/14/08).

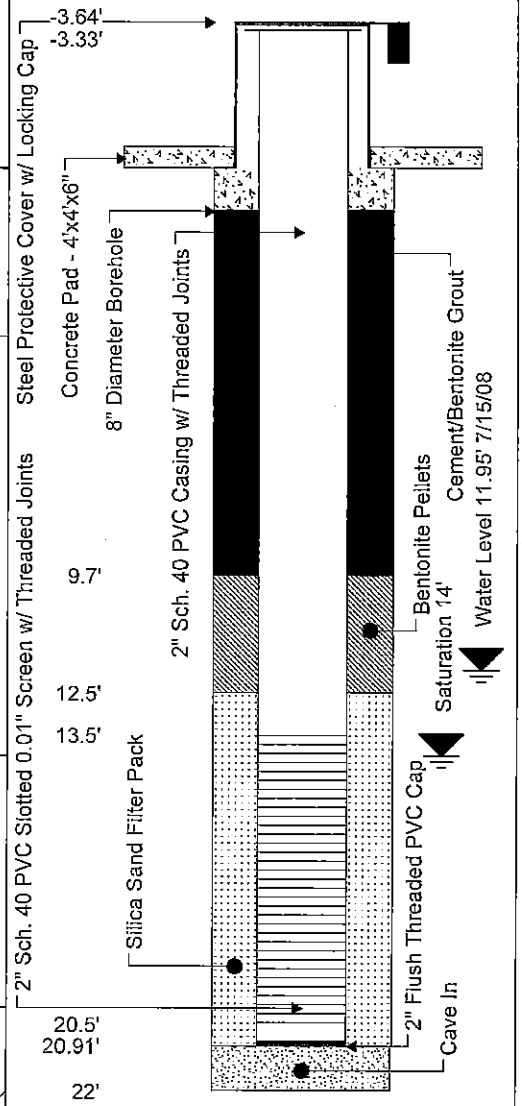
Total Depth: 22 ' BGL
Ground Water: Saturation @ 14' BGL
Elev., TOC (ft. msl): 337.67
Elev., PAD (ft. msl): 334.89
Elev., GL (ft. msl): 334.5
Site Coordinates:
N 80298.73 **E** 49080.16

Well No.: MW-27R
Start Date: 7/14/08 13:30
Finish Date: 7/14/2008 13:15

STATE OF TEXAS
MARK S. KATTERJOHN
Geology
2801
LICENSED
PROFESSIONAL GEOSCIENTIST

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
0					Ground Surface
1					**Clayey Sand (SC)** Fine to medium grained, uniform, loose, dry, reddish brown, 20-30% clay
5					**Clay (CH)** High plasticity, firm, damp, dark brown with 5-10% orange sand partings, increasing sand with depth
14		14'			
15					**Clayey Sand (SC)** Medium to fine grained, loose, saturated, dark gray, 20-30% clay
16.5					- Hematite gravel layer at 16.5-17 feet
19					- Lignite seam at 19 feet
20.5					**Sandy Clay (CL)** Low to moderate plasticity, very stiff, dry, dark brown clay with gray sand, 20-30% fine grained sand partings
22					

Completion Results



RPS JDC, Inc.
404 Camp Craft Road
Austin, Texas 78746

512/347-7588
512/347-8243

MONITOR WELL CONSTRUCTION LOG

WELL NO. MW-27

CLIENT: Murray Corporation | JOB NO: 018206.1 | SHEET 1 OF 1

SITE: Palestine, Texas | DATE: START: 4-20-93 | FINISH: 4-20-93

GEOLOGIST: Mark Norman | DRILLER: Jones and Neuse, Inc. | DRILLING RIG TYPE: CME 750

DRILLING METHODS: Hollow Stem Auger, Continuous Sample | TOTAL DEPTH: 23.0 Feet | HOLE DIAMETER: 8.75 Inches

SITE COORDINATES: NA | ELEVATIONS: GROUND: 334.30 | PAD: 334.94 | TOC: 337.33 | PROT. CSG: NA

WATER LEVEL: DEPTH: 6.48 Feet | DATUM: TOC | DATE: 4-29-93 | TIME: 3:20 PM

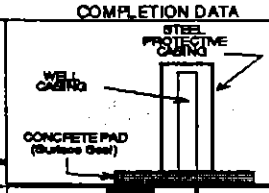
JONES AND NEUSE, INC.
Environmental and Engineering Consultants

LITHOLOGIC DESCRIPTION

DEPTH (FEET)	USCS SYMBOL (1)	STRATIGRAPHY		
0	SC	CLAYEY SAND	20 to 30 % clay in matrix, fine to medium grained, homogeneous, loose, reddish brown, surficial moisture from 3.5 to 4.0 feet, then dry	
5	CH	CLAY	high plasticity, firm, dark brown with 5 to 10% orange sand partings, damp	
10	CH	CLAY	similar to above with increasing sand, 30 to 40%	
15	SC	CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, subangular to subrounded, loose, massive, dark gray, saturated, hematite gravel layer at 16.5 to 17.0 feet and lignite seam at 19.0 feet	
20	CH	SANDY CLAY	20 to 30% fine grained sand partings, low to moderate plasticity, very stiff, dry, dark brown clay with gray sand	
24.5	SC	CLAYEY SAND	20 to 30 % clay in matrix, medium to fine grained, loose, dark gray, mica, damp	

BORING TERMINATED AT 24.5 FEET BELOW GRADE

COMPLETION DATA



0	CEMENT BENTONITE GROUT
11	BENTONITE PLUG
13	
13.5	SAND FILTER PACK
20.5	
21	BENTONITE CHIP HOLE PLUG
24.5	

2 INCH DIAMETER PVC CASING

2 INCH DIAMETER 0.010" MILL SLOT PVC SCREEN

(1) UNIFIED SOIL CLASSIFICATON SYSTEM

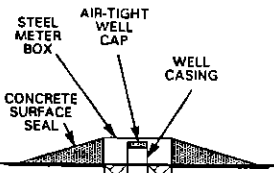
MW-ST-SC.WK3

WELL CONSTRUCTION LOG

WELL NO. MW-28

Client: MURRAY CORPORATION		Start Date: 12-3-96	End Date: 12-3-96	Page 1 of 1
Site: PALESTINE		Drilling Method: HYDRAULIC PERCUSSION		Project Number: 50-00182.06
Geologist: A.W. ARMSTRONG	Driller: EDS/R. BROTHERS	Drill Rig Type: ATV GEOPROBE		Borehole Diameter: 4 Inches
Site Coordinates, UTM in ft.: N: E:	Total Depth (ft-bgl): 20.00	Surface Elevation(ft)	TOC Elevation(ft)	PAD Elevation(ft)
Datum Description Source:	Datum Elev. (ft):	Water Level Depth Below Grade(ft):	Date:	Time:

Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
0		Asphalt
1–2		Silty Clay(CH)- moderate to high plasticity, 25% silt, very stiff, damp, red.
3–4		Silty Sand(SM)- low plasticity, 10% silt, 5% angular subrounded granules, stiff, dry.
5–7		Similar to above, damp.
8		Clayey Sand(SC)- low plasticity, poorly graded fine grained sand, loose, damp.
9		Clayey Sandy Gravel(GC)- angular subrounded pebbles, 20% coarse sand, 10% clay, dense, damp, red.
10–19		Sandy Clay(CH)- high plasticity, 15% fine grained sand, stiff, damp to saturated, grey with red mottling.
20		BORING TERMINATED AT 20 FEET BELOW GRADE



Cement
2.0
Bentonite Seal
4.0
Sand Filter Pack
15.2
1-inch Diameter Slotted 0.01-inch Screen
19.7
20.0 PVC Cap

WELL 18206 12/19/96

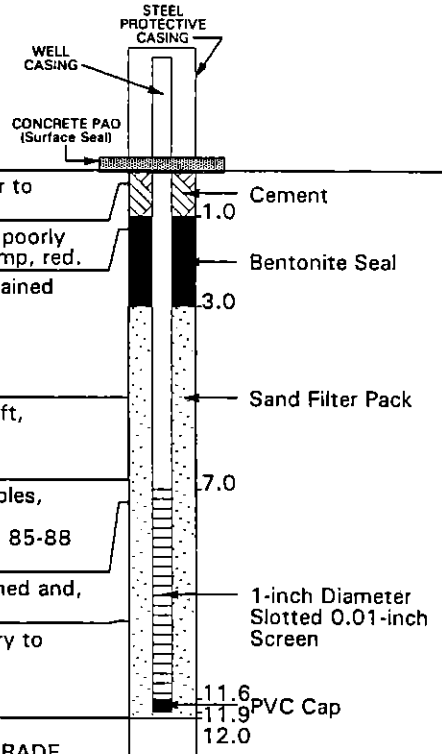
F-204A Austin (8-95)

WELL CONSTRUCTION LOG

WELL NO. MW-29

Client:		Start Date:	End Date:	Page of
MURRAY CORPORATION		12-3-96	12-3-96	1 1
Site:		Drilling Method:		Project Number:
PALESTINE		HYDRAULIC PERCUSSION		50-00182.06
Geologist:	Driller:	Drill Rig Type:		Borehole Diameter:
A.W. ARMSTRONG	EDS/R. BROTHERS	ATV GEOPROBE		4 Inches
Site Coordinates, UTM in ft.: N: E:	Total Depth (ft-bgl): 12.00	Surface Elevation(ft)	TOC Elevation(ft)	PAD Elevation(ft)
Datum Description Source:	Datum Elev. (ft):	Water Level Depth Below Grade(ft):	Date:	Time:

Sample Type	Recovery (feet)	Saturation	OVM (ppm)	Depth (feet)	Stratigraphy	LITHOLOGIC DESCRIPTION
				1		Top Soil- clayey sand, low non plastic, 15% angular to subangular gravel, soft, damp, dark brown.
				2		Clayey Silty Sand(Fill material)- moderate plasticity, poorly graded, fine grained sand, with 30% silt, firm, damp, red.
				3		Silty Sand(SM)- low plasticity, poorly graded fine grained sand, 15 to 20% silt, firm, damp, brown. Similar to above, saturated at 2.33 feet.
				4		
				5		Clayey Sand(SC)- moderate plasticity, 10% clay, soft, saturated, brown.
				6		
				7		Clayey Sandy Gravel(GC)- angular, subrounded pebbles, 30% coarse sand, 10% clay, dense, damp, red. Similar to above, black from 82-85 inches and from 85-88 inches.
				8		
				9		Sandy Clay(CH)- high plasticity, 10% very fine grained and, stiff, damp, grey with red mottling.
				10		Silty Clay(SM)- high plasticity, 10-15% silt, hard, dry to damp, iron stain at 10.17 feet.
				11		
				12		BORING TERMINATED AT 12 FEET BELOW GRADE
				13		
				14		
				15		
				16		
				17		
				18		
				19		
				20		
				21		
				22		
				23		
				24		



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

WELL INSTALLATION

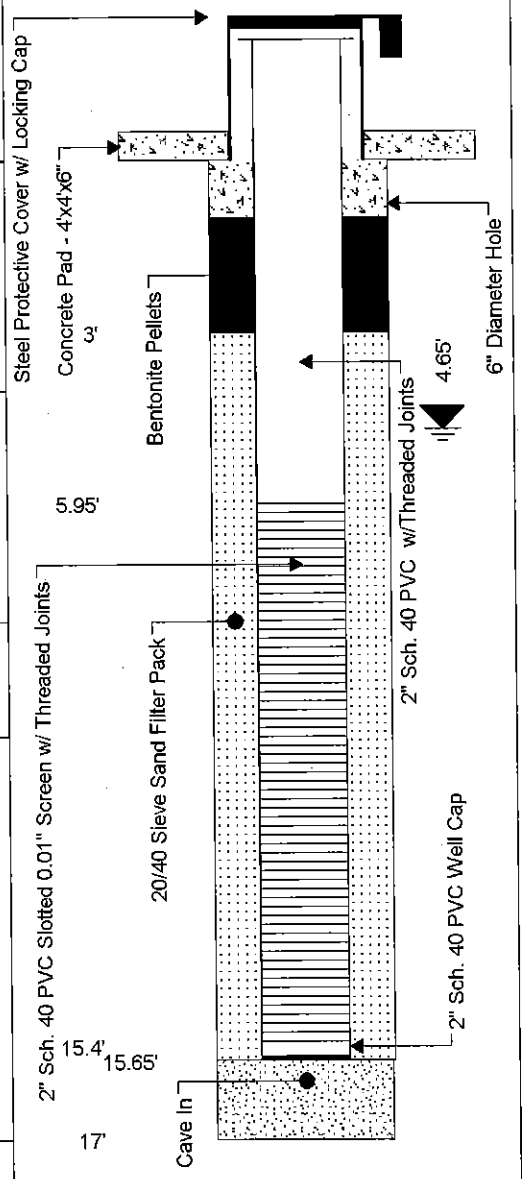
Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 6" Solid Stem Augers
Sampling Method: Lithology from Soil Cuttings
Comments: Replacement well for MW-29

Driller: GW Monitoring/Shane
Drilling Rig: Simco Earthprobe 200
Total Depth: 17' BGL
Ground Water: 4/19/02 4.65' BGL
Site Coordinates:
N 80050.81 **E** 48263.36

Well No.: MW-29R
Sheet: 1 of 1
Start Date: 4/18/02 13:35
Finish Date: 4/18/02 14:00
Elev., TOC (ft. msl): 355.83
Elev., PAD (ft. msl): 353.83
Elev., GL (ft. msl): 353.7

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
0					Ground Surface
1	--			100	**Silty Sand (sm)** Poorly graded, fine grained, 15 to 20% silt, compact, damp, brown
3		4.65'			
5	--			100	**Clayey Sand (sc)** Fine grained, 15 to 20% clay, brown, saturated at 4.5 ft bgs
7					
9	--			100	**Clayey Sand (sc)** Fine to coarse grained, 10% clay, with gravel at 8', grayish green, saturated
11					**Silty Clay (ch)** High plasticity, 10-15% silt, damp, brown
13	--			100	
15					
17					Total Depth = 17' BGL

Completion Results



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

361/855-7335
361/855-7410 fax

WELL CONSTRUCTION LOG

WELL NO. MW-30

Client: MURRAY CORPORATION		Start Date: 12-3-96	End Date: 12-3-96	Page 1 of 1
Site: PALESTINE		Drilling Method: HYDRAULIC PERCUSSION		Project Number: 50-00182.06
Geologist: A.W. ARMSTRONG	Driller: EDS/R. BROTHERS	Drill Rig Type: ATV GEOPROBE		Borehole Diameter: 4 Inches
Site Coordinates, UTM in ft.: N: E:	Total Depth (ft-bgl): 12.33	Surface Elevation(ft)	TOC Elevation(ft)	PAD Elevation(ft)
Datum Description Source:	Datum Elev. (ft):	Water Level Depth Below Grade(ft):	Date:	Time:

Sample Type | Recovery (feet) | Saturation | OVM (ppm) | Depth (feet) | Stratigraphy

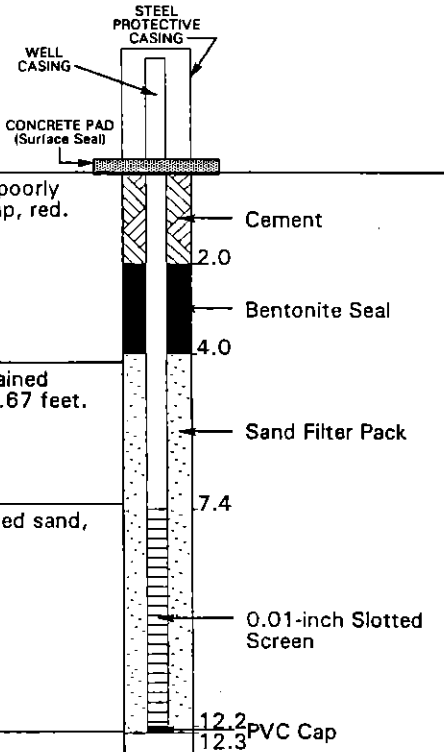
LITHOLOGIC DESCRIPTION

Clayey Silty Sand(Fill material)- moderate plasticity, poorly graded, fine grained sand with 30% silt, firm, damp, red.

Silty Sand(SM)- low plasticity, poorly graded fine grained sand, 20% silt, firm, damp, brown, saturated at 4.67 feet.

Sandy Clay(CH)- high plasticity, 10% very fine grained sand, stiff, damp, grey with red mottling.

BORING TERMINATED AT 12.33 FEET BELOW GRADE



JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

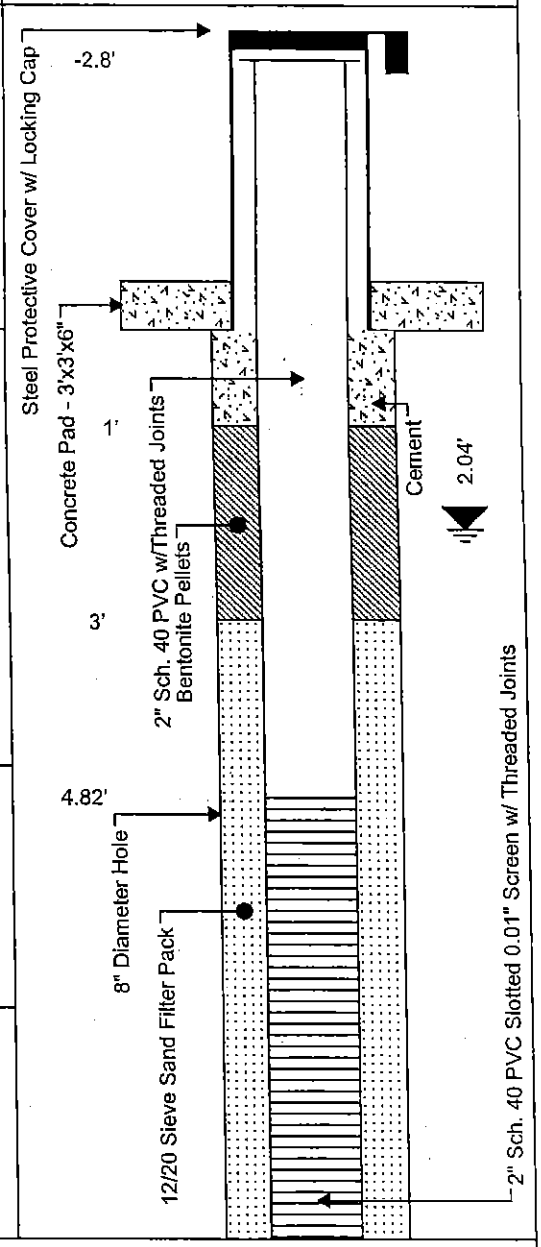
WELL INSTALLATION

Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Solid-Stem Auger
Sampling Method: Geoprobe (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 12.5' BGL
Ground Water: 4.84' BTOC
Site Coordinates:
N 79719.43 **E** 48099.81

Well No.: MW-30R
Sheet: 1 of 2
Start Date: 4/10/2003 16:10
Finish Date: 4/10/2003 16:25
Elev., TOC (ft. msl): 351.69
Elev., PAD (ft. msl): 349.38
Elev., GL (ft. msl): 349.0

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3					
-1					Ground Surface
1		2.04'			**Clayey Silty Sand - (fill material)** Moderate plasticity, poorly sorted, fine grained sand with 30% silt/clay, dense, moist to saturated, reddish brown, saturated at 3.5 feet
3	PS			75	
5					**Silty Sand (SM)** Fine grained, loose, poorly sorted, gray, saturated, 10-20% silt, strong odor
7	PS			100	**Sandy Clay (SC)** High plasticity, stiff, gray with red and orange mottles of fine grain sand, damp, 10-20% sand, sand increases to 40-50% at 7.5 feet
9					



JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

WELL INSTALLATION

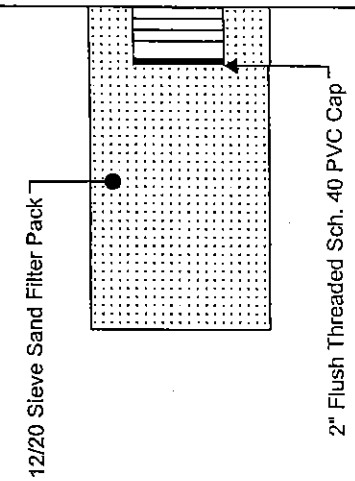
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Solid-Stem Auger
Sampling Method: Geoprobe (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 12.5' BGL
Ground Water: 4.84' BTOC
Site Coordinates:
N 79719.43 E 48099.81

Well No.: MW-30R
Sheet: 2 of 2
Start Date: 4/10/2003 16:10
Finish Date: 4/10/2003 16:25
Elev., TOC (ft. msl): 351.69
Elev., PAD (ft. msl): 349.38
Elev., GL (ft. msl): 349.0

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
11	PS			100	**Sandy Clay (SC)** Moderate plasticity, hard, gray with orange mottles, 10-20% sand, damp
13					Total Depth = 12.5' BGL

Completion Results



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

361/855-7335
361/855-7410 fax

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321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

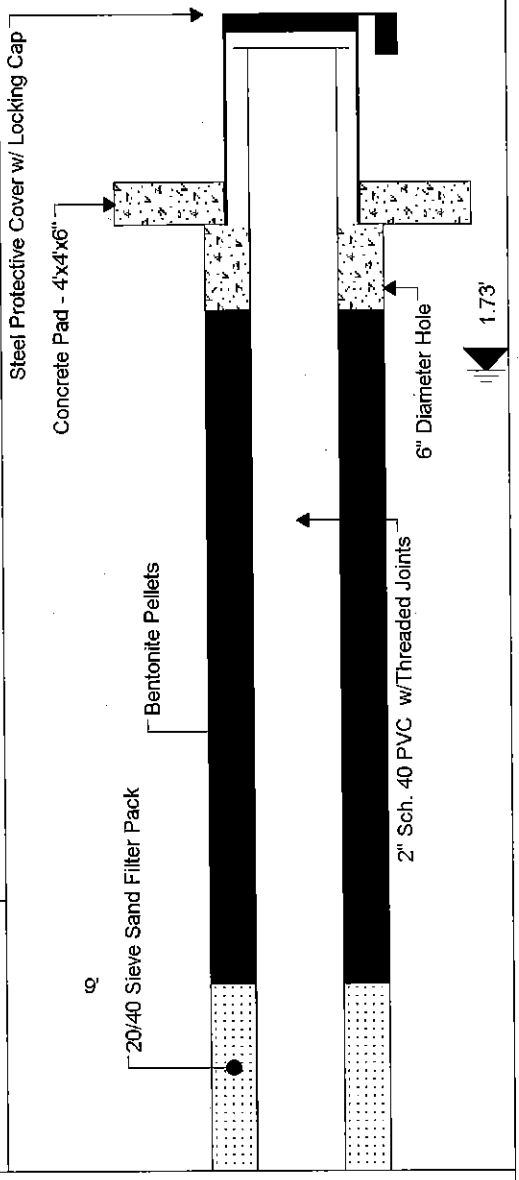
WELL INSTALLATION

Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 6" Solid Stem Augers
Sampling Method: Lithology from Soil Cuttings
Comments:

Driller: GW Monitoring/Shane
Drilling Rig: Simco Earthprobe 200
Total Depth: 22' BGL
Ground Water: 4/18/02 1.73' BGL
Site Coordinates:
N 79974.64 E 48628.73

Well No.: MW-31
Sheet: 1 of 2
Start Date: 4/18/02 10:30
Finish Date: 4/18/02 11:05
Elev., TOC (ft. msl): 335.32
Elev., PAD (ft. msl): 332.68
Elev., GL (ft. msl): 332.4

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3 to 11		1.73'			Ground Surface
1 to 7				100	**Clayey Sand (sc)** Fine to medium grained, poorly sorted, moist, 10-20% clay, brown, saturated at 3 feet
9 to 11				100	**Clay (ch)** High plasticity, moist to damp, with hematitic nodules, dark brown



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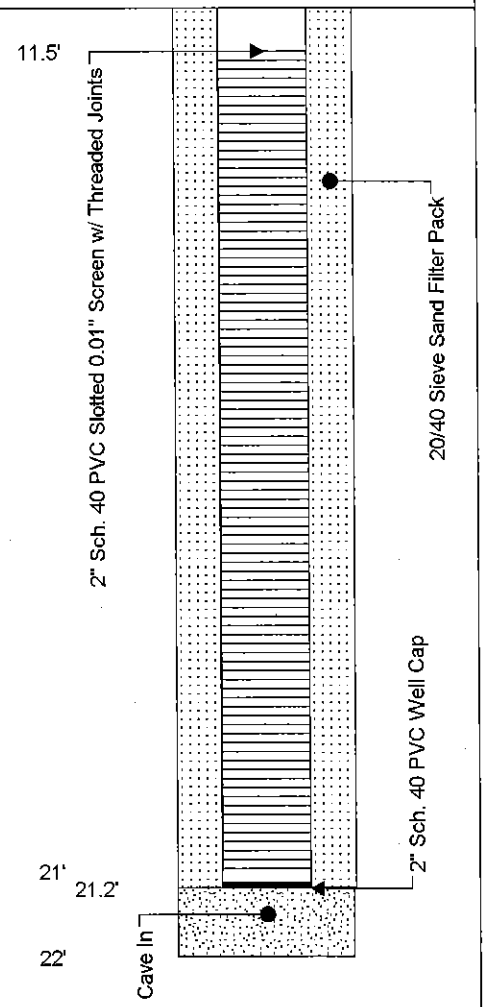
WELL INSTALLATION

Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 6" Solid Stem Augers
Sampling Method: Lithology from Soil Cuttings
Comments:

Driller: GW Monitoring/Shane
Drilling Rig: Simco Earthprobe 200
Total Depth: 22' BGL
Ground Water: 4/18/02 1.73' BGL
Site Coordinates:
N 79974.64 **E** 48628.73

Well No.: MW-31
Sheet: 2 of 2
Start Date: 4/18/02 10:30
Finish Date: 4/18/02 11:05
Elev., TOC (ft. msl): 335.32
Elev., PAD (ft. msl): 332.68
Elev., GL (ft. msl): 332.4

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
13–25	–			100	**Clayey Sand (sc)** Medium grained, 40-50% clay, decreasing with depth, moist to saturated, gray with brown
21	--			100	**Silty Clay (ch)** Low plasticity, 20-30% silt, moist to damp, dark gray interbeds
					Total Depth = 22' BGL



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321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

361/855-7335
361/855-7410 fax

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321 Texan Trail, Suite 203
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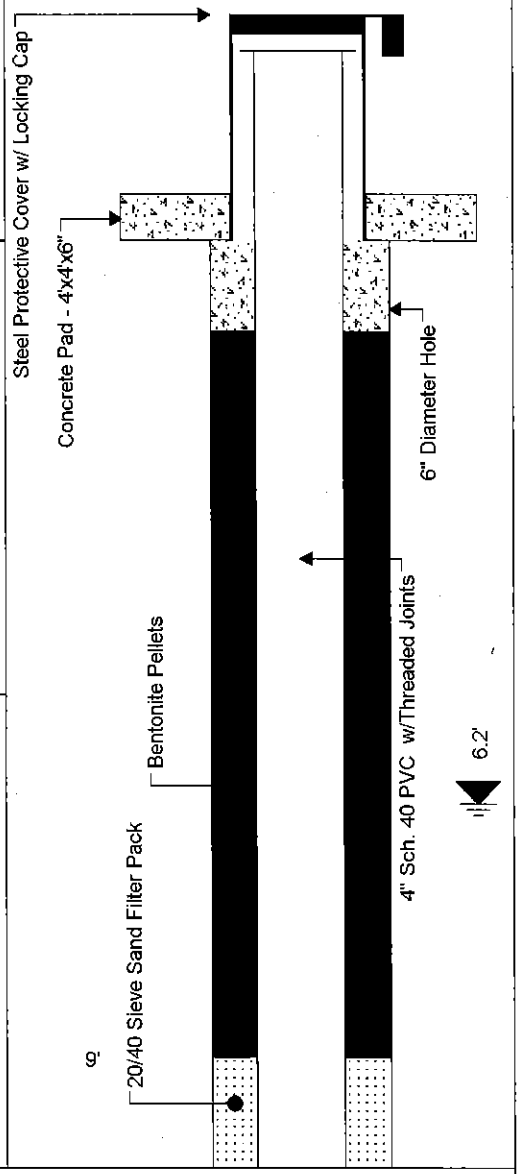
WELL INSTALLATION

Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 6" Solid Stem Augers
Sampling Method: Lithology from Soil Cuttings
Comments: Located in the vicinity of temporary well TW-1 (Sept. 98)

Driller: GW Monitoring/Shane
Drilling Rig: Simco Earthprobe 200
Total Depth: 22' BGL
Ground Water: 4/18/02 6.2' BGL
Site Coordinates:
N 80226.34 **E** 48862.08

Well No.: MW-32
Sheet: 1 of 2
Start Date: 4/18/02 09:20
Finish Date: 4/18/02 15:20
Elev., TOC (ft. msl): 336.62
Elev., PAD (ft. msl): 333.94
Elev., GL (ft. msl): 333.6

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3					
-1					Ground Surface
1	I				**Clayey Sand (sc)** Fine to medium grained, poorly sorted, moist, 10-20% clay, damp, reddish brown
3				100	
5		6.2'			**Clay (ch)** High plasticity, some sand, damp, dark brown
7	II			100	
9					



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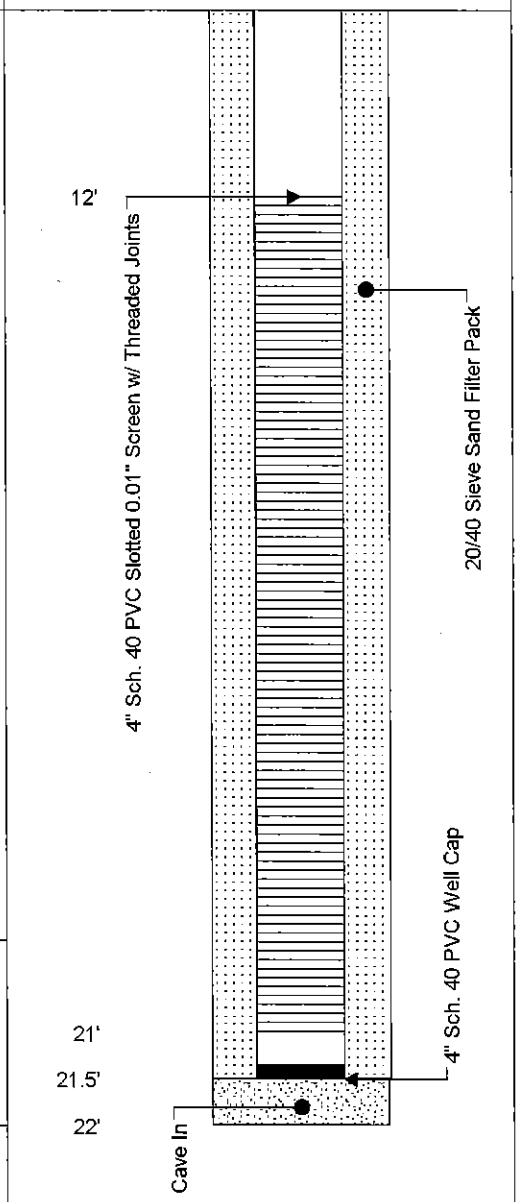
WELL INSTALLATION

Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 6" Solid Stem Augers
Sampling Method: Lithology from Soil Cuttings
Comments: Located in the vicinity of temporary well TW-1 (Sept. 98)

Driller: GW Monitoring/Shane
Drilling Rig: Simco Earthprobe 200
Total Depth: 22' BGL
Ground Water: 4/18/02 6.2' BGL
Site Coordinates:
N 80226.34 **E** 48862.08

Well No.: MW-32
Sheet: 2 of 2
Start Date: 4/18/02 09:20
Finish Date: 4/18/02 15:20
Elev., TOC (ft. msl): 336.62
Elev., PAD (ft. msl): 333.94
Elev., GL (ft. msl): 333.6

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
12–14–16–18	I			100	**Clayey Sand (sc)** Fine to medium grained, 30% clay, saturated, dark gray to gray with orange-tan sand at depth
20–22	I			100	**Sandy Clay (cl)** Low plasticity, 30-40% fine grained sand in sand partings, damp, dark gray interbedded
					Total Depth = 22' BGL



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411
361/855-7335
361/855-7410 fax

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321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

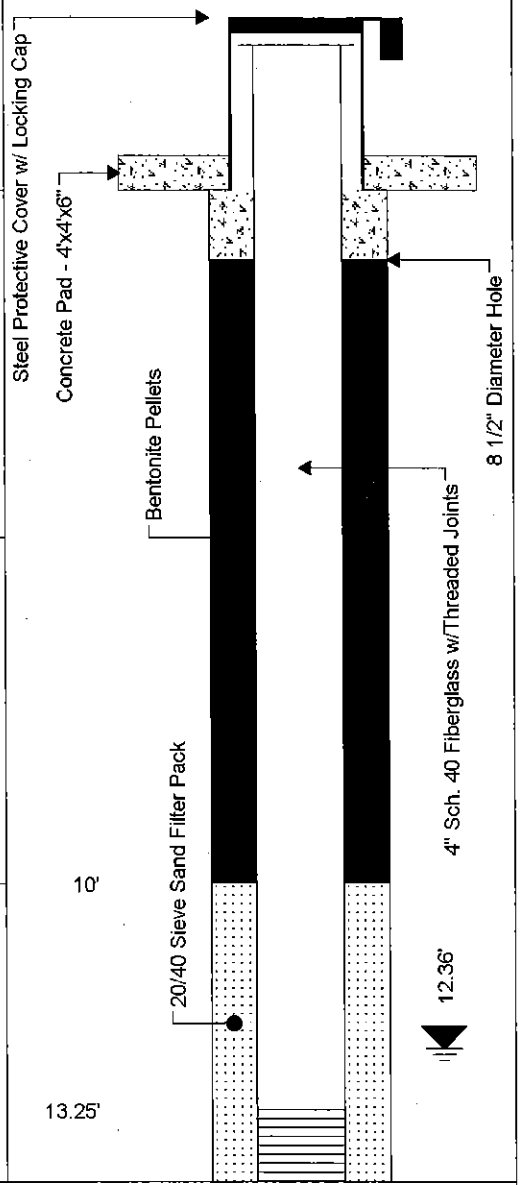
WELL INSTALLATION

Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 8 1/2" Hollow Stem Augers
Sampling Method: 5' Split Spoon
Comments: Continuous Sampling

Driller: GW Monitoring/Anderson
Drilling Rig: CME-75
Total Depth: 27' BGL
Ground Water: 4/19/02 14.85' BTOC
Site Coordinates:
N 80623.09 **E** 48572.78

Well No.: RW-33
Sheet: 1 of 2
Start Date: 4/17/02 14:15
Finish Date: 4/17/02 15:00
Elev., TOC (ft. msl): 368.49
Elev., PAD (ft. msl): 366.27
Elev., GL (ft. msl): 366.0

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3					
-1					Ground Surface
1	--			100	**Sandy Clay (cl)** Moderate plasticity, 25% very fine grain sand, firm, damp, reddish brown
3					
5	SS			10	**Silty Sand (sm)** Very fine grained, 30-40% silt, compact, damp, yellow brown
7					
9	SS			60	
11		12.36'			**Clayey Sand (sc)** Similar to above, except 30-40% clay, with hematitic gravel, red
13					Saturated at 13'



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Corpus Christi, Texas 78411

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321 Texan Trail, Suite 203
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WELL INSTALLATION

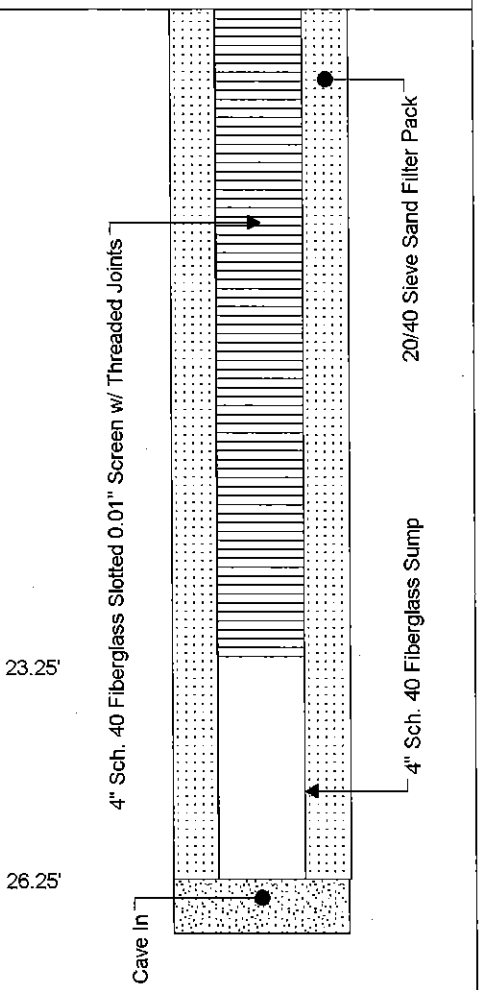
Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 8 1/2" Hollow Stem Augers
Sampling Method: 5' Split Spoon
Comments: Continuous Sampling

Driller: GW Monitoring/Anderson
Drilling Rig: CME-75
Total Depth: 27' BGL
Ground Water: 4/19/02 14.85' BTOC
Site Coordinates:
N 80623.09 E 48572.78

Well No.: RW-33
Sheet: 2 of 2
Start Date: 4/17/02 14:15
Finish Date: 4/17/02 15:00
Elev., TOC (ft. msl): 368.49
Elev., PAD (ft. msl): 366.27
Elev., GL (ft. msl): 366.0

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
16	SS			60	Moist at 15'
18					**Sandy Clay (sc)** Low plasticity, 30-40% medium to fine grained sand in silt and clay matrix, very stiff to hard, moist, gray laminations
20	SS			100	
22					
24	SS			100	**Sand (sp)** Fine grained, dense, moist, gray with rust laminations
					Sandy Clay (sc) Similar to above
26					**Silty Clay (cl)** Low plasticity, hard, damp, gray with dark gray laminations
28					Total Depth = 27' BGL
30					

Completion Results



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

361/855-7335
361/855-7410 fax

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

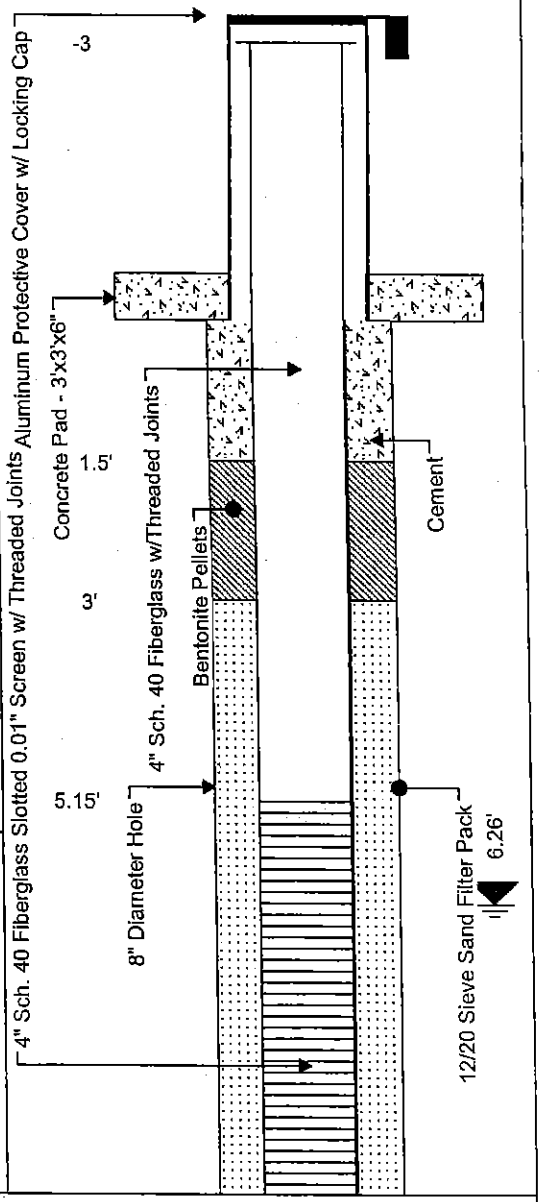
WELL INSTALLATION

Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Solid-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 20' BGL
Ground Water: 9.26' BTOC
Site Coordinates:
N 80061.97 **E** 48262.74

Well No.: RW-34
Sheet: 1 of 2
Start Date: 4/11/2003 7:30
Finish Date: 4/11/2003 7:50
Elev., TOC (ft. msl): 356.76
Elev., PAD (ft. msl): 354.47
Elev., GL (ft. msl): 354.3

Depth (ft.)	Sample Type	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
-3						
-1						Ground Surface
1	PS		14		100	**Clayey Silty Sand (fill material)** Fine grained sand, firm, reddish brown, damp, with 30-40% silt and clay
3						
5		6.26'	16			**Silty Sand (SM)** Fine grained, loose, poorly sorted, brown to tan, moist, 10-20% silt, saturated at 7.5 feet
7	PS				100	
9			49			



JD Consulting, L.P.
85 IH 10 North, Suite 202
Beaumont, Texas 77707

Continued on Sheet 2

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409/838-9056 fax

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

WELL INSTALLATION

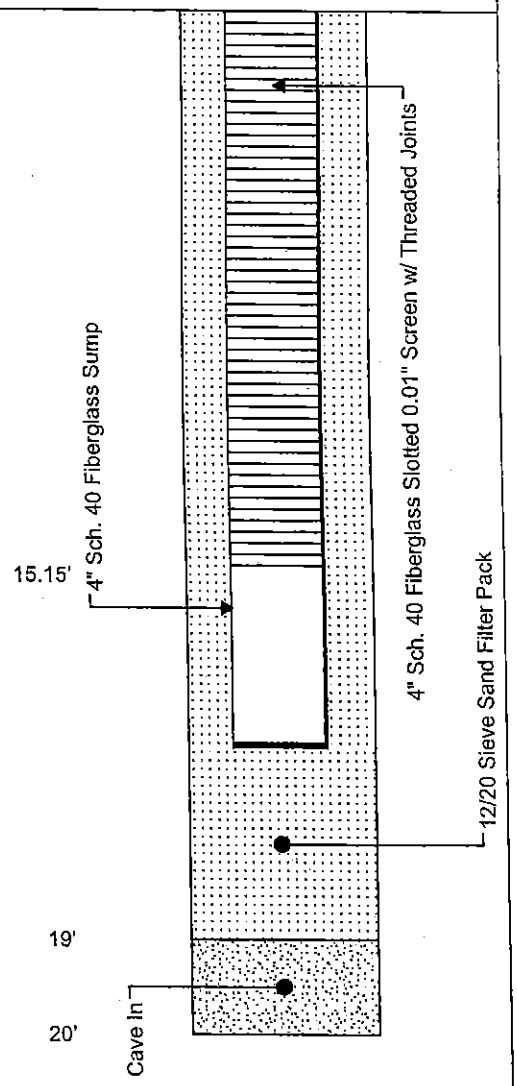
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Solid-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 20' BGL
Ground Water: 9.26' BTOC
Site Coordinates:
N 80061.97 **E** 48262.74

Well No.: RW-34
Sheet: 2 of 2
Start Date: 4/11/2003 7:30
Finish Date: 4/11/2003 7:50
Elev., TOC (ft. msl): 356.76
Elev., PAD (ft. msl): 354.47
Elev., GL (ft. msl): 354.3

Depth (ft.)	Sample Type	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
11	PS		780		100	**Sandy Clay (SC)** High plasticity, firm, gray, moist, 10-15% fine grained sand, odor
						Silty Sand (SM) Fine grained, soft, tan, saturated
13						**Clay (CH)** High plasticity, stiff, gray with reddish orange mottles, damp
15			470			**Silty Clay (CH)** High plasticity, hard, brown, 10% silt, odor
						Sampler refusal at 15' BGL
17						
19						
						Total Depth = 20' BGL
21						

Completion Results



JD Consulting, L.P.
85 IH 10 North, Suite 202
Beaumont, Texas 77707

409/838-4400
409/838-9056 fax

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321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

WELL INSTALLATION

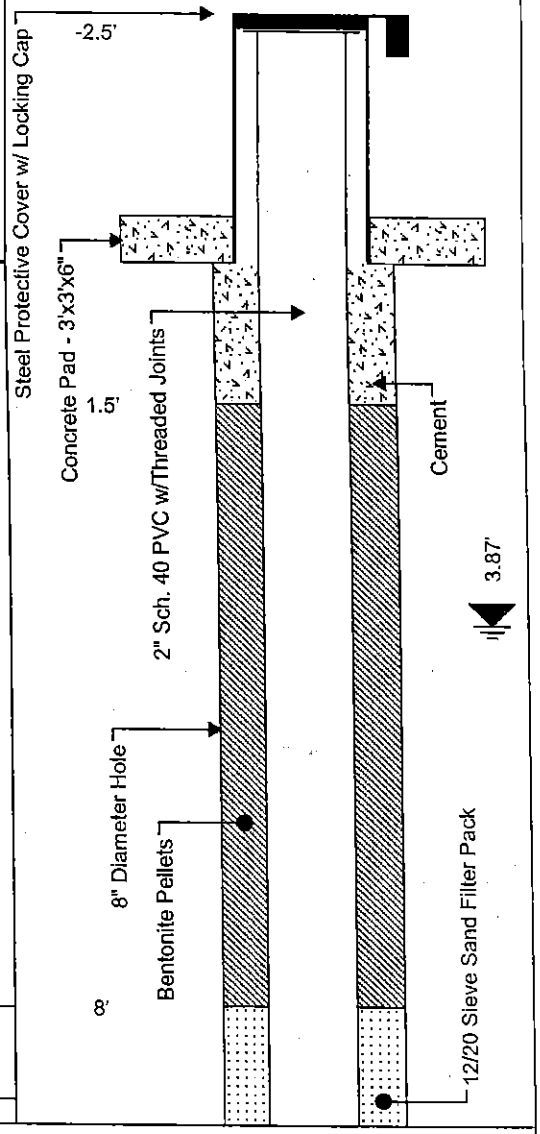
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Hollow-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 20' BGL
Ground Water: 6.37' BTOC
Site Coordinates:
N 79768.70 E 48413.16

Well No.: MW-35
Sheet: 1 of 2
Start Date: 4/10/2003 14:00
Finish Date: 4/10/2003 14:30
Elev., TOC (ft. msl): 337.45
Elev., PAD (ft. msl): 334.70
Elev., GL (ft. msl): 334.6

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3					
-1					Ground Surface
1	PS	3.87'		90	**Sand (SP)** Fine to medium grained, loose, poorly sorted, reddish brown, 10% silt, surficial saturation at 2'
3					
5					
7	PS			100	**Silty Clay (CL)** Low plasticity, firm, gray with orange mottles of silty sand, damp, 40-50% silt
9					

Completion Results



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WELL INSTALLATION

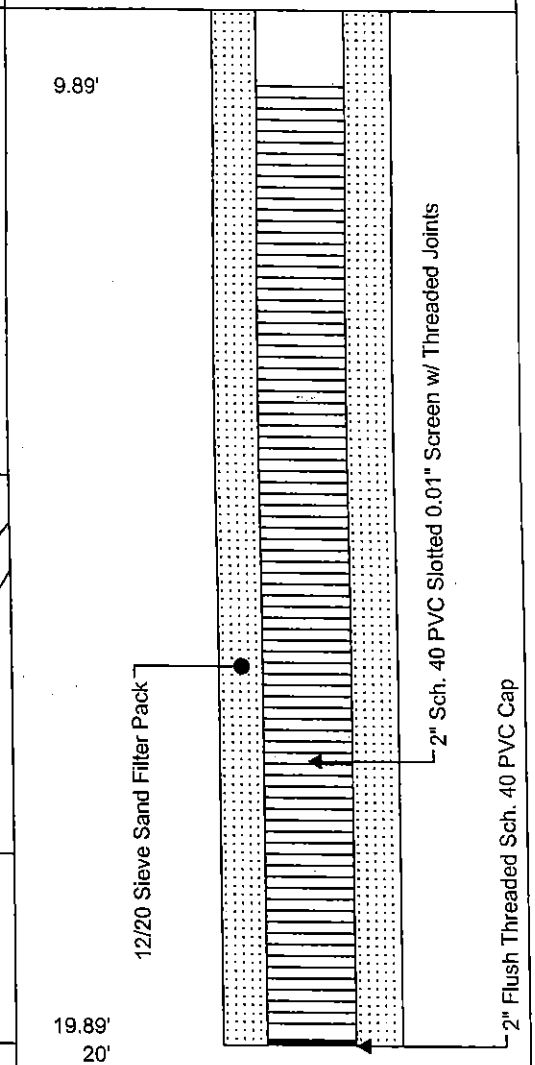
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Hollow-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 20' BGL
Ground Water: 6.37' BTOC
Site Coordinates:
N 79768.70 **E** 48413.16

Well No.: MW-35
Sheet: 2 of 2
Start Date: 4/10/2003 14:00
Finish Date: 4/10/2003 14:30
Elev., TOC (ft. msl): 337.45
Elev., PAD (ft. msl): 334.70
Elev., GL (ft. msl): 334.6

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
11	PS			100	**Silty Sand (SM)** Loose, poorly sorted, gray with slight orange mottling, damp, 20-30% silt, hematitic gravel at 9-9.2', increasing clay content with depth
13					**Sandy Clay (SC)** Low plasticity, firm, dark brown with gray sand partings, damp, 40-50% sand
15					**Clay (CH)** High plasticity, stiff, dark brown, damp
17	PS			100	**Sand (SP)** Fine grained, loose, poorly sorted, tan, saturated, 10% silt
19					**Sandy Clay (SC)** High plasticity, very stiff, dark brown with gray fine grained sand laminations, damp, 40-50% sand
21					Total Depth = 20' BGL

Completion Results



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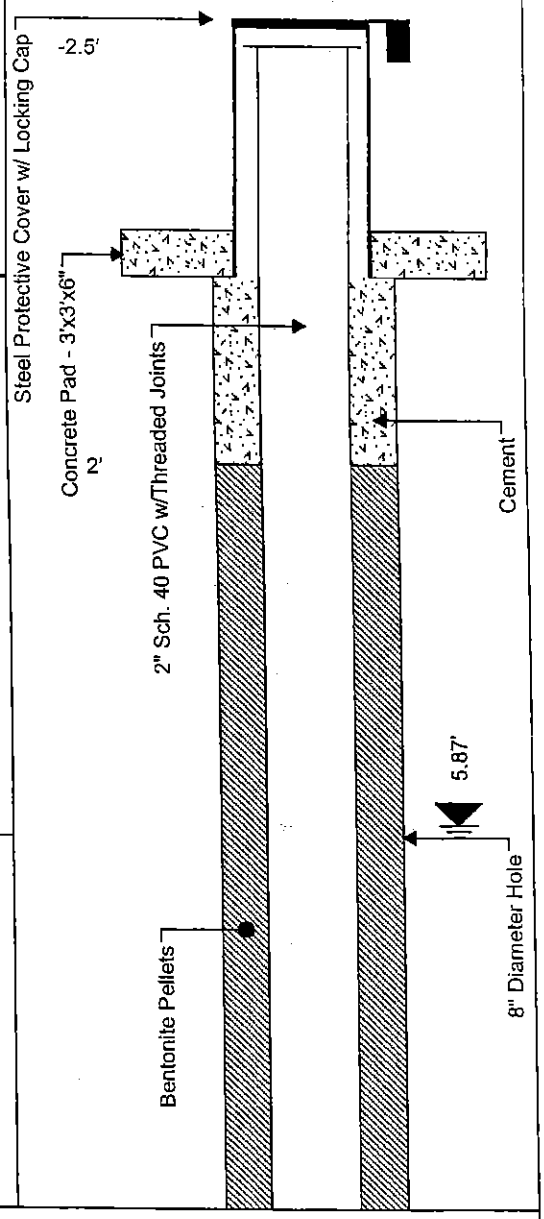
WELL INSTALLATION

Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Hollow-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 25' BGL
Ground Water: 8.37' BTOC
Site Coordinates:
N 79668.54 **E** 48586.46

Well No.: MW-36
Sheet: 1 of 3
Start Date: 4/8/2003 11:00
Finish Date: 4/10/2003 11:30
Elev., TOC (ft. msl): 333.77
Elev., PAD (ft. msl): 331.33
Elev., GL (ft. msl): 331.1

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3					
-1					Ground Surface
1	PS			70	**Clayey Sand (SC)** Fine to medium grained, loose, poorly sorted, reddish brown, damp to 3.5', superficial saturation at 3.5'
3		5.87'			
5					**Clay (CH)** High plasticity, firm, dark brown with 5 to 10% orange sand mottles, damp
7	PS			100	
9					



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WELL INSTALLATION

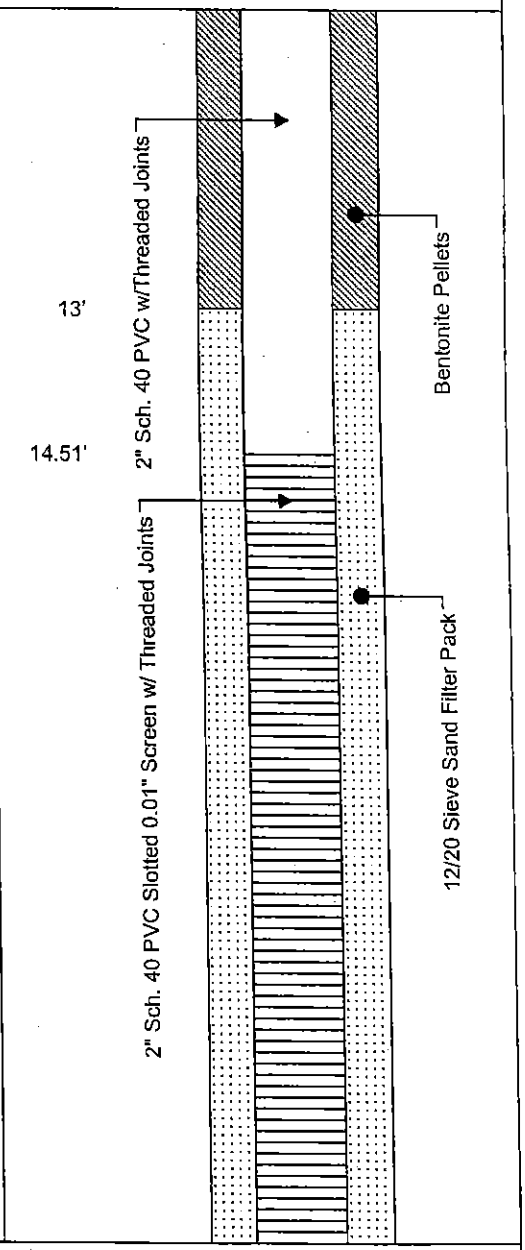
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Hollow-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 25' BGL
Ground Water: 8.37' BTOC
Site Coordinates:
N 79668.54 **E** 48586.46

Well No.: MW-36
Sheet: 2 of 3
Start Date: 4/8/2003 11:00
Finish Date: 4/10/2003 11:30
Elev., TOC (ft. msl): 333.77
Elev., PAD (ft. msl): 331.33
Elev., GL (ft. msl): 331.1

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
11					**Clay (CH)** Increasing sand and orange mottles with depth, occasional hematitic gravel
13	PS			100	
15					
17	PS			60	
19					**Sand (SP)** Fine to medium grained, loose, dark gray, saturated, 10% clay
21					**Clayey Sand (SC)** Fine to medium grained, loose, tan, saturated, 20-30% clay
	PS			20	

Completion Results



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WELL INSTALLATION

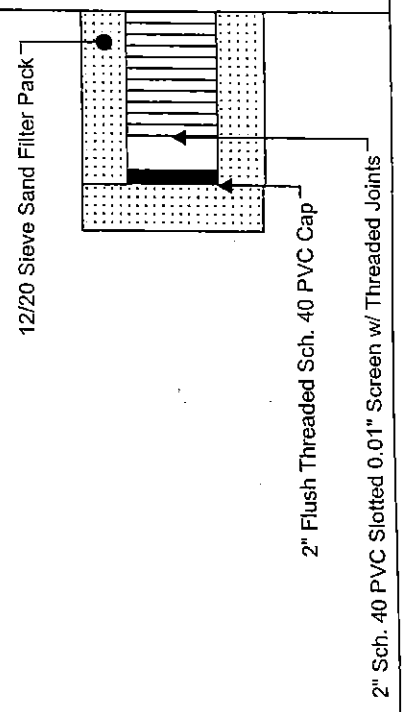
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Hollow-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 25' BGL
Ground Water: 8.37' BTOC
Site Coordinates:
N 79668.54 E 48586.46

Well No.: MW-36
Sheet: 3 of 3
Start Date: 4/8/2003 11:00
Finish Date: 4/10/2003 11:30
Elev., TOC (ft. msl): 333.77
Elev., PAD (ft. msl): 331.33
Elev., GL (ft. msl): 331.1

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
24					**Sand (SP)** Fine to medium grained, loose, dark gray, saturated, 10% clay
					Total Depth = 25' BGL
26					
28					
30					
32					
34					

Completion Results



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WELL INSTALLATION

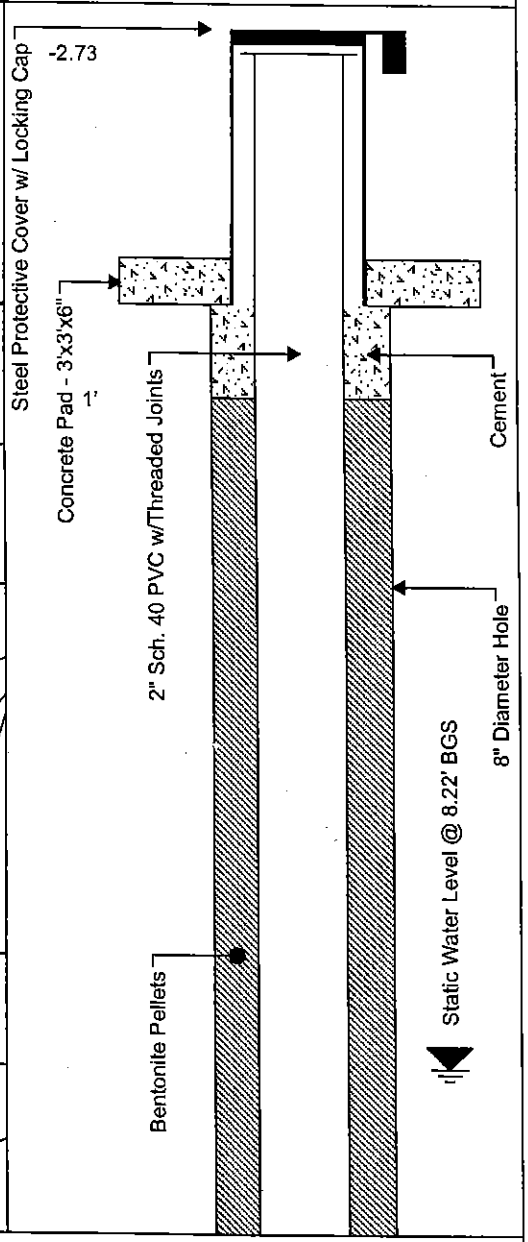
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas (TRRP Delineation)
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Percussion
Sampling Method: 5' Sample Barrel/Acetate Liner
Comments:

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 25' BGL
Ground Water: 10.95' BTOC
Site Coordinates:
N **E**

Well No.: MW-37
Sheet: 1 of 3
Start Date: 12/5/2003 11:35
Finish Date: 12/5/2003 12:15
Elev., TOC (ft. msl):
Elev., PAD (ft. msl):
Elev., GL (ft. msl):

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
0					Ground Surface
1	PS			100	**Sand (SP)** Coarse grained, poorly sorted, loose, damp, reddish-brown
2					**Sand (SP)** Fine grained, uniform, compact, damp, reddish-brown
3					**Silty Sand (SM)** Very fine grained, uniform, dense, damp, reddish-brown, 30-40% silt
4					**Sand (SP)** Fine grained, uniform, compact, damp, reddish-brown
5					**Silty Sand (SM)** Very fine grained, uniform, dense, damp, reddish-brown, 30-40% silt
6					**Sand (SP)** Fine grained, uniform, compact, damp, reddish-brown
7	PS	8.22' BGS		100	**Silty Sand/Clayey Sand (SM/SC)** Very fine grained, uniform, dense, damp, reddish-brown, 40-50% silt/clay
8					**Sandy Clay (CL)** Moderate plasticity, firm, damp, dark brown with orange sand mottles, 20-30% fine grained sand
9					

Completion Results



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

WELL INSTALLATION

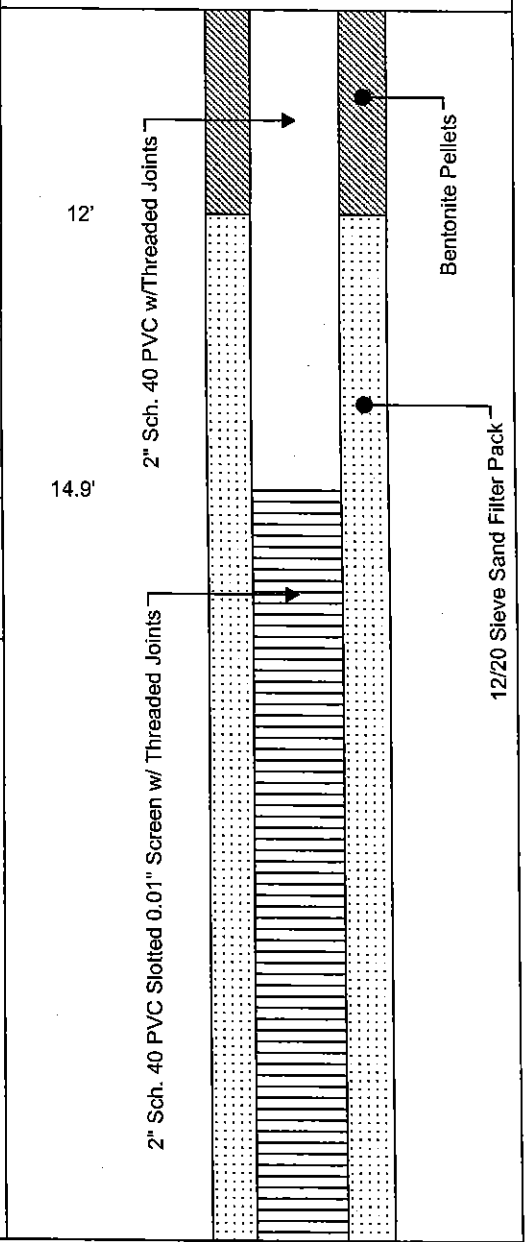
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas (TRRP Delineation)
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Percussion
Sampling Method: 5' Sample Barrel/Acetate Liner
Comments:

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 25' BGL
Ground Water: 10.95' BTOC
Site Coordinates:
N **E**

Well No.: MW-37
Sheet: 2 of 3
Start Date: 12/5/2003 11:35
Finish Date: 12/5/2003 12:15
Elev., TOC (ft. msl):
Elev., PAD (ft. msl):
Elev., GL (ft. msl):

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
11					**Clay (CL)** Moderate plasticity, stiff, damp, dark brown with 5-10% sand mottles
13	PS			100	Soft at 12.5', gray with orange mottles, 15-20% sand, increasing sand with depth
15					**Sandy Clay (CL)** Moderate plasticity, soft, damp, gray, 30-40% sand
					Clayey Sand (SC) Very fine to fine grained, poorly sorted, compact, damp, gray, 40-50% clay
17	PS			100	**Sand (SP)** Fine grained, uniform, dense, moist to saturated at 17.5', gray with orange and brown mottles
19					Loose to 20', saturated, gray with orange mottles
21	PS			100	Compact at 22.5', saturated, gray

Completion Results



Attachment XI.D.3.a

Groundwater Corrective Action Monitoring Program and System Plan

JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

WELL INSTALLATION

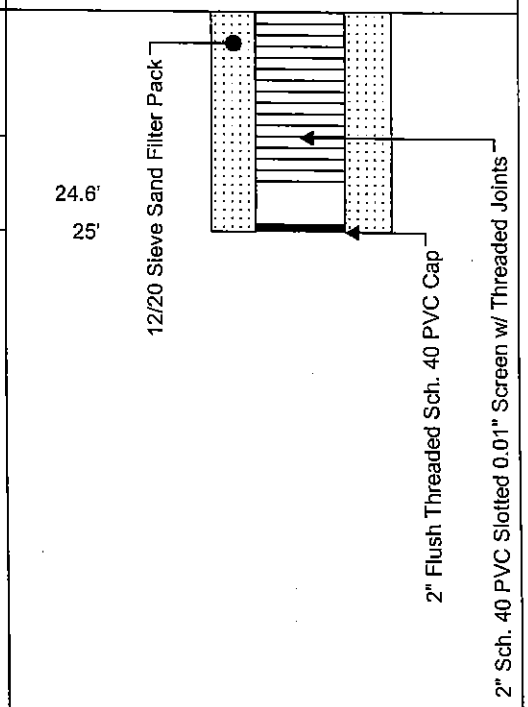
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas (TRRP Delineation)
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Percussion
Sampling Method: 5' Sample Barrel/Acetate Liner
Comments:

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 25' BGL
Ground Water: 10.95' BTOC
Site Coordinates:
N **E**

Well No.: MW-37
Sheet: 3 of 3
Start Date: 12/5/2003 11:35
Finish Date: 12/5/2003 12:15
Elev., TOC (ft. msl):
Elev., PAD (ft. msl):
Elev., GL (ft. msl):

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
24					**Sand (SP)** Fine to medium grained, poorly sorted, dense, saturated, brown with 5% gravels, 5-10% clay
					Total Depth = 25' BGL
26					
28					
30					
32					
34					

Completion Results



Attachment XI.D.3.c

Revised Sampling and Analysis Plan

RPS

Cielo Center, 1250 South Capital of Texas Highway, Building Three, Suite 200, Austin, Texas 78746, USA
T +1 512 347 7588 F +1 512 347 8243 W www.rpsgroup.com

Sampling and Analysis Plan
Corrective Action Groundwater Monitoring Programs

Murray Corporation
Palestine, Texas

June 2013

Prepared by:

Mark S. Katterjohn, P.G. #2801
Hydrogeologist

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Appendix A Groundwater Monitoring Information and Field Forms

Section 1
Introduction

This sampling and analysis plan (SAP) addresses groundwater sampling activities at the Murray Corporation (Murray) facility in Palestine, Texas. The groundwater monitoring system is designed to monitor the effectiveness of the groundwater Corrective Action Program for the uppermost (shallow) aquifer, to monitor the quality and extent of the groundwater plume in the uppermost aquifer, and to monitor groundwater quality of the lower aquifer. The Corrective Action Program has been developed under Murray's Compliance Plan (CP-50328) and incorporates a Plume Management Zone (PMZ) as presented within the Response Action Plan.

The groundwater monitoring system provides groundwater data at upgradient and downgradient monitoring locations within the two water-bearing zones beneath the Murray site. This SAP reflects the groundwater monitoring program specified in Murray's Compliance Plan. Tables and documents in Appendix A are not considered part of the SAP but are considered supplemental information. Therefore, the attachments may be changed or updated as necessary without approval from the Texas Commission on Environmental Quality (TCEQ).

Section 2
Monitoring Programs

The groundwater monitoring system at the Murray facility is defined within CP Table V of the Compliance Plan and in Appendix A of this SAP. The locations of the wells are shown on the well location map provided in Appendix A. In addition, potentiometric surface observation wells (which are also listed in Appendix A) are monitored by Murray to supplement the potentiometric data obtained from the other wells. A summary of completion data for the monitoring wells and piezometers is provided in Table A-1 (Appendix A).

Well designations are provided in Table A-2 (Appendix A). Only the background, Point of Compliance (POC) and Point of Exposure (POE) wells are specifically identified within the Compliance Plan. Wells designated as corrective action observation (CAO), supplemental, recovery, attenuation monitoring point (AMP) or potentiometric surface wells are subject to change, upon approval by the Executive Director, without modification to the Compliance Plan.

Section 3
Monitoring Schedule

Groundwater sampling will be conducted under the Compliance Plan. Monitoring wells will be sampled semiannually in accordance with the schedule specified within the Compliance Plan. Static water level measurements will be measured in all wells to the nearest 0.01 foot on a semiannual basis.

Section 4
Sampling Procedures

The following procedures will be followed when collecting groundwater samples from the Murray facility monitoring wells. Samples should be collected and analyzed in accordance with the *RCRA Groundwater Monitoring: Draft Technical Guidance*, dated November 1992 (U.S. EPA/530-R-93-001), unless specifically stated otherwise in this SAP.

4.1 Sampling Order – Shallow Aquifer

The uppermost aquifer monitoring wells have been divided into three groups to assist in maintaining sample integrity during sample collection, handling, and shipping. The three groups of wells were identified based upon the observed ranges of contaminant concentrations in each well and their locations with respect to the groundwater flow direction. The three well groups (in order of increasing contaminant concentrations) are (1) uncontaminated and relatively clean wells, (2) slightly contaminated wells, and (3) contaminated wells. The monitoring wells that are currently included under each of these categories are identified in Table A-3 (Appendix A).

The monitoring wells in Group 1 will be sampled first, followed by the wells in Groups 2 and 3. This order will provide for sampling from the least contaminated to the most contaminated category of wells. In conjunction with the utilization of disposable sampling equipment, this procedure will minimize the potential for cross-contamination during sampling.

Although samples will not be routinely collected from the potentiometric surface wells, water level measurements will be taken from these wells during each sampling event. If samples are collected from the potentiometric surface wells, the wells will be sampled with the group of wells identified in Table A-3 (Appendix A).

4.2 Sampling Order – Lower Aquifer

The lower aquifer monitoring wells are identified in Table A-3 (Appendix A). No organic constituents have been detected within the lower aquifer monitoring wells. Therefore, all lower aquifer monitoring wells are grouped together with no specific sampling order. Although samples will not be routinely collected from the potentiometric surface wells, water level measurements will be taken from these wells during each sampling event.

4.3 Sampling Preparation

In preparation for each sampling event, the contract laboratory will be instructed to provide the proper bottle sets and sample blanks. The sample bottles for each group of analytical parameters will be consistent with those recommended in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (EPA SW-846).

All equipment required for the sampling event (e.g., electric-line probe, pH, conductivity, and turbidity meters, pumps, etc.) will be assembled and inspected to ensure proper operation prior to mobilization to the Murray facility. Personnel will wear disposable gloves during the handling of the electric line (E-line) during the collection of fluid level readings. In addition, the personnel will wear disposable gloves while collecting and handling samples. The personnel will change and dispose of gloves between wells.

Forms within Appendix A will be used during the sampling event to document and collect the following information:

- The name(s) of those individual(s) conducting the sampling event;
- The purpose or provision requiring the sampling event;
- The weather conditions (temperature, wind speed, current precipitation or rainfall within previous 24 hours) at the time of sampling;
- The date and time of collection;
- Well identification;
- Integrity of well;
- Monitoring well measurements:
    a) Total well depth;
    b) Static water level depth;
    c) Measurement techniques;
    d) Height of water column;
    e) Well volume; and
    f) Notation of the presence or absence of non-aqueous phase liquids (NAPLs) and accumulated silt (including thickness and detection method).
- Well purging procedures, including equipment, purge volume, pumping rate, and well purge time;
- Sampling methods, including sampling equipment and withdrawal procedures;
- Visual and measured water quality parameters required for analysis, such as appearance, pH, conductivity, temperature and turbidity; and

- Sample preservation and handling procedures, including types of sample bottles, sample identification numbers and preservatives used.

4.4 Pre-Purge Well Activities

The following activities will be conducted before purging any of the monitoring wells prior to sampling.

4.4.1 Monitoring Well Integrity

Each monitoring well will be inspected and the condition will be recorded on an appropriate form included in Appendix A prior to sampling. The following items will be evaluated during the well inspection:

- Inspect the casing and cap for cracks, signs of deterioration or tampering;
- Determine if the cap and monitoring well are secure;
- Inspect the well pad for cracks, deterioration, erosion, settling, and/or animal and insect burrowing; and
- Inspect any dedicated equipment for cleanliness, structural integrity, and deterioration.

4.4.2 Water Level and Well Depth Measurements

Static water levels will be measured in all wells utilizing an E-line. During the sampling events, the water levels will be measured prior to purging and sampling. The static water levels will be used to determine the volume of purge water for each well and the groundwater elevations that will be used to determine the direction of groundwater flow and hydraulic gradient.

The E-line will be lowered to the static water level and the depth to the groundwater will be measured to the nearest 0.01 foot from a marked location at the top of the well casing (TOC). The depth to water measurement will be recorded on an appropriate form in Appendix A. If the well is being sampled, the depth to water measurements will also be recorded on the Monitor Well Sampling Worksheet (Appendix A).

The total depth of each well without a dedicated pump will be measured during each sampling event to evaluate well integrity and siltation. If low-flow sampling techniques are to be utilized, the total depth of the well will be measured after the well has been sampled so as not to mix the water column or disturb potential silt at the bottom of the well, which might require longer purging times for turbidity equilibration prior to sampling. The E-line will be lowered to the bottom of the well and the total depth of the well (from the TOC datum) will be measured to the

nearest 0.01 foot. The thickness of the accumulated silt will be recorded on the well sampling data sheet. All wells that have 20% or more of the screened interval blocked will be redeveloped or "jetted out". The water and silt removed during well redevelopment will be managed in a similar manner as the purge water (see Section 4.8).

The E-line will be decontaminated between uses in each of the wells using a non-phosphate or low-phosphate detergent/water solution followed by a distilled-water rinse to prevent cross-contamination.

4.4.3 Calibration of Equipment

Prior to obtaining the field data during the purging and sampling of the monitoring wells, each meter will be calibrated utilizing the procedures and at the frequencies recommended by the manufacturer. The calibration procedures for each meter and the type of meter used will be recorded on an appropriate form included in Appendix A. Even though the meter probes are not placed within the wells or come in contact with any portion of groundwater sample to be analyzed, each meter will be rinsed with distilled water between each use.

4.5 Well Purging

Prior to sampling, each well (with the exception of recovery wells) will be purged using a disposable PVC bailer or decontaminated submersible pump with new tubing to remove the stagnant water in the well casing or by using low-flow purging/sampling techniques. Plastic sheeting will be placed around each well to ensure that purge water and/or sample water are not spilled on the ground. Between purging and sampling each well, non-dedicated well purging equipment will be decontaminated using a non-phosphate or low-phosphate detergent/water solution followed by a distilled-water rinse to prevent cross-contamination. If dedicated purging and sampling equipment is utilized, decontamination will not be necessary. Collected purge and decontamination water will be managed as specified in Section 4.8.

4.5.1 Bailing and Submersible Pump Methods

Disposable bailers or a decontaminated submersible pump will be utilized to purge the wells. A minimum of three well volumes will be purged unless the well is evacuated to dryness (which is also considered adequate purging for sampling). Indicator parameters pH, conductivity, and temperature will be measured in the field prior to purging and after each well volume has been removed. The well will be considered stable and ready for sample collection when the

stabilization criteria presented in Section 4.5.3 are met. It is not necessary to purge active recovery wells because the groundwater water in the casing is constantly being removed by the dedicated pumps within the wells. After the stabilization criteria have been met, the non-dedicated submersible pump (if used) will be removed from the well, the pump decontaminated, and the tubing disposed of properly.

The volume of water (in gallons) contained in each well volume will be calculated for each well using the measured hard bottom depth from TOC. If silt is present within the well, the casing volume will be calculated using the reported total well depth. In addition to the well volumes, the type of equipment, purge volume, pumping rate, and well purge time will be recorded on the well sampling data sheet (Appendix A).

4.5.2 Low-Flow or Micropurging Method

The low-flow or micropurging method may be used to purge and sample the wells. Low-flow or micropurging techniques significantly reduce sampling-induced turbidity problems and the amount of purged groundwater necessary to achieve stabilization of the indicator parameters. When utilizing micropurging, groundwater is purged at a rate approximately equal to the recharge rate of the well and is typically representative of groundwater only in the area of the well screen and formation immediately adjacent to the pump or tubing intake. This is accomplished by setting the pumping rate such that the drawdown in the well is limited (to the extent possible) to 0.5 feet below the initial static water level. In all cases, the pump rate will be limited to less than 0.5 liters/min.

Either a peristaltic pump or a micropurge pump and pump controller may be used to purge and sample the wells. New or dedicated tubing will be used in each well. The tubing or micropurge pump intake will be set across from the zone with the highest hydraulic conductivity in the saturated portion of the well's screened interval or, in the absence of a specific zone within the screened interval, set at the middle or slightly above the middle of the screened interval. The pump or tubing will be carefully lowered into the well to minimize agitation of the water column. Care will be taken to prevent the tubing from coming into contact with any potentially contaminated surfaces.

Since micropurging does not induce sufficient flow to mix the water column in the entire well, the groundwater typically stabilizes after only a few volumes of a well's sample collection tubing have been purged versus several well casing volumes. A minimum of three tubing volumes will

be purged unless the well is evacuated to dryness (which is also considered adequate purging for sampling). Indicator parameters pH, conductivity, and temperature will be measured in the field prior to purging and after each tubing volume has been removed. A flow-through cell may be used to continuously monitor the field parameters. The well will be considered stable and ready for sample collection when the stabilization criteria presented in Section 4.5.3 are met. In addition to the tubing volumes, the type of equipment, purge volume, pumping rate, and well purge time will be recorded on a well sampling data sheet (Appendix A).

4.5.3 Well Stabilization

Water quality indicator parameters will be used to determine when groundwater representative of the aquifer formation is being purged from the well. Various well sampling worksheets have been designed to ensure that the required field measurements for each well during purging and stabilization are recorded. The recorded data (pumping rate and volume required for parameter stabilization) can be used as a guide for subsequent sampling events. A blank example of this form is included in Appendix A. Upon completion of the sampling event, each form should be checked for completeness; this will ensure all field measurements were recorded and each well was sampled. One form per well should be used during each sampling event.

Temperature, pH and specific conductivity are the stabilization parameters to be monitored to determine when the water quality of a well being purged is suitable for sample collection. If low-flow sampling techniques are utilized, turbidity in nephelometric turbidity units (NTUs) will also be monitored. The stabilization criteria have been met when the measurements vary by no more than +/- 5 percent of the measured turbidity and specific conductivity, +/- 0.5 ^{o}C in temperature, and +/-0.1 pH units. In the event that these criteria have not been met, purging will continue until a maximum of five casing volumes have been removed or, if the micropurging method is used, the well has been purged for 15 minutes. If such a condition is encountered, the details will be thoroughly documented in the field data logbook and the protocol for that individual well will be re-evaluated and changed as necessary.

Some monitoring wells have sufficiently slow recharge rates that they can readily be purged dry using conventional purging techniques (bailing). In the event that a well's yield is too low to maintain minimal drawdown in the well at even a very low flow rate (<0.1 Liters/min) when using the micropurging method, the well will be sampled after only purging for five minutes.

4.6 Sample Collection

Groundwater samples will be collected after the stabilization criteria within Section 4.5.3 have been met. In the event the monitoring well is purged to dryness, a sample will be collected as soon as a sufficient volume of groundwater has entered the well.

Samples obtained for chemical analysis will be collected with either dedicated PVC or disposable bailers or low-flow sampling pumps with new or dedicated tubing. Bailers will be slowly lowered into the well until it is filled and then be slowly raised to the surface. The groundwater sample will then be slowly transferred into sample containers from the bailer. When using a low-flow pump, the groundwater sample will be collected from the discharge tubing. Sampling procedures will be conducted in a manner that precludes contact of bailer ropes or tubing with the ground and/or the introduction of foreign substances into the wells.

Samples from active recovery wells will be collected using disposable bailers. The recovery pump and associated tubing will be removed from the well and placed on plastic. Care will be taken to preclude contact of the pump and tubing with the ground and to contain any groundwater coming from the pump.

Volatile organic analysis (VOA) sample containers will be filled first followed by sample containers for semivolatile analysis. Sample bottles will be filled at a rate that will minimize sample agitation. Following the collection of the laboratory samples, the temperature, conductivity, turbidity and pH will be measured from an additional sample collected from the well. The temperature, conductivity, turbidity and pH values will be recorded on the well sampling data sheet.

Sample container labels will be completed at the time of sample collection and will include, at a minimum, the following information:

- Date and time of collection;
- Company name; and
- Sample identification number.

All label entries will be made in waterproof ink to prevent disruption of sample identity. The samples will then be placed in bubble wrap or ziplock bags, sealed, and placed into a cooler filled with ice packed in ziplock bags. Samples will be placed into the cooler immediately after being collected, labeled and sealed and will be kept on ice until they are received at the laboratory. Chain of custody forms will also be filled out at this time.

4.7 Sample Shipping and Chain of Custody

Prior to shipping the samples, excess water will be drained from the cooler and the samples repacked with additional ice in ziplock bags, if necessary. If samples are shipped by commercial carrier, the completed chain of custody form (minus the sampler's copy) for the samples contained in each cooler will be placed in a ziplock bag and taped to the inside of the top of the cooler. The ice chest will then be taped shut with either packing tape or strapping tape.

The following information will be completed on the chain of custody forms:

- Facility name and location;
- Sampler's signature;
- Observations or remarks, as appropriate;
- Analyses required (a table of analytical parameters may be attached);
- Sample identification and/or monitoring well numbers;
- Date and time of sample collection;
- Preservation; and
- Chain of possession signatures, dates, and times.

An example chain of custody form is presented in Appendix A.

4.8 Management of Purge/Decontamination Water

Upon completion of the well purging and sampling, any plastic sheeting that was utilized around the wells will be rinsed (with potable water) into the purge water barrel or 5-gallon bucket prior to proper disposal. The purged liquids and decontamination water will be disposed of in the City of Palestine publicly-owned treatment works (POTW).

Section 5
Analytical Parameters and Procedures

The analytical parameters and procedures associated with each monitoring well category established in the Compliance Plan for the closure area are identified herein. All analytical methods identified may be subject to change, substitutions, or replacement if the current edition of the U.S. EPA Publication SW-846, *Test Methods for Evaluating Solid Waste*, is updated and a more appropriate analytical method becomes available for use.

5.1 Uppermost Aquifer Monitoring Program

The uppermost aquifer monitoring program consists of groundwater sample collection from designated monitoring wells. Under the Corrective Action Program, groundwater samples from the uppermost aquifer will be collected from all background, POC and POE wells identified in the Compliance Plan and in Table A-2 (Appendix A). Groundwater samples will also be collected from AMP, COA and recovery wells (indentified in Table A-2 of Appendix A) in accordance with the Response Action Plan. Potentiometric surface wells will be used for monitoring water levels and will not be routinely sampled. Groundwater monitoring and water level measurements will be conducted on a semiannually in accordance with the schedule specified within the Compliance Plan.

Groundwater samples collected from the uppermost aquifer will be analyzed for the constituents listed in either Table A-4 or Table A-5 (Appendix A) in accordance with the Compliance Plan and the Response Action Plan. The current monitoring requirements are identified in Table A-2 of Appendix A. The analytical methods for each constituent that can achieve the GWPS are identified in Tables A-4 and A-5. In addition, the holding time for each analytical method is provided in the tables.

5.2 Lower Aquifer Monitoring Program

Groundwater samples will be collected from wells designated as lower aquifer supplemental wells in Table A-2 (Appendix A). Each lower aquifer supplemental well will be analyzed for the constituents listed in either Table A-4 or Table A-5 (Appendix A) in accordance with the Compliance Plan. The current monitoring requirements are identified in Table A-2 of Appendix A. Wells within the lower aquifer will be subject to change, upon approval by the Executive Director, without modification to the Compliance Plan.

Section 6
Quality Assurance/Quality Control Procedures

The following indicates the quality assurance/quality control (QA/QC) procedures for collection and laboratory analysis of the groundwater samples.

6.1 Field Quality Assurance/Quality Control

The monitoring wells have also been grouped together based upon relative historical contaminant concentrations (see Sections 4.1 and 4.2). The monitoring well groups are identified in Table A-3 of Appendix A. Monitoring well groups will be sampled in order of increasing contaminant concentrations (i.e., Group 1 will be sampled first, followed by Group 2 and then Group 3).

Each field meter will be calibrated utilizing the procedures and at the frequencies recommended by the manufacturer. The calibration procedures for each meter and the type of meter used will be recorded on an equipment calibration sheet (Appendix A). Meter probes are not placed within the wells and do not come in contact with any portion of a groundwater sample to be analyzed, so decontamination of the probes between each use in not necessary.

Sampling personnel will wear disposable gloves during the handling of the E-Line during the collection of fluid level readings. In addition, sampling personnel will wear disposable gloves while collecting and handling samples. Sampling personnel will change and dispose of gloves between wells or if they become torn.

Each sample collected during the groundwater sampling events will be labeled in the field to prevent sample misidentification. The label will be filled out legibly with waterproof ink. The information on the label will be recorded on the chain of custody form that will accompany the samples to the laboratory. Chain of custody procedures will be followed to document how and under what circumstances a sample was collected. The chain of custody procedures will prevent misidentification of the samples and allow for easy tracking of possession. The chain of custody procedures will also prevent tampering with the samples during shipping and storage as well as easy identification of tampering.

One VOA trip blank will be included within each cooler containing samples for volatile organic analysis as part of the QA/QC procedures for each sampling event. Each VOA trip blank (one

per cooler) will be prepared by the contract laboratory and will be included with the bottle set for analysis of volatile organic constituents. The VOA trip blanks will be handled and transported along with the samples (i.e., transported to/from the laboratory in the appropriate well sample cooler).

One duplicate groundwater sample will be collected for each twenty groundwater samples obtained. The duplicate groundwater sample will be collected in the manner described in Section 4.6 (Sample Collection). When non-dedicated or new sampling equipment is used, an equipment blank will be collected by pouring distilled water or deionized water over the decontaminated equipment.

6.2 Laboratory Quality Assurance/Quality Control

A qualified environmental laboratory has been selected to provide the analytical services for Murray's groundwater sampling program. This laboratory has a documented corporate QA/QC program that meets the requirements of EPA SW-846 and the groundwater monitoring program described in the Compliance Plan. The laboratory also has a published QA/QC manual that includes discussions of the laboratory equipment and analytical procedures, detection limits, standards, blanks, and methodologies. Furthermore, the selected laboratory's QA/QC procedures include the routine analysis of duplicate samples, spiked samples, and standards. A copy of the laboratory QA/QC manual will be furnished to the TCEQ upon request.

Section 7
Monitoring Records

Copies of all records of analyses and evaluations relating to groundwater monitoring will remain as part of the facility records throughout the corrective action monitoring/post-closure care period. These monitoring records will include (when applicable):

- Well identification data;
- Sampling and analytical methods;
- Chain of custody records;
- Analytical data identifying the concentrations of hazardous constituents in the groundwater;
- Laboratory quality assurance/quality control data; and
- Statistical evaluations, where applicable.

Section 8
Reporting

The Compliance Plan requires the submittal of semiannual reports for groundwater monitoring with supporting maps and tables will be submitted to the TCEQ by January 21 and July 21 of each year. The reporting covered by the semiannual reports are January 1 through June 30 and July 1 through December 31, respectively. Each semiannual report will include information determined or collected since the previously submitted report. Reporting requirements are specified within CP Table VII of Murray's Compliance Plan.

Appendix A

Groundwater Monitoring Information and Field Forms

Table A-1
Summary of Monitoring Well Completion Data

Monitor Well Number	Elevations (feet above mean sea level)				Depths (feet)		
	Top of Casing	Top of Pad	Ground Level	Bottom of Well[1]	Screened Interval[2]	Filter Sand Interval[2]	Bottom of Well[3]
MW-1	374.08	371.58	371.13	333.87	21.0 - 41.0	19.0 - 42.0	40.21
MW-2	374.36	371.74	371.33	331.43	21.0 - 41.0	19.5 - 41.0	42.93
MW-3	371.23	368.63	368.43	338.93	11.5 - 31.5	9.0 - 31.5	32.30
MW-4	373.46	371.21	371.00	345.32	12.0 - 32.0	9.0 - 32.0	28.14
MW-5	373.02	370.78	370.63	347.36	15.0 - 25.0	13.0 - 25.0	25.66
MW-6	371.07	368.47	368.25	346.94	11.0 - 22.0	9.0 - 22.0	24.13
MW-7	368.33	365.42	364.93	344.21	9.0 - 21.0	8.0 - 21.0	24.12
MW-8	368.72	366.03	365.80	347.59	9.0 - 18.0	8.0 - 18.0	21.13
MW-9	366.96	363.98	363.53	340.74	12.0 - 24.0	10.0 - 24.0	26.22
MW-10	340.16	337.89	337.17	315.60	9.0 - 23.0	7.0 - 23.0	24.56
MW-11	342.91	340.95	339.96	320.71	10.0 - 20.0	8.0 - 20.0	22.20
MW-12	348.14	346.16	345.41	330.52	5.0 - 15.0	4.0 - 15.0	17.62
MW-13	367.03	364.58	363.73	333.96	13.0 - 30.0	11.0 - 30.0	33.07
DMW-14	374.35	371.97	371.53	296.81	59.0 - 74.0	56.0 - 74.0	77.54
DMW-15	368.25	366.23	365.41	321.02	35.0 - 45.0	32.0 - 45.0	47.23
DMW-16	371.31	368.74	368.13	322.13	35.0 - 45.0	33.0 - 45.0	49.18
P-17	345.63	343.15	342.20	322.70	10.0 - 20.0	8.0 - 20.0	22.93
MW-18	346.85	344.90	343.97	319.25	5.0 - 25.0	3.0 - 25.0	27.60
P-19	355.28	352.75	353.11	332.11	5.0 - 25.0	3.5 - 25.0	23.17 [4]
MW-20	354.79	352.63	352.01	327.36	5.0 - 25.0	3.0 - 25.0	27.43
DMW-21	365.40	363.02	362.53	302.53	50.0 - 59.0	9.0 - 61.0	62.87 [4]
DMW-22	372.69	370.56	370.03	307.39	54.0 - 63.0	3.0 - 70.0	65.30
MW-23	371.96	369.75	369.20	344.64	8.5 - 23.5	6.5 - 24.0	27.32
DMW-24	366.38	364.52	363.30	308.93	41.0 - 55.0	40.0 - 55.7	57.45
MW-25	334.89	332.67	332.10	308.53	13.5 - 22.5	12.5 - 23.0	26.36
MW-26	337.11	334.83	334.20	300.73	14.5 - 33.5	13.5 - 34.0	36.38
MW-27	337.67	334.89	334.50	313.43	13.5 - 20.5	12.5 - 22.0	24.24
MW-28	363.11	-	363.10	343.09	15.2 - 19.7	6.0 - 20.0	20.02
MW-29R	355.83	353.83	353.70	337.50	6.0 - 15.4	3.0 - 16.0	18.33
MW-30R	351.69	349.38	349.00	339.17	4.82 - 9.82	3.0 - 12.5	12.52
MW-31	335.32	332.68	332.40	311.17	11.5 - 21.0	9.0 - 21.0	24.15
MW-32	336.62	333.94	333.60	311.79	12.0 - 21.0	9.0 - 21.0	24.83
RW-33	368.49	366.27	366.00	340.24	13.25 - 23.25	10 - 26.25	28.25
RW-34	356.76	354.47	354.30	336.76	5.15 - 15.15	3.0 - 19.0	20.00
MW-35	337.45	334.70	334.60	315.24	9.89 - 19.89	8.0 - 20.0	22.21
MW-36	333.77	331.33	331.10	307.09	14.51 - 24.51	13.0 - 25.0	26.68
MW-37	336.90	334.21	334.00	309.97	14.9 - 24.6	12.0 - 25.0	26.93

1) Bottom of well elevations are based on total depths established from historical hard bottom measurements and may vary from the elevation calculated using the information provided on the well construction/installation logs.

2) Depth from the ground surface measured in feet (from well log).

3) Depth from the top of casing measured in feet. Total depths established from historical hard bottom measurements except as indicated.

4) Reported total depth - Insufficient hard bottom measurements.

MW-27 replaced on 7/14/08.

Table A-2
Current Well Classification and Monitoring Requirements

Monitor Well Classification	Well Number	Sampling Frequency	Analytical Constituents
Uppermost (Shallow) Aquifer			
Background	MW-1	Semiannual groundwater samples Semiannual water-level measurements	Table A-4
Point of Compliance	MW-5 MW-6* MW-23	Semiannual groundwater samples Semiannual water-level measurements	Table A-5
Recovery	(MW-6*) RW-33 MW-9 RW-34	Semiannual water-level measurements	None
Corrective Action Observation	MW-29R	Semiannual groundwater samples Semiannual water-level measurements	Table A-5
Point of Exposure	MW-25 MW-26 MW-27 MW-36 MW-37	Semiannual groundwater samples Semiannual water-level measurements	Table A-5
Attenuation Monitoring Point	MW-10 MW-31 MW-32 MW-35	Semiannual groundwater samples Semiannual water-level measurements	Table A-5
Potentiometric Surface	MW-2 MW-3 MW-4 MW-7 MW-8 MW-11 MW-12 MW-13 P-17 MW-18 P-19 MW-20 MW-28 MW-30R	Semiannual water-level measurements	None
Lower (Deep) Aquifer			
Deep Aquifer Supplemental	DMW-15 DMW-16 DMW-22	Semiannual groundwater samples Semiannual water-level measurements	Table A-5
Deep Aquifer Potentiometric Surface	DMW-14 DMW-21 DMW-24	Semiannual water-level measurements	None

* Monitoring well MW-6 is a Point of Compliance and recovery well.
The recovery system was shut down on April 30, 2013.

Table A-3
Well Sampling Groups

Uppermost Aquifer

Sampling Group	Well Numbers	Monitoring Well Classification
Group 1	MW-1	Background Well
	MW-2	Potentiometric Surface Well
	MW-3	Potentiometric Surface Well
	MW-7	Potentiometric Surface Well
	MW-11	Potentiometric Surface Well
	MW-12	Potentiometric Surface Well
	MW-13	Potentiometric Surface Well
	MW-27	Point of Exposure Well
	MW-28	Potentiometric Surface Well
	MW-37	Point of Exposure Well
	P-19	Potentiometric Surface Well
Group 2	MW-4	Potentiometric Surface Well
	MW-5	Point of Compliance Well
	MW-9	Inactive Recovery Well
	MW-10	Attenuation Monitoring Point Well
	MW-18	Potentiometric Surface Well
	MW-20	Potentiometric Surface Well
	MW-25	Point of Exposure Well
	MW-26	Point of Exposure Well
	MW-30R	Potentiometric Surface Well
	MW-31	Attenuation Monitoring Point Well
	MW-32	Attenuation Monitoring Point Well
	MW-35	Attenuation Monitoring Point Well
	MW-36	Point of Exposure Well
	P-17	Potentiometric Surface Well
Group 3	MW-6	Point of Compliance Well / Inactive Recovery Well
	MW-8	Potentiometric Surface Well
	MW-23	Point of Compliance Well
	MW-29R	Corrective Action Observation Well
	RW-33	Inactive Recovery Well
	RW-34	Inactive Recovery Well

Lower Aquifer

Sampling Group	Well Numbers	Monitoring Well Classification
Group 1	DMW-14	Deep Aquifer Potentiometric Surface Well
	DMW-21	Deep Aquifer Potentiometric Surface Well
	DMW-24	Deep Aquifer Potentiometric Surface Well
	DMW-15	Deep Aquifer Supplemental Well
	DMW-16	Deep Aquifer Supplemental Well
	DMW-22	Deep Aquifer Supplemental Well

Table A-4
Indicator Parameters and Concentration Limits for the Groundwater Protection Standard

Hazardous Constituent[1]	Concentration Limits (mg/L)[1]			Analytical Method EPA/SW-846	Holding Time (Days)	Container Type	Number of Containers	Container Size
	POC Wells and AMP Well MW-10	AMP Well MW-31,MW-32 and MW-35	POE Wells					
Carbon Tetrachloride	0.47	0.47	0.47	8260	14	Glass VOA vials	2	40 ml
Chlorobenzene	3.56	3.56	3.56	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethane	285	285	285	8260	14	Glass VOA vials	2	40 ml
1,2-Dichloroethane	4.11	4.11	4.11	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethene	1.76	0.52	0.32	8260	14	Glass VOA vials	2	40 ml
Methylene chloride	889	889	889	8260	14	Glass VOA vials	2	40 ml
Tetrachloroethene	17.9	17.9	17.9	8260	14	Glass VOA vials	2	40 ml
1,1,1-Trichloroethane	272	272	272	8260	14	Glass VOA vials	2	40 ml
Trichloroethene	34.0	34.0	34.0	8260	14	Glass VOA vials	2	40 ml
Vinyl chloride	23.1	23.1	23.1	8260	14	Glass VOA vials	2	40 ml

[1] Hazardous Constituents and Concentration Limits are listed in CP Table IIIA of CP-50328.

POC Point of Compliance

POE Point of Exposure

AMP Attenuation Monitoring Point

Table A-5
Hazardous and Solid Waste Constituents and
Concentration Limits for the Groundwater Protection Standard

Hazardous Constituent[1]	Concentration Limits (mg/L)[1]			Analytical Method EPA/SW-846	Holding Time (Days)	Container Type	Number of Containers	Container Size
	POC Wells and AMP Well MW-10	AMP Well MW-31,MW-32 and MW-35	POE Wells					
Volatile Organic Compounds								
Acetone	2.4	2.4	2.4	8260	14	Glass VOA vials	2	40 ml
Benzene	0.005	0.005	0.005	8260	14	Glass VOA vials	2	40 ml
2-Butanone (MEK)	15	15	15	8260	14	Glass VOA vials	2	40 ml
Carbon Tetrachloride	0.47	0.47	0.47	8260	14	Glass VOA vials	2	40 ml
Chlorobenzene	3.56	3.56	3.56	8260	14	Glass VOA vials	2	40 ml
Chloroethane	9.8	9.8	9.8	8260	14	Glass VOA vials	2	40 ml
Chloroform	0.10	0.10	0.10	8260	14	Glass VOA vials	2	40 ml
Chloromethane	0.07	0.07	0.07	8260	14	Glass VOA vials	2	40 ml
Dichlorodifluoromethane	4.9	4.9	4.9	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethane	285	285	285	8260	14	Glass VOA vials	2	40 ml
1,2-Dichloroethane	4.11	4.11	4.11	8260	14	Glass VOA vials	2	40 ml
1,1-Dichloroethene	1.76	0.52	0.32	8260	14	Glass VOA vials	2	40 ml
cis-1,2-Dichloroethene	0.07	0.07	0.07	8260	14	Glass VOA vials	2	40 ml
trans-1,2-Dichloroethene	0.1	0.1	0.1	8260	14	Glass VOA vials	2	40 ml
Ethylbenzene	0.7	0.7	0.7	8260	14	Glass VOA vials	2	40 ml
Methylene chloride	889	889	889	8260	14	Glass VOA vials	2	40 ml
4-Methyl-2-pentanone (MIBK)	2.0	2.0	2.0	8260	14	Glass VOA vials	2	40 ml
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	8260	14	Glass VOA vials	2	40 ml
Tetrachloroethene	17.9	17.9	17.9	8260	14	Glass VOA vials	2	40 ml
Toluene	1.0	1.0	1.0	8260	14	Glass VOA vials	2	40 ml
1,1,1-Trichloroethane	272	272	272	8260	14	Glass VOA vials	2	40 ml
1,1,2-Trichloroethane	0.005	0.005	0.005	8260	14	Glass VOA vials	2	40 ml
Trichloroethene	34	34	34	8260	14	Glass VOA vials	2	40 ml
Trichloro-trifluoroethane (Freon 113)	730	730	730	8260	14	Glass VOA vials	2	40 ml
Vinyl chloride	23.1	23.1	23.1	8260	14	Glass VOA vials	2	40 ml
Xylenes, total	10	10	10	8260	14	Glass VOA vials	2	40 ml

Table A-5
Existing Hazardous Constituents and Concentration Limits
Groundwater Protection Standard - Compliance Monitoring Program

Hazardous Constituent[1]	Concentration Limits (mg/L)[1]			Analytical Method EPA/SW-846	Holding Time (Days)	Container Type	Number of Containers	Container Size
	POC Wells and AMP Well MW-10	AMP Well MW-31,MW-32 and MW-35	POE Wells					
Semivolatile Organic Compounds								
Acenaphthene	1.5	1.5	1.5	8270	7/40*	Glass amber bottle	1	1 liter
bis(2-ethylhexyl)phthalate	0.39	0.39	0.39	8270	7/40*	Glass amber bottle	1	1 liter
1,2-Dichlorobenzene	6.11	6.11	6.11	8270	7/40*	Glass amber bottle	1	1 liter
1,4-Dichlorobenzene	6.11	6.11	6.11	8270	7/40*	Glass amber bottle	1	1 liter
2,4-Dichlorophenol	0.073	0.073	0.073	8270	7/40*	Glass amber bottle	1	1 liter
2,4-Dimethlyphenol	0.49	0.49	0.49	8270	7/40*	Glass amber bottle	1	1 liter
2-Methylnaphthalene	0.49	0.49	0.49	8270	7/40*	Glass amber bottle	1	1 liter
2-Methylphenol (o-cresol)	1.2	1.2	1.2	8270	7/40*	Glass amber bottle	1	1 liter
3&4-Methylphenol (m&p-cresol)	0.12	0.12	0.12	8270	7/40*	Glass amber bottle	1	1 liter
Naphthalene	0.49	0.49	0.49	8270	7/40*	Glass amber bottle	1	1 liter
Phenanthrene	0.73	0.73	0.73	8270	7/40*	Glass amber bottle	1	1 liter
Phenol	7.3	7.3	7.3	8270	7/40*	Glass amber bottle	1	1 liter
Pyrene	0.73	0.73	0.73	8270	7/40*	Glass amber bottle	1	1 liter
1,2,4-Trichlorobenzene	0.07	0.07	0.07	8270	7/40*	Glass amber bottle	1	1 liter

[1] Hazardous Constituents and Concentration Limits are listed in CP Table III of CP-50328
7/40* - 7 days holding time prior to extraction and 40 days holding time past extraction

Water Level Order
MW-1
DMW-14
MW-2
MW-13
DMW-21
MW-3
DMW-24
DMW-16
DMW-22
DMW-15
MW-7
MW-28
MW-37
MW-12
P-19
MW-11
MW-27
MW-32
MW-26
MW-25
MW-36
MW-31
MW-35
MW-10
MW-18
P-17
MW-30R
MW-20
MW-4
MW-5
MW-9
MW-23
MW-6
MW-8
RW-33
MW-29R
RW-34

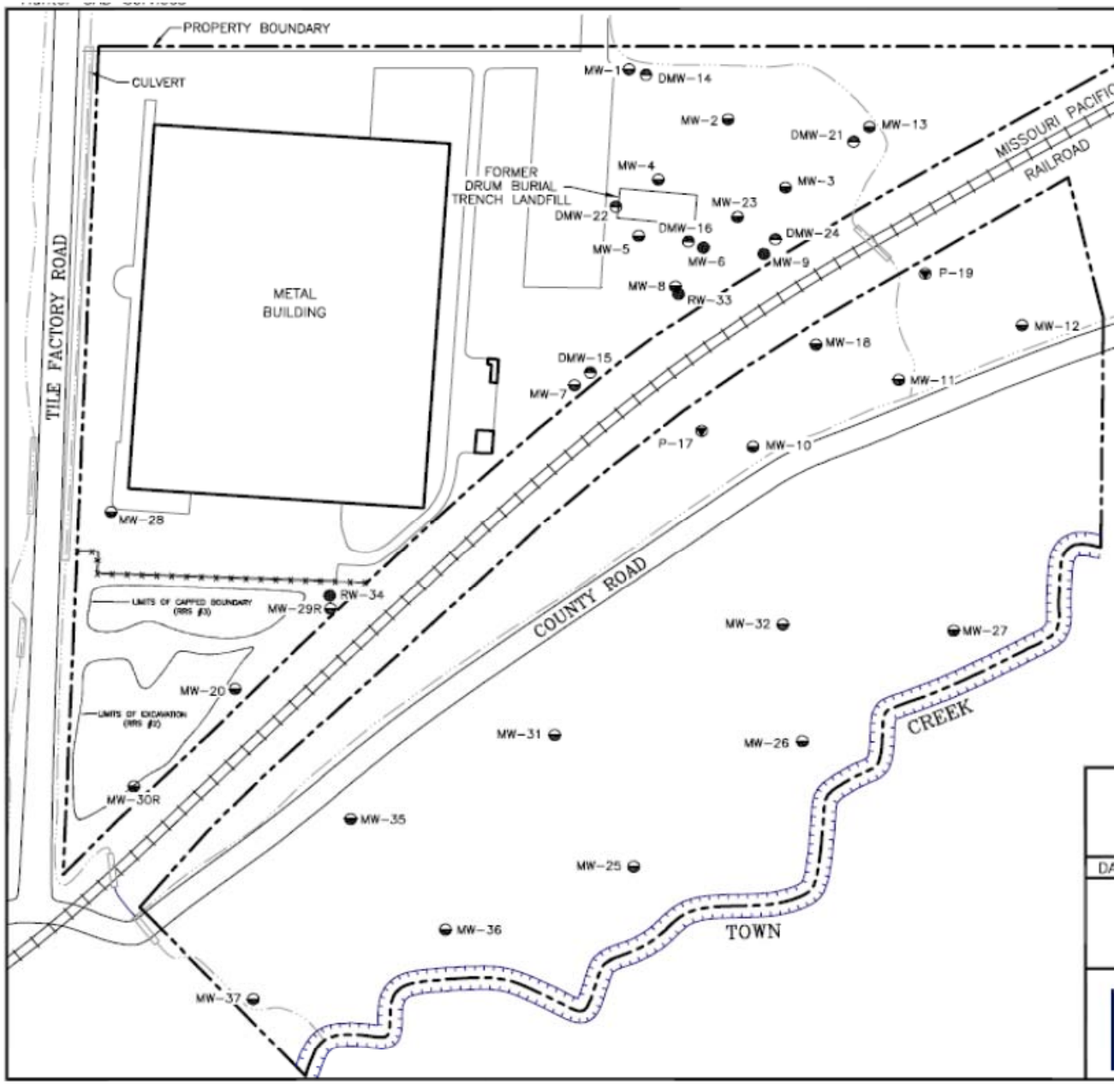
Sampling Order
MW-1
DMW-22
DMW-15
DMW-16
MW-37
MW-27
MW-32*
MW-26
MW-25
MW-36
MW-31*
MW-35
MW-10
MW-5
MW-9**
MW-23
MW-6
RW-33**
MW-29R
RW-34**

1) Measure water levels in all wells

2) * Purge wells first day, collect sample next day

3) Collect * purged wells

** Recovery wells not operated or sampled after 4/30/13.



Field Measurements and Observations
Murray Corporation, Palestine, Texas

Monitor Well Number	Type of Well	Established Total Well Depth (ft btoc)	Date	Time	Measured Depth to Groundwater (ft btoc)	Measured Total Depth (ft btoc)
MW-1	BGD	40.21				H S
DMW-14	PSW	77.54				H S
MW-2	PSW	42.93				H S
MW-13	PSW	33.07				H S
DMW-21	PSW	62.87 *				Pump
MW-3	PSW	32.30				H S
DMW-24	PSW	57.45				H S
DMW-16	SUP	49.18				H S
DMW-22	SUP	65.30				H S
DMW-15	SUP	47.23				H S
MW-7	PSW	24.12				H S
MW-28	PSW	20.02				H S
MW-37	POE	26.93				H S
MW-12	PSW	17.62				H S
P-19	PSW	23.17 *				H S
MW-11	PSW	22.20				H S
MW-27	POE	24.24				H S
MW-32	PSW	24.83				H S
MW-26	PSW	36.38				H S
MW-25	AMP	26.36				H S
MW-36	POE	26.68				H S
MW-31	AMP	24.15				H S
MW-35	POE	22.21				H S
MW-10	AMP	24.56				H S
MW-18	POE	27.60				H S
P-17	AMP	22.93				H S
MW-30R	PSW	12.52				H S
MW-20	PSW	27.43				H S
MW-4	PSW	28.14				H S
MW-5	POC	25.66				H S
MW-9	REC	26.22				Pump
MW-23	POC	27.32				H S
MW-6	POC/REC	21.13				H S
MW-8	PSW	18.33				H S
RW-33	REC	28.25				Pump
MW-29R	CAO	24.13				H S
RW-34	REC	20.00				Pump

* Reported total depth - insufficient hard bottom measurements to establish actual total depth.

Field Observations
Murray Corporation, Palestine, Texas

Monitor Well Number	Date	Integrity of Well Components					Integrity of Well Pad					Dedicated Equipment			Comments
		Protective casing okay?	Lid, hinge, and lock okay?	Cracks in cap or casing?	Cap/ Monitor well secure?	Well tag secure?	Cracks?	Signs of deterioration?	Erosion?	Settling?	Animal/ Insect burrowing?	Signs of deterioration?	Clean?	Cracks?	
MW-1		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
DMW-14		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-2		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-13		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
DMW-21		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-3		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
DMW-24		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
DMW-16		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
DMW-22		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
DMW-15		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-7		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-28		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	Flush-mount well - no tag
MW-37		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-12		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
P-19		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-11		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-27		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-32		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-26		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-25		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-36		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-31		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-35		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-10		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-18		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
P-17		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-30R		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-20		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-4		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-5		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-9		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	
MW-23		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
MW-6		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	
MW-8		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
RW-33		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	
MW-29R		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	--	--	--	
RW-34		Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	Y N	

Monitor Well Sampling Worksheet

Project Location: MURRAY CORPORATION – PALESTINE, TEXAS
Well Identification: _____
Date Sampled: _____
Time Sampled: _____
Purpose of Sampling: _____

Monitor Well Measurements

(A) Depth to Top of Groundwater: _____ (ft)
(B) Depth to Top of Silt or Well Bottom: _____ (ft) H or S
(C) Reported Total Depth of Well: _____ (ft)
(D) Silt Thickness (C-B or 0 if hard bottom): _____ (ft)
(E) Height of Fluid Column (B-A or C-A if silt) _____ (ft)
(F) Volume Multiplier: _____ *(for one casing volume)*
(G) One Static Well Volumes (E*F): _____ (gal)

Well Purging

Volume to be Purged (G*3): _____ (gal) Equipment: Pump Bailer
Volume Purged: _____ (gal) $V = 3.1416 * 7.48 * h * r^2$
Estimated Pumping Rate: _____ (gpm) Well Purge Time: _____

Water Quality (Initial)	0 Volume	1 Volume	2 Volumes	3 Volumes	4 Volumes	Post Sampling
Temperature (°C):						
pH (standard units):						
Conductivity (μmhos/cm^3):						
Turbidity:						
Appearance:						

Sampling Methods

Sampling Equipment: Disposable Polyethylene Bailer and Rope
Withdrawal Procedures: Remove bailer from well, fill sample bottles from bailer

Sample Preservation and Handling

Sample ID No.:	Container Type:	No. of Containers:	Preservatives:
	40 ml glass VOA	2	HCl
	1000 ml amber glass	2	

Sampling completed by: _____
(print name)
Signature: _____

Equipment Calibration Sheet

Project Location: MURRAY CORPORATION – PALESTINE, TEXAS

Date: _____

Time: _____

Purpose of Sampling: Semiannual Corrective Action Monitoring - CP-50328

pH/Conductivity/Temperature Meter Calibration

Model: _____

Serial #: _____

Buffer Temp: _____

Approx. GW Temp: _____

Calibration Time: _____

pH Meter Inspection/Calibration

Meter/probe calibrated at shop. Measured pH of Standards

pH Standard 4.0 reads	at	º C
pH Standard 7.0 reads	at	º C

Conductivity/Temperature Meter Inspection/Calibration

Meter/probe calibrated at shop. Measured conductivity of Standards.

Conductivity Standard 1413 µS/cm reads	µS/cm at	º C

Inspection/Calibration completed by (Print name): _____

Signature: _____

RPS
3833 S. Staples Street, Suite N229
Corpus Christi, Texas 78411
(361)-855-7335 (361) 855-7410 fax

CHAIN OF CUSTODY RECORD

Client							Requested Analysis													
Project Name:	Project Location:																			
Project Manager:	Phone/Fax Number:																			
Sampler(s) Signatures																				
Sample Identification Number	Date	Time	Type	Matrix	No. of Containers	Preservative														
Special Instructions (QC requirements, lists, methods, routing of results, etc.)																			Rush TAT ☐ Standard TAT ☐	
Relinquished By:	Date	Time	Relinquished By:		Date		Time		Relinquished By:				Date		Time					
Received By:	Date	Time	Received By:		Date		Time		Received For Lab By:				Date		Time					

Attachment XI.D.6

Response Action Plan

RPS

Cielo Center, 1250 South Capital of Texas Highway, Building Three, Suite 200, Austin, Texas 78746, USA
T +1 512 347 7588 F +1 512 347 8243 W www.rpsgroup.com

Revised Response Action Plan

Murray Corporation
Palestine, Texas

HW/CP-50328
SWR 33063

September 2004
Revision 1 - June 2013

Prepared by:

Mark S. Katterjohn, P.G.
Senior Consultant / Hydrogeologist

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
Response Action Plan

Cover Page

Regulatory ID number (Solid waste registration number, VCP ID number, etc) **ISWR No. 33063**
check one: ___ Initial submittal for this on-site property **X** Subsequent submittal for this on-site property
Report date: **September 2004** TNRCC Region No.: **5**
Revised June 2013

TNRCC Program (check one)

X	Corrective Action (Mail Code 127)		Superfund PRP Lead (Mail Code 143)
	Voluntary Cleanup Program (Mail Code 221)		Municipal Solid Waste Permits (Mail Code 124)
	RPR Section (Mail Code 137)		

On-Site Property Information

On-Site Property Name: **Murray Corporation**

Physical Address:

Street no. **2002** Pre dir: ____ Street name: **Tile Factory** Street type: **Road** Post dir: ____

City: **Palestine** County: **Anderson** County Code: **1** Zip: **75802**

Nearest street intersection or location description: **Intersection of U.S. Highway 79 and Tile Factory Road.**

Latitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) North **31º 43' 45"**
Longitude: Degrees, Minutes, Seconds OR Decimal Degrees (circle one) West **95º 40' 30"**

Off-Site Affected Property Information

Off-Site Affected Property Name: **NA**

Physical Address:

Street no. ____ Pre dir: ____ Street name: ____ Street type: ____ Post dir: ____

City: ____ County: ____ County Code: ____ Zip: ____

X Check if no off-site properties affected

Contact Person Information and Acknowledgement

Person (or company) Name: **Murray Corporation**

Contact Person: **Thorne Gould** Title: **President**

Mailing Address: **260 Schilling Circle, Greater Baltimore Industrial Park**

City: **Hunt Valley** State: **Maryland** Zip: **21031** E-mail address [redacted]

Phone: **410 771-0380** Fax: **410 771-5576**

By my signature below, I acknowledge the requirement of §350.2(a) that no person shall submit information to the executive director or to parties who are required to be provided information under this chapter which they know or reasonably should have known to be false or intentionally misleading, or fail to submit available information which is critical to the understanding of the matter at hand or to the basis of critical decisions which reasonably would have been influenced by that information. Violation of this rule may subject a person to the imposition of civil, criminal, or administrative penalties.

Signature of Person ____ Name, print: **Thorne Gould** Date: ____

RAP Executive Summary	ID No.: ISWR No. 33063
	Report Date: Revised June 2013

Use this worksheet to summarize the report. Be sure to complete and submit the Checklist for Report Completeness. **Attach a chronology of activities associated with the affected property.**

Briefly describe the affected property and PCLE zones, the conclusions from the assessment activities, identify any affected or threatened receptors, and describe any other major considerations taken into account when developing this response action plan. If any portion of the response action is necessitated due to an aesthetic or nuisance condition, identify the nature of that condition and identify that portion of the response action proposed to address it. If any media that contains a PCLE zone is not addressed in this RAP, provide justification.

An *Affected Property Assessment Report (APAR)* was submitted to the TCEQ in February 2004. The APAR provided a summary of the soil, groundwater, surface water and sediment investigations at the facility. As described in the APAR, a groundwater plume management zone (PMZ) under Remedy Standard B was proposed and subsequently approved for the site. A chronology of activities associated with the affected property is provided as Attachment E-1 to this Executive Summary. The APAR was approved by TCEQ in correspondence dated June 9, 2004.

Description of Affected Property. The affected property is confined to shallow (uppermost aquifer) groundwater (Class 2) that discharges from the affected property into surface water (Town Creek). Constituents in groundwater primarily consist of dissolved-phase chlorinated volatile organic compounds (VOCs). The groundwater impacts resulted from a RCRA landfill (former drum burial area) that has been closed and is currently subject to post-closure under the facility's Permit (HW-50328). The facility is also subject to a corrective action program under the facility's Compliance Plan (CP-50328), originally issued on December 2, 1992 and renewed on November 7, 2003 with a Class 3 Modification issued on September 8, 2005. The corrective action system consists of three recovery wells (MW-6, MW-9 and RW-33) located immediately downgradient to the landfill. An additional release to groundwater, in the area of MW-29R, is attributed to a historical leak from the piping used to transfer recovered groundwater from the landfill recovery system to the City of Palestine sanitary sewer. Remediation of this area has been addressed by recovery well RW-34.

As discussed in the APAR, Murray owned the property up to the surface water body and the contaminant plume has already reached the surface water. A surface water and sediment investigation was conducted in the area of Town Creek where the groundwater plume discharges into the creek. The analytical data from the investigation were compared to conservative screening level benchmarks and were evaluated from bioaccumulation effects. The results of the evaluation did not identify impacts to the sediments or surface water at levels above the conservative benchmarks or bioaccumulation effects.

Description of PCLE Zone. The nature and extent of constituent concentrations above the Tier I residential groundwater PCLs are addressed in the APAR. As presented in Worksheet 6.2 of the APAR, groundwater PCLs were developed for the groundwater to surface water exposure pathway (^{SW}GW) along Town Creek. The critical ^{SW}GW PCLs are applicable to the point of exposure wells located immediately upgradient from Town Creek. At the time of the APAR, only two constituents (carbon tetrachloride and 1,1-dichloroethene [1,1-DCE]) were detected in monitoring wells above these critical ^{SW}GW PCLs. Groundwater areas exceeding the ^{SW}GW PCL for 1,1-DCE in 2004 are included in Attachment 1A. Tier 2 ^{SW}GW PCLs were established as the GWPS for groundwater constituents that were detected within wells immediately upgradient from Town Creek.

Since July 2009, all point of compliance (POC), point of exposure (POE), attenuation monitoring points (AMP), and corrective action observation (CAO) wells have been in compliance with the GWPS for the analyzed constituents. Only the concentration of 1,1-DCE in RW-34 has exceeded the existing GWPS established for the POC wells and AMP well MW-10 since July 2009. However, CAO well (MW-29R) located approximately 20 feet downgradient from RW-34 has been compliant with the GWPS since January 2006. Figures showing the 1,1-DCE PCLE zone since January 2011 are provided in Attachment 1A. Current analytical data (See Attachment 1B) show that even RW-34 was compliant with the established GWPS in January 2013.

Recent updates to the surface water quality standards has raised the GWPS (based on Tier 2 ^{SW}GW PCLs) for 1,1-DCE from 0.32 mg/L at the POE to 83.3 mg/L. The original GWPS for 1,1-DCE was based on a Texas

RAP Executive Summary	ID No.: ISWR No. 33063
	Report Date: Revised June 2013

Water Quality Standard (TWQS) of 0.00584 mg/L for the protection of human health. In January 2011, the TWQS for 1,1-DCE was raised to 23.9 mg/L for human health protection. The new GWPS for 1,1-DCE is based on the updated surface water RBEL of 1.5 mg/L for fresh water chronic exposure criteria as presented in the January 19, 2011 Aquatic Life Surface Water Risk-Based Exposure Limits Table. As such, all wells have met the GWPS for at least the last 3 years. Therefore, no PCLE zones currently exist at the Murray facility.

Conclusions from Assessment Activities. As documented in the APAR, the assessment activities completed the delineation of COCs in groundwater at the Murray site that are associated with the closed landfill and a historical pipeline leak. The affected property is limited to the shallow aquifer and onsite property. The impacted groundwater discharges into the surface water of Town Creek that forms the southern boundary of the Murray property. The results of an investigation of Town Creek did not identify surface water impacts or sediment impacts above ecological benchmark values.

Threatened or Endangered Receptors. Groundwater receptors are not endangered by groundwater PCLE zones since groundwater is not used on site and there is no human exposure. A Tier 2 Screening Level Ecological Risk Assessment (SLERA) has shown that ecological receptors are not endangered by the migration of COCs to surface water. The Tier 2 SLERA included in the APAR was approved by TCEQ correspondence dated June 9, 2004.

What is the selected remedy standard for this affected property? ___ A **X** B

List all media that contains a PCLE zone and specify the proposed response action for each media. Indicate the type of removal, decontamination, physical control and/or institutional control action that is proposed.

Media	COCs[1]	Removal	Decontamination	Control			
				Physical Control	Modified Groundwater Response Objective[2]		
					PMZ	WCU	TI
Groundwater	VOCs, SVOCs	Source Control Groundwater Recovery, as needed	Natural Attenuation	Source Control Groundwater Recovery	X		

Is there a media that contains a PCLE zone that is not addressed in this RAP? ____ yes **X** no
If yes, provide justification for not addressing the PCLE zone in this RAP.

N/A

On-site land use: ☐ Residential ☒ Commercial/Industrial
Off-site land use: ☐ Residential ☐ Commercial/Industrial (check all that apply)

Is this a re-submittal or revision of a previous RAP? ___ Yes **X** No
If yes, explain why the RAP is being revised or resubmitted.

This RAP is an update of the September 2004 *Response Action Plan* that was approved by TCEQ with issuance of the Class 3 Compliance Plan modification dated September 8, 2005. This updated RAP has been revised to reflect current groundwater conditions (i.e., compliance with the GWPS), and the current status of the groundwater recovery system. References to the potential use of chemical oxidation to address 1,1-DCE concentrations in POE well MW-26 that exceeded the GWPS at the time the initial RAP was

[1] Specify either a specific COC or, if the response action is the same for all COCs in one type, specify the type of COC (for example, VOCs, SVOCs, metals).
[2] If a modified groundwater response objective is proposed, check the type(s) of proposed modifications.

prepared have been removed because MW-26 has been compliant with the GWPS since January 2006.

Were all the appropriate notifications made in accordance with §350.55? **X** Yes ___ No
If no, explain why notifications were not made:

N/A

Attachment E1
Chronology of Investigation and Corrective Action Activities
Murray Corporation, Palestine, Texas

April 30, 2013 – Groundwater recovery operations ceased with TCEQ approval. Groundwater within all point of compliance, point of exposure, and attenuation monitoring points had met the GWPS for at least 3 consecutive years.

July 2008 – Point of exposure well MW-27 replaced because of vandalism.

January 2004 to present – Semiannual groundwater monitoring and reporting.

December 2003 – Groundwater sample collected from newly-installed monitor well (MW-37) for analysis of 1,1-dichloroethene. The analytical results indicate that the affected groundwater property assessment has been completed in accordance with TRRP requirements.

November 2003 – Renewed Compliance Plan issued that allows utilization of TRRP for the groundwater corrective action. Corrective action program incorporates a plume management zone that addresses releases from the closed landfill and the historical groundwater recovery system discharge line leak near MW-29R.

August 2003 – Groundwater recovery operations commenced in well RW-34 located in the vicinity of a historical groundwater recovery discharge line leak. The recovery well was connected to the site's existing air compressor and groundwater recovery discharge.

April 2003 – Installation of on-site wells RW-34, MW-30R, MW-35 and MW-36 and off-site deep monitoring wells TSMW-4 and TDMW-5. Groundwater sampling event that included offsite monitoring wells to assess potential offsite migration of groundwater plume. The results of the sampling event were summarized in a letter report submitted in November 2003.

July 2002 – Recovery operations transferred from MW-8 to RW-33. Groundwater monitoring requirements were transferred to RW-33 starting with the 4th quarter sampling of 2002.

April 2002 – Installation of the following wells: MW-29R, MW-31, MW-32 and RW-33. MW-29R was installed to replace MW-29, which was a ¾" well not suitable for long-term monitoring. MW-31 and MW-32 were installed as attenuation monitoring points upgradient

to the existing wells near Town Creek. MW-31 also serves as an assessment well to delineate that extent of groundwater contamination associated with MW-29. RW-33 was installed to replace MW-8, which exhibited low production rates because the converted monitor well was not designed for groundwater recovery.

November 2001 – Comprehensive groundwater sampling event to evaluate the extent of contamination under the assessment requirements of TRRP. The monitoring event identified a separate plume of groundwater contamination in the area of MW-29, which apparently resulted from a historical leak from the pipeline that transfers recovered groundwater to the City of Palestine's POTW.

July 1998 – Surface water and sediment investigation conducted for Town Creek. The results were summarized in a revised Baseline Risk Assessment Report submitted in August 1998.

March 11, 1998 – Modified compliance plan is issued by TCEQ that incorporates alternate concentration limits (ACLs) for the groundwater corrective action program. The ACLs are based, in part, on surface water quality standards but did not allow surface water dilution factors for groundwater discharge into Town Creek.

July 1999 – A screening-level ecological risk assessment conducted on Town Creek that included the collection and analysis of surface water and sediment samples from the discharge area of the groundwater plume. Detectable concentrations of 1,1-dichloroethane and 1,1-dichloroethene were identified in one of the sediment samples but the concentrations were below sediment benchmarks.

August 1997 – Leak identified in groundwater recovery discharge line adjacent to MW-29. The leak has been attributed to the groundwater contaminated identified in MW-29. Groundwater recovery system shut off August 23, 1997. The discharge line was repaired in September 1997.

1997 – Manufacturing operations terminated.

February 1997 – Groundwater samples collected from TW-1 and TW-2 from the offsite property. The analyses of the samples identified detectable levels of methylene chloride, which was attributable to laboratory contamination because the blank sample also contained the constituent.

April 1996 – Closure certification for the landfill submitted by Murray Corporation.

January 1996 – "Temporary" monitor wells TW-1 through TW-3 installed at offsite property. Groundwater samples were collected from the temporary wells and three wells (MW-25 through MW-27) on Murray's property adjacent to Town Creek. The offsite samples did not contain detectable levels of constituents with the exception of toluene, which was identified at 8 µg/l in the sample collected from TW-1. Toluene was not identified in the samples collected from wells located on Murray's property.

October 1993 – Groundwater samples collected from Murray property and offsite property as part of the "Phase 2" groundwater assessment required under the 1992 compliance plan. The offsite samples were collected from expandable aquifer sampling implants (identified as TP-1 and TP-2) in lieu of wells. The offsite samples contained very low levels of BTEX constituents and tetrachloroethene (PCE). None of these constituents were identified in the samples collected from the wells on Murray's side of Town Creek.

October 1993 – Surface water samples collected from Town Creek as part of the "Phase 2" groundwater assessment. The samples did not contain any constituents attributable to the groundwater plume on Murray's property.

August 26, 1993 – Groundwater recovery system brought on-line. Recovery system consists of MW-6, MW-8 and MW-9 with discharge to City of Palestine POTW.

April 1993 – Installation of MW-25 through MW-27 on Murray's side of Town Creek as part of the "Phase 1" groundwater assessment required under the 1992 compliance plan. The groundwater sample from MW-26 indicated that volatile organic contaminants were present in the groundwater adjacent to Town Creek.

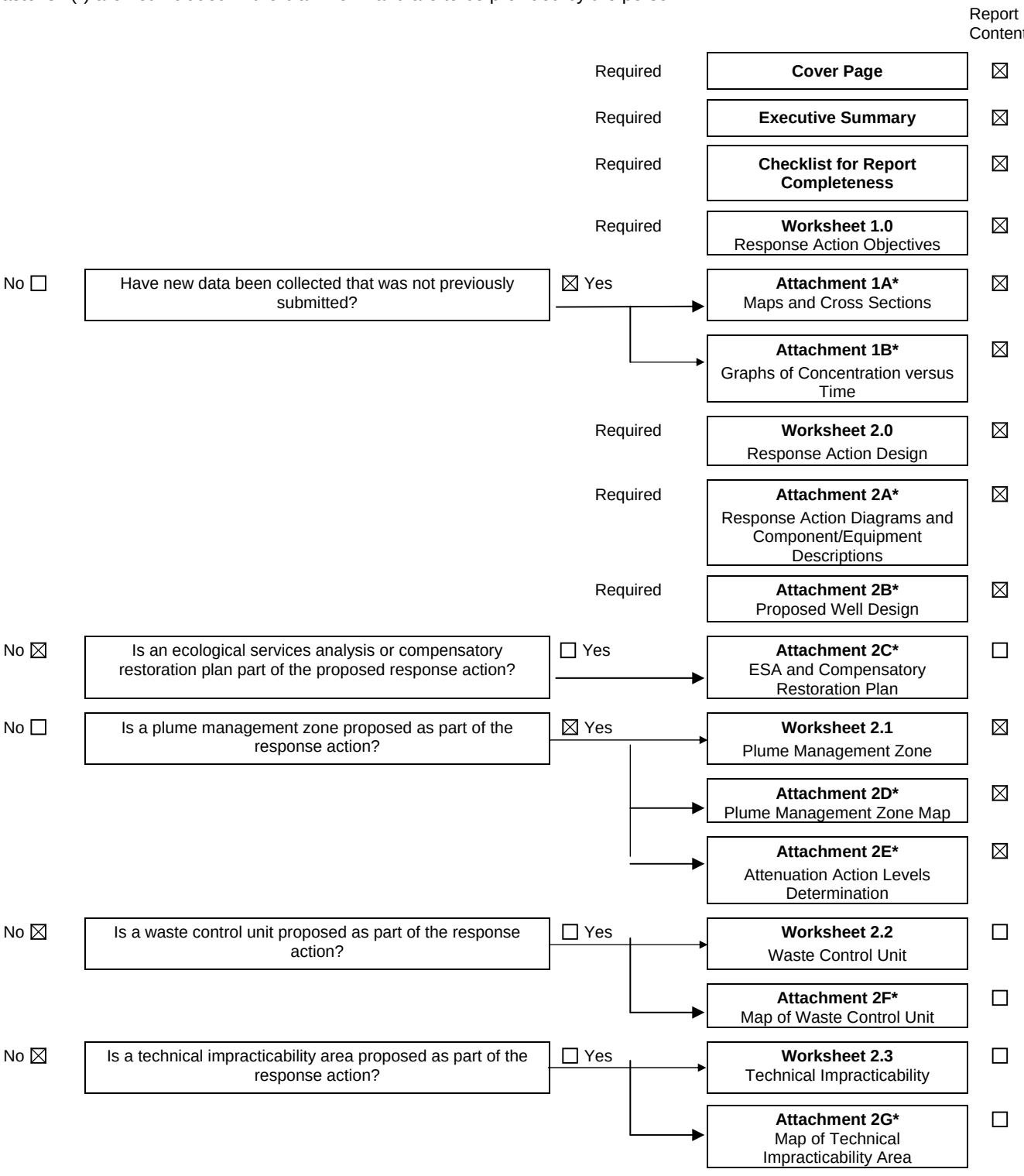
December 2, 1992 – Issuance of original compliance plan for the Murray facility. The compliance plan required the implementation of corrective action and the collection of groundwater samples from monitor wells at the Murray facility on a semiannual basis. The corrective action and sampling programs have been ongoing since issuance of the compliance plan.

March 23, 1989 – Issuance of Agreed Order for the Murray facility that required RCRA closure of the former burial pit ("landfill") and groundwater investigation.

June 1988 – Wastes and contaminated soils were removed from former drum burial pit for offsite disposal at a commercial hazardous waste disposal facility. Soils remaining after removal action still contained low elevated levels of chlorinated volatile organic constituents associated with the wastes.

Checklist for Report Completeness	ID No.: ISWR No. 33063
	Report Date: Revised June 2013

Use this checklist to determine the portions of the form that must be submitted for this report. Answer all questions by checking Yes or No. If the answer is Yes include that portion of the report. If the answer is No, do not complete or submit that portion of the report. All form contents that are marked "Required" must be submitted. Form contents marked with an asterisk (*) are not included in the blank form and are to be provided by the person.



Checklist for Report Completeness

ID No.: ISWR No. 33063

Report Date: Revised June 2013

				Report Contents
No ☐	Is the response action a remedy standard B?	☒ Yes →	**Worksheet 2.4** Institutional Controls	☒
		Required	**Worksheet 3.0** Performance Measures and Potential Problems	☒
		Required	**Worksheet 3.1** Monitoring and Sampling	☒
		Required	**Attachment 3A*** Map of Monitoring and Sampling Points	☒
		Required	**Worksheet 3.2** Operation and Maintenance	☒
		Required	**Worksheet 4.0** Confirmation Sampling Plan	☒
		Required	**Attachment 4A*** Map of Confirmation Sampling Points	☒
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Worksheet 5.0** Post Response Action Care	☒
		→	**Attachment 5A*** Map of PRAC Monitoring and Sampling Points	☒
		→	**Attachment 5B*** PRAC Costs	☐
No ☒	Does the person, who is a small business, desire to modify the financial assurance requirement?	☐ Yes →	**Attachment 5C*** Small Business Affidavit	☐
		Required	**Worksheet 6.0** Implementation Schedule	☒
		Required	**Appendix 1*** References	☒
No ☐	Was any data collected that was not previously reported?	☒ Yes →	**Appendix 2*** Data Tables and Boring Logs	☒
No ☒	Were any studies or tests conducted?	☐ Yes →	**Appendix 3*** Studies and Tests Documentation	☐
No ☐	Is the response action a Remedy Standard B?	☒ Yes →	**Appendix 4*** Proposed Institutional Controls	☒
No ☒	Are any institutional controls proposed/required on property not owned by the person?	☐ Yes →	**Appendix 5*** Landowner Concurrence	☐
No ☒	Are any of the sample collection or handling procedures different from those reporting in the APAR or other previously submitted report?	☐ Yes →	**Appendix 6*** Sampling Procedures	☐
No ☒	Are statistics or geostatistics proposed to be used as part of the response action?	☐ Yes →	**Appendix 7*** Statistical Methodology	☐
No ☒	Was approval received from the TNRCC regarding the use of different rules to address a media?	☐ Yes →	**Appendix 8*** Split Media Approval	☐

Form contents marked with an asterisk (*) are not included in the blank form.

Use this worksheet to describe the objectives for the response action in each media.

Response Action Objectives

List the environmental media to which this applies **Groundwater**
Repeat this section for each medium that has a different response action objective.

State the property-specific response objectives for the PCLE zone in each media in the context of the response objectives set forth in §350.32 or §350.33 as applicable. Explain how the response action is appropriate based on the hydrogeologic characteristics, COC characteristics, and potential unprotective conditions that could continue or result during the remedial period.

The response actions for groundwater are intended to comply with the general requirements for Remedy Standards and the specific requirements for Remedy Standard B in accordance with 30 TAC §350.31 and §350.33, respectively, of the Texas Risk Reduction Program (TRRP). An institutional control will be utilized to create a plume management zone and prevent exposure of human receptors to constituents in groundwater. Monitoring of groundwater prior to discharge to surface water will be used to ensure that human and ecological receptors are protected. As necessary, active response actions will be taken to remove, decontaminate, and/or control constituent concentrations within the PCLE zone to ensure the critical ^{SW}GW PCLs will not be exceeded at the alternate points of exposure.

A PMZ under TRRP Remedy Standard B is the established action for groundwater contamination at the Murray site within the facility's Compliance Plan. In accordance with §350.33(a)(1), the property-specific response action objective is to remove, decontaminate, and control the groundwater PCLE zone so that receptors will not be exposed to concentrations of COCs in groundwater in excess of the critical PCLs at the alternate points of exposure established for the PMZ under §350.33(f)(4). These objectives for groundwater are described as follows:

- Remove – Impacted groundwater immediately downgradient of the landfill and line break release area are being removed by the groundwater corrective action (CA) system.
- Decontaminate – Decontamination of COCs in on-site groundwater PCLE zones by natural attenuation is being used to monitor the stability and reduction of the PCLE zones in the floodplain downgradient from the contaminant source.
- Control – Migration of COCs from the contaminant source will be controlled within the PMZ by the CA system recovery wells. Institutional controls will be placed on the affected property to prevent human exposure to groundwater.

Removal, decontamination, and control measures and a PMZ are appropriate for the affected property since on site groundwater is Class 2 and is not used. On site property use is industrial. Institutional controls will also be used to prevent exposure to groundwater PCLE zones. The PMZ is described in Worksheet 2.1.

The hydrogeology and COC characteristics at the Murray site were characterized in the APAR. An Affected Property Map is provided in Attachment 1A. Historical and recent isopleth maps of 1,1-DCE (the only constituent detected at concentrations greater than the critical ^{SW}GW PCLs) and a recent potentiometric surface map are also provided in Attachment 1A. Historical graphs of centerline concentrations are provided in Attachment 1B. Protection of human health and ecological receptors during and after the remedial period is addressed by PMZ monitoring and institutional controls. See Worksheets 2.1, 3.0, 4.0, 5.0.

Explain how the COCs will be handled, treated, disposed, or transferred to another media and document that the response action will not result in any additional potential exposure conditions due to response action activities.

The groundwater CA system removes and controls the contaminant source. As described in the following paragraphs, the COCs are handled and disposed in a manner so that the response action is protective of human health and the environment and the response action will not result in any additional exposure conditions at the site:

- Vapors – Recovery wells are equipped with sealed well caps to minimize vapor emissions. Discharge hoses from the pump terminate at a sample port prior to transitioning to the facility hard piping. The hard piping transfers all fluids recovered at the wellhead to a 4-inch discharge line connected to the City of Palestine's POTW.
- Spill Prevention and Controls – Well heads and piping are inspected for leaks in accordance with the facility's compliance plan and standard operating procedures; and
- Treatment – Recovered groundwater is pumped to the groundwater recovery system discharge line and then discharged to the City of Palestine's POTW.

Groundwater monitoring is used to evaluate the effectiveness of the CA system and to document that the PMZ is protective of human health and the environment at the POE. The procedures for groundwater monitoring and reporting are in the Sampling and Analysis Plan (SAP) and Compliance Plan CP-50328.

State the proposed "reasonable time frame" and provide the justification for that time frame in the context of any potential for unprotective exposures to exist or develop, COC characteristics, hydrogeologic and affected property characteristics. If the reasonable time frame is different for the different affected media or for particular tracts of land, be sure to discuss that. Provide how the proposed response action will meet the objectives in a reasonable timeframe.

Control of the contaminant source by the existing CA system has been achieved. Recent evaluations have determined that discontinuing groundwater recovery at the source will not result in an exceedance of the critical groundwater PCLs at the POE. The active corrective action system was shut down on April 31, 2013.

Murray currently monitors COCs in groundwater, measures fluid levels, and evaluates the effectiveness of the CA System. This information is submitted in the semiannual corrective action reports. Recent evaluations indicate that the contamination source is controlled or not migrating and the downgradient concentrations are decreasing. The relatively slow groundwater flow rate and use of attenuation monitoring points will allow sufficient time to actively address any COCs in groundwater that might exceed the critical PCLs in the future. Groundwater sampling conducted as part of the compliance plan's groundwater monitoring program will document that the critical PCLs are being met at the POE. Confirmation sampling will be conducted upon completion of the PMZ response action to document that the PCLs have been met throughout the affected property. Upon completion of the confirmation sampling, a Response Action Completion Report (RACR) will be submitted in the semiannual report.

Soil Response Action Objectives

When using removal and/or decontamination with controls or controls only, demonstrate how that physical control or combination of measures will reliably contain COCs within and/or derived from the surface soil and subsurface soil PCLE zone materials over time.

N/A

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical surface soil and subsurface soil PCL throughout the soil PCLE zone and prevent COC concentrations above the critical soil PCLs from migrating beyond the existing boundary of the soil PCLE zone.

N/A

Groundwater Response Action Objectives

Name of groundwater-bearing unit to which this information applies **Uppermost (Shallow) Aquifer**

Repeat this section for each groundwater-bearing unit for which a different response action is proposed.

Groundwater classification ____ 1 **X** 2 ____ 3

Is a modified groundwater response action being proposed for any part of the groundwater PCLE zone (§350.33(f)(2), (3), or (4))? **X** Yes ___ No

If yes, does the affected property meet the qualifying criteria for a modified groundwater response action using a waste control unit, plume management zone, or technical impracticability? **X** Yes ___ No

If yes, complete the appropriate portions of this report.

If no to either question, complete the following:

Explain how the removal or decontamination action will reduce the concentration of COCs to the critical groundwater PCL throughout the groundwater PCLE zone and prevent COC concentrations above the critical groundwater PCL from migrating beyond the existing boundary of the groundwater PCLE zone.

N/A. A plume management zone has been established within Compliance Plan CP-50328.

Explain how the response action will prevent COCs from migrating to air at concentrations above the PCLs for air if the groundwater-to-air PCLs ($^{Air}GW_{Inh\text{-}V}$) is exceeded.

N/A. The historically maximum detected COC concentrations in groundwater are well below their respective groundwater-to-air PCLs and the contaminant source concentrations are decreasing.

Explain how the response action will prevent COCs from migrating to surface water at concentrations above the PCLs for groundwater discharges to surface water if surface water is a factor.

The concentration of 1,1-DCE in groundwater is effectively being controlled by natural attenuation. The concentrations of 1,1-DCE have been in compliance with the established GWPS for at least the last three years. Continued monitoring will confirm the effectiveness of the response action.

Explain how the response action will prevent human and ecological receptor exposure to the groundwater PCLE zone.

N/A. A plume management zone is proposed.

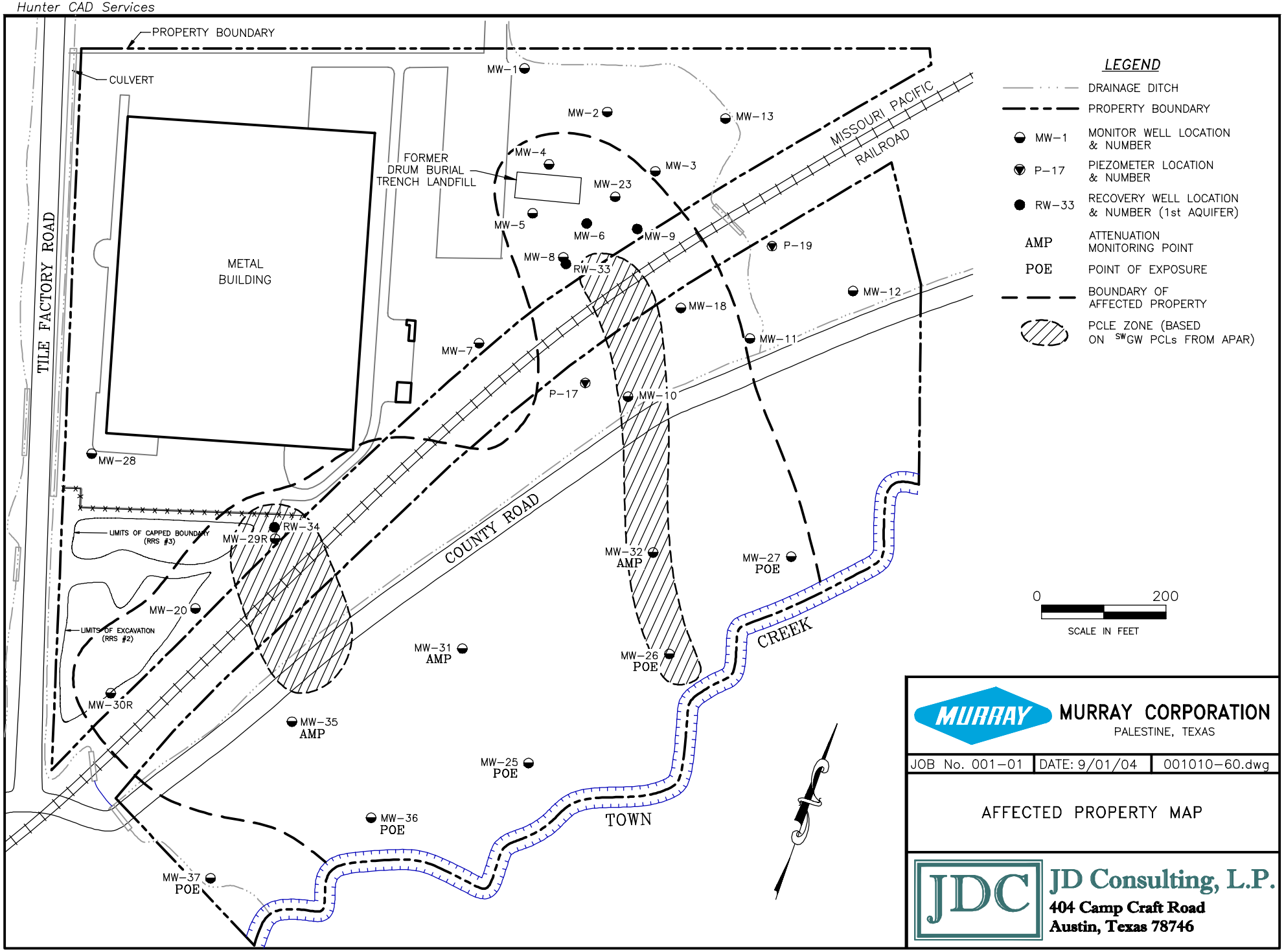
Attachment 1A

Maps

List of Contents Attachment 1A

1. Affected Property Map (September 2004)
2. July 2012 Isopleth Map of 1,1-Dichloroethene Concentration
3. January 2012 Isopleth Map of 1,1-Dichloroethene Concentration
4. July 2011 Isopleth Map of 1,1-Dichloroethene Concentration
5. February 2011 Isopleth Map of 1,1-Dichloroethene Concentration
6. July 2012 Potentiometric Surface Map of the Uppermost Aquifer

Hunter CAD Services



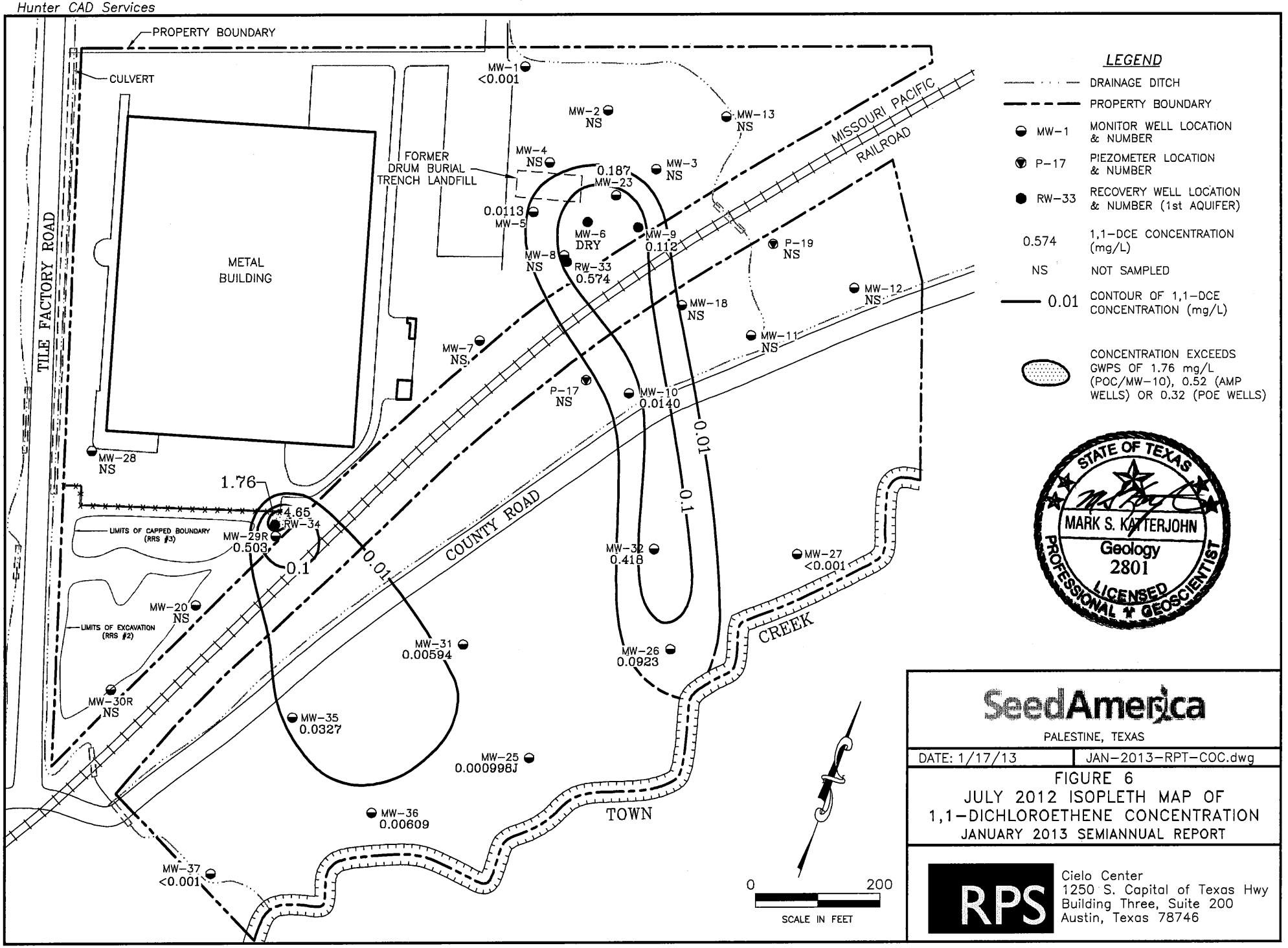
MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 9/01/04	001010-60.dwg

AFFECTED PROPERTY MAP

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.574 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)
- CONCENTRATION EXCEEDS GWPS OF 1.76 mg/L (POC/MW-10), 0.52 (AMP WELLS) OR 0.32 (POE WELLS)

STATE OF TEXAS
MARK S. KATTERJOHN
Geology
2801
LICENSED PROFESSIONAL GEOSCIENTIST

SeedAmerica
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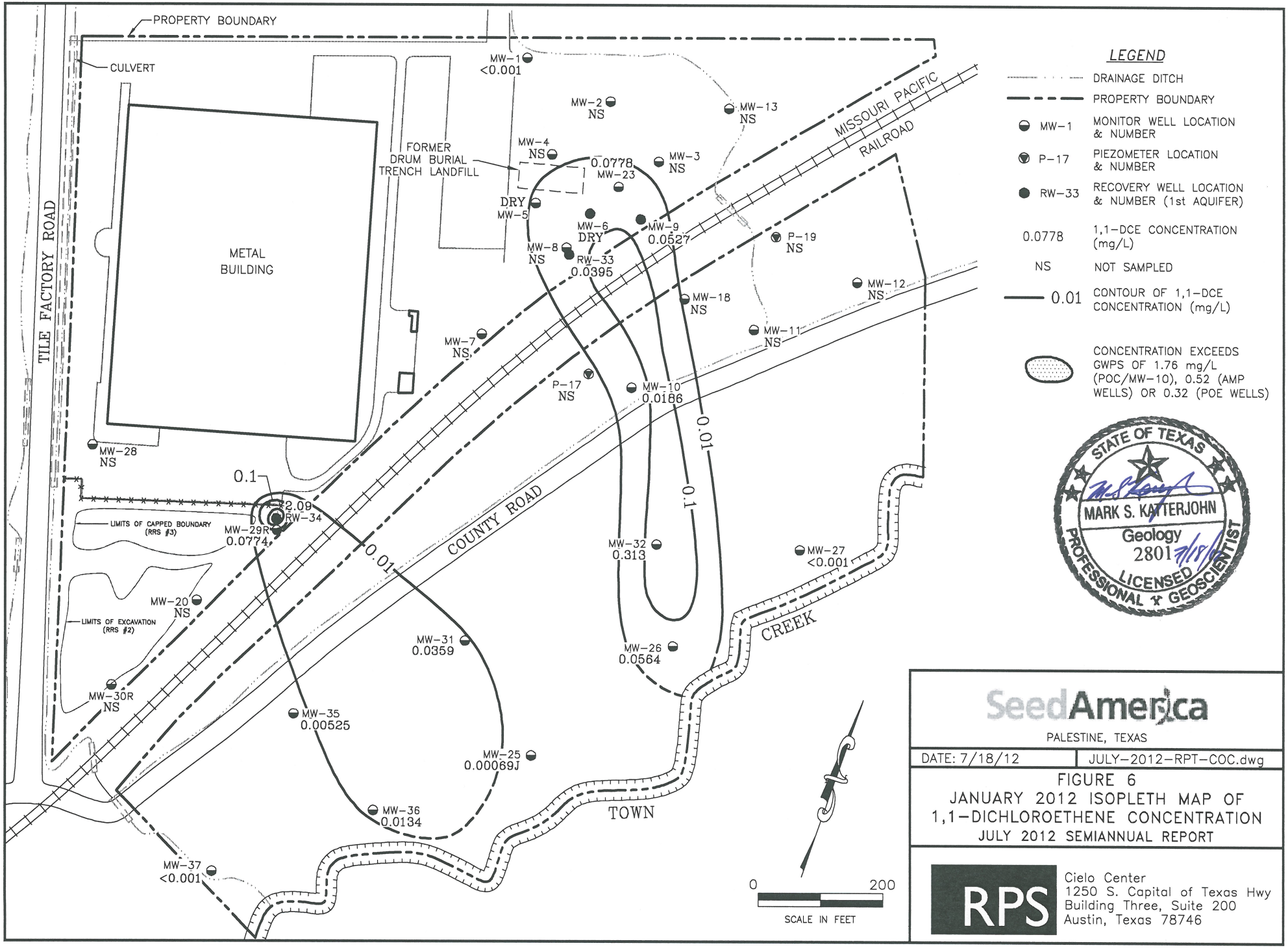
FIGURE 6
JULY 2012 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2013 SEMIANNUAL REPORT

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0778 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)
- CONCENTRATION EXCEEDS GWPS OF 1.76 mg/L (POC/MW-10), 0.52 (AMP WELLS) OR 0.32 (POE WELLS)

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FIGURE 6
JANUARY 2012 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JULY 2012 SEMIANNUAL REPORT

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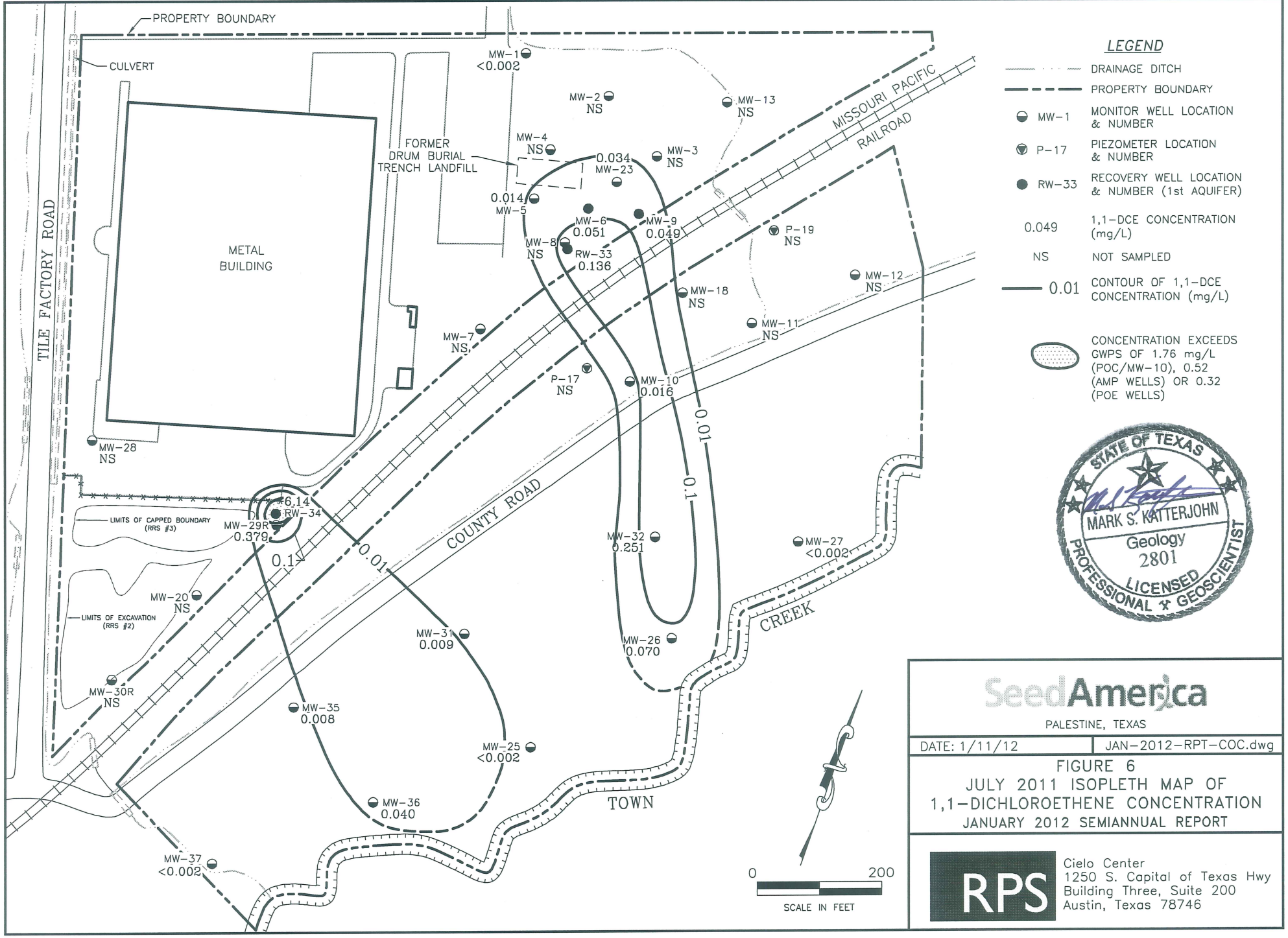

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.049 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)
- CONCENTRATION EXCEEDS GWPS OF 1.76 mg/L (POC/MW-10), 0.52 (AMP WELLS) OR 0.32 (POE WELLS)

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FIGURE 6
JULY 2011 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2012 SEMIANNUAL REPORT

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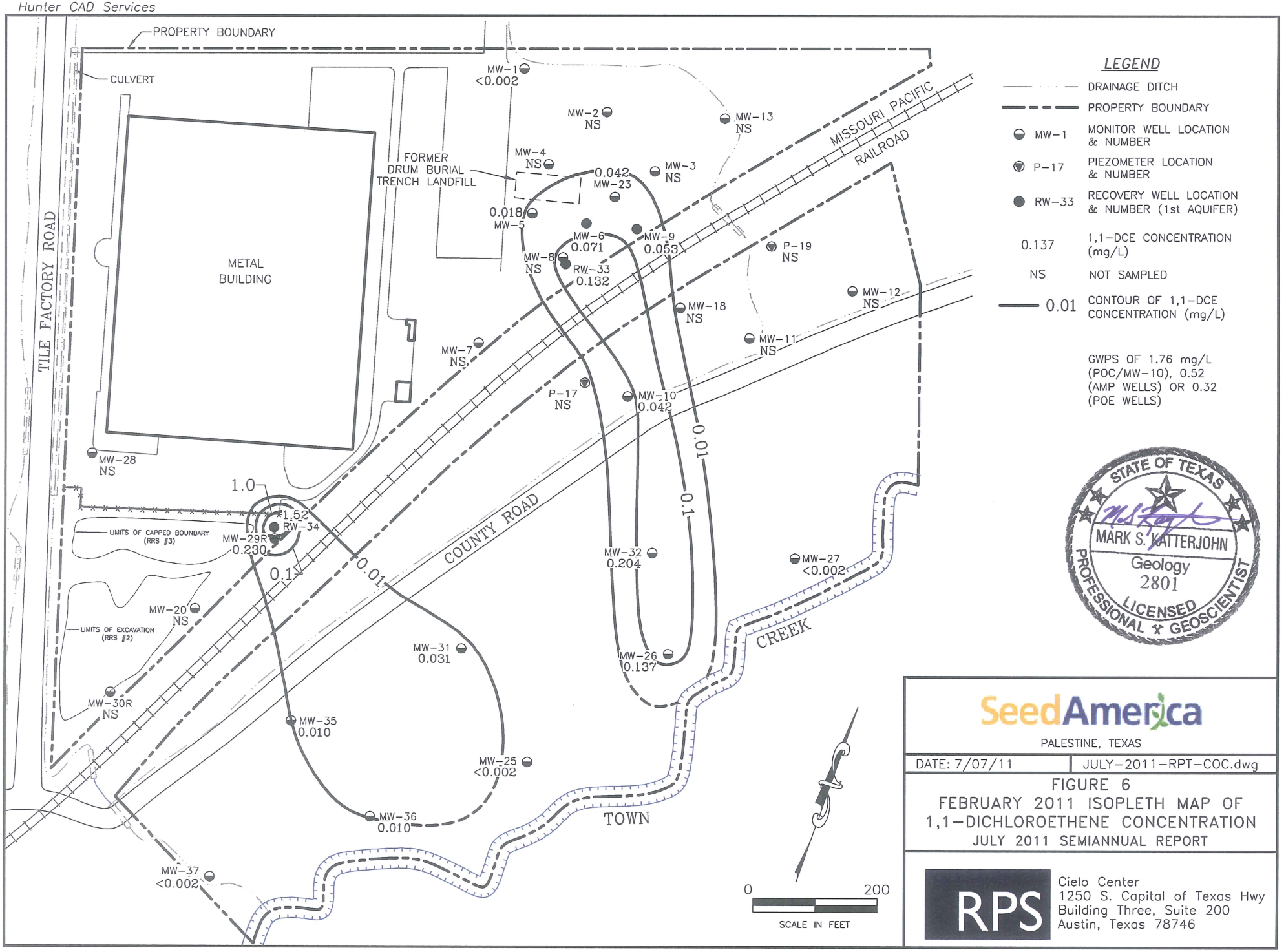

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.137 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS OF 1.76 mg/L (POC/MW-10), 0.52 (AMP WELLS) OR 0.32 (POE WELLS)

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FIGURE 6
FEBRUARY 2011 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
JULY 2011 SEMIANNUAL REPORT

RPS
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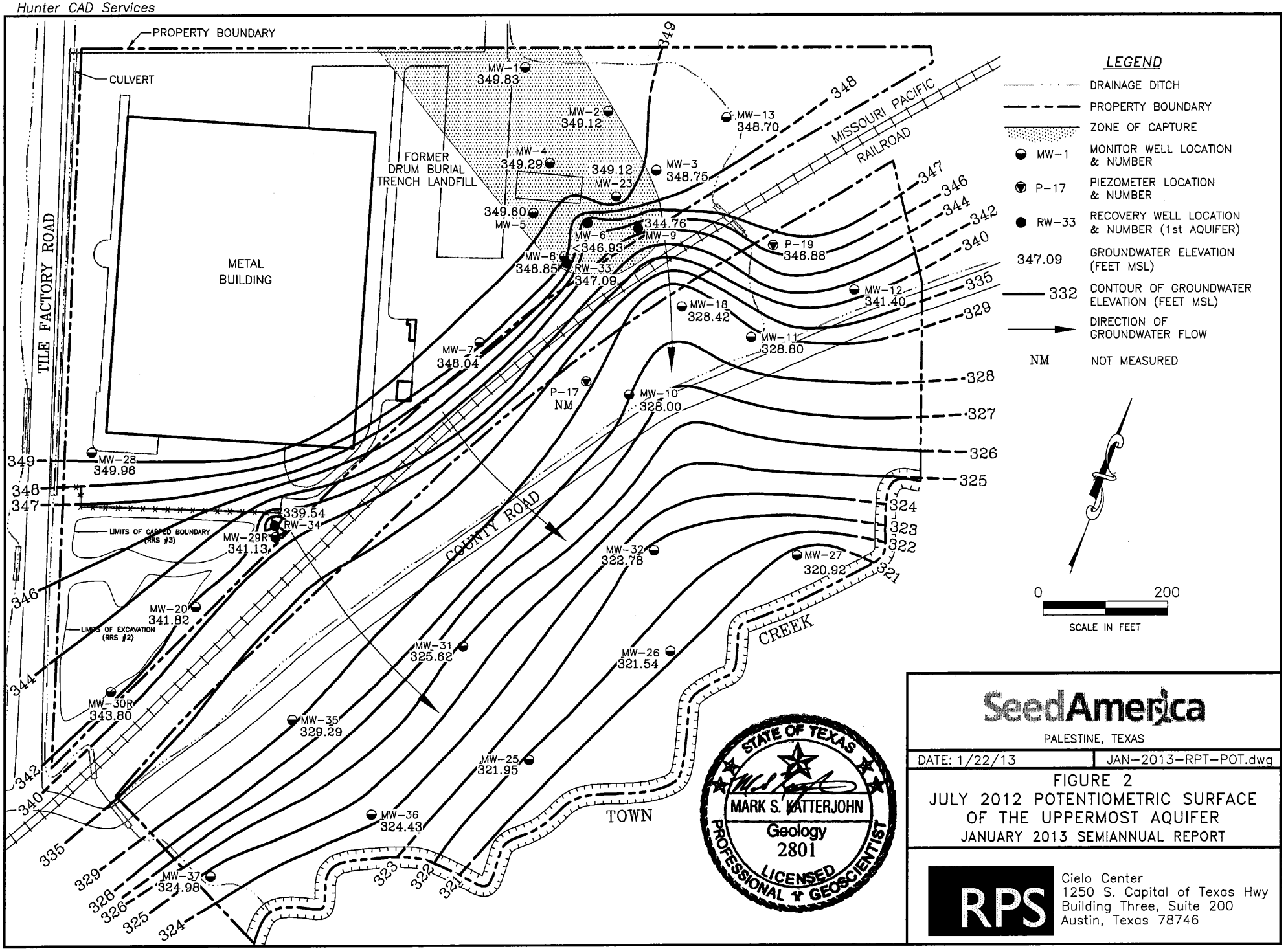
Building Three, Suite 200
Austin, Texas 78746

Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- ZONE OF CAPTURE
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 347.09 — GROUNDWATER ELEVATION (FEET MSL)
- 332 — CONTOUR OF GROUNDWATER ELEVATION (FEET MSL)
- DIRECTION OF GROUNDWATER FLOW
- NM — NOT MEASURED

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FIGURE 2
JULY 2012 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2013 SEMIANNUAL REPORT

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Attachment 1B

Graphs of Concentration Versus Time

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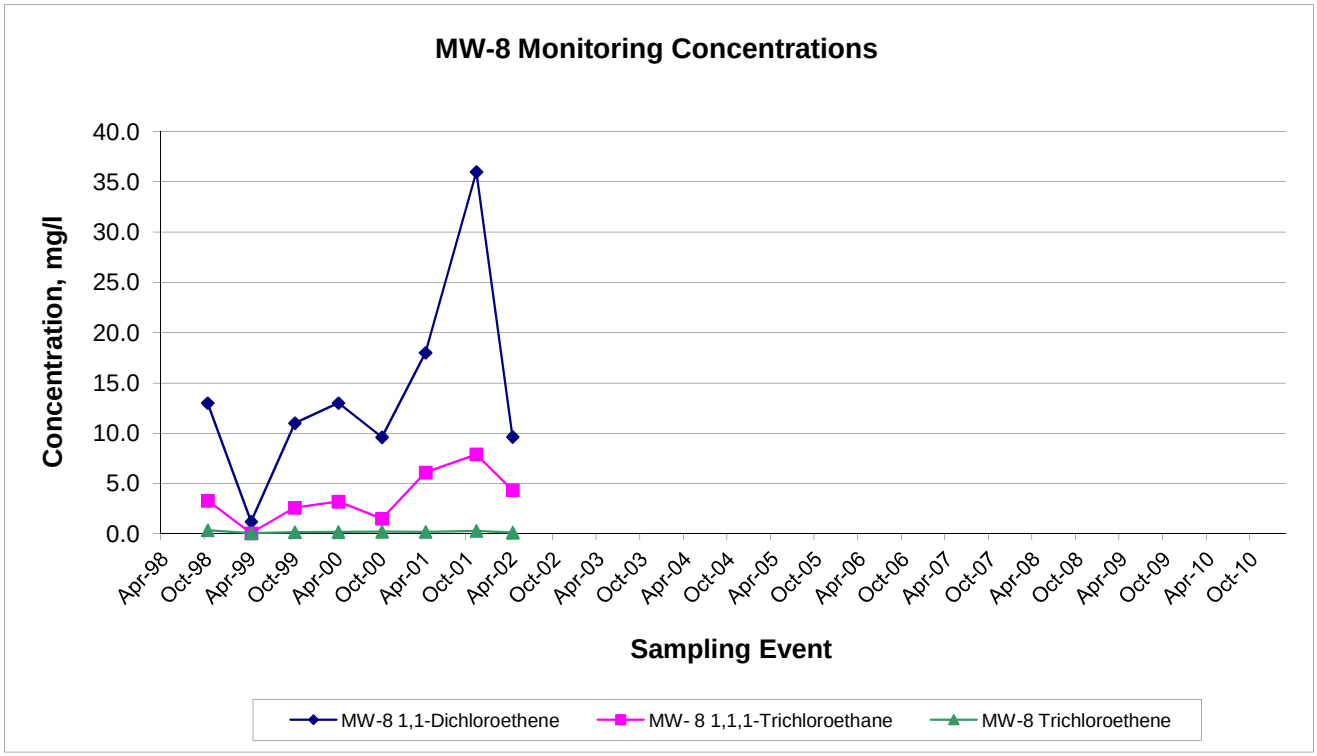
2. Chart B-5 – Centerline Concentrations
3. Chart B-6 – Concentration Trends Within Discharge Line Leak Centerline Wells
4. Chart B-7 – Discharge Line Leak Centerline Concentrations
5. Summary of Groundwater Analytical Data from February 2007 to January 2013

Chart B-4
Concentration Trends Within Centerline Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



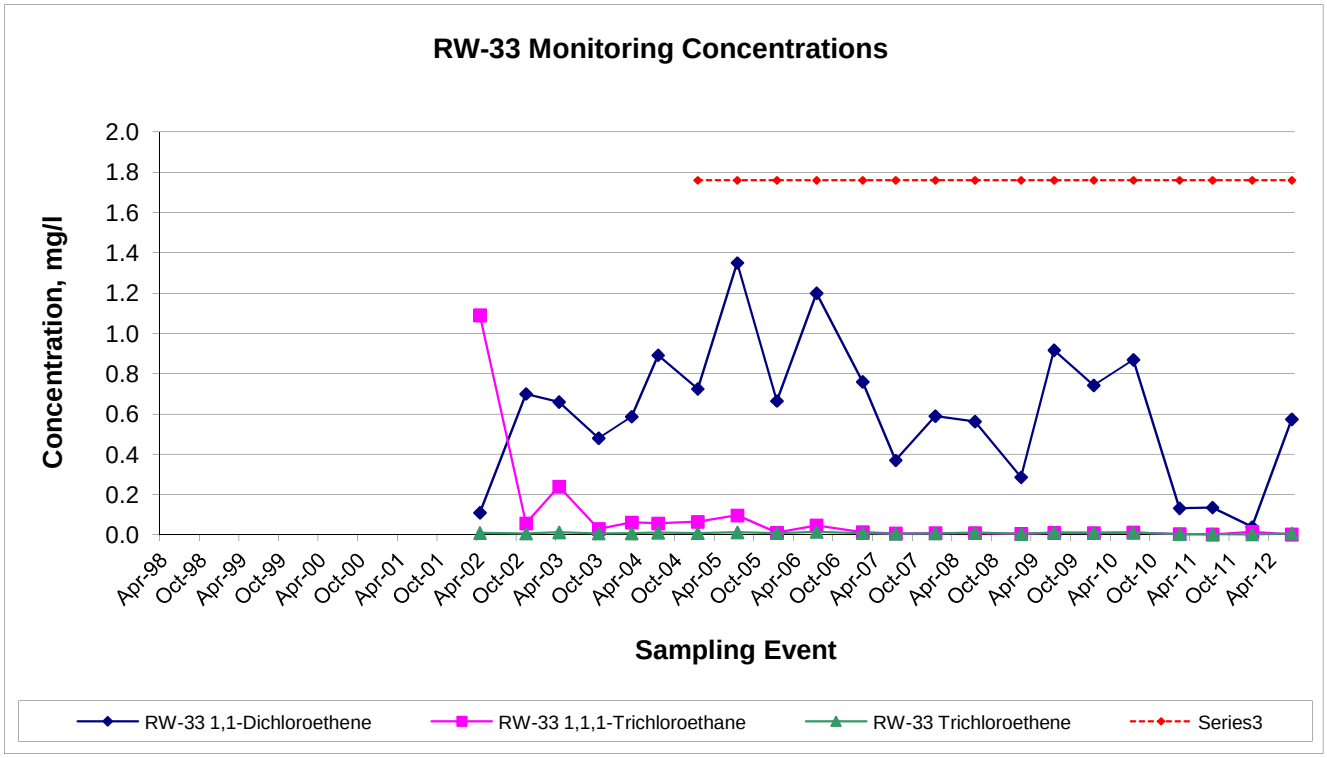
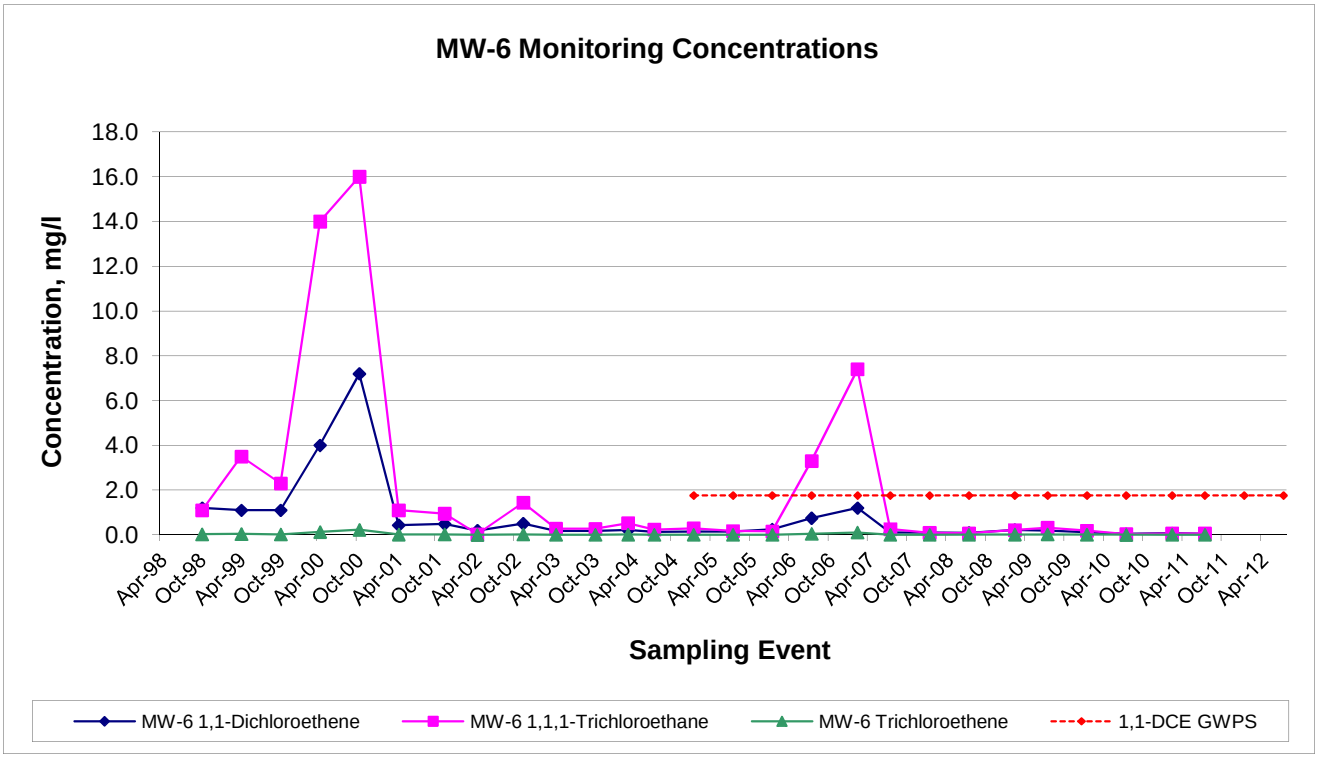


Chart B-4
Concentration Trends Within Centerline Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



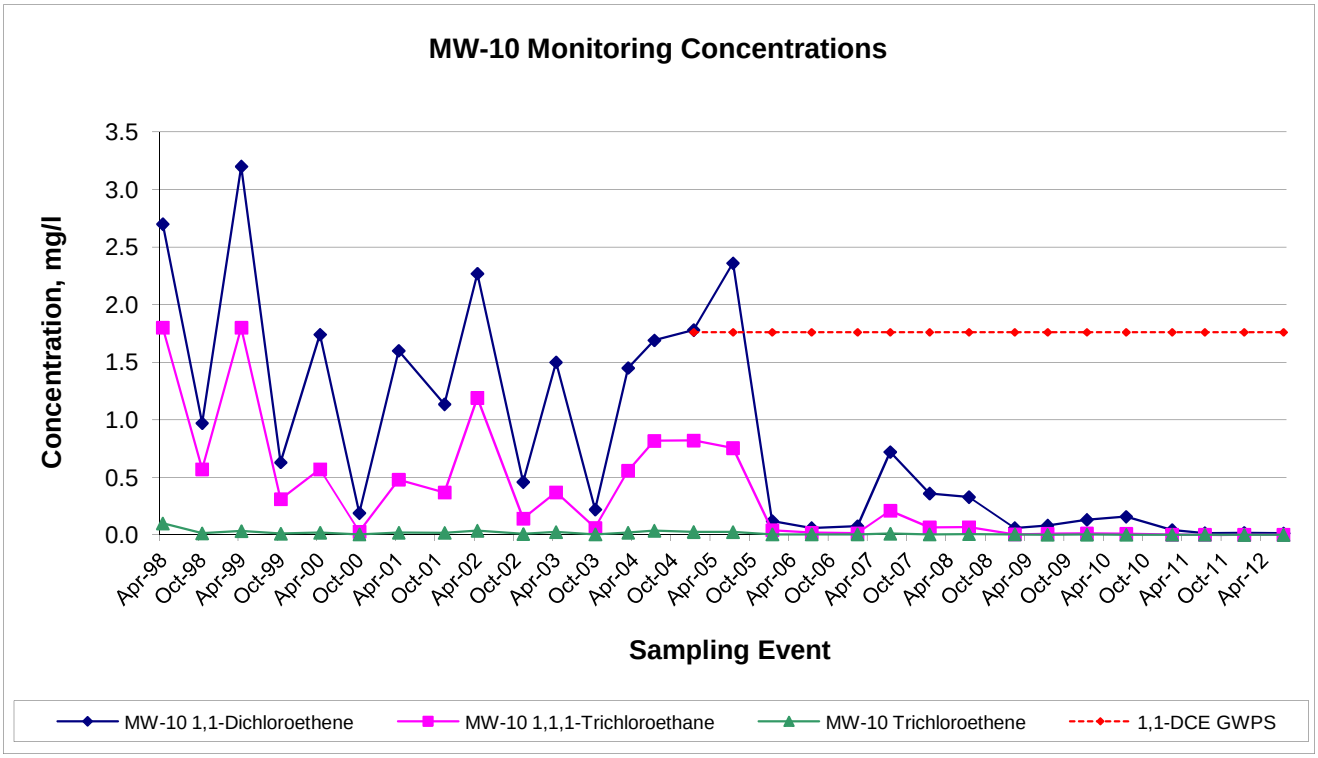


Chart B-4
Concentration Trends Within Centerline Wells
SeedAmerica, Palestine, Texas
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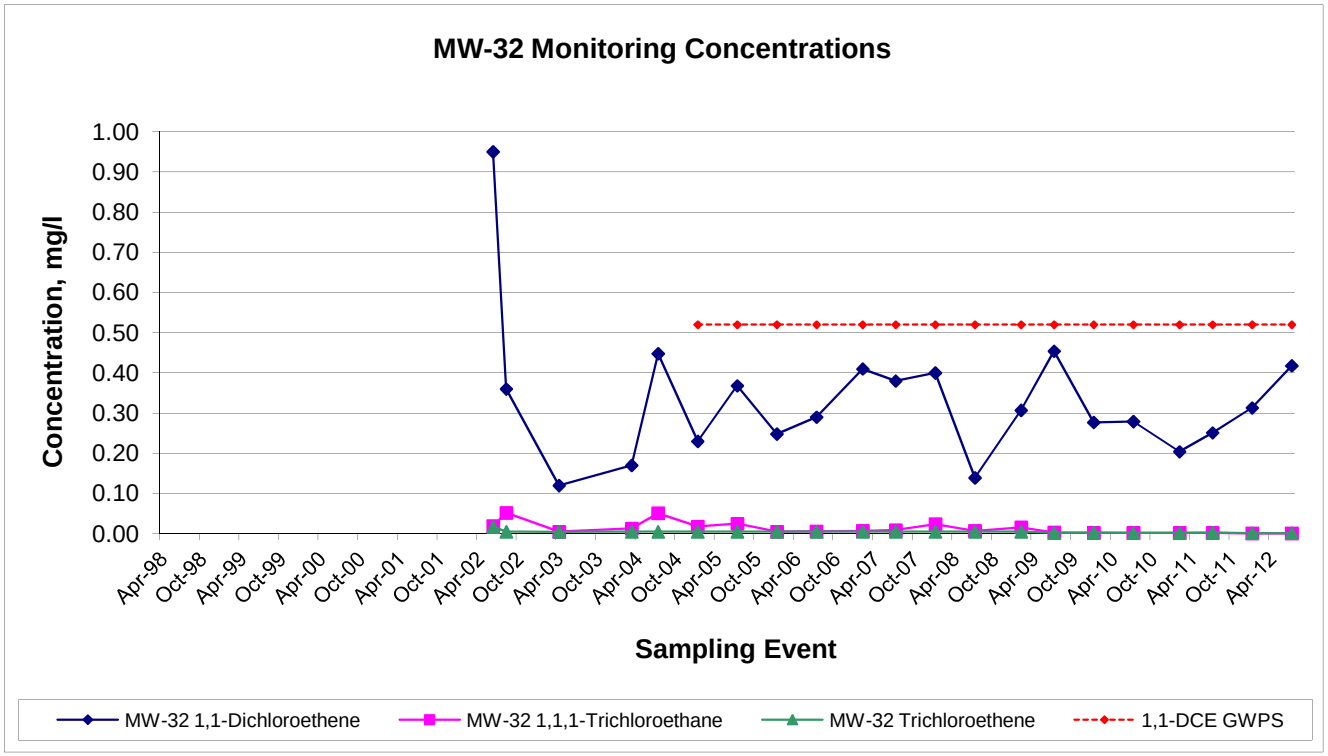

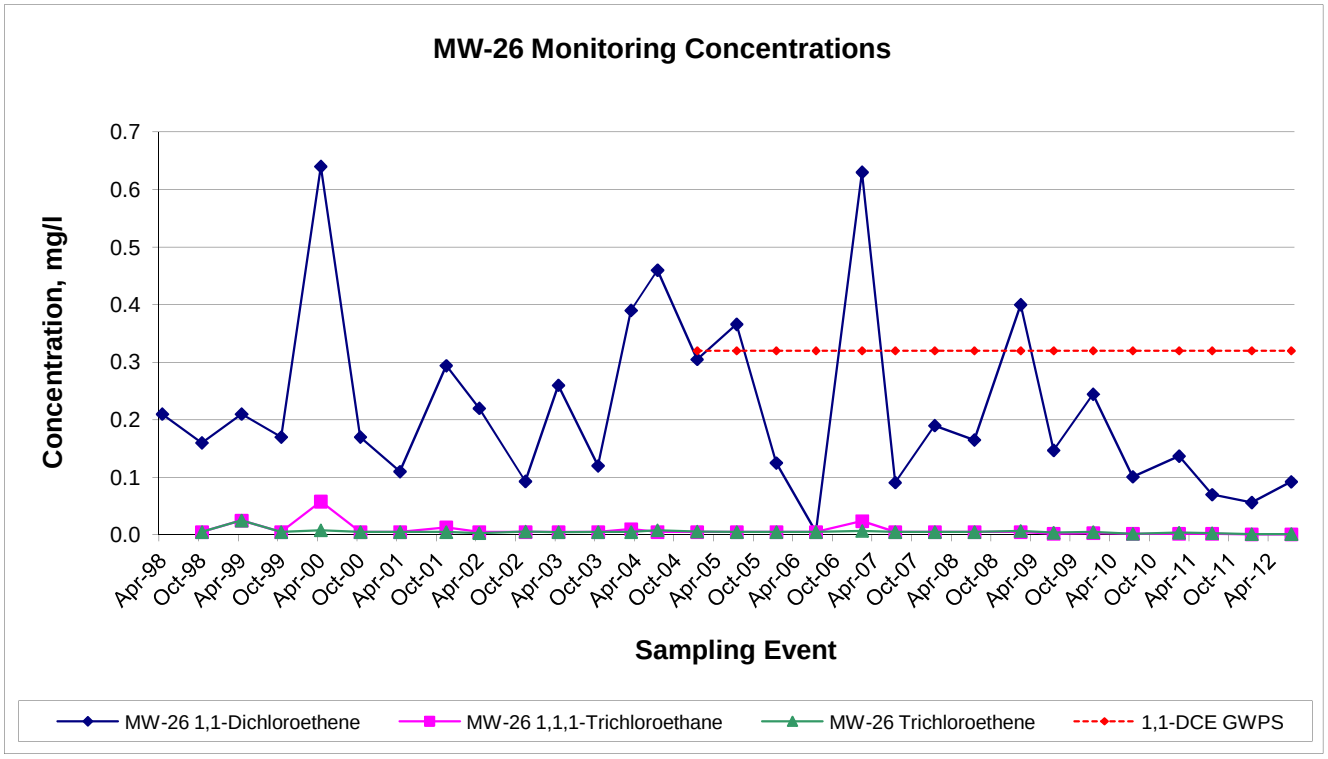

Chart B-5
Centerline Concentrations
SeedAmerica, Palestine, Texas
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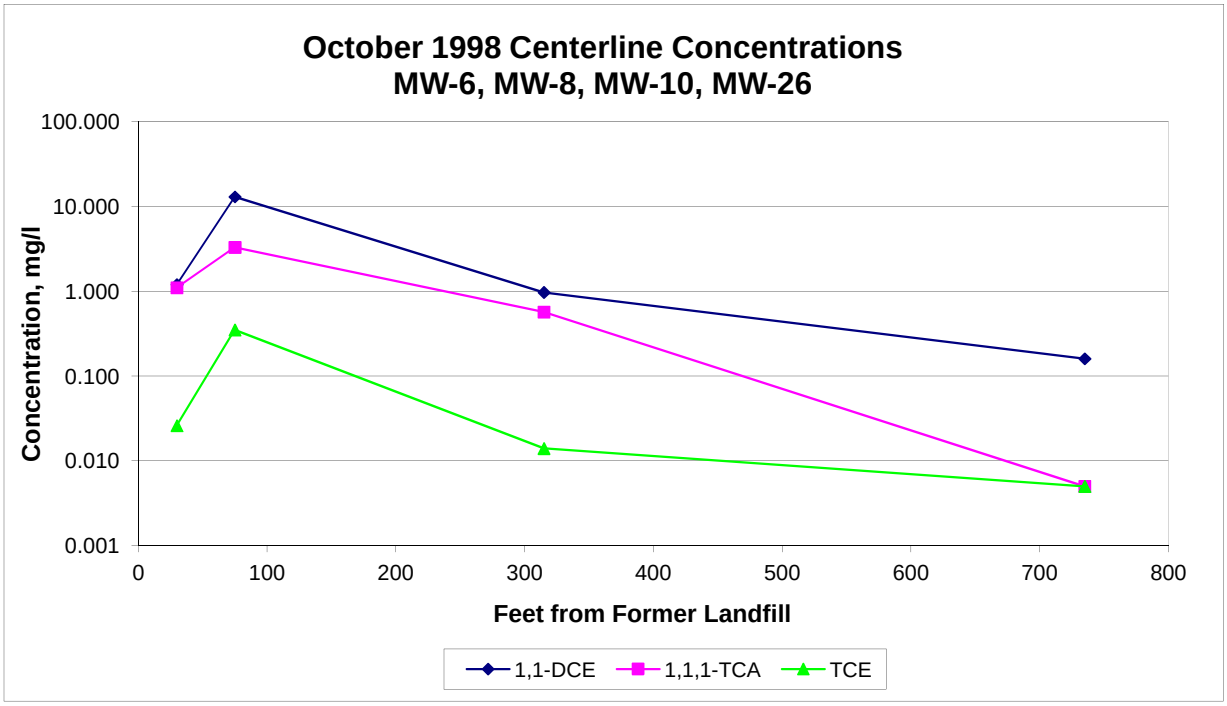

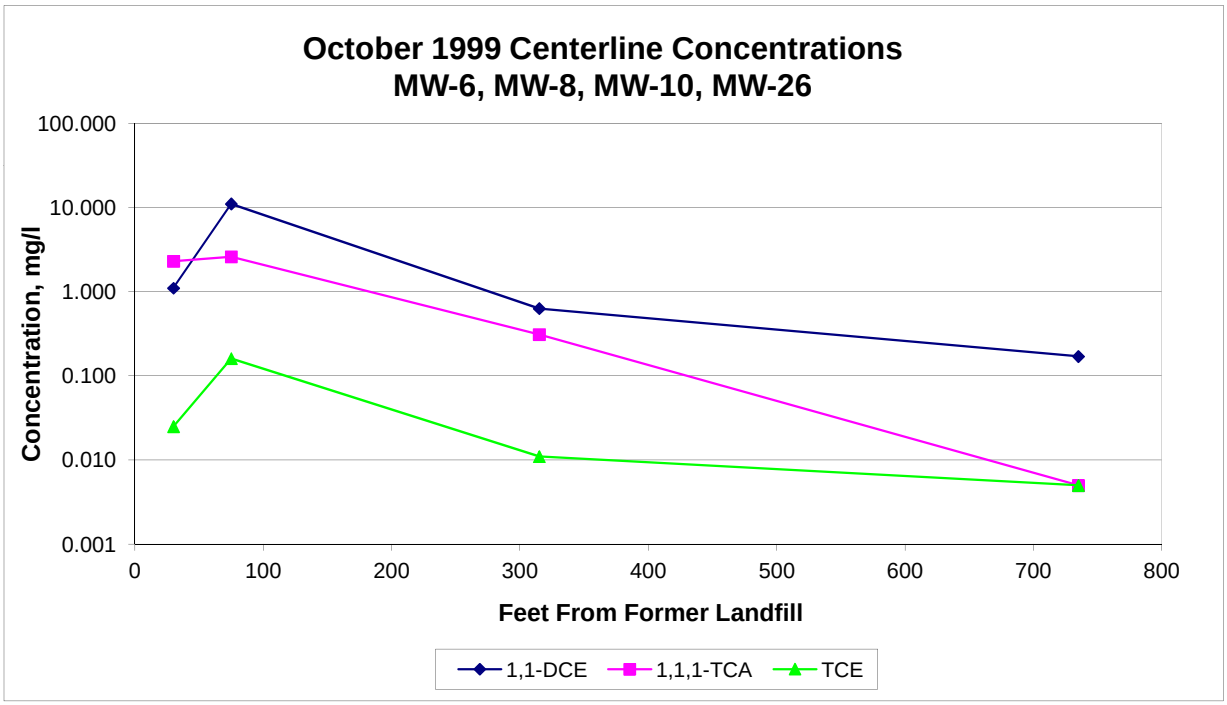

Chart B-5
Centerline Concentrations
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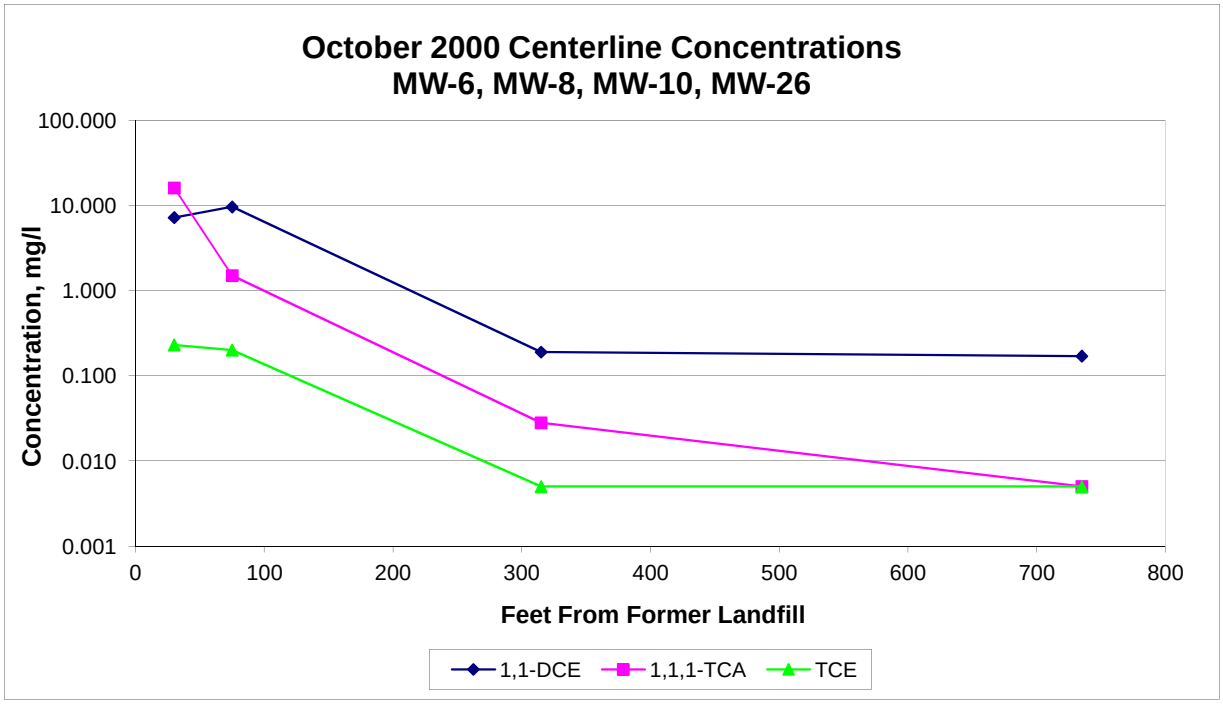

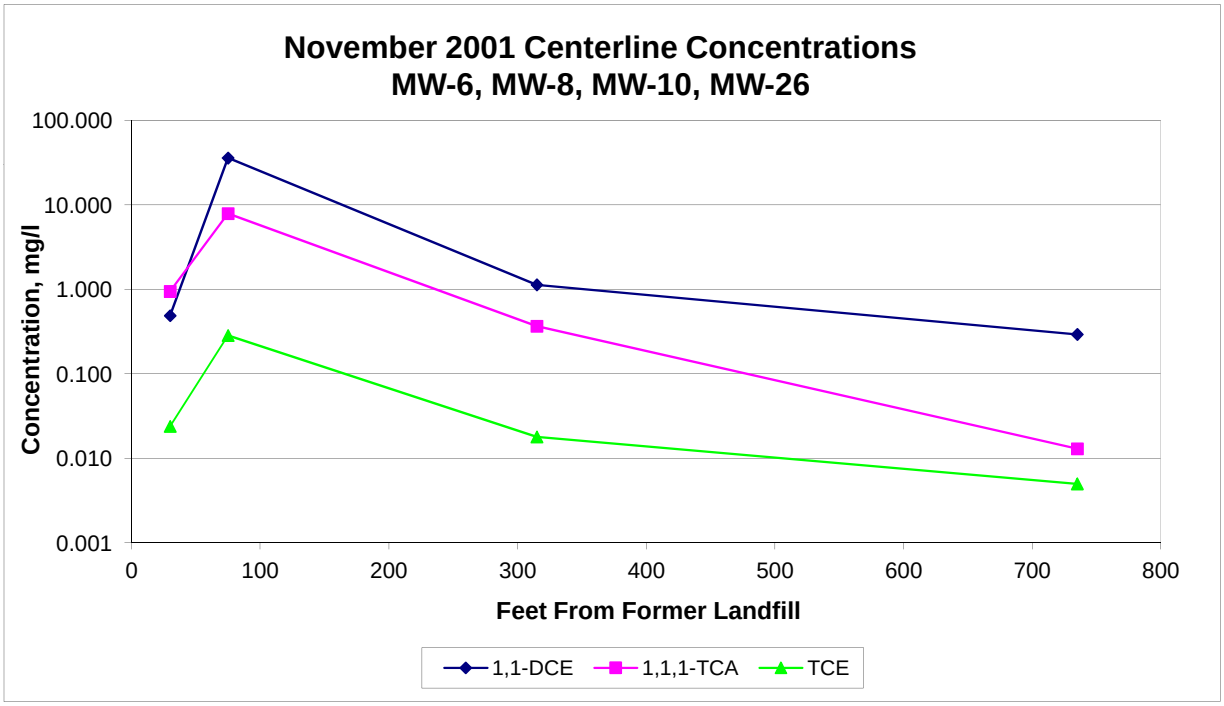

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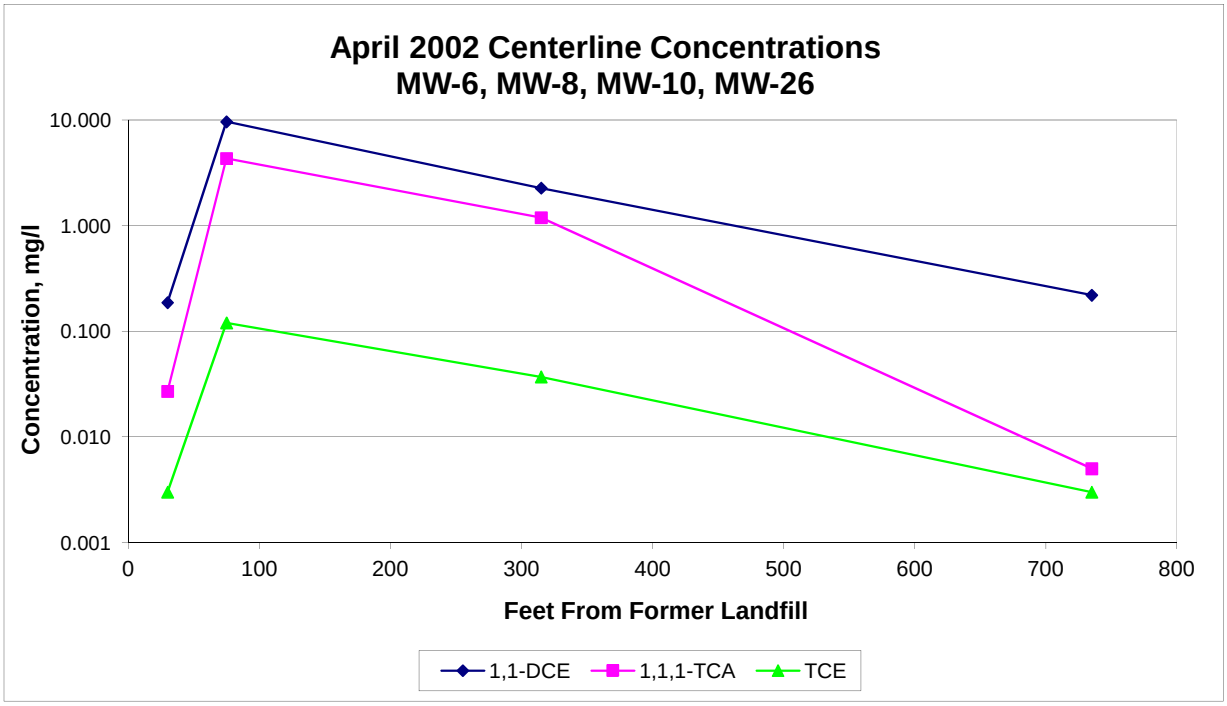

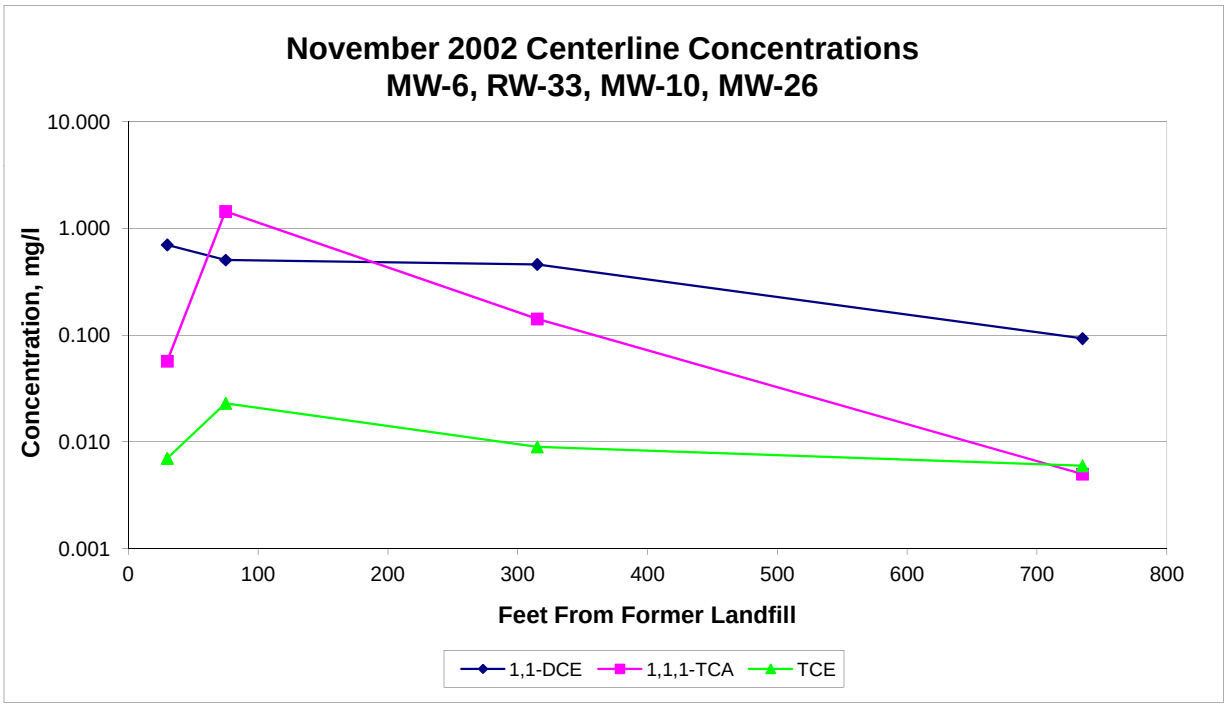

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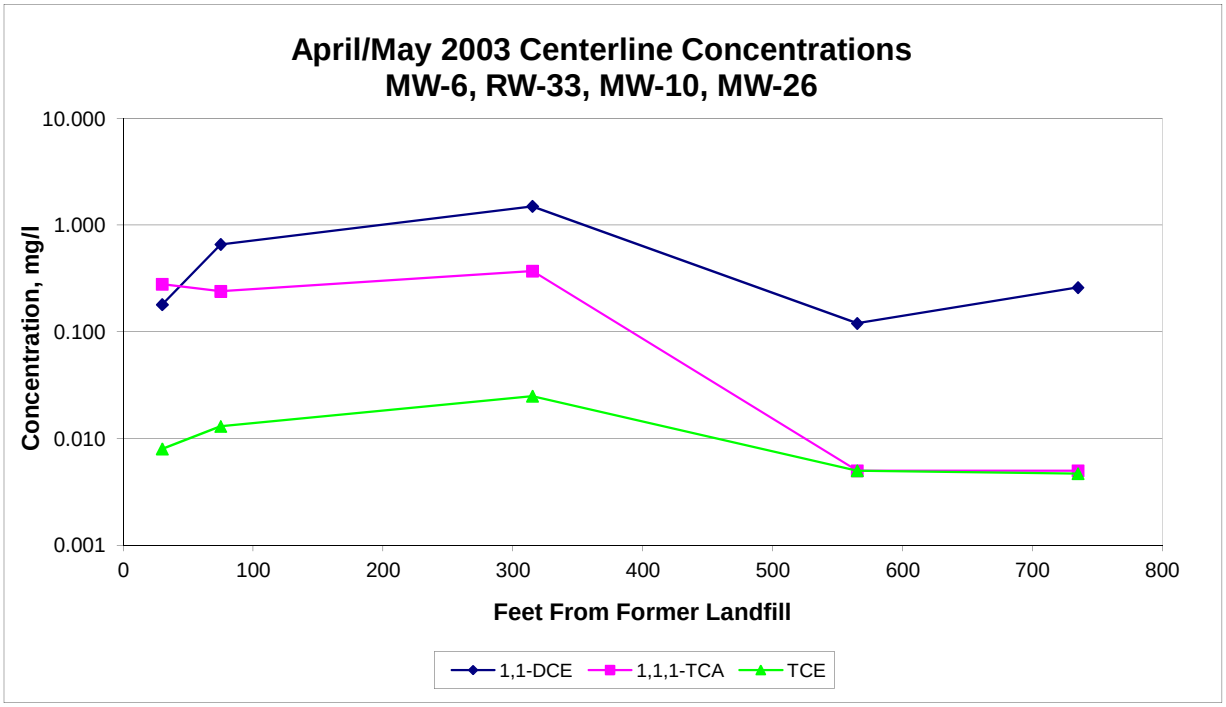

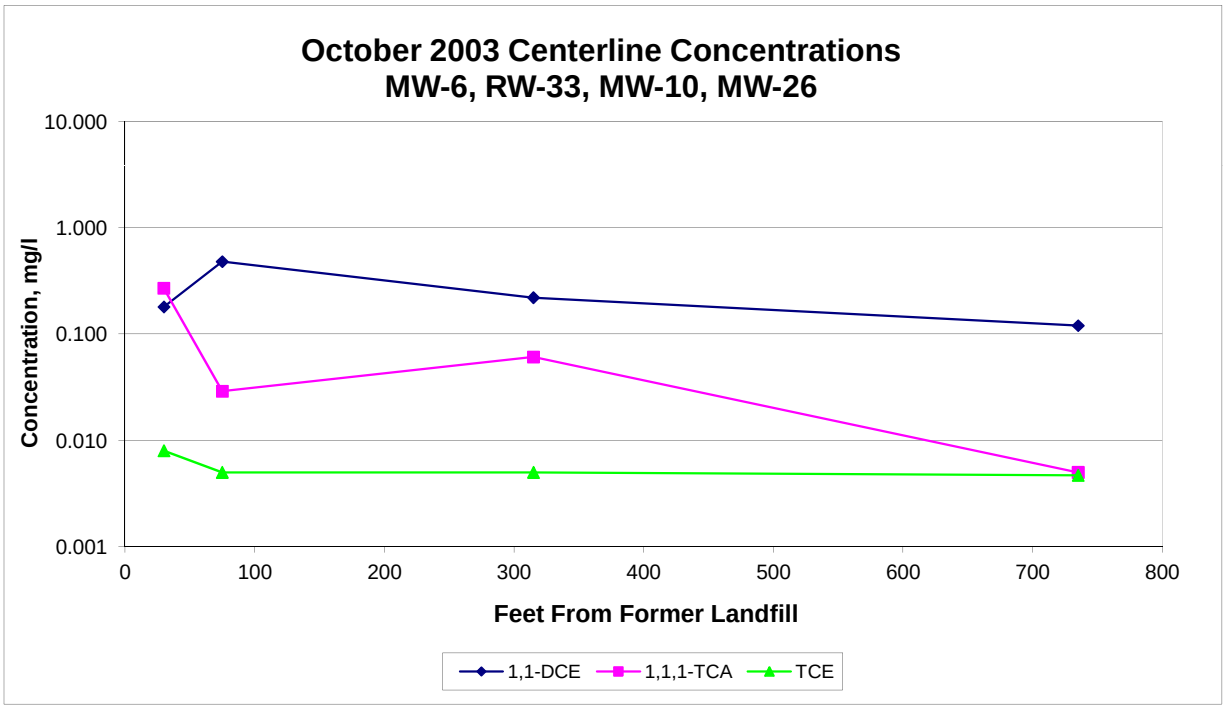

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Centerline Concentrations
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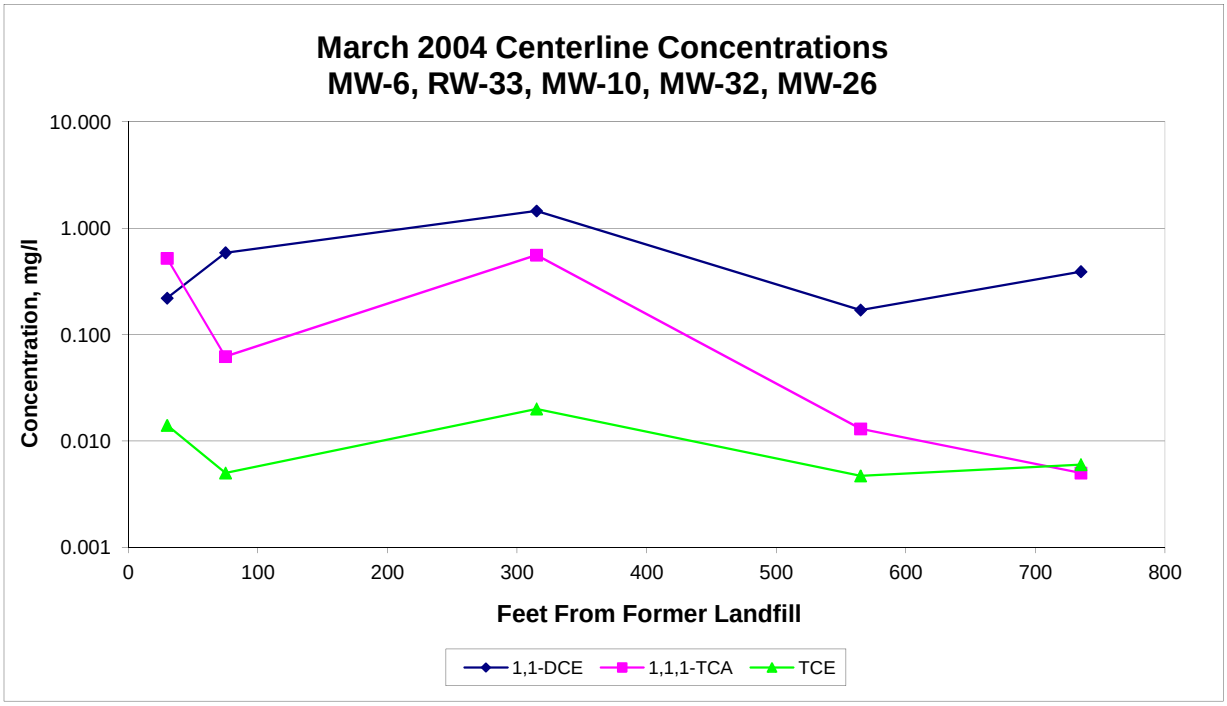
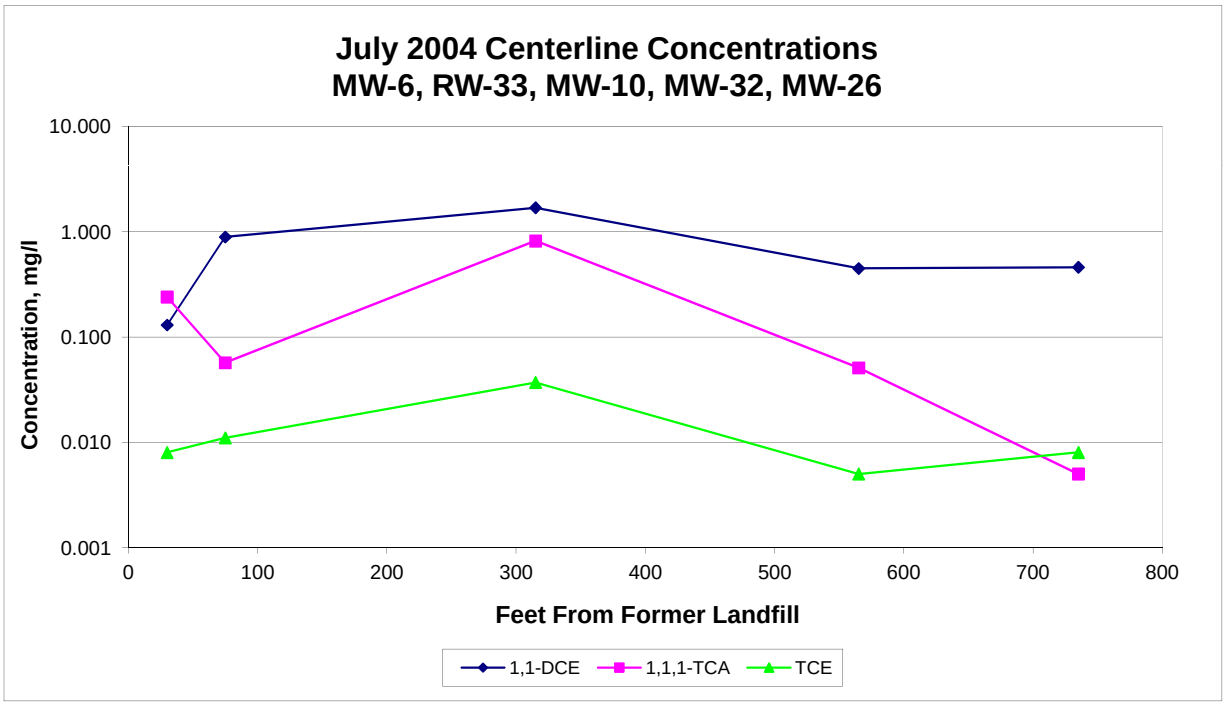
January 2013 Semiannual Corrective Action Report





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Centerline Concentrations
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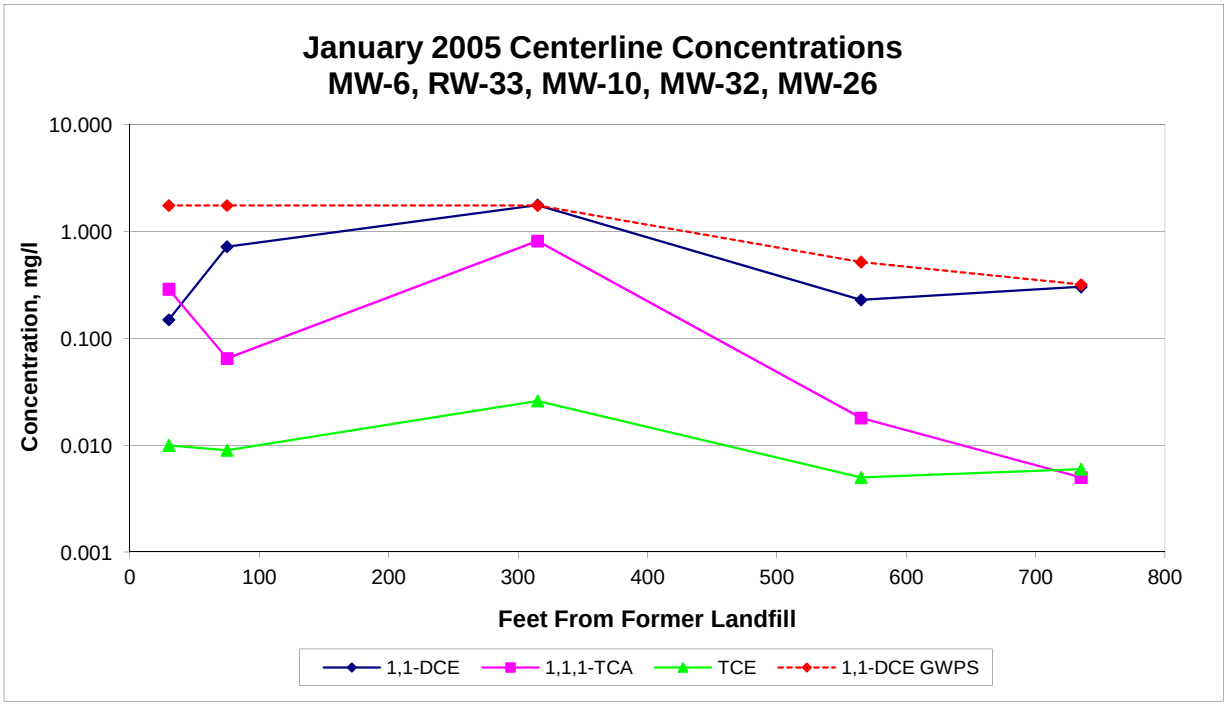
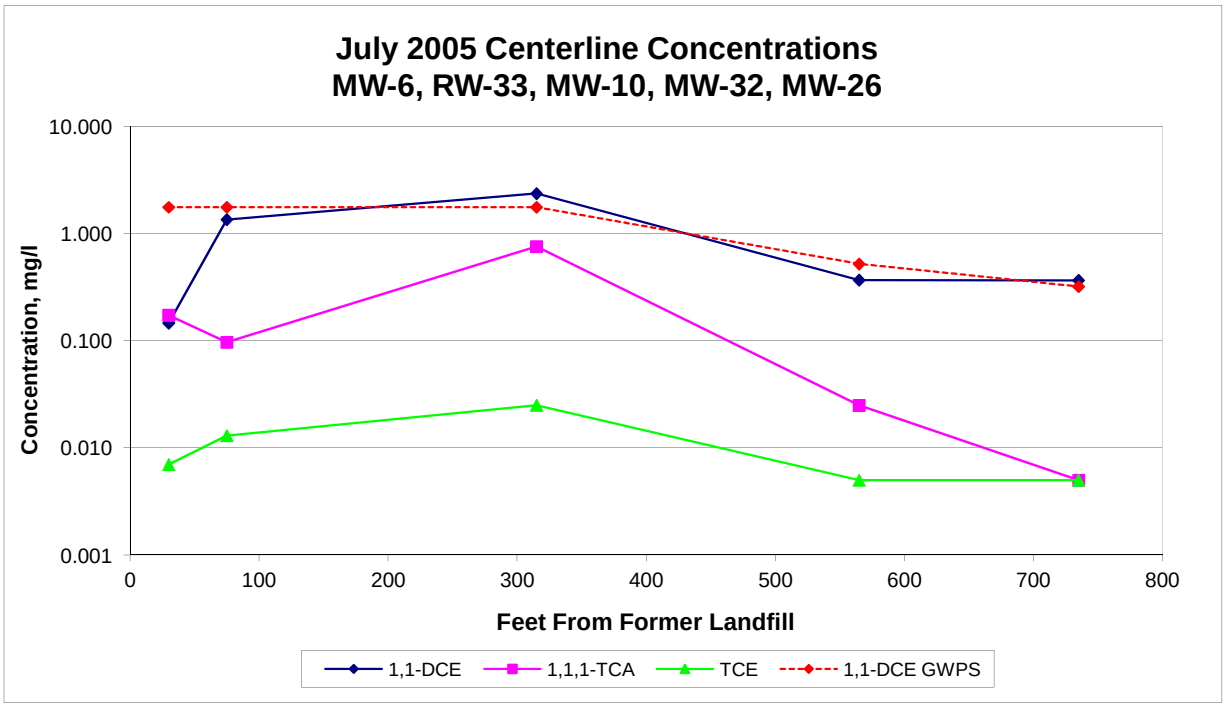
January 2013 Semiannual Corrective Action Report





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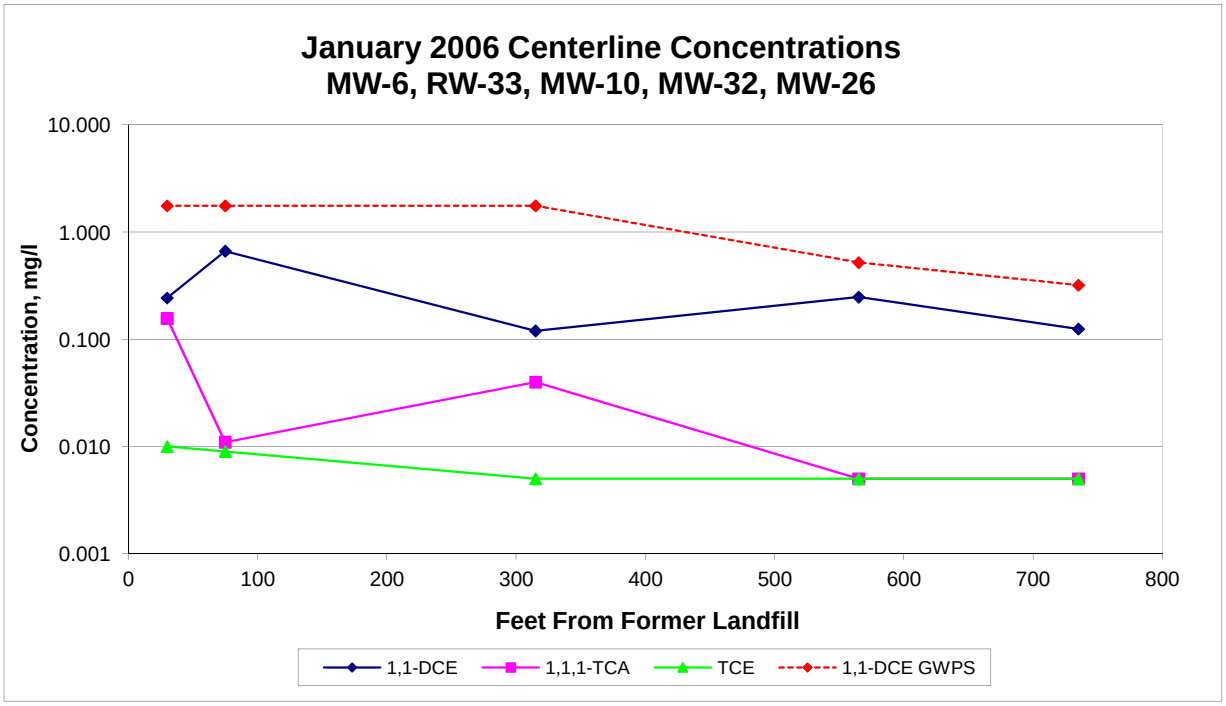

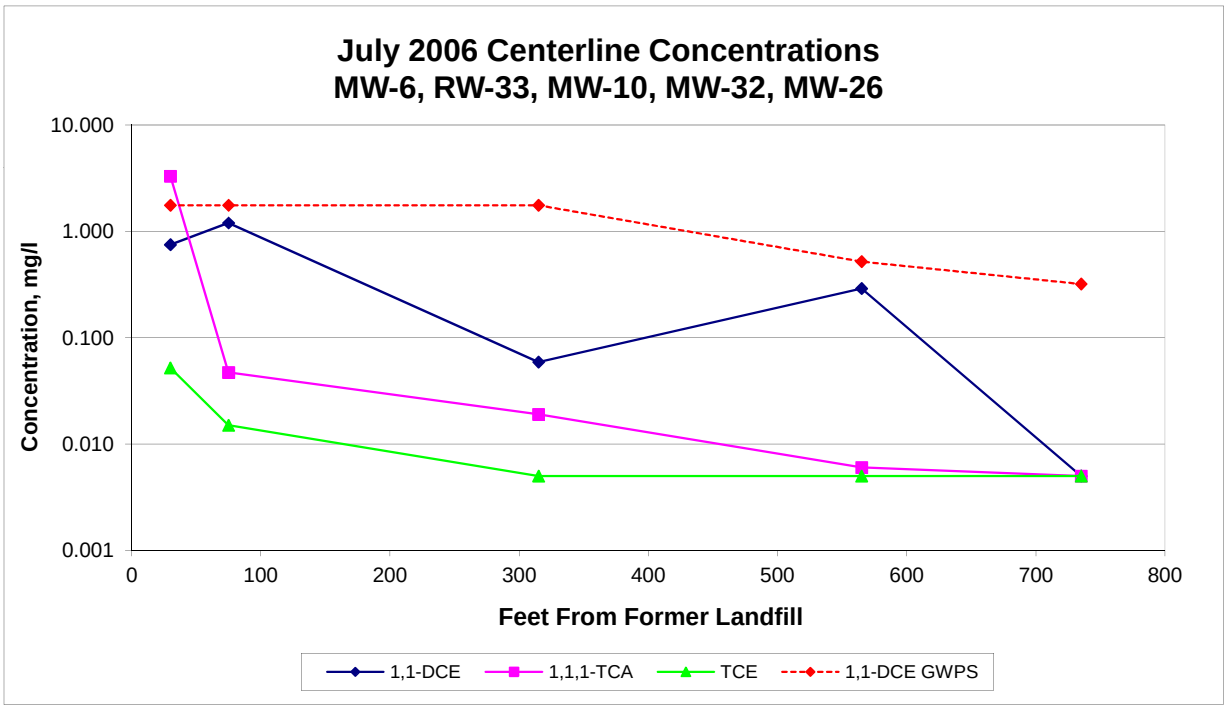

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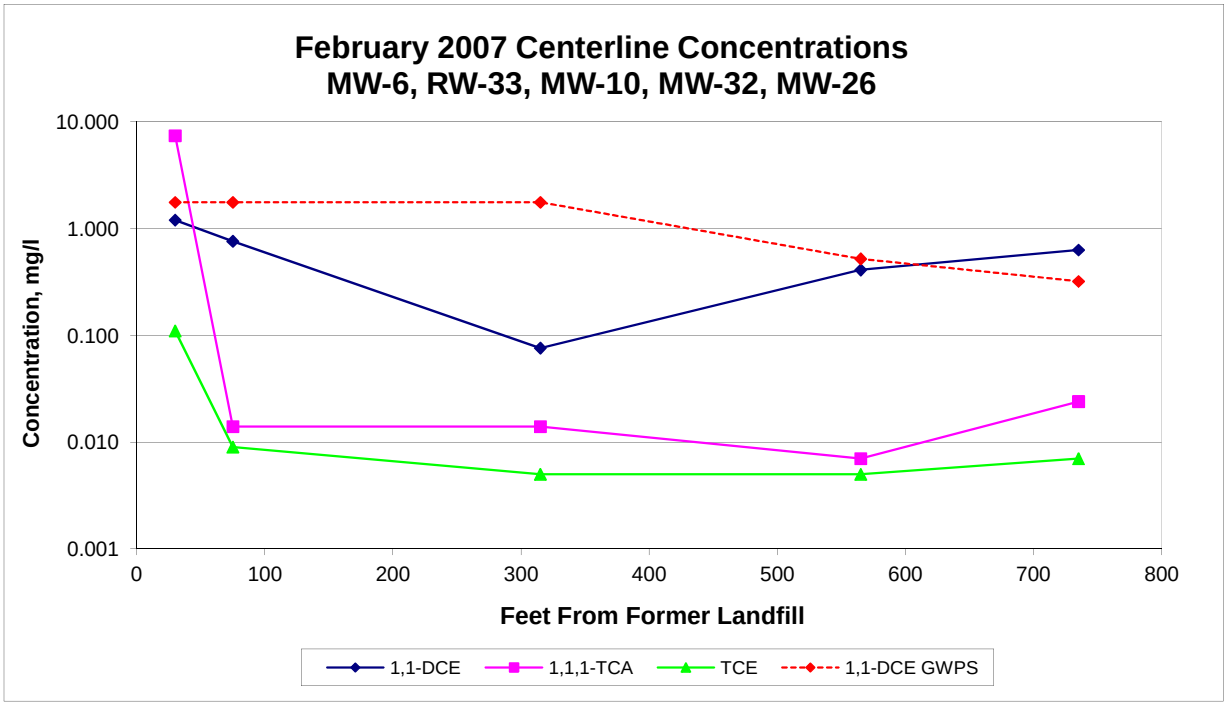
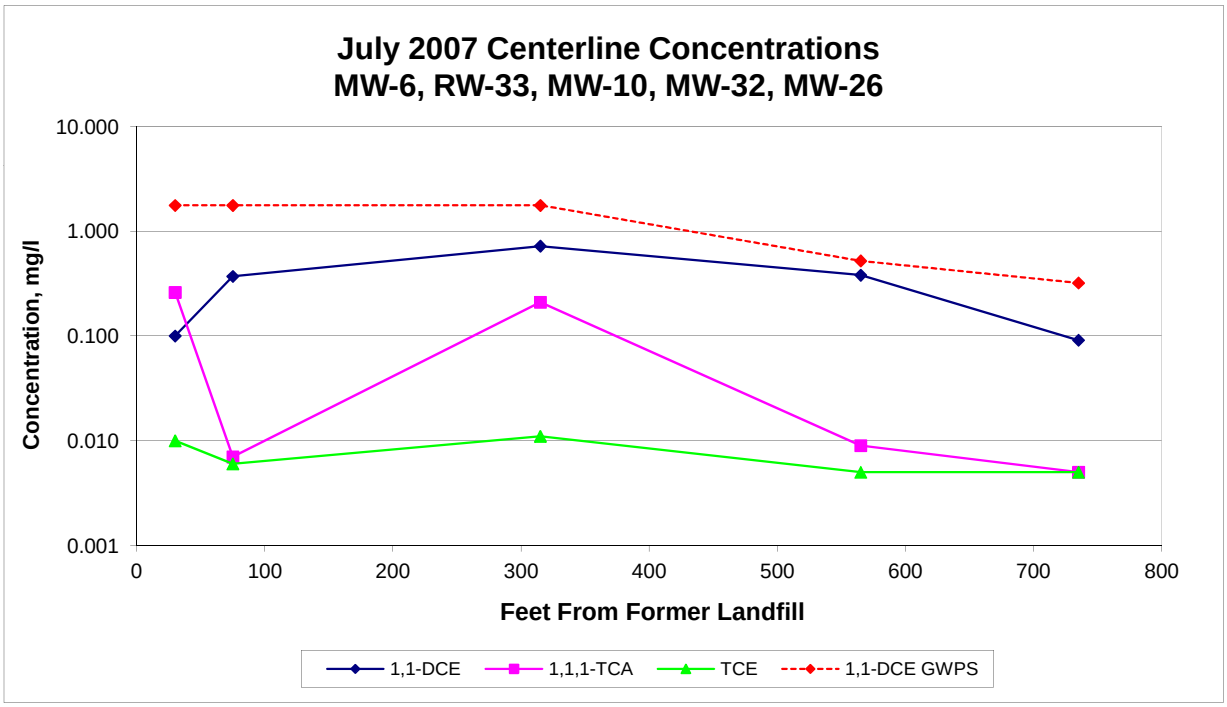
January 2013 Semiannual Corrective Action Report





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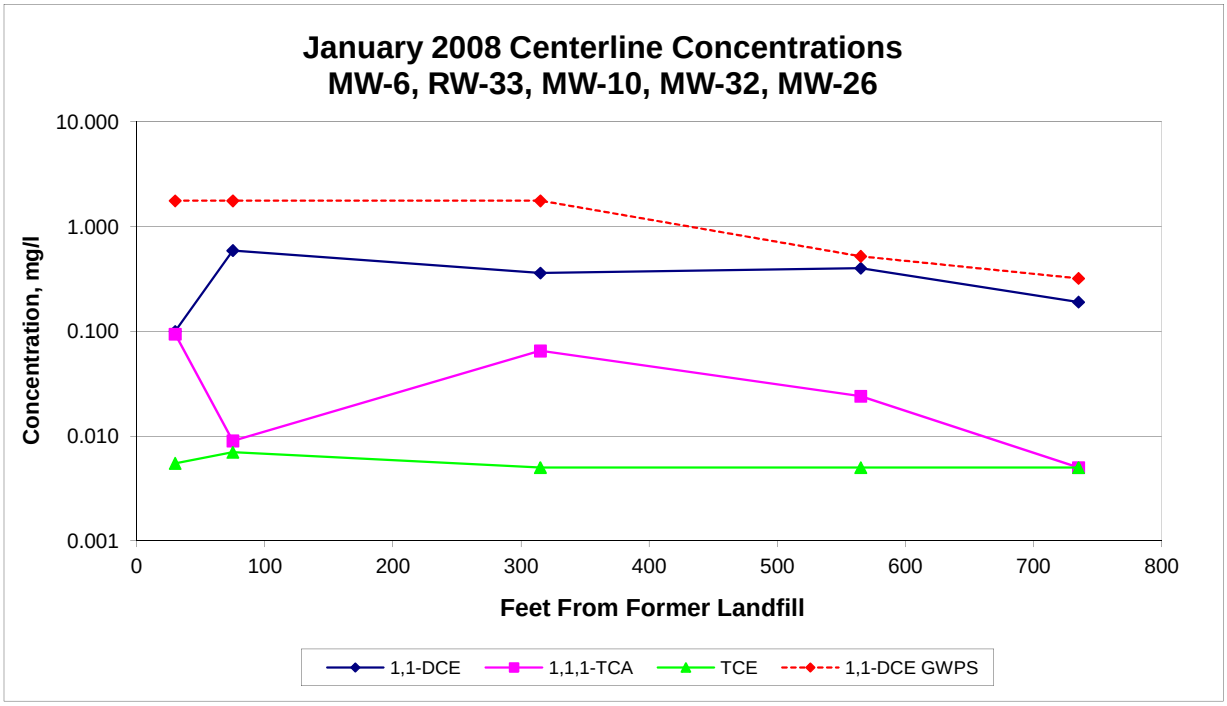


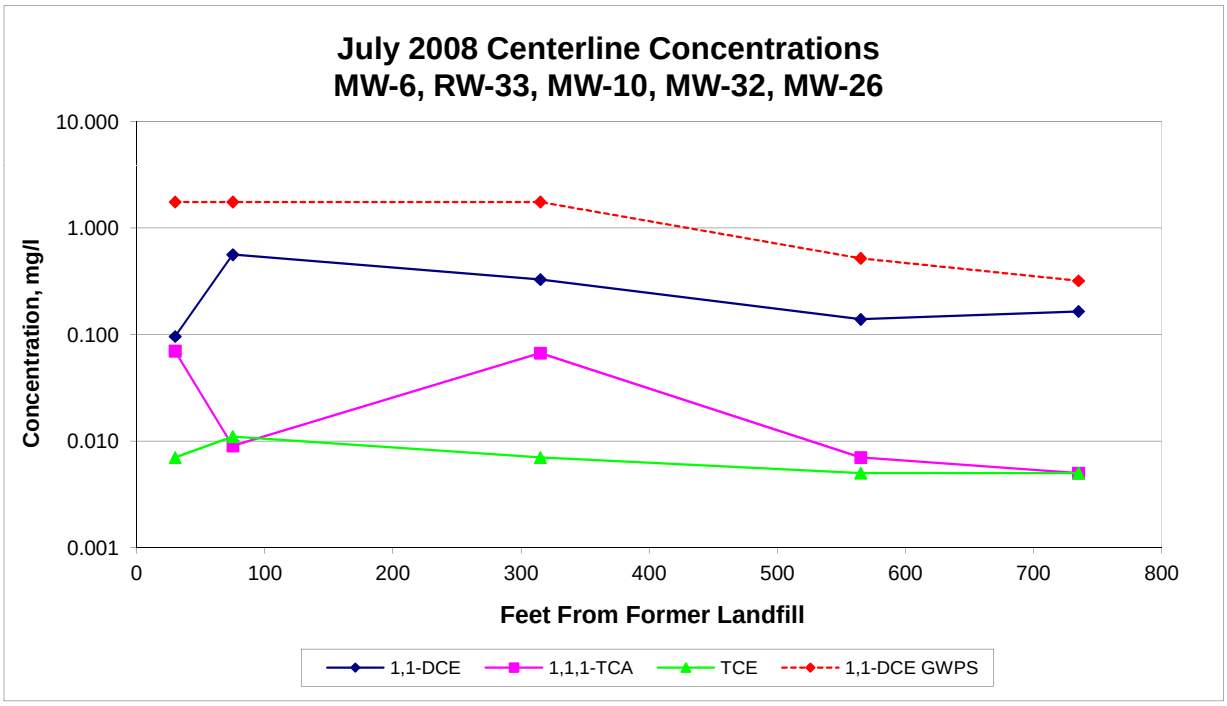
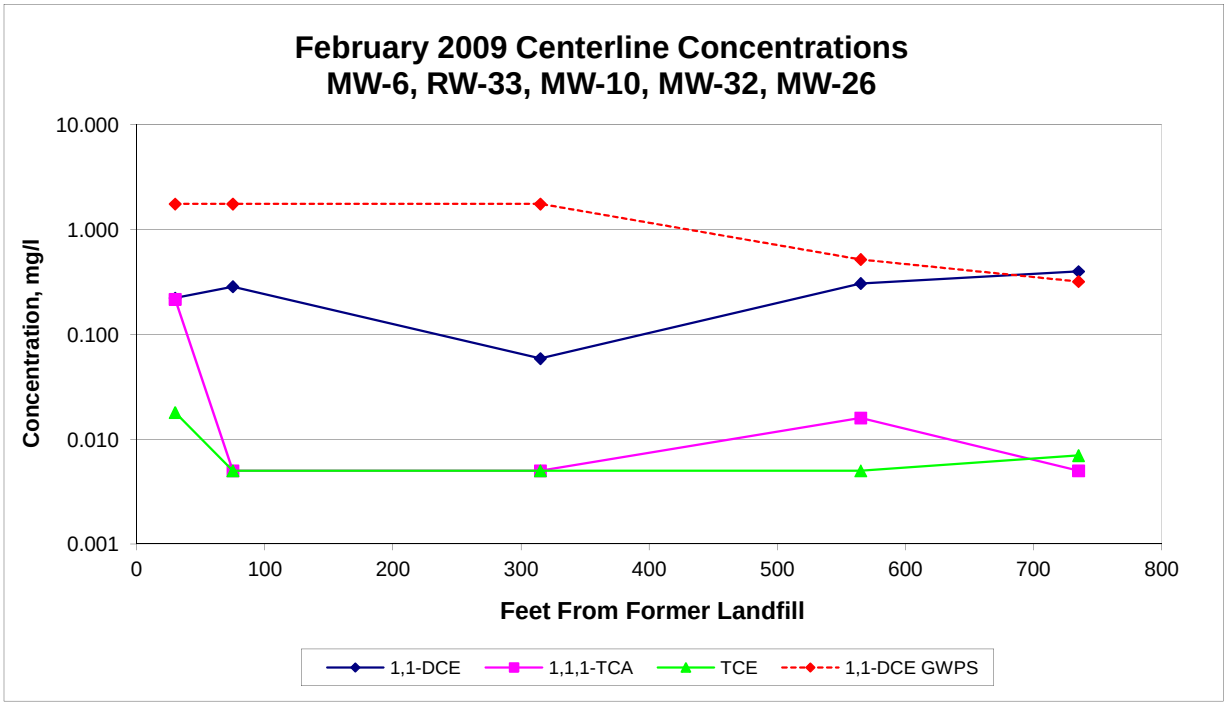


Chart B-5
Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



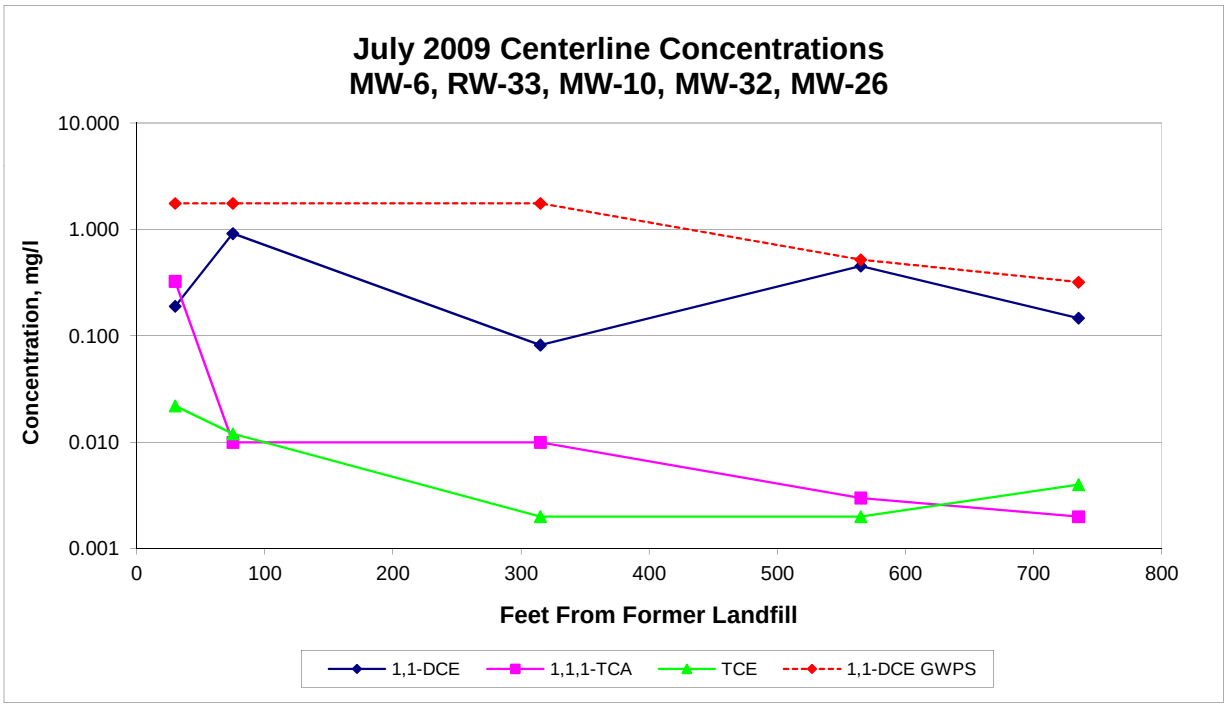
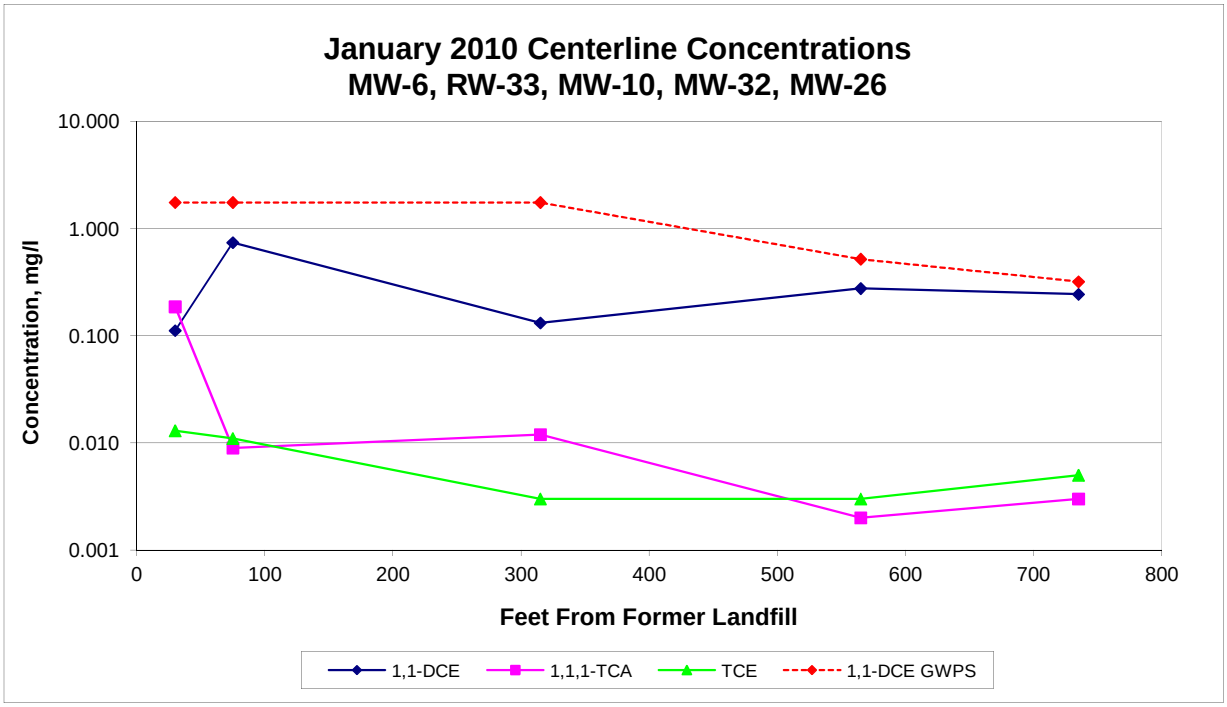


Chart B-5
Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



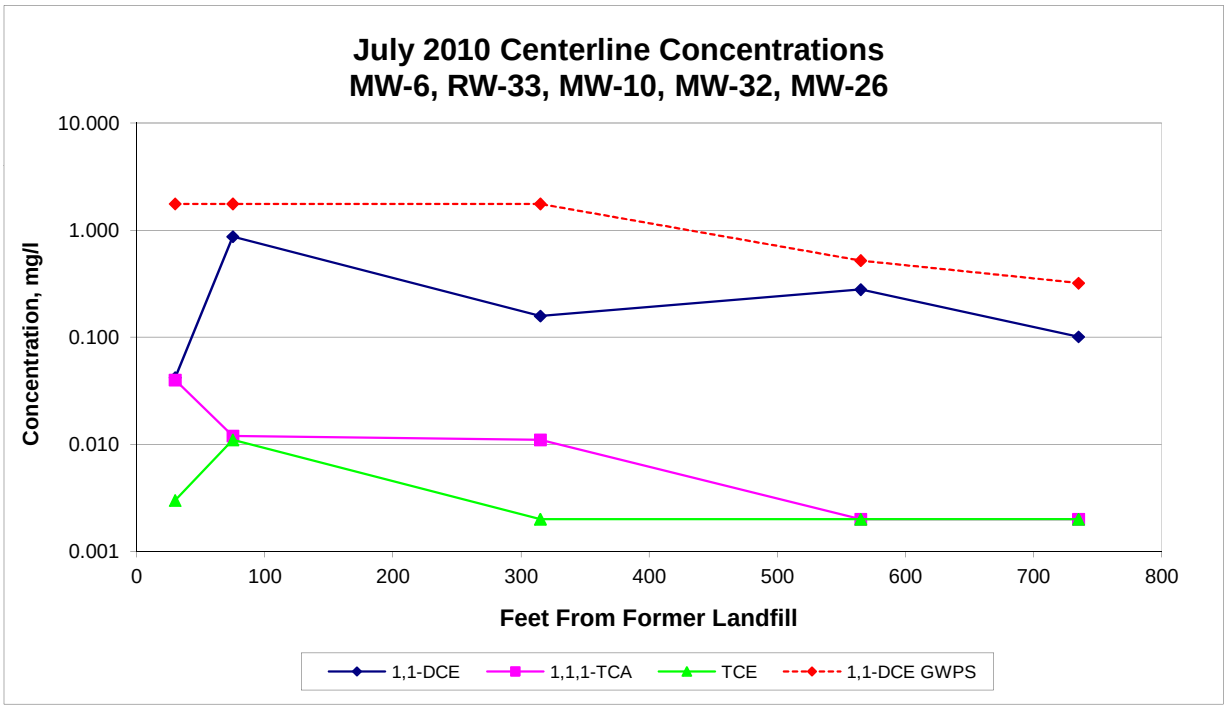
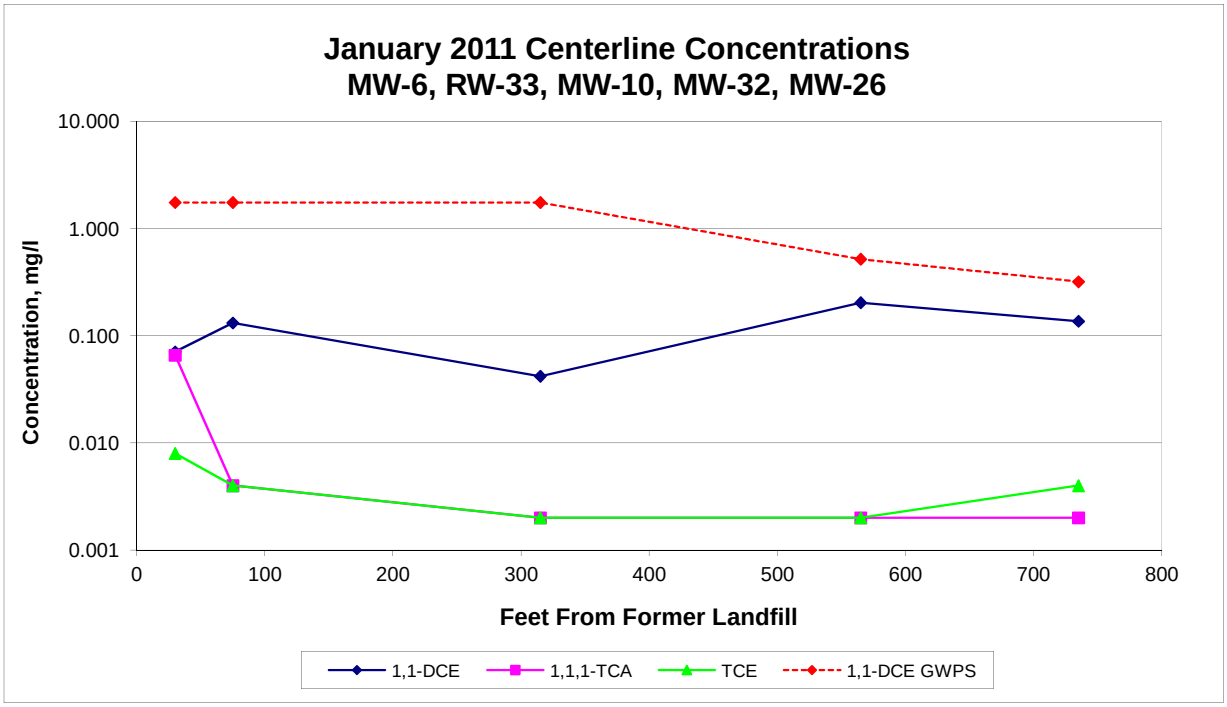


Chart B-5
Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



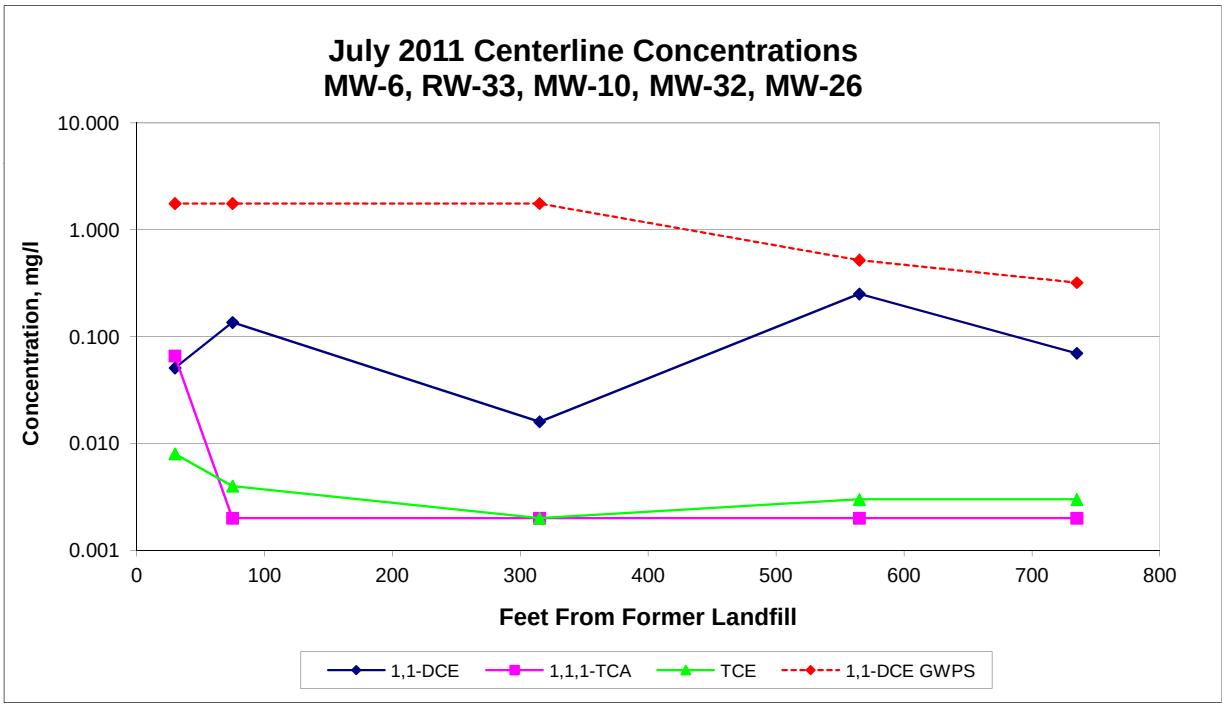
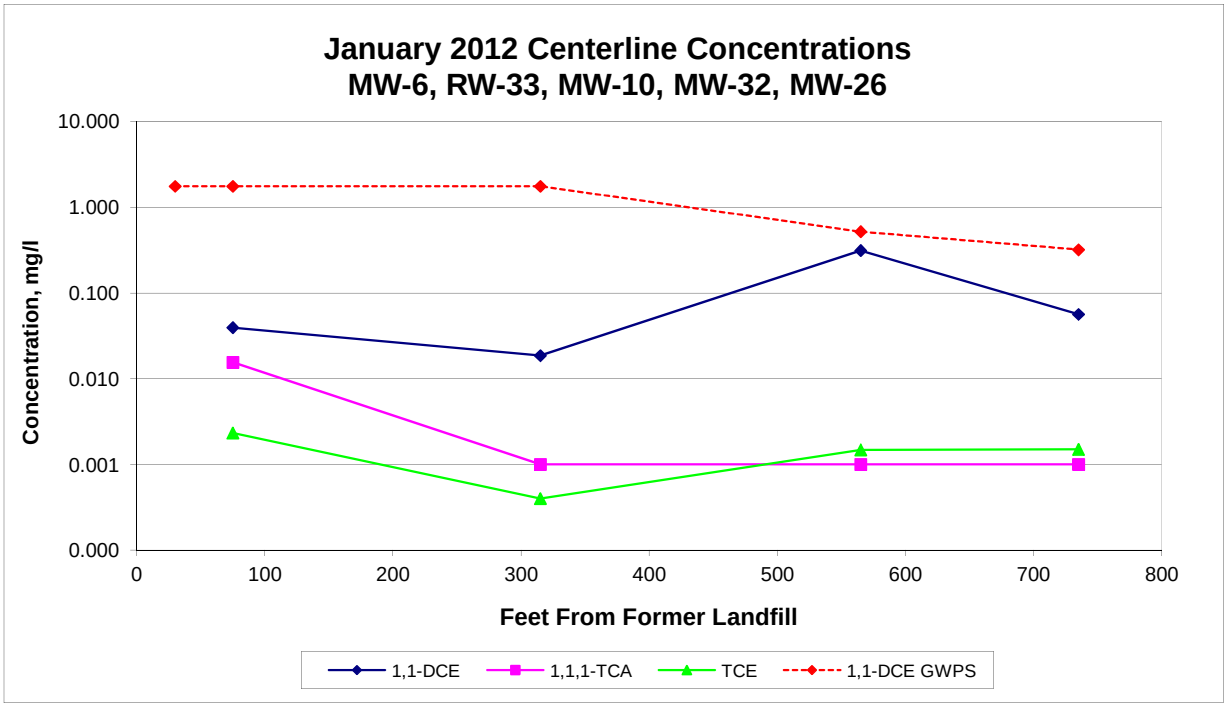


Chart B-5
Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



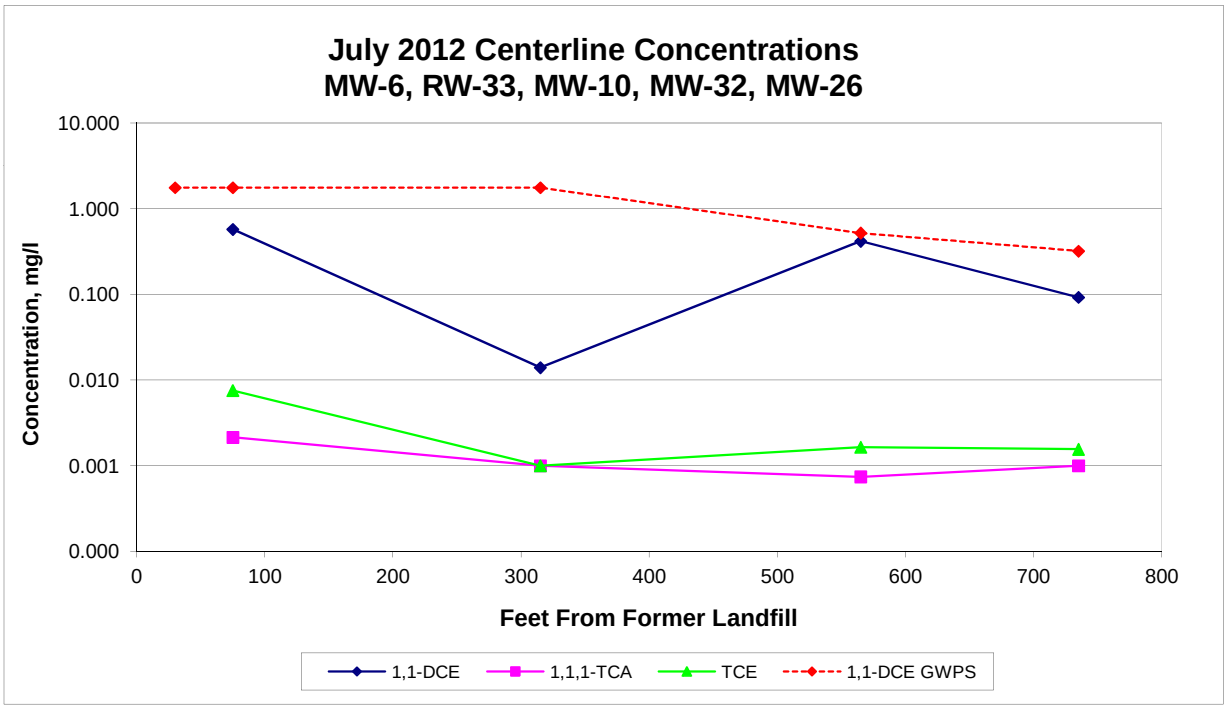
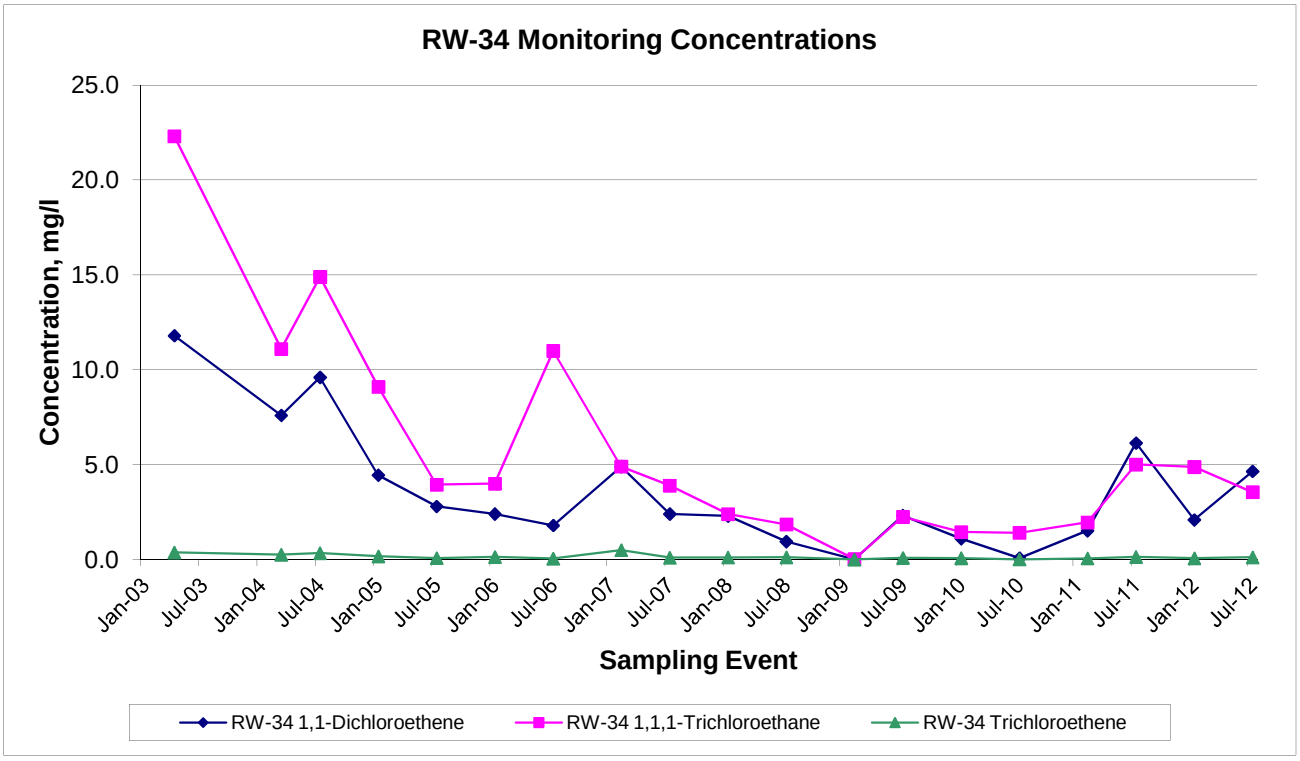


Chart B-6
Concentration Trends Within Discharge Line Leak Centerline Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



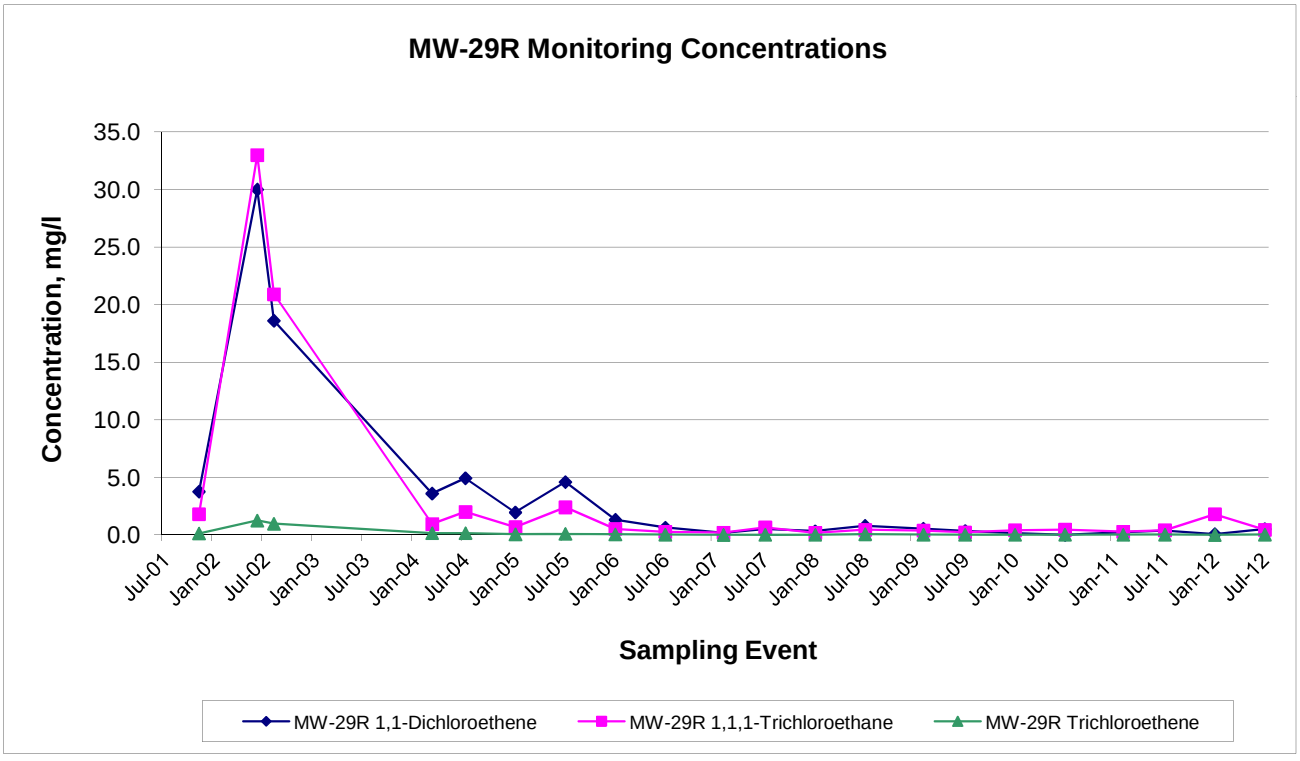
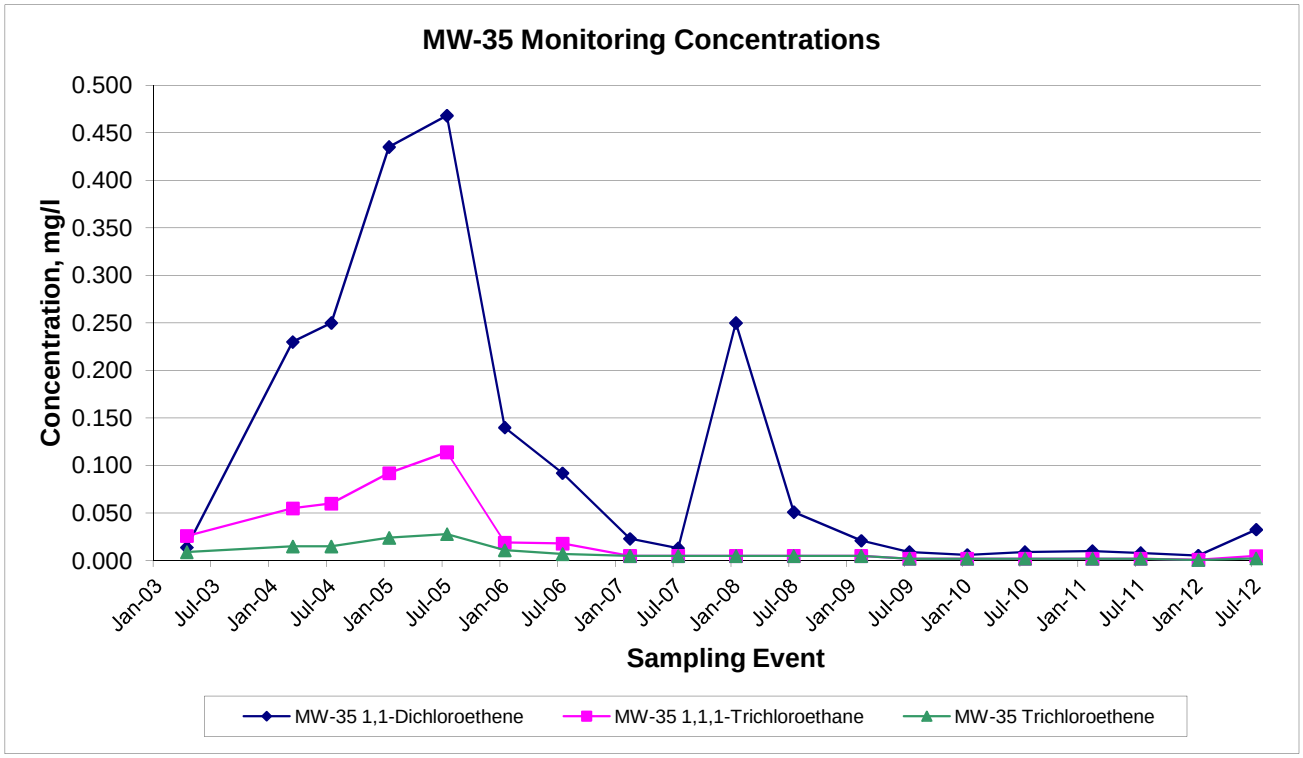


Chart B-6
Concentration Trends Within Discharge Line Leak Centerline Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



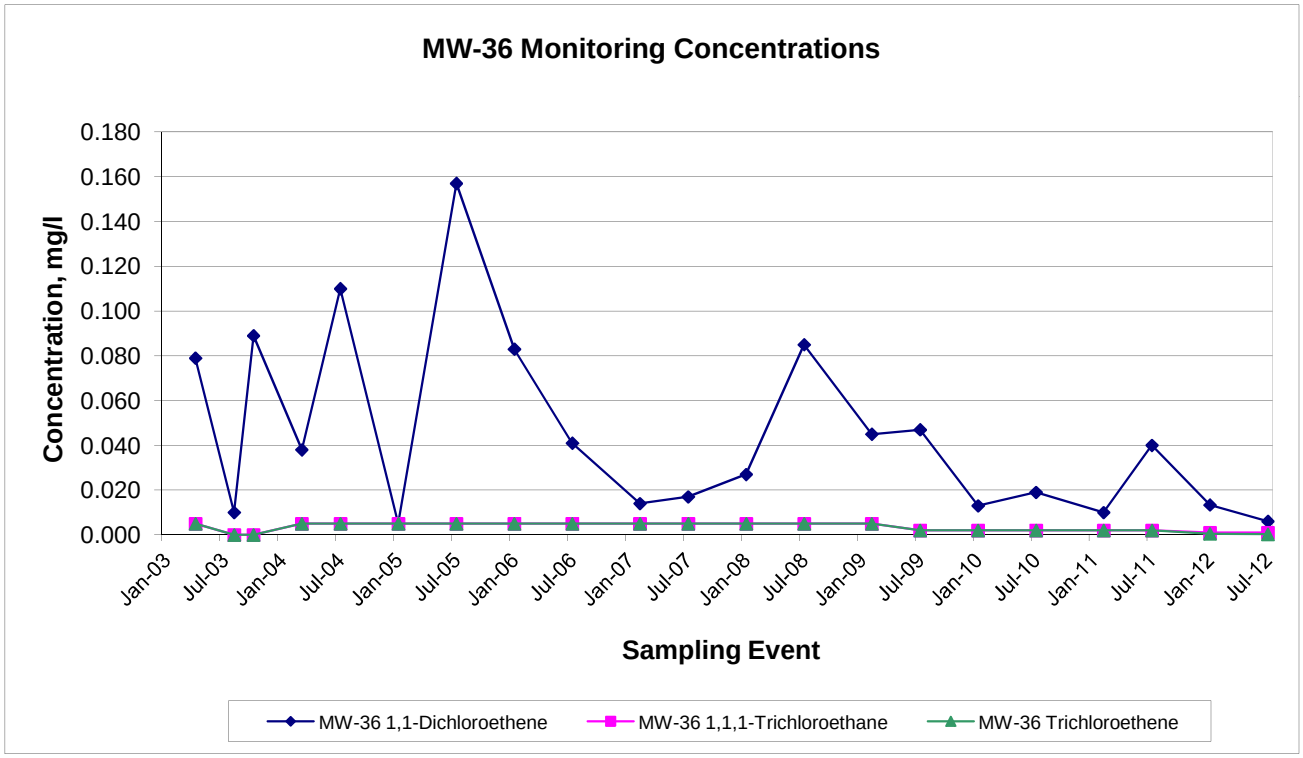
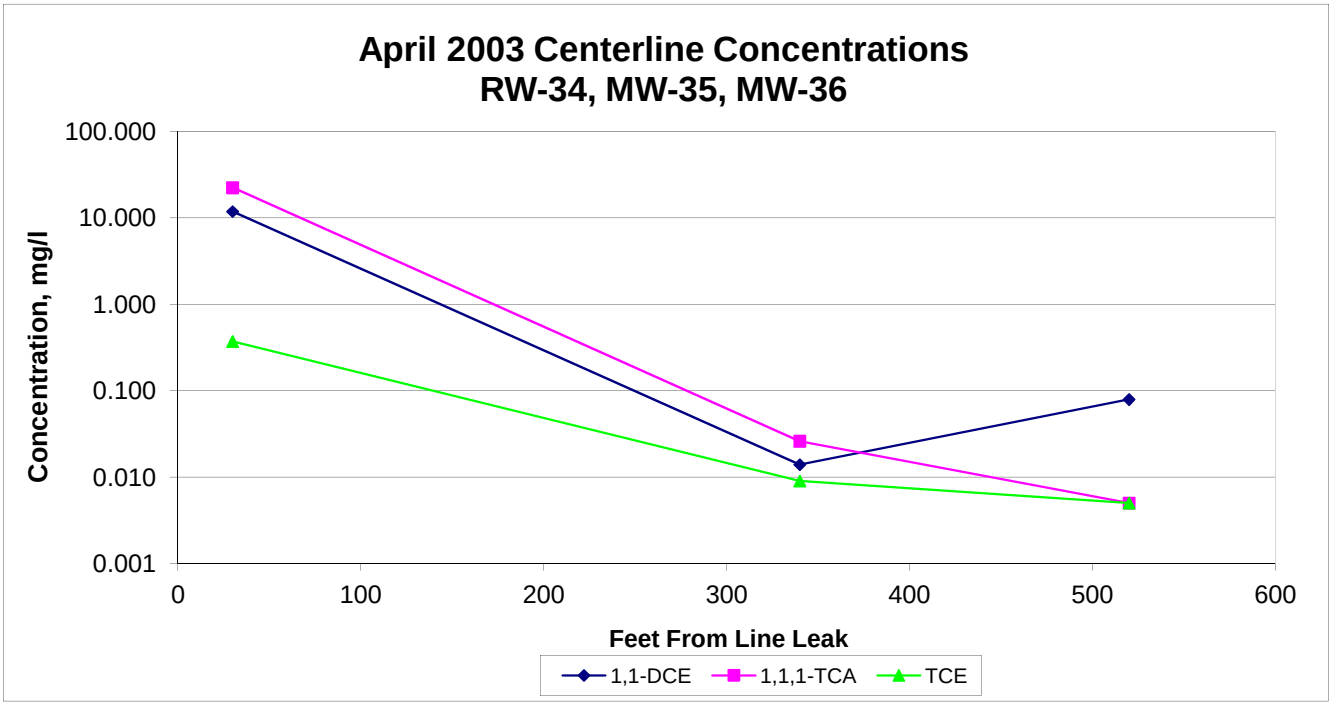


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



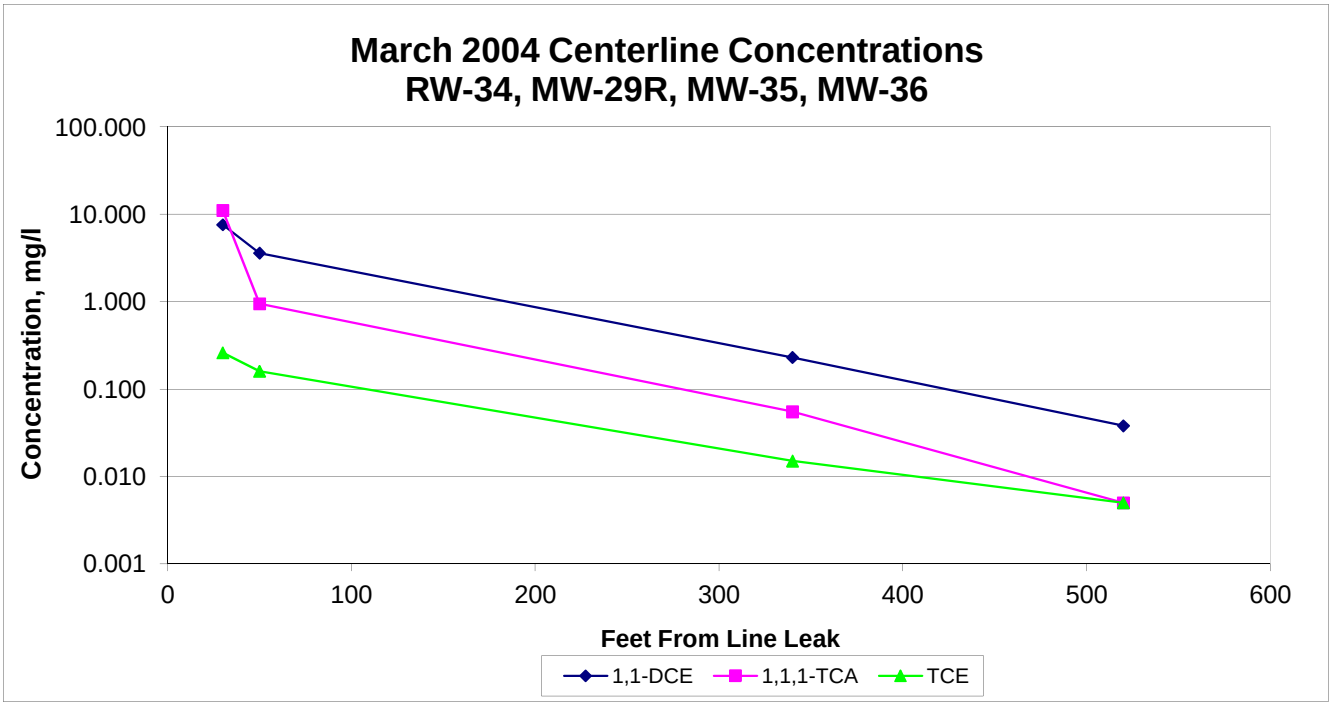


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
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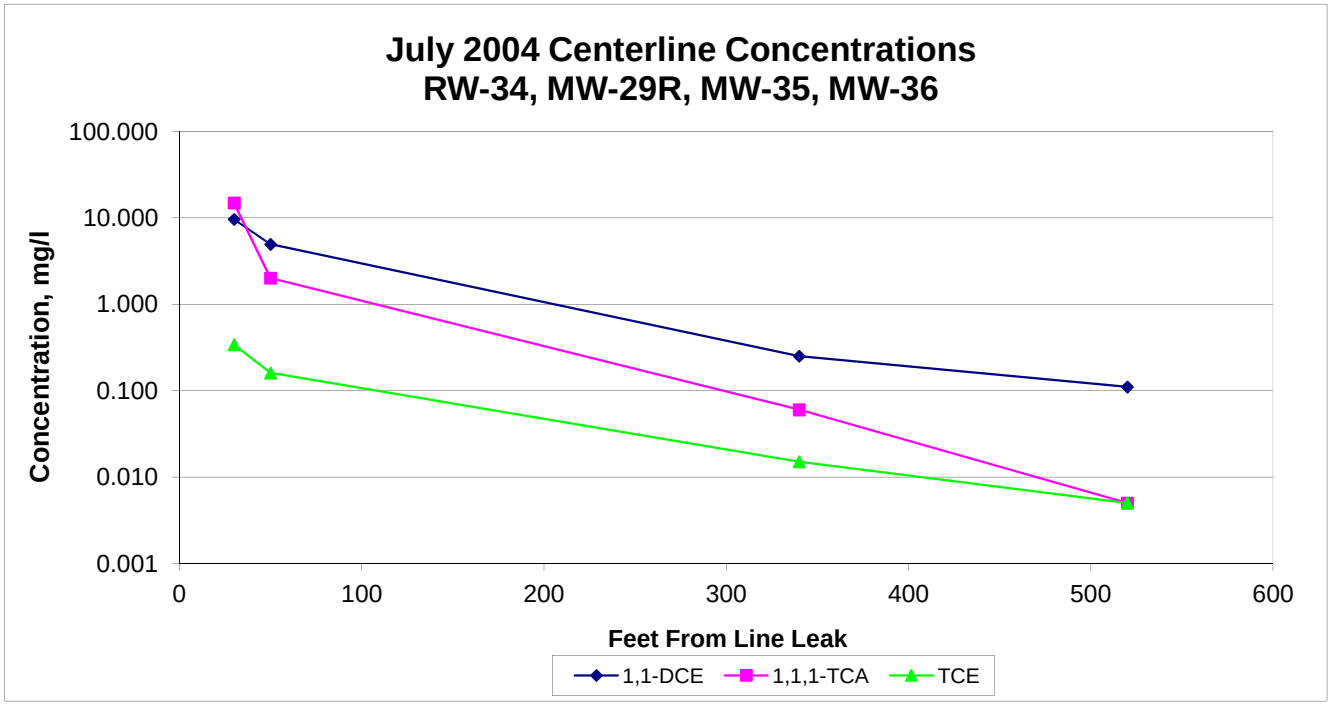


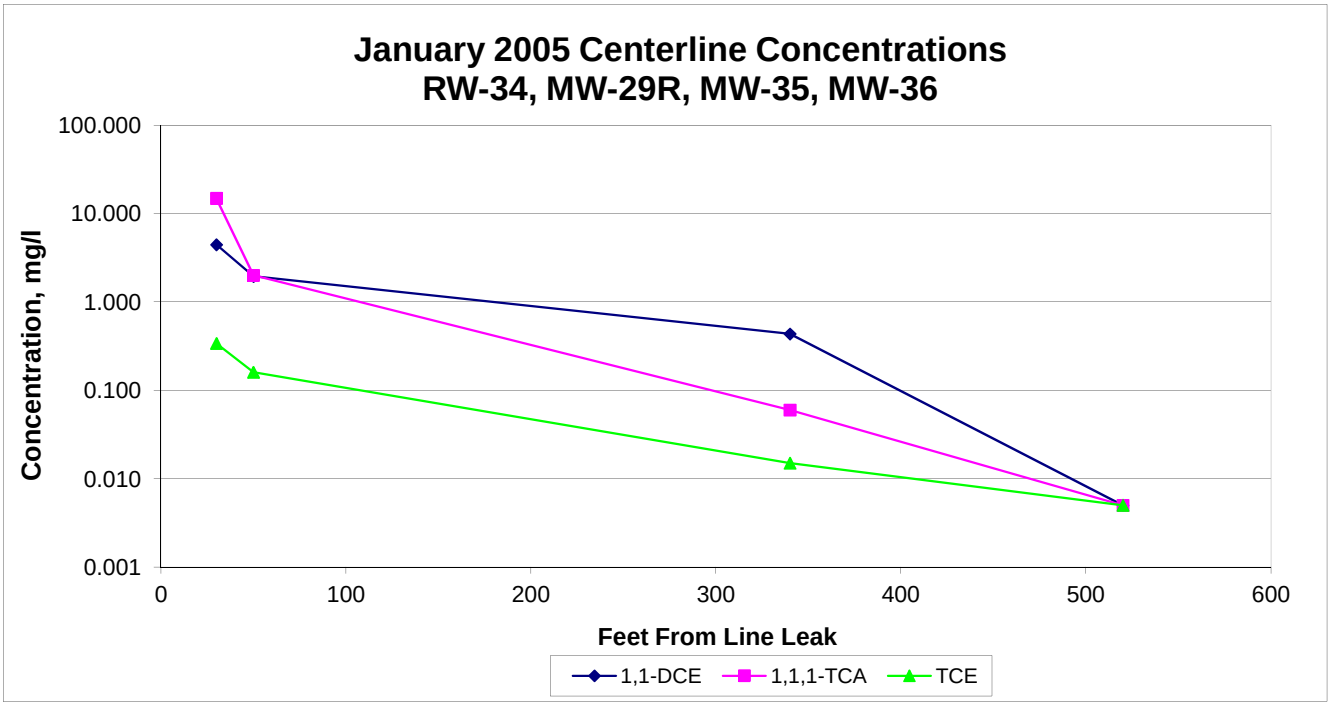
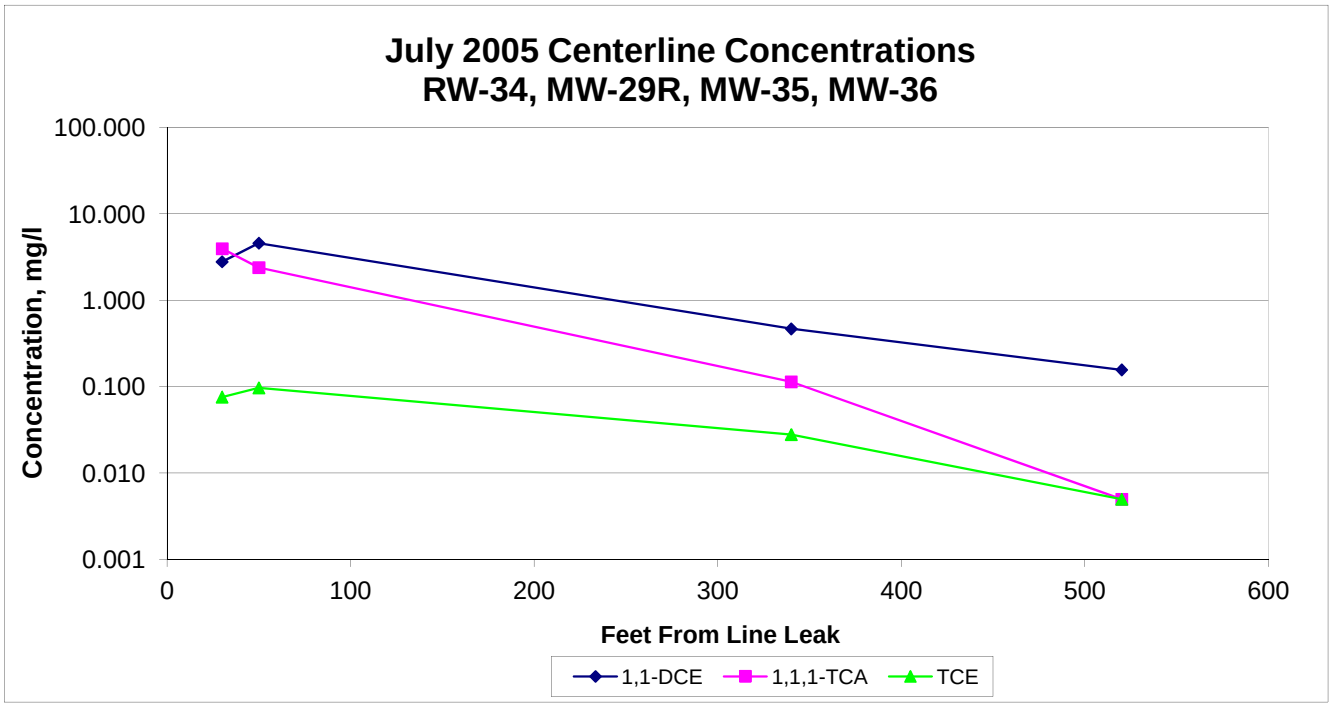


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



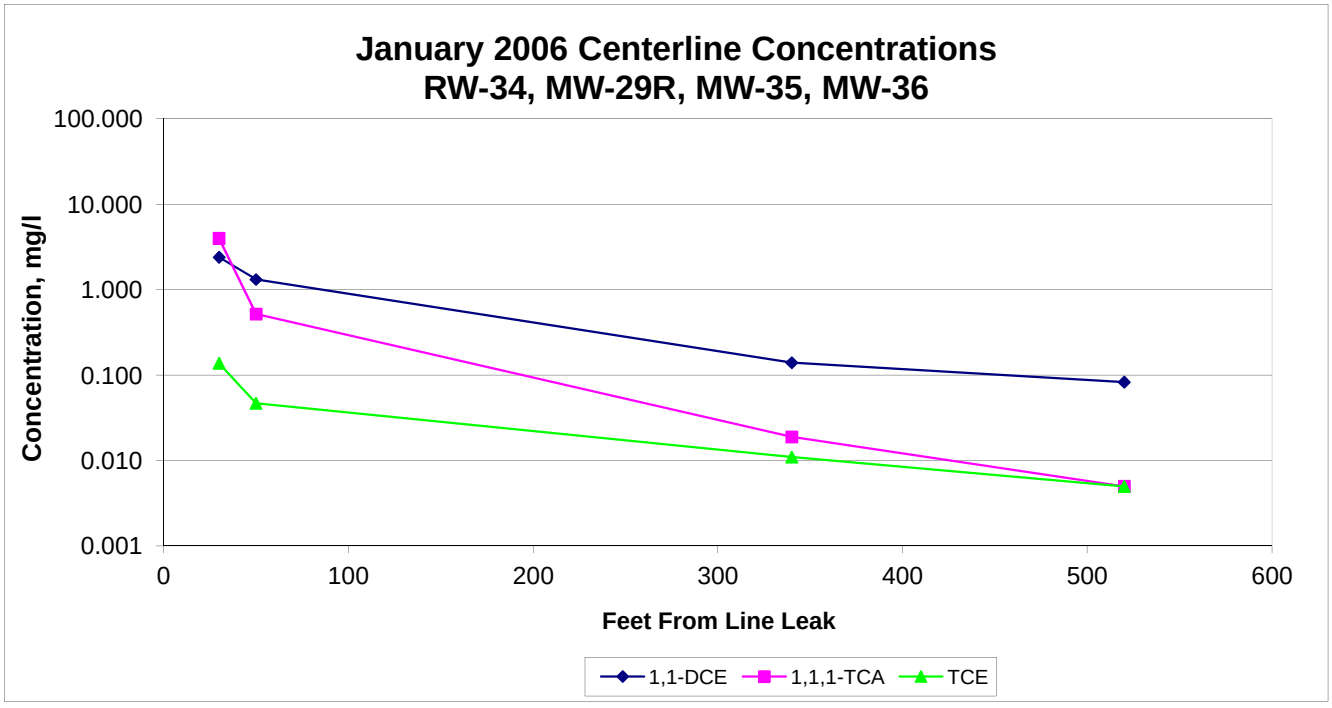
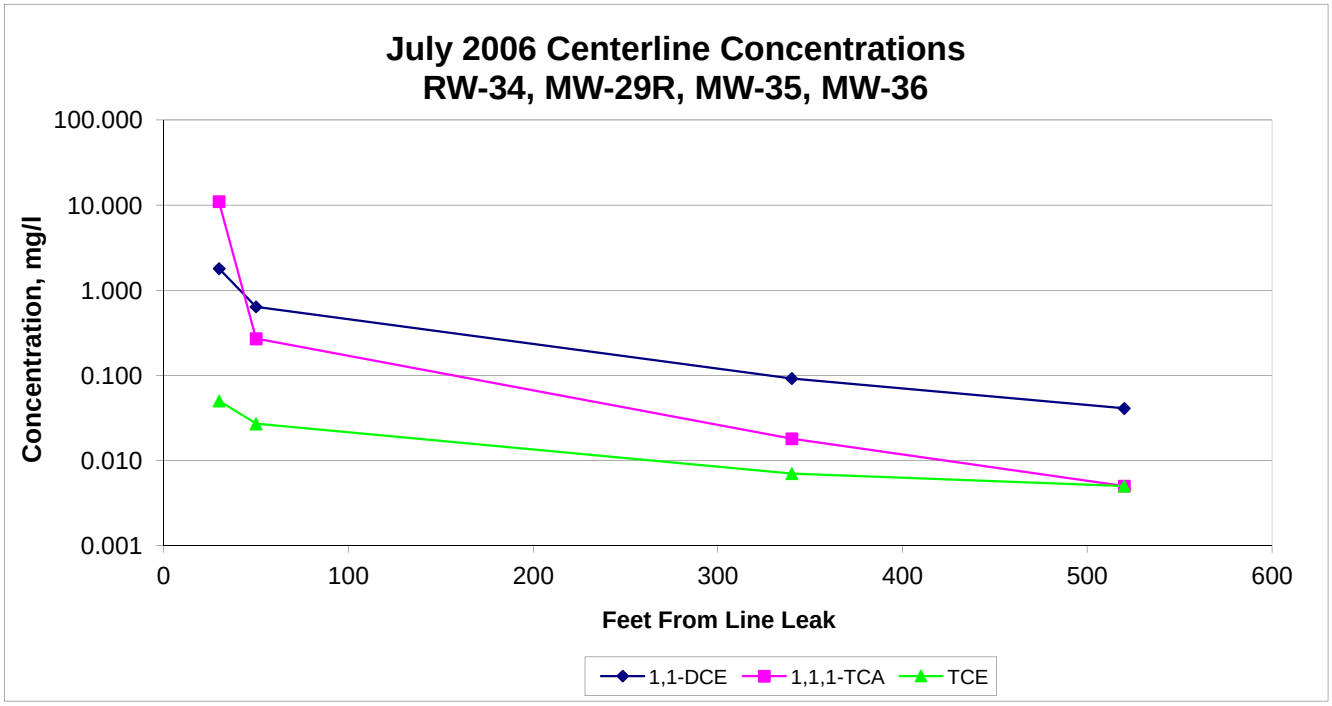


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



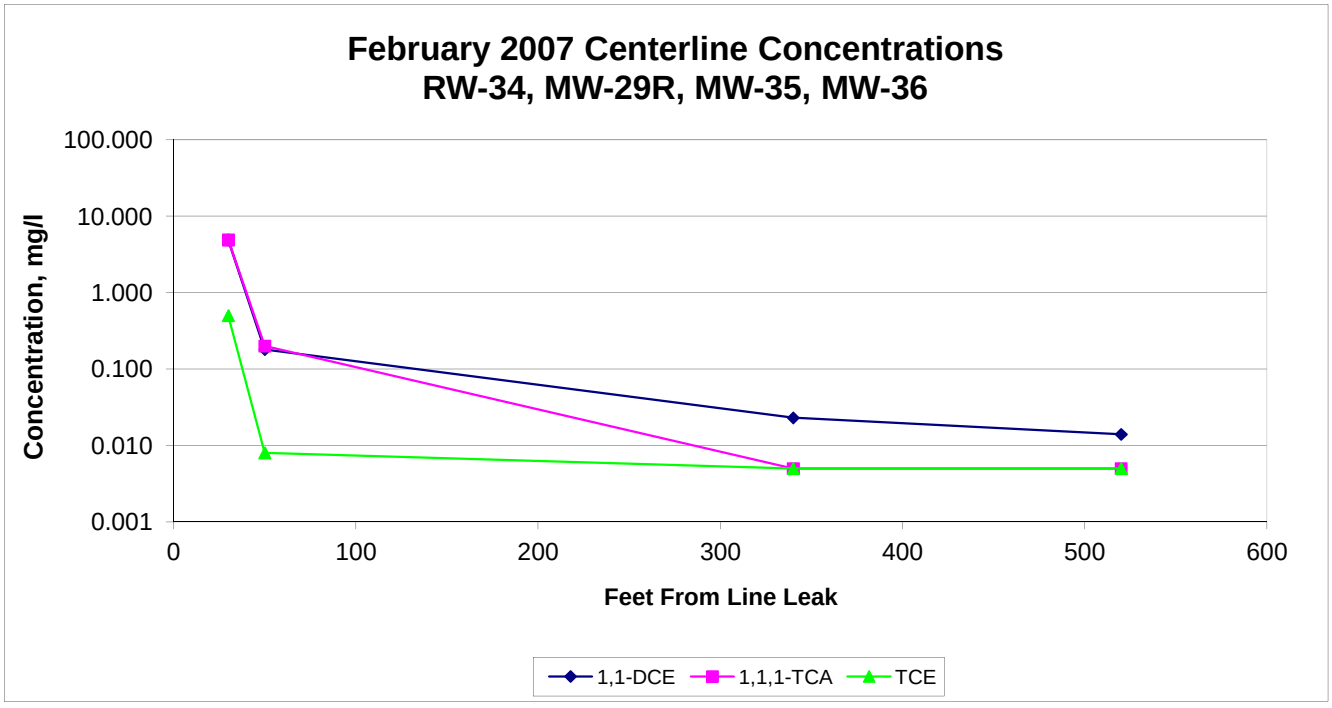


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
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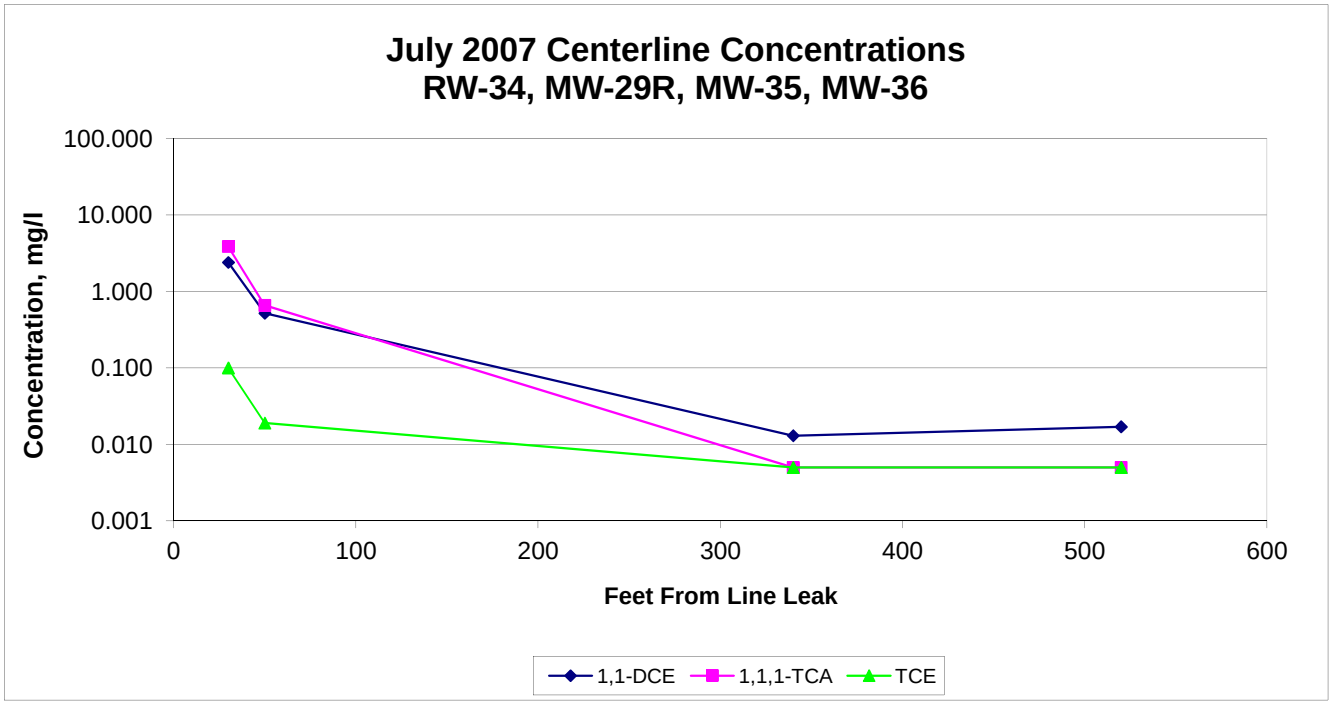

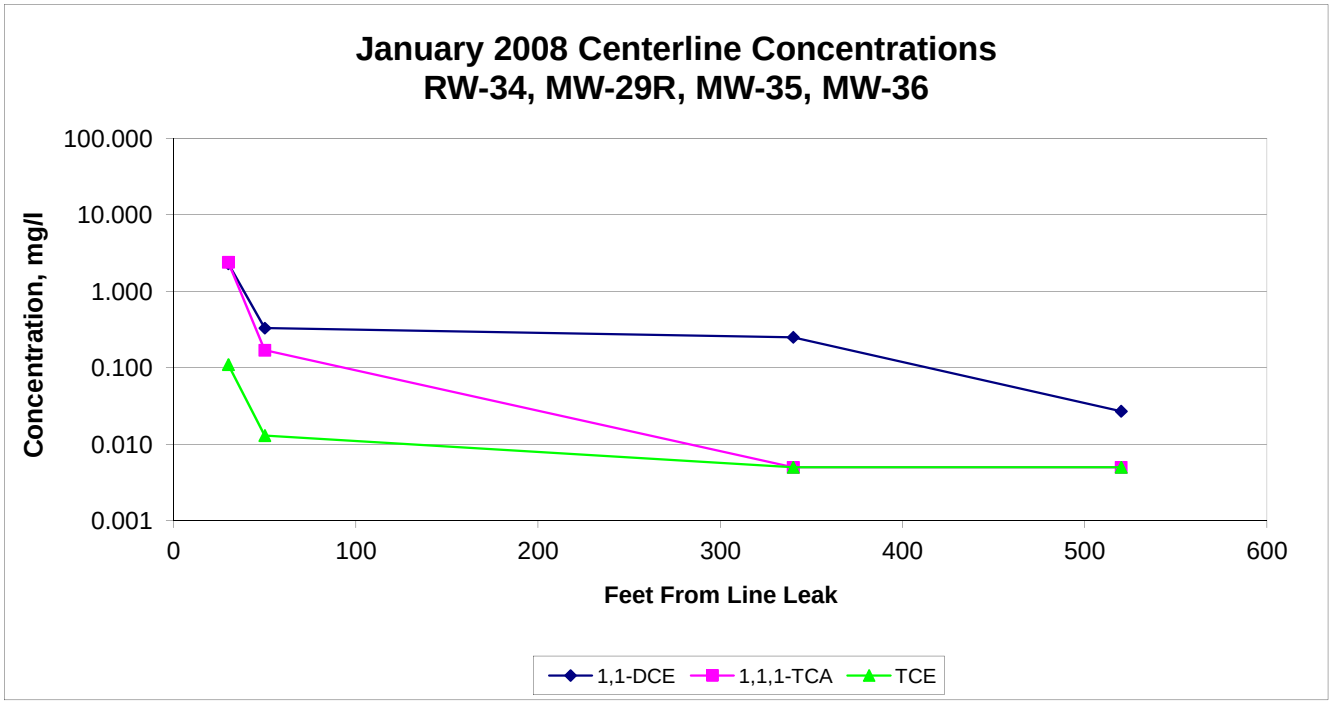

Chart B-7
Discharge Line Leak Centerline Concentrations
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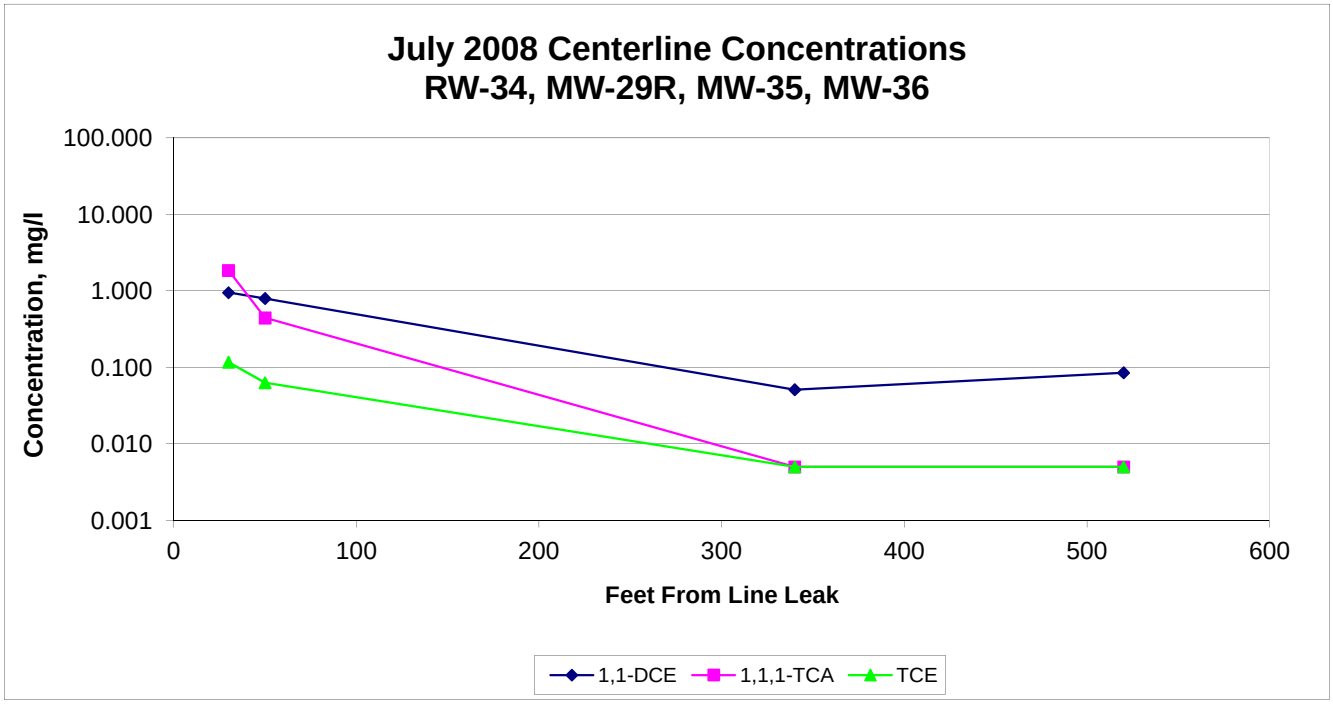


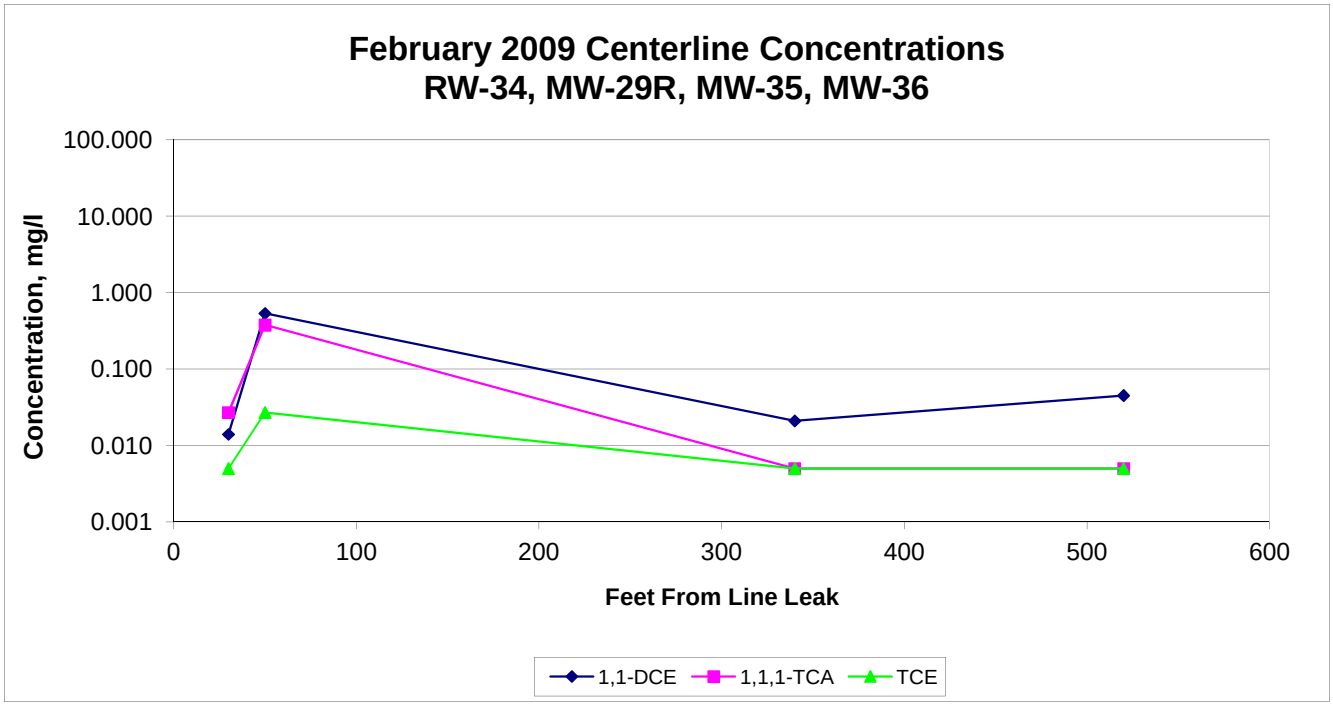
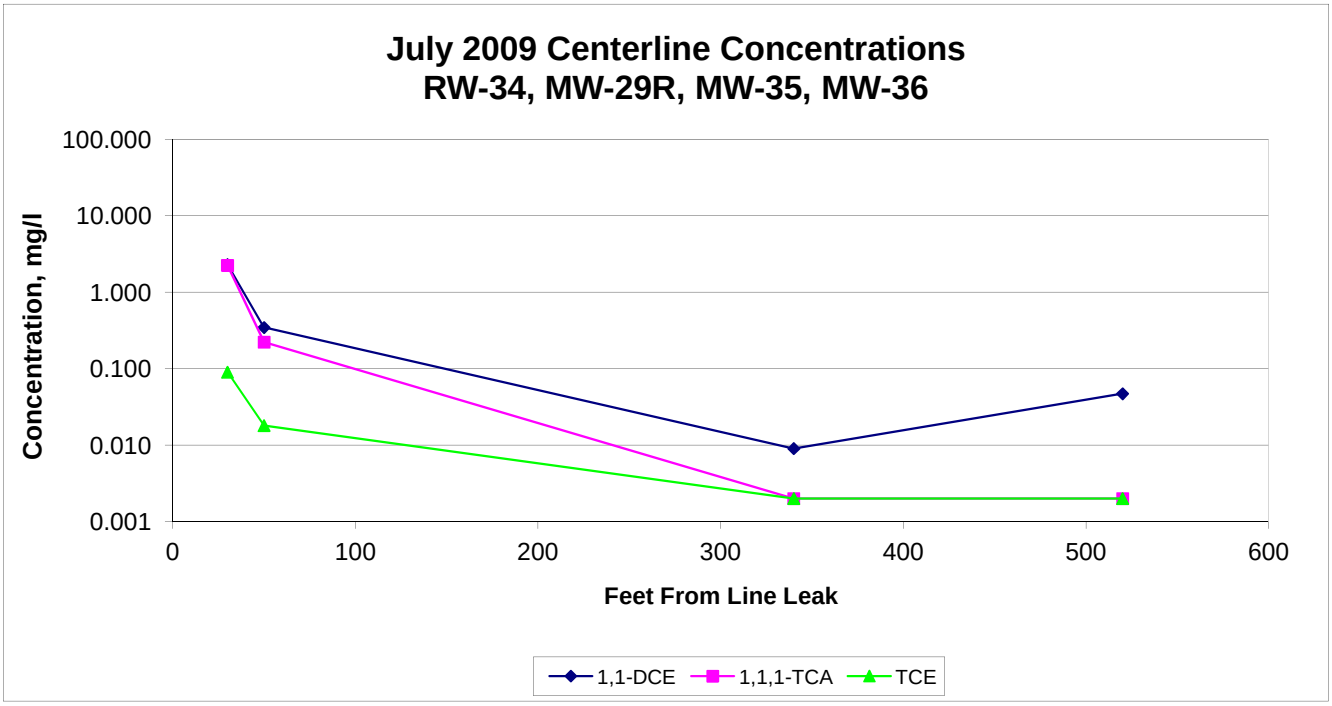


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



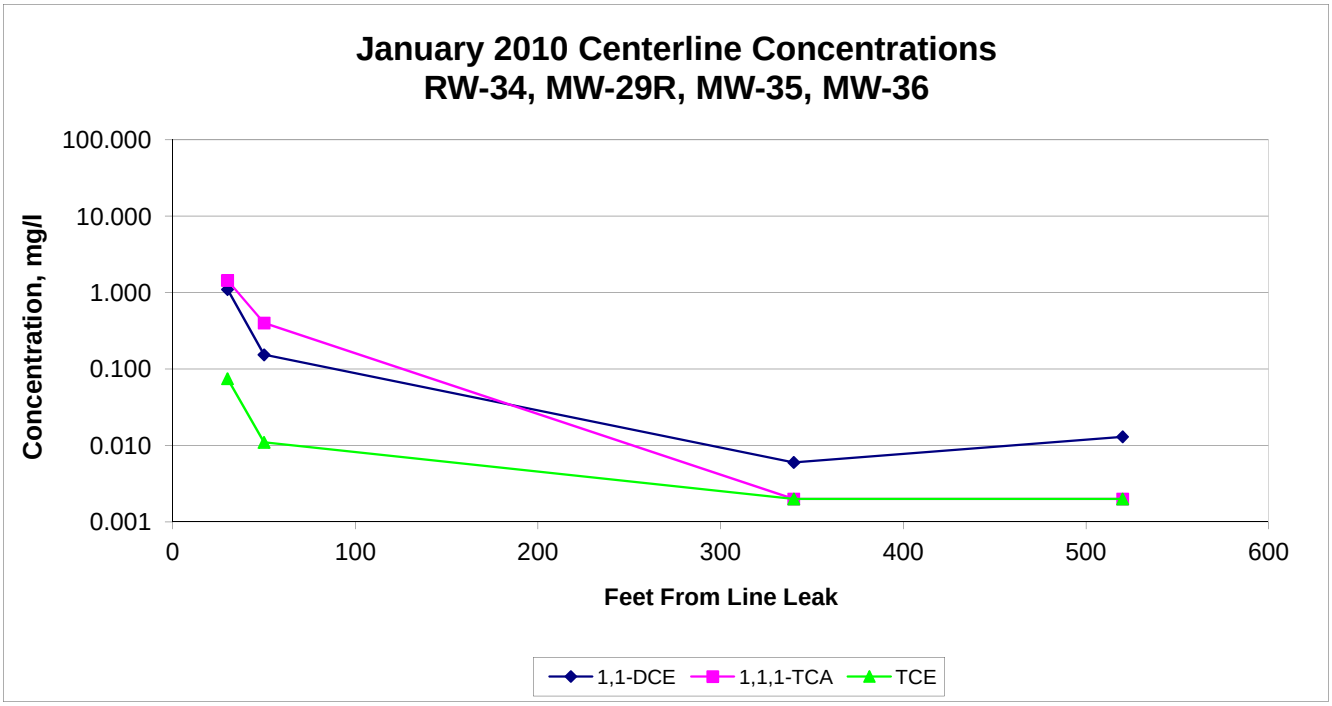


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
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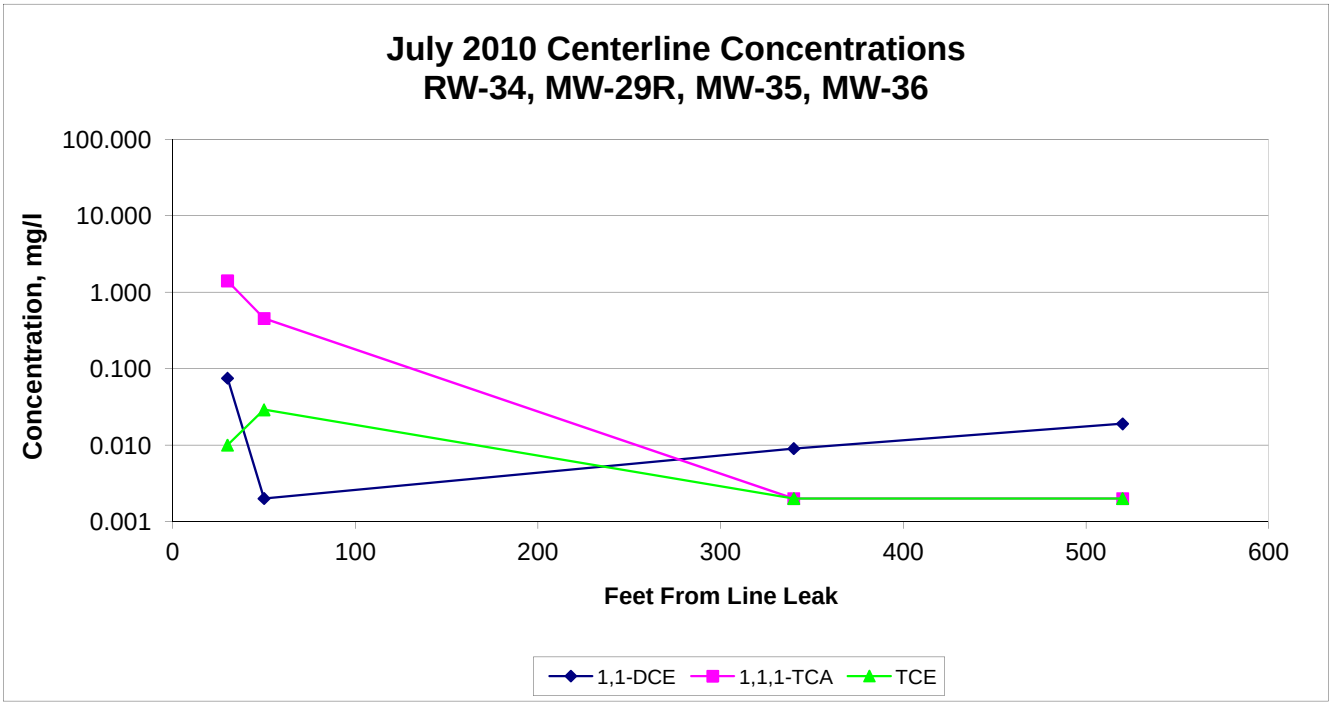


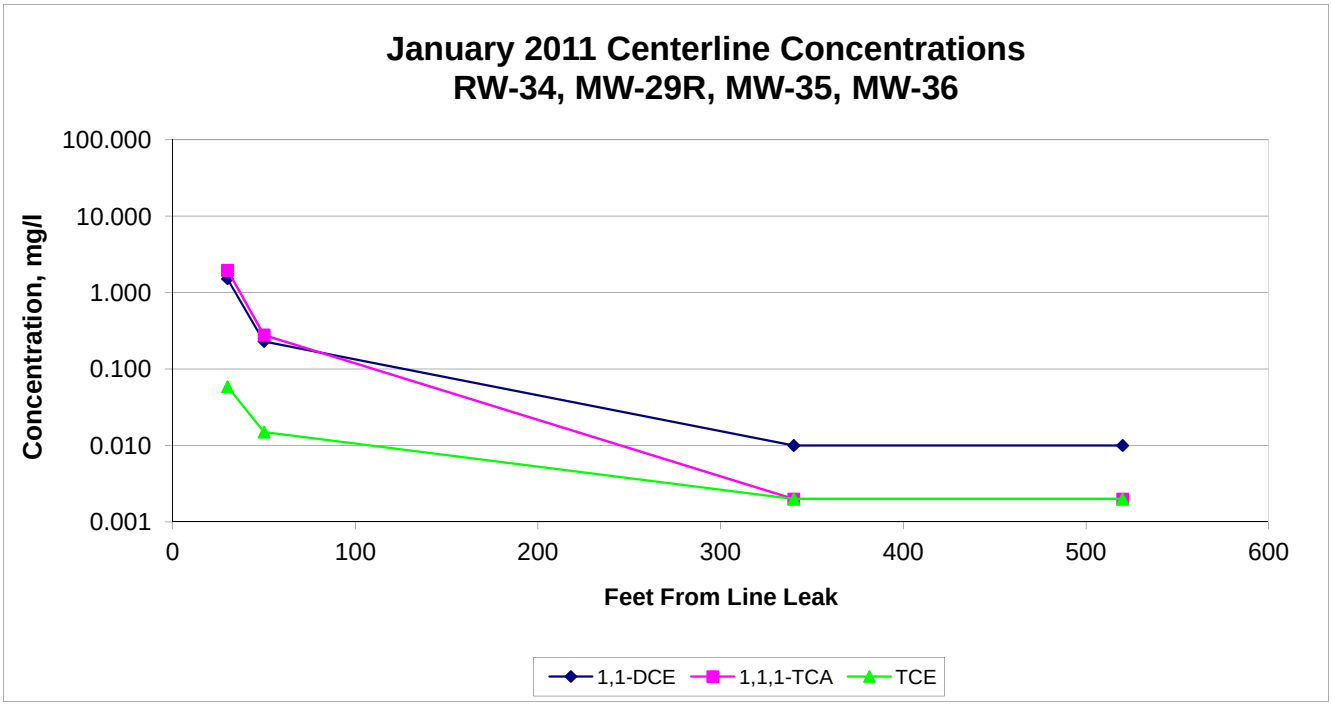
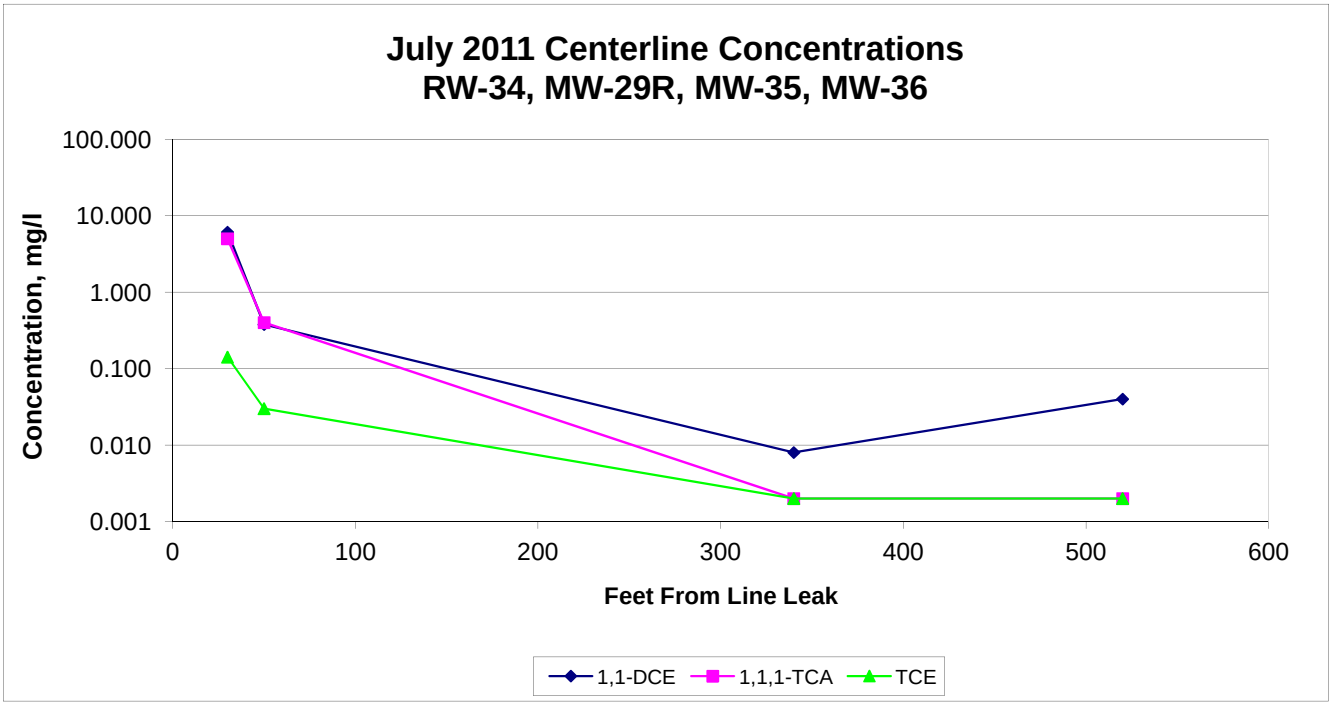


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



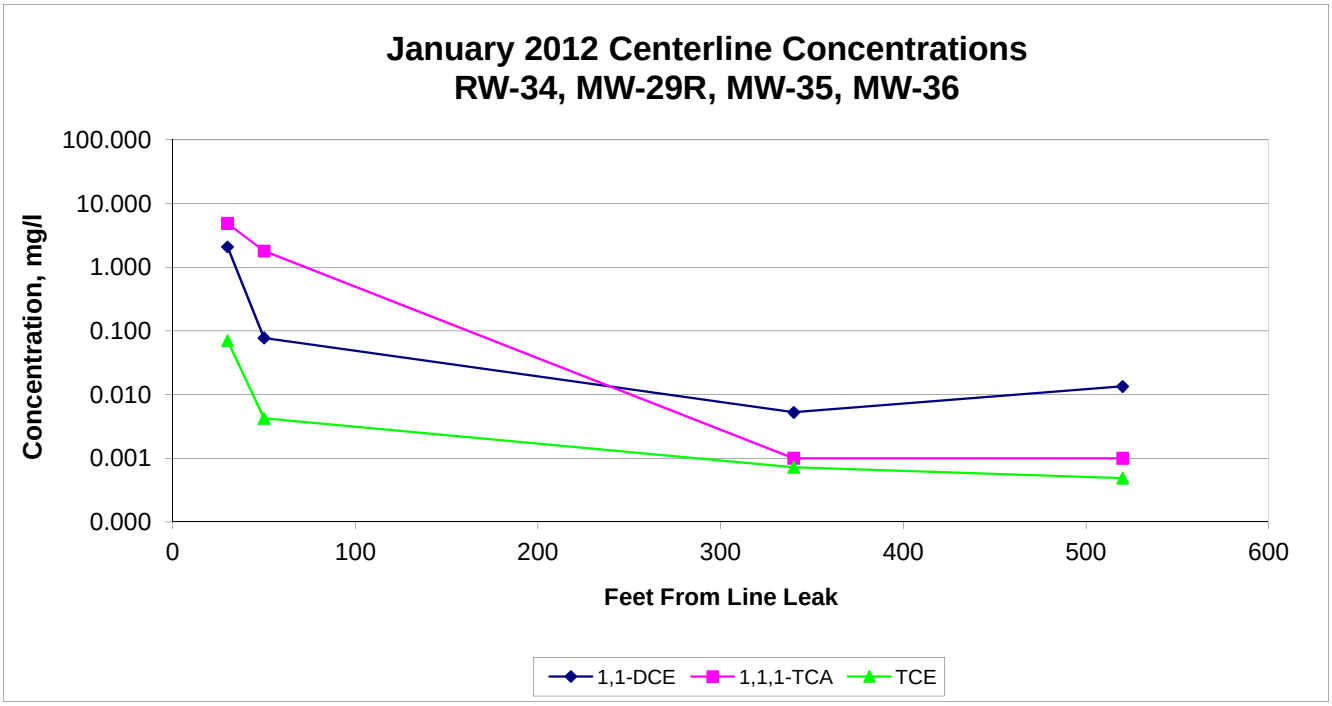
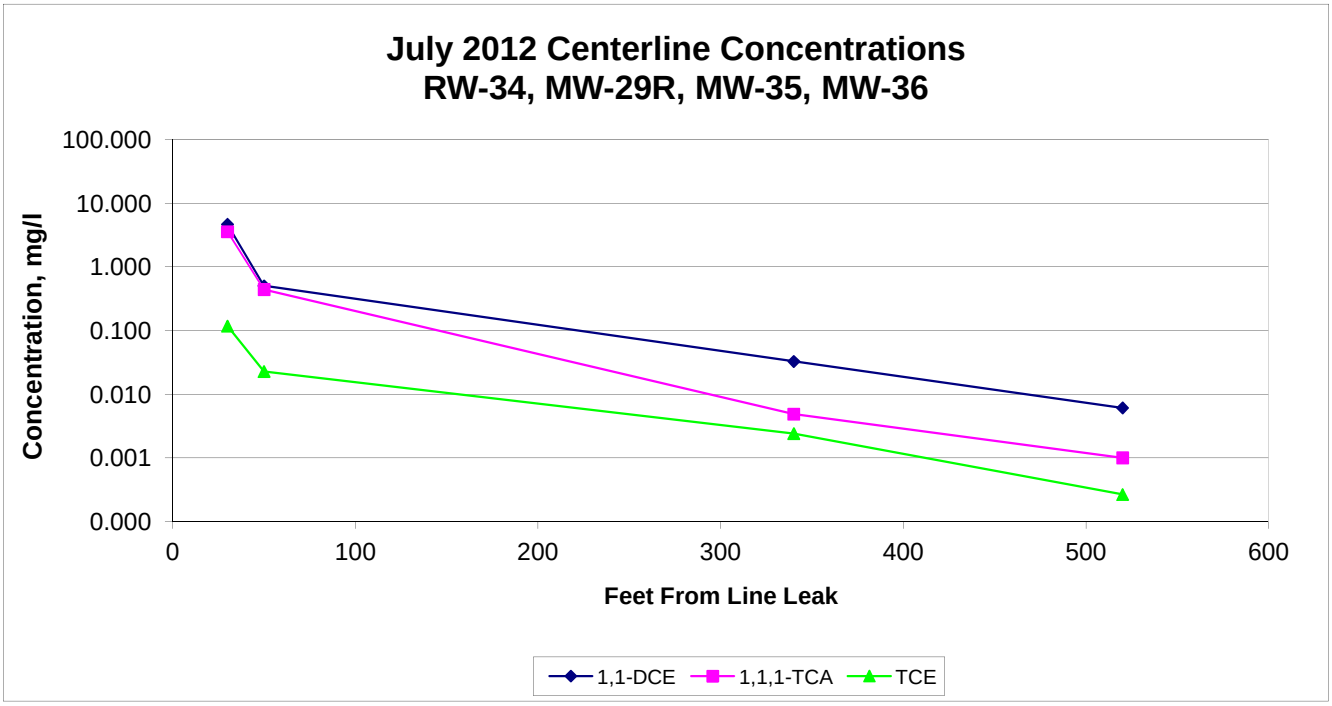


Chart B-7
Discharge Line Leak Centerline Concentrations
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report



Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-1 BGD 2/6/07	MW-1 BGD 7/16/07	MW-1 BGD 1/29/08	MW-1 BGD 7/15/08	MW-1 BGD 2/3/09	MW-1 BGD 7/28/09	MW-1 BGD 1/28/10	MW-1 BGD 7/27/10	MW-1 BGD 2/7/11	MW-1 BGD 7/19/11	MW-1 BGD 1/31/12	MW-1 BGD 7/30/12	MW-1 BGD 1/30/13	MW-5 POC 2/8/07
1,1-Dichloroethane	285	143	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.008
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.060
1,1,1-Trichloroethane	272	136	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.008
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.004
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.020
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000472 J	<0.050
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Tetrachloroethene	17.9	2.72	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.005
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Vinyl Chloride	23.1	1.33	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-5 POC 7/18/07	MW-5 POC 1/31/08	MW-5 POC 7/16/08	MW-5 POC 2/4/09	MW-5 POC 7/29/09	MW-5 POC 1/28/10	MW-5 POC 7/28/10	MW-5 POC 2/8/11	MW-5 POC 7/20/11	MW-5 POC 2/1/12	MW-5 POC 7/31/12	MW-5 POC 1/31/13	MW-6 POC/REC 2/8/07	MW-6 POC/REC 7/18/07
1,1-Dichloroethane	285	143	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	0.003 J	<0.002	0.002 J	<0.002	NS	0.00491	0.00210	0.17	0.072
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.016	0.029	0.039	0.028	0.018	0.011	0.009	0.018	0.014	NS	0.0113	0.00751	1.2	0.10
1,1,1-Trichloroethane	272	136	mg/l	0.005	<0.005	<0.005	<0.005	<0.002	0.003 J	<0.002	<0.002	<0.002	NS	0.00358	0.00161	7.4	0.26
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	**0.014**	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	<0.004	<0.004
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001	<0.001	<0.005	<0.005
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.002	<0.002	<0.010	<0.010
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.002	<0.001	<0.005	<0.005
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	<0.005	<0.005
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	<0.005	0.031
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	<0.005	<0.005
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.001	<0.001	<0.005	<0.005
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	0.006	<0.005
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	0.000259 J	<0.001	<0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	0.001 J	<0.001	<0.001	<0.001	NS	0.00338	0.000840 J	0.046	<0.005
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	NS	0.00345	<0.001	<0.020	<0.020
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	0.017	<0.005
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.002	<0.002	0.069	<0.010
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	NS	0.000281 J	0.000257 J	0.059	<0.050
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.001	<0.001	0.15	<0.005
Tetrachloroethene	17.9	2.72	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	0.002 J	0.002 J	NS	0.00268	0.00247	0.33	0.051
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001	<0.001	<0.005	<0.005
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	0.002 J	<0.002	NS	0.000924 J	0.000474 J	0.11	0.010
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	0.01	0.025	0.0036 J	0.008	0.010	NS	<0.001	<0.001	<0.005	<0.005
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	0.000334 J	<0.001	<0.005	<0.005
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	EXC	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	<0.010	<0.010	<0.005	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.010	<0.010	<0.005	<0.005
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	<0.010	<0.010	<0.005	<0.005
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	NS	<0.010	<0.010	0.006	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.010	<0.010	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.010	<0.010	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	NS	<0.010	<0.010	<0.005	<0.005
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.020	<0.020	<0.005	<0.005
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.010	<0.010	<0.005	<0.005
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.005	<0.005	0.02	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	NS	<0.010	<0.010	0.010	<0.005
Naphthalene	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	NS	<0.010	<0.010	0.045	<0.005
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	<0.010	<0.010	<0.005	<0.005
Phenol	7.3	7.3	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	NS	<0.010	<0.010	<0.005	<0.005
Pyrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	NS	<0.010	<0.010	<0.005	<0.005

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-6 POC/REC 1/31/08	MW-6 (Duplicate) 1/31/08	MW-6 POC/REC 7/16/08	MW-6 POC/REC 2/4/09	MW-6 POC/REC 7/29/09	MW-6 POC/REC 1/28/10	MW-6 POC/REC 7/28/10	MW-6 Duplicate 7/28/10	MW-6 POC/REC 2/8/11	MW-6 POC/REC 7/20/11	MW-6 Duplicate 7/20/11	MW-6 POC/REC 2/1/12	MW-6 POC/REC 7/31/12	MW-6 POC/REC 1/31/13
1,1-Dichloroethane	285	143	mg/l	0.19	0.18	0.076	0.058	0.029	0.051	0.041	0.035	0.030	0.016	0.015	NS	NS	0.0494
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.10	0.092	0.096	0.223	0.190	0.112	0.042	0.036	0.071	0.051	0.062	NS	NS	0.0901
1,1,1-Trichloroethane	272	136	mg/l	0.094	0.085	0.070	0.217	0.326	0.187	0.04	0.042	0.066	0.066	0.069	NS	NS	0.133
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	NS	<0.001
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	NS	<0.001
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Carbon Tetrachloride	0.47	0.54	mg/l	0.011	0.005	<0.005	0.027	<0.002	<0.002	<0.002	<0.002	0.018	0.015	0.015	NS	NS	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.001
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	0.000470 J
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	0.007	0.001 J	0.002 J	<0.001	<0.001	<0.001	NS	NS	0.00330
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.002
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.003	0.003 J	<0.003	<0.003	<0.003	<0.003	<0.003	NS	NS	0.000373 J
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.001
Tetrachloroethene	17.9	2.72	mg/l	0.034	0.030	0.017	0.045	0.114	0.072	0.025	0.04	0.036	0.042	0.048	NS	NS	0.139
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Trichloroethene	34	30.8	mg/l	0.006	0.005	0.007	0.018	0.022	0.013	0.003 J	<0.002	0.008	0.008	0.009	NS	NS	0.0146
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	0.166	0.102	<0.005	0.047	0.048	0.080	0.072	NS	NS	<0.001
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	0.00115
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	--	NS	NS	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	--	NS	NS	<0.010
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	--	NS	NS	<0.010
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.004	--	NS	NS	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	--	NS	NS	<0.010
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	--	NS	NS	<0.010
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	--	NS	NS	<0.010
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	--	NS	NS	<0.020
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	--	NS	NS	<0.010
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	0.006	<0.005	<0.01	<0.012	<0.006	0.008 J	<0.008	<0.008	<0.008	<0.008	--	NS	NS	<0.010
Naphthalene	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.004	--	NS	NS	<0.010
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	--	NS	NS	<0.010
Phenol	7.3	7.3	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	--	NS	NS	<0.010
Pyrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	--	NS	NS	<0.010

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-9 REC 2/8/07	MW-9 REC 7/18/07	MW-9 REC 1/31/08	MW-9 REC 7/16/08	MW-9 REC 2/4/09	MW-9 Duplicate 7/29/09	MW-9 REC 7/29/09	MW-9 REC 1/28/10	MW-9 REC 7/28/10	MW-9 REC 2/8/11	MW-9 REC 7/20/11	MW-9 REC 2/1/12	MW-9 REC 7/31/12	MW-9 REC 1/31/13
1,1-Dichloroethane	285	143	mg/l	0.13	0.073	0.038	0.021	0.093	0.120	0.116	0.075	0.027	0.006	0.079	0.0862	0.0981	0.0635
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.13	<0.005	0.077	0.079	0.071	0.108	0.095	0.117	0.061	0.068	0.049	0.0527	0.112	0.0658
1,1,1-Trichloroethane	272	136	mg/l	0.036	0.020	<0.005	<0.005	0.008	0.011	0.009	0.022	0.003 J	0.053	0.006	0.0187	0.0381	0.031
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	0.33	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000206 J	0.000298 J
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	0.010	0.009	<0.005	<0.005	0.008	0.016	0.016	0.016	0.006	0.012	0.019	0.0184	0.0198	0.0254
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.003 J	0.003 J	0.004 J	<0.002	<0.002	0.003 J	0.00271	0.00387	0.00416
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003 J	<0.002	<0.001	<0.001	0.00127
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-10 AMP 2/8/07	MW-10 AMP 7/18/07	MW-10 AMP 1/30/08	MW-10 AMP 7/16/08	MW-10 (Duplicate) 7/16/08	MW-10 AMP 2/4/09	MW-10 AMP 7/29/09	MW-10 AMP 1/28/10	MW-10 AMP 7/28/10	MW-10 AMP 2/8/11	MW-10 AMP 7/20/11	MW-10 AMP 2/1/12	MW-10 AMP 7/31/12	MW-10 AMP 1/31/13
1,1-Dichloroethane	285	143	mg/l	0.016	0.063	0.044	0.043	0.05	0.011	0.016	0.025	0.02	<0.002	0.005	0.00703	0.00532	0.00678
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.076	0.720	0.36	0.329	0.346	0.059	0.082	0.132	0.158	0.008	0.016	0.0186	0.0140	0.0201
1,1,1-Trichloroethane	272	136	mg/l	0.014	0.210	0.065	0.067	0.070	0.005	0.01	0.012	0.011	0.042	<0.002	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	0.025	0.007	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.005	<0.005	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000245 J
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.002 J	0.002 J	<0.002	<0.002	<0.002	0.000525 J	0.000400 J	0.000433 J
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	<0.005	0.011	<0.005	0.007	0.007	<0.005	<0.002	0.003 J	<0.002	<0.002	<0.002	0.000411 J	<0.001	0.000368 J
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-23 POC 2/8/07	MW-23 POC 7/18/07	MW-23 POC 1/31/08	MW-23 POC 7/16/08	MW-23 POC 2/4/09	MW-23 POC 7/29/09	MW-23 POC 1/28/10	MW-23 POC 7/28/10	MW-23 POC 2/8/11	MW-23 POC 7/20/11	MW-23 POC 2/1/12	MW-23 POC 7/31/12	MW-23 POC 1/31/13	MW-25 POE 2/7/07
1,1-Dichloroethane	285	143	mg/l	0.23	0.085	0.35	0.115	0.120	0.162	0.172	0.209	0.084	0.026	0.0616	0.207	0.0845	0.017
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.34	0.037	0.13	0.056	0.101	0.113	0.139	0.069	0.042	0.034	0.0778	0.187	0.0834	0.016
1,1,1-Trichloroethane	272	136	mg/l	0.67	0.010	0.034	0.013	0.046	0.106	0.200	0.027	0.034	0.018	0.0673	0.353	0.141	<0.005
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000238 J	0.000451 J	0.000451 J	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.004
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.010
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.005
Acetone	2.4	22	mg/l	<0.010	<0.010	0.022	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.0084 J	<0.001	<0.001	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	0.000163 J	<0.001	<0.005
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	0.004 J	<0.001	<0.001	<0.001	<0.005
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000326 J	0.000762 J	0.000412 J	<0.005
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.000267 J	<0.001	<0.005
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	0.002 J	<0.001	<0.001	0.000245 J	0.00468	0.000959 J	<0.005
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.020
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.010
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000206 J	0.000335 J	<0.050
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005
Tetrachloroethene	17.9	2.72	mg/l	0.039	0.012	0.031	0.007	0.022	0.042	0.044	0.024	0.026	0.015	0.0138	0.0995	0.0675	<0.005
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Trichloroethene	34	30.8	mg/l	0.015	<0.005	0.005	<0.005	<0.005	0.008	0.010	0.003 J	0.004 J	0.003 J	0.00365	0.0200	0.00882	<0.005
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.039	0.055	0.017	0.038	0.023	<0.001	<0.001	<0.001	<0.005
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	0.007	<0.002	<0.002	<0.001	<0.001	0.00164	<0.005
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.005
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.005
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.005
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.005	<0.005	<0.005	<0.01	0.015	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.005
Naphthalene	0.49	0.49	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.005
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005
Phenol	7.3	7.3	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005
Pyrene	0.73	0.73	mg/l	<0.005	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.005

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-25 POE 7/17/07	MW-25 POE 1/30/08	MW-25 POE 7/16/08	MW-25 POE 2/4/09	MW-25 POE 7/29/09	MW-25 POE 1/28/10	MW-25 POE 7/27/10	MW-25 POE 2/8/11	MW-25 POE 7/20/11	MW-25 POE 2/1/12	MW-25 POE 7/31/12	MW-25 POE 1/31/13	MW-26 POE 2/7/07	MW-26 (Resample) 3/27/07
1,1-Dichloroethane	285	143	mg/l	0.011	0.005	<0.005	<0.005	<0.002	0.010	<0.002	0.003 J	<0.002	0.00104	0.00141	0.0015	0.11	0.12
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.009	0.005	<0.005	<0.005	<0.002	0.009	<0.002	<0.002	<0.002	0.00069 J	0.000998 J	0.000924 J	0.63	0.92
1,1,1-Trichloroethane	272	136	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.024	0.025
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	0.003 J	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.004	<0.004
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.010	<0.010
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.005	<0.005
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005	<0.005
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.020	<0.020
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.010	<0.010
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000207 J	<0.050	<0.050
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005	<0.005
Tetrachloroethene	17.9	2.72	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.005	0.007
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	0.007	0.008
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	0.034	0.0011 J	0.011	<0.005	<0.001	<0.001	<0.001	<0.005	<0.005
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.005	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	NS
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.005	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.005	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.005	NS
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.005	<0.005	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.005	NS
Naphthalene	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.005	NS
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	NS
Phenol	7.3	7.3	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	NS
Pyrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.005	NS

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-26 POE 7/17/07	MW-26 POE 1/30/08	MW-26 POE 7/15/08	MW-26 POE 2/4/09	MW-26 POE 7/29/09	MW-26 POE 1/28/10	MW-26 Duplicate 1/28/10	MW-26 POE 7/27/10	MW-26 POE 2/8/11	MW-26 Duplicate 2/8/11	MW-26 POE 7/20/11	MW-26 POE 1/31/12	MW-26 Duplicate 1/31/12	MW-26 POE 7/31/12
1,1-Dichloroethane	285	143	mg/l	0.045	0.069	0.061	0.104	0.046	0.060	0.071	0.034	0.047	0.040	0.020	0.0127	0.0122	0.0235
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.091	0.19	0.165	0.400	0.147	0.219	0.270	0.101	0.137	0.104	0.070	0.0564	0.0547	0.0923
1,1,1-Trichloroethane	272	136	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	0.003 J	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.000257 J
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	0.002 J	0.005 J	0.005 J	<0.001	0.004 J	0.003 J	0.002 J	0.000569 J	0.000557 J	0.00111
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	0.000301 J
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000202 J
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Tetrachloroethene	17.9	2.72	mg/l	<0.005	0.006	<0.005	0.005	0.005 J	0.006	0.006	0.004 J	0.005 J	0.003 J	0.003 J	0.00242	0.00234	0.00225
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	0.007	0.004 J	0.005 J	0.005 J	0.002 J	0.004 J	0.004 J	0.003 J	0.0015	0.00142	0.00156
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	0.031	0.065 E	0.064	0.01	0.032	0.015	0.013	<0.001	<0.001	<0.001
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.005	<0.005	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
Phenol	7.3	7.3	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-26 Duplicate 7/31/12	MW-26 POE 1/31/13	MW-26 Duplicate 1/31/13	MW-27 POE 2/7/07	MW-27 POE 7/17/07	MW-27 POE 1/30/08	MW-27 POE 7/15/08	MW-27 POE 2/4/09	MW-27 POE 7/29/09	MW-27 POE 1/28/10	MW-27 POE 7/27/10	MW-27 POE 2/7/11	MW-27 POE 7/19/11	MW-27 POE 1/31/12
1,1-Dichloroethane	285	143	mg/l	0.0226	0.00646	0.00626	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.0938	0.0313	0.0287	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1,1-Trichloroethane	272	136	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.001	<0.001	<0.001	<0.004	<0.004	--	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,2-Dichloroethane	4.11	30.7	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	<0.002	<0.002	<0.002	<0.010	<0.010	--	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.002	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
Benzene	0.005	0.005	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Carbon Tetrachloride	0.47	0.54	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chloroethane	9.8	9.8	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Chloroform	0.10	0.24	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chloromethane	0.07	0.07	mg/l	0.000248 J	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
cis-1,2-Dichloroethene	0.07	0.07	mg/l	0.00105	0.000340 J	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	4.9	mg/l	0.000358 J	<0.001	<0.001	<0.020	<0.020	--	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Ethyl Benzene	0.7	0.7	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
m,p-xylenes	10	10	mg/l	<0.002	<0.002	<0.002	<0.010	<0.010	--	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
Methylene Chloride	889	332	mg/l	<0.002	0.000300 J	<0.001	<0.050	<0.050	--	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002
o-Xylene	10	10	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Tetrachloroethene	17.9	2.72	mg/l	0.00241	0.00141	0.00137	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Toluene	1	1	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Trichloroethene	34	30.8	mg/l	0.00157	0.000881 J	0.000882 J	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Trichlorotrifluoroethane	730	730	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Vinyl Chloride	23.1	1.33	mg/l	<0.001	<0.001	<0.001	<0.005	<0.005	--	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010
2-Methylnaphthalene	0.49	0.098	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.020	<0.020	<0.020	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020
Acenaphthene	1.5	1.5	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.010	<0.010	<0.010	<0.005	0.015	--	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010
Naphthalene	0.49	0.49	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010
Phenanthrene	0.73	0.73	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010
Phenol	7.3	7.3	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010
Pyrene	0.73	0.73	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	--	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-27 POE 7/30/12	MW-27 POE 1/30/13	MW-29R CAO 2/8/07	MW-29R Duplicate 2/8/07	MW-29R CAO 7/18/07	MW-29R CAO 1/31/08	MW-29R CAO 7/16/08	MW-29R CAO 2/5/09	MW-29R Duplicate 2/5/09	MW-29R CAO 7/30/09	MW-29R CAO 1/28/10	MW-29R CAO 7/28/10	MW-29R CAO 2/8/11	MW-29R CAO 7/20/11
1,1-Dichloroethane	285	143	mg/l	<0.001	<0.001	0.55	0.50	1.40	0.82	0.950	1.063	1.330	0.950	0.964	1.42	0.842	1.52
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	<0.001	<0.001	0.18	0.18	0.52	0.33	0.794	0.536	0.606	0.346	0.154	<0.002	0.230	0.379
1,1,1-Trichloroethane	272	136	mg/l	<0.001	<0.001	0.20	0.20	0.66	0.17	0.443	0.377	0.374	0.222	0.401	0.453	0.279	0.401
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	0.002 J	0.001 J	0.003 J	<0.001	0.003 J
2-Butanone (MEK)	15	15	mg/l	<0.002	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.002	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	<0.010	<0.010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.001	<0.001	<0.005	<0.005	0.058	0.020	<0.005	0.042	<0.005	<0.002	<0.002	<0.002	<0.002	0.08 E
Chlorobenzene	3.56	3.56	mg/l	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Chloroethane	9.8	9.8	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	0.000258 J	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	<0.002	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.002	0.000225 J	<0.050	<0.050	<0.050	<0.050	<0.005	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003
o-Xylene	10	10	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	<0.001	<0.001	0.006	0.005	0.016	0.016	0.024	0.022	0.026	0.018	0.014	0.034	0.028	0.042
Toluene	1	1	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	<0.001	<0.001	0.008	0.008	0.019	0.013	0.063	0.027	0.028	0.018	0.011	0.029	0.015	0.030
Trichlorotrifluoroethane	730	730	mg/l	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	<0.001	<0.001	<0.002	<0.002	0.004	<0.005	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.002	0.015
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.020	<0.020	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	<0.010	<0.010	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
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Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-29R CAO 2/1/12	MW-29R CAO 7/31/12	MW-29R CAO 1/31/13	MW-31 AMP 2/8/07	MW-31 AMP 7/18/07	MW-31 AMP 1/31/08	MW-31 AMP 7/16/08	MW-31 AMP 2/4/09	MW-31 AMP 7/30/09	MW-31 AMP 1/28/10	MW-31 AMP 7/28/10	MW-31 AMP 2/8/11	MW-31 AMP 7/20/11	MW-31 AMP 2/1/12
1,1-Dichloroethane	285	143	mg/l	1.06	1.15	<0.001	0.023	0.020	0.021	0.019	0.025	0.022	0.025	0.01	0.020	0.009	0.0244
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.0774	0.503	0.0893	0.031	0.026	0.020	0.020	0.039	0.034	0.039	0.009	0.031	0.009	0.0359
1,1,1-Trichloroethane	272	136	mg/l	1.80	0.440	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.010	<0.010	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.010	<0.010	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.010	<0.010	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.020	0.016 J	<0.001	<0.050	<0.050	<0.005	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	0.00921 J	0.0305	0.00782	<0.005	<0.005	<0.005	<0.005	<0.005	0.003 J	<0.002	<0.002	<0.002	<0.002	<0.001
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	0.00422 J	0.0227	0.00535	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.005 J	<0.002	0.003 J	0.003 J	0.00451
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	<0.010	<0.010	0.0133	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
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February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-31 AMP 7/31/12	MW-31 AMP 1/31/13	MW-32 AMP 2/8/07	MW-32 AMP 7/18/07	MW-32 AMP 1/31/08	MW-32 AMP 7/16/08	MW-32 AMP 2/4/09	MW-32 AMP 7/30/09	MW-32 AMP 1/28/10	MW-32 AMP 7/28/10	MW-32 AMP 2/8/11	MW-32 AMP 7/20/11	MW-32 AMP 2/1/12	MW-32 AMP 7/31/12
1,1-Dichloroethane	285	143	mg/l	0.0080	0.0221	0.230	0.20	0.18	0.145	0.165	0.215	0.134	0.139	0.131	0.107	0.140	0.157
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.00594	0.0281	0.41	0.38	0.40	0.139	0.307	0.454	0.277	0.279	0.204	0.251	0.313	0.418
1,1,1-Trichloroethane	272	136	mg/l	<0.001	<0.001	0.007	0.009	0.024	0.007	0.016	0.003 J	<0.002	<0.002	<0.002	<0.002	<0.001	0.000744 J
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.000543 J	0.00045 J
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.002	0.000265 J	<0.050	<0.050	<0.005	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.00023 J
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000496 J	0.000642 J
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	0.00154	0.00357	<0.005	<0.005	0.005	0.005	0.005	<0.002	0.003 J	<0.002	<0.002	0.003 J	0.00148	0.00165
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	<0.001	0.000565 J	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	0.005 J	0.005 J	<0.002	<0.001	0.000608 J
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-32 AMP 1/31/13	RW-33 REC 2/8/07	RW-33 REC 7/18/07	RW-33 Duplicate 7/18/07	RW-33 REC 1/31/08	RW-33 REC 7/16/08	RW-33 REC 2/5/09	RW-33 REC 7/30/09	RW-33 REC 1/28/10	RW-33 REC 7/28/10	RW-33 REC 2/8/11	RW-33 REC 7/20/11	RW-33 REC 2/1/12	RW-33 REC 7/31/12
1,1-Dichloroethane	285	143	mg/l	0.181	0.019	0.013	0.013	0.016	0.023	0.010	0.026	0.023	0.02	0.010	0.006	0.00351	0.0180
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	<0.001	0.76	0.37	0.19	0.59	0.563	0.286	0.917	0.742	0.869	0.132	0.136	0.0395	0.574
1,1,1-Trichloroethane	272	136	mg/l	<0.001	0.014	0.007	0.007	0.009	0.009	<0.005	0.01	0.009	0.012	0.004 J	0.002 J	0.0155	0.00215
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.001	<0.050	<0.050	<0.050	<0.050	0.023	<0.050	<0.003	<0.003	0.005	<0.003	<0.003	<0.002	0.000340 J
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	0.000322 J	0.006	<0.005	<0.005	0.005	<0.005	<0.005	0.009	0.008	0.008	0.004 J	0.002 J	0.0208	0.00597
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	0.00156	0.009	0.006	0.006	0.007	<0.005	<0.005	0.012	0.011	0.011	0.004 J	0.004 J	0.00233	0.00757
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	0.00293	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	RW-33 REC 1/31/13	RW-34 REC 2/8/07	RW-34 REC 7/18/07	RW-34 REC 1/31/08	RW-34 REC 7/16/08	RW-34 REC 2/5/09	RW-34 REC 7/30/09	RW-34 REC 1/28/10	RW-34 REC 7/28/10	RW-34 REC 2/8/11	RW-34 REC 7/20/11	RW-34 REC 2/1/12	RW-34 REC 7/31/12	RW-34 REC 1/31/13
1,1-Dichloroethane	285	143	mg/l	0.00797	3.1	2.3	3.3	1.57	0.031	2.21	1.74	1.16	1.92	4.57	3.61	3.97	1.54
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.264	**4.9**	**2.4**	**2.3**	0.948	0.014	**2.32**	1.10	<0.075	1.52	6.14	2.09	4.65	1.60
1,1,1-Trichloroethane	272	136	mg/l	<0.001	4.9	3.9	2.4	1.85	0.027	2.25	1.45	1.41	1.96	5.01	4.88	3.55	1.56
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	4.11	30.7	mg/l	<0.001	<0.5	<0.10	<0.080	<0.010	<0.005	<0.005	0.007 J	<0.05	0.005	0.025	<0.100	0.0191	<0.001
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.47	0.54	mg/l	<0.001	<0.5	0.47	0.29	<0.010	<0.005	<0.008	<0.008	<0.075	<0.002	**0.969**	<0.100	<0.010	0.00849
Chlorobenzene	3.56	3.56	mg/l	<0.001	<0.5	<0.10	<0.080	<0.010	<0.005	<0.01	<0.01	<0.10	<0.002	<0.002	<0.100	<0.010	<0.001
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	889	332	mg/l	<0.001	<5.0	<0.10	<1.0	0.077	<0.050	<0.015	0.057	<0.150	0.079	0.159	0.123 J	0.129	0.120
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	17.9	2.72	mg/l	0.00248	<0.5	0.12	0.29	0.269	<0.005	0.064	0.068	<0.075	0.039	0.090	0.0795 J	0.124	1.31
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	34	30.8	mg/l	0.00358	<0.5	0.10	0.11	0.117	<0.005	0.09	0.075	<0.010	0.059	0.142	0.0702 J	0.117	0.105
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	23.1	1.33	mg/l	0.000337 J	<0.5	<0.040	<0.080	<0.004	<0.002	<0.008	<0.008	<0.075	0.002 J	0.099 E	<0.100	0.00425 J	0.0137
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	EXC	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-35 AMP 2/8/07	MW-35 AMP 7/18/07	MW-35 AMP 1/30/08	MW-35 AMP 7/16/08	MW-35 AMP 2/4/09	MW-35 AMP 7/29/09	MW-35 AMP 1/28/10	MW-35 AMP 7/27/10	MW-35 AMP 2/8/11	MW-35 AMP 7/20/11	MW-35 AMP 2/1/12	MW-35 AMP 7/31/12	MW-35 AMP 1/31/13	MW-36 POE 2/7/07
1,1-Dichloroethane	285	143	mg/l	0.094	0.082	0.11	0.140	0.101	0.101	0.090	0.094	0.080	0.077	0.0389	0.0643	0.0440	0.021
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.023	0.013	0.025	0.051	0.021	0.009	0.006	0.009	0.010	0.008	0.00525	0.0327	0.00414	0.014
1,1,1-Trichloroethane	272	136	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	0.00485	<0.001	<0.005
1,1,2-Trichloroethane	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.004
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
2-Butanone (MEK)	15	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Acetone	2.4	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010
Benzene	0.005	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Chlorobenzene	3.56	3.56	mg/l	0.015	0.014	0.020	0.036	0.021	0.019	0.013	0.015	0.013	0.016	0.00444	0.00799	0.00604	<0.005
Chloroethane	9.8	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Chloroform	0.10	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Chloromethane	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
cis-1,2-Dichloroethene	0.07	0.07	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Dichlorodifluoromethane	4.9	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.020
Ethyl Benzene	0.7	0.7	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
m,p-xylenes	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000251 J	<0.050
o-Xylene	10	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Tetrachloroethene	17.9	2.72	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000461 J	0.00136	0.000243 J	<0.005
Toluene	1	1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
trans-1,2-Dichloroethene	0.1	0.1	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	0.002 J	0.000723 J	0.00240	0.000375 J	<0.005
Trichlorotrifluoroethane	730	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.005
Vinyl Chloride	23.1	1.33	mg/l	<0.002	<0.002	<0.002	0.007	<0.002	0.003 J	<0.002	0.006	0.003 J	0.002 J	0.000802 J	0.00194	0.00218	<0.005
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
1,4-Dichlorobenzene	6.11	6.11	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2-Methylnaphthalene	0.49	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2,4-Dichlorophenol	0.073	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
2,4-Dimethylphenol	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Acenaphthene	1.5	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Naphthalene	0.49	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Phenanthrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Phenol	7.3	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005
Pyrene	0.73	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.005

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-36 POE 7/17/07	MW-36 POE 1/30/08	MW-36 POE 7/16/08	MW-36 POE 2/4/09	MW-36 POE 7/29/09	MW-36 POE 1/28/10	MW-36 POE 7/27/10	MW-36 POE 2/8/11	MW-36 POE 7/20/11	MW-36 POE 2/1/12	MW-36 POE 7/31/12	MW-36 POE 1/31/13	MW-37 POE 2/7/07	MW-37 POE 7/17/07
1,1-Dichloroethane	285	143	mg/l	0.015	0.024	0.068	0.036	0.037	0.010	0.013	0.009	0.035	0.0118	0.00418	0.00568	<0.005	<0.005
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	0.017	0.027	0.085	0.045	0.047	0.013	0.019	0.010	0.040	0.0134	0.00609	0.00785	<0.005	<0.005
1,1,1-Trichloroethane	272	136	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.004	<0.004
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.010	<0.010
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.005	<0.005
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005	<0.005
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000269 J	<0.002	<0.001	<0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	0.000372 J	<0.001	<0.001	<0.020	<0.020
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.010	<0.010
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000328 J	<0.050	<0.050
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.005	<0.005
Tetrachloroethene	17.9	2.72	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000488 J	0.000265 J	<0.001	<0.005	<0.005
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	0.007	0.008	0.0023 J	0.007	<0.005	0.000218 J	<0.001	<0.001	<0.005	<0.005
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds																	
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.005	<0.005
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	<0.005
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.005	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.005	<0.005
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.005	<0.005
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.005	<0.005
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.005	<0.005	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.005	<0.005
Naphthalene	0.49	0.49	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.005	<0.005
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	<0.005
Phenol	7.3	7.3	mg/l	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.005	<0.005
Pyrene	0.73	0.73	mg/l	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.005	<0.005

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
February 2007 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	Compliance Plan PCLs	Updated PCLs *	Units	MW-37 POE 1/30/08	MW-37 POE 7/15/08	MW-37 POE 2/4/09	MW-37 POE 7/29/09	MW-37 POE 1/28/10	MW-37 POE 7/27/10	MW-37 POE 2/7/11	MW-37 POE 7/19/11	MW-37 POE 1/31/12	MW-37 POE 7/30/12	MW-37 POE 1/30/13
1,1-Dichloroethane	285	143	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1-Dichloroethene	1.76/0.52/0.32	83.3	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	0.000339 J
1,1,1-Trichloroethane	272	136	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	mg/l	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,2-Dichloroethane	4.11	30.7	mg/l	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	mg/l	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001
Acetone	2.4	22	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
Benzene	0.005	0.005	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Carbon Tetrachloride	0.47	0.54	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chlorobenzene	3.56	3.56	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Chloroform	0.10	0.24	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	0.000255 J
Chloromethane	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
cis-1,2-Dichloroethene	0.07	0.07	mg/l	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	4.9	mg/l	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Ethyl Benzene	0.7	0.7	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
m,p-xylenes	10	10	mg/l	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002
Methylene Chloride	889	332	mg/l	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.001
o-Xylene	10	10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Tetrachloroethene	17.9	2.72	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Toluene	1	1	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Trichloroethene	34	30.8	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001
Vinyl Chloride	23.1	1.33	mg/l	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Compliance Status				Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Semivolatile Organic Compounds														
1,2-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	mg/l	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010
1,4-Dichlorobenzene	6.11	6.11	mg/l	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	mg/l	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	mg/l	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	mg/l	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	mg/l	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cresol)	0.12	0.12	mg/l	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020
Acenaphthene	1.5	1.5	mg/l	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate	0.39	2.28	mg/l	<0.005	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	mg/l	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	mg/l	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
Phenol	7.3	7.3	mg/l	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	mg/l	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010

* PCLs updated to reflect current TRRP PCL tables (June 29, 2011)
and Surface Water Quality Standards (Jan. 19, 2011)
Shaded cells indicate constituent detected
Bold values indicate constituent detected above updated GWPS
EXC - one or more concentrations exceed the GWPS

Groundwater Analytical Data
November 2001 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	PCL [1]	Units	DMW-15 SUP 2/7/07	DMW-15 SUP 7/17/07	DMW-15 SUP 1/30/08	DMW-15 SUP 7/15/08	DMW-15 SUP 2/3/09	DMW-15 SUP 7/28/09	DMW-15 SUP 1/28/10	DMW-15 SUP 7/27/10	DMW-15 SUP 2/7/11	DMW-15 SUP 7/19/11	DMW-15 SUP 1/31/12	DMW-15 SUP 7/30/12	DMW-15 SUP 1/30/13	DMW-16 SUP 2/7/07
1,1-Dichloroethane	4.9	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
1,1-Dichloroethene	0.007	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
1,1,1-Trichloroethane	0.20	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
1,1,2-Trichloroethane	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
2-Butanone (MEK)	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Chlorobenzene	0.10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Chloroethane	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.070	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.070	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.70	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000587 J	<0.050
o-Xylene	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Toluene	1.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.100	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005
Trichlorotrifluoroethane	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.002	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002
Semivolatile Organic Compounds																
1,2-Dichlorobenzene	0.60	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.070	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	0.075	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.006	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Shaded cells indicate constituent detected

[1] Tier 1 Residential Groundwater PCL - June 29, 2012 Table

Groundwater Analytical Data
November 2001 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	PCL [1]	Units	DMW-16 SUP 7/17/07	DMW-16 SUP 1/30/08	DMW-16 SUP 7/15/08	DMW-16 SUP 2/3/09	DMW-16 SUP 7/28/09	DMW-16 SUP 1/28/10	DMW-16 SUP 7/27/10	DMW-16 SUP 2/7/11	DMW-16 SUP 7/19/11	DMW-16 SUP 1/31/12	DMW-16 SUP 7/30/12	DMW-16 SUP 1/30/13	DMW-22 SUP 2/7/07	DMW-22 SUP 7/17/07
1,1-Dichloroethane	4.9	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
1,1-Dichloroethene	0.007	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
1,1,1-Trichloroethane	0.20	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
1,1,2-Trichloroethane	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005
2-Butanone (MEK)	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chlorobenzene	0.10	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Chloroethane	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.070	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.070	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.70	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	mg/l	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000195 J	0.000661 J	<0.050	<0.050
o-Xylene	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Toluene	1.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.100	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.005	mg/l	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	<0.005
Trichlorotrifluoroethane	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.002	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.002
Semivolatile Organic Compounds																
1,2-Dichlorobenzene	0.60	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.070	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	0.075	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.006	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Shaded cells indicate constituent detected

[1] Tier 1 Residential Groundwater PCL - June 29, 2012 Table

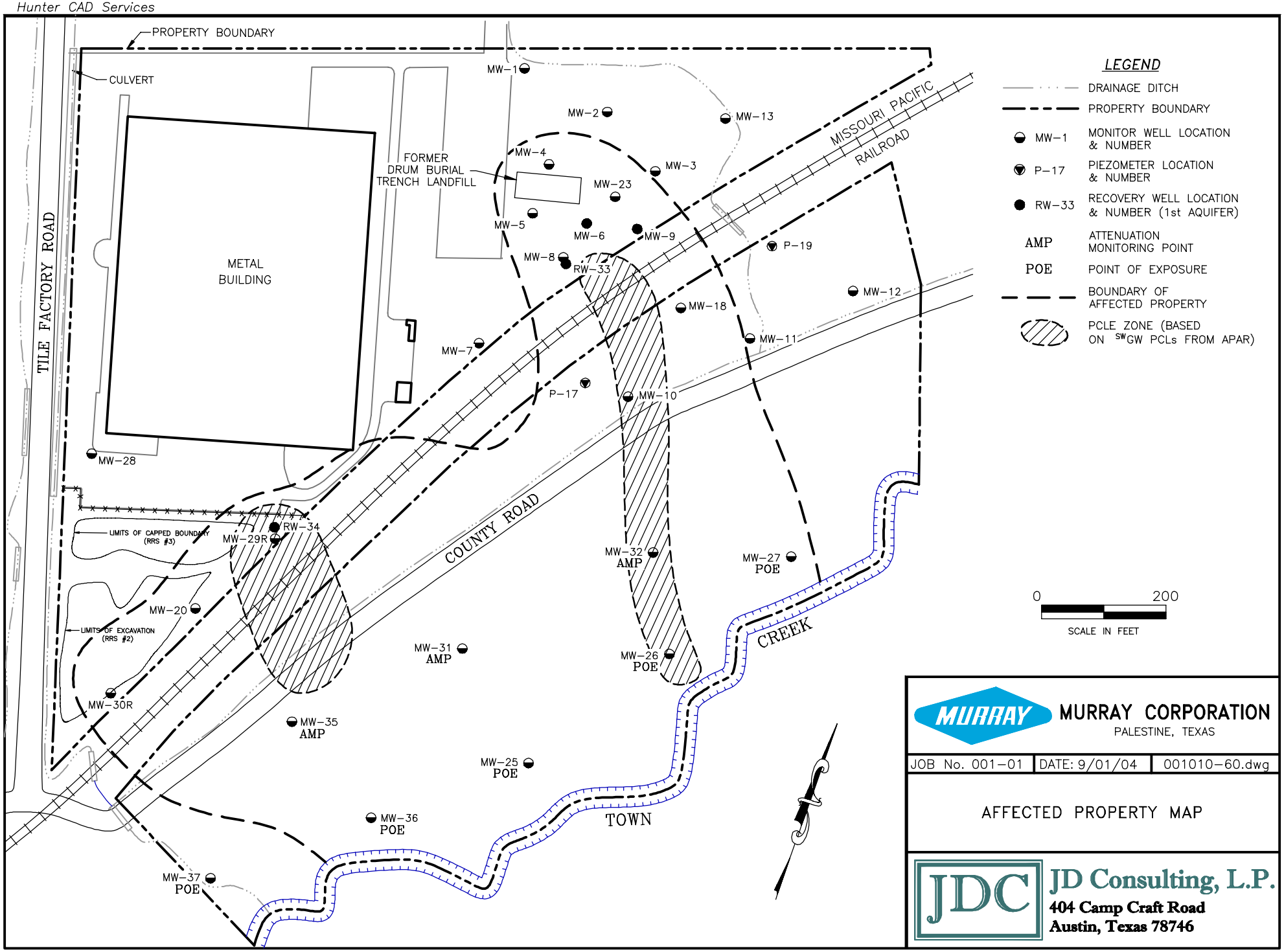
Groundwater Analytical Data
November 2001 to Present
Murray Corporation, Palestine, Texas

Volatile Organic Compounds	PCL [1]	Units	DMW-22 SUP 1/30/08	DMW-22 SUP 7/15/08	DMW-22 SUP 2/3/09	DMW-22 SUP 7/28/09	DMW-22 SUP 1/28/10	DMW-22 SUP 7/27/10	DMW-22 SUP 2/7/11	DMW-22 SUP 7/19/11	DMW-22 SUP 1/31/12	DMW-22 SUP 7/30/12	DMW-22 SUP 1/30/13
1,1-Dichloroethane	4.9	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1-Dichloroethene	0.007	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	0.20	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	mg/l	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-Pentanone (MIBK)	2.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	22	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	0.005	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chlorobenzene	0.10	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Chloroethane	9.8	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.24	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.070	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.070	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.70	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p-xylenes	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	mg/l	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000197 J	0.000603 J
o-Xylene	10	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	0.005	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Toluene	1.0	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.100	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	0.005	mg/l	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	mg/l	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.002	mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001
Semivolatile Organic Compounds													
1,2-Dichlorobenzene	0.60	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.070	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene	0.075	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.098	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cresol)	0.12	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acenaphthene	1.5	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate	0.006	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	mg/l	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Shaded cells indicate constituent detected

[1] Tier 1 Residential Groundwater PCL - June 29, 2012 Table

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 9/01/04	001010-60.dwg

AFFECTED PROPERTY MAP

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

Response Action Design

Use this worksheet to provide detailed descriptions of the response action. Attach design and layout drawings and equipment specifications in Attachment 2A.

Media: **Groundwater**
List all media to which this information applies. If the response action is different for another media, complete a separate worksheet.

Provide a detailed description of the response action. Describe the removal action, decontamination, treatment system(s), and/or physical or institutional control actions that are proposed for each media and discuss the reasons for choosing the response action(s). Identify and describe any ecological services analysis and compensatory restoration plan that will be utilized (if so, include the complete ESA and compensatory restoration plan in Attachment 2C).

The PMZ response action is composed of the following:

- Removal and Control – The groundwater contaminant source will be removed and controlled by the CA system if COC concentrations exceed the established GWPS in the future. The corrective action system consists of three recovery wells (MW-6, MW-9 and RW-33) located immediately downgradient to the landfill and recovery well RW-34 located immediately downgradient to the historical line leak. Fluid levels will be monitored and the need for and/or effectiveness of the CA system will be evaluated on an semiannual basis;

- Decontamination – The PCLE zone will be addressed by monitored natural attenuation (MNA). MNA is appropriate based on the continued decrease in historical groundwater concentrations downgradient from the contaminant source. Groundwater in all POC, POE, AMP, and CAO wells currently meet all applicable GWPS.

- Groundwater Monitoring – Groundwater monitoring will be used to evaluate the effectiveness of MNA and the need for active remediation. Groundwater monitoring and reporting is described in Section 3 of this RAP;

- Treatment – Recovered groundwater is pumped to the groundwater recovery system discharge line and then discharged to the City of Palestine's POTW; and

- Institutional Controls – Institutional controls will be used to prevent exposure to contaminated groundwater within the PMZ of the Murray facility.

Describe all major treatment system components and equipment of the response action. Illustrate the response action design and provide equipment specifications in Attachment 2A.

The groundwater CA system (if needed) includes the following components:

- Recovery wells;
- Recovery pumping systems;
- Discharge piping and instrumentation;
- A compressed air system;
- Monitoring wells;
- Attenuation monitoring wells; and
- POE wells.

A facility well location map, design and layout drawings, and typical recovery well completion details are included in Attachment 2A-1 of this RAP.

List permits or registrations needed to construct or implement the response action, including permits or registrations needed to conduct studies or tests. For VCP sites, list the permits that would be required if the site was not in the VCP (required by the VCP).

Permitting/Registration Authority	Type of permit/registration	Permit or registration number if already issued	Anticipated application date
City of Palestine POTW	None	Approval letter is provided in Attachment 2A-1.	N/A

Identify and discuss the results of any studies or tests, such as pilot studies, feasibility studies, technical impracticability studies, treatability studies, and/or toxicity studies conducted or proposed to be conducted at the affected property. Discuss the reason for the study or test and how it verifies the effectiveness and appropriateness of the chosen response action or documents that a particular response action is not appropriate for the affected property. Describe how the results of completed studies or tests determined the design or choice of response action. Attach any separate reports and supporting documentation in Appendix 3.

N/A

Attachment 2A

Response Action Diagrams and Component/Equipment Description

List of Contents - Attachment 2A

1. Attachment 2A-1. Groundwater Recovery System Components and Information
2. Attachment 2A-2. In-Situ Chemical Oxidation - Lance Technology (Removed)

Attachment 2A-1
Groundwater Recovery System Components and Information

The groundwater recovery system for the closed landfill at the Murray facility consists of recovery wells MW-6, MW-9 and RW-33. On August 6, 2003, groundwater recovery operations commenced in well RW-34 located in the vicinity of a historical groundwater recovery discharge line leak. Information pertaining to the location, installation, equipment and operational performance of the landfill and line leak recovery system is included in this attachment.

Chart C-1 provides summaries of the weekly recovery rates for the recovery wells during the period from January 1, 2004 through June 25, 2004. Approximately 276,500 gallons of groundwater containing a total of approximately 4.3 lbs of VOCs were recovered during this period and discharged to the City of Palestine's Publicly Owned Treatment Works (POTW). Groundwater recovery rates increased in all recovery wells in mid-February and again in May 2004 due to the significant rainfall experienced in the area.

Based on the March 2004 uppermost aquifer potentiometric surface map (Figure 2-2), the Corrective Action System appears to be effectively creating a hydraulic gradient towards the recovery wells. As shown in the figure, a cone of depression is present around recovery well RW-34. Although a specific cone of depression is not apparent in the vicinity of the closed landfill recovery system, evidence of the influence of the recovery system is indicated by the groundwater flow direction. Further, the groundwater upgradient from the landfill area is within the groundwater recovery system's capture zone.

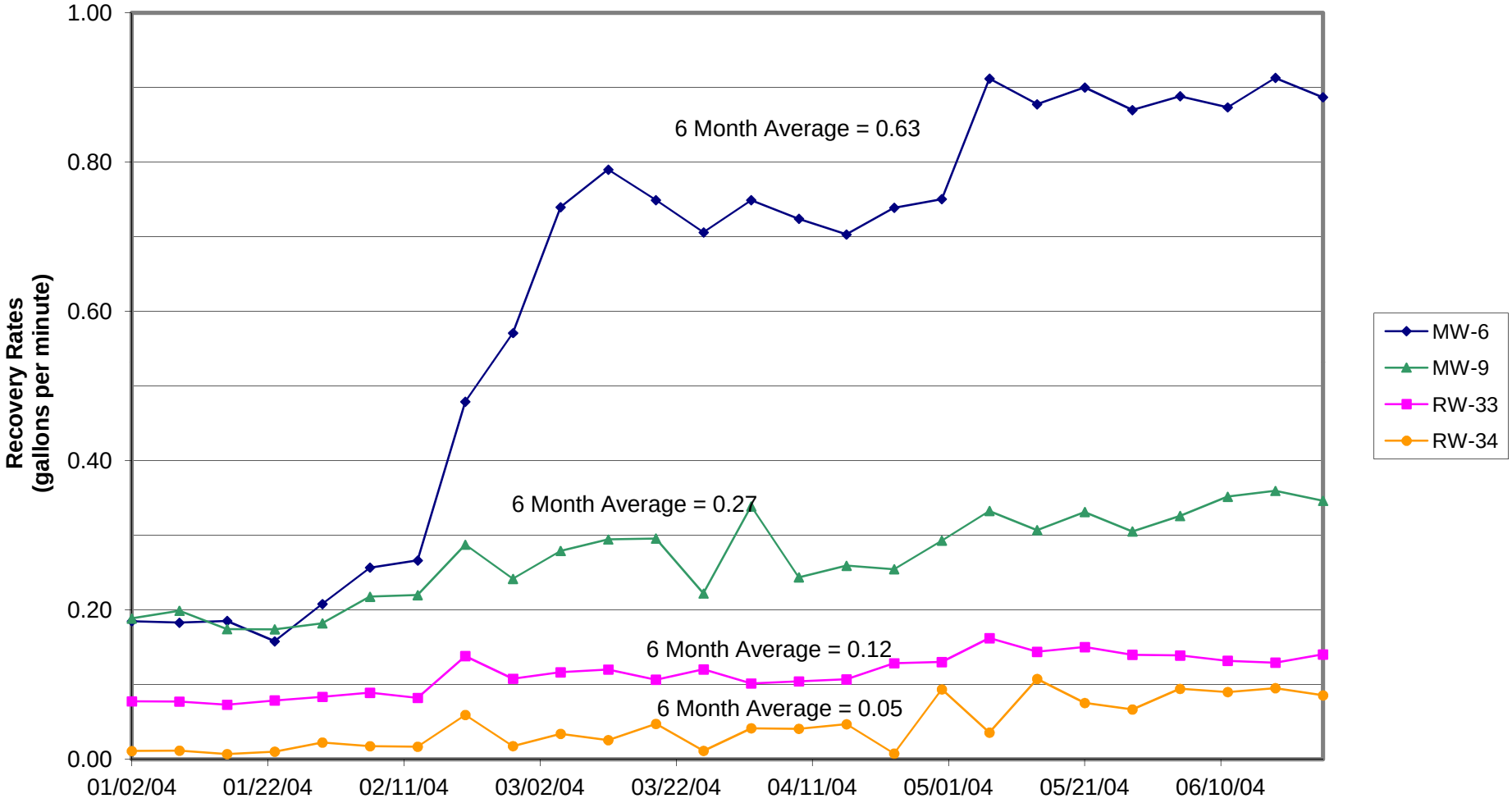
The capture zone for the landfill's three-well recovery system was estimated using an analytical model presented by Grubb (1993). The capture zone is dependent upon the groundwater recovery rate and aquifer characteristics of hydraulic conductivity and gradient. The weekly groundwater recovery rate from each of the three wells was used to determine the combined average recovery rate of 1.01 gallons per minute (gpm) for the period of January through June 2004 (Chart C-1). An aquifer thickness of 5.9 feet and hydraulic gradient of 0.008 were determined from the March 2004 water level measurements. Using the equations developed by Grubb, the width of the capture zone perpendicular to the recovery well system is approximately 260 feet wide (Table C-1). As indicated on the potentiometric surface map, groundwater contamination beneath the closed landfill is well within the capture zone of the recovery system. Any groundwater contamination outside the capture zone of the recovery system migrates toward Town Creek at an estimated flow rate of approximately 35 feet/year.

As shown in Charts C-2 and C-3, the recovery rate of MW-6 has varied due to the fluctuation of the aquifer's water levels but the well has consistently recovered significant quantities of groundwater. Recovery well RW-33, installed in April 2002, was completed with a 3-foot sump in order to improve the recovery operations in the vicinity of MW-8. The groundwater recovery rates for RW-33 are generally higher than historical recovery rates from MW-8 and have not been adversely impacted during the period of lower aquifer water levels.

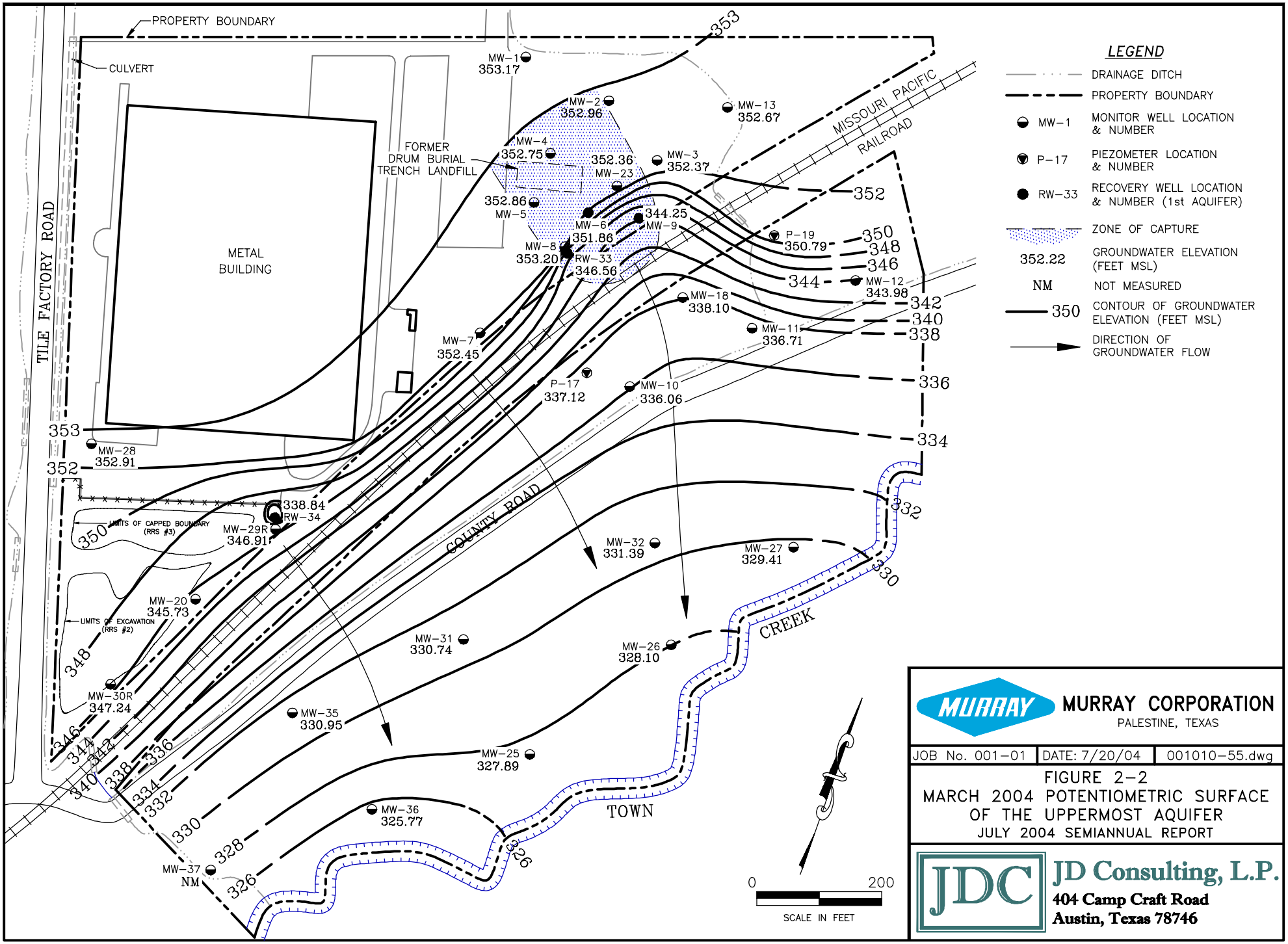
The recovery system appears to be achieving a continual improvement in groundwater quality downgradient from the system. As shown in Attachment 1B-2 of the RAP, the concentrations of groundwater contaminants in wells downgradient from the system (MW-10, MW-32 and MW-26) are fluctuating but are generally decreasing for most parameters over time. This general improvement in groundwater quality is further evidenced by the stability of the groundwater plume. Attachment B1-1 of the RAP shows the centerline concentrations during various monitoring events from October 1998 through July 2004. The centerline graphs show the plume has continued to decrease in contaminant concentrations downgradient from the recovery system.

Murray installed recovery well RW-34 in the vicinity of MW-29R to address a release from a historical leak from the pipeline that transfers recovered groundwater to the sanitary sewer. The recovery well has been operational since August 6, 2003 and appears to be achieving the maximum amount of groundwater recovery possible for the low saturated thickness in this area of the facility.

Chart C-1
Weekly Groundwater Recovery Rates
January 2004 through June 2004
Murray Corporation, Palestine, Texas
July 2004 Semiannual Corrective Action Report



Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- ZONE OF CAPTURE
- 352.22 — GROUNDWATER ELEVATION (FEET MSL)
- NM — NOT MEASURED
- 350 — CONTOUR OF GROUNDWATER ELEVATION (FEET MSL)
- DIRECTION OF GROUNDWATER FLOW

MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 7/20/04	001010-55.dwg

FIGURE 2-2
MARCH 2004 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JULY 2004 SEMIANNUAL REPORT

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

Table C-1
Recovery Well System Calculations
Murray Corporation, Palestine, Texas
July 2004 Semiannual Corrective Action Report

Objective:
To estimate the capture zone of the RW-33, MW-6 and MW-9 Recovery System.

Step 1. Calculation of Downgradient Stagnation Point
Calculates the downgradient stagnation point for a one well system (after Grub, 1993).

For a confined aquifer: $x_{stag} = Q / 2\pi Kbi$

Where: x_{stag} = downgradient stagnation point (ft)
Q = flow rate (ft^3/day)
K = hydraulic conductivity (ft/day)
b = saturated thickness of water-bearing unit (ft)
i = natural hydraulic gradient (ft/ft)

For an unconfined aquifer: $x_{stag} = QL / \pi K(\phi_1^2 - \phi_2^2)$

Where: x_{stag} = downgradient stagnation point (ft)
Q = flow rate (ft^3/day)
K = hydraulic conductivity (ft/day)
ϕ_1 = head above aquifer bottom upgradient from recovery well location (ft)
ϕ_2 = head above aquifer bottom downgradient from recovery well location (ft)
L = distance between head measurements (ft)

Step 1a: Aquifer Type from Step 1 (0 for confined; 1 for unconfined) [1]

Step 1b: Enter Parameters.

For Confined Aquifer:

Q =	0.0	= flow rate in ft^3/day =		gpm
K =	0.00	= hydraulic conductivity in ft/day =		cm/sec
b =		= saturated thickness of water-bearing unit in feet		
i =		= natural hydraulic gradient at recovery well location (ft/ft)		

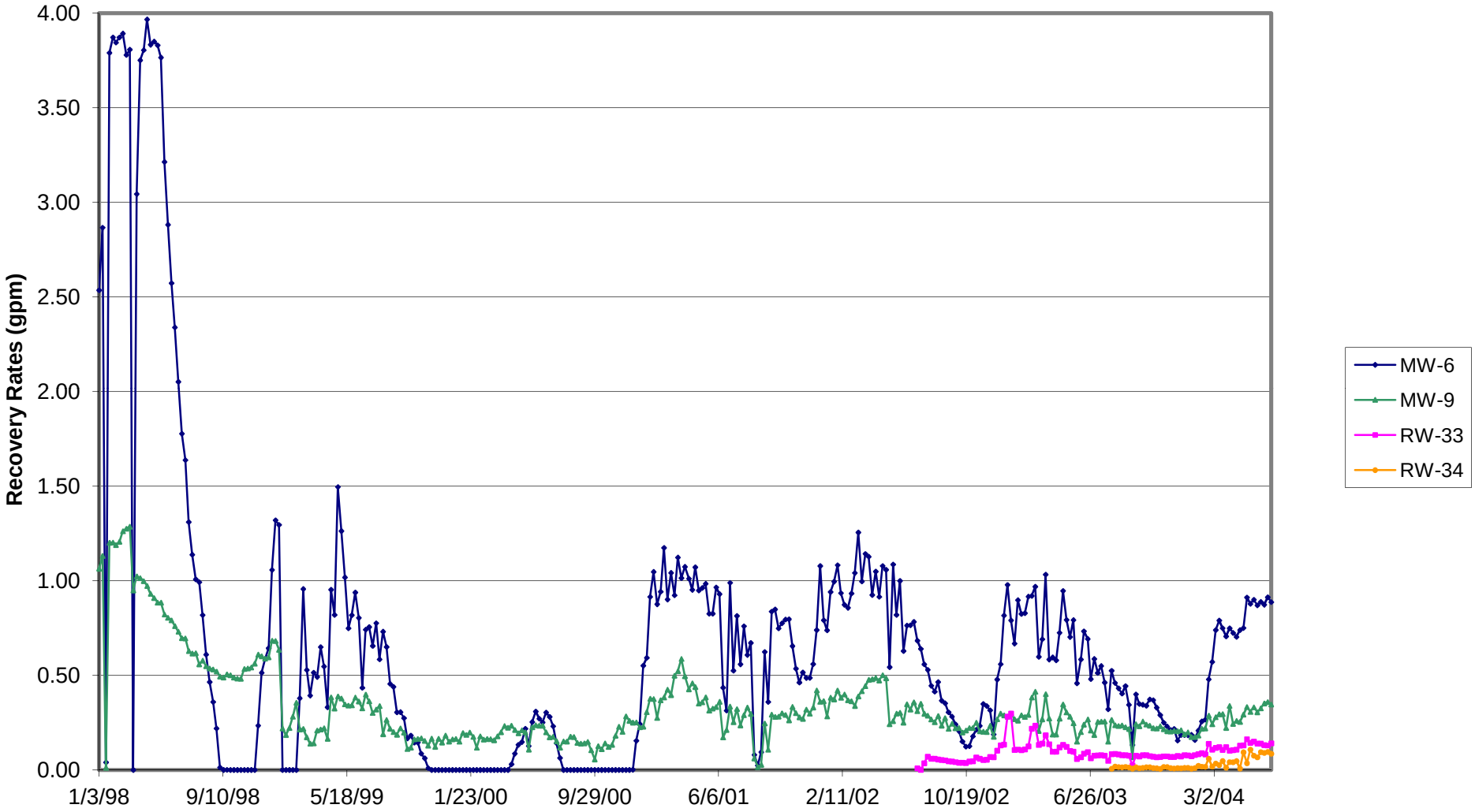
For Unconfined Aquifer:

Q =	194.4	= flow rate in ft^3/day =	1.010	gpm
K =	7.94	= hydraulic conductivity in ft/day =	2.8E-03	cm/sec
ϕ_1 =	6.3	= head above aquifer bottom upgradient from recovery well location (ft)		
ϕ_2 =	5.5	= head above aquifer bottom downgradient from recovery well location (ft)		
L =	100	= distance between head measurements (ft)		
	0.008	= hydraulic gradient (ft/ft) - Not used in calculation		

Calculated Downgradient Stagnation Point (x_{stag}) =	83	feet
Capture Width Perpendicular to Well ($\pi * x_{stag}$) =	260	feet
Upgradient Capture Width ($\pi * 2 * x_{stag}$) =	519	feet

Aquifer thickness of 5.9 feet based on MW-4, MW-5, MW-6, MW-8 and MW-9.
Hydraulic gradient based on March 2004 groundwater elevations at MW-4 and MW-6.

Chart C-2
Weekly Groundwater Recovery Rates
January 1998 through June 2004
Murray Corporation, Palestine, Texas
July 2004 Semiannual Corrective Action Report



Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-15-88 WELL NO.: MW-6

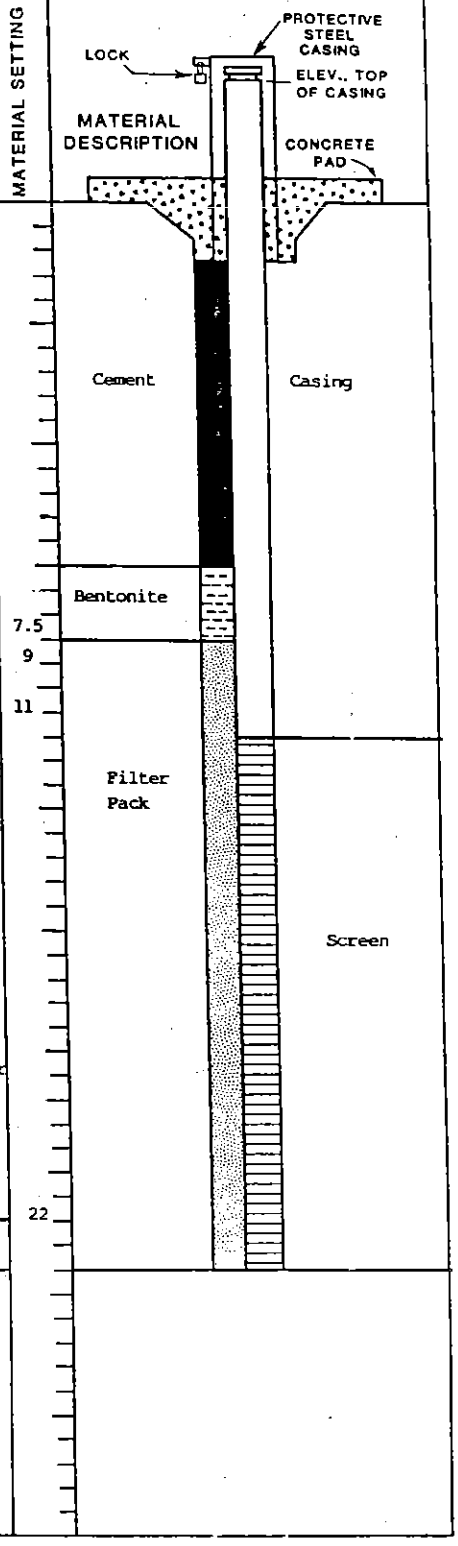
SITE: Palestine, TX ELEVATION: PAD 368.47 TOP OF PVC CASING 371.07

TOTAL DEPTH: 22' CASING SIZE & TYPE: 4" FRP SCREEN SIZE: 4"-0.01 Mill slot

WATER LEVEL: 21.19 REF.: BTOC DATE: 9-23-88 TIME: 1:30 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT²)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, with 20% clay in matrix, compact, red, damp, no odor, clean
5			SC		Clayey Sand, similar to above except with very coarse sand 30%
			SC		Clayey Sand, similar to above except without coarse sand, cleaner with 15% clay in matrix
10			SC		Clayey Sand, similar to above except with 55% coarse sand and silt, red, damp, clean
			SC		Clayey Sand, similar to above, except with medium and fine gravel around 5% with 25% clay in matrix
15					
			SC		Clayey Sand, similar to above except without coarse fraction clay 15%, greenish grey and red alternating bands possible odor 15%, saturation at 16', substantial odor at 11'
20					
			CH		Clay, highly plastic, firm with 20% fine sand, green grey, damp, slight odor
					Monitor well terminated at 22.0 feet below surface

COMPLETION DATA



JONES AND NEUSE, INC.
CONSULTING ENGINEERS
AUSTIN, TEXAS

Monitor Well Installation

CLIENT: Murray Corporation JOB NO.: 118204 DATE DRILLED: 7-15-88 WELL NO.: MW-9

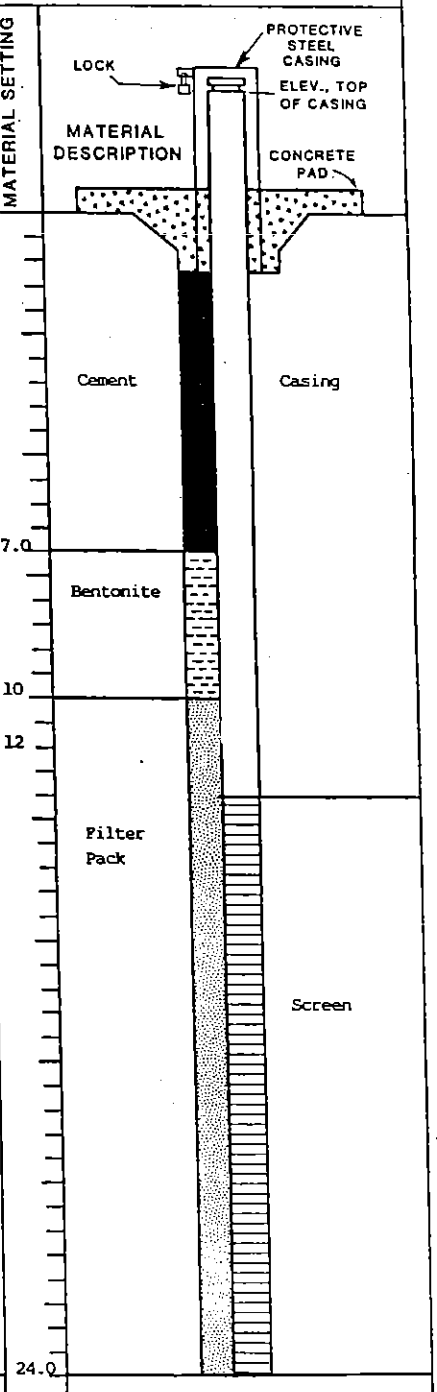
SITE: Palestine, TX ELEVATION: PAD 363.98 TOP OF PVC CASING 366.96

TOTAL DEPTH: 24.0' CASING SIZE & TYPE: 4" Dia FRP SCREEN SIZE: 4" - 0.01 Mill slot

WATER LEVEL: 18.01 REF.: BTOC DATE: 9-23-88 TIME: 4:00 pm GEOLOGIST: Curt Black

DEPTH	N. VALUE (BLOW/FT)	POCKET PENETROMETER (TONS/FT2)	SYMBOL	STRATIGRAPHY	SAMPLE DESCRIPTION
0			SC		Clayey Sand, well graded, very coarse to very fine, subangular to subrounded, 20% clay in matrix, loose to 3' then compact, rusty red, dry at surface to 3' then damp, clean
5			SC		Clayey Sand, similar to above, except firmer, without coarse components above medium sand, interbedded grey with red
10			CH		Clay, high plasticity, stiff, with 30% medium and fine sand, light grey, damp clean
			SC		Clayey Sand, well graded, medium to very fine, subangular to subrounded, 25% clay in matrix, compact, rusty red interbeds with grey, moist, clean
15			SC		Clayey Sand, similar to above except with 35% clay, firm, grey
			SC		Clayey Sand, similar to above except 30% clay in matrix increasing to 45% at base, firm to stiff at base, damp, no odor
20					Monitor well terminated at 24.0 feet below surface

COMPLETION DATA



JONES AND NEUSE, INC. CONSULTING ENGINEERS AUSTIN, TEXAS

LOG OF BORING

BORING NO. 3rd Aquifer Exp–1

CLIENT: Murray Corporation JOB NO: 018206.1 SHEET: 1 OF: 2

SITE: Adjacent to MW–8 DATE: START: 10/2/91 FINISH: 10/8/91

GEOLOGIST: J. Hughes DRILLER: Rone Engineering DRILLING RIG TYPE: CME–75

DRILLING METHODS: Hollow–stem Augers – Continuous Sample TOTAL DEPTH: 72' HOLE DIAMETER: 16"/ 1/2"

SITE COORDINATES: ELEVATION:

GROUND–WATER LEVEL: DEPTH: DATUM: DATE: TIME:

JONES AND NEUSE, INC.
Environmental and Engineering Consultants

DEPTH (FEET)	SAMPLE TYPE	% RECOVERY	ORGANIC VAPOR READING (ppm)	USCS SYMBOL (1)	STRATIGRAPHY	LITHOLOGIC DESCRIPTION
0				CL		Sandy Clay – Moderately plastic, with 30–40% very fine sand as matrix, firm, damp, brownish–red.
5				SC		Clayey Sand – Very fine, subrounded with 30–40% silt and clay as matrix, compact, damp, brownish–red, hematite gravel at 7'–8'.
10						
15				SC		Clayey Sand – Similar to above except with 20–30% coarse sand and fine gravel as thin seams and matrix, thin gravel seams are partially hemotite cemented. Saturated at 12'.
				SC		Clayey Sand – Very fine, with 30–40% silt and clay as matrix, compact, saturated, gray.
20				CL		Sandy Clay – Low plasticity, very stiff to hard, with 20–30% very fine sand as partings, damp, gray to brown.
25						
30				CL		Sandy Clay – Similar to above except with 10–20% very fine sand partings, gray.
35						
40						
45						
50				SM		Silty Sand – Very fine, subrounded with 30–40% silt and clay partings, dense, saturated, gray.

(1) UNIFIED SOIL CLASSIFICATION SYSTEM

B–LOG.WK3

JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

WELL INSTALLATION

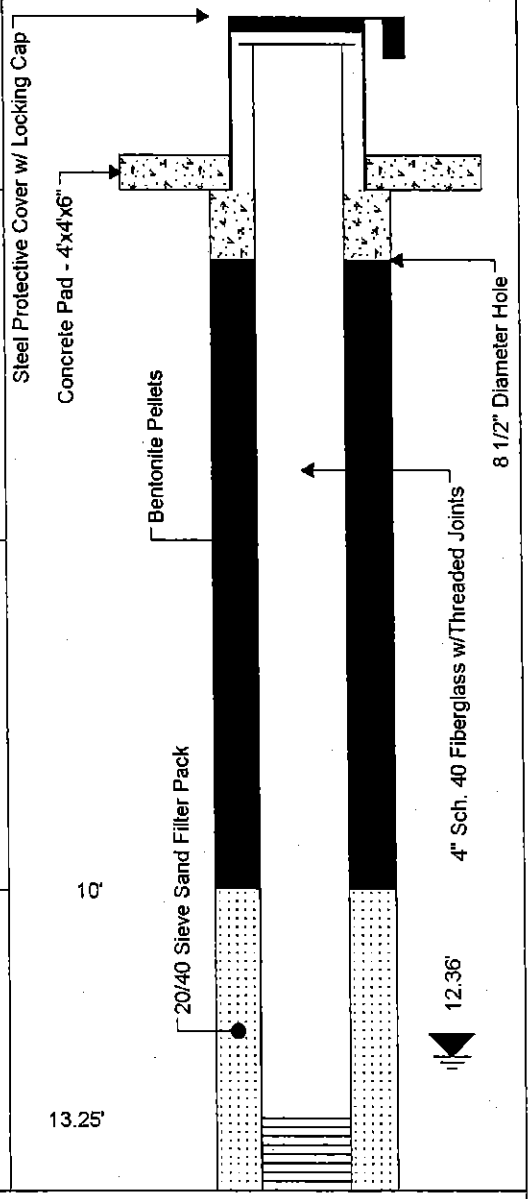
Client: Murray Corporation
: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 8 1/2" Hollow Stem Augers
Sampling Method: 5' Split Spoon
Comments: Continuous Sampling

Driller: GW Monitoring/Anderson
Drilling Rig: CME-75
Total Depth: 27' BGL
Ground Water: 4/19/02 14.85' BTOC
Site Coordinates:
N 80623.09 **E** 48572.78

Well No.: RW-33
Sheet: 1 of 2
Start Date: 4/17/02 14:15
Finish Date: 4/17/02 15:00
Elev., TOC (ft. msl): 368.49
Elev., PAD (ft. msl): 366.27
Elev., GL (ft. msl): 366.0

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
-3					
-1					Ground Surface
1	I			100	**Sandy Clay (cl)** Moderate plasticity, 25% very fine grain sand, firm, damp, reddish brown
3					
5	SS			10	**Silty Sand (sm)** Very fine grained, 30-40% silt, compact, damp, yellow brown
7					
9	SS			60	
11		12.36'			**Clayey Sand (sc)** Similar to above, except 30-40% clay, with hematitic gravel, red
13					Saturated at 13'

Completion Results



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321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

WELL INSTALLATION

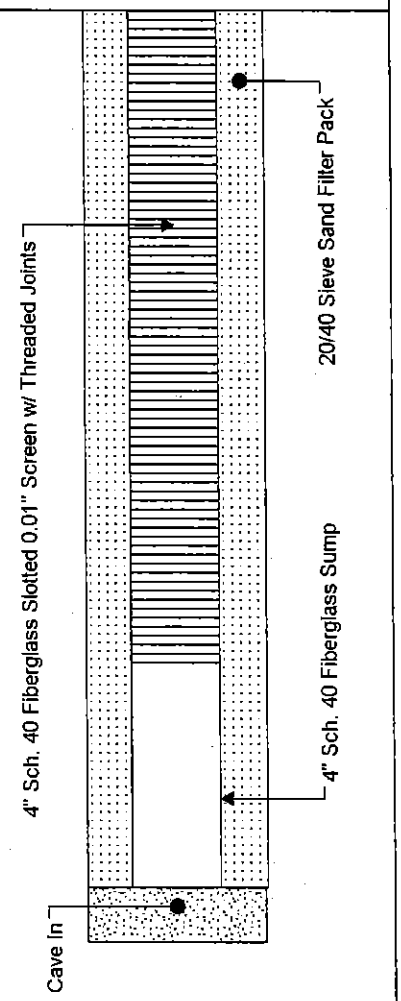
Client: Murray Corporation
Site: Palestine, Texas
Job No.: 001-01
Geologist: Mark S. Katterjohn
Drilling Method: 8 1/2" Hollow Stem Augers
Sampling Method: 5' Split Spoon
Comments: Continuous Sampling

Driller: GW Monitoring/Anderson
Drilling Rig: CME-75
Total Depth: 27' BGL
Ground Water: 4/19/02 14.85' BTOC
Site Coordinates:
N 80623.09 E 48572.78

Well No.: RW-33
Sheet: 2 of 2
Start Date: 4/17/02 14:15
Finish Date: 4/17/02 15:00
Elev., TOC (ft. msl): 368.49
Elev., PAD (ft. msl): 366.27
Elev., GL (ft. msl): 366.0

Depth (ft.)	Type	Saturation	USCS Class	Recovery (%)	Sample Description
16	SS			60	Moist at 15'
18					**Sandy Clay (sc)** Low plasticity, 30-40% medium to fine grained sand in silt and clay matrix, very stiff to hard, moist, gray laminations
20	SS			100	
22					
24	SS			100	**Sand (sp)** Fine grained, dense, moist, gray with rust laminations
					Sandy Clay (sc) Similar to above
26					**Silty Clay (cl)** Low plasticity, hard, damp, gray with dark gray laminations
28					Total Depth = 27' BGL
30					

Completion Results



JD Consulting, L.P.
321 Texan Trail, Suite 203
Corpus Christi, Texas 78411

361/855-7335
361/855-7410 fax

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

WELL INSTALLATION

Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Solid-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 20' BGL
Ground Water: 9.26' BTOC
Site Coordinates:
N 80061.97 E 48262.74

Well No.: RW-34
Sheet: 1 of 2
Start Date: 4/11/2003 7:30
Finish Date: 4/11/2003 7:50
Elev., TOC (ft. msl): 356.76
Elev., PAD (ft. msl): 354.47
Elev., GL (ft. msl): 354.3

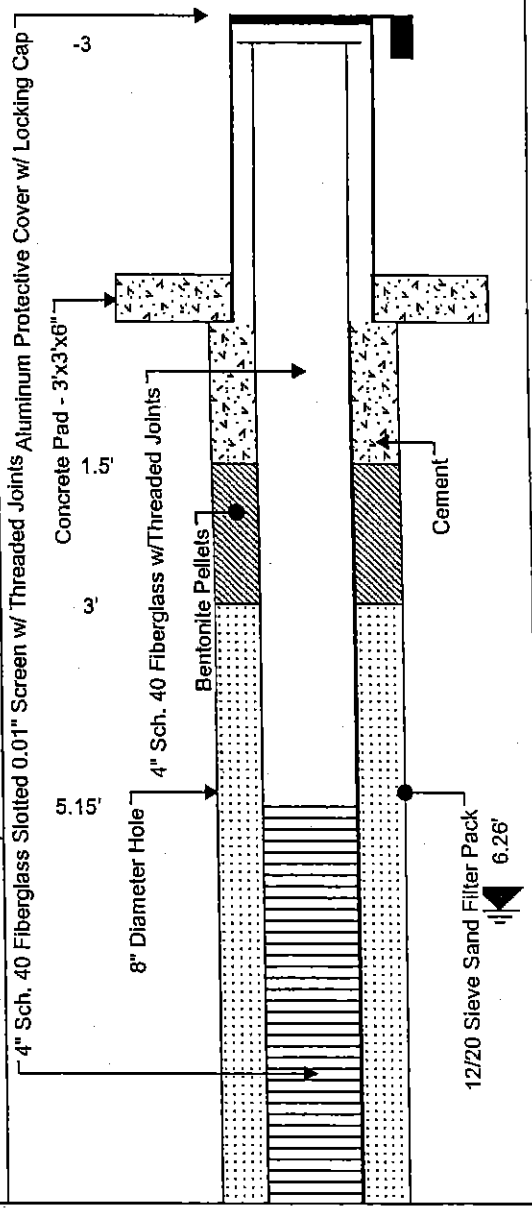
Depth (ft.)	Sample Type	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)
-3					
-1					
1	PS		14		100
3					
5		6.26'	16		
7	PS				100
9			49		

Ground Surface

Clayey Silty Sand (fill material)
Fine grained sand, firm, reddish brown, damp, with 30-40% silt and clay

Silty Sand (SM)
Fine grained, loose, poorly sorted, brown to tan, moist, 10-20% silt, saturated at 7.5 feet

Completion Results



JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

WELL INSTALLATION

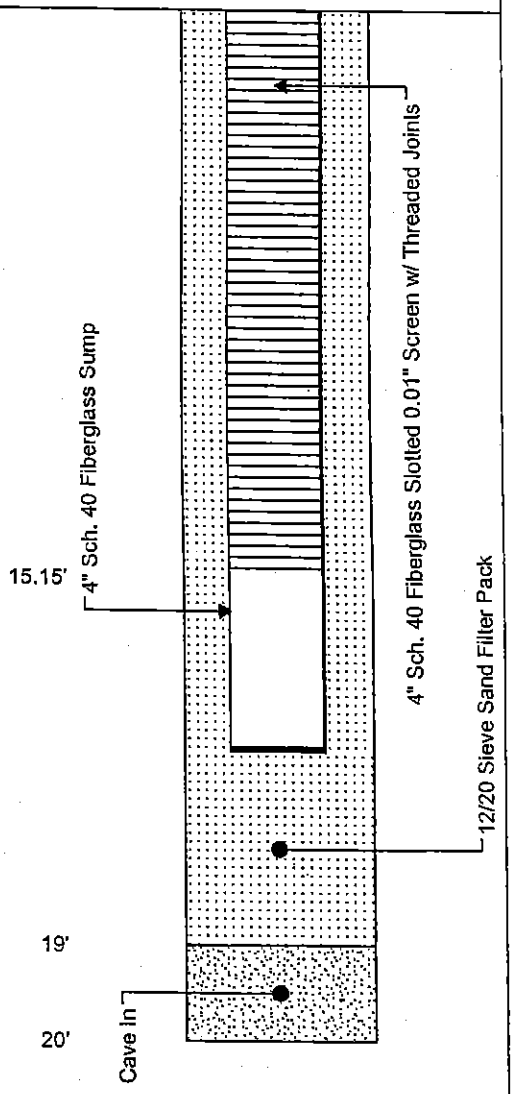
Client: Arent Fox - Murray Corporation
Site: Palestine, Texas
Job No.: 001
Geologist: Mark Katterjohn
Drilling Method: Solid-Stem Auger
Sampling Method: CPT (Sampling)
Comments: 5' Percussion Sampler with Acetate Sleeve

Driller: Groundwater Monitoring
Drilling Rig: Diedrich D-25
Total Depth: 20' BGL
Ground Water: 9.26' BTOC
Site Coordinates:
N 80061.97 **E** 48262.74

Well No.: RW-34
Sheet: 2 of 2
Start Date: 4/11/2003 7:30
Finish Date: 4/11/2003 7:50
Elev., TOC (ft. msl): 356.76
Elev., PAD (ft. msl): 354.47
Elev., GL (ft. msl): 354.3

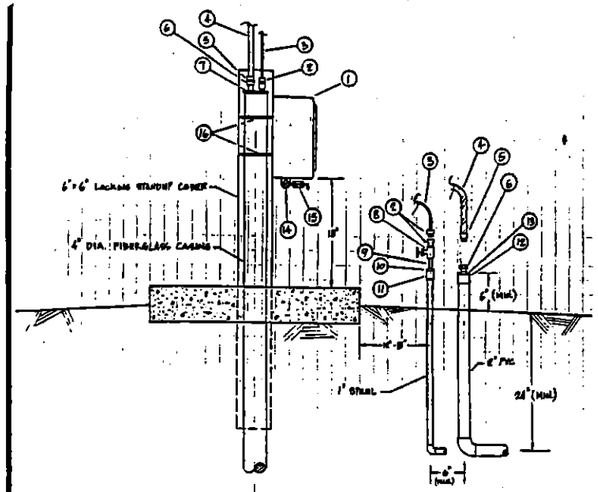
Depth (ft.)	Sample Type	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description
11						**Sandy Clay (SC)** High plasticity, firm, gray, moist, 10-15% fine grained sand, odor
						Silty Sand (SM) Fine grained, soft, tan, saturated
13	PS		780		100	**Clay (CH)** High plasticity, stiff, gray with reddish orange mottles, damp
15			470			**Silty Clay (CH)** High plasticity, hard, brown, 10% silt, odor
						Sampler refusal at 15' BGL
17						
19						
						Total Depth = 20' BGL
21						

Completion Results



JD Consulting, L.P.
85 IH 10 North, Suite 202
Beaumont, Texas 77707

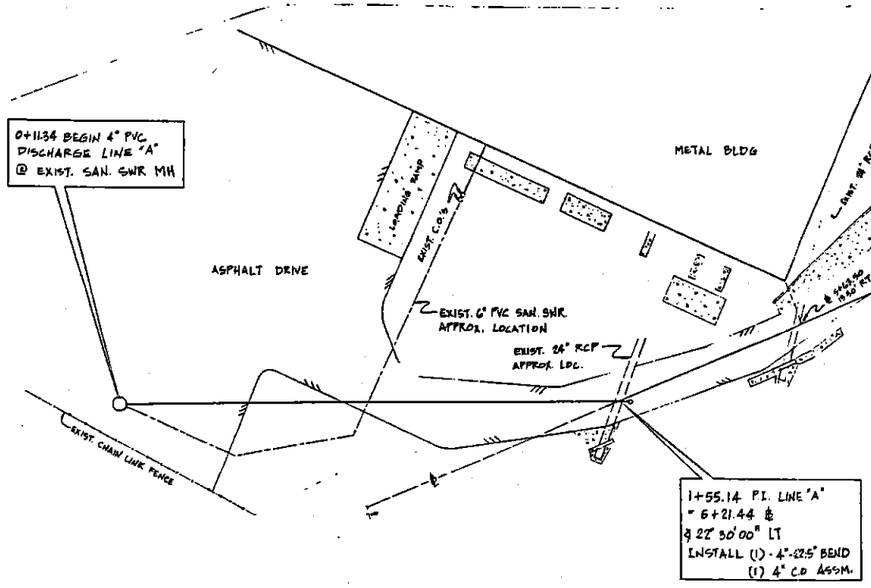
409/838-4400
409/838-9056 fax

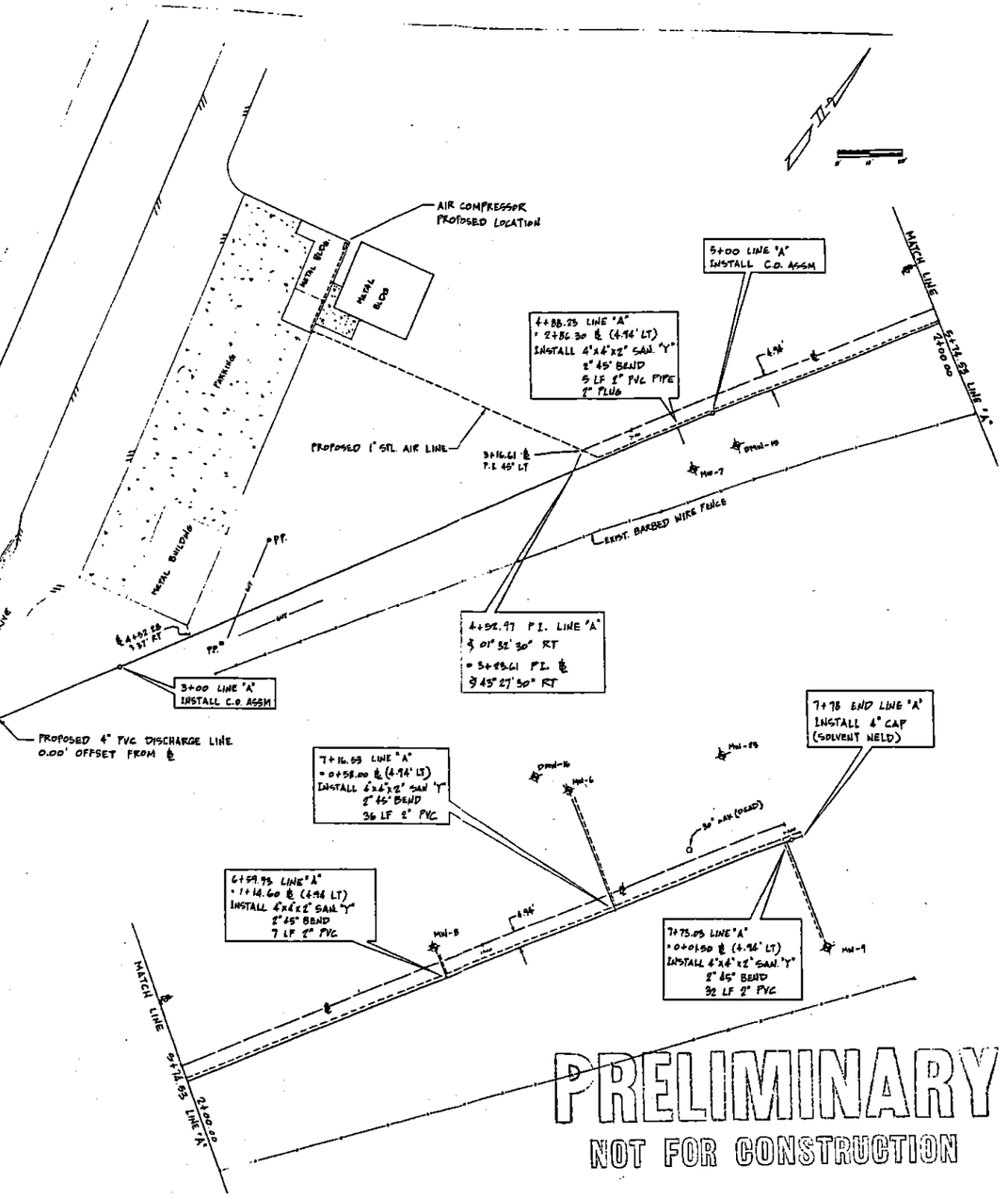


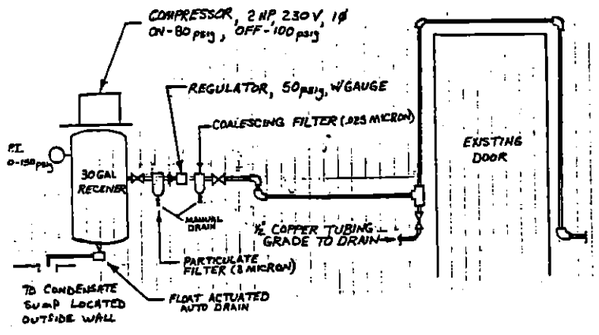
TYPICAL INSTALLATION DETAIL

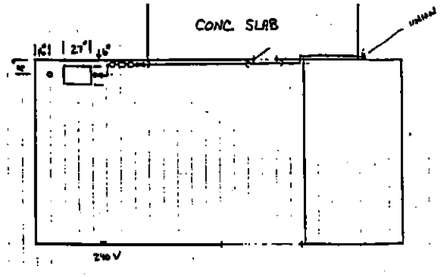
1. FIBERGLASS ENCLOSURE FOR FILTER/REGULATOR & CYCLE COUNTER (CEE)
2. 3/8" BRASS QUICK-CONNECT W/ 3/8" BARBED HOSE CONNECTION (CEE)
3. 3/8" SEAMLESS, SYNTHETIC RUBBER AIR HOSE (CEE)
4. 1" SEAMLESS, REINFORCED SYNTHETIC RUBBER DISCHARGE HOSE (CEE)
5. 1" BRASS QUICK-CONNECT (MALE) W/ 1" BARBED HOSE CONNECTION (CEE)
6. 1" BRASS QUICK-CONNECT (FEMALE)
7. 4" PVC CAP W/ BULKHEAD FITTINGS FOR AIR & DISCHARGE CONNECTIONS (CEE)
8. 3/4" BRASS GATE VALVE
9. 3/4" NIPPLE
10. 1"x3/4" BUSHING
11. 1" COUPLING
12. 2" (SOLVENT WELD x THREADED) COUPLING
13. 2"x1" BUSHING (THRD)
14. 1" DISCHARGE VALVE (CEE)
15. 1" SAMPLING VALVE W/ BARBED HOSE CONNECTION (CEE)
16. STAINLESS STEEL WORM DRIVE CLAMP (CEE)

CEE - DENOTES ITEM TO BE FURNISHED BY CLEAN ENVIRONMENT EQUIPMENT








CONC. SLAB
1'-2"
2'-1"
2'-0"
2'-0"
2'-0

JONES AND NEUSE, INC.
Environmental and Engineering Services

February 26, 1993

Mr. Jesús Garza
Executive Director
Texas Water Commission
P.O. Box 13087 - Capitol Station
Austin, Texas 78711-3087

Attention: Ata-ur-Rahman, Industrial and Hazardous Waste Permits Section

Re: Murray Corporation - Palestine, Texas
Compliance Plan No. CP-50328
JN018206.1

Dear Mr. Garza:

Pursuant to the corrective action program requirements of Section IX.C. of the referenced Compliance Plan, this letter provides a description of the Corrective Action System components at the Murray Corporation (Murray) facility. The descriptions of the ground-water monitor wells and proposed recovery system are provided below:

Ground-water Monitor Wells

Figure 1 shows the locations of the 22 monitor wells and two piezometers that have been installed to date at the Murray site. Monitor wells MW-23 and DMW-24 were installed in January, 1993 in accordance with Section IX.B. of the Compliance Plan. A certification of proper installation of these wells is attached to this letter (see Attachment I) in accordance with Section III.D.3. of the Compliance Plan. Installation logs for all the monitor wells are included as Attachment II. Attachment III is a table summarizing all well certification information required by Compliance Plan for MW-23 and DMW-24.

The screened interval for monitor well DMW-24 was selected based on the following criteria:

1. The silty sand zone encountered in second aquifer monitor wells DMW-14, DMW-15, DMW-16 and the third aquifer exploratory boring intergrades in the vicinity of DMW-24 into a clay with saturated silty sand partings.

2. The sandy clay aquifer encountered in DMW-24 appeared to be slightly more productive between 40 and 55 feet than in the uppermost portion of the aquifer between 31 and 40 feet.

3. Stratigraphically, the screened zone for DMW-24 is consistent with that of other deep monitor wells.

Ground-water Recovery System

The Corrective Action System components at the Murray Corporation facility will consist of a ground-water recovery system designed and constructed to effect remediation of contaminated ground water. The recovery system will provide for the removal of contaminated ground water

from existing monitor wells MW-6, MW-8 and MW-9. The recovered ground water will be discharged to the City of Palestine Publicly Owned Treatment Works (POTW). A site plan showing the layout of the proposed system is included as Figure 2.

The recovery system will consist of approximately 770 linear feet (LF) of 4-inch diameter PVC discharge pipe, 75 LF of 2-inch diameter PVC discharge pipe and 440 LF of 1-inch diameter coated steel air supply pipe. The pumps will be total fluids pneumatic pumps manufactured by Clean Environment Equipment (Model #ADDP-1). The pumps will be equipped with an air filter/regulator and cycle counter for flow measurement. Compressed air will be supplied by a 2-HP single stage compressor with a 30-gallon pressure tank.

Installation of the recovery system is tentatively scheduled to begin on March 15, 1993 and will be fully operational by April 1, 1993. Recovered ground water will be conveyed under pressure to an existing sanitary sewer manhole located south of the manufacturing building (as shown on Figure 2) where it will mix with the wastewater discharge from Murray's manufacturing process and be conveyed by gravity to the POTW. Estimated flow rates are 0.25 gallons per minute (gpm) per well or a total system flow rate of 0.75 gpm. The system is designed for continuous operation.

Please do not hesitate to contact me at (512) 327-9840 if you should require additional information or have questions related to the proposed corrective action system at the Murray facility.

Sincerely,

JONES AND NEUSE, INC.

Fred C. Dalbey
Project Manager

FCD\KRK\ja:61.garza.krk

Attachments

cc: Mr. John Witherspoon - Manager - TWC District 5 Field Office, Tyler, Texas
Mr. Allyn M. Davis, Director - Hazardous Waste Management Division, U.S.E.P.A. Region VI Office - Dallas, Texas
Mr. Donald B. Mitchell, Jr. - Arent, Fox, Kintner, Plotkin & Kahn, Washington, D.C.
Mr. Bob Moody - Murray - Palestine, Texas
Mr. Thorne Gould - Murray Corporation - Cockeysville, Maryland

7182.06-.76
Murray

City of Palestine

March 12, 1993

Fred C. Dalbey
Project Manager
Jones and Neuse, Inc.
912 Capitol of Texas Highway South, Suite 300
Austin, TX 78746

Re: Murray Corporation

Dear Mr. Dalbey:

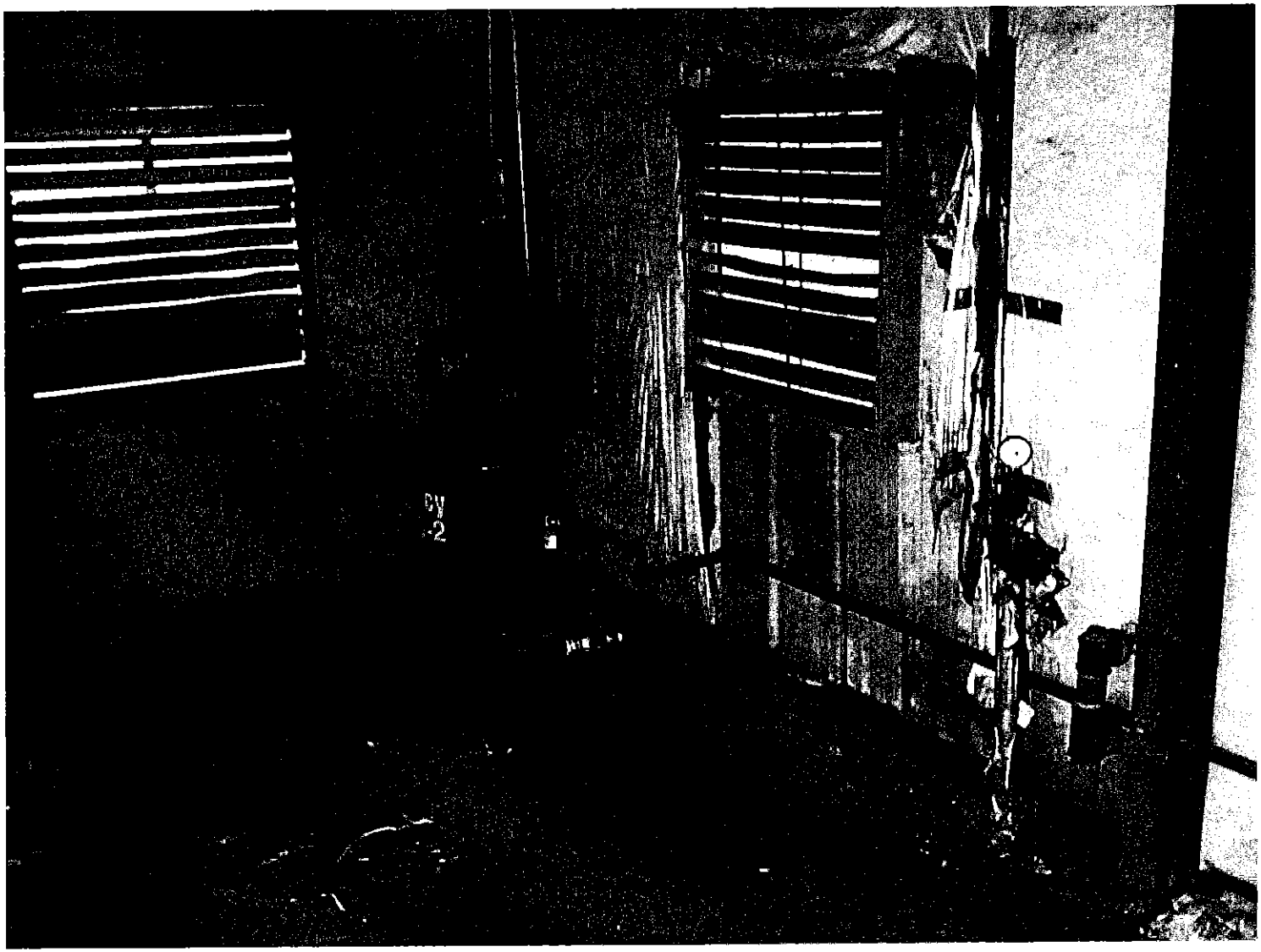
It is acceptable to the City of Palestine Wastewater Department for Murray Corporation to discharge recovered ground water into the City sewer at Murray Corporation on Tile Factory Road. Flows are estimated to be 0.75 gpm.

We will need to be furnished the results of the quarterly and/or semi-annual sampling program.

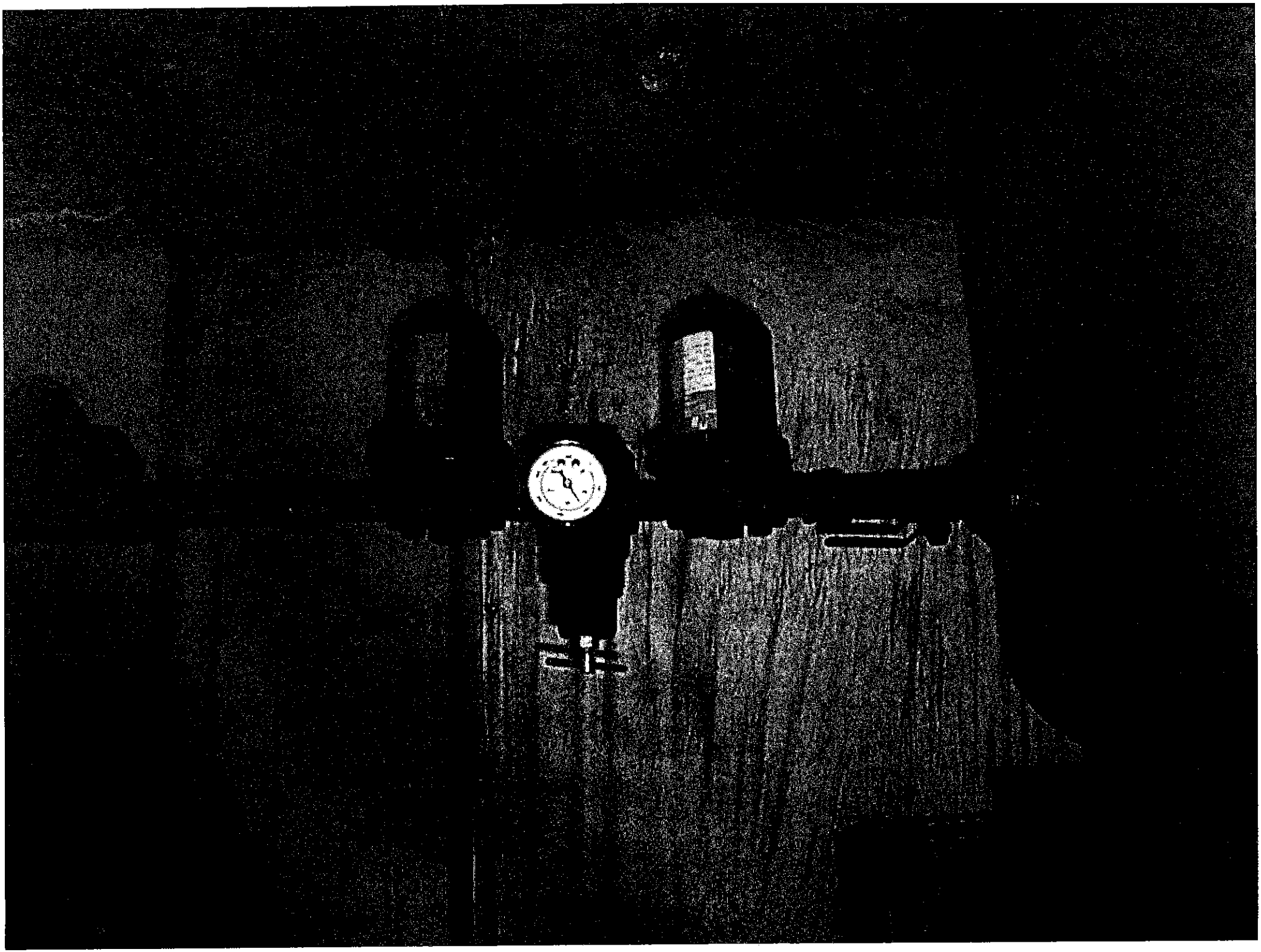
If I can be of further assistance, please do not hesitate to call me.

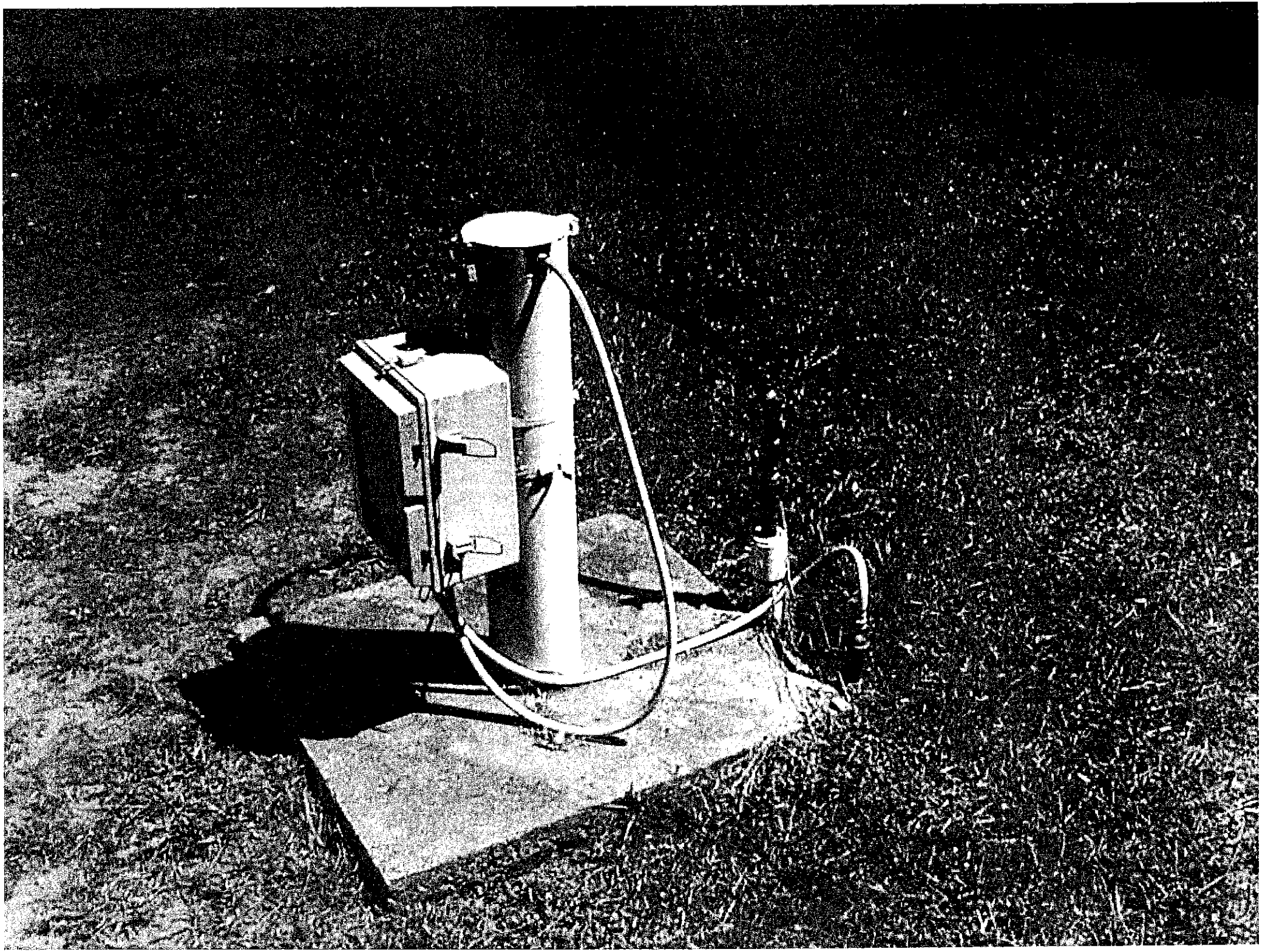
Sincerely,

Bob Follett
Public Works Director



Quincy
QTS-2

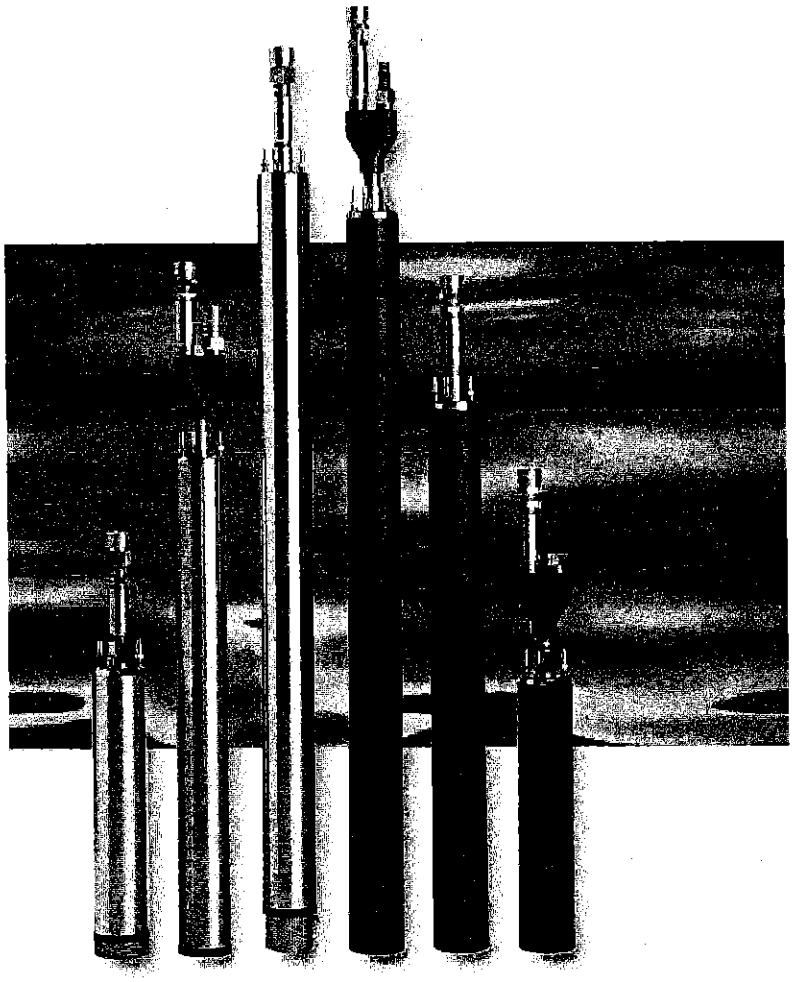




LANDFILL LEACHATE & CONDENSATE
SKIMMING (LNAPL)
TOTAL/DISSOLVED FLUIDS
SINKERS (DNAPL)

AP-4

4-INCH CONTROLLERLESS PNEUMATIC PUMP



FIRST OF ITS KIND, FIRST IN PERFORMANCE, AND FIRST IN WARRANTY COVERAGE

When it was introduced back in 1986, the AP-4 AutoPump was the industry's first controllerless pneumatic pump. It revolutionized the industry. Since then other manufacturers have tried to copy it, but with over 10 years of proven field performance and evolutionary improvements, the AP-4's lead is hard to overcome. In fact, when it comes to actual controllerless pump experience, CEE has more years in the field than all the competition combined.

The AP-4 AutoPump with its patented design is the industry's most reliable and proven pump. The benefit of our pump experience brings you unparalleled reliability and unique features such as flowrates over 16 gpm and an industry leading 5-year warranty.

The AP-4's warranty is not only the industry's best because of its five-year timespan, but also because of the real field experience we base it upon. Before offering this extensive warranty, we analyzed the service data of thousands of AutoPumps over a twelve-year span (some of which were the very first AutoPumps ever made that are still working today). After reviewing the empirical evidence, it was easy to see that the AP-4 has had no problem withstanding the tough test of time. No other warranty has such a solid foundation. So when it comes to unparalleled performance, reliability, and warranty coverage, specify the AP-4 AutoPump, the industry leader.

In order from left to right:
Low-Drawdown AP-4/BL, Short AP-4/TL, Long AP-4/BL,
Long AP-4/TL, Short AP-4/BL, Low-Drawdown AP-4/TL

Clean Environment Equipment
LARRY RANSAU 800-453-3340

FEATURES AND BENEFITS

1. OVER 10 YEARS DOWNWELL

Back in 1986, AutoPumps were the first controllerless pumps. Since then, they have pumped billions of cycles on tough sites worldwide, including landfills, refineries, gas stations, petrochemical factories, military sites, and others. This proven field performance reduces problems commonly associated with newer, unproven designs.

2. UNPARALLELED 5-YEAR WARRANTY

The AP-4 AutoPump has an industry-leading 5-year parts and labor warranty.

3. CUSTOM CONFIGURATIONS FOR JUST ABOUT EVERY SITE REQUIREMENT

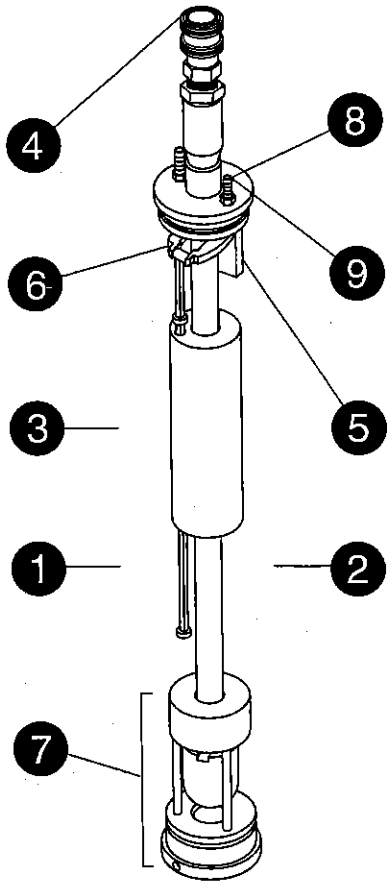
With our extensive custom manufacturing experience, we can offer proven configurations to handle just about any application. Special float materials and other site specific materials of construction are available to allow pumping of aggressive liquids such as leachate with wide ranges of pH (1-12), solvents (such as MEK, Butylacetate, Acetone, Toluene, etc.), fuels (gasoline, diesel, jet fuels, etc.), and boiling water and diesel at steam injection sites with temperatures up to 212°F (100°C).

4. INDUSTRY-LEADING 16-GPM OUTPUT

The AP-4's proven design can pump over 16 gpm–the industry's highest flowrate. The AP-4 pumps over 23,000 GPD.

5. PATENTED CONTROLLERLESS DESIGN

The AP-4 uses an internal float and lever design to turn itself on and off. It requires no timers, bubblers, pilots, or other external controls. This design allows near freezing temperature operation, reduced air consumption, and guards against unwanted adjustment or damage.



6. DIRTY AIR IS OKAY

Durable stainless steel air valves pass liquids as thick as 90 weight gear oil without fouling, so water in the air line is no problem.

7. THE AP-4 PUMPS SUSPENDED SOLIDS

The AP-4's self cleaning fluid intake and discharge check valves can pass particles as large as 1/8 inch in diameter with no problems. This means leachate and other fluids with high particulate content can be pumped through the AP-4 without jamming.

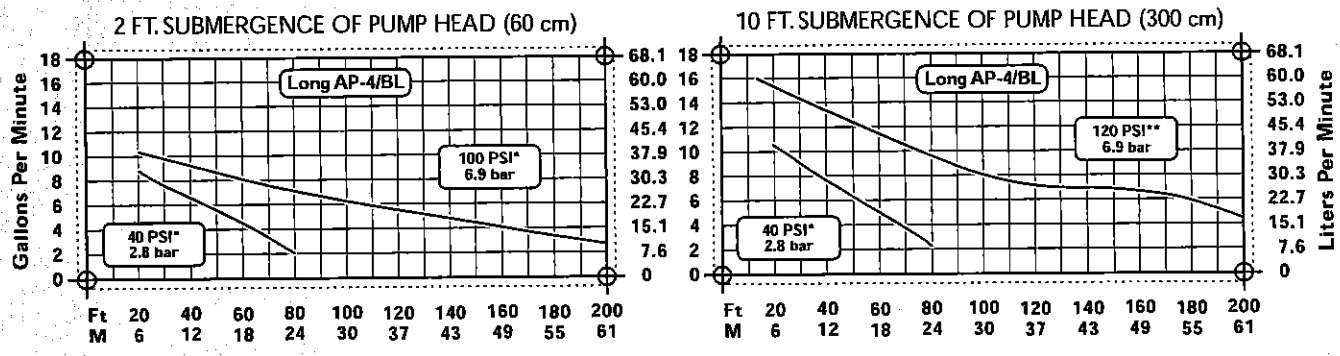
8. SAFE PNEUMATIC OPERATION

Pneumatics are intrinsically safer than electric systems that can shock, spark, or ignite fires. The AP-4's pneumatic operation means safer and easier installation because it is not subject to the strict electrical codes for explosion-proof designs.

9. LOW AIR CONSUMPTION

The AP-4 does not depressurize the supply line and only uses air when cycling. This reduces air, power consumption, filter, and operating costs.

PERFORMANCE CURVES



* ONE INCH (25mm) I.D. HOSE.
** ONE AND ONE QUARTER INCH (32mm) I.D. HOSE.
OTHER CURVES AVAILABLE FOR AP-4 AND OTHER MODELS.

AUTOPUMP TECHNOLOGY IN ACTION

The AP-4 AutoPump was first introduced in 1986. It was the first of its kind that revolutionized the industry.

FILL CYCLE - Pump begins to fill

The fluid intake check valve opens, allowing fluid to enter the pump.

As the fluid level in the pump rises, air is expelled through the exhaust air valve and the internal float rises to the top of its stroke.

In this upper position, the float triggers a lever assembly to open the air inlet valve, allowing air to enter the pump body and closing the air exhaust valve.

Note: No air is used during the fill cycle.

DISCHARGE CYCLE - Pump begins to empty

With the air inlet valve open, air pressure builds up within the pump body. This causes the fluid inlet check valve to close, therefore allowing the fluid to be displaced up and out of the fluid outlet.

As the fluid level in the pump falls, the float moves downward to the bottom of its stroke.

In this lower position, the float triggers the lever assembly to close the air supply and open the air exhaust valve. And a new cycle begins.

* Simplified schematic of bottom-loader shown. The top-loader has the same method of operation as the bottom loader except its fluid inlet is on top.

When the AutoPump "catches up" with the well recharge, the fluid level in the well is maintained roughly at a point two thirds up the casing length (for bottom-loaders) or at the top inlet (for top-loaders).

SPECIFICATIONS AND OPERATING REQUIREMENTS

	Long AP-4/BL		Long AP-4/TL		Short AP-4/BL		Short AP-4/TL	
Pump Type Fluid Inlet	Controllerless air displacement Bottom-loading, Fixed Intake		Controllerless air displacement Top-loading, Fixed Intake		Controllerless air displacement Bottom-loading, Fixed Intake		Controllerless air displacement Top-loading, Fixed Intake	
O.D. Length** Weight	3.5 in. 52 in. 18 lb.	8.9 cm 132 cm 8.2 kg	3.5 in. 57 in. 19 lb.	8.9 cm 145 cm 8.7 kg	3.5 in. 39 in. 16 lb.	8.9 cm 99 cm 7.3 kg	3.5 in. 42 in. 17 lb.	8.9 cm 107 cm 7.8 kg
Volume/Cycle Range Volume/Cycle Avg. Max. Flowrate Drawdown Level** Min. Well ID	0.58-0.78 gal 0.65 gal 16 gpm 35 in. 3.75 in.	2.19-2.95 L 2.46 L 60 lpm 89 cm 9.53 cm	0.58-0.78 gal 0.65 gal 10 gpm 52 in. 3.75 in.	2.19-2.95 L 2.46 L 38 lpm 132 cm 9.53 cm	0.23-0.34 gal 0.25 gal 13 gpm 27 in. 3.75 in.	0.87-1.29 L 0.95 L 49 lpm 69 cm 9.53 cm	0.23-0.34 gal 0.25 gal 9 gpm 37 in. 3.75 in.	0.87-1.29 L 0.95 L 34 lpm 94 cm 9.53 cm
Operating press. range Min. Operating Pressure Air consumption Maximum Depth Minimum Liquid density	5-120 (200*) psi 0.3-8.3 (13.8*) bar 2 psi (0.1 bar) above static head 0.3-1.6 scf/gallon 2.5-11.6 liter of air/fluid liter 250 (425*) ft. 76 (130*) m 0.7 SpG or g/cc				5-120 (200*) psi 0.3-8.3 (13.8*) bar 2 psi (0.1 bar) above static head 0.3-2.0 scf/gallon 2.5-15.3 liter of air/fluid liter 250 (425*) ft. 76 (130*) m 0.7 SpG or g/cc			
Materials of Construction	Site Specific consisting of: Stainless Steel, Teflon, Acetal, Viton, Brass, Fiberglass, Polyethylene, Kynar, and other materials.							
Fittings	TYPE: Standard Barbs, Optional Quick Connects STANDARD SIZES: Fluid Discharge 5/8, 3/4, and 1 in.; Air Supply 3/8 in.; Air Exhaust 1/2 in.							
Warranty	5 years, Parts and Labor							

* High pressure, deep-well configuration

** Special or extended intake screens may alter listed specifications.

SPECIFICATIONS AND OPERATING REQUIREMENTS

	Low-Drawdown AP-4/BL		Low-Drawdown AP-4/TL	
Pump Type Fluid Inlet	Controllerless air displacement Bottom-loading, Fixed Intake		Controllerless air displacement Top-loading, Fixed Intake	
O.D. Length Weight	3.5 in. 25 in. 11 lb.	8.9 cm 64 cm 5.0 kg	3.5 in. 29 in. 12 lb.	8.9 cm 74 cm 5.4 kg
Volume/Cycle Range Volume/Cycle Avg. Max. Flowrate Drawdown Level Min. Well ID	0.11-0.16 gal 0.135 gal 4 gpm 11.5 in. 3.75 in.	0.42-0.61 L 0.511 L 15 lpm 29.2 cm 9.53 cm	0.11-0.16 gal 0.135 gal 3.5 gpm 24 in.* 3.75 in.	0.42-0.61 L 0.511 L 13 lpm 61 cm 9.53 cm
Operating press. range Min. Operating Pressure Air consumption Maximum Depth Minimum Liquid density	5-60 psi 2 psi above static head 0.4-1.0 scf/gallon 3.0-7.5 liter of air/fluid liter 130 ft. 0.78 SpG or g/cc (0.74 available)	0.3-4.1 bar 40 m	5-60 psi 2 psi above static head 0.4-1.0 scf/gallon 3.0-7.5 liter of air/fluid liter 130 ft. 0.78 SpG or g/cc (0.74 available)	0.3-4.1 bar 40 m
Materials of Construction	Site Specific consisting of: Stainless Steel, Teflon, Acetal, Viton, Brass, Fiberglass, Polyethylene, Nylon, and other materials.			
Fittings	TYPE: Standard Barbs, Optional Quick Connects STANDARD SIZES: Fluid Discharge 5/8, 3/4, & 1 in.; Air Supply 3/8 in.; Air Exhaust 1/2 in.			
Warranty	2 year, Parts and Labor			

* Drawdown can be less. Call factory.

OPTIONS AND ACCESSORIES

Contact a CEE representative for information on the following options and accessories:

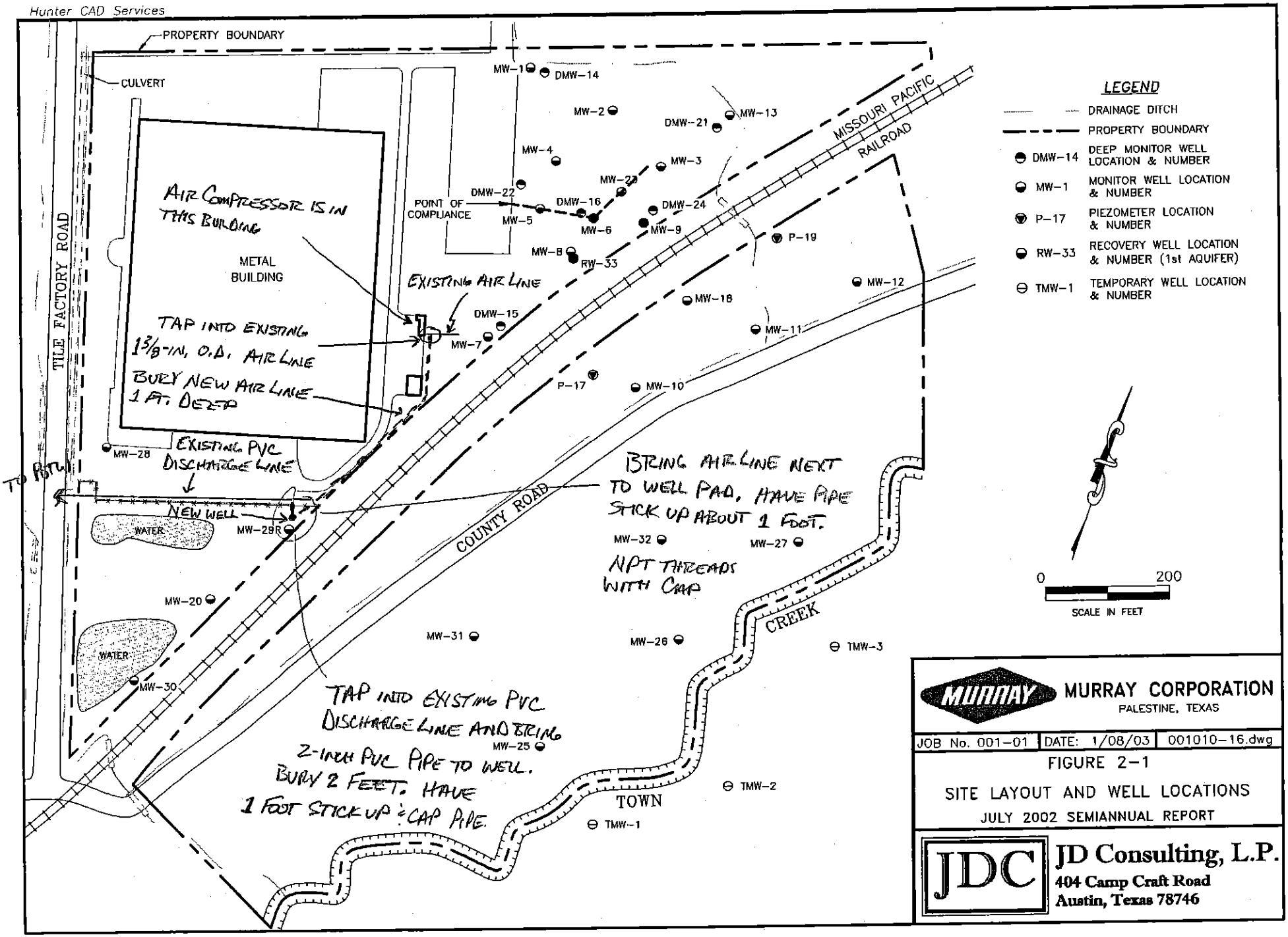
A. Various materials of construction for site specific applications.
B. Numerous well caps in slip, flange, vacuum, landfill and other configurations.
C. Hose and tubing made of nylon, polyethylene, Teflon, and other materials.
D. Barbs, quick-connects, compression, PushLok®, and other fittings.
E. Filter/Regulators with 35 or 60 SCFM ratings.
F. Cycle Counters for well yield and maintenance statistics.
G. Data Modules that show pump submersion depth, well fluid depth, pump & level sensor air supply pressure, pump cycle counter, and more.
H. Special Intakes include Leachate Adapters, Float-Activated Intakes, Extended Screens, and more.
I. TFSO dual-sensor safety overfill feature turns off the pumping system when the fluid storage tank becomes full.

ENGINEERING SPECIFICATIONS

The pump shall:

- Have a five-year warranty based on twelve years of field performance and service data.
- Be purchased from a manufacturer that utilizes a mechanical, float-operated air valve mechanism that has been in service for at least 12 years.
- Have a casing made of fiberglass reinforced engineering plastic for increased durability, dent resistance, and weight reduction.
- Have an air inlet and air exhaust valves located on opposite sides of the pump on a center pivot to prevent harmful, excessive magnet impacts during normal operation.
- Be capable of pump rates of over 16 gpm based on 120 psi maximum air pressure; 10 ft. inlet head above pump head; $1^1/_4$ in. ID by 20 ft. long discharge hose; and static fluid discharge pressure of 6.1 psi or 14 ft. water column.
- Only use air during discharge cycling (pumping fluid from the well).
- Have air valves that can pass pure 90 weight oil and/or other like fluids for extended periods of time without damage or fouling; and shall not require oil- or water-free compressed air.
- Weigh less than 19 lb.

Clean Environment Equipment
(800) 537-1767
www.cee.com



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 1/08/03	001010-16.dwg

FIGURE 2-1

SITE LAYOUT AND WELL LOCATIONS

JULY 2002 SEMIANNUAL REPORT

JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

SEVERN TRENT

QED Environmental Systems

Rev R1 - 6/13/2003
ESTIMATE #C0603-02535
June 13, 2003

To: **Mark Fuller**
JD Consulting
404 Camp Craft Road
Austin, TX 78746
Tel: 512-347-7588
Fax: 512-347-8243
email:

Prepared by: Brad Peake

Project Reference: Murray Site Palestine, TX
Regional Contact: **Larry Randall**
Regional Sales Manager
Tel: 281-370-3308 800-453-3340
email: lrandall@cee.com

Item	Qty	Unit	Product Description / Part Number	Unit Price	Extended Price
1)	1	EA	Short AP4T Hose with Brass Check Valve, Brass Quick Connects, Hose Pigtails. Top loading CEE AutoPump for 4" and larger wells. Controllerless pneumatic operation. Tough, light-weight fiberglass reinforced plastic (FRP) pump casing. Stainless steel support harness. Five (5) year warranty (3 @ 100%, 2 @ 50%). AP4STQBH1	2,095.00	2,095.00
2)	16	FT	3/4" ID BLACK HOSE for fluid discharge. 202586	3.30	52.80
3)	1	EA	ADD: Brass 6ST Locking Quick Connects to 3/4" Hose 990053	95.00	95.00
4)	16	FT	3/8" ID Green Hose for pump air supply. 202294	1.95	31.20
5)	1	EA	ADD Brass 600 Locking Quick Connects to 3/8" Hose 990043	60.00	60.00
6)	14	FT	1/2" ID Blue Hose for pump 1/2" air exhaust. 203209	2.55	35.70
7)	1	EA	ADD: Brass 3ST Quick Connect Plug & "U" fitting to 1/2" Hose 990070	40.00	40.00
8)	16	Ft.	1/2" Yellow Pump Support Rope 205103	0.40	6.40
9)	1	EA	ADD:Stainless Steel Quick Links & Clamps to 1/2" Rope 990171	12.00	12.00
10)	1	EA	4" Well Cap with Holes, Zinc-Coated Steel Eyebolt on Top for Pump Support Rope. 301256	55.00	55.00
11)	1	EA	Brass Ball Valve, 3/4" female NPT. 202379	35.00	35.00
12)	4	FT	3/4" ID BLACK HOSE for fluid discharge. 202586	3.30	13.20

SEVERN TRENT

QED Environmental Systems

Rev R1 - 6/13/2003
ESTIMATE #C0603-02535
June 13, 2003

To: **Mark Fuller**
JD Consulting
404 Camp Craft Road
Austin, TX 78746
Tel: 512-347-7588
Fax: 512-347-8243
email:

Prepared by: **Brad Peake**

Project Reference: Murray Site Palestine, TX
Regional Contact: Larry Randall
Regional Sales Manager
Tel: 281-370-3308 800-453-3340
email: l.randall@cee.com

Item	Qty	Unit	Product Description / Part Number	Unit Price	Extended Price
13)	2	EA	3/4" Hose Barb X 3/4" MPT Brass 201100	3.90	7.80
14)	1	EA	Elbow 3/4 FPT Block Brass 202373	15.00	15.00
15)	1	EA	6ST Brass Quick Connect Plug x 3/4" MPT 203954	10.00	10.00
16)	1	EA	Data Module for Auto Pump with Filter/Regulator and Pneumatic Cycle Counter installed. 300088	750.00	750.00
17)	1	EA	600 Brass Locking Quick Connect Socket X 3/8" MPT 202408	20.00	20.00
18)	1	EA	Elbow 3/8 FPT Block Brass 201353	4.25	4.25
19)	1	EA	3/8" Hose Barb X 3/8" MPT Brass 202436	1.60	1.60
20)	4	FT	3/8" ID Green Hose for pump air supply. 202294	1.95	7.80
21)	1	EA	600 Brass Quick Connect Plug X 3/8" Barb 202409	6.00	6.00
22)	4	FT	3/8" ID BLUE HOSE 202447	1.95	7.80
23)	1	EA	3000 Brass Non-Locking Quick Connect Socket X 3/8" Barb 203266	20.00	20.00
24)	1	EA	3/8" Hose Barb X 3/8" MPT Brass 202436	1.60	1.60

Attachment 2B

Proposed Well Design

Attachment B

Well Design And Construction Specifications

The following well design and construction specifications should be used as guidance when designing a groundwater Compliance Monitoring Program (Section XI.C.) or a Corrective Action Program (Section XI.D.). This guidance is provided to establish minimum well design and construction specifications for the Compliance Plan.

1. Well drilling methods that minimize potential adverse effects on the quality of water samples withdrawn from the well and that minimize or eliminate the introduction of foreign fluids into the borehole must be utilized.

2. All wells shall be constructed such that the wells can be routinely sampled with a pump, bailer, or alternate sampling device. Piping associated with recovery wells should be fitted with sample ports or an acceptable alternative sampling method to facilitate sampling of the recovered groundwater on a well by well basis.

3. Above the saturated zone the well casing may be two (2)-inch diameter or larger schedule 40 or 80 polyvinyl chloride (PVC) rigid pipe or stainless steel or polytetrafluoroethylene (PTFE or "teflon") or an approved alternate material. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF-pw). Solvent cementing compounds shall not be used to bond joints and all connections shall be flush-threaded. In and below the saturated zone, the well casing shall be stainless steel or PTFE.

   PVC or fiberglass reinforced resin may be used as an alternate well casing material in and below the saturated zone provided that it yields samples for groundwater quality analysis that are unaffected by the well casing material.

4. Any well that has deteriorated due to incompatibility of the casing material with the groundwater contaminants or due to any other factors must be replaced.

5. Well casings and screens shall be steam cleaned prior to installation to remove all oils, greases, and waxes. Well casings and screens made of fluorocarbon resins shall be cleaned by detergent washing.

6. Screen length shall not exceed ten (10) feet within a given transmissive zone unless otherwise approved by the executive director. Screen lengths exceeding ten (10) feet may be installed in groundwater recovery or injection wells to optimize the groundwater remediation process in accordance with standard engineering practice.

7. The intake portion of a well shall be designed and constructed so as to allow sufficient water flow into the well for sampling purposes and minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially manufactured stainless steel or PTFE screen or approved alternate material. The annular space between the screen and the borehole shall be filled with clean siliceous granular material (i.e., filter pack) that has a proper size gradation to provide mechanical retention of the formation sand and silt. The well screen slot size shall be compatible with the filter pack size as determined by sieve analysis data. The filter pack should extend no more than three (3) feet above the well screen. A silt trap, no greater than one (1) foot in length, may be added to the bottom of the well screen to collect any silt that may enter the well. The bottom of the well casing shall be capped with PTFE or stainless steel or approved alternate material.

   Groundwater recovery and injection wells shall be designed in accordance with standard engineering practice to ensure adequate well production and accommodate ancillary equipment. Silt traps exceeding one (1) foot may be utilized to accommodate ancillary equipment. Well heads shall be fitted with mechanical wellseals, or equivalent, to prevent entry of surface water or debris.

8. A minimum of two (2) feet of pellet or granular bentonite shall immediately overlie the filter pack in the annular space between the well casing and borehole. Where the saturated zone extends above the filter pack, pellet or granular bentonite shall be used to seal the annulus. The bentonite shall be allowed to settle and hydrate for a sufficient amount of time prior to placement of grout in the annular space. Above the minimum two (2)-foot thick bentonite seal, the annular space shall be sealed with a cement/bentonite grout mixture. The grout shall be placed in the annular space by means of a tremie pipe or pressure grouting methods equivalent to tremie grouting standards.

   The cement/bentonite grout mixture or TCEQ approved alternative grout mixture shall fill the annular space to within two (2) feet of the surface. A suitable amount of time shall be allowed for settling to occur. The annular space shall be sealed with concrete, blending into a cement apron at the surface that extends at least two (2) feet from the outer edge of the monitor well for above-ground completions. Alternative annular-space seal material may be proposed with justification and must be approved by the executive director prior to installation.

   In cases where flush-to-ground completions are unavoidable, a protective structure such as a utility vault or meter box should be installed around the well casing and the concrete pad design should prevent infiltration of water into the vault. In addition, the following requirements must also be met 1) the well/cap juncture is watertight; 2) the bond between the cement surface seal and the protective structure is watertight; and 3) the protective structure with a steel lid or manhole cover has a rubber seal or gasket.

9. Water added as a drilling fluid to a well shall contain no bacteriological or chemical constituents that could interfere with the formation or with the chemical constituents being monitored. For groundwater recovery and injection wells, drilling fluids containing freshwater and treatment agents may be utilized in accordance with standard engineering practice to facilitate proper well installation. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

10. Upon completion of installation of a well, the well must be developed to remove any fluids used during well drilling and to remove fines from the formation to provide a particulate-free discharge to the extent achievable by accepted completion methods and by commercially available well screens. Development shall be accomplished by reversing flow direction, surging the well or by air lift procedures. No fluids other than formation water shall be added during development of a well unless the aquifer to be screened is a low-yielding water-bearing aquifer. In these cases, the water to be added should be chemically analyzed to evaluate its potential impact on in-situ water quality, and to assess the potential for formation damage.

    For recovery and injection wells, well development methods may be utilized in accordance with standard engineering practice to remove fines and maximize well efficiency and specific capacity. Addition of freshwater and treatment agents may be utilized during well development or re-development to remove drilling fluids, inorganic scale or bacterial slime. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

11. Each well shall be secured and/or designed to maintain the integrity of the well borehole and groundwater.

12. The above-ground portion of the well must be protected by bumper guards and/or metal outer casing protection when wells are located in traffic areas or outside the secured plant area.

13. The attached Table of Well Construction Details is to be completed or updated for each well installed and kept on site. Items in the table that require a yes or no answer indicate diagrams plans, or procedures that shall be kept on site and made available to inspection. The completed table and other records shall include all of the following information:

- name/number of well (well designation);
- intended use of the well(sampling, recovery, etc.);
- date/time of construction;
- drilling method and drilling fluid used;
- well location (+ 0.5 ft.);
- bore hole diameter and well casing diameter;
- well depth (+ 0.1 ft.);
- drilling and lithologic logs;
- depth to first saturated zone;
- casing materials;
- screen materials and design;
- casing and screen joint type;
- screen slot size/length;
- filter pack material/size;
- filter pack volume (how many bags, buckets, etc.);
- filter pack placement method;
- sealant materials;
- sealant volume (how many bags, buckets, etc.);
- sealant placement method;
- surface seal design/construction;
- well development procedure;
- type of protective well cap;
- ground surface elevation (+ 0.01 ft. MSL);
- top of casing elevation (+ 0.01 ft. MSL); and,
- detailed drawing of well (include dimensions).

14. Construction or plugging and abandonment of each well shall be completed in accordance with the requirements of 16 TAC Chapter 76 and must be reported/certified to the TCEQ that such proper construction or plugging and abandonment has occurred following installation or plugging and abandonment. Well completion logs for each newly installed or replaced well shall be included with the report. The certification shall be prepared by a qualified geologist or geotechnical engineer. Each well certification shall be accompanied by a certification report, including an accurate log of the soil boring, which thoroughly describes and depicts the location, elevations, material specifications, construction details, and soil conditions encountered in the boring for the well. A copy of the certification and certification report shall be kept on-site, and a second copy shall be submitted to the executive director.

15. The well number must be clearly marked and maintained on each well at the site.

16. The elevation of the top of each well casing must be measured in feet above mean sea level to the nearest 0.01 foot.

17. Wells must be replaced at any time the well integrity or materials of construction or well placement no longer enable the well to yield samples representative of groundwater quality.

18. Soil test borings shall be plugged and wells removed from service with a cement/bentonite grout

mixture so as to prevent the preferential migration of fluids in the area of the borehole. Certification of each plugging shall be reported in accordance with Provision 14. The plugging of wells shall be in accordance with 16 TAC Chapter 76 dealing with Well Drilling, Completion, Capping and Plugging.

19. A well's screened interval shall be appropriately designed and installed to meet the well's specific objective (i.e., either DNAPL, LNAPL, both, or other objective of the well). All wells designed to detect, monitor, or recover DNAPL must be drilled to intercept the bottom confining layer of the aquifer. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screened interval for all wells designed to detect, monitor, or recover LNAPL must extend high enough into the vadose zone to provide for fluctuations in the seasonal water table. In addition, the sandpacks for the recovery or monitoring well's screened interval shall be coarser than surrounding media to ensure the movement of NAPL to the well.

Table of Well Construction Details (item 13)

Well number					
Hole diameter (in)					
Well diameter (in)					
Total borehole depth (ft)					
Constructed well depth (ft)					
Well location available (Y/N)					
Intended Use of Well (sampling, recovery, etc.)					
Drilling & lithologic logs available (Y/N)					
Drill method					
Date drilled					
Casing I.D.(in)					
Casing type/materials					
How joined					
Stick-up length					
Top of casing (+0.01 MSL)					
Ground surface elevation (+0.01 MSL)					
Capped/lockable					
Surface pad size(ft)					
Detailed drawing of well (include dimensions) Y/N					

Depth to surface seal(ft)					
Surface seal design & construction available (Y/N)					
Well development procedure available (Y/N)					
Annulus fill					
Depth to annulus seal(ft)					
Depth to gravel pack(ft)					
Depth to 1st saturated zone					
Length of gravel pack(ft)					
Size-gravel pack					
Filter pack volume (how many bags, buckets, etc.)					
Filter pack placement method					
Depth to screen(ft)					
Sealant materials					
Sealant volume (how many bags, buckets, etc.)					
Sealant placement method					
Screen slot size/length(in)					
Screen type					
Screen length(ft)					
Blank length(ft)					
Dev. method					

Well coordinates (lat & long)					

Complete this worksheet when a PMZ is proposed as part of the response action. Include in Attachment 2D a map of the proposed PMZ with alternate POE(s) and attenuation monitoring points identified and the current groundwater PCLE zone. If a PMZ is not proposed, do not submit this worksheet.

Groundwater-bearing unit **Uppermost (Shallow) Aquifer**

Repeat this worksheet for each groundwater-bearing unit for which a PMZ is proposed.

Groundwater classification **X** 2 ____ 3

Provide justification as to why the PMZ is appropriate in accordance with §350.33(f)(4)(A). Include supporting documentation in Attachment 2E.

The PMZ is appropriate in accordance with §350.33(f)(4)(A) based on a consideration of the following factors:

- Potential adverse effects on groundwater quality. Until recently, a CA system has been recovering groundwater and controlling the migration of COCs from the closed landfill and historical discharge line release area. Groundwater flow is toward the south-southeast and discharges into Town Creek at the property boundary. Recovery well placement and operations were designed to control the migration of COCs (See Attachment 2A). The CA system was evaluated on a semiannual basis to ensure the corrective action requirements were met. The CA system was shut down on April 30, 2013 after the GWPS were met in all POC, POE, AMP and COA wells for at least 3 years. If groundwater monitoring shows COC concentrations exceed the GWPS for two consecutive sampling events, the CA system will be restarted. Groundwater at the facility is Class 2. There is no current or potential future use for the groundwater at the site. As a result, direct human exposure pathways are not applicable on site. Land use is commercial/industrial and the potential for health risks caused by human exposure to volatile organics in groundwater is low. Since groundwater is not used there are no exposure pathways for crops or vegetation. Institutional controls also prevent groundwater usage in the PMZ; and

- Potential adverse effects on hydraulically connected surface water. The migration of COCs toward Town Creek is controlled by natural attenuation processes within the groundwater plume. A natural attenuation study was presented in the *Baseline Risk Assessment*, JDC, revised 1999. Concentrations within the floodplain are continuing to decrease in concentration. The reduction in concentrations of the groundwater plume constituents is not the sole result of non-destructive attenuation processes (e.g. advection, dispersion, dilution, and volatilization). The occurrence of intrinsic biodegradation is supported by the evaluation of the aquifer conditions between MW-10 and MW-26. As concluded in *Evaluation of Natural Attenuation* presented within the *Baseline Risk Assessment*, the data indicate that natural attenuation (including intrinsic biodegradation) is occurring. The electron receptor data show the conditions are right for intrinsic biodegradation to be occurring within the floodplain. Further, daughter products are being produced as a result of the breakdown of the chlorinated constituents as the groundwater plume passes through the floodplain area.

  As shown in the development of attenuation action levels (AALs) presented in Attachment 2E-1, the average steady-state concentrations for 1,1-DCE within the former PCLE zone were below the critical PCL and established AALs. Those concentrations continued to decrease with time (see Chart B-4 graphs in Attachment 1B) because the contents of the landfill have been removed and control of the groundwater contaminant source was accomplished with the CA system. As anticipated, the detected 1,1-DCE concentration within the proposed attenuation monitoring point (AMP) wells occasionally exceeded their calculated average and associated AALs but that the overall concentrations continued to decrease and did not adversely impact the surface waters of Town Creek. No COCs have been detected within the surface water or sediment samples at levels above the conservative benchmarks or bioaccumulation effects. Based on the groundwater to surface water discharge calculations presented within the approved APAR, the surface water of Town Creek will not be adversely impacted at the critical ^{SW}GW PCLs.

An updated PMZ map is provided in Attachment 2D. The map was updated to reflect that there is no current PCLE zone and to slightly adjust boundary of the PMZ. The POE and AMP wells are listed in Attachment 2E-2. The COCs in groundwater at the Murray site will not pose a substantial present or potential future hazard to human health or the environment if the AALs in groundwater are not exceeded at the AMPs. Attachment 2E-1 summarizes the development of the critical ^{SW}GW PCLs following the process used within the approved APAR. AALs for 1,1-DCE were developed with the September 2004 RAP. However, based on the January 2011

updates to the surface water quality standards, AALs for 1,1-DCE based on a Tier 3 dilution attenuation factor are no longer required. As such, all AALs are conservatively set at the critical Tier 2 ^{SW}GW PCLs developed within Table 2E-1 of Attachment 2E.

Is the alternate POE proposed to be beyond the current limits of the PCLE zone? **X** Yes **X** No
If yes, how far? Less than 500 feet to Town Creek (§350.37(l) or (m) as applicable)
Is it to be off-site? ____ Yes **X** No
On an off-site property that currently does not contain a residential-based groundwater PCLE zone?
____ Yes **X** No

If yes and this is a Class 2 groundwater, provide the basis for concluding that this groundwater does not have a reasonably anticipated future beneficial use (§350.37(l)(3)).

N/A

Is NAPL present? ____ Yes **X** No
If so, describe how the response action will achieve the performance criteria in §350.33(f)(4)(E).

N/A

If this is a Class 2 groundwater, explain how the response action will ensure that leachate from the surface soil and subsurface soil PCLE zones will not increase concentration of COCs greater than the current measured concentrations (at time of RAP submittal). (§350.33(a)(2))

N/A

Provide the basis that the COCs will not migrate beyond the downgradient boundary of the PMZ at concentrations above the critical PCL. Include supporting documentation in Attachment 2E.

The downgradient edge of the PMZ is Town Creek. As documented within previously submitted investigation reports (Appendix 1), the uppermost groundwater discharges into Town Creek and does not migrate beyond the creek. Murray will continue to monitor COCs in groundwater, measure fluid levels, and evaluate the effectiveness of MNA and the need for active operation of the existing CA System. This information will be submitted in the Semiannual Corrective Action reports. Historical groundwater data indicate that the groundwater contaminant source is being contained and that the downgradient concentrations have reached steady-state conditions and are expected to decrease. Supporting documentation is included in Attachments 2E-1 and 2E-3.

Describe the methods used to determine that there are no artificial penetrations which can allow COCs to migrate from the groundwater PCLE zone to currently unaffected groundwater-bearing units. Include supporting documentation in Attachment 2E.

A water well search conducted for the APAR did not locate any water wells, gas wells, or other penetrations that would allow COCs to migrate from the PCLE zone to unaffected groundwater. A current water well search of the Texas Water Development Board's Water Information and Dissemination website confirms that no water wells are present within 1 mile of the facility. The Texas Railroad Commission's Public GIS Map Viewer for Oil, Gas, and Pipeline Data shows no wells within 1 mile of the facility. This information is provided in Attachment 2E-4.

List the attenuation action level determined for each attenuation monitoring point. Illustrate the proposed attenuation monitoring points and the groundwater PCLE zone on the map in Attachment 2D. Include all calculations and other methods of determining the attenuation action levels in Attachment 2E.

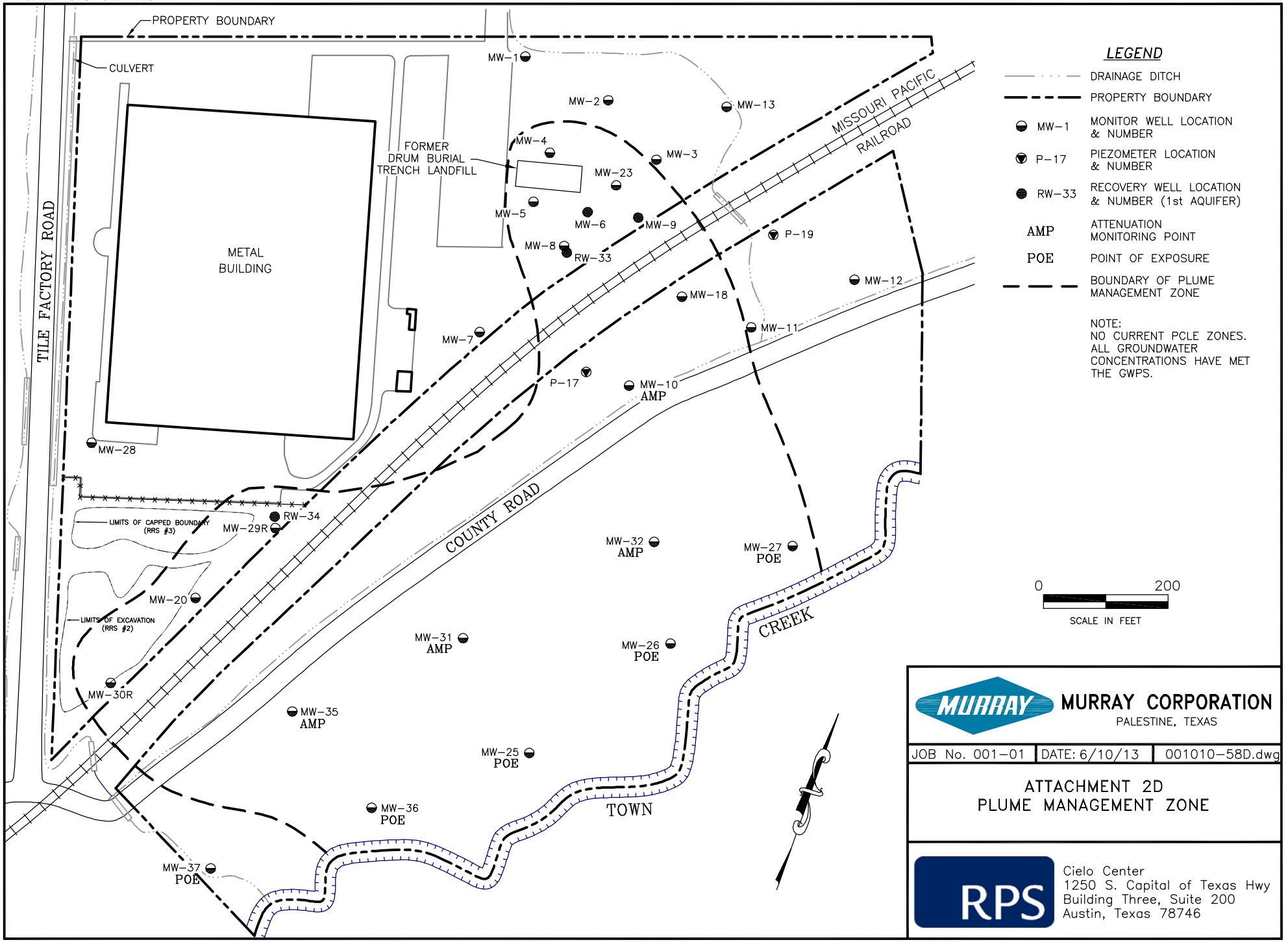
COC	Attenuation Monitoring Point (well number)	Attenuation Action Level (mg/L)	Attenuation Action Level limited by $^{Air}GW_{Inh\text{-}V}$ or existing COC concentration? Y/N
1,1-Dichloroethene	MW-10	83.3	N
	MW-31, MW-32, MW-35	83.3	N

This table reflects the revised attenuation action levels for 1,1-DCE from those previously established within Compliance Plan CP-50328. All AALs at all AMP wells are conservatively set at the GWPS established for the POE. These AALs are presented within CP Table III and CP Table IIIA of the Compliance Plan.

Attachment 2D

Plume Management Zone Map

Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- AMP — ATTENUATION MONITORING POINT
- POE — POINT OF EXPOSURE
- BOUNDARY OF PLUME MANAGEMENT ZONE

NOTE:
NO CURRENT PCLE ZONES. ALL GROUNDWATER CONCENTRATIONS HAVE MET THE GWPS.

MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/10/13	001010-58D.dwg

ATTACHMENT 2D
PLUME MANAGEMENT ZONE

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Attachment 2E

Attenuation Action Levels Determination

List of Contents - Attachment 2E

1. Attachment 2E-1. Attenuation Action Levels for Groundwater
2. Attachment 2E-2. Point of Exposure and Attenuation Monitoring Point Wells
3. Attachment 2E-3. Potentiometric Surface Map and Survey/Water Level Data (Attachment 6 of October 6, 2003 Summary of Groundwater Results from April 2003 Sampling Event, JDC, 2003)
4. Attachment 2E-4. Water Well Survey from APAR with Current Updates

Attachment 2E-1

Attenuation Action Levels for Groundwater

Attachment 2E-1
Attenuation Action Levels for Groundwater

Protective Concentration Levels. Tier 2 protective concentration levels (PCLs) were developed for chemicals of concern (COCs) in groundwater following the procedures in TRRP-24. The COCs were identified in the APAR and are listed in Table 2E-1. The process for determining the ^{SW}RBELs and PCLs is described in Appendix 4 of the APAR. The PCLs were based on the lower of the ecological and human health risk-based exposure levels (RBELs) and a dilution attenuation factor (DF) for stream flow. The alternate points of exposure (POEs) for the groundwater plume management zone (PMZ) were set at Town Creek. Town Creek is a third order freshwater stream. As shown in Attachment 4 of the APAR, the applicable ecological RBELs are freshwater acute and chronic surface water criteria. The applicable human health RBEL is the freshwater "fish only" criterion. The lowest of these RBELs is indicated in Table 2E-1 and is the Tier 1 ^{SW}GW PCL. The ecological and human health RBELs in Table 2E-1 have been updated to reflect the current (January 19, 2001) surface water quality standards.

As shown in Table 2E-1, the Tier 2 ^{SW}GW PCL is based on the Tier 1 ^{SW}GW PCL and a site specific dilution factor of 0.018 as calculated in the approved APAR. The Tier 2 ^{SW}GW PCL is the allowable level for the COC at the POE.

Point of Exposure. The Tier 2 ^{SW}GW PCL is the allowable concentration of the COC at the POE. The POE is Town Creek. POE wells are listed in Attachment 2E-2.

Attenuation Action Levels. Attenuation action levels (AAL) for COCs were developed for attenuation monitoring point (AMP) wells upgradient of the point of exposure. The AAL is the allowable concentration of the COC at AMP wells. AALs were based on the Tier 2 ^{SW}GW PCLs from Table 2E-1 and a dilution attenuation factor (DAF). A Tier 3 DAF and AAL for 1-1-DCE were originally developed for the AMP wells within the Town Creek floodplain (see Figures 2E-2 and 2E-3 which are included for historical purposes). However, based on the January 2011 updated surface water RBELs for 1,1-DCE, no Tier 3 AALs are necessary. The AALs within the AMP wells have been conservatively set at the Tier 2 ^{SW}GW PCL established for the POE.

Attenuation Monitoring Point Wells: AMP wells are listed in Attachment 2E-2.

Table 2E-1. Murray Corporation ^{SW}GW Protective Concentration Levels

COC	CAS No.	^{SW}RBEL for Aquatic Life Protection (1)			^{SW}RBEL for Human Health Protection (1)		Tier 1	Tier 2	Based on ECO or HH?
		FW acute (mg/L)	FW Chronic (mg/L)	$^{SW}RBEL_{eco}$ (mg/L)	TWQS (mg/L)	$^{SW}RBEL_{HH}$ (mg/L)	^{SW}RBEL (mg/L)	^{SW}RBEL (mg/L)	
Carbon tetrachloride	56-23-5	--	0.0098	0.0098	0.029	0.029	0.0098	0.54	ECO
Chlorobenzene	108-90-7	--	0.064	0.064	5.2	5.2	0.064	3.56	ECO
1,1-Dichloroethane	75-34-3	15.4	2.57	2.57	--	--	2.57	143	ECO
1,2-Dichloroethane	107-06-2	37.7	6.3	6.3	0.553	0.553	0.553	30.7	HH
1,1-Dichloroethene	75-35-4	9.1	1.5	1.5	23.9	23.9	1.5	83.3	ECO
Methylene Chloride	75-09-2	66	11	11	--	5.98	5.98	332	HH
Tetrachlorothene	127-18-4	4.7	0.79	0.79	0.049	0.049	0.049	2.72	HH
1,1,1-Trichloroethane	71-55-6	14.7	2.45	2.45	957	957	2.45	136	ECO
Trichloroethene	79-01-6	3.33	0.555	0.555	0.649	0.649	0.555	30.8	ECO
Vinyl Chloride	75-01-4	16.9	2.82	2.82	0.024	0.024	0.024	1.33	HH
bis(2-Ethylhexyl)phthalate*	117-81-7	--	0.3	0.3	0.041	0.041	0.041	2.28	HH
1,2-Dichlorobenzene*	95-50-1	0.66	0.11	0.11	--	4.34	0.11	6.11	ECO
1,4-Dichlorobenzene*	106-46-7	0.66	0.11	0.11	--	0.19	0.11	6.11	ECO

(1) Aquatic life and human health surface water criteria for a third order stream from TRRP-24.

^{SW}RBELs originally developed in Attachment 4 of approved APAR. Note that benzene, 1,1,2-trichloroethane, 2&4-methylphenol and phenol have not been included in this table as they were screened out from PCL development (See APAR Worksheet 6.1).

Highlighted RBELs updated to reflect current values in Aquatic Life Surface Water Risk-Based Exposure Limits Table dated January 19, 2011.

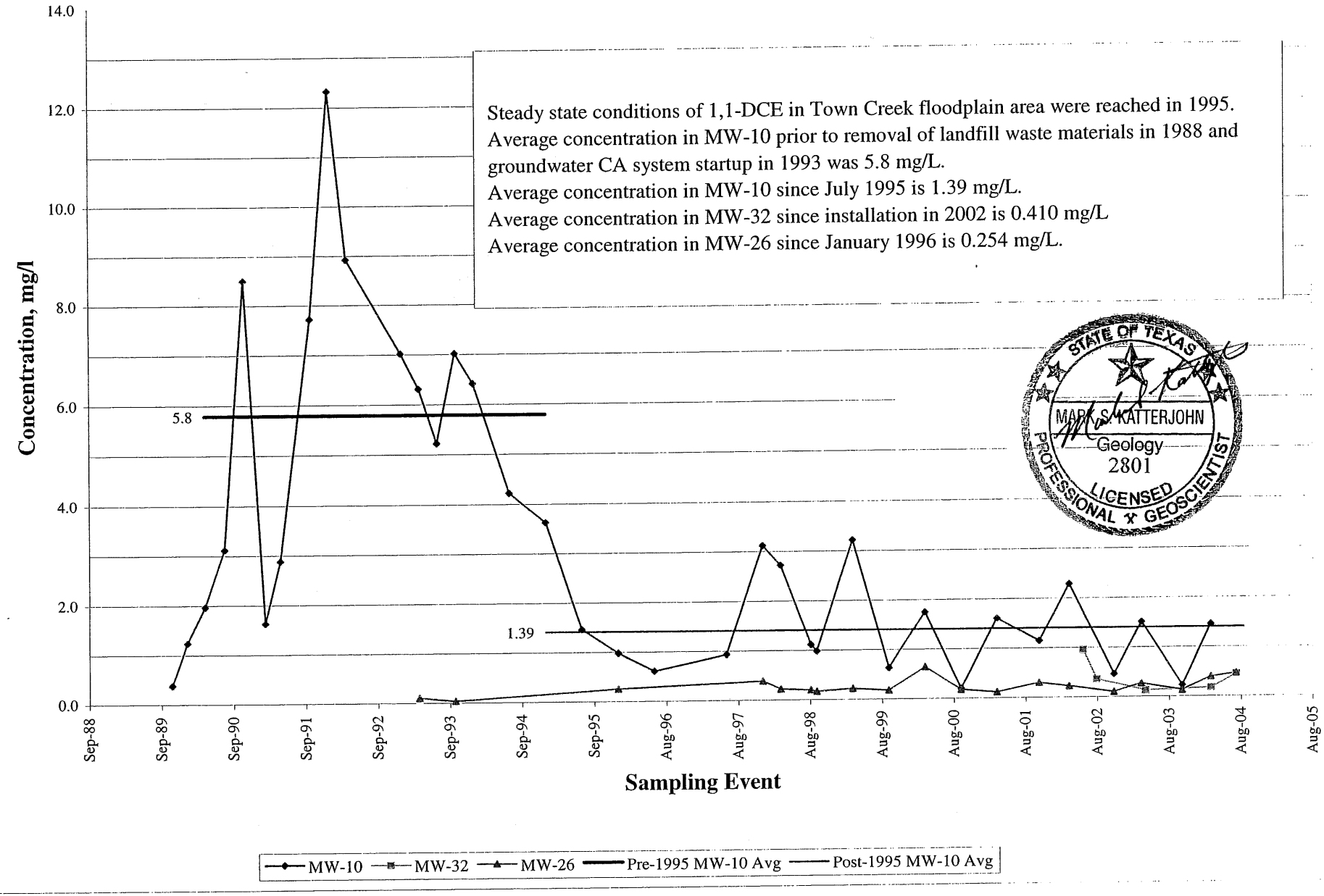
Highlighted $^{SW}RBEL_{HH}$s updated to reflect current values in Human Health Surface Water Risk-Based Exposure Limits Table dated January 19, 2011.

Highlighted TWQS updated to reflect current values in Figure 30 TAC §307.6(d)(1) dated July 22, 2010.

Critical GW PCLs = Tier 2 ^{SW}RBELs based on Tier 1 ^{SW}RBEL divided by the site-specific dilution factor of 0.018.

* Constituents analyzed as part of CP Table III of Compliance Plan CP-50328

Figure 2E-1. 1,1-DCE Centerline Plume Concentrations 1989 to Present



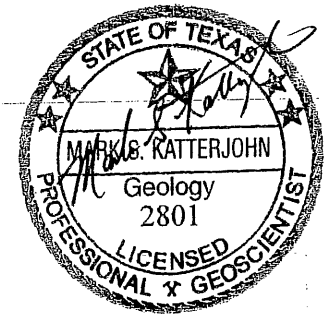
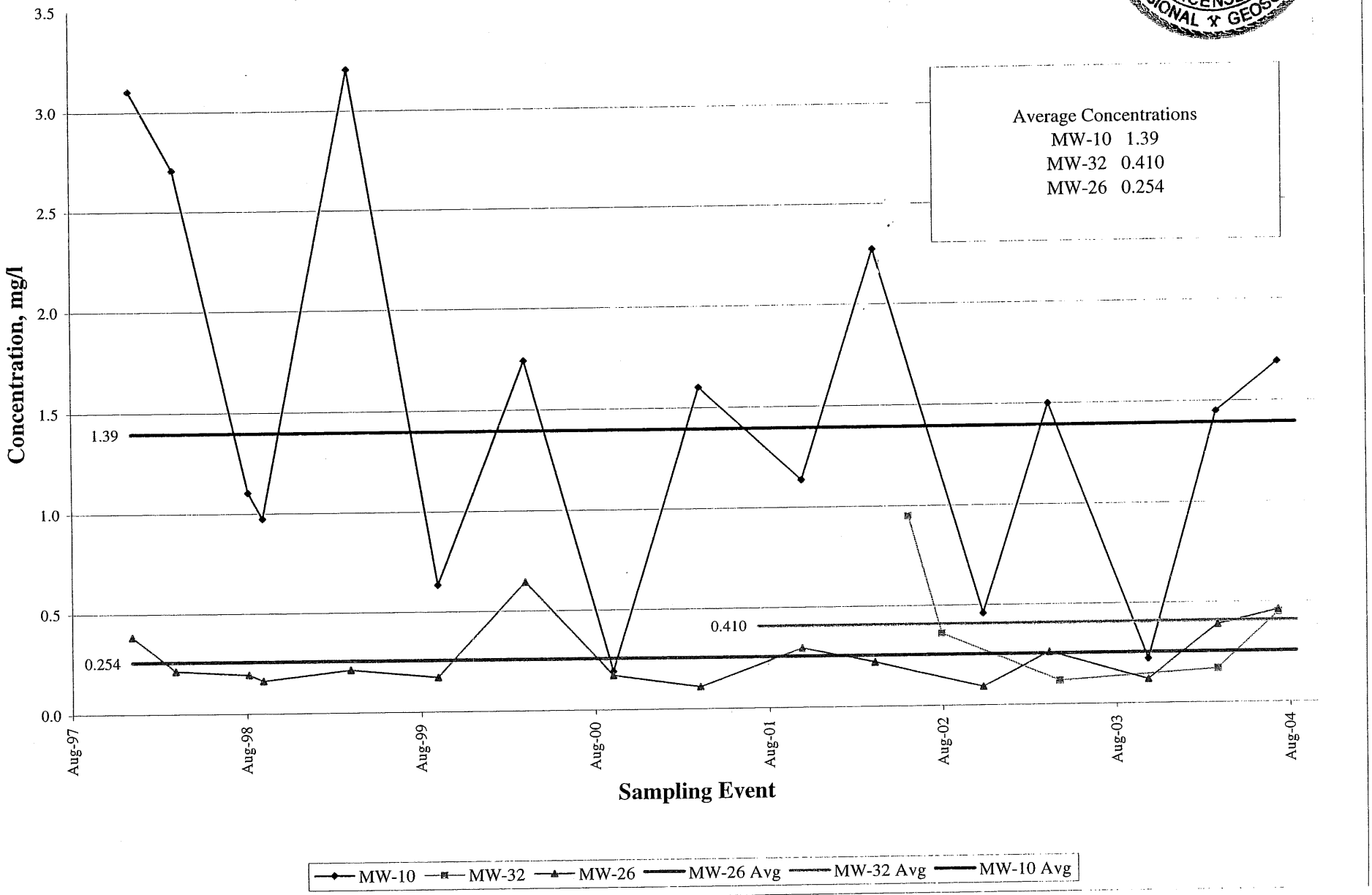


Figure 2E-2. 1,1-DCE Centerline Plume Concentrations 1998 to Present



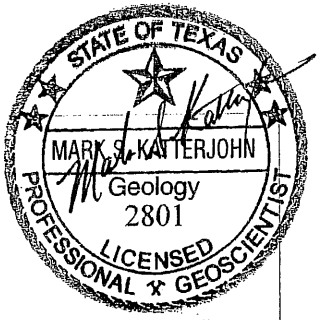


Figure 2E-3. Calculated DAFs for 1,1-DCE Centerline Plume Concentrations

Average Concentrations	
MW-10	1.39
MW-32	0.410
MW-26	0.254

Calculated DAFs	
MW-10 to MW-26	5.49
MW-32 to MW-26	1.61

AALs (PCL * DAF)	
MW-10	1.76
MW-32	0.52

Concentration, mg/l

4.0
3.0
2.0
1.76
1.0
0.52
0.32
0.0

Aug-97 Aug-98 Aug-99 Aug-00 Aug-01 Aug-02 Aug-03 Aug-04

Sampling Event

MW-10 MW-32 MW-26 MW-26 PCL MW-32 AAL MW-10 AAL

Attachment 2E-2

Point of Exposure and Attenuation Monitoring Point Wells

Attachment 2E-2
Murray Corporation Monitoring Locations

Background Well Locations
MW-1

POC Well Locations
MW-5
MW-6
MW-23

POE Well Locations
MW-25
MW-26
MW-27
MW-36
MW-37

AMP Well Locations
MW-10
MW-31
MW-32
MW-35

COA Well Locations
MW-29R

Recovery Well Locations*
MW-6
MW-9
RW-33
RW-34

POC - Point of Compliance
POE - Point of Exposure
AMP - Attenuation Monitoring Point
CAO - Corrective Action Observation
* Recovery wells only sampled during PMZ response action period.

Attachment 2E-3

Potentiometric Surface map and Survey/Water Level Data

Methods 8240 and 8270, respectively (it is noted that semivolatile organics could not be analyzed from the TMW-2 sample because the sample bottle broke during transit to the laboratory). The analytical results were reviewed and reported in accordance with the TCEQ Guidance RG-366/TRRP 13 (December 2002).

A summary of the analytical results from the groundwater samples collected by Murray and the TCEQ is provided in the Groundwater Analytical Summary Table included in Attachment 3. Copies of the analytical reports for the samples collected by Murray and the TCEQ are provided in Attachments 4 and 5, respectively.

Water-level measurements were taken from the wells prior to collecting the groundwater samples and the new wells were surveyed following the sampling event. In addition, surface-water levels in Town Creek were surveyed. Summaries of the survey data, water-level data and a potentiometric surface map prepared from the measured water levels are provided in Attachment 6.

Summary of Offsite Results

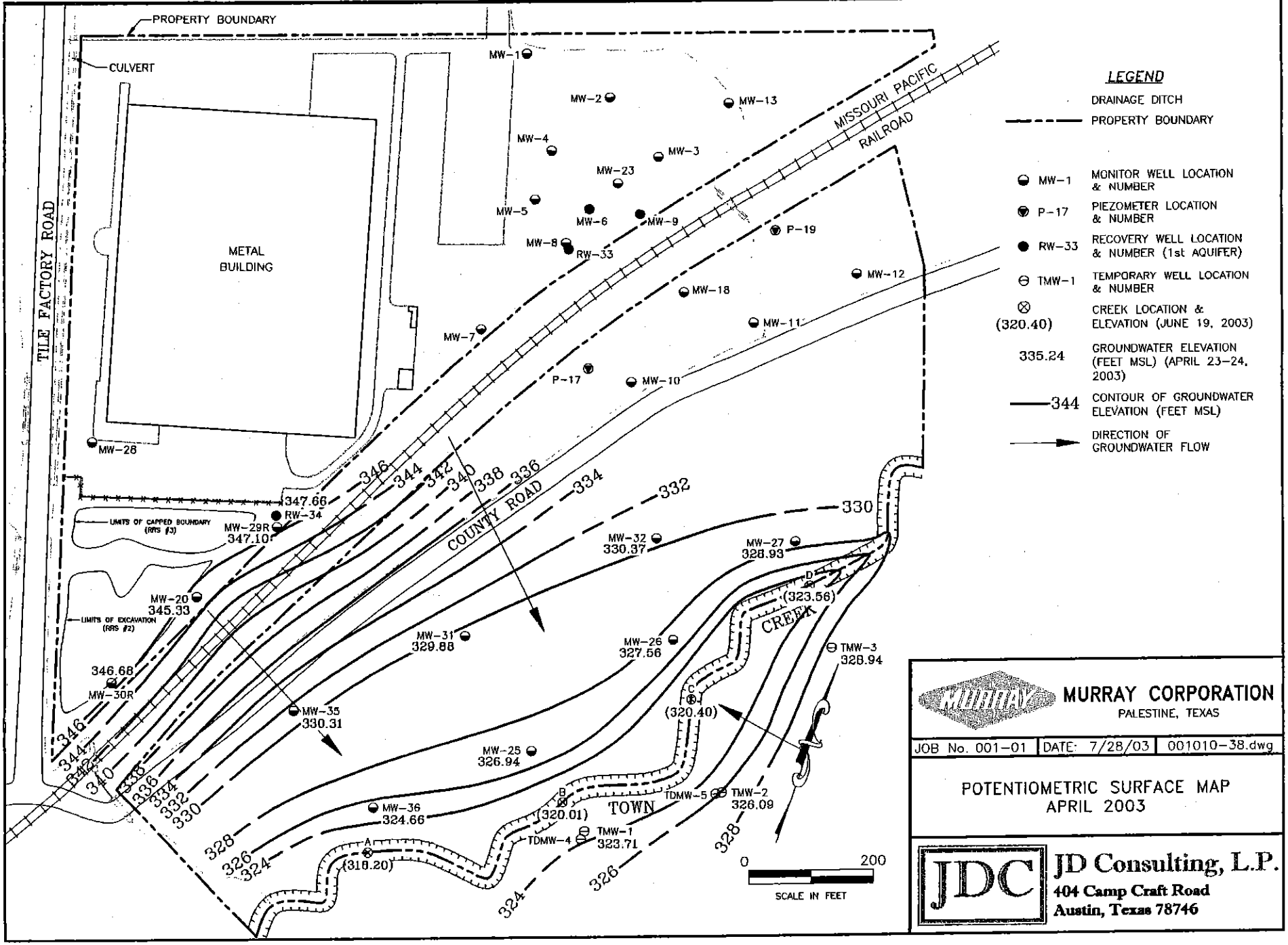
As shown by the analytical summary (Attachment 3), four volatile organic constituents (VOCs) were detected in the groundwater samples collected by JDC from TMW-1, TMW-3 and TDMW-5 at estimated concentrations (flagged with a "j") below the method quantitation limit (MQL). The independent samples collected by the TCEQ in the same wells were entirely negative. Discussions with the project manager from the TCEQ contract lab confirmed that estimated ("j"-flagged) concentrations would have been reported if they had been detected in the samples.

The estimated concentrations of VOCs in the JDC samples were much lower than the applicable residential PCLs.

The potential source(s) of the extremely low estimated concentrations of the four VOCs detected in the JDC samples is not known. Two of the four constituents (benzene and chloromethane) were not found in the wells on the Murray property. A third constituent (methylene chloride) is a common laboratory contaminant. It is possible that the VOCs detected in the samples were contaminants introduced by the laboratory or as the result of the sampling process. In this regard, it is noted that bis(2-ethylhexyl) phthalate was identified in the TCEQ sample collected from TMW-2 at a concentration of 0.00965 mg/l, which is above the MQL of 0.005 mg/l and the PCL of 0.006 mg/l. This constituent is a common plasticizer and is assumed to be associated with the PVC materials from the well.

Additionally, the well survey data and potentiometric surface map (Attachment 6) confirm that the groundwater gradients on either side of the creek are toward Town Creek, which makes it unlikely that groundwater contaminants have migrated from the Murray property across the creek to the offsite property. This is further supported by the upward vertical gradient in the aquifer as evidenced by the higher water-level elevations in the deeper offsite wells, TDMW-4 and TDMW-5 (see water-level data in Attachment 6).

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 7/28/03	001010-38.dwg

POTENTIOMETRIC SURFACE MAP
APRIL 2003

JDC JD Consulting, L.P.
404 Camp Craft Road
Austin, Texas 78746

Water Level Measurements
Murray Corporation, Palestine, Texas

MONITOR WELL NUMBER	TYPE OF WELL	TOC ELEVATION (FEET MSL)	April 23-24, 2003 MEASUREMENT (BTOC)	(MSL)
MW-1	BGD	374.08		
MW-2	PSW	374.36		
MW-3	CAO	371.23		
MW-4	CAO	373.46		
MW-5	POC	373.02		
MW-6	POC/REC	371.07		
MW-7	ADDL	368.33		
MW-8	PSW [1]	368.72		
MW-9	REC	366.96		
MW-10	CAO	340.16		
MW-11	CAO	342.91		
MW-12	CAO	348.14		
MW-13	PSW	367.03		
P-17	PSW	345.63		
MW-18	CAO	347.15		
P-19	PSW	355.28		
MW-20	ADDL	354.79	9.46	345.33
MW-23	POC	371.96		
MW-25	CAO	334.89	7.95	326.94
MW-26	CAO/REC	337.11	9.55	327.56
MW-27	CAO	337.33	8.40	328.93
MW-28	ADDL	363.11		
MW-29R	ADDL	355.83	8.73	347.10
MW-30R	ADDL	351.69	5.01	346.68
MW-31	ADDL	335.32	5.44	329.88
MW-32	ADDL	336.62	6.25	330.37
RW-33	REC	368.49		
RW-34	REC	356.76	9.10	347.66
MW-35	ADDL	337.45	7.14	330.31
MW-36	ADDL	333.77	9.11	324.66
TMW-1	--	334.87	11.16	323.71
TMW-2	--	337.82	11.73	326.09
TMW-3	--	337.33	8.39	328.94
TDMW-4	--	336.15	6.99	329.16
TDMW-5	--	337.24	6.16	331.08

	Bottom Elevatic	Water Depth	Water Elev
Creek A	317.75	0.45	318.20
Creek B	319.67	0.34	320.01
Creek C	319.97	0.43	320.40
Creek D	323.05	0.51	323.56

BGD = Background Well
POC = Point-of-Compliance Well
REC = Recovery Well
PSW = Potentiometric Surface Well

[1] - Recovery operations transferred from MW-8 to RW-33 on July 9, 20(retained as a potentiometric surface well.

New Well Survey Information
Murray Corporation
Palestine, Texas

Well Number	Northing	Easting	Top of Steel Casing	Top of PVC Casing	Pad Elevation	Ground Surface
RW-34	80061.97	48262.74	357.30	356.76	354.47	354.3
MW-30R	79719.43	48099.81	352.20	351.69	349.38	349.0
MW-35	79768.70	48413.16	338.00	337.45	334.70	334.6
MW-36	79668.54	48586.46	334.26	333.77	331.33	331.1
TMW-1	79749.10	48917.03	--	334.87	334.10	333.4
TMW-2	79882.47	49102.29	--	337.82	335.24	334.5
TMW-3	80157.85	49186.89	--	337.33	335.86	335.2
TDMW-4	79735.55	48916.26	336.60	336.15	333.47	333.4
TDMW-5	79876.80	49093.73	337.81	337.24	334.76	334.4

Location ID	Northing	Easting	Creek Bottom	Top of Water (June 19, 2003)	Depth to Water 25-Apr	Top of Water (April 25, 2003)
Town Creek A	79617.63	48595.20	317.75	318.45	0.45	318.20
Town Creek B	79783.44	48865.70	319.67	320.42	0.34	320.01
Town Creek C	79999.94	48994.62	319.97	320.97	0.43	320.40
Town Creek D	80225.89	49131.38	323.05	323.25	0.51	323.56

Attachment 2E-4

Water Well Survey from APAR

Water Well Survey Associated Attachments: Attachment 3B and Appendix 2	APAR Worksheet 3.2 Page 1 of 2	
	ID No.: SWR 33063	Report date: February 2004

Affected Property Name(s)/No(s).: **Murray Corporation - groundwater** List all affected properties to which this survey applies

Water Well Table

Water well inventories involve, at a minimum, a field survey conducted within 500 feet of the affected property and a records search of all water wells (not monitor wells) located within 0.5 mile of the boundary of the affected groundwater. Receptor surveys (field and record searches) should be conducted beyond these minimum requirements when site-specific conditions warrant.

Check here if no water wells are located within the appropriate search radius ☐

List all primary sources of information here and provide complete references, including the identity of specific individuals, companies, agencies, published documents, databases, and records in Appendix 1 for all sources of information used in the survey.

The primary source of information was a water well search conducted in January 2004 (Atlas 2004).

Are any water wells affected? ____ Yes __X__ No If no, you do not need to submit the table on the next page.

Provide information available on all water wells identified in the search radius. Highlight the threatened or affected wells. Illustrate the well locations, labeled with the well number or other designation, on the maps in Attachments 2A, 3A, and 3B. Include the search radius on the map in Attachment 3B.

Well no. / designation	Approximate distance from affected property (ft.)	Relation to groundwater gradient[1]	Total depth (ft.)	Screened interval (ft)	Cemented interval (ft)	Completion type	Date drilled	Geologic formation/ aquifer name of producing zone	Lithology of producing zone	Current water use[2]	Current status[3]
2A	Approx. 1750 ft.	cross gradient	55	Unknown	Unknown	Unknown	9/7/72	Not specified	Not specified	Unknown – proposed use was domestic	Unknown
2(1)	Approx. 2000 ft.	down gradient	285	225-285	-4" – 10'	Gravel-packed	12/7/87	Not specified	"water sand" and shale	Unknown – proposed use was oilfield	Unknown

[1] Indicate whether the water well is upgradient, downgradient or cross-gradient to the primary source.

[2] Current Water Use: Dom - Domestic; PS - Public Supply/Municipal; Ind - Industrial; Comm - Commercial; Irr - Irrigation; Liv - Livestock

[3] Current Status: Act - Active; Ab - Abandoned/Not in Use; SB - Standby/Backup; P&A - Plugged and Abandoned

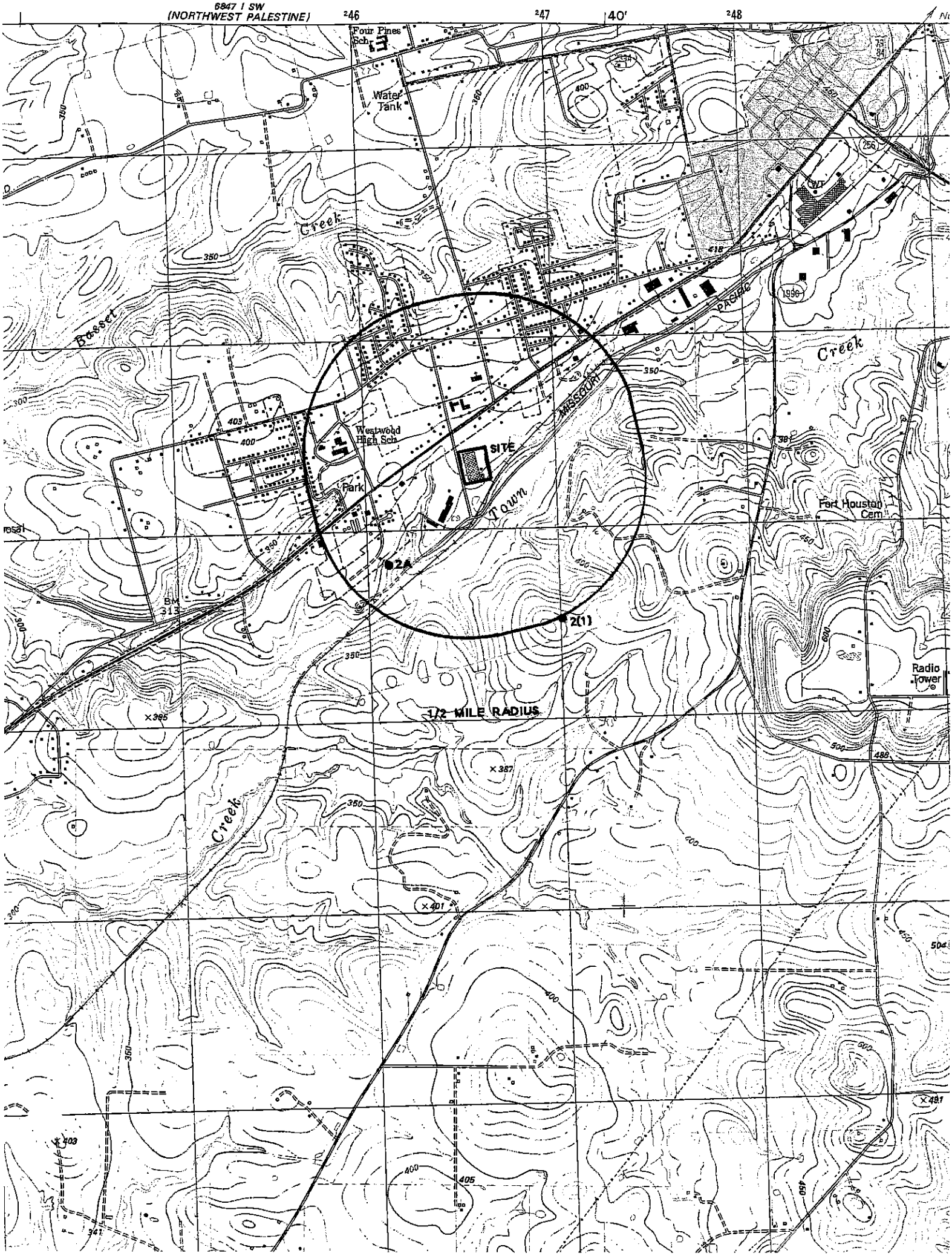
Affected Water Wells

List all affected water supply wells in the following table. These wells should also be listed and highlighted in the Water Well Survey table on the previous page. Illustrate all wells on maps in Attachments 2A, 3A, and 3B. Include documentation of water well sampling activities in Worksheet 6.0 and associated attachments. Describe in the chronology the actions taken to mitigate water well impacts, threats, or to prevent further impact. If any further actions are necessary, include the proposed activities in the Conclusions and Recommendations portion of the Executive Summary.

Well number/ designation	Current owner and phone number	Samples collected		Current use	Pumping rate	Past use
n/a		Yes	No			
		Yes	No			
		Yes	No			
		Yes	No			
		Yes	No			

If water samples were not obtained from any of the above-listed water wells or other wells located within 500 feet of the affected groundwater, provide site-specific justification for not sampling the wells.

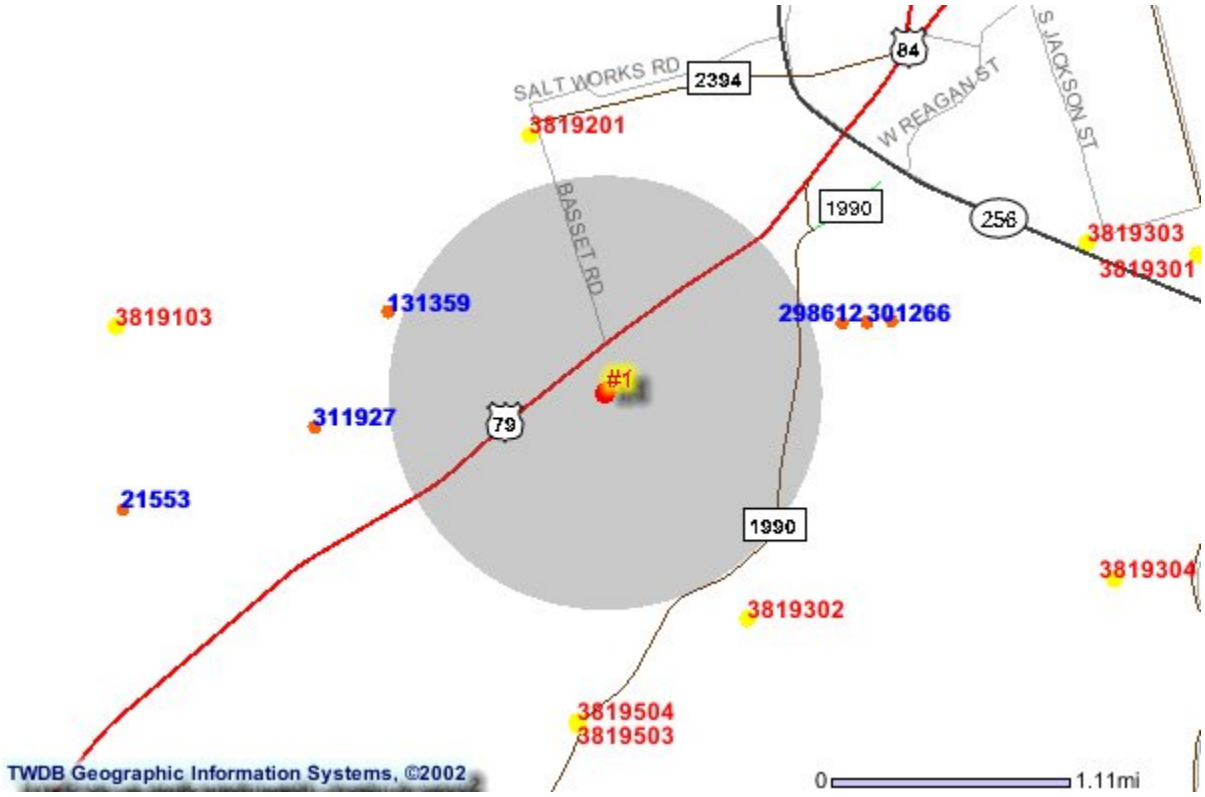
n/a


6847 I SW
(NORTHWEST PALESTINE)
246
247
40'
248
Four Pines Sch
Water Tank
Creek
Basset
Creek
PACIFIC
MISSOURI
Westwood High Sch
SITE
Park
Town
Fort Houston Cem
Radio Tower
2A
2(1)
1/2 MILE RADIUS
BM 313
Creek

Texas Water Development Board

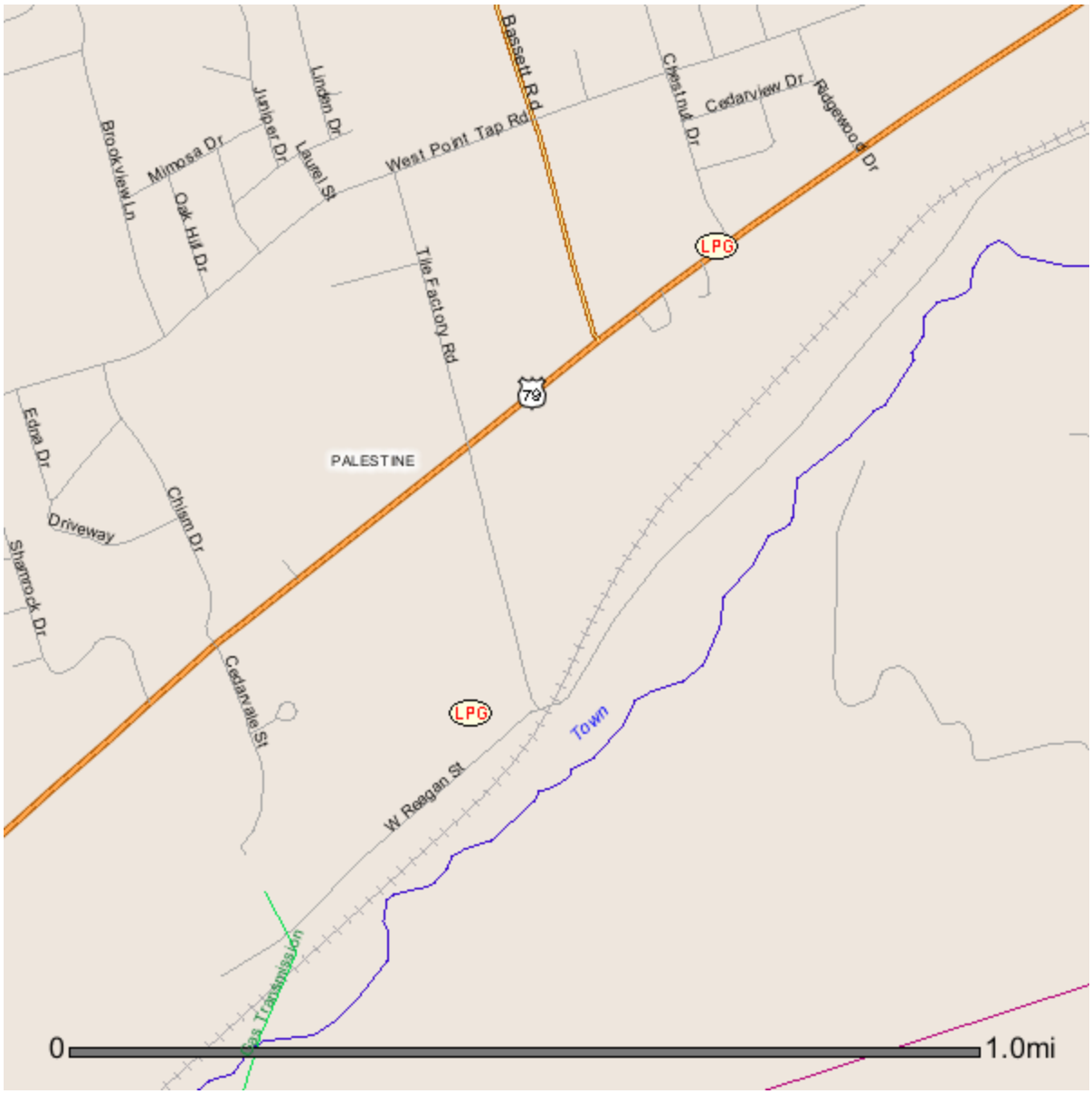
Water Information Integration & Dissemination System

Nearby Water Well Locations



Legend

- theSBLayer
- TWDB Groundwater Data
- Submitted Driller's Reports
- State Hwy
- FM & RM Roads
- Other State Roads
- Interstate Hwy
- US Hwy
- Major Streets


Bassett Rd
West Point Tap Rd
Cedarview Dr
Ridgewood Dr
Chestnut Dr
Linden Dr
Juniper Dr
Laurel St
Mimosa Dr
Brookview Ln
Oak Hill Dr
Tile Factory Rd
LPG
79
PALESTINE
Edna Dr
Driveway
Chism Dr
Shamrock Dr
Cedarvale St
LPG
W Reagan St
Town
Gas Transmission
0
1.0mi

Institutional Control	RAP Worksheet 2.4 Page 1 of 1	
Associated Information: Appendices 4, 5	ID No.: ISWR No. 33063	Report Date: Revised June 2013

Complete this worksheet if an institutional control will be used as part of the response action. Include a draft of the proposed institutional controls in Appendix 4. Provide a list of landowners from whom landowner concurrence will be requested, as necessary, in Appendix 5.
Specify the property for which this applies. **Murray Corporation – Groundwater PMZ**
Repeat this worksheet for each different property for which an institutional control will be used.

Institutional Control	Type of Institutional Control[1]				Property Ownership		Anticipated Filing Date[2]
	Deed Notice	Restrictive Covenant	VCP Certificate of Completion	Equivalent zoning or governmental ordinance	Check if pertinent tract of land is owned by the person	Check if the pertinent tract of land is owned by an innocent owner or operator	
Document use of commercial/industrial land use (§350.31(g))							
Document use of physical or institutional control under Remedy Standard B §350.31(g))							
Document notice of on-going long term response action (§350.31(h))							
Document use of occupational inhalation criteria as RBELs (§350.74(b)(1))							
Document variance from the default exposure factors (§350.74(j)(2)(L))							
Document the use of a non-default soil exposure area (§350.51(l)(3)&(4))							
Document WCU exclusion area (§350.33(f)(2))							
Document establishing a PMZ (§350.33(f)(4)(C)(I))	**X**					**X**	**90 days**
Document the demonstration of technical impracticability (§350.33(f)(3)(F))							
Relocation of soils containing COCs for reuse (§350.36(b)(4) and (c)(4))							

[1] Check the appropriate box(es) to indicate the type of institutional control required for the proposed response action.
[2] Specify date or amount of time after RAP approval.

Performance Measures

List and describe the performance measures for each environmental medium containing a PCLE zone that will be used to determine if reasonable progress is being made by the response action in a timely manner. Use these measures to document effectiveness of the response action in the RAER.

Performance Measures for the CA System. The performance measure for the CA system is the removal of contaminated groundwater to control lateral and vertical extent of COCs from the source area such that the critical PCLs will not be exceeded at the POE. System will be operated if critical PCLs are exceeded within the POC or COA wells. Fluid levels will be measured and the CA system will be evaluated and described in the semiannual corrective action reports.

Performance Measures for Monitoring Wells. The performance measure for the PMZ and dissolved phase contamination involves monitoring attenuation monitoring point wells and point of exposure wells to confirm that COC concentrations do not exceed the critical PCLs at the point of exposure (See Attachments 2D and 2E).

If the performance measures are not being met, corrective action will be taken. Potential problems and responses are included in the following table. Corrective action responses may include replacement or installation of new recovery wells and monitoring wells, and restarting, evaluation and modification of the CA system. These actions, including upgrades of the recovery system, will be taken to meet the performance measures for the PMZ. If the system is upgraded, modifications will be submitted to the TCEQ for review and approval.

Potential Problems

Complete the table for the response action. When the response action consists of several components or multiple actions, complete one table for each major component or action.

Response Action Name/Designation: **Groundwater PMZ**

List the potential problems that might be reasonably anticipated for the response action, describe the impact of each problem, and the response to the problem.

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
		Yes	No	
Recovery well and monitoring well integrity (silting, pump operation, etc.)	Nonfunctional or substandard well		X	Maintenance or replacement of well
Recovery well or monitoring well damage	Nonfunctional well		X	Maintenance or replacement of well
Leaks from piping, when operational	Release to soil and or groundwater		X	Spill response and remediation if applicable
Increasing concentrations of COCs in POC or COA wells	Conc. of COCs exceed GWPS in POC wells, COA well, or AALs in AMP MW-10		X	Evaluation and potential restarting of CA system

Description of the Potential Problem	Impact	Will this cause a response action failure?		Corrective Response
Increasing concentrations of COCs in groundwater within the floodplain	Conc. of COCs exceed AALs at attenuation monitoring points		X	Evaluation and potential modifications to AALs or CA system
Increasing concentrations of COCs in groundwater within the floodplain	Concentration of COCs exceed critical PCLs at POE	X		Additional response action or evaluation and modification to CA system

Monitoring and Sampling	RAP Worksheet 3.1 Page 1 of 2	
Associated Information: Attachment 3A	ID No.: ISWR No. 33063	Report Date: Revised June 2013

List the monitoring and sampling of COC concentrations or other parameters that will be conducted during the response action. Illustrate the monitoring or sampling locations in Attachment 3A. If statistics or geostatistics will be used, provide details in Appendix 7. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided.

Monitored Media	COC[1]	Other parameter (specify)	Sampling Method[2]	Sampling points or locations[3]	Depth/Height[4] (ft.)	Analytical or Field Screening Method	Sampling or Monitoring Frequency[5]
Surface Soil	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Subsurface Soil	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	See Table 2E-1 in Attachment 2E.	N/A	Same as in APAR	See Attachment 2E-2	See CP SAP [6]	EPA Methods 8260 and 8270	Semiannual
Surface water	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sediment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Air	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other Media (specify)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Explain the reasons for the above-listed monitoring and sampling plan.

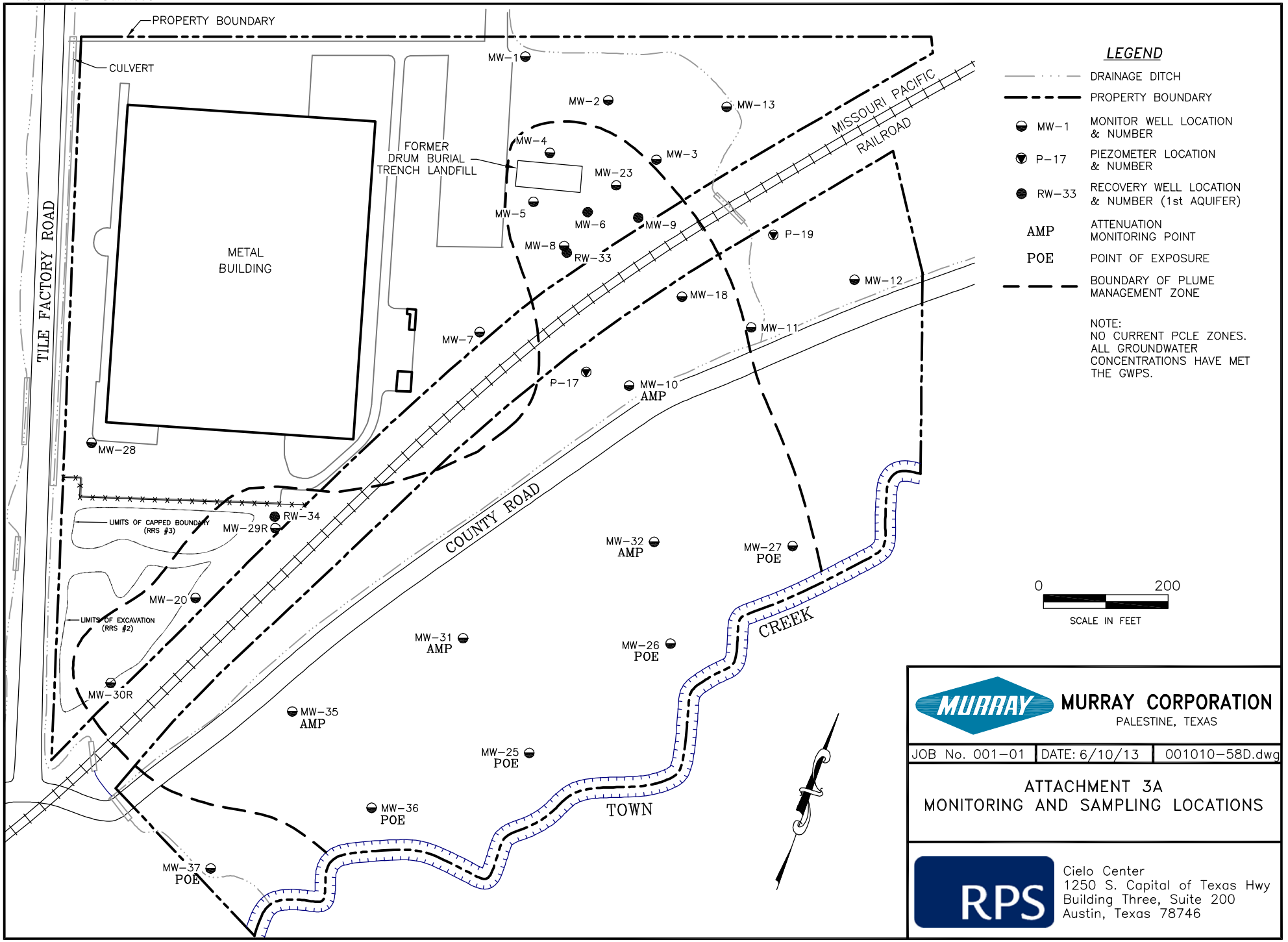
During the response action, COCs in groundwater will be monitored within the facility's background, POC, POE, AMP, COA, and recovery wells in accordance with the Compliance Plan. Samples will be collected in accordance with the facility's Compliance Plan SAP. COC concentrations within the POC, POE, AMP, and COA wells will be monitored to verify compliance with the PCLs. If any COC concentration in groundwater exceeds its critical PCL (Tier 2 ^{SW}RBEL for groundwater on Table 2E-1 in Attachment 2E), AALs may be established for that constituent (other than 1,1-DCE for which AALs have been established within this RAP). The locations of attenuation monitoring points, corrective action observation wells, and POE wells are shown in Attachment 3A. In addition to the AMP and POE wells, samples will be collected from background, POC wells, and recovery wells (when operating) in accordance with the Compliance Plan.

[1] Specify the COCs to be monitored in this media. List either type of COC (such as VOCs, metals) if all the COCs of that type will be monitored the same way.
[2] Describe the sampling or monitoring methods and QC procedures in Appendix 1 unless the proposed sampling or monitoring procedure is the same as the sampling or monitoring procedure described in the APAR.
[3] Specify the sampling or monitoring point, such as the specific monitor well or general sampling or monitoring location.
[4] Specify the depth or height of the sampling or monitoring points.
[5] Specify the frequency at which this monitoring or sampling will occur.
[6] CP SAP – Compliance Plan Sampling and Analysis Plan

Attachment 3A

Map of Monitoring and Sampling Points

Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- AMP — ATTENUATION MONITORING POINT
- POE — POINT OF EXPOSURE
- BOUNDARY OF PLUME MANAGEMENT ZONE

NOTE:
NO CURRENT PCLE ZONES. ALL GROUNDWATER CONCENTRATIONS HAVE MET THE GWPS.

MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/10/13	001010-58D.dwg

ATTACHMENT 3A
MONITORING AND SAMPLING LOCATIONS

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Operation and Maintenance	RAP Worksheet 3.2 Page 1 of 1	
	ID No.: ISWR No. 33063	Report Date: Revised June 2013

Use this worksheet to describe the operation and maintenance (O&M) activities for each response action. In situations where the response action consists of more than one major component, for clarity one worksheet can be completed for each major component.

Response Action Name/Designation: **Groundwater PMZ**

List all portions of the response action to which this information applies.

Describe the O&M and inspection activities that will be required to operate and maintain response action components.

The O&M and inspection activities required to maintain the CA system components (when operating) are: (1) Inspection of recovery wells and associated piping and monitoring wells in accordance with the facility operating procedures; and (2) Pump and compressor maintenance as needed.

List and discuss the key operating parameters for a properly functioning response action. Address how changes in these parameters will result in operating changes, providing sufficient detail to explain how the operator will know the component is functioning properly.

The key operating parameter for a properly functioning response action is recovery and hydraulic containment of the contaminant sources of the PCLE zone and maintenance of the critical groundwater PCLs and AALs. Proper operation of the CA system will be assessed by the weekly inspections described below. The effectiveness of the CA system (when operating) will be determined by the continued stability and/or reduction in groundwater COC concentrations at and downgradient from the CA system recovery wells and monitoring of the groundwater COC concentrations at the AMP wells to verify the AALs are being met.

List the routine tasks required to operate the response action.

The routine tasks required to operate the PMZ response action are:

- Air compressor and recovery well operation, including flow meters, totalizers, recovery pump cycling, etc.);
- Weekly verification of pump operation and readings of the recovery well pump cycle counters;
- Weekly determinations of volume of recovered groundwater per pump cycle;
- Weekly inspection for visual signs of leakage from the aboveground air and recovered groundwater recovery discharge lines;
- Weekly inspection for visual signs of leakage from the underground groundwater recovery discharge lines;
- Weekly inspections for visual signs of leakage or deterioration at the above grade well completions;
- Semiannual water level measurements; and
- Semiannual sampling and analysis of groundwater monitoring wells.

List the routine tasks required to maintain the response action, including scheduled inspections, maintenance, and component replacement.

The routine tasks required to maintain the PMZ response action are:

- Weekly check of air compressor air filter and change as needed;
- Weekly check and monthly change of the air compressor oil filter;
- Weekly check of air compressor particulate filter and change as needed;
- Weekly check of air compressor coalescing filters and change as needed;
- Weekly draining of air line drop leg; and
- Replacement of damaged monitoring wells.

List all portions of the response action to which this information applies.

Confirmation Sampling Plan	RAP Worksheet 4.0 Page 1 of 2	
Associated Information: Attachment 4A	ID No.: ISWR No. 33063	Report Date: Revised June 2013

List the COCs and other parameters that will be sampled to confirm completion of the response action. Illustrate the monitoring or sampling locations in Attachment 4A. If monitoring or observation wells will be constructed for the response action, provide well construction details in Attachment 2B if not previously provided. If needed, describe the sample collection and handling methods, if not previously provided, in Appendix 6.

Media	COC[1]	Other parameter (specify)	Sampling Method	Sampling points[2]	Depth/height (ft.)	Analytical Method	Sampling Frequency
Surface Soil	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Subsurface Soil	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	See Table 2E-1 in Attachment 2E	N/A	Same as in APAR	See Attachment 2E-2	See CP SAP[3]	EPA Methods 8260 and 8270	Semiannually for 2 years following completion of PMZ response action
Surface water	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sediment	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Air	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other media (specify)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Explain the reasons for the above-listed sampling plan. Discuss statistical or geostatistical methodology(ies) which will be applied, if any, in the data collection process. Discuss any assumptions made in the statistical/geostatistical assessment, and how they will be met.

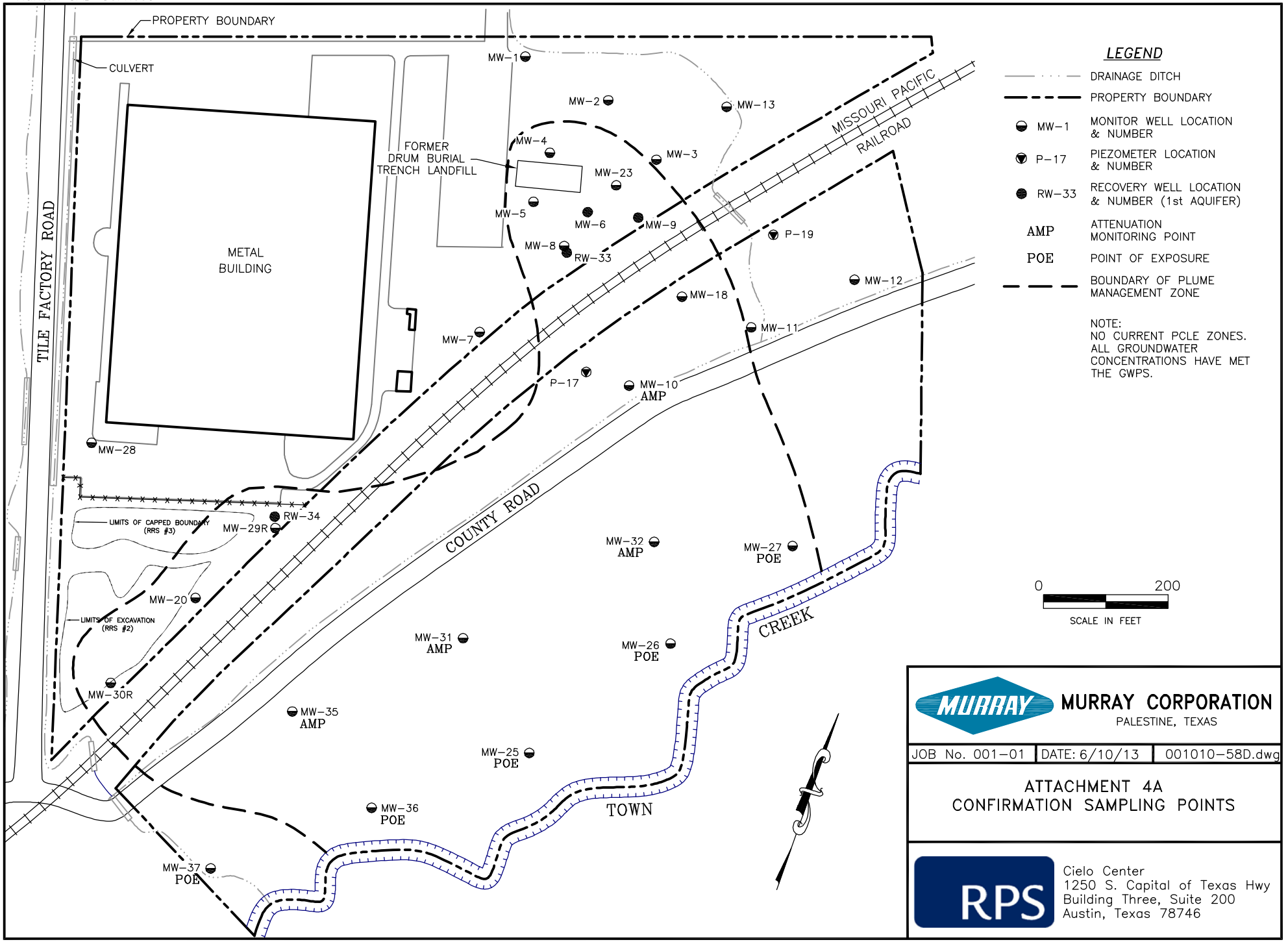
See Worksheet 3.1 for monitoring and sampling during the response action period. The PMZ response action (groundwater recovery) will be complete when the concentrations of 1,1-DCE and all other COCs in the groundwater within the PMZ are below their critical PCLs (GWPS established within the Compliance Plan) in all POC, POE, AMP and COA wells. At that time, the two year confirmation sampling period will begin. If the COC concentrations within all POC, POE, AMP, and COA wells remain below the critical PCLs during the confirmation sampling period, a Response Action Completion Report (RACR) will be submitted in the semiannual report. Upon approval of the RACR, post-response action care monitoring activities (RAP Worksheet 5.0) will begin. Documentation of these activities will be submitted in the semiannual corrective action reports.

[1] Specify either a specific COC or type of COC (such as VOCs, metals).
[2] Specify the sampling point to the degree it is known, (for example, MW-1, or near former boring #2).
[3] CP SAP – Compliance Plan Sampling and Analysis Plan

Attachment 4A

Map of Confirmation Sampling Points

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/10/13	001010-58D.dwg

ATTACHMENT 4A
CONFIRMATION SAMPLING POINTS

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Complete this worksheet only if Remedy Standard B will be used.

What is the proposed initial post-response action care period? (default 30 yr.) **30** years

If the proposed initial post-response action care period is less than 30 years, provide a technical justification in accordance with §350.33(h).

N/A.

What is the foreseeable land use during the post-response action care period? Commercial/Industrial

Describe how the future use of the property will not compromise the integrity of the physical controls, will not interfere with the function of the monitoring systems, will not pose a threat to human health or the environment, and will be in accordance with any institutional controls.

The reasonable future use of the property is industrial. Industrial use of the property will not compromise the operation and function of physical controls and monitoring systems. Critical PCLs have been established based on current and future commercial/industrial use of the property and institutional controls will be in place.

Briefly describe the proposed post-response action care activities. Describe the type of monitoring and/or inspections to be performed. Discuss the rationale for not including COC(s) analyzed during the response action, monitoring or sampling point location, frequency of monitoring and/or inspections, and the duration of the monitoring program.

The PRAC period will begin after approval of the Response Action Completion Report, which is to be submitted at the end of the confirmation sampling period (Worksheet 4.0). Therefore, only groundwater monitoring will be conducted to confirm that the response action objectives are met through the post-response action care period; no groundwater recovery operations will be operated during the post-response action care period. PRAC monitoring locations are listed and shown in Attachment 5A. PRAC monitoring will initially overlap with the groundwater monitoring requirements specified within the Compliance Plan. In accordance with the Compliance Plan, groundwater monitoring is required through the end of the 30-year post closure care period for all background, POC and POE wells specified within CP Table V of the Compliance Plan. After the 30-year post closure care period ends in April 2026, only PRAC monitoring will be conducted.

Will PRAC sampling procedures be the same as those as previously documented for monitoring and/ or confirmation sampling? **X** Yes ____ No
If no, provide in Appendix 6 a description of the monitoring or sampling collection procedures to be conducted during the post-response action care period.

Cost Estimate

Complete this portion of the form only if a physical control is proposed (installed hydraulic control system, slurry wall, cap, etc.). Provide in Attachment 5B a detailed cost estimate for a third party to operate and maintain the physical control during the PRAC period, based on current dollar amount.

Specify the physical control to which this information applies N/A
Complete this worksheet for each physical control that will be used as part of the response action.

What is the total estimated annual cost of O&M for the PRAC period? $

What is the total estimated cost for a third party to perform PRAC activities? $

Identify the type of financial assurance mechanism to be used, and the contact person managing fiduciary responsibility, if known.

Does the person meet the criteria and definition of a small business? (see §350.33(n)) ___ Yes **X** No
If yes and the person desires to pursue the reduced amount of financial assurance, provide a legally binding affidavit as Attachment 5C. Include in the affidavit the information requested in 30 TAC §350.33(l), (m), and (n). An example affidavit is attached in the instructions.

Attachment 5A

Map of PRAC Monitoring and Sampling Points

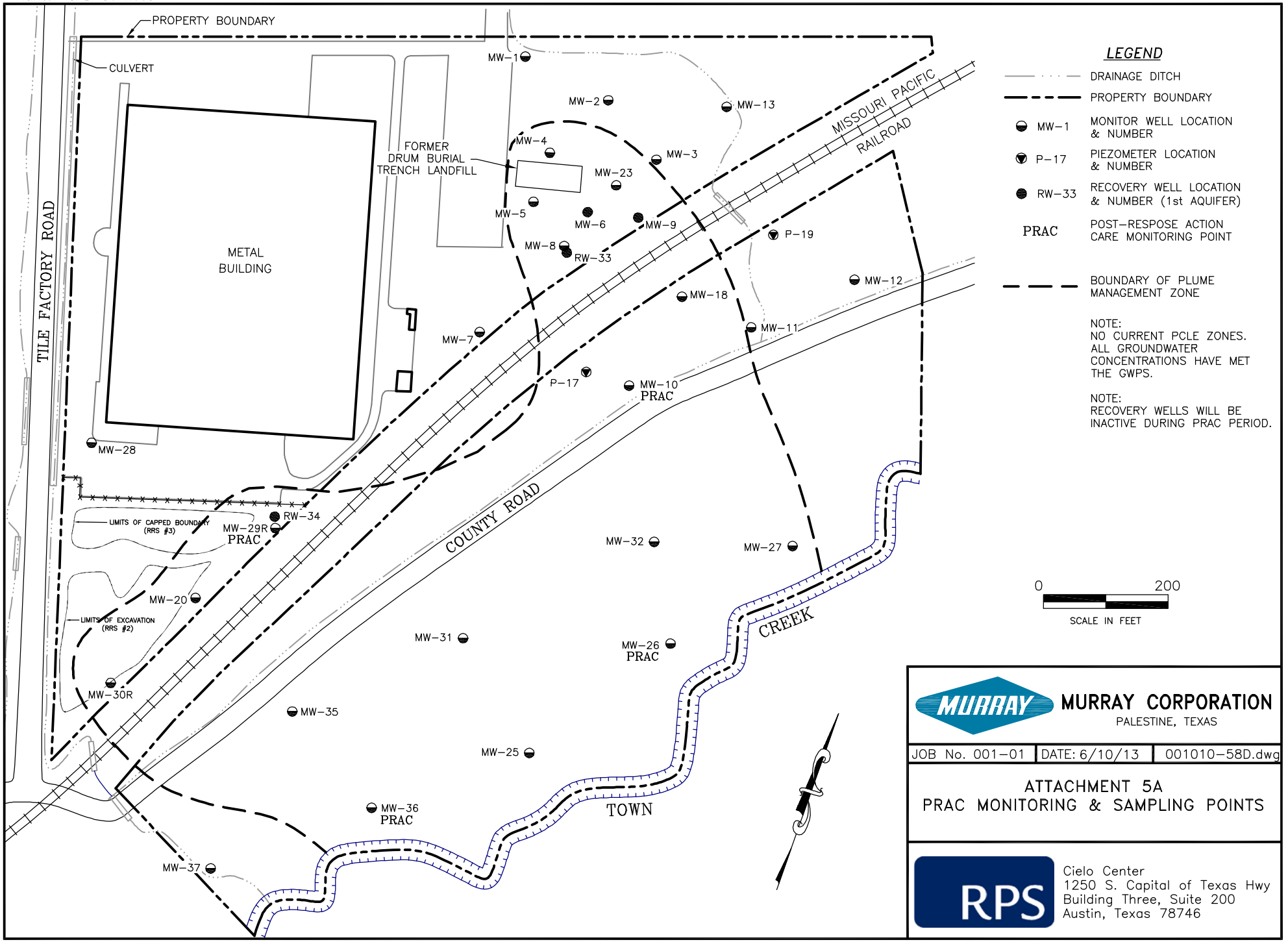
Post-Response Action Care Monitoring and Sampling Locations

Groundwater within the PMZ will continue to be sampled and analyzed in accordance with the Compliance Plan for the duration of the post-closure care period for the closed Landfill – Former Drum Burial Trench. After the post-closure care period ends in 2026, groundwater monitoring will be conducted in accordance with this Response Action Plan. The following monitoring wells will be sampled and analyzed on an annual basis for the duration of the post-response action care period (or until TCEQ approval to discontinue groundwater monitoring at the facility):

Media	Sampling Location	Monitoring Parameters
Groundwater	MW-10 MW-26 MW-29R MW-36	1,1-Dichloroethane 1,1-Dichloroethene Tetrachlorothene 1,1,1-Trichloroethane Trichloroethene

The PRAC period will commence after confirmation sampling has demonstrated the response actions have successfully reduced the concentrations of all groundwater COCs to below their respective critical PCLs. Groundwater monitoring during the PRAC period will consist of collecting samples from the monitoring wells listed above and analyzing them for the historical indicator parameter list. This proposed list of PRAC monitoring well locations and parameters are appropriate based on the fact that these are the most prevalent constituents detected in the PMZ groundwater. All COC concentrations are expected to remain below their respective PCLs throughout the response action period, confirmation sampling and reporting period and PRAC period (See Worksheet 6.0).

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 6/10/13	001010-58D.dwg

ATTACHMENT 5A
PRAC MONITORING & SAMPLING POINTS

RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Implementation Schedule	RAP Worksheet 6.0 Page 1 of 1	
	ID No.: ISWR No. 33063	Report Date: Revised June 2013

Document the proposed schedule for implementing the response action. Include all major response action activities through the life of the project, including all removal, decontamination, and control actions, component installations, O&M, monitoring, and post-response action care activities.

Implementation of Response Action (specify component or action)	**Start**	**Finish**	**Duration**
PMZ Response Action – Operation of CA system and groundwater water monitoring (CA system shut down on April 30, 2013)	2005	2013	0
Confirmation sampling and reporting	2013	2015	2
Post-response action care	2016	2046	30

List the proposed schedule for report submittals. Add additional lines if more reports than listed will be needed to complete the response action.

Reports	**Submittal date**
Response Action Effectiveness Report (RAER)	
RAER (included within Semiannual Corrective Action Reports)	January and July
Response Action Completion Report (RACR)	January 2015
Post-Response Action Care Report (PRACR)	
PRACR (included in Semiannual Corrective Action Reports)	January/July through 2027
PRACR (submitted every 5 years after end of Post-Closure Care Period)	2032 through 2046

Appendix 1

References

List of References

ASTM 1997, E1739-95. *Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites*

Domenico, PA and Schwartz, F.W., 1998, *Physical and Chemical Hydrology*

Howard, P.H., Boethling, R.S., Jarvis, W.F., Meyland, W.M., and Michalenko, E.M. 1991, *Handbook of Environmental Degradation Rates,* Lewis Publishers, Boca Raton

JDC 1998a, *Semiannual Corrective Action Report,* January 1998

JDC 1998b, *Semiannual Corrective Action Report,* June 1998

JDC 1999a, *Semiannual Corrective Action Report,* January 1999

JDC 1999b, *Semiannual Corrective Action Report,* July 1999

JDC 1999c, *Baseline Risk Assessment in Support of Alternate Concentration Limits*, October 1998, Revised August 1999

JDC 2000a, *Semiannual Corrective Action Report,* January 2000

JDC 2000b, *Semiannual Corrective Action Report,* July 2000

JDC 2001a, *Semiannual Corrective Action Report,* January 2001

JDC 2001b, *Semiannual Corrective Action Report,* July 2001

JDC 2002a, *Semiannual Corrective Action Report,* January 2002

JDC 2002b, *Semiannual Corrective Action Report,* July 2002

JDC 2003a, *Semiannual Corrective Action Report,* January 2003

JDC 2003b, *Semiannual Corrective Action Report,* July 2003

JDC 2004a, *Semiannual Corrective Action Report,* January 2004

JDC 2004b, *Affected Property Assessment Report*, February 2004

JDC 2004c, *Semiannual Corrective Action Report,* July 2004

JDC 2005a, *Semiannual Corrective Action Report,* January 2005

JDC 2005b, *Semiannual Corrective Action Report,* July 2005

JDC 2006a, *Semiannual Corrective Action Report,* January 2006

JDC 2006b, *Semiannual Corrective Action Report,* July 2006

JDC 2007a, *Semiannual Corrective Action Report,* January 2007

JDC 2007b, *Semiannual Corrective Action Report,* July 2007

TCEQ 2007, *Determining PCLs for Surface Water and Sediment, RG-366/TRRP-24*, December 2007

JDC 2008a, *Semiannual Corrective Action Report,* January 2008

RPS JDC 2008b, *Semiannual Corrective Action Report,* July 2008

RPS JDC 2009a, *Semiannual Corrective Action Report,* January 2009

RPS JDC 2009b, *Semiannual Corrective Action Report,* July 2009

RPS 2010a, *Semiannual Corrective Action Report,* January 2010

RPS 2010b, *Semiannual Corrective Action Report,* July 2010

TCEQ, *Texas Surface Water Quality Standards, Figure 30 TAC §307.6(d)(1),* Revised July 22, 2010.

RPS 2011a, *Semiannual Corrective Action Report,* January 2011

TCEQ, *Texas Surface Water Quality Standards, Surface Water RBELS,* Revised January 19, 2011

RPS 2011b, *Semiannual Corrective Action Report,* July 2011

RPS 2012a, *Semiannual Corrective Action Report,* January 2012

RPS 2012b, *Semiannual Corrective Action Report,* July 2012

RPS 2013a, *Semiannual Corrective Action Report,* January 2013

Appendix 2

Data Tables

Table 2
Water Level Measurements
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report

Monitoring Well Number	Type of Well	TOC Elevation (Feet MSL)	July 30, 2012 Measurement (BTOC)	(MSL)
MW-1	BGD	374.08	24.25	349.83
MW-2	PSW	374.36	25.24	349.12
MW-3	PSW	371.23	22.48	348.75
MW-4	PSW	373.46	24.17	349.29
MW-5	POC	373.02	23.42	349.60
MW-6	POC/REC	371.07	<24.14	<346.93
MW-7	PSW	368.33	20.29	348.04
MW-8	PSW	368.72	19.87	348.85
MW-9	REC	366.96	22.20	344.76
MW-10	AMP	340.16	12.16	328.00
MW-11	PSW	342.91	14.11	328.80
MW-12	PSW	348.14	6.74	341.40
MW-13	PSW	367.03	18.33	348.70
DMW-14	PSW	374.35	32.28	342.07
DMW-15	SUP	368.25	29.08	339.17
DMW-16	SUP	371.31	26.35	344.96
P-17	PSW	345.63	nm	nm
MW-18	PSW	346.85	18.43	328.42
P-19	PSW	355.28	8.40	346.88
MW-20	PSW	354.79	12.97	341.82
DMW-21	PSW	365.40	33.55	331.85
DMW-22	SUP	372.69	38.55	334.14
MW-23	POC	371.96	22.84	349.12
DMW-24	PSW	366.38	33.41	332.97
MW-25	POE	334.89	12.94	321.95
MW-26	POE	337.11	15.57	321.54
MW-27	POE	337.67	16.75	320.92
MW-28	PSW	363.11	13.15	349.96
MW-29R	CAO	355.83	14.70	341.13
MW-30R	PSW	351.69	7.89	343.80
MW-31	AMP	335.32	9.70	325.62
MW-32	AMP	336.62	13.84	322.78
RW-33	REC	368.49	21.40	347.09
RW-34	REC	356.76	17.22	339.54
MW-35	AMP	337.45	8.16	329.29
MW-36	POE	333.77	9.34	324.43
MW-37	POE	336.90	11.92	324.98

BTOC Below Top of Casing
MSL Mean Sea Level
BGD Background Well
CAO Corrective Action Observation Well
POC Point of Compliance Well
POE Point of Exposure Well
PSW Potentiometric Surface Well
REC Recovery Well
SUP Supplemental Well
AMP Attenuation Monitoring Point Well

Well designations in accordance with Class 3 Modification issued September 8, 2005
0.30 feet removed from TOC of MW-18 to allow protective cover to close with well cap.

Table 5
Compliance Plan Table IV Analytical Results and Compliance Status - Uppermost Aquifer Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report

Parameters	GWPS [1]	Units	MW-1 BGD	MW-9 REC	RW-33 REC	RW-34 REC	MW-29R CAO	MW-10 AMP
			7/30/12	7/31/12	7/31/12	7/31/12	7/31/12	7/31/12
1,1-Dichloroethane	285	mg/L	<0.001	0.0981	0.0180	3.97	1.15	0.00532
1,1-Dichloroethene	1.76	mg/L	<0.001	0.112	0.574	4.65	0.503	0.0140
1,1,1-Trichloroethane	272	mg/L	<0.001	0.0381	0.00215	3.55	0.440	<0.001
1,2-Dichloroethane	4.11	mg/L	<0.001	<0.001	<0.001	0.0191	<0.010	<0.001
Carbon Tetrachloride	0.47	mg/L	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001
Chlorobenzene	3.56	mg/L	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001
Methylene Chloride	889	mg/L	<0.002	0.000206 J	0.000340 J	0.129	0.016 J	<0.002
Tetrachloroethene	17.9	mg/L	<0.001	0.0198	0.00597	0.124	0.0305	0.000400 J
Trichloroethene	34	mg/L	<0.001	0.00387	0.00757	0.117	0.0227	<0.001
Vinyl Chloride	23.1	mg/L	<0.001	<0.001	<0.001	0.00425 J	<0.010	<0.001
Compliance Status			Compliant	Compliant	Compliant	EXC	Compliant	Compliant

Parameters	GWPS [1]	Units	MW-31 AMP	MW-32 AMP	MW-35 AMP
			7/31/12	7/31/12	7/31/12
1,1-Dichloroethane	285	mg/L	0.0080	0.157	0.0643
1,1-Dichloroethene	0.52	mg/L	0.00594	0.418	0.0327
1,1,1-Trichloroethane	272	mg/L	<0.001	0.000744 J	0.00485
1,2-Dichloroethane	4.11	mg/L	<0.001	0.00045 J	<0.001
Carbon Tetrachloride	0.47	mg/L	<0.001	<0.001	<0.001
Chlorobenzene	3.56	mg/L	<0.001	<0.001	0.00799
Methylene Chloride	889	mg/L	<0.002	0.00023 J	<0.002
Tetrachloroethene	17.9	mg/L	<0.001	0.000642 J	0.00136
Trichloroethene	34	mg/L	0.00154	0.00165	0.00240
Vinyl Chloride	23.1	mg/L	<0.001	0.000608 J	0.00194
Compliance Status			Compliant	Compliant	Compliant

REC Recovery Well
CAO Corrective Action Observation Well
AMP Attenuation Monitoring Point Well
EXC At least one constituent exceeds the GWPS
J Estimated value between MQL and SDL

GWPS [1] Groundwater Protection Standard as defined in the Class 3 Compliance Plan Modification issued September 8, 2005
Shading indicates constituent concentration exceeds the GWPS.
Well designations in accordance with Class 3 Modification issued September 8, 2005.

Table 6
Compliance Plan Table III Analytical Results and Compliance Status - Uppermost Aquifer Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report

Parameters	GWPS [1]	Units	MW-5 POC	MW-6 POC/REC	MW-23 POC	MW-25 POE	MW-26 POE	MW-26 Duplicate	MW-27 POE	MW-36 POE	MW-37 POE
			7/31/12	7/31/12	7/31/12	7/31/12	7/31/12	7/31/12	7/30/12	7/31/12	7/30/12
1,1-Dichloroethane	285	mg/L	0.00491	NS	0.207	0.00141	0.0235	0.0226	<0.001	0.00418	<0.001
1,1-Dichloroethene	1.76/0.32	mg/L	0.0113	NS	0.187	0.000998 J	0.0923	0.0938	<0.001	0.00609	<0.001
1,1,1-Trichloroethane	272	mg/L	0.00358	NS	0.353	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	mg/L	<0.001	NS	0.000451 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	4.11	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	mg/L	<0.002	NS	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	mg/L	<0.002	NS	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Acetone	2.4	mg/L	<0.010	NS	<0.001	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	mg/L	<0.001	NS	0.000163 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride	0.47	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene	3.56	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	0.10	mg/L	<0.001	NS	0.000762 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	mg/L	0.000259 J	NS	0.000267 J	<0.002	0.000257 J	0.000248 J	0.000258 J	<0.002	<0.002
cis-1,2-Dichloroethene	0.07	mg/L	0.00338	NS	0.00468	<0.001	0.00111	0.00105	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	mg/L	0.00345	NS	<0.001	<0.001	0.000301 J	0.000358 J	<0.001	<0.001	<0.001
Ethyl Benzene	0.7	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-xylenes	10	mg/L	<0.002	NS	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride	889	mg/L	0.000281 J	NS	0.000206 J	<0.002	0.000202 J	<0.002	<0.002	<0.002	<0.002
o-xylene	10	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tetrachloroethene	17.9	mg/L	0.00268	NS	0.0995	<0.001	0.00225	0.00241	<0.001	<0.001	<0.001
Toluene	1	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene	34	mg/L	0.000924 J	NS	0.0200	<0.001	0.00156	0.00157	<0.001	0.000265 J	<0.001
Trichlorotrifluoroethane	730	mg/L	<0.001	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	23.1	mg/L	0.000334 J	NS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Compliance Status - VOCs			Compliant	Dry Well	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant

Table 6
Compliance Plan Table III Analytical Results and Compliance Status - Uppermost Aquifer Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report

Parameters	GWPS [1]	Units	MW-5 POC	MW-6 POC/REC	MW-23 POC	MW-25 POC	MW-26 POE	MW-26 Duplicate	MW-27 POE	MW-36 POE	MW-37 POE
			7/31/12	7/31/12	7/31/12	7/31/12	7/31/12	7/31/12	7/30/12	7/31/12	7/30/12
1,2-Dichlorobenzene	6.11	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,4-Dichlorobenzene	6.11	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cresol)	0.12	mg/L	<0.020	NS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Acenaphthene	1.5	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate	0.39	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.49	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.73	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenol	7.3	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.73	mg/L	<0.010	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Compliance Status - SVOCs			Compliant	Dry Well	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant

POC Point of Compliance Well
REC Recovery Well
POE Point of Exposure Well

SB Sample bottle broke in transit.
Shading indicates constituent concentration exceeds the GWPS.
Well designations in accordance with Class 3 Modification issued September 8, 2005

GWPS [1] Groundwater Protection Standard as defined in the Class 3 Compliance Plan Modification issued September 8, 2005
J Estimated concentration. Value is above sample detection limit but below method quantitation limit.
NS Not sampled. Well was dry.

Table 7
Analytical Results and Compliance Status - Lower Aquifer Wells
SeedAmerica, Palestine, Texas
January 2013 Semiannual Corrective Action Report

Parameters	PCL [1]	Units	DMW-15 SUP	DMW-16 SUP	DMW-22 SUP
			7/30/12	7/30/12	7/30/12
1,1,1-Trichloroethane	0.2	mg/L	<0.001	<0.001	<0.001
1,1-Dichloroethane	2.4	mg/L	<0.001	<0.001	<0.001
1,1-Dichloroethene	0.007	mg/L	<0.001	<0.001	<0.001
1,2-Dichloroethane	0.005	mg/L	<0.001	<0.001	<0.001
Carbon Tetrachloride	0.005	mg/L	<0.001	<0.001	<0.001
Chlorobenzene	0.10	mg/L	<0.001	<0.001	<0.001
Methylene Chloride	0.005	mg/L	<0.002	0.000195 J	0.000197 J
Tetrachloroethene	0.005	mg/L	<0.001	<0.001	<0.001
Trichloroethene	0.005	mg/L	<0.001	<0.001	<0.001
Vinyl Chloride	0.002	mg/L	<0.001	<0.001	<0.001

PCL [1] Tier 1 Residential Groundwater Protective Concentration Limit
SUP Supplemental Well
Well designations in accordance with Class 3 Modification issued September 8, 2005

Appendix 4

Proposed Institutional Controls

NOTICE OF REMEDIATION IN PROGRESS

STATE OF TEXAS §
§
COUNTY OF ANDERSON §

This Notice is filed pursuant to the Texas Commission of Environmental Quality (TCEQ) Texas Risk Reduction Program Rule found at 30 Texas Administrative Code (TAC) 350, and affects the real property (Property) described as follows:

Attached hereto and incorporated herein by reference is Exhibit A, which contains a legal description of the entire tract of land held by the owner executing this restrictive covenant.

Portions of the groundwater of the Property contain certain identified chemicals. Remediation of this Property is in progress to achieve protective conditions for the use of the Property for commercial/industrial use. This notice is required because the response action could not be completed within 10 years and to inform others of the ongoing long-term response action.

For additional information, contact:

Thorne Gould
Murray Corporation
260 Schilling Circle, Greater Baltimore Industrial Park
Hunt Valley, Maryland 21031

TNRCC Program and Identifier No.: ISW Registration No. 33063.

As of the date of this Notice, the record owner of fee title to the Property is GKG Palestine Property, LLC, with an address of 6001 W Industrial Ave, Midland, Texas 79706.

This Notice may be rendered of no further force or effect only by a release executed by the TNRCC or its successor agencies and filed in the same Real Property Records as those in which this Notice is filed.

Executed this_____ day of _____, _____.

[OWNER]

By:_____

Name:_____

Title:_____

STATE OF TEXAS
(_____) COUNTY

BEFORE ME, on this the ___ day of _____,_____ personally appeared _____ _, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, ____.

_____
Notary Public in and for the State of Texas, County of
_____
My Commission Expires

TEXAS RISK REDUCTION PROGRAM
RESTRICTIVE COVENANT

STATE OF TEXAS §
§
COUNTY OF ANDERSON §

This Restrictive Covenant is filed to provide information concerning certain environmental conditions and use limitations pursuant to the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program Rule (TRRP) found at 30 Texas Administrative Code (TAC), Chapter 350, and affects the real property (Property) described as follows:

> Attached hereto and incorporated herein by reference is Exhibit A, which contains a legal description of the entire tract of land held by the owner executing this restrictive covenant.

Portions of the groundwater of the Property contain certain identified chemicals of concern causing those portions of the Property to be considered an Affected Property as that term is defined in the TRRP. The portion considered to be Affected Property is described as follows:

> Attached hereto and incorporated herein by reference is Exhibit B, which contains a metes and bounds description and plat map of the Affected Property.

This Restrictive Covenant is required for the following reasons:

The Affected Property is subject to the TRRP requirements for properties with an area overlying a TCEQ-approved plume management zone. A plume management zone is defined as an area of groundwater containing concentrations of chemicals of concern exceeding the TCEQ-approved protective concentration levels, plus any additional area allowed by the TCEQ in accordance with 30 TAC §350.33(f)(4). A plume management zone was established so that the chemicals of concern in the groundwater are managed such that human exposure is prevented and other groundwater resources are protected. The attached Exhibit C provides the location and extent of the plume management zone and describes the maintenance and monitoring required. This maintenance and monitoring must be implemented unless and until TCEQ approves some modifications of those requirements.

As of the date of this Restrictive Covenant, the record owner of fee title to the Property is GKG Palestine Property, LLC, with an address of 6001 W Industrial Ave, Midland, Texas 79706.

In consideration of the Response Actions by Murray Corporation, approval of the Response Action Plan and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Owner has agreed to place the following restrictions on the Property, in favor of the TCEQ and the State of Texas to-wit:

1. Exposure to the groundwater underlying the Affected Property for any purpose is prohibited until such time when all the chemicals of concern no longer exceed their respective protective concentration levels. The maintenance and monitoring described in Exhibit C is required. Any modification of this restrictive covenant is prohibited without prior approval of the TCEQ.

2. These restrictions shall be a covenant running with the land.

For additional information, contact:

TCEQ
Central Records
12100 Park 35 Circle, Building D
Austin, Texas 78753

Mail: TCEQ- MC 199
P O Box 13087
Austin, Texas 78711-3087

TCEQ Program and Identifier No.: Remediation Division; SWR 33063; CP-50328

This Restrictive Covenant may be rendered of no further force or effect only by a release executed by the TCEQ or its successor agencies and filed in the same Real Property Records as those in which this Restrictive Covenant is filed.

Executed this _____ day of _____, 2013.

GKG Palestine Properties, LLC

By: _____

Name: _____

Title: _____

Executed this _____ day of _____, 2013.

Murray Corporation

By: _____

Name: H. Thorne Gould

Title: President

Accepted as Third Party Beneficiary this _____ day of _____, 2013.

Texas Commission on Environmental Quality

By: _____

Name: _____

Title: _____

STATE OF TEXAS
_____ COUNTY

BEFORE ME, on this the _____ day of _____, 2013 personally appeared [***name***]_____, [***title***]_____, of GKG Palestine Properties, LLC, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, 2013.

Notary Public in and for the State of Texas,

County of _____

My Commission Expires: _____

STATE OF MARYLAND
_____ COUNTY

BEFORE ME, on this the _____ day of _____, 2013 personally appeared [***name***]_____, [***title***]_____, of Murray Corporation, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, 2013.

Notary Public in and for the State of Texas,

County of _____

My Commission Expires: _____

STATE OF TEXAS
_____ COUNTY

BEFORE ME, on this the _____ day of _____, 2013 personally appeared [***name***]_____, [***title***]_____, of the Texas Commission on Environmental Quality, known to me to be the person whose name is subscribed to the foregoing instrument, and they acknowledged to me that they executed the same for the purposes and in the capacity herein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the _____ day of _____, 2013.

Notary Public in and for the State of Texas,

County of _____

My Commission Expires: _____

VII. Closure and Post-Closure Plans

Provide all Part B responsive information in Appendix VII. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

For multiple units provide an include all Part B responsive information in a separate Appendix for each unit.

Submit a full closure plan and post-closure plan, if applicable, which contains all the information required by 30 TAC 335.8, 335.169, 335.172, 335.174, 335.177, 335.178, 335.551-335.569, 30 TAC Chapter 350, 40 CFR 264.112, 264.118, 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.575, 264.601, 264.603, 264.1102, 270.14(b)(13), 270.17(f), 270.18(h), 270.20(f), 270.21(e), 270.23(a)(2) & (3), and 270.26(c)(16) where applicable. The owner of property on which an existing disposal facility is located must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage hazardous wastes and its use is restricted (see 30 TAC 335.5). For hazardous waste disposal units that were closed before submission of the application, the applicant should submit documentation to show that plats and notices required under 40 CFR 264.116 and 264.119 have been filed.

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

A. Closure -RESERVED

B. Closure Cost Estimate (including contingent closure) [30 TAC 335.178, 40 CFR 264.142]

RESERVED

C. Post-closure

This section applies to owners or operators of all hazardous waste disposal facilities. This section also applies to certain waste piles, tanks and surface impoundments from which the owner or operator intends to remove wastes at closure but which are required to have contingent post-closure plans.

For Landfills, and Waste Piles, Surface Impoundments, and Tanks Closed as a Landfill

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.

2. Complete the following tables, as applicable: **NOT APPLICABLE**

a. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the

rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type. NOT APPLICABLE

b. Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill. NOT APPLICABLE

c. Table V.G.4. - Landfill Leachate Collection System used for the landfill. NOT APPLICABLE

d. Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit. NOT APPLICABLE

e. Table V.E. 3 - Waste Pile Liner System and specify the type of containment/liner

system. NOT APPLICABLE

f. Table V.D.1 - Surface Impoundments and list the surface impoundments, covered by this application, to be permitted. List the waste(s) managed in each unit and the rated capacity or size of each unit. NOT APPLICABLE

g. Table V.D. 6. - Surface Impoundment Liner System for each surface impoundment to be permitted. NOT APPLICABLE

h. Table V.C. Tanks and Tank Systems. NOT APPLICABLE

Post-closure care of each hazardous waste management unit must continue for 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems in addition to the maintenance and monitoring of waste containment systems. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which hazardous waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information.

1. The post-closure care plan for a landfill or of a surface impoundment, waste pile, miscellaneous unit, or tank system closed with wastes or waste constituents left in place, or closed under a contingent closure plan, must demonstrate compliance with 30 TAC 335.174(b).

2. The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period; and

3. A discussion of the future use of the land associated with each unit.

4. For landfills, surface impoundments, waste piles, and land treatment areas closed under interim status, submit the required documentation of 40 CFR 270.14(b)(14).

5. Landfills, surface impoundments, waste piles and land treatment areas that received hazardous wastes after July 26, 1982 or for which closure was certified after January 26, 1983 must be included in post-closure care plans unless they have been determined to have closed by removal equivalent to the closure standards in 40 CFR 264 Subpart G. If such a demonstration has been made pursuant to 40 CFR 270.1(c)(5), but an equivalency determination has not been made, please submit a copy of the demonstration documentation. If an equivalency determination has been made pursuant to 40 CFR 270.1(c)(6), applicant should submit a copy of the determination. Complete Table VII.C.5. - Land-Based Units Closed Under Interim Status for all land based units closed under interim status.

D. Post-closure Cost Estimate [40 CFR 264.144]

This section regarding post-closure cost estimate applies to owners or operators of all hazardous waste disposal facilities, except state and federal agencies, and certain waste piles, tank systems, and surface impoundments from which the owner or operator intends to remove wastes at closure, but which are required to have contingent closure and post-closure plans. A detailed estimate, in current dollars, of the annual cost of monitoring and maintenance of the facility in accordance with the applicable post-closure regulations must be included in the report. The TCEQ has published Technical Guideline No. 10 for calculating post-closure costs, which should be consulted. Costs should be developed in detail for 30 years of post-closure care activities to be conducted by a third party, for each applicable unit.

1. The applicant should submit details of item costs and number of each item for off-site disposal of leachate and bailed monitor well water, labor and supervision, monitor well sampling and analyses, inspection and repair of the cap(s), mowing and re-seeding of the vegetative cover, maintaining site security, etc. Provide an itemized cost estimate on Table VII.D. - Unit Post-Closure Cost Estimate for complete, third party permitted facility post-closure care.

2. 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.

3. Total annual cost of post-closure care for the facility including costs of contingent post-closure care should be multiplied by 30 years. **2 years remain in the post-closure care period.**

E. Closure and Post-Closure Cost Summary

Please Complete Table VII.E.1. - Permitted Unit Closure Cost Summary

Please Complete Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

Table VII.E.1. - Permitted Unit Closure Cost Summary

Not Applicable

*** Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.**

Remove Last Row from Closure Estimate | Add Row for Closure Estimate

Existing Unit Closure Cost Estimate		
Unit		Cost
Total Existing Unit Closure Cost Estimate[1]	Year	

Proposed Unit Closure Cost Estimate	
Unit	Cost
Total Proposed Unit Closure Cost Estimate Footnote	

Remove Last Row from Closure Estimate | Add Row for Closure 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.

Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
Former Drum Burial Trench	$18,543.00
Total Existing Unit Post-Closure Cost Estimate[1] 2024 Dollars	$18,543.00

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.

Note that, as per recent discussions with the TCEQ, Murray understands that a no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action Section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this renewal and major amendment application seeks to remove the requirements for groundwater monitoring for the remainder post closure care period (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of the permit and compliance plan.

Table VII.G. - Post-Closure Period

Unit Name	Date Certified Closed	Permitted Post Closure Period (Yrs)	Date Post Closure Ends
Closed landfill known as the Former Drum Burial Trench (NOR Unit No. 05, Permit Unit No. 01)	April 29, 1996	30 years	April 29, 2026
Blank			
Blank			

Part B, Section VIII Financial Assurance

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 4 – August 2024

VIII. Financial Assurance

A. Financial Assurance Information Requirements for all Applicants (30 TAC Chapter 37, Subchapter P, 305.50(a)(4)(A-E), 335.152(a)(6) and 335.179) **A copy of the current financial assurance mechanism is provided in Attachment VIII.**

1. Financial Assurance for Closure

   An owner or operator must establish financial assurance for the closure of the facility no later than 60 days prior to the first receipt of hazardous waste. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If the financial mechanism(s) has been obtained, provide a copy of the mechanism(s)

2. Financial Assurance for Post-Closure Care (applicable to disposal facilities and contingent post-closure care facilities only)

   An owner or operator subject to post-closure monitoring or maintenance requirements must establish financial assurance for the post-closure care of the facility no later than 60 days prior to the first receipt of hazardous waste. Please refer to 30 TAC Chapter 37, Subchapter P for the financial assurance requirements for post-closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If the financial mechanism(s) has been obtained, provide a copy of the mechanism(s)

3. Liability Requirements (not required for post-closure care)

   All owners or operators must establish financial assurance for third party sudden liability coverage of the facility no later than 60 days prior to the first receipt of hazardous waste. Owners or operators of disposal facilities must establish financial assurance for third party sudden and nonsudden liability coverage of the facility no later than 60 days prior to the first receipt of hazardous waste. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for liability coverage, and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If the financial mechanism(s) has been obtained, provide a copy of the mechanism(s).

4. State's Assumption of Responsibility

   If the State of Texas' assumption of responsibility is found to be acceptable, the owner or operator may satisfy the financial assurance requirements by use of both the State's assurance and additional financial mechanisms specified in 30 TAC Chapter 37. The amount of funds available through the State and owner or operator's mechanisms must at least equal the required amount. (30 TAC 37.6041)

B. Applicant Financial Disclosure Statements for a permit, permit amendment, or permit modification (30 TAC 305.50(a)(4)) **Not applicable. This application if for permit renewal and only addresses post-closure care.**

1. A statement signed by an authorized signatory per 30 TAC 305.44 explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, and provide adequate liability coverage for the facility.

2. Audited financial statements for the last two years and the most current quarterly

financial statement prepared according to generally accepted accounting principles. If audited statements have not been prepared for the applicant, copies of the applicant's last two years of financial statements and tax returns shall be submitted. The copies of the tax returns shall be certified by original signature of an authorized officer or owner as being a "true and correct copy of the return filed with the Internal Revenue Service." Additionally, an audited financial statement shall be prepared and submitted for the most recent fiscal year. All financial statements shall include a balance sheet, income statement, cash flow statement, notes to the financial statements, and the accountant's opinion letter.

3. For publicly traded companies, copies of Securities and Exchange Commission Form 10-K for the last two years and the most current Form 10-Q.

4. For privately-held companies, written disclosure of the information that would normally be found in Form 10-K including, but not limited to, the following:
   a. descriptions of the business and its operations;
   b. identification of any affiliated relationships;
   c. credit agreements and terms;
   d. any legal proceedings involving the applicant;
   e. contingent liabilities; and
   f. significant accounting policies.

C. Applicants Requesting Facility Expansion, Capacity Expansion, or New Construction
Not Applicable

Provide the following information as applicable to the particular financial circumstances:

1. Estimate of capital costs for expansion and/or construction. Complete Table VIII.C. - Estimated Capital Costs.

2. Evidence of financial resources to construct, operate safely, close, and provide liability coverage for the facility.
   a. Applicants demonstrating through financial statements or existing credit arrangements sufficient financial resources to construct, operate, and close the facility may address this requirement with the signed statement submitted to satisfy Section VIII.B.1.
   b. Applicants that must obtain additional financing through a new stock offering or new debt issuance for construction or expansion as requested in this application shall submit the following information:
      (1) financial plan sufficiently detailed to clearly demonstrate that the applicant will be in a position to readily secure financing for construction, operation, and closure if the permit is issued. The submitted financial plan must be accompanied by original letters of opinion from two financial experts, not otherwise employed by the applicant, who have the demonstrated ability to either finance the facility or place the required financing. The opinion letters must certify that the financial plan is reasonable, certify that financing is obtainable within 180 days of issuance of the permit, and include the time schedule contingent upon permit issuance for securing the financing. Only one opinion letter from a financial expert, not otherwise employed by the applicant, is required if the letter renders a firm commitment to provide all the necessary financing; and
      (2) a written detail of the annual operating costs of the facility and a projected cash flow statement including the period of construction and first two years of operation. The cash flow statement must demonstrate the financial resources to meet operating costs, debt service, and financial assurance for closure, post

closure, and liability coverage requirements. A list of the assumptions made to forecast cash flow shall also be provided.

3. For new commercial hazardous waste management facility applications, a written statement signed by an authorized signatory per 30 TAC 305.44 explaining how the applicant intends to provide emergency response financial assurance per 30 TAC 305.50(a)(12)(C) or (D).

Table VIII.C - Estimated Capital Costs
NOT APPLICABLE

	Estimated Capital Costs
Site preparation, fencing, paving, curbing, lighting, roadways	$_____
Foundations, buildings, other structures, utilities and connections, drainage system, HVAC system, Electrical system, wastewater system	$_____
Process and control equipment	$_____
Auxiliary equipment, including but not limited to exhaust hoods, fans, ducting, pumps, piping, conveyors, stacks, storage tanks, process tanks, waste disposal facilities, pollution control equipment, and fire protection system	$_____
Process integration and instrumentation	$_____
Emergency response equipment	$_____
Transportation equipment	$_____
Office equipment	$_____
Engineering design, supervision, overhead	$_____
Construction expenses including permits, insurance, temporary facilities, and clean-up	$_____
Contractor's fees and overhead	$_____
Contingency	$_____
Total	$_____

The estimates listed above were derived from the following sources:

Part B, Section IX Releases from Solid Waste Units and Corrective Action

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These sections have not changed since the 2014 Permit Renewal.

Murray Corporation
SWR No. 33063
Permit No. 50328
Rev. 0 – October 2024

IX. Releases From Solid Waste Units And Corrective Action

Information regarding historical SWMUs identified at the facility (including the 1992 RCRA Facility Assessment) is provided as Attachment IX. Based on information provided in Attachment IX, which was submitted as part of the original March 1990 permit application, TNRCC (predecessor to TCEQ) directed that Unit C (Construction Debris Landfill) and Unit D (Crushed Drum Disposal Landfill) be included in the RFI process. The permit also directed that the surface impoundments (wastewater ponds) be addressed, via the March 23, 1989 Agreed Order, with the Corrective Action Section. In addition to the activities supporting closure/post-closure of the Former Drum Burial Trench, the following plans/reports relating to SWMUs and the RFI process have been submitted since issuance of the permit on December 2, 1992:

- **RFI Workplan, February 1993**
- **Supplemental Phase II Sediment Investigation Report, April 1997**
- **RCRA Facility Investigation Report, November 1997**
- **Corrective Measures Implementation Report (includes corrective measures study and baseline risk assessment for SWMUs Unit C and Unit D), January 1998**
- **Stabilization Report for SWMUs Unit C and Unit D, March 13, 1998**
- **Baseline Risk Assessment in Support of Alternate Concentration Limits, October 1998**
- **Revised Closure Plan, Former Wastewater Ponds, February 2002**
- **Closure Report, Former Wastewater Ponds, February 2003**
- **No Further Action Letter, Response Action Completion Report, November 2024**

The Texas Solid Waste Disposal Act, 30 TAC 335.167, 40 CFR 270.14(d) and Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA) require that each hazardous waste management permit application review shall address corrective action for all releases of hazardous waste and hazardous constituents listed in 40 CFR 261, Appendix VIII, 40 CFR Part 264, Appendix IX, and/or other constituents of concern from any solid waste management unit (SWMU) and/ or Areas of Concern (AOCs) at a facility, regardless of the time at which waste was placed in such unit.[5] Current EPA interpretation of this requirement has resulted in a Corrective Action process that begins with a RCRA Facility Assessment (RFA) to determine if corrective action is necessary.

The first step in the RFA is the development of a Preliminary Review (PR) from all available documentation for a facility (including but not limited to all facility documents, Part A, and Part B of the permit application, TCEQ correspondence files and inspection reports, etc.). The PR compiles available information on every SWMU and/or AOC that has ever existed at the facility. A unit checklist is completed for each SWMU and/ or AOC. On a unit-by-unit basis, the PR may recommend no further action for:

- well-designed and well-managed units;
- units that have not managed hazardous wastes or wastes containing hazardous constituents;
- units already under corrective action by enforcement order; or
- units scheduled to be addressed in a compliance plan.

[5]For the purposes of HSWA Corrective Action, a SWMU may include, but is not limited to, any landfill, surface impoundment, land treatment unit, waste pile, underground injection well, incinerator, boiler, industrial furnace, tank, container storage area, drip pad, containment building, miscellaneous unit; any units exempt from hazardous waste permitting requirements, such as wastewater treatment units, elementary neutralization units, totally enclosed treatment units, waste recycle/reuse units, and 90-day accumulation time units; or process units or areas which may have routine and/or systematic releases to the environment (e.g., process drainage ditches or product storage tanks).

In addition, the unit checklists are summarized in a Facility Checklist. If there is a known release or potential for a release of hazardous waste or hazardous constituents from a unit/area, the PR may recommend a RCRA Facility Investigation (RFI), or an Affected Property Assessment (APA), if 30 TAC Chapter 350, Texas Risk Reduction Program (TRRP) applies, to determine the extent of the release for future corrective action, or stabilization as an appropriate and immediate corrective action.

The second step is a Visual Site Inspection (VSI) of the entire facility. The RFA is the combination of the PR and VSI documentation and any sample results. The RFA process should be scheduled so as to be completed during the latter stages of the Technical Review process or no later than one month in advance of the preparation of an initial draft permit for the facility. The RFA includes recommendations for whether further investigation or corrective action is warranted.

The requirements for an RFI or any other corrective action will be included in the permit, in the associated compliance plan which is mandatory for facilities with known groundwater contamination, or pursuant to 40 CFR 270.14(d)(3), the applicant may be required to start the RFI or other corrective action before the permit is issued. The RFI shall comply with all the applicable items contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994, unless an alternate investigation approach is approved by the Executive Director. An RFI workplan may typically include a soil boring program, installation of monitoring wells, and sampling and analysis for 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX hazardous constituents for surface soils, subsurface strata, surface water, groundwater, and/or air.

The permittee shall perform the RFI or APA and report the results. Corrective Action under 30 TAC Chapter 350 consists of an APA, determination of protective concentration levels, selection of a remedy standard (if necessary), development and implementation of a response action (if necessary), and submittal of required report according to 30 TAC Chapter 350.

If the RFI report indicates releases of hazardous waste or hazardous constituents for SWMUs and/or AOCs that have been grandfathered under 30 TAC Chapter 335 Subchapters A and S, Corrective Action shall consists of, if necessary, Interim Corrective Measures, Baseline Risk Assessment (BLRA)/Corrective Measures Study (CMS) Report, and Corrective Measures Implementation (CMI).

For grandfathered SWMUs and/or AOCs, the permittee may continue to complete the Corrective Action requirements under 30 TAC Chapter 335, Subchapter A and S, provided the permittee complies with the notification and schedule requirements pursuant to 30 TAC 335.8 and 350.(2)(m).

This report shall evaluate the risk, identify and evaluate corrective measure alternatives, and recommend appropriate corrective measure(s) to protect human health and the environment. The BLRA/CMS Report shall address all of the applicable items in 30 TAC 350, 30 TAC 335 Subchapter S, and the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994.

Upon approval of the BLRA/CMS Report by the TCEQ, the permittee shall submit a CMI Workplan to address all of the items for CMI Workplan contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994. For projects conducted under TRRP, the risk assessment process shall be addressed in the Affected Property Assessment Report (APAR), and the evaluation of corrective measures shall be conducted as part of the remedy standard selection process provided in the Response Action Plan (RAP). If the CMI or RAP does not propose a permanent remedy, then a CMI Workplan or RAP shall be submitted as part of a new compliance plan application or as a modification/amendment application to an existing compliance plan. The workplan or RAP shall contain detailed final engineering design, monitoring plans, and schedules necessary to implement the selected remedy. Implementation of the corrective measures shall be addressed through a new and/or a modified/amended compliance plan. Upon installation of a corrective action system based upon the approved CMI Workplan or RAP, the permittee shall submit a CMI Report or RAP which includes as-built drawings of the corrective action system. To report the progress of the corrective measures, the permittee shall submit periodic CMI Progress Reports or Response Action Effectiveness Reports to the TCEQ in accordance with the

schedule specified in the compliance plan. Upon completion of the corrective action requirements, the permittee shall submit CMI Report or Response Action Completion Reports for review and approval.

Please note that the applicant/permittee may perform voluntary corrective action, stabilization, or "interim measures" at any time prior to or during the RFA/RFI/CMS/CMI or the APAR/RAP process without prior TCEQ approval. The TCEQ strongly supports these actions when undertaken to mitigate releases or reduce or minimize exposure and releases to human health and the environment.

A. Preliminary Review Checklists

For all facility SWMUs (as defined previously) and/or AOCs, complete the accompanying forms entitled "Preliminary Review Facility Checklist" and "Preliminary Review Unit Checklist". Make additional copies as necessary. The following instructions are provided in same format as these forms:

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

Via Email

November 25, 2024

Mr. Thorne Gould
President
Murray Corporation
260 Schilling Circle
Hunt Valley, MD 21031

Re: Approval of No Further Action
Response to Comments, dated July 22, 2024
Response Action Completion Report
Murray Corporation
2002 Tile Factory Road, Palestine, Anderson County
SWR No. 33063, CN603297029, RN100639897
Compliance Plan No. 50328

Dear Mr. Gould,

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced submittal. The information requested in the TCEQ's June 19, 2024 letter has been adequately addressed. The site has met the post-response action care conditions for a plume management zone (PMZ) closure, per 30 Texas Administrative Code §350.33(i)(3). The Response Action Completion Report is approved. No further action for the PMZ is necessary under the Texas Risk Reduction Program.

Questions concerning this letter should be directed to me at [redacted] When responding by mail, please submit one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Mike Duffin, Ph.D., P.G.
VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

cc: Ms. Michelle Baetz, Waste Section Manager, TCEQ Region 5 Office, Tyler, via email

T81 Cement Kiln

D. Dates of Operation: enter the date the unit was placed into service and any other dates the unit changed status (active, inactive, closed, post-closure) with the appropriate status designation.

E. Wastes Managed:

List all solid wastes ever managed in the unit and include the TCEQ NoR waste #, EPA Hazard Codes, and EPA waste codes. For each waste, list any hazardous constituent listed in 40 CFR 261 Appendix VIII and 264 Appendix IX, as appropriate.

F. Evidence of Release:

Completely describe the release, including time frame, waste amount, to what media, and any corrective measures taken.

G. Pollutant Dispersal Pathways:

Completely describe the possible and actual run-off pathways (i.e., to which tributary, creek, river, and bay or through subsoil to which aquifer with groundwater flow gradient, speed, and direction and any discharge point).

H. Summary:

Provide complete unit description including unit type, elements of construction, location, age, condition, dimensions, size, capacity (i.e., gallons, square feet, cubic yards, etc.), and potential for release.

I. Recommended Action:

Recommend No Further Action, Stabilization (interim measures), or Further Investigation and justify. Note, corrective action under another authority is justification for No Further Action.

Preliminary Review Facility Checklist

Facility: **Murray Corporation** City: **Palestine, Texas**

ISW Reg No: **33063** Date: **June 2013**

Permit No: **50328** Reviewer: **Murray Corporation**

EPA ID No: **TXD053115978**

A. Waste Management Units:

1. RCRA Regulated Units:

NoR No.	Description	Status
5	**Landfill - Former Drum Burial Trench**	**Closed**

2. Solid Waste Management Units:

NoR No.	Description	Status **(2013)**
1	**Container Storage Area (<90 Day)***	**Exempt, Inactive**
2	**2-1,000 gallon Tanks (Spent Freon 113)**	**Clean Closed, Removed**
2	**1-9,000 gallon Tank**	**Clean Closed, Removed**
3	**Container Storage Area (<90 Day)**	**Exempt, Closed**
4	**Spent Solvent Distillation Facility***	**Exempt, Removed**
1**	**1-6,000 gallon Tank (<90 Day)**	**Exempt, Removed**
6	**Lower Surface Impoundment**	**Clean Closed Under RRS2**
	Upper Surface Impoundment	**Closed Under RRS3**
C	**Construction Debris Area**	**Closed Under RRS3**
D	**Crushed Empty Drum Disposal Facility**	**Closed Under RRS3**

* Container NOR Units 1 and 4 transferred to Murray-Moog Automotive (NOR No. 20140) on 4/16/97 and listed as inactive on NOR No. 33063. Unit No. 4 has since been removed from the facility.

** Tank listed in Table VIII-1 Solid Waste Management Units of the original March 1990 Part B Permit as Unit No. 1 but was not listed on the facility's NOR.

B. Reviewed Documents:

3. RCRA: Part A ___X____
Part B ___X____
Permit __X____

4. CERCLA:

5. Inspection Reports: **See Attachment IX**

6. Enforcement Actions: **March 23, 1989 Agreed Order**

7. Exposure Information: **See Attachment IX**

8. Other Information: **TCEQ Notice of Registration**
Aerial Photographs
Personal site knowledge of company employees
Company environmental files

C. Summary: **Murray Corporation discontinued site operations in 1992 and no longer owns the property. No new SWMUs have been discovered at the former Murray Corporation facility since the last renewal application. A total of 10 SWMUs were identified in the original permit application. One unit (NOR No. 5) is RCRA-regulated and two units (SWMUs C and D) were investigated pursuant to RCRA Corrective Action Requirements, and two (SWMUs A and B) were investigated pursuant to the March 1989 Agreed Order. The other units (NOR Nos. 1 through 4) were exempt tanks, container storage areas, or distillation (recycling) units and not subject to RCRA permitting or investigation. All waste was removed from the RCRA-regulated landfill (NOR No. 5), the unit closed with a final at-grade cover system, and is currently under post-closure care. The former lower surface impoundment (Unit A) was clean-closed under Risk Reduction Standard No. 2 and deed recorded. The former upper surface impoundment (Unit B) was closed under RRS3 and deed recorded. No hazardous constituents were found within SWMUs C and D during the RFI. However, because wastes remain in place, the units were closed in accordance with RRS3 with no further action beyond deed recordation.**

D. Recommended Action: **No further action required. All units have been investigated and closed or have been cleaned and removed from the property.**

Preliminary Review Unit Checklist
SEE ATTACHMENT IX

Facility: _____ City:_____

ISW Reg No: _____ Date: _____

Permit No: _____ Reviewer: _____

EPA ID No: _____

A. Waste Management Unit:
B. NoR No:
C. Description:
D. Dates of Operation:
E. Wastes Managed:
F. Evidence of Release:
G. Pollutant Dispersal Pathways:
H. Summary:
I. Recommended Action:

B. Appendices to Preliminary Review (PR)

The PR should also include Appendices I-IV to correspond to the Roman numerals in the Unit Checklist:

Appendix I. FACILITY and SWMU LOCATION MAPS

- Regional Location Map
- Site Location Map
- Facility SWMU Map - Use the Notice of Registration (NoR) number to show the location of each unit on a replicate of the topographic map required in Section V.A.1 of this application. Also, please note that the term "facility" includes the entire contiguous property under the control of the owner or operator, which in most cases is the area shown as the legal description of the site in the facility's Part A permit application.

Appendix II. WASTES MANAGED

- List all wastes managed and 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX hazardous constituents. Provide pertinent health, safety, and risk data on each.

Appendix III. EVIDENCE of RELEASE

- Provide any applicable documentation on a release. Provide a map of release locations, SWMU identification, and paths traveled.

Appendix IV. POLLUTANT DISPERSAL PATHWAYS

- Provide a facility, local, and regional map identifying all possible and eventual pathways in which a release from any unit could or did travel. Provide a facility general cross-section to illustrate vertical pathways and lateral movements in groundwater, including discharges (i.e., seeps, creeks, etc.).

See Attachment IX for the above items.

C. Preliminary Review Submittal Format

The PR should be bound with a cover page and contain a Table of Contents with the Facility Checklist entered first followed by all the Unit Checklists in unit NoR numerical order and alphabetical order.

Attachment IX

Solid Waste Management Unit Information

TABLE VIII-1--SOLID WASTE MANAGEMENT FACILITY UNITS

Verbal Description	Facil. No.(1)	Process Code(2)	Capacity Unit of Measure(3)	Status, Date and Years in Service(4)	Wastes Managed in the Facility Unit: Waste Code or Verbal Description	Wastes Managed in the Facility Unit: Constituents listed in Appendix VIII 40 CFR 261 contained in the waste	Release: Yes	Release: No
1. Tanks (2)	02	S02	1000G	A / / —			—	—
				I / / —			—	—
				(C) 12/ /88 15	911150	Spent Freon 113	—	X
					Clean-closed and removed		—	—
2. Tank	02	S02	9000G	A / / —			—	—
				I / / —			—	—
				(C) 12/ /88 15	910100		—	X
					Clean-closed and removed		—	—
3. Tank	01	S02	6000G	(A) 11/ /88 1	910100		—	X
				I / / —			—	—
				C / / —			—	—
					less than 90 day storage		—	—

(1) Enter the facility number found in the left-hand in section III of your TWC Notice of Registration. If not listed on your registration, assign an alphabetic designation (i.e., A, B, C, etc.)

(2) Enter the process code from the list in the instructions (Section VIII.A.1.b.).

(3) Units of Measurement, use one of the following

G = Gallons
CY = Cubic yards
P = Pounds
AF = Acre feet
B/H = BTUs per hour

(4) Circle the appropriate letter code: A=Active, I = Inactive, C=Closed, enter appropriate date (see instructions) and total years in service.

TABLE VIII-1--SOLID WASTE MANAGEMENT FACILITY UNITS

Verbal Description	Facil. No.(1)	Process Code(2)	Capacity Unit of Measure(3)	Status, Date and Years in Service(4)	Wastes Managed in the Facility Unit: Waste Code or Verbal Description	Wastes Managed in the Facility Unit: Constituents listed in Appendix VIII 40 CFR 261 contained in the waste	Release: Yes	Release: No
4. Container Storage Area	03	S01	5,500 G	(A) / /89 1	911150, 110870 952060, 911520			X
				I / /				
				C / /	942200, 209770 241240 Less than 90 day storage			
5. Waste Treatment Facility	04	T04	60 G	(A) / /89 1	911150 Distallation Process			X
				I / /				
				C / /				
6. Lower Surface Impoundment	A	D83	1.0 AF	A / / 70 19	Caustic and soapy wastewaters			X
				(I) / /				
				C / /				

(1) Enter the facility number found in the left-hand in section III of your TWC Notice of Registration. If not listed on your registration, assign an alphabetic designation (i.e., A, B, C, etc.)

(2) Enter the process code from the list in the instructions (Section VIII.A.1.b.).

(3) Units of Measurement, use one of the following

G = Gallons
CY = Cubic yards
P = Pounds
AF = Acre feet
B/H = BTUs per hour

(4) Circle the appropriate letter code: A=Active, I = Inactive, C=Closed, enter appropriate date (see instructions) and total years in service.

TABLE VIII-1--SOLID WASTE MANAGEMENT FACILITY UNITS

	Verbal Description	Facil. No.(1)	Process Code(2)	Capacity Unit of Measure(3)	Status, Date and Years in Service(4)	Wastes Managed in the Facility Unit: Waste Code or Verbal Description	Constituents listed in Appendix VIII 40 CFR 261 contained in the waste	Release: Yes	Release: No
7.	Upper Surface Impoundment	B	D83	0.6 AF	A / / -- (I) / / 76 13 C / / --	Caustic and soapy wastewaters		--	X --
8.	Construction Debris Area	C	D80	460 CY	A / / -- I / / -- (C) / / 83 1	One-time disposal of wood, concrete, rebar, metal building expansion wastes.		--	X --
9.	Crushed Drum Disposal Facility	D	D80	15,000 P	A / / -- I / / -- (C) / / 84 1	Crushed empty drums (most of which previously utilized for storing compressor parts)		--	X --

(1) Enter the facility number found in the left-hand in section III of your TWC Notice of Registration. If not listed on your registration, assign an alphabetic designation (i.e., A, B, C, etc.)

(2) Enter the process code from the list in the instructions (Section VIII.A.1.b.).

(3) Units of Measurement, use one of the following

G = Gallons
CY = Cubic yards
P = Pounds
AF = Acre feet
B/H = BTUs per hour

(4) Circle the appropriate letter code: A-Active, I = Inactive, C-Closed, enter appropriate date (see instructions) and total years in service.

TABLE VIII-2--HAZARDOUS WASTE MANAGEMENT FACILITY UNITS

	Verbal Description	Facil. No.(1)	Process Code(2)	Capacity Unit of Measure(3)	Status, Date and Years in Service(4)	Wastes Managed in the Facility Unit: Waste Code or Verbal Description	Wastes Managed in the Facility Unit: Constituents listed in Appendix VIII 40 CFR 261 contained in the waste	Release: Yes	Release: No
10.	Landfill (Burial Trench)	E	D80	2,080,000 P	A / / – unknown (I) / / – C / / –	Contaminated soil containing approximately 350 crushed drums	Volatile Organics (see Table 1)	X	—
					A / / – I / / – C / / –			—	—
					A / / – I / / – C / / –			—	—

(1) Enter the facility number found in the left-hand in section III of your TWC Notice of Registration. If not listed on your registration, assign an alphabetic designation (i.e., A, B, C, etc.)

(2) Enter the process code from the list in the instructions (Section VIII.A.1.b.).

(3) Units of Measurement, use one of the following

G = Gallons
CY = Cubic yards
P = Pounds
AF = Acre feet
B/H = BTUs per hour

(4) Circle the appropriate letter code: A=Active, I = Inactive, C=Closed, enter appropriate date (see instructions) and total years in service.

TABLE 1

CONSTITUENTS DETECTED IN THE
WASTE CHARACTERIZATION SAMPLES
COLLECTED AT THE
MURRAY CORPORATION FACILITY LANDFILL AREA

Acetone
Benzene
Chloroform
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
1,3-Dichloropropene
2,4-Dimethylphenol
Ethylbenzene
Freon 113
Methyl ethyl ketone
Methylene chloride
Nonane
Styrene
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethane
Trichlorofluoromethane
o-Xylene
Total Xylenes

APPENDIX VIII-1
SUMMARY REPORT OF RELEASES
FROM SOLID WASTE MANAGEMENT UNITS
AT THE
MURRAY CORPORATION FACILITY
PALESTINE, TEXAS

SUMMARY REPORT OF RELEASES FROM SOLID WASTE MANAGEMENT UNITS AT THE MURRAY CORPORATION FACILITY, PALESTINE, TEXAS

The solid waste management units at the Murray Corporation facility in Palestine, Texas, have been identified based on plant records and the Notice of Registration.

1. Former drum burial trench (landfill)

2. Upper surface impoundment

3. Lower surface impoundment

4. 6,000-gallon tank (01) less than 90-day storage

5. 9,000-gallon tank (02) clean closed and removed, 1988

6. 1,000-gallon tank (02) clean closed and removed, 1988

7. Container storage area (03) less than 90-day storage

8. Waste treatment facility (04)

9. Crushed drum disopsal facility

The occurrence of releases from the landfill area to the environment have been documented by the TWC inspection reports and chemical analyses. Quantification of wastes associated with the landfill area were documented in the report entitled "Remedial Actions, Monitoring Well Installation, and Results of First Ground-Water Sampling Event: Murray Corporation, Palestine, Texas; October 17, 1988". These results are also presented in the Waste Analysis Summary report (Appendix II-2 of the Part B Application). Releases from the other solid waste management units (SWMUs) have not yet been identified. Location of all the above listed SWMUs is presented on the site plan map contained in Appendix III-1.

APPENDIX VIII-2
TOPOGRAPHIC MAP SHOWING LOCATIONS OF SWMUs, BOREHOLES, AND MONITORING WELLS

PROPERTY BOUNDARY

METAL BUILDING

PARKING LOT

TOWN CREEK

DMW-14 MW-1 MW-2 MW-13 MW-4 MW-3 MW-5 DMW-16 MW-6 MW-9 MW-8 DMW-15 MW-7 MW-12 MW-11 MW-10

1 2 3 4 5 6 7 8 9 10

SOLID WASTE MANAGEMENT UNITS

1. 2-1,000 GAL. TANKS- SPENT FREON 113-CLEAN, CLOSED & REMOVED
2. 1-9,000 GAL.TANK- CLEAN, CLOSED & REMOVED
3. 1-6,000 GAL.TANK- LESS THAN 90 DAY STORAGE
4. CONTAINER STORAGE AREAS-5,500 GAL.- LESS THAN 90 DAY STORAGE
5. SPENT SOLVENT DISTILLATION FACILITY-60 GAL.
6. LOWER SURFACE IMPOUNDMENT- 1.0 AF
7. UPPER SURFACE IMPOUNDMENT-0.6 AF
8. CONSTRUCTION DEBRIS AREA-460 CUBIC YARDS
9. CRUSHED EMPTY DRUM DISPOSAL FACILITY-15,000 P
10. LANDFILL (BURIAL TRENCH)- 2,080,000 P-WASTE REMOVED

LEGEND

- MW-10 — MONITOR WELL LOCATION
- FENCE LINE
- CREEK or DRAINAGE DITCH
- CULVERT
- SOLID WASTE MANAGEMENT UNITS (SWMU's)

✳ SEE TABLES VIII-1 & VIII-2 FOR KEY TO SWMU's

N

SCALE IN FEET
0 50 100 200

MURRAY CORPORATION

PALESTINE PLANT AND VICINTITY IN THE
JOSEPH JORDAN SURVEY A-33
ANDERSON COUNTY, TEXAS

SCALE: 1"=100' DECEMBER, 1989

IVES TECHNICAL SERVICE
P.O. BOX 1561 (214) 549-2512
PALESTINE, TEXAS

3	Δ	
2	Δ	
1	Δ	

REVISIONS

DESIGNED BY:	MURRAY CORPORATION PALESTINE, TEXAS
	APPENDIX VIII-2 TOPOGRAPHIC MAP SHOWING LOCATIONS OF SOLID WASTE MANAGEMENT UNITS
	JONES AND NEUSE, INC. Engineering and Environmental Consultants JN 118206
Drawn By: D.H. / Scale: 1" = 100'	D89284
Checked By: R.K. / Date: 2-90	Sheet 1 Of 1

83250

John Hall, Chairman
Pam Reed, Commissioner
Peggy Garner, Commissioner

TEXAS WATER COMMISSION

PROTECTING TEXANS' HEALTH AND SAFETY BY PREVENTING AND REDUCING POLLUTION

April 17, 1992

Mr. William K. Honker, Chief
RCRA Permits Branch
U.S. Environmental Protection Agency
Region VI-6H-P
1445 Ross Avenue
Dallas, Texas 75202-2733

RECEIVED APR 2 2 1992

Re: Transmittal of RCRA Facility Assessment
Murray Corporation
Industrial and Hazardous Waste Registration No. 33063
Permit No. HW-50238-000
EPA ID No. TXD053115978

Dear Mr. Honker:

In accordance with the agreement made between the State of Texas and the US Environmental Protection Agency (EPA), transmitted herewith is the RCRA Facility Assessment (RFA) for Murray Corporation, Palestine, Texas.

The facility has existing units consisting of nine RCRA-regulated units and three solid waste management units (former spill areas). A visual site inspection was conducted March 12, 1992. Evidence compiled from the RCRA Facility Assessment (RFA), Visual Site Inspection (VSI) and records on file indicate that there is strong potential for releases from the on-site landfills to soil and groundwater.

Therefore, a RCRA Facility Investigation (RFI) is recommended for a triangular-shaped piece of land containing at least two more landfills (the Construction Debris Area Landfill and the Crushed Drum Area Landfill and surrounding land) located at the eastern edge of the property. One side of the triangle is defined as extending a north-south line along the edge of the parking lot (on the east side of the building) to the property line on the north, and to the south (along the north side of the railroad tracks). These two property lines and the third line described above form a triangle.

Questions or comments on the RFA should be addressed to the staff technical person indicated below.

Applicant	Permit-Writer	Permit No.	EPA ID No.
Murray Corp.	Mary M. McGill	HW-50328-000	TXD053115978

Sincerely,

Wayne R. Harry

Wayne R. Harry, P.E.
Team Leader, Facility Unit III
Industrial and Hazardous Waste Division

cc: John Hegar, EPA Dallas (w/o Enclosure)
TWC District 5 Office - Tyler
✓Murray Corporation, Palestine

Enclosure

RCRA FACILITY ASSESSMENT-FACILITY CHECKLIST

Facility: Murray Corporation
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT #:
Date: January 23, 1992

A. Waste Management Units:

1. RCRA-Regulated Units:

NOR Unit No.	RCRA-Regulated Unit	Status
01	tank, 6000 gal.	inactive (<90 day)
formerly 01	tank, 9000 gal.	clean-closed and removed-then the 6,000 gal. tank was constructed in its place
02	2-1000 gal. tanks piped together	clean-closed and removed
A*	lower surface impoundment	inactive
B*	upper surface impoundment	inactive
C*	construction debris landfill	inactive
D*	crushed drum disposal landfill	inactive
E*	former drum burial trench (landfill)	inactive (closure pending and post-closure permit pending)
--	area of former 2-3 drum burial landfill (adjacent to the former drum burial trench-landfill)	------

2. Solid Waste Management Units:

--	roll-off container storage	active
--	area of spill between tanks fac. no. 01 and 02	------
--	area of "ECCO" spill near parking lot	------
--	area of grey sludge material from "lap machine"	------

B. Reviewed Documents

1. RCRA Part A and Part B Permit application (March 5, 1990) for post-closure care and Compliance Plan application
2. CERLA Notification: None found
3. Inspection Reports:
   April 9, 1992, letter, "Information Regarding Crushed Drum Disposal Area", from Murray Corporation to Ms. Mary McGill, Permit-Writer, Industrial and Hazardous Waste Division, TWC
   February 12, 1992, letter, "Notification of Proposed Closure of Hazardous Waste Storage Tank", from Murray Corporation to Ms. Grace Montgomery, Manager, Evaluation Section, TWC

* Temporary identification labels as found in Table VIII-1 of the Post-Closure Permit application.

May 2, 1991, Interoffice Memorandum (IOM), from Scott Harris, TWC District 5 inspector to the Files

May 2, 1991, draft letter, Notice of Solid Waste Violations, from John W. Witherspoon, TWC District 5 manager, to Ms. Sue Ferguson, Murray Corporation of Baltimore

April 23, 1991 Comprehensive Maintenance Evaluation (CME) conducted by Scott Harris, TWC District 5 inspector

Sept. 25, 1990, Interoffice Memorandum (IOM), Results from CME Sampling on 1-16-90

September 25, 1990, Interoffice Memorandum (IOM) from Cathy Remmert, TWC District 5 inspector, to the Files

August 10, 1990, Notice of Solid Waste Violations letter from John Witherspoon, TWC District 5 Manager, to Mr. Joe Meyers, Plant Manager, Murray Corporation,

August 10, 1990, Interoffice Memorandum (IOM) from Mike Brashear, TWC District 5 inspector, to the Files

August 2, 1990, Comprehensive Evaluation Inspection (CEI) conducted by Mike Brashear, TWC District 5 inspector

June 15, 1990, State Oversight Evaluation, RCRA Comprehensive Ground Water Monitoring Evaluation, US EPA Region 6, Dallas, Texas, prepared by Bobby G. Williams

June 15, 1990, letter from Randall E. Brown, Chief, RCRA Enforcement Branch, US EPA Region 6 "Comprehensive Groundwater Monitoring Evaluation Report" to Daniel J. Eden, Director, Hazardous and Solid Waste Division, Texas Water Commission

March 5, 1990, Murray Corporation Post-Closure Part B application

Jan. 16, 1990 Operation and Maintenance (O&M) Report of the Comprehensive Groundwater Monitoring Evaluation (CME) inspection conducted by TWC District 5 and EPA Region 6 personnel

Feb. 8, 1989 Interoffice Memorandum (IOM) from Mike Brashear, TWC District 5 inspector, to the Files

March 1, 1989 Case Development (CD) inspection by TWC District 5 inspector Mike Brashear

March 31, 1990, Murray Corporation Compliance Plan application

April 14, 1990, Comprehensive Evaluation Inspection (CEI) conducted by Mike Brashear, TWC District 5 inspector

July 28, 1989, letter from R.A. Moody, Corporate Engineer, Moody Corporation, to Mike Brashear, TWC District 5 inspector

August 11, 1989, Interoffice Memorandum (IOM) from Mike Brashear, TWC District 5 inspector, to the Files

Nov. 10, 1988, Notice of Solid Waste Violations letter from Samuel B. Pole, Chief, Enforcement Section, Hazardous and Solid Waste Division to Mr. Joe Meyers, Murray Corporation

October 19, 1988, Interoffice Memorandum (IOM) from Mike Brashear, District 5 inspector, to the Files

Sept. 21, 1988, Oct 5, 1988, Comprehensive Evaluation Inspection (CEI) Inspection conducted by TWC District 5 inspectors Mike Brasher and Trey Rushing

July 20-21, 1988, Comprehensive Evaluation Inspection (CEI) performed by Mike Brashear, TWC District 5 inspector

June 15, 1988, September 21, September 23, 1988, Records Review, by TWC District 5 inspectors Trey Rushing and Mike Brashear

April 30, 1987, Follow-up (FO) inspection by TWC District 5 inspector Chuck Epperson

May 29, 1987, Interoffice Memorandum (IOM) from Charles Epperson, TWC District 5 inspector to Russ Kimble, Chief, Reports and Management Section, Hazardous and Solid Waste Division

January 16, 1987, response to Notice of Violation letter from Samuel B. Pole, Chief, Hazardous and Solid Waste Enforcement, Hazardous and Solid Waste Division to Mr. Robert Moody, Murray Corporation

December 2, 1986, company response from Mr. R.A. Moody, Murray Corporation, to Mr. Samuel Pole, Chief, Enforcement Section, Hazardous And Solid Waste Division

November 12, 1986, Notice of Solid Waste Violations letter from Mr. Samuel Pole, Chief, Enforcement Section, Hazardous and Solid Waste Division to Mr. Robert Moody, Murray Corporation

Nov. 3, 1985 (1986?), Interoffice Memorandum (IOM) from Charles Epperson, TWC District 5 inspector, to Russ Kimble, Chief, Reports and Management Section, Hazardous and Solid Waste Division "Results of Soil Sampling at Murray Corp. on Oct 8, 1986"

Aug. 15, 1986, Interoffice Memorandum (IOM) from William Gibson, District 5 inspector to Bryan Dixon, director, Hazardous and Solid Waste Division "Complaint Investigation, Murray Corp., Reg. No. 33063"

August 4, 1986, Interoffice Memorandum (IOM) from John Witherspoon, district 5 Manager, to Sam Pole, Chief, Enforcement Section, Hazardous and Solid Waste Division, "High Priority Violator Referral - Murray Corp., Reg No. 33063"

July 10, 1986, Evaluation (EV) Inspection conducted by TWC district 5 inspector Charles Epperson

June 18, 1986, Complaint Investigation, Murray Corp., by District 5 inspector Charles Epperson

Feb. 18, 1986, Complaint Investigation, Murray Corp. by TWC District 5 inspector

Feb. 12, 1986, Phone log record of phoned-in complaint against Murray Corp.

4. Other Information: Notice of Registration February 4, 1992
5. Enforcement Actions:
   TWC Agreed Order issued March 23, 1989.

C. SUMMARY

Murray Corp. is located 800 feet south of the intersection of Highway 79 and Tile Factory Road, street address 2002 Tile Factory Road, Palestine. The facility is located approximately 2.9 miles southwest of the junction of State Highways 79 and 84.

The primary product produced by the Palestine facility involves the re-manufacturing of automotive compressor units used in air-conditioning systems. The processes employed involve teardown, washing and cleaning, re-assembly, testing and painting.

In the past, the company used large quantities of various solvents and caustics in order to properly clean parts or to facilitate painting of the finished product. All solvent bath cleaning machines have been replaced.

The Murray plant began operations at this location in 1969. Murray submitted a Part B Post-Closure Care Permit Application with the TWC on March 5, 1990 and subsequent revisions on May 1, 1990. Murray is currently operating under the provisions of an Agreed Order with the TWC issued March 23, 1989.

The Hazardous Waste Management Units at the facility include a total of three storage tanks, of which the 6,000 gal is listed on the Notice of Registration (NOR) as active and has operated as less than 90 day storage in the past. Murray Corporation has notified the TWC of their intent to close this tank. The other two tanks are clean closed. In addition there is one container storage area and one waste treatment facility, both active.

The industrial solid waste (nonhazardous) units at the facility include two surface impoundments, upper and lower, and both are inactive. There is also a construction debris area adjacent to the former drum burial landfill and a crushed drum disposal area, both inactive.

There are several areas of spills noted in the inspection reports, one of "ECCO" solvent near the parking lot, another of sludge material generated by the lap machines and also by the parking lot, and an area near where one tank fell/collapsed onto another tank. There is also an area where 2-3 drums were found buried adjacent to the former drum burial landfill.

According to the May 2, 1991 Interoffice Memorandum filed by Scott Harris, TWC District 5 inspector, Murray Corp. had recently sold its operation to Moog Corporation and Moog Corporation now owned the inventory, processes, and equipment. This sale was finalized on Feb. 1, 1991. Moog Corp. did not purchase the facility property on Tile Factory Road. Murray Corp. still retains ownership of the real estate and most, if not all, of the

fixtures, making Moog Corporation a tenant of Murray Corporation. It appears that Moog Corp. has become the generator of all wastes generated since Feb. 1, 1991 and has obtained a state registration number for the 10.5 acres that it leases from Murray Corporation. Murray Corp. of Baltimore has apparently retained responsibility for the closure/post-closure of the drum disposal site and two surface impoundments addressed in the Agreed Order issued March 23, 1989.

D. Recommended Actions

The area as marked on Figure C-1 is recommended for further investigation under the RCRA Facility Investigation. This includes the property to the east of the main manufacturing building and the parking lot, to the property lines on the north, east and south (which is on the north side of the railroad tracks). The Former Drum Burial Trench (Landfill) is excluded from this area because it has undergone closure activities sufficient to determine the vertical extent of contamination.

RELEASE ASSESSMENT INVESTIGATION
Murray Corporation
Palestine, Texas Facility

PART I- GENERAL INFORMATION TWC. Reg. No.: 33063
EPA I.D. No.: TXD053115978
INSPECTION DATE: March 12, 1992

A. Type of Industry:
Murray Corp. is an automotive air conditioning equipment manufacturing facility. The primary product produced by the Palestine facility involves the re-manufacturing of automotive compressor units used in air conditioning systems. The processes involve teardown, washing and cleaning, re-assembly, testing and painting.

In the past the company used large quantities of various solvents and caustics in order to properly clean parts or to facilitate painting of the finished product. All solvent bath cleaning machines have been replaced.

Up until February 1989, the company discharged the washwater from the cleaning machines into two surface impoundments on the southwestern side of the facility. These impoundments have been used for pretreatment of industrial wastewaters prior to discharge to the City of Palestine POTW from 1983 to 1989. Prior to this time, the impoundments served as evaporation/settling ponds prior to discharge to a railroad right-of-way ditch on the southern boundary of the facility. On November 21, 1991, at the City's request, Murray Corp. capped the pipe leading from the surface impoundment to the City of Palestine's POTW. The City made this request in order to insure that stormwater run-off was not being introduced to the POTW at this location. During the inspection for this RFA on March 12, 1992, Murray Corp. officials stated that the plant wastewater was now hooked up to the city POTW.

B.Surface Water

1. **Description of drainage patterns from facility (include stream segment numbers and names, desirable uses, water quality standards, distance to nearest downgradient surface water body, average slope of facility in percent, average slope of terrain between facility and the surface water in percent:**

   Surface water run-off from the Murray Corp. facility enters a ditch along the north side of the Union Pacific Railway right-of-way. Drainage is then directed via the ditch to the southwest where it flows beneath the railroad tracks and into Town Creek. Town Creek eventually drains into the Trinity River about 8.5 miles west of the Murray site.

   Slope of the facility is less than 1%. The average slope of the terrain between the facility and surface water (which is the ditch that runs parallel to the facility and the railroad) is 25%. Nearest stream segment is #0804 of the Trinity River.

2. 1-year, 24-hour rainfall in inches: 8.5 inches

3. Net Precipitation:
   a) Mean annual precipitation: 40 inches
   b) Mean annual lake evaporation: 51 inches
   c) Net precipitation: -11 inches

C. Ground Water

1. Name and description of aquifer(s) of concern (including depth from ground water to highest seasonal level of saturated zone of aquifer of concern:
   Queen City Aquifer: 11.49 feet
   There is 11.49 feet between the ground surface and the seasonal high of the uppermost aquifer (the Queen City Aquifer).

2. Names and/or description of first permeable water bearing zone if different from item C.1:
   Not applicable.

3. Sediment type and permeabilities to aquifer of concern:
   The Queen City Aquifer consists of alternating beds of very fine to fine-grained quartz sand and clay.

D. Population Information:

1. Population density within one (1) mile radius: 800
   within a two (2) mile radius: 3,000
   within a four (4) mile radius: 16,000

2. Total population served by groundwater within a 3-mile radius:
   unknown

3. Population served by surface water: Locations(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the facility and population served by each intake:
   unknown

E. Distance to a Sensitive Environment:

1. Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:
   not applicable

2. Distance to 5-acre (minimum) freshwater coastal wetland, if 2 miles or less:
   not applicable

3. Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:
   not applicable

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Facility: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:

RCRA: Spent solvent tank, 6000 gal., double-walled, secondary containment, used as a less than 90 day storage tank although now inactive unit, 3 years in service

II. Evidence of Release:

The District 5 inspection dated July 10, 1986 reported a 1,000 gallon tank (one of two identical tanks) holding halogenated solvents used to sit beside this 6,000 gallon tank, which held mineral spirits at the time. The 1,000 gallon tank tipped over onto the 6,000 gallon tank, spilling an undetermined amount of the halogenated solvents. The 6,000 gallon tank holding the mineral spirits appeared to be unharmed.

III. Pollutant Dispersal Pathways:

See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
01	002	used to be spent mineral spirit solvents, now waste refrigerant oil	1H	910100	D001

V. Target Populations of Concern

See Attachment II.

VI. Documents Reviewed

Correspondence files, inspection reports, Parts A and B of the RCRA Permit application for post-closure and Compliance Plan. Murray has notified TWC of intent to close this unit. It is now inactive.

VII. Site Description

According to inspection reports, fac. no. 01 is a cylindrical steel tank place on a concrete stand approximately 1 foot above the ground in a horizontal fashion and is covered. This 6,000 gal. tank replaced an earlier tank that held 9,000 gallons. The 9,000 gal. tank was formerly listed as no. 01. This tank has operated as a 90 day storage unit in the past and up until January 1990.

The NOR shows that the tank is listed as active, although the company sent a letter to TWC dated 2-12-92 stating that they intend to close out the tank and that the tank is now inactive.

VIII. Summary

This double-walled tank is sitting on a concrete pad beside the main manufacturing building. There are no visual signs of spills or leaks. It is now inactive. The concrete support pad that held the end of the longer 9,000 gallon tank is within 8 feet of the 6,000 gallon tank.

IX. Recommended Actions

Murray has notified TWC in a 2-12-92 letter that they intend to close this tank. When this unit closes, samples must be taken to verify whether contamination exists or if the unit can be clean-closed. If sampling indicates a lack of contamination, then no further action is needed. If these samples show that contamination still exists, then the unit would need to submit a modification/amendment to their Compliance Plan and/or Post-Closure permit. No further action under a RFI is recommended at this point.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Facility: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:

RCRA: Horizontal, cylindrical tank, 9,000 gallon capacity, storage of spent mineral solvents, 15 years of service. Tank was replaced by a 6,000 gallon tank.

II. Evidence of Release:

No visual signs of release or spills.

III. Pollutant Dispersal Pathways:

See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
formerly 01	002	spent mineral solvents	1H	--	--

V. Target Populations of Concern

See Attachment II.

VI. Documents Reviewed

Correspondence files, inspection reports, Parts A and B of the RCRA Permit application for post-closure and Compliance Plan.

VII. Site Description

The current fac. no. 01 reported on the NOR was a horizontal, cylindrical steel tank place on a concrete stand approximately 1 foot above the ground. This 9,000 gallon tank was replaced by a tank that holds 6,000 gallons. The 9,000 gallon tank was formerly listed as NOR no. 01.

The 9,000 gallon tank does not appear to have had secondary containment. The tank was sitting on several small concrete pads, which is still present. Because the tank was longer than the tank which is presently there, there is one small concrete pad about 8 feet from the end of the present 6,000 gallon tank.

VIII. Summary

This tank was sitting in a horizontal position on concrete support pads at the site of the now present 6,000 gallon tank, immediately adjacent to the main manufacturing building. The concrete support that held the earlier 9,000 gallon tank are still present and one is within 8 feet of the 6,000 gallon tank.

IX. Recommended Actions

The 9,000 gallon tank was clean-closed in December 1988. Murray has notified TWC in a 2-12-92 letter that they intend to close the 6,000 gallon tank which is located in the same place as the former 9,000 gallon tank. When the 6,000 gallon tank closes, samples must be taken to verify whether contamination exists or if the unit can be clean-closed. If sampling indicates there is no contamination, then no further action is needed. If these samples show that contamination does exists, then the unit would need to submit a modification/amendment to their Compliance Plan and/or Post-Closure permit. No further action under a RFI is recommended at this point.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D.#: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit

RCRA: Consisted of 2-1000 gal. tanks piped together that stored waste 003. According to an inspection report, at least one of these used to be an unregistered tank. At least one of the tanks was a rounded cube-shaped tank placed approximately 2 feet above the ground and was covered. Tanks were in service 15 years.

This unit, consisting of two tanks, has been clean-closed in December 1988.

II. Evidence of Release

The July 10, 1986 TWC inspection noted a spill that occurred at an unknown time. The 1000 gallon tank used to store halogenated spent solvents tipped over onto the tank used to store spent mineral spirits solvents, spilling an undetermined amount of spent halogenated solvent onto the ground. The inspection report contains photographs of the two tanks and the spilled waste.

III. Pollutant Dispersal Pathways

See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No.	Waste Description	Class	Code	EPA Waste No.
02	003	spent halogenated solvents (Freon 113)	1H	911150	F001

V. Target Populations of Concern

See Attachment II.

VI. Documents Reviewed

Correspondence files, inspection reports and Parts A and B of RCRA Permit Application for post-closure care.

VII. Site Description

These two tanks were closed in January 1989, and spent freon was then stored in drums inside the Murray operations building. A concrete slab is still at the site of the former unit.

VIII. Summary

The CEI inspection log dated Sept. 21 and Oct 5, 1988 noted the presence of a 1000-gal tank installed after Oct. 8, 1986, located on the south side of the process building next to fac. no. 02 and used to store waste no. 003.

Used mineral spirits were stored in 2-1000 gal. tanks that were formerly used to store halogenated solvents (from Sept. 21 and Oct 5, 1988 inspection). The same inspection noted that neither the existing tanks nor the ancillary equipment had been reviewed and certified by a Professional Engineer.

These tanks were clean closed in December 1988. The area of the spill was also clean-closed.

IX. Recommendations
No further action recommended.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Facility: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
RCRA: Former Drum Burial Trench (Landfill). Landfill was in service an unknown period of time.

II. Evidence of Release:
The TWC District 5 Office investigated several anonymous complaints concerning illegal dumpling at the facility. Upon investigation, this unit was found to have had a release to soil and groundwater. Approximately 1,040 tons of soil containing approximately 350 crushed drums (which contained residual amounts of solvents) were excavated from the trench and disposed of at Texas Ecologist (TECO) hazardous waste landfill at Robstown, Texas. An interim closure cap/cover was then placed over the former drum burial trench (landfill). The final closure plan is being evaluated by TWC.

III. Pollutant Dispersal Pathways:
See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
E		"ECCO" solvent	1H	--	F001, F002

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of the RCRA Permit application for post-closure, Compliance Plan, interim closure plan and final closure plan.

VII. Site Description
This area is flat, and is mostly covered with grass. There are some patches of bare soil where the trench was excavated and at least one dead tree in a downgradient direction. There are groundwater monitor wells around the site.

VIII. Summary
The crushed drums and contaminated soil were excavated from the landfill. After the drums and surrounding soils were removed, sampling of the sides and bottom of the landfill confirmed that there were low levels of contamination remaining in the soil. Groundwater was also contaminated. Therefore, the site was unable to be clean-closed. The site was backfilled with clean soil as an interim closure plan. TWC is evaluating a final closure plan.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Two inactive surface impoundments located in the southwestern portion of the Murray property, referred to as "A" (lower) and "B" (upper) on Table VIII-1 of the Part B post-closure permit application. The lower surface impoundment was in service 19 years and the upper surface impoundment was in service 13 years.

II. Evidence of Release:
Neither surface impoundment has a liner and there are no groundwater monitoring wells installed around these ponds. These ponds are being investigated following Provisions 8, 9 and 10 of an Agreed Order issued March 23, 1989.

III. Pollutant Dispersal Pathways:
See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
--	--	wastewater containing soaps, detergents, waste oil, caustic and spent solvents of a de minimus nature generated during cleaning operations	1H	--	F001, F002

V. Target Populations of Concern
See Attachment II.

VII. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of the RCRA Permit application for post-closure care and the Compliance Plan.

VII. Site Description
The two surface impoundments together are approximately 2 to 3 surface acres and are connected to each other by a pipe. The ponds are surrounded by earthen dikes. They are not lined but are underlain by clay. There is no groundwater monitoring around the ponds.

The surface impoundments were utilized for pre-treatment of industrial (process) wastewater prior to discharge to the City of Palestine's POTW. The upper impoundment was constructed in 1976 to remove floating hydrocarbons from the wastewater prior to discharge into the lower impoundment, which has been in use since 1970.

In March, 1983, Murray applied to TWC for a permit for the pond system. At that time, the ponds served as evaporation/settling ponds prior to discharge to a right-of-way ditch on the southern boundary of the facility. Wastewater was discharged through an 8-inch pipe from the Missouri-Pacific Railway right-of-way (which forms the southern boundary of the facility as indicated on the site map). The wastewater stream then flowed beneath the railroad tracks, under Tile Factory Road, and into Town Creek. This creek eventually flows into the Trinity River.

On March 18, 1983, TWC indicated in a letter to Murray that the level of treatment obtained in the pond system did not conform to the permit standards and that Murray may want to consider the possibility of connecting to the City of Palestine collection system. Murray did have the impoundments connected as of April, 1983. From that time until Feb. 17, 1989, the pond system was used by Murray for pretreatment of non-hazardous industrial process water.

The Sept. 21 and Oct. 5, 1988 inspections noted inconsistencies with respect to company notification of the following waste management methods. According to the inspection report, the following wastes have been discharged to the ponds:

1. wastewater from cleaning machines
2. liquid portion of paint stripping vat containing methylene chloride-cresol solution- when this material was exhausted or approached a neutral pH; this discharge was terminated in the summer of 1987

The non-hazardous liquid wastewaters generated during the cleaning of automotive equipment undergoes pretreatment by oil separation, grit removal and pH neutralization (if necessary) prior to discharge to the City of Palestine's wastewater collection system. The parts cleaning process utilized sodium hydroxide.

The lower pond discharges to the City of Palestine collection system on the west side near Tile Factory Road. This connection was made sometime after April 1983. These ponds received the liquid portion from the methylene chloride-cresol paint stripping vats whenever this solution approached a neutral pH.

Liquid portions from the paint stripping vats were routinely pumped or disposed of in the surface impoundments for treatment until 1987. One of the solvents used in the vats was ECCO and was a mixture of 70-90% methylene chloride (EPA waste codes F001 and F002) and 10 to 20% cresol or cresylic acid.

Murray also discharged the liquid caustic solution from the caustic vats to the impoundment whenever this solution approached a pH of 8.0 This type of disposal was used until the summer of 1987. At this time, these wastes were placed into drums and manifested to an authorized site for disposal.

The surface impoundments have received F-solvent wastes since Nov. 8, 1986.

A wastewater sample collected prior to discharge into the impoundments on Sept. 23, 1988 and a composite pond sludge sample collected on Sept. 28, 1988 were both analyzed for volatile organics and the sludge sample was also analyzed for metals.

Two volatile compounds, 1,1-dichloroethane and 1,1,1-trichloroethane, were identified in the wastewater sample at concentrations above detection limits (8.0 and 32 mg/L, respectively). The composite sludge sample did not contain detectable concentrations of volatile organics, but did contain five metals at concentrations above detection limits. The metals that were detected were arsenic (5.8 mg/kg), barium (70 mg/kg), cadmium (27.8 mg/kg), total chromium (68 mg/kg) and lead (71 mg/kg).

In accordance with Item #8 of the Agreed Order, the company submitted a report entitled "Environmental Study Work Plan for the Surface Impoundments" to TWC on July 24, 1989. In the report, the company proposes the installation of three monitor wells and one boring around these impoundments. TWC has not yet notified the company of approval of this plan. Within 240 days of approval of the ES Plan, the company is to submit a complete report of the ES study to TWC. Within 90 days of the ES report, Murray is to submit a Closure Plan for the impoundments. If the company cannot accomplish clean closure of the impoundments then they will need to provide proof of deed recordation for these units as well.

These impoundments were taken out of service on Feb. 17, 1989, when the wastewater stream was permanently diverted to the Palestine POTW. Since the diversion, fluid levels in the ponds have dropped approximately two feet (according to the Compliance Plan application, March 31, 1990). They have been inactive since this time. On Nov. 28, 1991, at the City's request, Murray Corporation capped the pipe leading from the surface impoundments to the City of Palestine's POTW. The City made this request in

order to insure that stormwater run-off was not being introduced to the POTW at this location. At the time of this RFI inspection, March 12, 1992, Murray stated that they had re-connected the lower surface impoundment to the city POTW in the past year.

A photograph taken Feb. 5, 1989 shows an oil sheen on the surface of the upper impoundment. A field measurement revealed a pH=11.9 of the wastewater entering this impoundment (memo dated 3-1-89).

The CEI inspection conducted April 3 and 15, 1991 notes an ongoing discharge that originated at the end of an 8 inch blue plastic pipe which protruded from the base of a containment dike at the lower end of pond 2. This discharge was sampled, however, the results are not admissible because of chain-of-custody problems. At the time of the April 3 and 15, 1991 inspection, water levels were within 5 inches of overflowing the containment dikes. During the RFI inspection of 3-12-92, no discharge was observed and there was approximately two and a half feet of freeboard.

The impoundments were observed to be very overgrown with trees and grasses. Standing pools of water were observed under the trees just outside the ponds and were attributed to recent heavy rainfalls in the area.

The ditch alongside the city street bordering the facility, Tile Factory Road, has been recently deepened in order to prevent the street runoff from continuing to flow into the lower surface impoundment.

VII. Summary

The ponds were very overgrown with vegetation. There was at least two and a half feet of freeboard present in the lower surface impoundment and more freeboard present in the upper surface impoundment. No discharges were observed from the discharge pipe out of the lower surface impoundment. Because the city streets drained into the street ditch and then drained into the lower surface impoundment, the ditches were cleaned out and deepened to prevent such drainage from flowing into the lower surface impoundment. Standing pools of water were observed in a low, wooded area just outside the surface impoundments. Murray has reconnected their wastewater to the City of Palestine POTW in the past year.

The sample that was collected during an inspection April 3 and 15, 1991 failed to to be analyzed due to chain-of-custody problems. The sample was not collected again.

IX. Recommended Actions

The surface impoundments were addressed in Provisions 8, 9, and 10 in an Agreed Order issued by the TWC March 23, 1989. No further action is recommended under the RCRA Facility Investigation phase.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Landfill containing construction debris, such as lumber, sheet metal and admixed soils which were evidently generated during an earlier expansion of the facility. Two to three crushed drums were also found. Unit was in service one year.

II. Evidence of Release:
This landfill is located adjacent to the Former Drum Burial Trench (Landfill) which is adjacent to the parking lot. There is obvious uneven settling of the earth over the landfill and a tire is breaking the ground surface. The soil-gas survey of May 1988 identified the Former Drum Burial Trench (Landfill) and the area just north of it as showing elevated concentrations of several volatile organic constituents.

III. Pollutant Dispersal Pathways:
See Appendix A.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
C	--	"ECCO" solvent	1H	--	F001,
--	--	construction debris	--	--	F002

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of RCRA Permit Application for post-closure care.

VII. Site Description
This site contains construction debris leftover from the past expansion of the main manufacturing building. The drums were excavated as part of the remedial action taken at the adjacent Former Drum Burial Trench (Landfill) but the remaining waste appears to have been left in place and covered with dirt. This area is not included in the closure plan for the adjacent Former Drum Burial Trench (Landfill).

VII. Summary
This area contained buried wastes consisting of lumber, sheet metal, admixed soils and two or three crushed drums. Only the

drums appear to have been removed during remedial activities at the adjacent Former Drum Burial Trench (Landfill). The area has an uneven ground surface, standing puddles of water and a tire breaking the ground surface.

IX. Recommended Actions

This area is recommended for further investigation under a RCRA Facility Investigation (RFI).

Also recommended is the area extending from this landfill north and east to the property line and west to the parking lot. See Figure C-1 for the extent of the area.

The reason is that isolated drums are located on the map titled "Excavation Site Features Map" both west and northwest of this construction debris landfill and to the north of the former drum burial trench (landfill). It is unclear if and when some of these drums were excavated, if there are other, yet unidentified drum locations, and if the surrounding soil is contaminated.

The soil gas survey maps included in Appendix B of Section II of the post-closure permit application indicate localized concentrations of high readings for freon 113 and dichloromethane, 1,1,1-trichloroethane, 1,2-Dichloroethane, toulene and tetrachloroethane. These localized concentrations appear to the north of the now excavated Former Drum Burial Trench (Landfill).

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Crushed Drum Disposal Area (Landfill). Approximate dimensions of 10 to 25 feet wide and 100 to 150 feet in length. Located between monitor wells MW-8 and DWM-15. Possible total number of about 400 drums may have been buried here. Unit was in service one year.

II. Evidence of Release:
The crushed drums originally contained the compressors before they went through the rebuilding process. Most likely, freon and oily wastes were associated with the compressors and these wastes may have leaked out into the drums and then contaminated surrounding soils when buried. Groundwater contamination has already been verified as part of the investigation connected with the Former Drum Burial Trench (Landfill) located to the northwest of this area approximately 50 feet. Verbal discussion with the company indicates these drums were buried pre-1983.

III. Pollutant Dispersal Pathways:
See Appendix A.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
D	--	freon, oily waste	1H	--	F001, F002

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of RCRA Permit Application for post-closure care, discussion with consultant-Jones and Neuse Inc.

VII. Site Description
Area appears flat and is covered with grass. This landfill runs parallel to an approximately 10 or 12 foot bluff, with a stream at the bottom.

VII. Summary
This area appears flat and grassy. This was the site of disposal of a relatively large number of empty, crushed drums probably containing unknown amounts of freon and oily wastes that spilled out from the used compressors stored in the drums.

IX. Recommended Actions

This area is recommended for further investigation under the RCRA Facility Investigation process.

Further investigation under the RFI process is recommended for the area between this landfill and the Former Drum Burial Trench (Landfill) which is located approximately 50 feet northwest of this unit and between this area and the Construction Debris Landfill located about 75 feet away in a north-northwest direction. Also included is the area to the south, to a line extending south from the edge of the parking lot near the main manufacturing building to the property line (on the north side of the railroad tracks). See Figure C-1 for the full extent of the area recommended for investigation.

The reason is that an isolated drum was marked on a map titled "Excavation Site Features Map", in Appendix A of Section II of the Post-Closure Permit application. It is unknown if and when this drum was excavated, the condition of the drum, the existence of contamination of surrounding soil and if there are other drums buried in an isolated fashion.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Roll-off container storage box for Class III non-hazardous industrial solid waste (such as office trash).

II. Evidence of Release:
At the time of this inspection, some trash and debris had leaked or spilled out of the chute into the roll-off container storage box.

III. Pollutant Dispersal Pathways:
See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
--	--	office trash and plant debris	--	--	--

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of the RCRA Permit Application for post-closure care, discussion with facility personnel.

VII. Site Description
The roll-off container storage box is situated in the parking lot on the south side of the main manufacturing building. A chute leads from the building to the roll-off box.

VII. Summary
The roll-off container storage box is located in the parking lot on the south side of the main manufacturing building. Some trash and debris had spille, leaked or escaped out of the chute leading to the roll-off container box itself.

IX. Recommended Actions
No further action recommended under an RFI, but the trash must be picked up and other releases prevented from occurring.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
An area of concern is located near the 6,000 gallon tank, which was adjacent to the two-1000 gallon tanks.

II. Evidence of Release:
The July 10, 1986 inspection report stated that one of the 1000 gallon tanks in which spent halogenated solvents were stored, had fallen onto the horizontal, cylindrical tank holding spent mineral solvents. The 1,000 gallon tank spilled an unknown amount of the spent halogenated solvents.

III. Pollutant Dispersal Pathways:
See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
--	--	spent halogenated solvents	--	--	--

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of the RCRA Permit Application for post-closure care.

VII. Site Description
The area appears as a flat, grass covered area.

VII. Summary
Both of the 1,000 gallon tanks were closed in January 1989. The area of the spill was cleaned up at that time.

IX. Recommended Actions
No further action recommended.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Spill reported adjacent to the employee parking lot.

II. Evidence of Release:
An area of concern is located adjacent to the employee parking lot where one or two barrels of "ECCO" parts cleaning solution had been spilled. The earth was discolored in this area and a portion of the asphalt parking lot was soft near where the "ECCO" had been spilled (IOM, dated August 15, 1986).

III. Pollutant Dispersal Pathways:
See Appendix A.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
--	--	"ECCO" solvent	1H	--	F001, F002

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of RCRA Permit Application for post-closure care.

VII. Site Description
It was determined that this site was part of the Former Drum Burial Trench (Landfill) and has undergone excavation and closure as part of the Former Drum Burial Trench (Landfill).

VII. Summary
This area appears to have had crushed drums buried here and a spill of 2 or 3 barrels of "ECCO" solvent onto the surface. The area has been excavated and now has had interim measures taken towards closure while a final closure plan is being evaluated by the TWC.

IX. Recommended Actions
No further action necessary, since this area is part of the Former Drum Burial Trench (Landfill) and has undergone excavation and interim measures towards closure.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Another area of concern is located on the east side and south side of the employee parking on on the east side of the facility.

II. Evidence of Release:
These areas had accumulations of a grey-type sludge material identified in the inspection report as originating from the "lap machine" (Sept. 21 and Oct. 5, 1988 CEI inspection).

III. Pollutant Dispersal Pathways:
See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
--	--	grey-type sludge material identified as from the "lap machine"	--	--	--

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of the RCRA Permit Application for post-closure care.

VII. Site Description
The area appears as a flat, grass covered area.

VII. Summary
The waste material appears to have been cleaned up.

IX. Recommended Actions
No further action recommended.

RCRA FACILITY ASSESSMENT-UNIT CHECKLIST

Facility: Murray Corp.
EPA I.D. #: TXD053115978
I.S.W.#: 33063

Reviewer: Mary M. McGill
HAZSIT#:
Date: January 27, 1992

I. Waste Management Unit:
Another area of concern is located adjacent to the Former Drum Burial Trench (Landfill) and consisted of 2-3 empty drums buried at a shallow depth. These drums were uncovered during the investigation of the Former Drum Burial Trench (Landfill).

II. Evidence of Release:
Soil samples and waste material collected during the investigation of this area included wastes of plastic bags, organic detritus (no detailed description available) and ceramic abrasive pellets. Interim closure activities included excavating this waste material at the same time as the adjacent Former Drum Burial Trench (Landfill).

III. Pollutant Dispersal Pathways:
See Attachment I.

IV. Waste Characteristics

Unit No.	NOR Waste No	Waste Description	Class	Code	EPA Waste
--	--	plastic bags	--	--	--
--	--	organic detritus	--	--	--
--	--	ceramic abrasive pellets	--	--	--

V. Target Populations of Concern
See Attachment II.

VI. Documents Reviewed
Correspondence files, inspection reports, Parts A and B of the RCRA Permit Application for post-closure care.

VII. Site Description
The area appears as a flat, grass covered area. Contaminated soil and waste were excavated at this area as part of the remedial action taken at the adjacent Former Drum Burial Trench (Landfill).

VII. Summary
This area appears to have been excavated during the remedial action taken at the adjacent Former Drum Burial Trench (Landfill).

IX. Recommended Actions
This area is included in a larger area recommended for the RCRA Facility Investigation, see Figure C-1.

Attachment I
Pollutant Dispersal Pathways

The mechanism for release of pollutants from the facility units is described below.

A. Groundwater: The Queen City aquifer consists of very fine to fine-grained quartz sand and clay and extends from ground surface to approximately 300 feet depth. It is considered the uppermost aquifer in the region. At the Murray Corporation facility in Palestine, Texas, groundwater flow is in a southerly direction, as is the plume of contamination in the groundwater. The Reklaw Formation is encountered at about 300 feet depth. This formation underlies the Queen City Formation and serves as an aquiclude between the Queen City and the Carrizo Sand. The Carrizo Sand extends from approximately 500 to 600 feet depth and overlies the Wilcox Group.

   Collectively, the Carrizo Sand and Wilcox Group form the major high-yield aquifer for the region and have a regional groundwater flow direction of south towards the Gulf of Mexico.

   The Queen City Aquifer yields small to moderate quantities of water for rural domestic and livestock use. The Queen City decreases in thickness and eventually pinches out to the north. The Carrizo-Wilcox Aquifer yields moderate to large quantities of fresh to brackish water in Anderson County. The Carrizo-Wilcox Aquifer is the principal high-yield aquifer for the region due to the great thickness of permeable sand contained in the lower portion of the unit.

B. Surface Water: If tanks released their contents beyond secondary containment, or the recovery wells (which are pumping contaminated groundwater) leaked in some way, then contamination of the surface water is very likely, because of the close proximity of a ditch to channel the flow. Wastes could also be released during loading/unloading procedures and could easily contaminate surface water.

   Accidental discharge of hazardous waters to surface waters is very possible, since several of the recovery wells are located less than 40 feet from Town Creek. The wells are also located about 10 feet higher than the nearby ditch/surface runoff.

   What ?

C. Soil: If this tank's secondary containment (it is a double-walled tank) should break, crack, gap, fail or leak, then soil contamination would occur. The tank is situated above the ground surface.

Attachment I
Pollutant Dispersal Pathways

The mechanism for release of pollutants from the facility units is described below.

A. Groundwater: The Queen City aquifer consists of very fine to fine-grained quartz sand and clay and extends from ground surface to approximately 300 feet depth. It is considered the uppermost aquifer in the region. At the Murray Corporation facility in Palestine, Texas, groundwater flow is in a southerly direction, as is the plume of contamination in the groundwater. The Reklaw Formation is encountered at about 300 feet depth. This formation underlies the Queen City Formation and serves as an aquiclude between the Queen City and the Carrizo Sand. The Carrizo Sand extends from approximately 500 to 600 feet depth and overlies the Wilcox Group.

   Collectively, the Carrizo Sand and Wilcox Group form the major high-yield aquifer for the region and have a regional groundwater flow direction of south towards the Gulf of Mexico.

   The Queen City Aquifer yields small to moderate quantities of water for rural domestic and livestock use. The Queen City decreases in thickness and eventually pinches out to the north. The Carrizo-Wilcox Aquifer yields moderate to large quantities of fresh to brackish water in Anderson County. The Carrizo-Wilcox Aquifer is the principal high-yield aquifer for the region due to the great thickness of permeable sand contained in the lower portion of the unit.

B. Surface Water: If tanks released their contents beyond secondary containment, or the recovery wells (which are pumping contaminated groundwater) leaked in some way, then contamination of the surface water is very likely, because of the close proximity of a ditch to channel the flow. Wastes could also be released during loading/unloading procedures and could easily contaminate surface water.

   Accidental discharge of hazardous waters to surface waters is very possible, since several of the recovery wells are located less than 40 feet from Town Creek. The wells are also located about 10 feet higher than the nearby ditch/surface runoff.

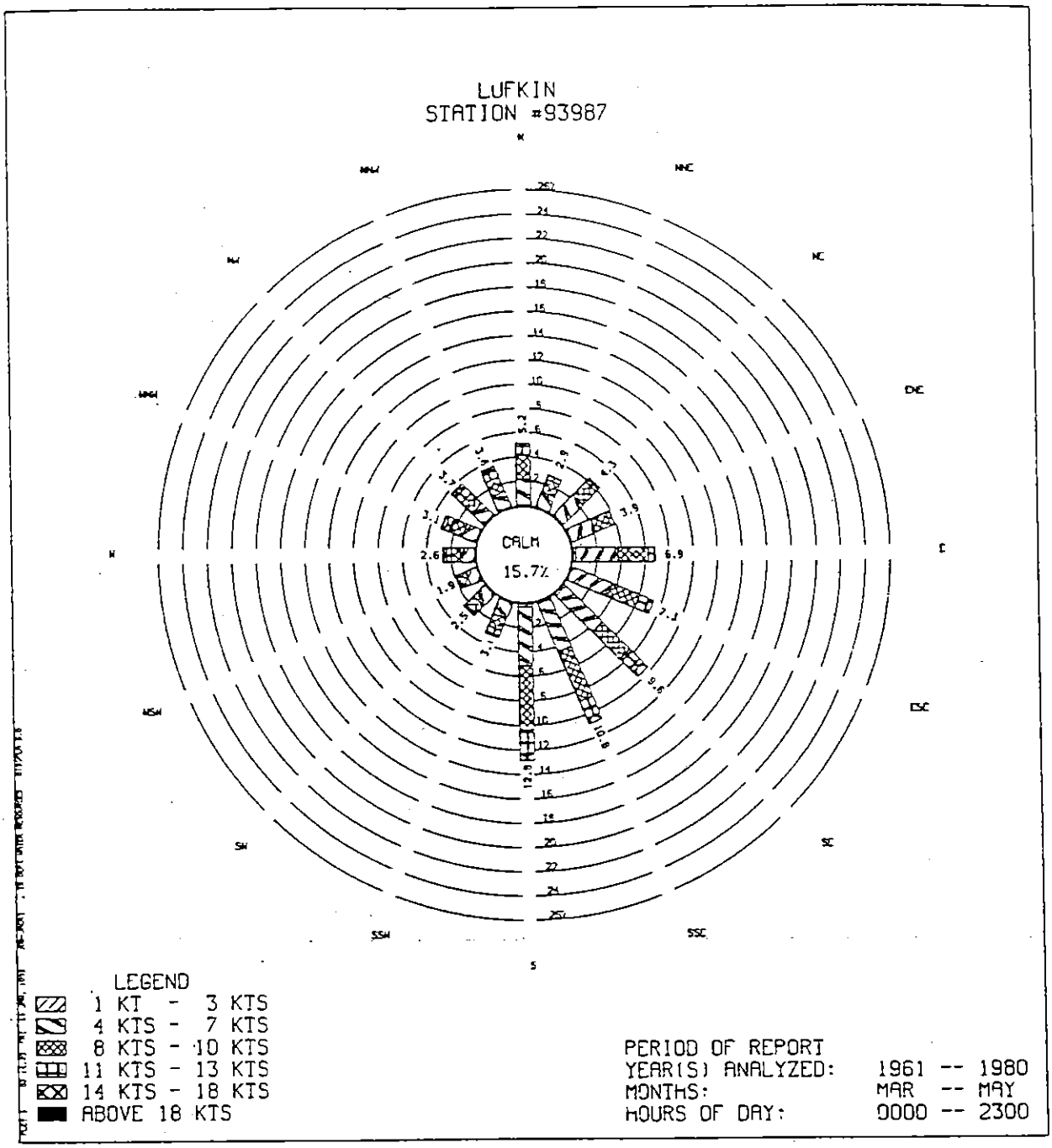
D. Air: Data from the Lufkin, Texas weather station indicate that prevailing winds are from the south-southeast-east quadrant and the next most common direction is from the north (see Attached Wind Roses).

Wind-borne soil and dust particles and volatile emissions from the waste are likely to be transported off-site with the wind. Volatilization and particulate emissions rates of wastes have not been determined for this site. No problems with dust or odor have been reported in the past. Climate is subtropical humid, with an average yearly temperature of 66°F. Annual rainfall is about 40 inches.

It appears that the if there was a discharge of contaminated wastes, it would be very likely to reach the soil, groundwater or surface water without being confined and treated.

Given the relatively low permanent population density in the one-mile radius, and that the flow of groundwater and surface water is to the south and away from the populated direction in the northerly direction, a waste release would not reach the general public but contact only those persons involved in the accident or clean-up. The facility property on the southwest side of Town Creek is within the 100-year floodplain, while the facility property to the north of Town creek is outside the floodplain.

There is one domestic well, dug to a depth of 55 feet, within the one mile radius of the facility, one municipal water supply well rotary drilled to a depth of 1,380 feet and screened from 1,320 to 1,370 feet, located at the one mile radius and another domestic well bored to a depth of 33 feet and located just barely outside the one mile radius. No production information is available at this time.



SOURCE: CLIMATIC ATLAS OF TEXAS, DECEMBER, 1983

NOTE: LUFKIN, TEXAS IS LOCATED APPROXIMATELY 58 MILES SOUTHEAST OF PALESTINE, TEXAS

JN 118206 D89284

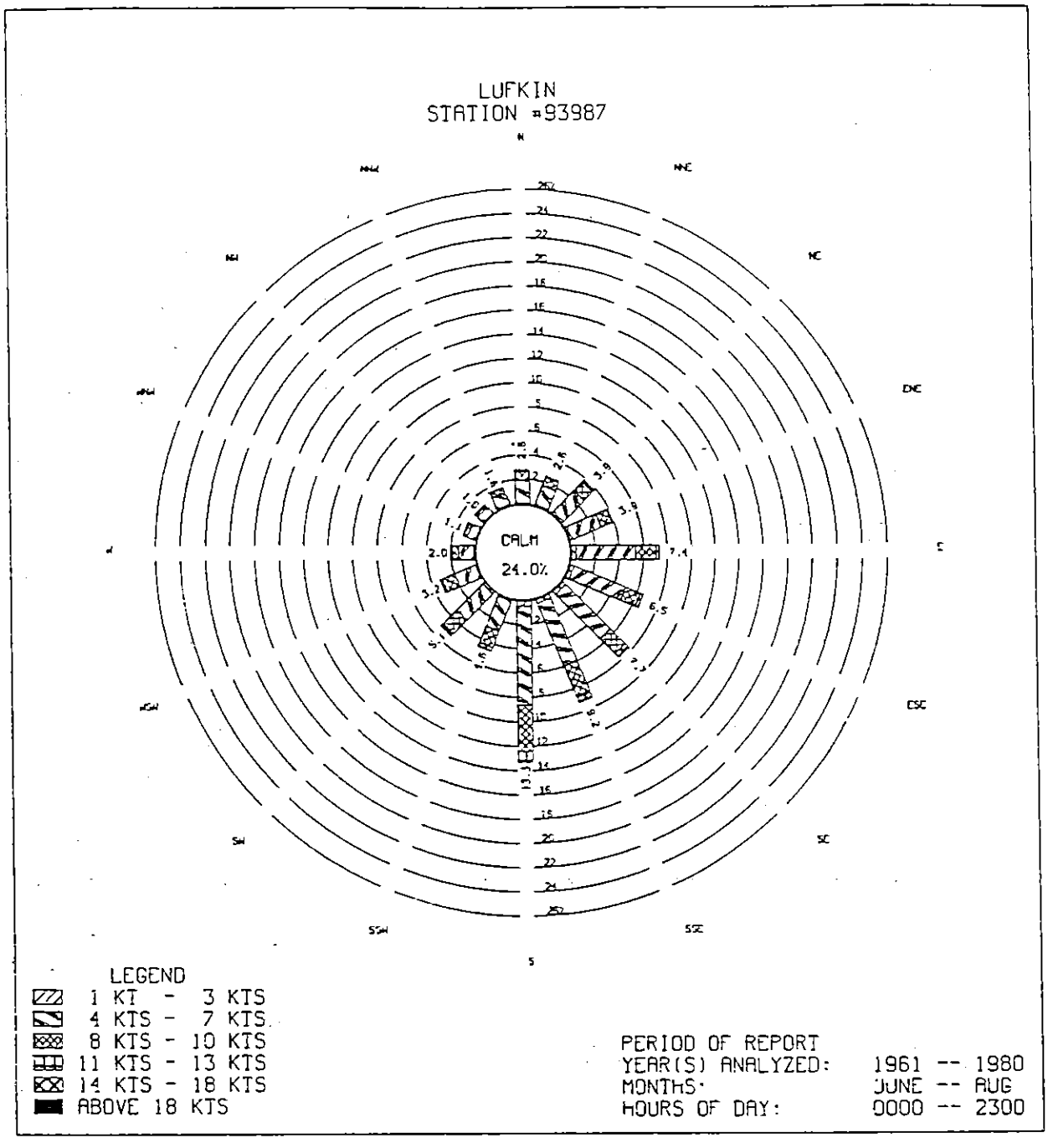
APPENDIX III-2

WIND ROSE (LUFKIN)

MAR.-MAY

MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants



SOURCE: CLIMATIC ATLAS OF TEXAS, DECEMBER, 1983

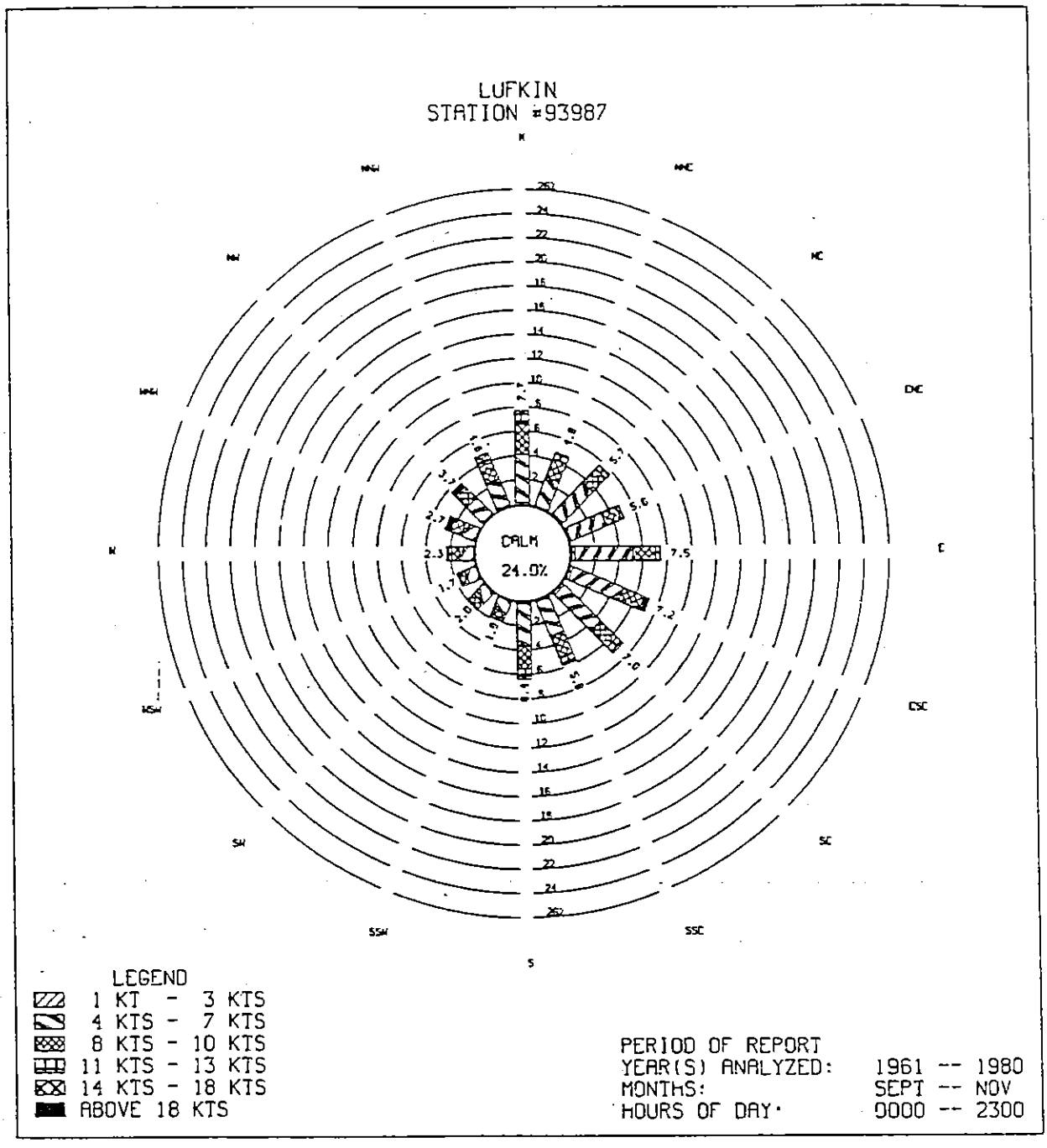
NOTE: LUFKIN, TEXAS IS LOCATED APPROXIMATELY 58 MILES SOUTHEAST OF PALESTINE, TEXAS

JN 118206 D89284

APPENDIX III-2

WIND ROSE (LUFKIN)
JUNE-AUG.
MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants



SOURCE: CLIMATIC ATLAS OF TEXAS, DECEMBER, 1983

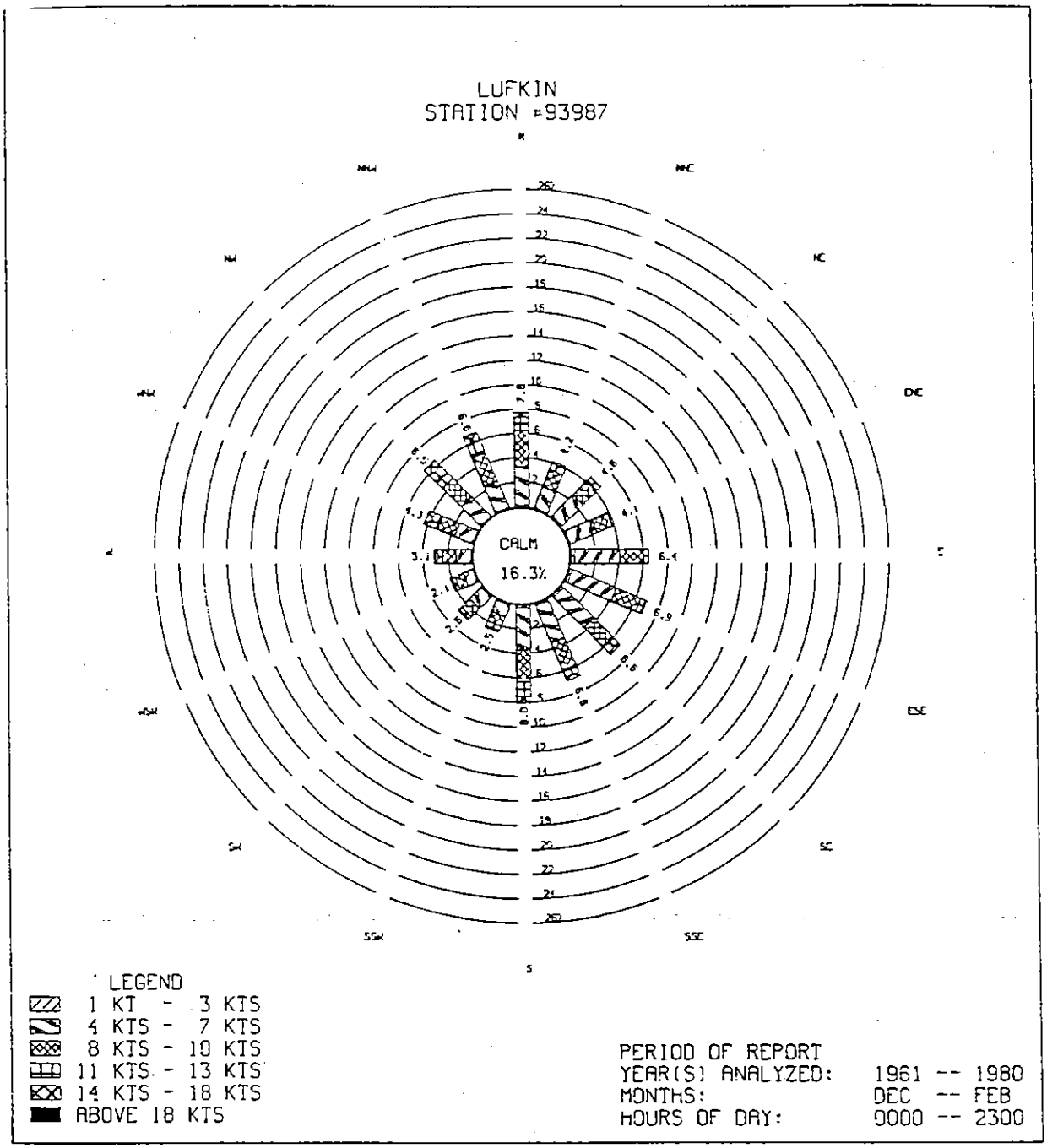
NOTE: LUFKIN, TEXAS IS LOCATED APPROXIMATELY 58 MILES SOUTHEAST OF PALESTINE, TEXAS

JN 118206 D89284

APPENDIX III-2

WIND ROSE (LUFKIN)
SEPT.-NOV.
MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants



SOURCE: CLIMATIC ATLAS OF TEXAS, DECEMBER, 1983

NOTE: LUFKIN, TEXAS IS LOCATED APPROXIMATELY 58 MILES SOUTHEAST OF PALESTINE, TEXAS

JN 118206 D89284

APPENDIX III-2

WIND ROSE (LUFKIN)

DEC.-FEB.

MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

Attachment II
Target Populations of Concern

The Murray Corporation is located at 2002 Tile Factory road, Palestine, Texas. The facility is located within the industrial zoning classification.

Within a one-mile radius, the land uses appear to be residential, industrial and agricultural, with the residential and agricultural dominating the land use pattern. There are approximately 170 private residences, between 20 and 40 commercial facilities or industrial facilities, one high school and one park within the one-mile radius. The population is estimated at 800 persons living in a one-mile radius, with the daytime, transient population higher than this.

TABLE A-1
LIST OF UNITS AND AREAS INSPECTED

1. RCRA-Regulated Units:

Unit No.	RCRA-Regulated Unit	Status
01	tank, 6000 gal.	inactive (<90 day)
formerly 01	tank, 9000 gal.	clean-closed and removed-then the 6,000 gallon tank was construced in its place
02	2-1000 gal. tanks piped together	clean-closed and removed
A	lower surface impoundment	inactive
B	upper surface impoundment	inactive
C	construction debris area	inactive
D	crushed drum disposal facility	inactive
E	former drum burial trench -(landfill)	inactive (post-closure permit pending)
--	area of former 2-3 drum burial trench (adjacent to the former drum burial trench-landfill)	inactive

2. Solid Waste Management Units:

--	roll-off container storage box	active
--	area of spill near tank	------
--	area of "ECCO" spill near parking lot	------
--	area of grey sludge material from "lap machine"	------

PART III: VISUAL SITE INSPECTION

A. Listing of all units visually inspected (may attach annotated list of units from P.A.)

Table A-1

B. Attach Site Map

(Location of all units inspected)

Figures B-1 and B-2. Figure B-1 includes the area of the facility covered under the post-closure permit and compliance plan. Figure B-2 includes all land included as the Murray Corporation Facility.

C. Areas of concern

Area recommended for RFI includes a triangular shaped area that extends east from the parking lot (on the east side of the building) to the property lines on the north, south and east. The line extends N-S from the west edge of the same parking lot. See Figure C-1, attached. The area marked as "Former Drum Burial Trench" is excluded, as it has already been investigated.

D. Date of inspection: March 12, 1992

Participants: Mary M. McGee - TWC permit writer, Scott Harris - District 5 inspector, and Fred Dalbey - Jones and Neuse, Inc. representing Murray Corp

Mary M. McGee
Inspector signature

April 13, 1992
Date prepared

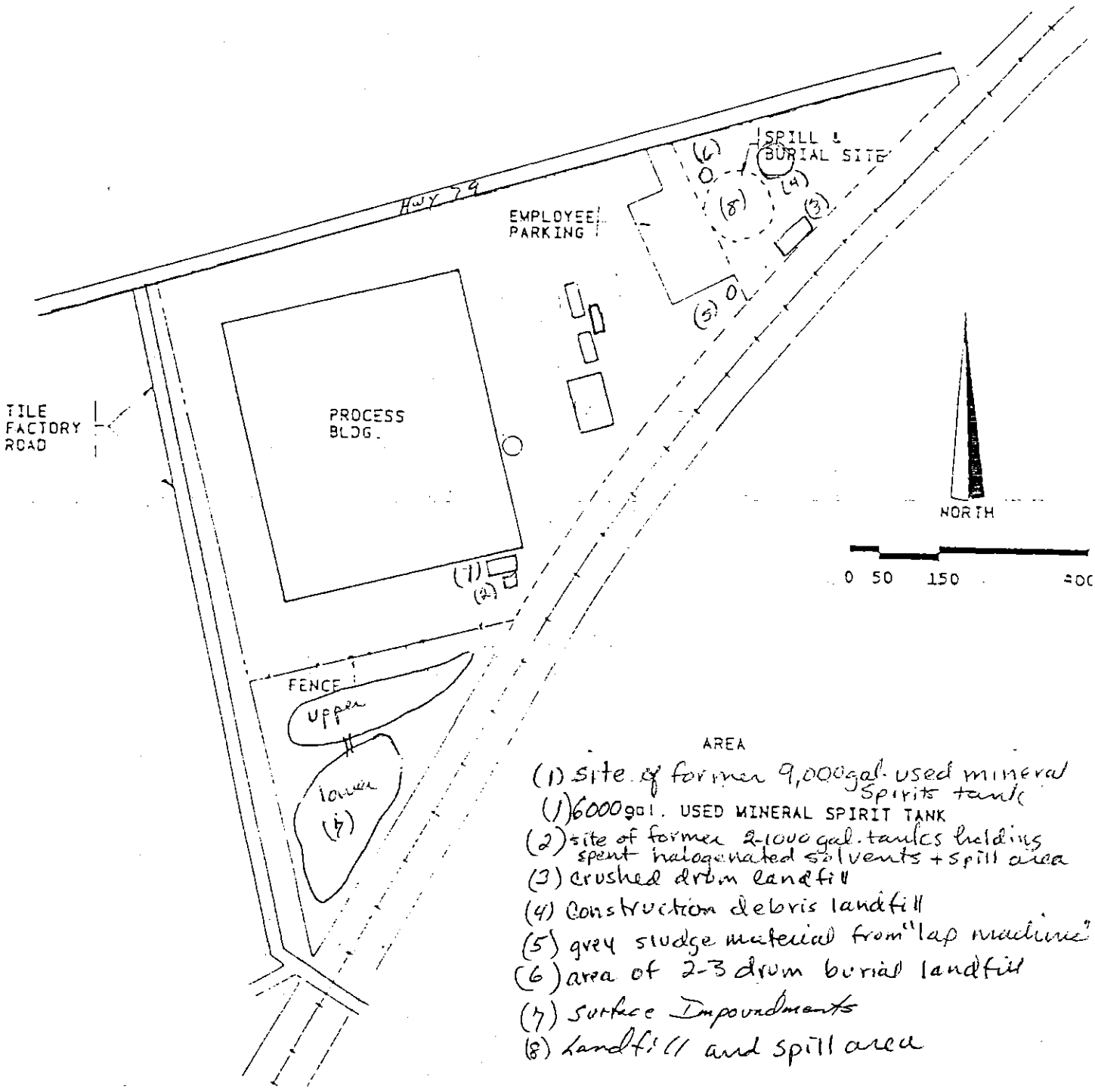


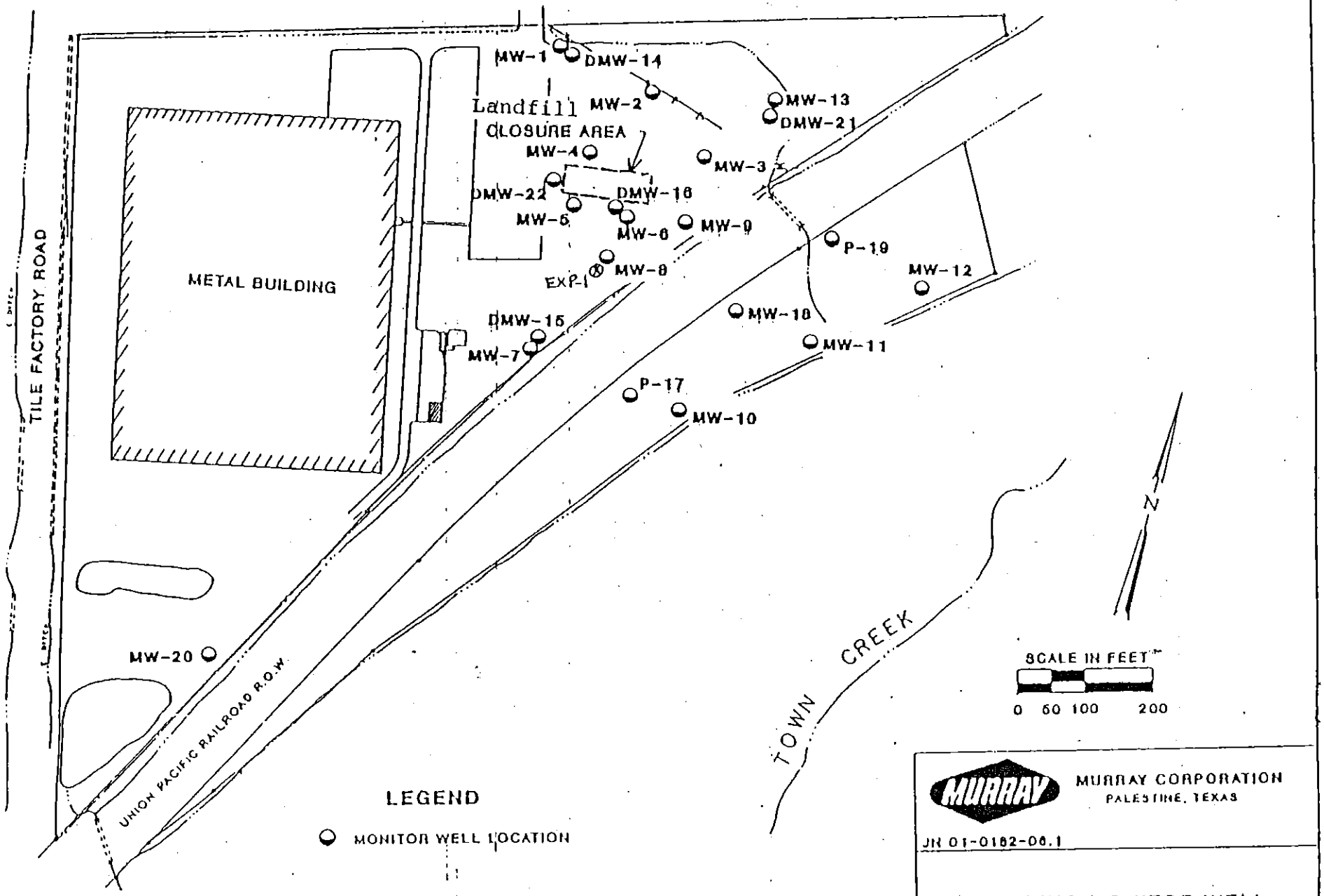
FIGURE B-1

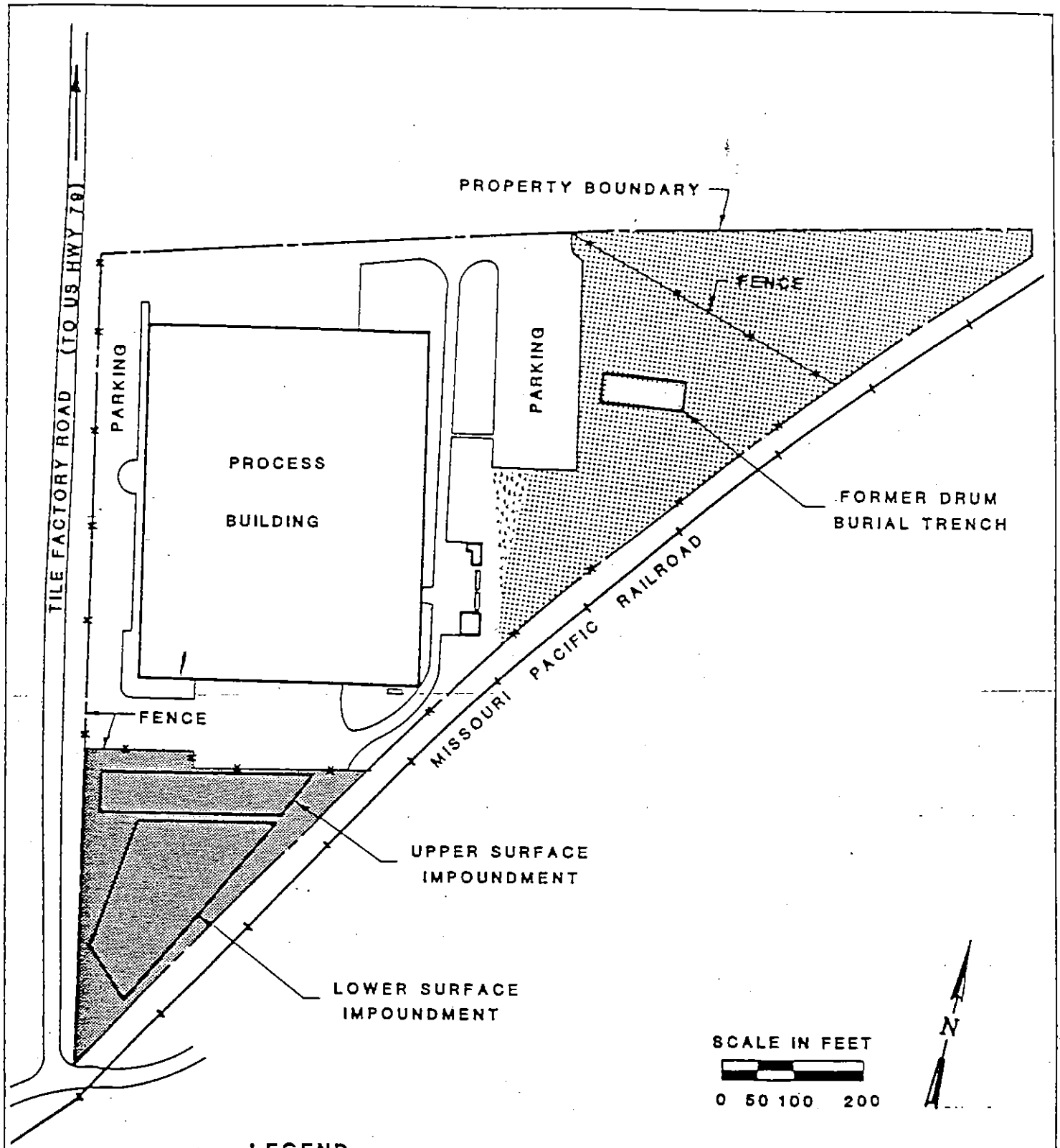
FACILITY LAYOUT

MURRAY CORP.
PALESTINE, TEXAS

SWR# 33063

JONES AND NEUSE, INC.
CONSULTING ENGINEERS
AUSTIN, TEXAS


MW-1
DMW-14
Landfill
CLOSURE AREA
MW-2
MW-13
DMW-21
MW-4
MW-3
DMW-22
DMW-16
MW-5
MW-6
MW-9
P-19
EXP-1
MW-8
MW-12
DMW-15
MW-10
MW-7
MW-11
P-17
MW-10
METAL BUILDING
TILE FACTORY ROAD
MW-20
UNION PACIFIC RAILROAD R.O.W
TOWN CREEK
N
SCALE IN FEET
0 50 100 200
LEGEND
MONITOR WELL LOCATION
MURRAY
MURRAY CORPORATION
PALESTINE, TEXAS
JN 01-0182-06.1
EXISTING MONITOR WELL LOCATIONS
JN
JONES AND NEUSE, INC.
Environmental and Engineering Services



LEGEND

AREA RECOMMENDED FOR RFI INVETIGATION

SURFACE IMPOUNDMENT, INVESTIGATION AREA UNDER AGREED ORDER

FIGURE C-1
FACILITY PLAN MAP

MURRAY CORP.-PALESTINE, TEXAS

JONES AND NEUSE, INC.
Engineering and Environmental Consultants

PART IV: PENDING ACTIONS/CONCLUSIONS

(Awaiting sample results, company information)

Conclusions:

Evaluated units which have not had a release:

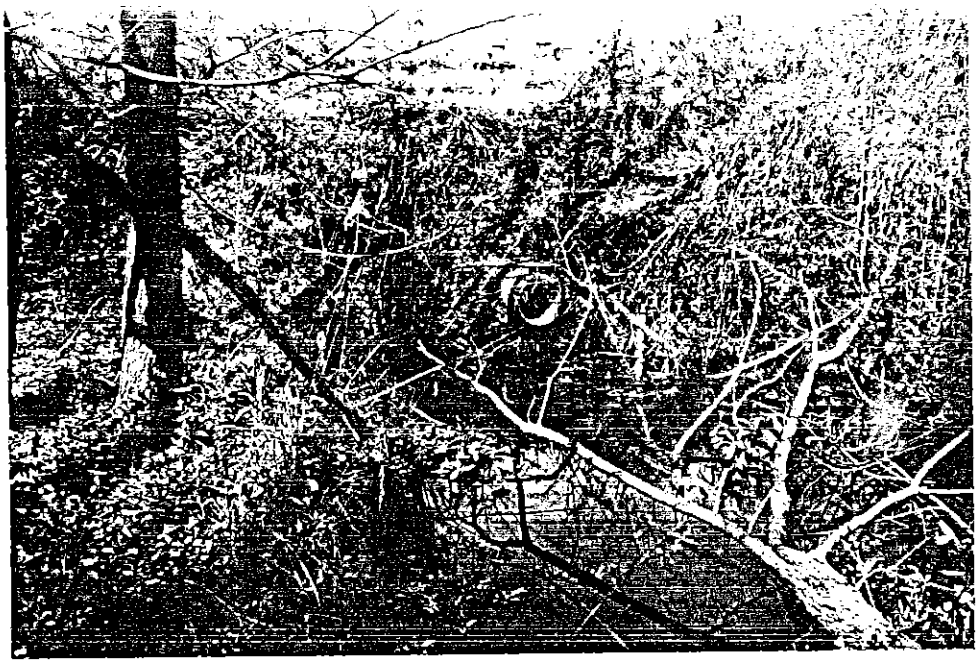
6,000-gallon tank, 9,000-gallon tank

Evaluated units which require further evaluation:

Upper and lower surface impoundments (to be evaluated as part of the Agreed Order 3-23-89), construction debris landfill and crushed drum disposal area (both recommended for RFI) as well as the general area as indicated on Figure C-1.

Evaluated units which have had a release:

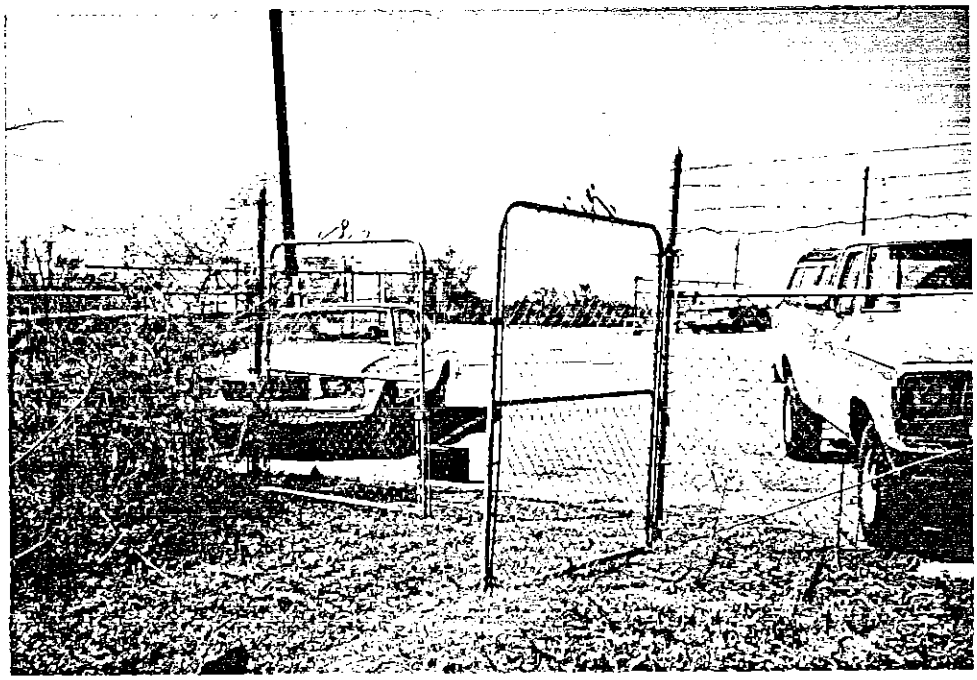
(one of the) 2-1000 gallon tanks, former drum burial trench - landfill - (post-closure permit application pending and will perform closure-by-landfill



Discharge pipe from lower surface impoundment. The outlet is no longer functional. Wastewater at the facility goes to City of Palestine POTW.

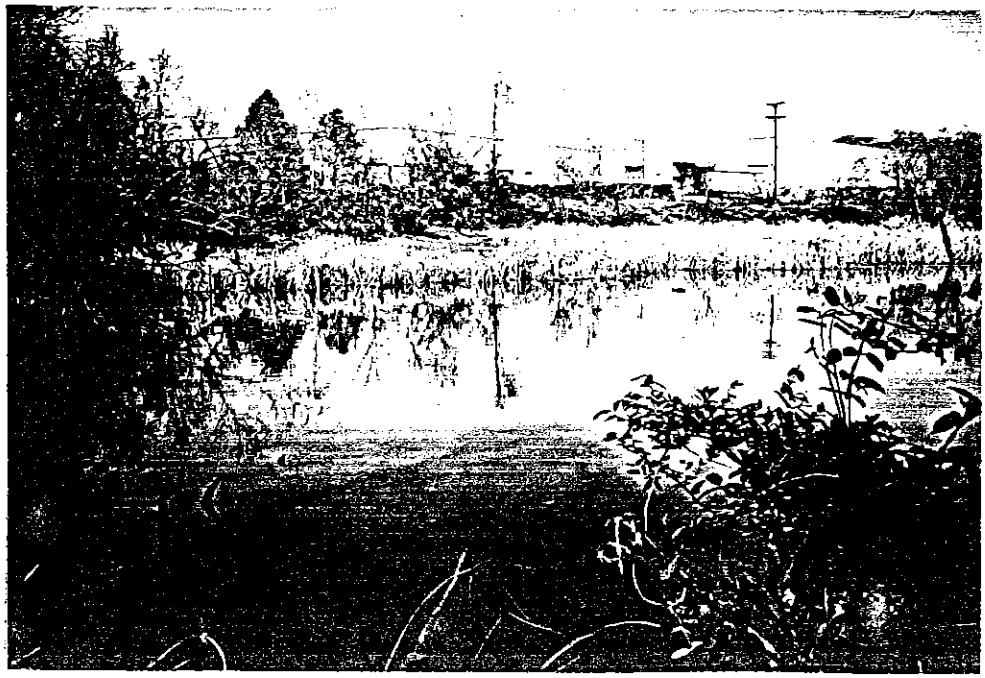
Surface water runoff in ditch along railroad. The railroad separates 2 triangular shaped pieces of land owned by Murray Corporation.

Ditch alongside Tile Factory Road. This ditch was recently cleaned and deepened to prevent street run-off from draining into the lower surface impoundment



The two surface impoundments are fenced and have a gate with a lock.

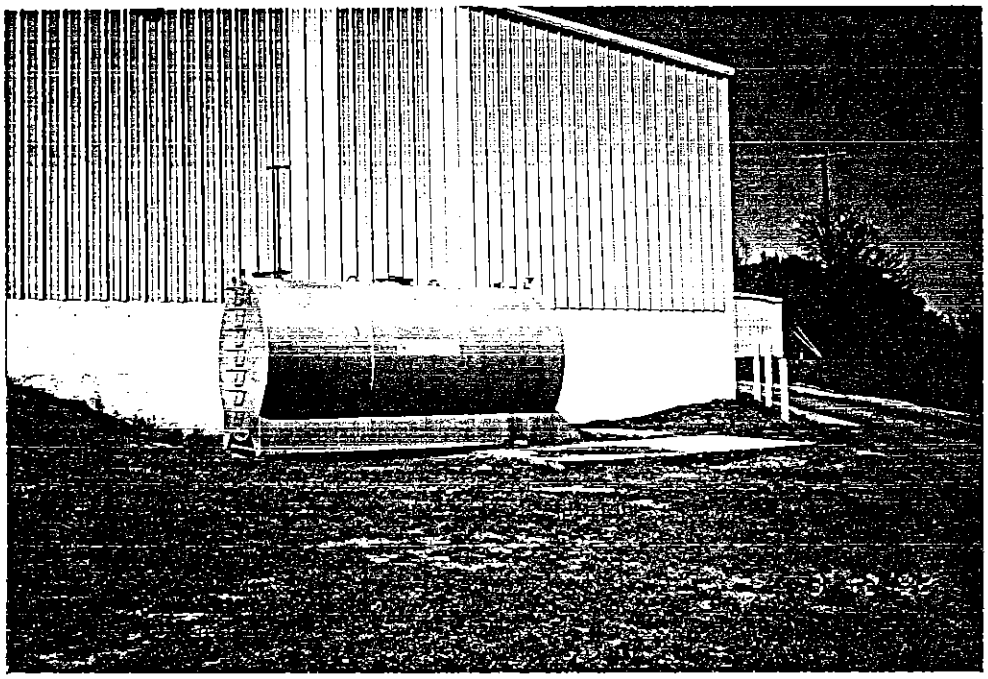
Upper surface impoundment, which is very overgrown with vegetation. This pond is connected by pipe to the lower pond.



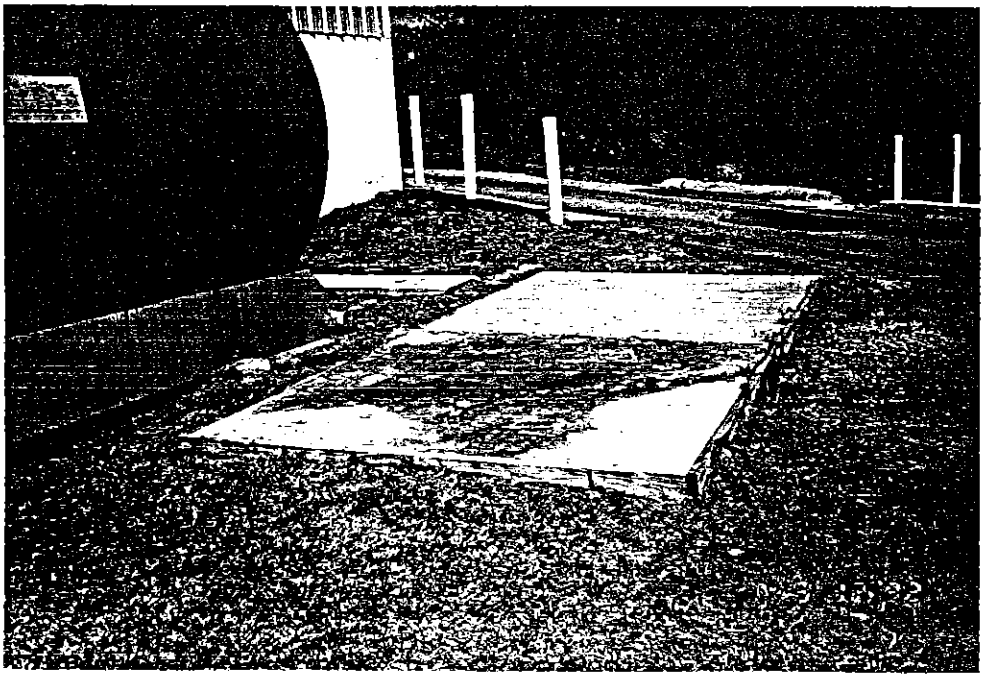
Lower surface impoundment, which contains relatively little water. The pond is very overgrown with vegetation. Murray Corp. main building in the background.

Heavily wooded area between the two surface impoundment Standing water from recent heavy rains in the area. Cleaned and deepened city ditch in the fore-ground.

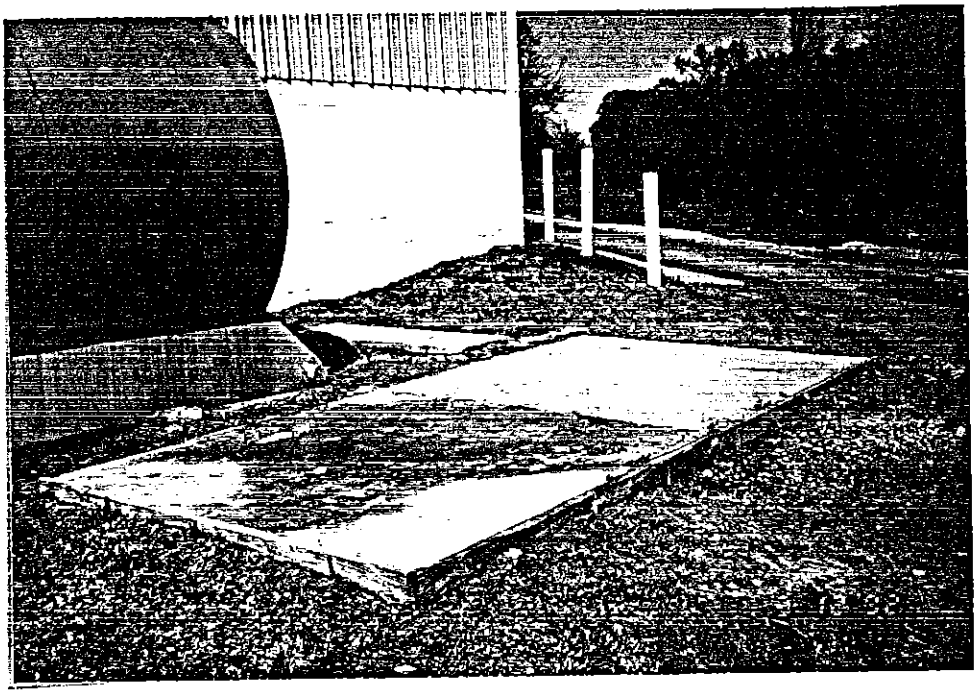
page 3/12
March 12, 1997
RFA - Murray Corporation
Palestine, Tx



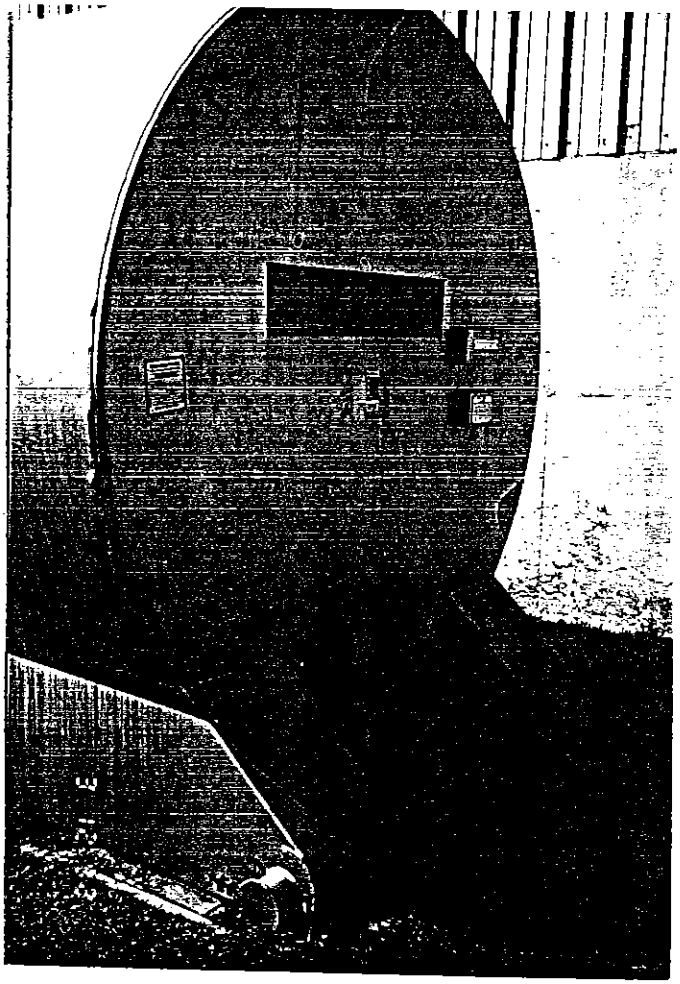
NOR. Fac. no. 01 - 6,000 gallon tank, double-walled. Small cement pad to the right of the tank shows where the former 9,000 gallon tank was placed. Cement pad in front shows where the two former 1,000 gallon tanks were placed. A spill occurred between the 1,000 gallon tank and the 6,000 gallon tank.



The tank to the left is the 6,000 gallon tank, double-walled. It is listed on the NOR as fac. no. 01. This tank replaced a 9,000 gallon tank, which was placed on the small cement pad. Two 1,000 gallon tanks used to sit on the larger pad in the fore ground. A spill occurr on the ground between cement pad + 6,000 tank.



6,000 gallon tank, double walled, listed on NOR as fac. no. 01. This tank replaced an earlier 9,000 gallon tank, which was longer and rested on the small cement pad to the right of the tank. Two 1,000 gallon tank

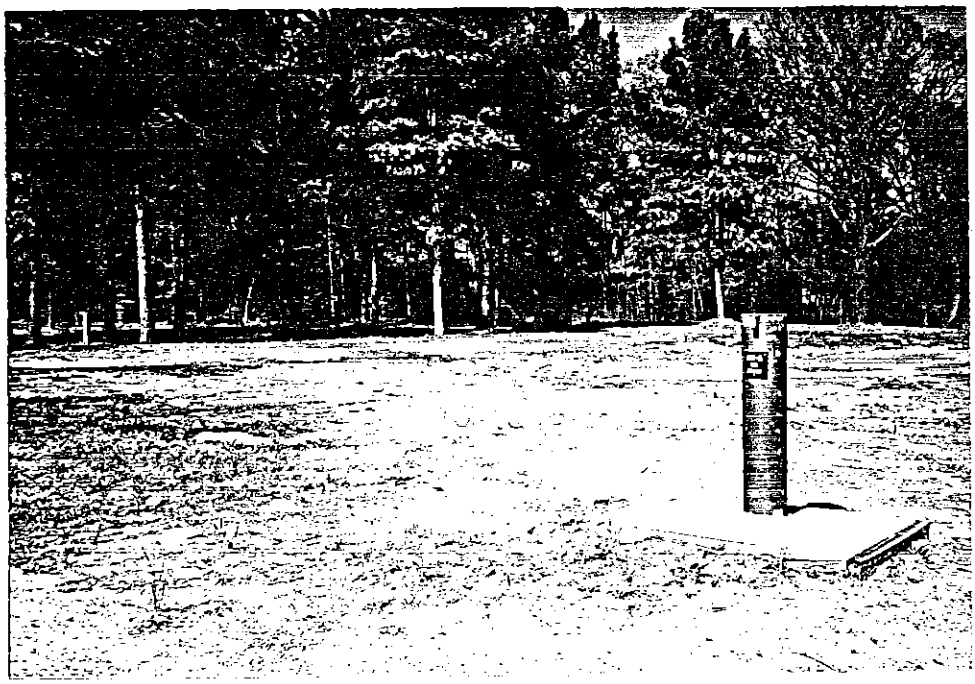


Outlet valve of the 6,000 gallon tank. Note hazardous waste label on the tank.

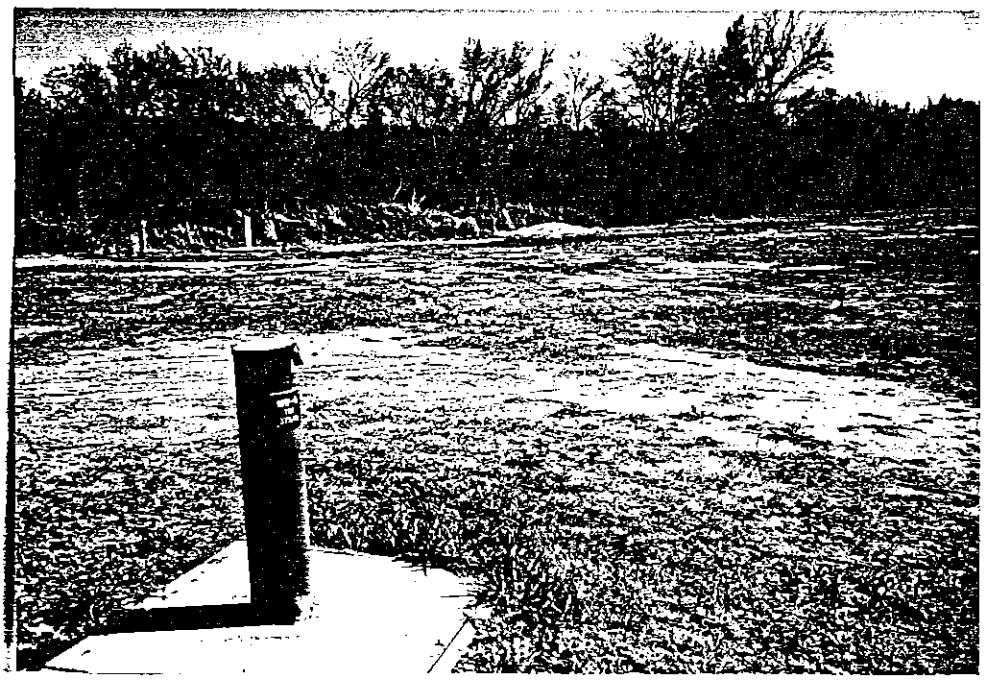
March 12, 1992
RFA-Murray Corporation
Palestine, Tx

Former drum burial trench (landfill). Point of view is from edge of parking lot looking east. Note dead tree to right of center. Monitor well MW-9 in center background of photograph. MW-9 is located in a downgradient direction from the former drum burial trench (landfill).

March 12, 1992 page 5/12
BFA-Murray Corporation
Palestine, Tx

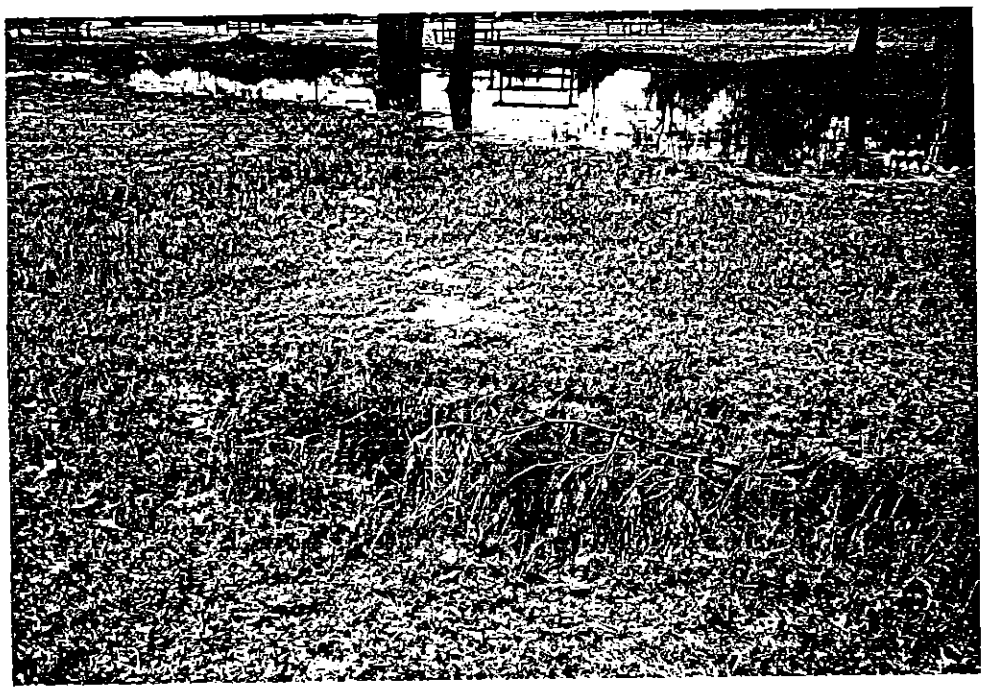


Former drum burial trench (landfill), looking across, in a northeastern direction. Monitor well MW-5 is located in a downgradient direction from the former drum burial trench (landfill). Construction debris landfill is in the background, just to the left of MW-5.



Looking across the Former drum burial trench (landfill) to the south. Monitor well MW-4 (foreground of photograph) is in an upgradient direction of the landfill. Monitor well MW-5 (downgradient) is to the far right of the photograph. Monitor well MW-8 is in far left of background of photograph

Soil cuttings and PVC well casing leftover from the drilling of deep monitor well DMW-22, located at the west end of the former drum burial trench. Monitor well MW-4 in background of photograph. Construction debris landfill located to the right of MW-4.



Construction debris landfill (in the foreground). Note the uneven, hummocky appearance of the ground and standing water (foreground only). In the background is standing rain water from recent heavy rains.

Construction debris landfill, looking in a NNE direction. Note the uneven, hummocky appearance of the ground (foreground only). In the background is standing rain water from recent heavy rains.

March 12, 1992
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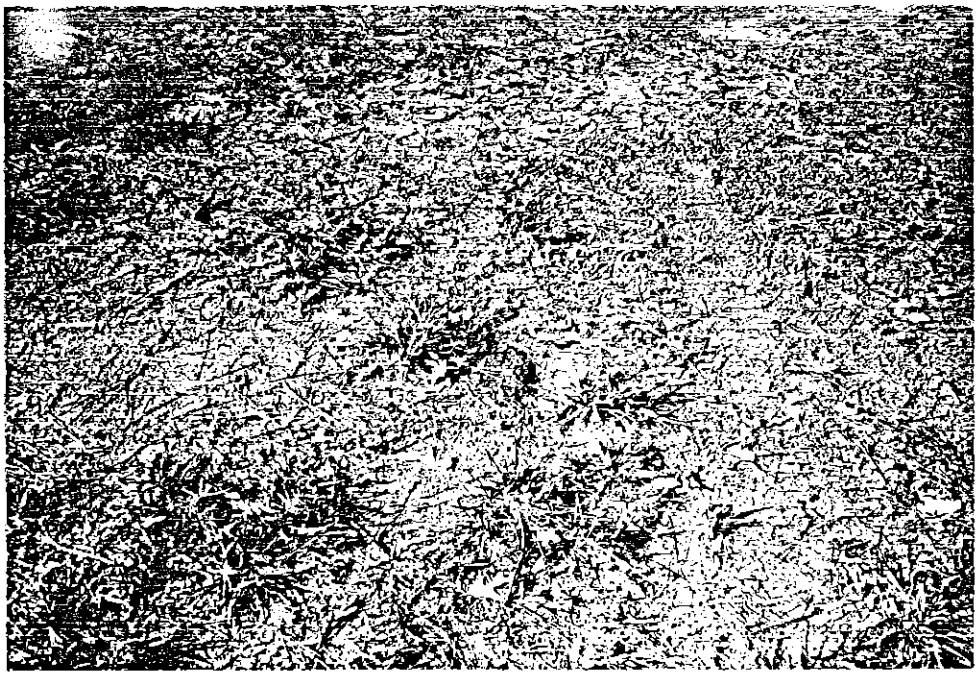
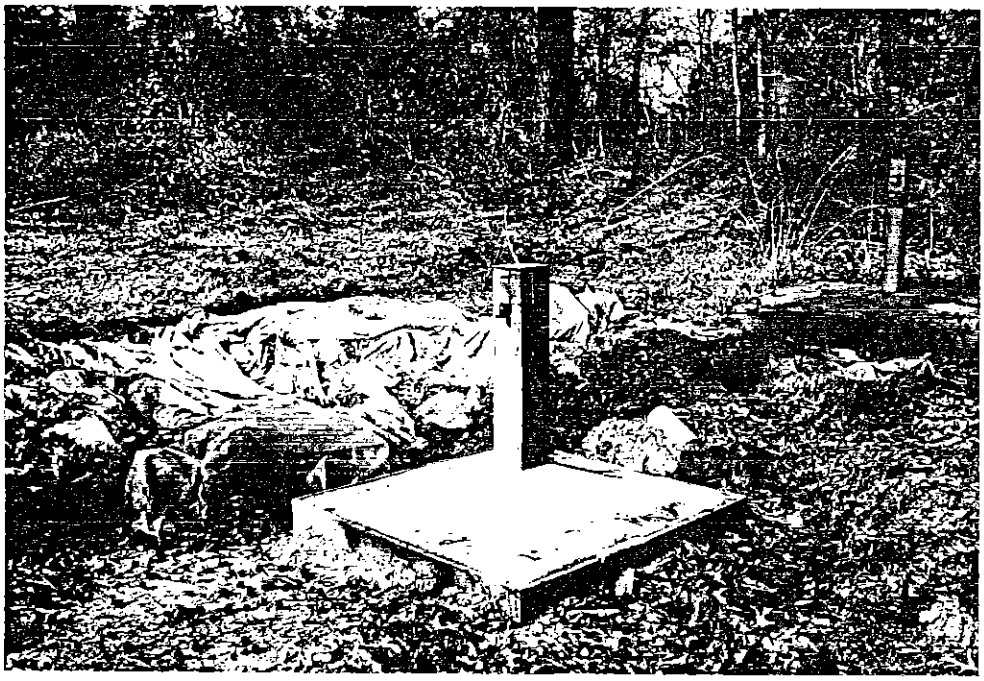
Palestine, Tx

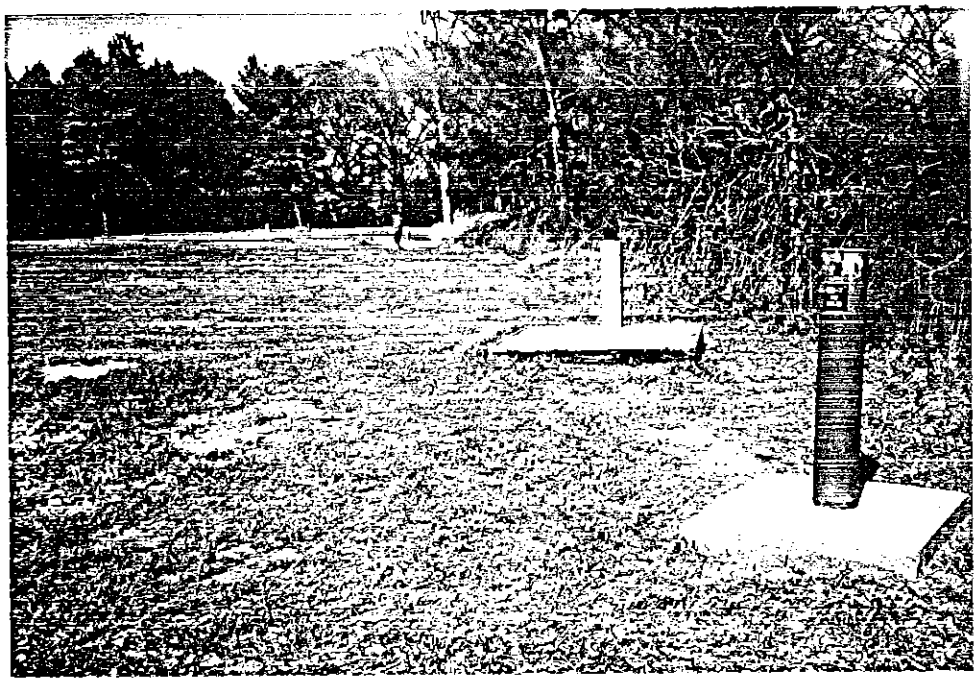


Tire breaking the surface of the construction debris land fill.



Recently installed deep monitor well DMW-21 in the foreground. Associated soils cuttings are to the left of DMW-21. Monitor well MW-13 is to far right of background in photograph. Both wells are on the east end of the property, in an upgradient position from the Former drum burial trench (land fill)

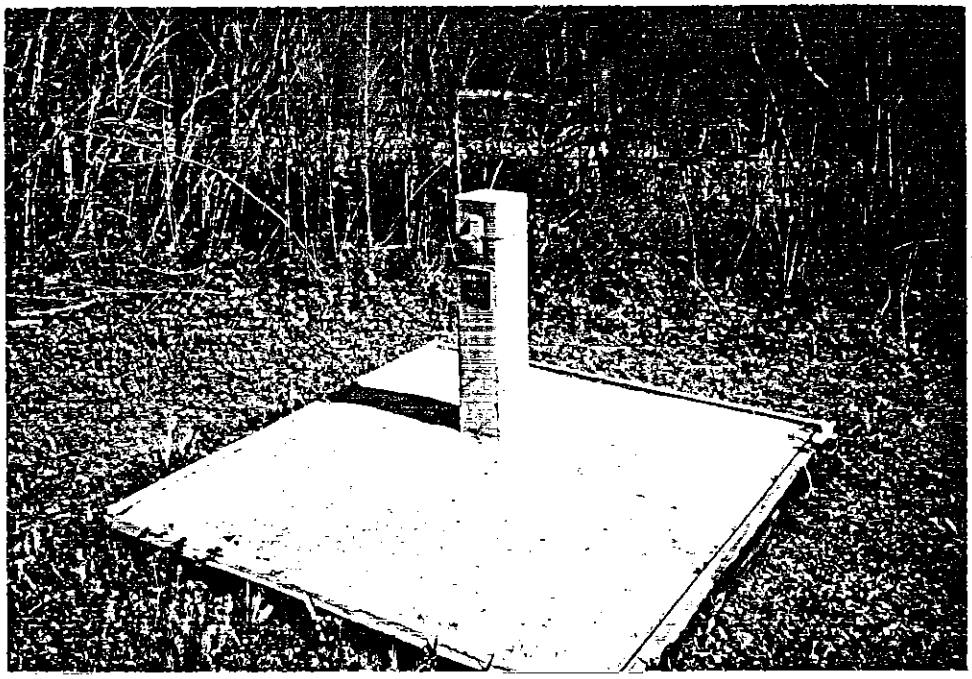
March 12, 1992
RFA - Murray Corporation
Palestine, Tx



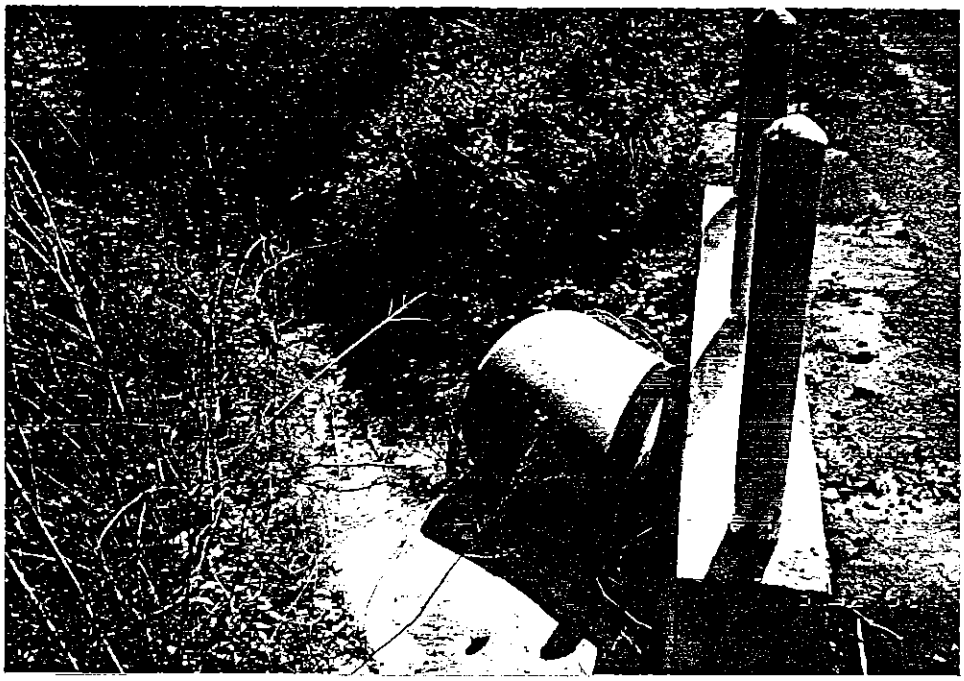
Crushed drum disposal landfill is located between the yellow casing of deep monitor well DMW-15 back to where district inspector Scott Harris standing (near MW-5). Monitor well MW-7 is in the foreground. View is to the northeast.

Experimental boring 1 was recently drilled and now has wooden stake marking the hole. Monitor well MW-8 is in the middleground of the photograph. View is to the NNW.

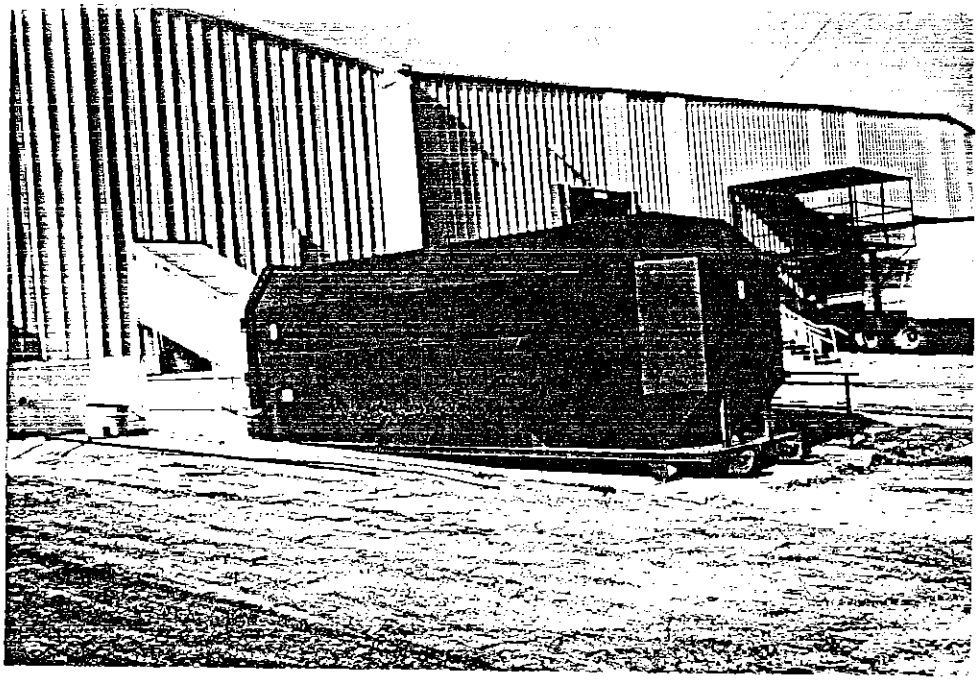
Monitor well MW-8 is in foreground, the stake marking Experimental boring 1 just beyond the plastic covering the soil cuttings. The Crushed drum disposal landfill is between these and the yellow casing of DMW-15 in the background. The view is to the southwest.



Deep monitor well DMW-15, located downgradient of the Former Drum Burial Trench (Land Fill). The railroad tracks are located in the background and are about 12 feet lower in elevation.



Rainwater that falls on the roof of the main building is then collected by the rain gutters, fed into a pipe that is buried below the road and is discharged out of this culvert into a low volume flow stream beside the railroad tracks.



Roll-off container containing Class III non hazardous industrial wastes.

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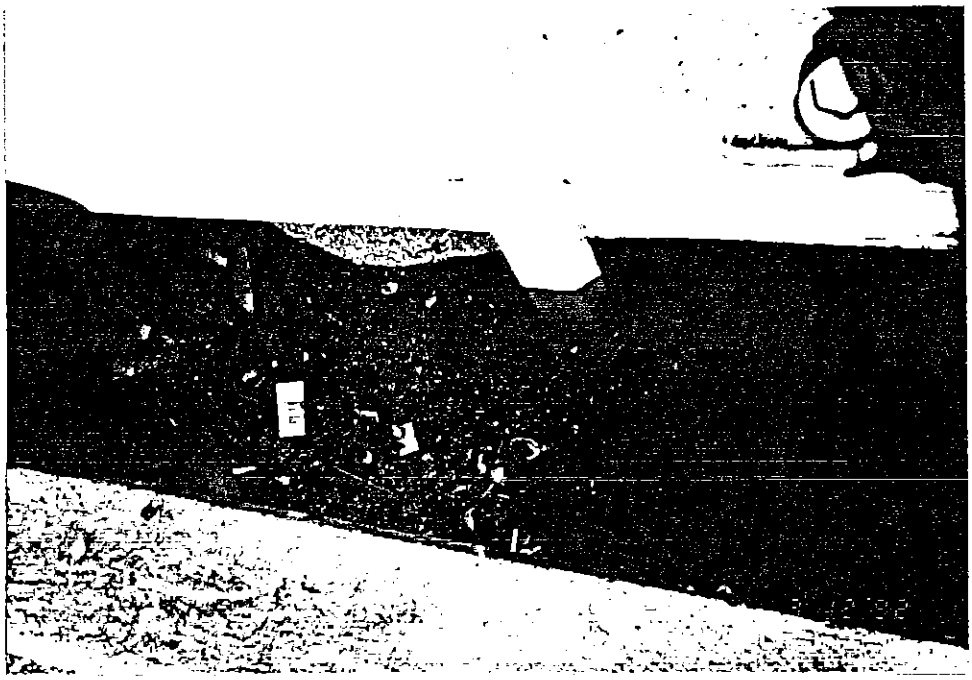
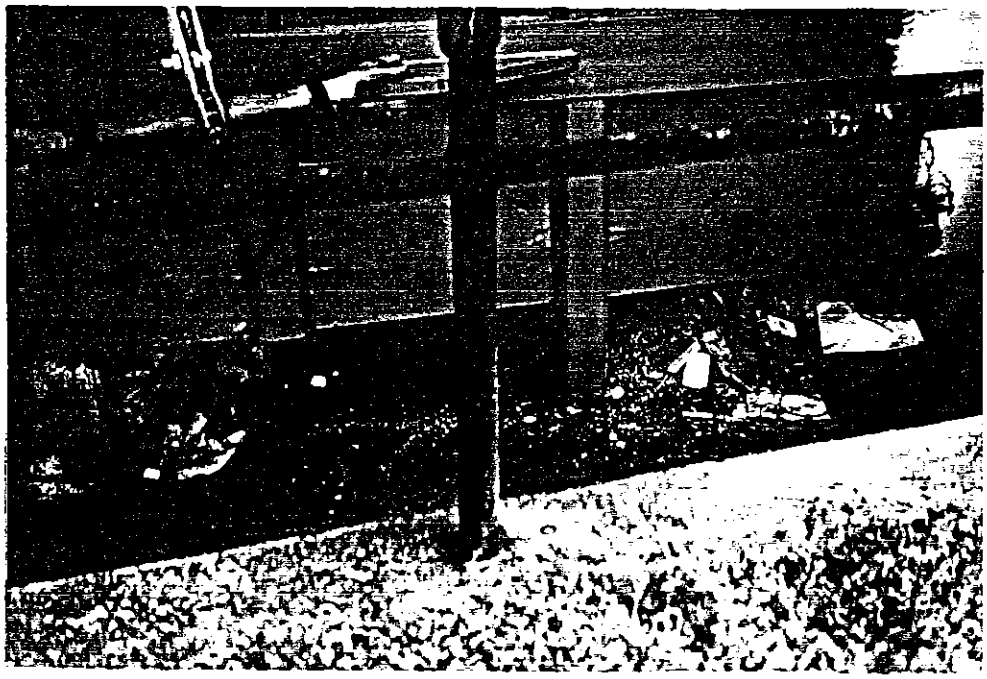
RFA- Murray Corperation
Palestine, TX.

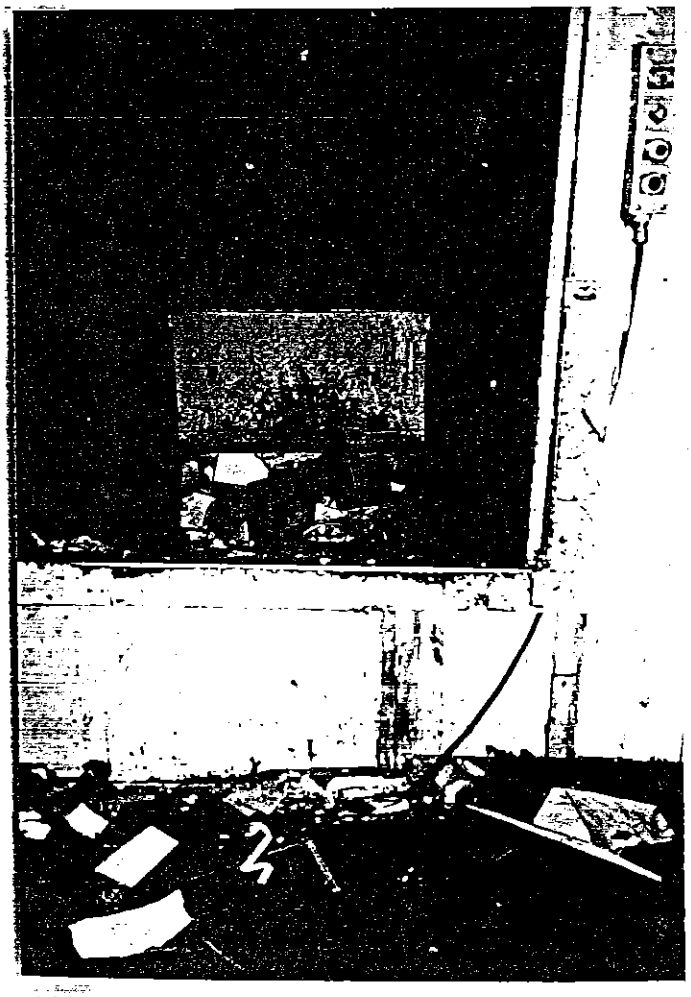


Fine-sized trash and debris that has leaked or spilled out of chute as it goes into roll-off container. This photograph is a close-up the chute pictured above.

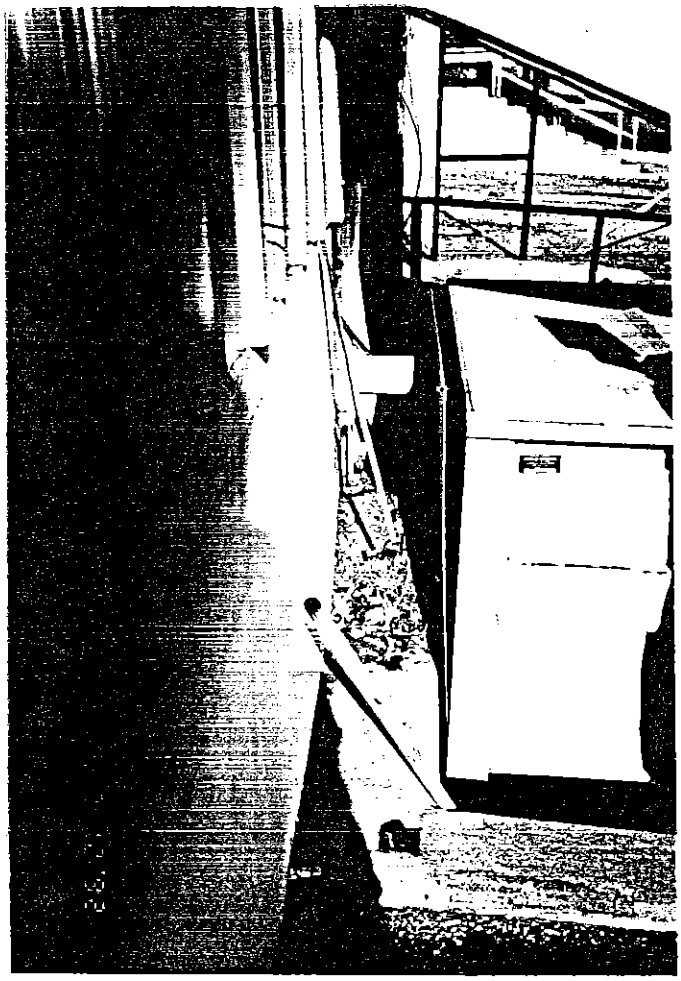


Trash and debris that has leaked or spilled out of chute as it goes into roll-off container. This photo was taken on the other side of chute pictured in the top photograph on this page.

View of the chute into the roll-off container, taken from inside the building.



Close-up view of the chute into the roll-off container, taken from inside the building.



View showing the chute and trash and debris onto ground.

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March 12, 1992
RFA - Murray Corporation
Palestine, Tx

PART II - UNIT EVALUATION TWC Regis. No. 330663

LANDFILLS Regis. Facility No. —

UNIT IDENTIFICATION: Landfill / Empty Drum Disposal Area

A. Verification of physical construction and operation (dimensions, years of service, materials of construction above and below grade).

10-25' wide, (~133' by pacing between 2 wells) 100 to 150 feet long, between MW6 and DMW-15 (yellow casing). Consists of about 400 drums used to store compressors before being re manufactured; dug with a backhoe: prior to ?1983-used as landfill?

B. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation).

oil + dirt on compressors: possible from inside

C. Visual/physical inspection of unit:

1. Active Landfill

a. Observations of potential problem areas (water in trench, blowing debris/waste liner integrity, waste compatibility)

b. Operation evaluation (compaction of deposited waste, daily cover, contaminant dispersal by equipment, disposal of liquid waste, waste stabilization)

c. Rainfall controls (run-on/runoff control, leachate collection and disposal, stormwater collection and disposal analyses)

No run-on or run-off controls

2. Inactive/closed landfill

a. Description of cap (cap materials, thickness of cap, vegetation or other cover)

Dirt cap

b. Potential problem areas (cracking, erosion, subsidence, water ponding on cap, surfacing wastes, land use on and adjacent to closed fill)

3. Evidence of actual or potential ground water contamination (samples from monitor wells, knowledge of shallow water table, liner integrity, leak detection records)

4. Air quality concerns (TACB complaints odors, particulate dispersal, sampling records)

D. Other Areas of Concern

Pile of well cuttings near MW8. Fred Dalbey of Jones & Neuse provided lab analysis showing no detectable concentrations in this pile of cuttings. They are on plastic & covered by plastic. There is an approximate 10 foot drop to the creek. This landfill runs parallel to creek. Groundwater flow direction is towards creek.

E. Summary/General Comments

Would be easy to detect using a magnetometer. Debris encountered while ~~starting~~ a boring for ~~DW-15~~ MW7 mm. the boring was ~~off~~ ? mm moved over and no debris encountered.

There is a boring present which was a result of looking for next deeper (3rd) aquifer but a sandstone at approx. 70' and the rig could not penetrate it. This means the boring has penetrated contaminated upper and intermediate aquifers in a down gradient location & the cuttings are very likely contaminated, despite the composite lab analyses results.

PART II - UNIT EVALUATION TWC Regis. No. 33003

LANDFILLS Regis. Facility No. —

UNIT IDENTIFICATION: Construction debris area landfill

A. Verification of physical construction and operation (dimensions, years of service, materials of construction above and below grade).

Construction debris buried at the same time as the drum burial trench adjacent.

B. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation).

Construction debris, general ? debris. ~~La~~ mm A tire is poking thru the ground surface.

C. Visual/physical inspection of unit:

1. Active Landfill

a. Observations of potential problem areas (water in trench, blowing debris/waste liner integrity, waste compatibility)

b. Operation evaluation (compaction of deposited waste, daily cover, contaminant dispersal by equipment, disposal of liquid waste, waste stabilization)

c. Rainfall controls (run-on/runoff control, leachate collection and disposal, stormwater collection and disposal analyses)

2. Inactive/closed landfill

a. Description of cap (cap materials, thickness of cap, vegetation or other cover)

Only a dirt cap.

b. Potential problem areas (cracking, erosion, subsidence, water ponding on cap, surfacing wastes, land use on and adjacent to closed fill)

Settling and ponding of water, standing water is present. A fire is breaking thru ground surface.

3. Evidence of actual or potential ground water contamination (samples from monitor wells, knowledge of shallow water table, liner integrity, leak detection records)

4. Air quality concerns (TACB complaints odors, particulate dispersal, sampling records)

D. Other Areas of Concern

E. Summary/General Comments

PART II - UNIT EVALUATION
SURFACE IMPOUNDMENTS

TWC Regis. No. 33063
Regis. Facility No. —

UNIT IDENTIFICATION: Upper + lower surface impoundments

A. Verification of physical construction and operation (dimensions, years of service, materials of construction)

B. Characterization of waste materials (Facility records, sample results, process description, constituents of concern, documentation)

C. Visual/physical inspection of unit:

1. Description of dike structure, height and freeboard:

Berms are minimum of two and a half feet high, upto approx. 8 feet; freeboard of at least 2'; p

2. Evidence of discharges from impoundment (spill history, bypassing, inadequate run-on/runo-off controls, flood prone area):

No evidence of discharge

3. Evidence of actual or potential groundwater contamination (samples from mon. wells, knowledge of shallow water table, liner integrity, active seeps, leak detection records, operating practices)

Standing water outside of berms apparently due to recent heavy rainfalls.

4. Air quality concerns (TACB complaints, odors, air sampling records)

No odors noted

D. Other areas of concern:

E. Summary/General Comments:

Being handled under agreed order.

PART II - UNIT EVALUATION

TWC Regis. No. 33063

LANDFILLS

Regis. Facility No. —

UNIT IDENTIFICATION: former drum burial trench (landfill)

A. Verification of physical construction and operation (dimensions, years of service, materials of construction above and below grade).

landfill only has an interim closure performed, no final closure/cap over it yet. Located between MW5, MW-6 and

B. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation).

Ecco solvent - containing drums; drums were probably partially. The solvent leaked during the drum-crushing process before they were placed in landfill. Approximately 300 drums

C. Visual/physical inspection of unit:

1. Active Landfill

a. Observations of potential problem areas (water in trench, blowing debris/waste liner integrity, waste compatibility)

b. Operation evaluation (compaction of deposited waste, daily cover, contaminant dispersal by equipment, disposal of liquid waste, waste stabilization)

c. Rainfall controls (run-on/runoff control, leachate collection and disposal, stormwater collection and disposal analyses)

2. Inactive/closed landfill

a. Description of cap (cap materials, thickness of cap, vegetation or other cover)

b. Potential problem areas (cracking, erosion, subsidence, water ponding on cap, surfacing wastes, land use on and adjacent to closed fill)

Some low spots are still muddy from recent rain but no standing water.

3. Evidence of actual or potential ground water contamination (samples from monitor wells, knowledge of shallow water table, liner integrity, leak detection records)

Some trees appear dead. Fred Dalbey of Jones & Neuse says other dead trees have been removed.

4. Air quality concerns (TACB complaints odors, particulate dispersal, sampling records)

No odors noted

D. Other Areas of Concern

An approximate 10' tall drop to the creek below. GW flow direction is towards this creek.

There is a pile of soil cuttings from DMW-22, a newly-installed well. On plastic, but the top plastic covering has blown off. PVC casing that has been discarded is sitting on top of cuttings. The lab analysis sheet indicates it was a composite of DW 22-, boring for 3rd aquifer and DW 21. No detectable concentrations reported in lab analysis. The boring definately went thru 2 contaminated down-gradient aquifers & must have picked up some contamination

E. Summary/General Comments

DMW-21 is upgradient. MW-13 is approx. 7 feet away. Pile of cuttings adjacent to DMW-21, on plastic + covered by plastic but being washed out by rain.

PART II - UNIT EVALUATION
TANKS

TWC Regis. No. 33603
Regis. Facility No. 02

UNIT IDENTIFICATION: 2-1000 gal. tanks

A. Verification of physical construction and operation (Dimensions, years of service, materials of construction, underground, partially underground, elevated, on-ground)

Now the tanks are gone (clean-closed) and all is left is the concrete slab; no secondary containment.

B. Characterization of waste materials (Facility records, sample results, process description, constituents of concern, documentation)

C. Visual/Physical Inspection of Unit:

1) Description: Closed vessel (pressure) _____ closed vessel (vented) ✓ fixed roof vessel _____ open top (floating roof) _____ Open top (no roof) _____

Piping Connections: Above ground ✓ Underground _____ Both _____

2) Evidence of leakage/spillage (exteriors, piping, surrounding areas, "repairs"):

One tank fell onto the other & a spill occurred; when the tanks were clean-closed, the area was cleaned up. The spill was cleaned up prior to closure.

3) Evidence of actual or potential ground water contamination (impermeable surfaces, spill containment features, inventory loss, etc.):

4) Air quality concerns (TACB complaints, odors, visible vapor releases, sampling records...):

No evidence of odors, etc.

D. Other areas of concern:

E. Summary/General Comments:

PART II - UNIT EVALUATION
TANKS

TWC Regis. No. 33063
Regis. Facility No. 01

UNIT IDENTIFICATION: 6000 gal. tank

A.- Verification of physical construction and operation (Dimensions, years of service, materials of construction, underground, partially underground, elevated, on-ground)

double-walled, spent mineral spirits + refrig oil: installed in 1989: all above-ground. this tank replaced the 9000 gal tank + there is a concrete slab @ the end

B. Characterization of waste materials (Facility records, sample results, process description, constituents of concern, documentation)

spent mineral spirits + oil - generated during a cleaning/degreasing operation

C. Visual/Physical Inspection of Unit:

1) Description: Closed vessel (pressure) _____ closed vessel (vented) ✓ fixed roof vessel _____ open top (floating roof) _____ Open top (no roof) _____

Piping Connections: Above ground ✓ Underground _____ Both _____

2) Evidence of leakage/spillage (exteriors, piping, surrounding areas, "repairs"):

None evident

3) Evidence of actual or potential ground water contamination (impermeable surfaces, spill containment features, inventory loss, etc.):

No evidence of release

4) Air quality concerns (TACB complaints, odors, visible vapor releases, sampling records...):

D. Other areas of concern:

E. Summary/General Comments:

90 day tank - Murray intends to clean it out by end of March, 1992: will remove tank (City of Palestine may want):

PART II - UNIT EVALUATION

TWC Regis. No. 33063

CONTAINER STORAGE

Regis. Facility No. —

UNIT IDENTIFICATION: roll-off container storage box

A. Verification of Physical Construction and Operation (dimensions, years of service, containment features eg. concrete pads, dikes, indoor)

20 cu yd. roll-off container in parking lot to the south of the building; box is backed up to a chute that leads down from the building

B. Characterization of Waste Materials (facility records, sample results, process description, constituents of concern, documentation)

Class III NH

C. Visual/Physical Inspection of Unit

1. Conditions of drums

D. Other Areas of Concern

Trash and debris had spilled out from holes and gaps in the chute

E. Summary/General Comments

Needs to have trash + debris picked up so it is not blown around or scattered by wind or attract animals.

PART II - UNIT EVALUATION
UNCONTROLLED SPILLS/SOILS
CONTAMINATION

TWC Regis. No. 33063

Regis. Facility No. —

UNIT IDENTIFICATION: Area of spill near tanks 02 and 01

UNCONTROLLED AREAS OF SOILS CONTAMINATED AND SPILLS

A. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation)

According to inspection reports, one of the 1000 gal. tanks containing halogentated spent solvents tipped onto a tank containing mineral spirits spilling an unknown amount of halogenated spent solvents.

B. Visual/physical inspection of suspencted contamination

1) Description of area (Approximate aereal extent via visual and olfactory evidence, dead vegetation, analyses, run-off patterns):

Grass appeared normal.

2) Evidence of actual or potential groundwater contamination (samples from mon. wells, knowledge of shallow water tables, operating practices):

The two-1000 gallon tanks were clean-closed in Dec. 1988 & the spill was also cleaned up. The nearby tank 01 (N & R Ns.) is soon to be closed and soils will be sampled again.

3) Evidence of surface water release (drainage pattern, slope of terrain, fish kills, oil sheens, etc.)

None

4) Air quality concerns (TACB complaints, odors, particulate dispersal, sampling records)

None apparent

C. Other areas of concern

None

D. Summary/General Comments

Spill area was cleaned up.

PART II - UNIT EVALUATION
UNCONTROLLED SPILLS/SOILS
CONTAMINATION

TWC Regis. No. 33063

Regis. Facility No. —

UNIT IDENTIFICATION: Area of "ECCO" spill near parking lot

UNCONTROLLED AREAS OF SOILS CONTAMIANTED AND SPILLS

A. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation)

An anonymous complaint was registered with the District office in Tyler that there had been a solvent spill. Investigation of the report turned up "Former Drum Burial Trench - (Landfill)"

B. Visual/physical inspection of suspencted contamination

1) Description of area (Approximate aereal extent via visual and olfactory evidence, dead vegetation, analyses, run-off patterns):

Complaint and subsequent investigation indicated solvent spill/dump killed grass and trees in the area.

2) Evidence of actual or potential groundwater contamination (samples from mon. wells, knowledge of shallow water tables, operating practices):

Groundwater contamination confirmed by a number of monitor wells.

3) Evidence of surface water release (drainage pattern, slope of terrain, fish kills, oil sheens, etc.)

None apparent

4) Air quality concerns (TACB complaints, odors, particulate dispersal, sampling records)

None apparent

C. Other areas of concern

D. Summary/General Comments

The spill complaint was ultimately resolved when the trench was excavated, drums were taken out, contaminated soil was taken out as much as possible, groundwater monitor wells were installed. Murray applied for post-closure permit + compliance plan.

PART II - UNIT EVALUATION
UNCONTROLLED SPILLS/SOILS
CONTAMINATION

TWC Regis. No. 33063

Regis. Facility No. —

UNIT IDENTIFICATION: Area of gray sludge material from "lap machine"

UNCONTROLLED AREAS OF SOILS CONTAMIANTED AND SPILLS

A. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation)

Inspection report noted that a grey sludge material had been dumped near the parking lot. A company representative indicated it was from a "lap machine" and was non-hazardous.

B. Visual/physical inspection of suspencted contamination

1) Description of area (Approximate aereal extent via visual and olfactory evidence, dead vegetation, analyses, run-off patterns):

Found just east and just south of parking lot on east side of main building.

2) Evidence of actual or potential groundwater contamination (samples from mon. wells, knowledge of shallow water tables, operating practices):

None

3) Evidence of surface water release (drainage pattern, slope of terrain, fish kills, oil sheens, etc.)

None

4) Air quality concerns (TACB complaints, odors, particulate dispersal, sampling records)

None

C. Other areas of concern

None

D. Summary/General Comments

Spill was cleaned up.

PART II - UNIT EVALUATION
UNCONTROLLED SPILLS/SOILS
CONTAMINATION

TWC Regis. No. 33063

Regis. Facility No. —

UNIT IDENTIFICATION: Area adjacent to the Former Drums Buried Trench (Landfill)

UNCONTROLLED AREAS OF SOILS CONTAMIANTED AND SPILLS

A. Characterization of waste materials (facility records, sample results, process description, constituents of concern, documentation)

"Ecco" spent solvent

B. Visual/physical inspection of suspencted contamination

1) Description of area (Approximate aereal extent via visual and olfactory evidence, dead vegetation, analyses, run-off patterns):

report indicated 2-3 crushed drums containing residual Ecco solvent, soil contamination confirmed after sampling

2) Evidence of actual or potential groundwater contamination (samples from mon. wells, knowledge of shallow water tables, operating practices):

Gw

3) Evidence of surface water release (drainage pattern, slope of terrain, fish kills, oil sheens, etc.)

None

4) Air quality concerns (TACB complaints, odors, particulate dispersal, sampling records)

None

C. Other areas of concern

These drums were removed during clean-up of the adjacent "Former Drum Burial Trench (Landfill)"

D. Summary/General Comments

Area appears to have been cleaned up but the sample was taken some distance (5-10 feet) from where the drums were located.

X. Air Emission Standards

Sections X.A, X.B, and X.C apply to all permit applications, except post-closure permit applications. Permittees with "one stop" permits applying for an amendment, modification, or renewal should clearly state whether they wish to amend, modify, or renew the Air Permits Division portions of their combined one-stop permit, whether they intend to seek separate authorizations, as appropriate, from the Air Permits Division and subsequently delete these requirements from their hazardous waste permit, or whether they want consolidated permit processing as allowed by 30 TAC Chapter 33 - Consolidated Permit Processing.

Not applicable. This application is submitted only for post-closure care.

A. Process Vents

For process vents and equipment subject to the requirements of 40 CFR Part 264 Subpart AA , please provide a report that includes all of the information required by 40 CFR 270.24. Indicate on a facility plot plan the approximate location of process vents.

1. For inclusion into a permit, complete Table X.A - Process Vents for all vents on waste management units that manage hazardous waste with an annual average total organics concentration of 10 ppmw or greater ("process vents"). Specifically include:
   a. process vents on distillation, fractionation, thin-film evaporation, solvent extraction, air or steam stripping operations, and vents on condensers serving these operations; and
   b. process vents on tanks (e.g., distillate receivers, bottom receivers, surge control tanks, separator tanks, and hot wells) associated with distillation, fractionation, thin-film evaporation, solvent extraction, and air or steam stripping processes if emissions from these process operations are vented through the tanks.

   Emissions caused by natural means such as daily temperature changes or by tank loading and unloading are not subject to control.

2. For process vents, include the following certification as part of the air emissions report:

   AI, *owner or operator* , certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur.

   I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.

   OR

   I further certify that the total organic emission limits of 40 CFR 264.1032(a) for affected process vents at the facility can be attained by a control device involving vapor recovery at an efficiency less than 95 weight percent.

   (Signature) *(Date)* .

B. Equipment Leaks

For equipment subject to the requirements of 40 CFR Part 264 Subpart BB , please provide a report that includes all of the information required by 40 CFR 270.25.

1. For inclusion into a permit, complete Table X.B. – Equipment Leaks for all valves, pumps, compressors, pressure relief devices, sampling connection systems, and open-ended

valves or lines that contains or contacts hazardous waste streams with organic concentrations of 10% by weight or greater. Equipment in vacuum service is not subject to control if identified in the facility operating record.

2. For equipment, include the following statement as part of the air emissions report:

> AI, *owner or operator* , certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur.
>
> I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.
>
> *(signature)* *(date)* .

C. Tanks, Surface Impoundments, and Containers

For tanks, surface impoundment, and containers subject to the requirements of 40 CFR Part 264 Subpart CC, please provide a report that includes all of the information required by 40 CFR 270.27.

Include the following certification as part of the air emissions report:

> AI, *(owner or operator)* , certify that the control device is designed to operate at the performance level documented by a design analysis as specified in 40 CFR 264.1089 (e)(1)(ii) or by performance tests as specified in 40 CFR 264.1089(e)(1)(iii) when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.
>
> *(signature)* *(date)* .

D. Optional TCEQ Office of Air Quality Information

In addition to the information requested in Section X.A, X.B, and X.C above, permittees having "one-stop" permits may elect to combine the air and waste management amendment, modification, or renewal of permitted waste management units. The combined amendment, modification, or renewal application will follow the application processing procedures for an industrial solid waste permit.

1. Area map (to scale) showing the location of the plant and land use in the vicinity of the facility including buildings, schools, residences, etc. within 3000 feet.

2. Plot plan (to scale) with latitude and longitude showing the plant layout, property boundary and location of all emission points of air contaminants. Emission points are to be numbered.

3. Specific chemical name of each air contaminant and emission rate in maximum pounds per hour, maximum tons per year and calculations used to determine emission rates. Fugitive emissions are to be included. Complete Table 1(a) entitled "Emission Sources."

4. Process description, operating schedule, and flow chart in sufficient detail that will explain the process and operation and a material balance for processes where applicable. The description should include a discussion of disposal methods for any generated residues and associated air emissions.

5. Design specifications about each emission control device using the appropriate OAQ table.

6. Volatile organic compound (VOC) concentrations in water or sludges or soil and volumes or weights of water, sludges or soils to be processed.

7. Exhaust stack or emission point parameters for each emission point including height, diameter, temperature, velocity and flow rate, except ground level fugitive emissions.

8. Best available control technology (BACT) documentation for all new and modified facilities.

9. Documentation of compliance with any applicable Federal New Source Performance Standard (NSPS) and Federal National Emission Standard for Hazardous Air Pollutants (NESHAPS).

10. Documentation as to whether a permit is required under new source review requirements of part C or D or Title I of the Federal Clean Air Act, 42 U.S.C. 7401 et seq., for a major source or major modification.

11. Information that demonstrates reliability of emission control systems including process instrumentation, equipment redundancy and operating procedures.

12. Results of atmospheric dispersion modeling certified to have been conducted in accordance with applicable TCEQ Office of Air Quality (OAQ) procedures. Model results must show maximum off-property 30-minute and annual ground level concentrations of each air contaminant. Dispersion modeling results must indicate compliance with all OAQ Rules and Regulations. Dimensions of buildings/structures that may influence dispersion modeling are to be furnished. Please consult with OAQ before beginning any modeling study.

13. Storage tank data including capacity in gallons, diameter, height, paint color, composition, density, vapor pressure and molecular weight of liquid stored, maximum hourly and annual throughput and number of turnovers per year. Complete Table 7 entitled "Storage Tank Summary" for each tank.

14. A statement addressing the applicability of each OAQ regulation.

15. All methods of calculating emissions must be properly referenced with justification for selecting the values used in any equation.

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

XI. Compliance Plan

Provide all Part B responsive information in Appendix XI. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

Groundwater Monitoring and Corrective Action Requirements for Regulated Units

Owners or operators of facilities that process, store, or dispose of hazardous waste may be required to establish groundwater monitoring and response programs in accordance with the provisions of 30 TAC 335.157. There are three types of groundwater monitoring programs which may be addressed in a Compliance Plan Application for Regulated Units: i) detection monitoring, ii) compliance monitoring, and iii) corrective action monitoring. The applicability of these various monitoring programs and the associated application requirements are illustrated in Figure 2 of the Compliance Plan Application instructions and further outlined below. A Compliance Plan Application will be required to be submitted when establishing a new compliance plan or incorporating changes in an existing compliance plan.

Detection Monitoring: An owner/operator required to conduct detection monitoring per the requirements of 30 TAC 335.164 must monitor for indicator parameters, such as specific conductance, total organic carbon, and total organic halogen, as well as chemical parameters and hazardous constituents specified in the facility permit. If a statistically significant increase in any parameter or hazardous constituent specified in the facility permit is detected in any monitoring well down gradient of the compliance point, the owner/operator must sample the groundwater in all monitoring wells and analyze the samples for the presence of 40 CFR Part 264 Appendix IX hazardous constituents. As shown in the accompanying Flow Diagram (see Figure 2), if the analytical results confirm the presence of Appendix IX constituents down gradient of the compliance point, the owner/operator must submit a Compliance Plan Application to establish a compliance monitoring program or corrective action program.

Compliance Monitoring: The requirements for compliance monitoring programs are detailed in 30 TAC 335.165. Owners/operators required to establish a compliance monitoring program must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) specified in the compliance plan (see 30 TAC 335.158 .160). If a statistically significant increase above the GWPS in any chemical parameter or hazardous constituent specified in the compliance plan is confirmed, the owner/operator must submit a application to modify the compliance plan to establish a corrective action program in accordance with 30 TAC 335.166 (see Figure 2). If no such exceedance of the GWPS is detected for three consecutive years and the applicable compliance period has expired, the owner/operator must apply for modification of the compliance plan to re-establish a detection monitoring program for the unit. No further monitoring may be needed if the applicable post-closure care period for the unit is complete.

Regulated Unit Corrective Action Program: Owners/operators required to implement a corrective action program in accordance with the provisions of 30 TAC 335.166 must remove the hazardous waste constituents found in the groundwater or treat the groundwater in-place to levels equal to or less than the GWPS down gradient of the compliance point. The owner/ operator must also establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Corrective action measures may be terminated once the concentrations of hazardous constituents are reduced to levels equal to or below their respective concentration limits. After termination of the corrective action measures, the owner/operator must submit an application for modification of the compliance plan to re-establish a compliance monitoring program for the duration of the

compliance period (see Figure 2).

Groundwater Corrective Action Requirements for Solid Waste Management Units (SWMUs)

HSWA Solid Waste Management Unit (SWMU) Corrective Action Program: An owner/operator of a Permitted facility or an applicant applying for a hazardous waste permit is required to submit a Compliance Plan Application if hazardous constituents have been released from a SWMU and/or Area of Concern (AOC) to the groundwater and exceeds background or Practical Quantitation Limit (PQL) values, if under Risk Reduction Rules 30 TAC 335 and/or appropriate Protective Concentration Limits (PCLs), if under Texas Risk Reduction Program Rules 30 TAC 350. The Permitted facility must implement a corrective action program for SWMUs and/or AOCs in accordance with provisions 30 TAC 335.167 (see Figure 3, page 122 of the instructions for example of process-alternate, but equivalent process may be authorized by the Executive Director).

Compliance Plan Application Form Structure:

The Compliance Plan Application consists of Sections XI.A. through E.

Application Information Form:

This section contains detailed information necessary for the application and regulatory requirements needed to put in the final compliance plan.

The application form contains the following subsections:

A. Site Specific Information

B. Groundwater Protection Standard (GWPS)

C. Compliance Monitoring Program

D. Corrective Action Program

E. Cost Estimates for Financial Assurance

1. Table XI.E.1 Corrective Action Program Cost Estimate
2. Table XI.E.2.e Groundwater Monitoring Cost Estimate
3. Table XI.E.3. Financial Assurance Summary

CP Attachments:

A. Maps

B. Well Design and Construction Specifications

C. Sampling and Analysis Plan

Compliance Plan Site Specific Tables:

This section includes the following tables which are to be completed by the applicant, as applicable, and shall be incorporated as part of the final draft Compliance Plan. [Note: include a CD disk with the application providing an electronic copy of the files supporting the compliance plan tables, as applicable, in MS Word format]:

CP Table I - Waste Management Units and/or Areas Subject to Groundwater Corrective Action and Compliance Monitoring

CP Table II - Solid Waste Management Units and/or Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167.

CP Table III - CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid

Waste Constituents and the Groundwater Protection Standard

CP Table IIIA - CORRECTIVE ACTION PROGRAM Table of Indicator Parameters and the Groundwater Protection Standard

CP Table IV - COMPLIANCE MONITORING PROGRAM Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring

CP Table IVA - COMPLIANCE MONITORING PROGRAM Table of Detected Hazardous Constituents and the Groundwater Protection Standard for Compliance Monitoring

CP Table V - Designation of Wells by Function

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

Note to the Permittee: All responses to each item in Section XI of the application form should be submitted under Appendix XI- Compliance Plan. The applicant should use the PDF formatted Tables provided in the Part B application to include site-specific information that will become part of the final draft permit. For consistency, the PDF tables provided in the application are formatted to be accessible, and the agency will no longer accept site-specific tables created by the applicant. Do not delete any areas of the application form that are not applicable, submit answers to these areas with a response of either 'Reserved' or 'Not Applicable' in the Appendix XI. In addition, if material supporting a response is located elsewhere in the application, the response should provide details as to the specific location within the referenced material.

One of the primary goals of the performance based Compliance Plan is the wells listed in, CP Table V - Designation of Wells by Function (to be included in the final Compliance Plan) are the wells in which the GWPS must be met to verify compliance with Compliance Monitoring program or corrective action objectives, and to change the table would require a modification. On the other hand, the following types of wells Corrective Action Observation Wells, Corrective Action System well, etc., that are included in "Attachment A" maps of the final draft Compliance Plan, should be flexible. The purpose is to provide the permittee with the authority to alter the groundwater monitoring system and Corrective Action System designs, as necessary, to proactively address changing environmental conditions without modifying or amending the Compliance Plan. An application to modify/amend the compliance plan is only required if wells listed in CP Table V are changed; consequently, Corrective Action Observation and Corrective Action System Wells are not listed in CP Table V of the compliance plan so they may be added or removed without modifying/amending the compliance plan. Notification of proposed changes to the groundwater monitoring system and Corrective Action System designs can be included in the semiannual or annual report required by CP Table VIII - Compliance Schedule (to be included in the final Compliance Plan).

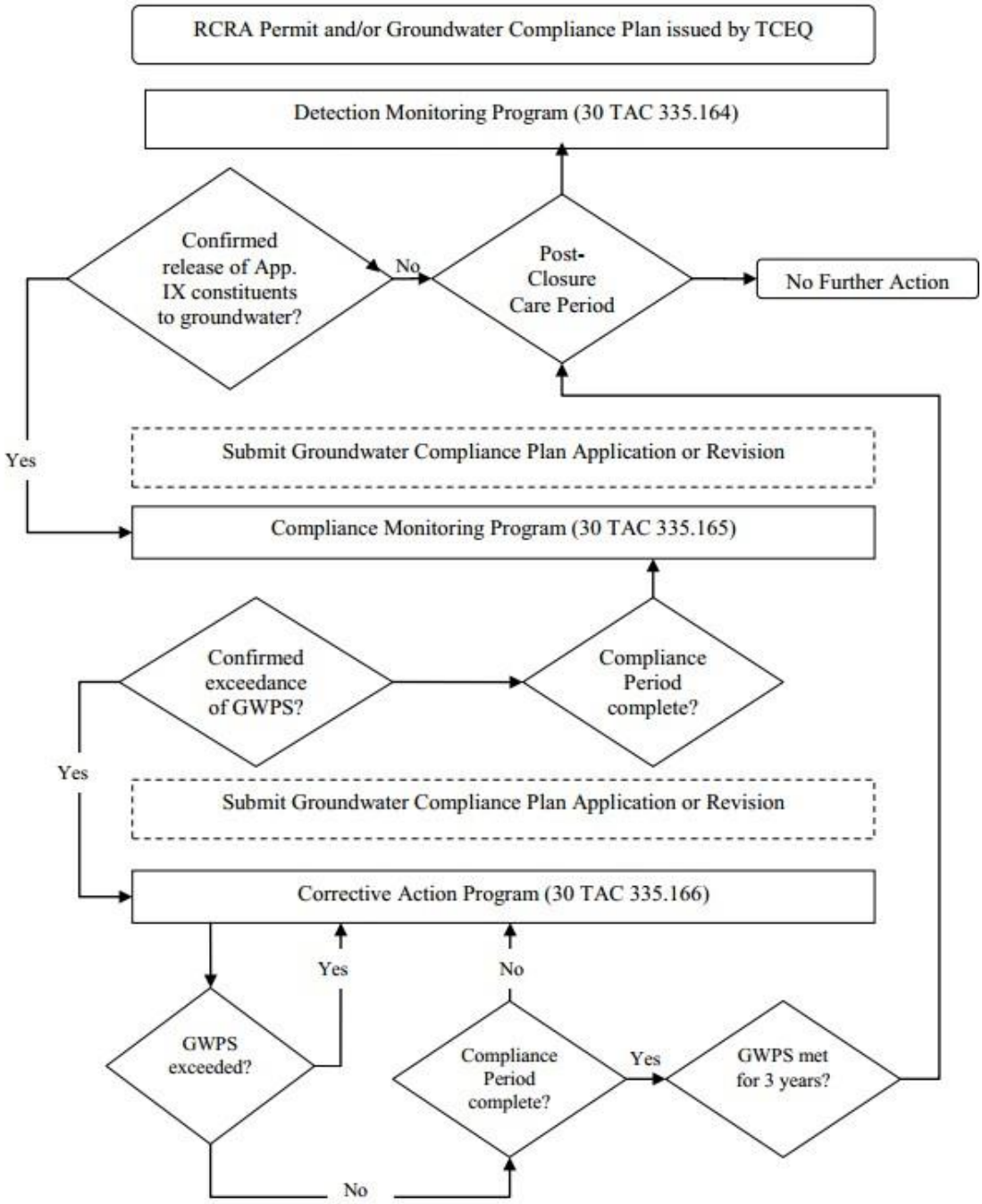
Figure 1 - Overview of Required Submittals And Revisions Associated with TCEQ Groundwater Compliance Plan Application

Type of Compliance Plan Application or Revision	Minimum Required Submittals				Additional Application Submittals Or Revisions					
	Description of Modification	Public Notification Evidence	Fee Payment Evidence	Part B, Section I General Information	Section XI. A. Site-Specific Information	Section XI.B Groundwater Protection Standard	Section XI.C Compliance Monitoring Program	Section XI.D Corrective Action Program	Section XI.E Financial Assurance Cost Estimates	Attachment A Alternate Concentration Limits
RCRA Permitted Units										
Compliance Monitoring Program, Commencement or modification per 30 TAC 335.165.	•	•	•	•	•	•	•	○	•	■
Corrective Action Program, commencement or modification per 30 TAC 335.166.	•	•	•	•	•	•	○	•	•	■
Compliance Period, termination or extension per 30 TAC 335.162.	•	•	•	•	■	○	•	○	■	○
Solid Waste Management Units										
Corrective Measure Implementation (CMI), per 30 TAC 335.167.	•	•	•	•	•	•	■	•	•	○
Corrective Action Program termination.	•	•	•	•	■	○	•	○	○	○

Note:

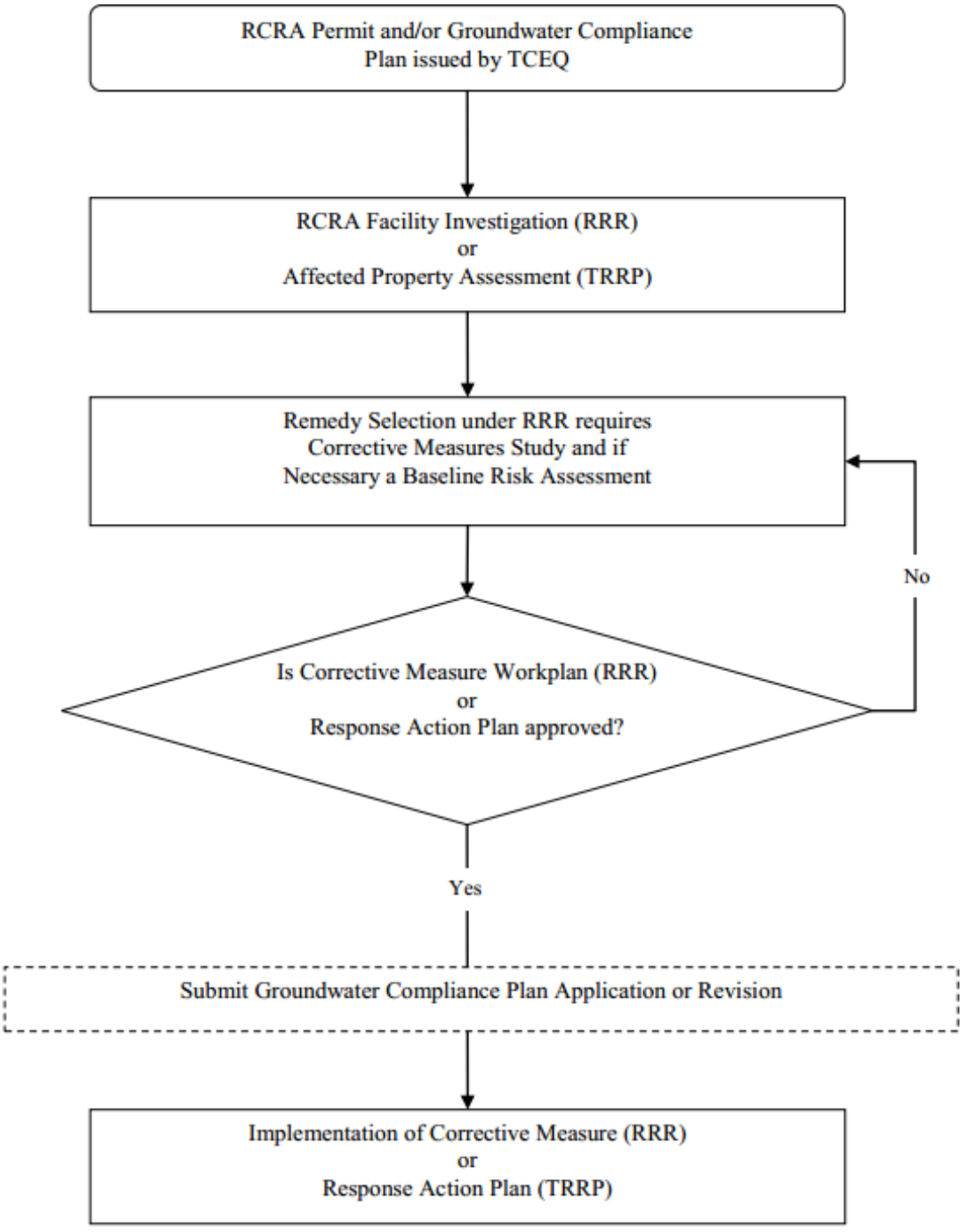
- • Submittal of additional or revised information required.
- ○ No submittal of additional or revised information required.
- ■ Possible submittal of additional or revised information required

Figure 2 - Summary of Groundwater Monitoring and Compliance Plan Application Requirements for Regulated Waste Management Units (30 TAC 335 Subchapter F)



Note:
- GWPS = Groundwater Protection Standard (See Section XI.B. of this document, and 30 TAC 335.158 – 160)
- App. IX = Groundwater Monitoring List, 40 CFR 264 Appendix IX.
- Compliance Period = See Section XI.E. of this application, and 30 TAC 335.162.

Figure 3 - Summary of Compliance Plan Applications Requirements for Solid Waste Management Units (SMMUS) (30 TAC 335.167)



Note:
(RRR) – Risk Reduction Rules, 30 TAC 335
(TRRP) – Texas Risk Reduction Program, 30 TAC 350

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

A. Site Specific Information

1. General Site Information (provide the following information):

a. An overall plan view map of the entire facility delineating the facility's property boundary, Facility Operations Area (FOA) boundaries, as applicable, and the plume management zone (PMZ) boundaries as applicable;

All CP Attachment A Maps should be provided in Appendix XI of the application.

b. A 7.5 minute U.S.G.S. quadrangle topographic map showing the entire facility; NOTE: This information is supplemental only and is not intended to be included as figures in the final draft permit.

c. All oversized (larger than 8.5" by 11") drawings submitted in accordance with A, above, should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper which shall be used as "CP Attachment A" maps in the final draft Permit/Compliance Plan. The applicant should title the map(s) accordingly as "CP Attachment A, Sheet 1 of xx - Facility Site Map"; "CP Attachment A, Sheet xx of xx, FOA Lateral Boundary Map"; "CP Attachment A, Sheet xx of xx, PMZ Boundary Location Map"; and

d. Aerial photographs through time depicting changes in the land use, if available.
NOTE: This information is supplemental only and is not intended to be included as figures in the final draft permit

2. Waste Management
Provide a complete list and a plan view drawing(s) locating and identifying the following waste management units at the scale of 2.5 centimeters (1 inch) equal to not more than 61.0 meters (200 feet). All oversized (larger than 8.5" by 11") drawings should be accompanied with legible photocopies of the reduced drawing on 8.5" by 11" sheet(s) of paper. Please provide information for each waste management unit listed below on CP Table XI.A.1. - Facility History for Waste Management Units. **List of Facilities - Closed Landfill (Former Drum Burial Trench**

All CP Attachment A Maps should be provided in Appendix XI of the application.

a. All hazardous waste management units regulated under the Industrial Solid Waste and Municipal Hazardous Waste Rules (Chapter 335) required to be monitored in accordance with 30 TAC 335.164 (Detection Monitoring), 335.165 (Compliance Monitoring Program) and 335.166 (Corrective Action Program); **Closed Landfill (Former Drum Burial Trench) under Corrective Action Program**

b. All solid waste management units (SWMUs) and Areas of Concern (AOCs) regulated under 335.167 which are recommended for further investigation and/ or corrective action in the RCRA Facility Assessment (RFA) shall include those identified in accordance with the permit requirements subsequent to the initial RFA. **Not Applicable**

c. All on site wastewater treatment units.**None**

3. Facility History

Based on the information provided in CP Table XI.A.1., complete CP Table I - Waste Management Units and Areas Subject to Groundwater Corrective Action

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

and Compliance Monitoring accordingly in the format provided. **CP Table I has been completed**

For the SWMUs or AOCs listed in CP Table XI.A.1. regulated under 30 TAC 335.167 which are recommended for further investigation and/or corrective action in the RCRA Facility Assessment (RFA), including those identified in accordance with permit requirements subsequent to the initial RFA, complete CP Table II - Solid Waste Management Units and Areas of Concern for which Corrective Action applies pursuant to 30 TAC 335.167. CP Table II will become part of the Compliance Plan. **Not Applicable**

4. Site Geology, Hydrogeologic Conditions, and Relationship to Surface Water
For New, modified/amended Compliance Plan, please provide a Geology Report as required by Section VI.B of this application containing updated site geologic information including the following descriptions, maps and tables with appropriate supporting documentation [All maps should be at the scale of 1 inch equal to not more than 200 feet and legible when reduced to 8.5" by 11" letter size paper]:

   a. A description of the site geology for the facility. The geologic description should include a site geology map and sufficient cross sections (see Item h. below) to describe the uppermost aquifer and any confining stratigraphic unit(s) beneath the site. **Not Applicable**

   b. A description of the site soils and subsurface lithologies using the Unified Soil Classification System. For those soil units which do not extend beneath the entire site area, the soil description should include a plan view map designating the soil's areal extent; **Not Applicable**

   c. Where a soil remedy is required in a corrective action program of Section XI.D.1. of this application for a Regulated Unit, SWMU and/or AOC, the applicant shall submit a description of contamination in soils of the vadose zone (unsaturated zone above the uppermost aquifer). The soil description should include maps indicating lateral and vertical extent of contamination; **Not Applicable**

   d. A description and designation of the uppermost saturated zone or uppermost aquifer including the name, the type of unit (e.g. perched, confined, etc.,), and groundwater characteristics (flow rates, directions, hydraulic conductivity, etc.). As defined in 40 CFR 260.10, an aquifer is a geologic formation, group of formation, or part of a formation, capable of yielding significant amount of groundwater to wells or springs. Persons using Texas Risk Reduction Program (TRRP) should also consider the definition of a groundwater bearing unit as a saturated geologic formation, group of formations, or part of a formation with a hydraulic conductivity of equal to or greater than 1 x 10 -5 centimeters/ second (30 TAC 350.4(a)40). Based on the information contained in the Geology Report, complete CP Table IX-Description of Uppermost Aquifer. CP Table IX will be come part of the Compliance Plan. **Not Applicable**

   e. Present the geologic, stratigraphic and hydrogeological information; and **Not Applicable**

   f. Maps indicating the lateral and vertical extent of the contamination for each stratigraphic unit affected, with supporting documentation. **Not Applicable**

   g. Current Contaminant Plume Map(s) Locating and identifying the extent of

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

contamination as determined from previous monitoring on a separate facility base map(s). Locate and identify all monitor wells and waste management units/areas. **Not Applicable**

h. Cross section Cross section transect lines should be indicated on the Contaminant Plume Map. The applicant, at a minimum, must submit two (2) stratigraphic cross sections for each waste management unit/area. One cross section should be drawn through all the point of compliance wells and the second cross section should be drawn along the direction of the movement of the contaminant plume released from the unit/area. Cross sections should follow the requirements outlined in the Geologic and Hydrogeologic Report of Parts IV and V of this application. At a minimum, the cross sections should include the following information: **Not Applicable**

1. the stratigraphic interpretation (e.g., surface grade, uppermost aquifer, aquiclude);
2. lithology/geologic description of the uppermost aquifer and aquiclude;
3. the potentiometric surface;
4. detected non-aqueous phase liquids (NAPLs) and hazardous constituents; and
5. screen length and screen depth for each well in the cross section.

i. Well Construction diagram The report should include a well construction diagram for all wells used in the cross section. The well construction diagram should include the information in "Attachment B" of this (Compliance Plan) application. The well construction diagram information may be included on the geologic cross-section(s). **Not Applicable**

j. Describe the potential for any surface water bodies to be hydraulically connected to groundwater containing hazardous constituents. Apply the guidance provided in Determining PCLs for Surface Water and Sediment, RG-366/TRRP-24 Revised, December 2002, in order to determine the water body type and applicable surface water criteria for human health, aquatic life and wildlife, as applicable. **Not Applicable**

B. Hazardous Constituents In Groundwater And Groundwater Protection Standards (GWPSs)

Hazardous Constituents in Groundwater

For each contaminated hydrogeologic unit beneath a waste management unit/area (40 CFR 264.95), provide a list of all 40 CFR Part 264 Appendix IX hazardous constituents that have been detected in groundwater samples above background values, Practical Quantitation Limits (PQLs), or Method Quantitation Limits (MQLs). Please submit for each unit/area the most recent Appendix IX laboratory analysis results showing the constituents, constituent concentrations, methods used for analysis and associated laboratory QA/QC.

The groundwater samples (collected for the purpose of determining whether constituents listed in Appendix IX are present) shall be from each waste management unit/area monitoring well system as required by 30 Texas Administrative Code (TAC) 335.164 (detection monitoring program).

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

If the waste management unit/area is subject to Corrective Action Program required by 30 TAC 335.166 or 335.167 and/or Compliance Monitoring required by 30 TAC 335.165, then list the unit/ area and include the list of hazardous constituents and their principal degradation constituents in:

CP Table III - Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard; and **CP Table III has been completed for the PMZ**

CP Table IV - Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring. **Not Applicable**

1. Groundwater Protection Standards (GWPSs)
   The GWPS (30 TAC 335.158) is designed to ensure that hazardous constituents (30 TAC 335.159) identified in groundwater and their principal degradational constituents do not exceed concentrations that pose a present or potential hazard to human health and the environment. Compliance monitoring and corrective action programs for a Regulated Unit (30 TAC 335.165 and 335.166) and a corrective action program for a solid waste management unit (SWMU) (30 TAC 335.167) require human health and the environment to be protected from all releases of hazardous wastes and constituents. These corrective action and monitoring programs are evaluated using the GWPS. The GWPS is based on the following criteria.
   a. Background Levels Background levels authorized under 30 TAC 335.160(a)(1) are defined as constituent concentration values that are naturally occurring or are not influenced by contamination coming from the waste management unit. These values are established by statistical analysis of upgradient well sampling data. Analytical results from a sufficient number of independent samples are required to be utilized with an approved and appropriate statistical method. For guidance on the statistical methods consult, Statistical Analysis of Groundwater Data at RCRA Facilities-Unified Guidance, U.S. EPA, March 2009, and any subsequent updates to this document.
      Practical Quantitation Limits (PQLs) or Method Quantitation Limits (MQLs) are utilized in lieu of background values unless a background demonstration establishes concentrations for naturally occurring constituents. The PQL or MQL is defined in the footnote of CP Tables III and IV.
   b. Primary and Secondary Maximum Contaminant Levels (MCLs) Maximum permissible level of a contaminant in water which is delivered to any user of a public water system (40 CFR Part 141 and 143, Federal Safe Drinking Water Act).
   c. Alternate Concentration Limits (ACLs) determined in accordance with 30 TAC 335.160(b) and are defined in footnote of CP Tables III and IV.

2. Establishing the Groundwater Protection Standard (GWPS)
   a. If background, PQL or MQLs are proposed for the GWPS, the applicant must list all constituents (i.e., detected and degradational constituents) for which a GWPS is being applied for and the appropriate concentration limits. This information shall be submitted in the format of CP Tables III, and IV.
   b. Alternate Concentration Limits (ACLs) ACLs are established at the point of compliance (POC) for a regulated or solid waste management unit (SWMU). All concentration values or limits listed in Section XI.B.1.c. are considered ACLs. ACLs are evaluated in accordance with the provisions of 30 TAC 335.160(b) and other regulations acceptable to the executive director. If an ACL is requested on the basis of Section XI.B.1.c. (MCLs), then no ACL

PPlease note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

demonstration is necessary. The ACL demonstration must establish constituent concentrations in groundwater in accordance with regulations acceptable to the executive director. This information shall be submitted in the format of CP Tables III and IV. Note that depending upon the rule employed [i.e., 30 TAC 335 Subchapter S - Risk Reduction Rules (RRR) or 30 TAC 350 - Texas Risk Reduction Program (TRRP)], the applicant should determine the GWPS for the point of compliance and point of exposure, as applicable, in accordance with the remedy standard being utilized.

c. If the contaminant plume discharges or has a potential to discharge into surface water, then the facility must also comply with 30 TAC Chapter 307 (Texas Surface Water Quality Standards) unless other regulatory requirements acceptable to the executive director are requested.

C. Compliance Monitoring Program **Not Applicable. Permitted unit is under a Corrective Action Monitoring Program**

As required by 30 TAC 335.165, an owner or operator must monitor the groundwater to determine whether Regulated Units are in compliance with the Groundwater Protection Standard (GWPS) under 30 TAC 335.158. The applicant must provide the following information when proposing a compliance monitoring program.

1. Groundwater Monitoring Program Description

a. Describe the proposed groundwater monitoring system to be used to monitor compliance with the GWPS which includes the following information.

(1) Changes, if applicable, from the current detection monitoring system or compliance monitoring system groundwater monitoring program at the waste management unit that will be required to comply with the compliance monitoring program described in 30 TAC 335.165. This description should address changes concerning:

(a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit an updated Geologic and Hydrogeologic Report required by Section XI.A.4];
(b) Waste management areas/units;
(c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
(d) The number and locations of additional monitor wells [also see Section XI.C.1.b.(2)];
(e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
(f) Frequency of monitoring;
(g) Monitoring parameters;
(h) Evaluation of compliance with GWPS (Statistical Methods);
(i) Other Sampling and Analysis Plan information to be compliant with "Attachment C";
(j) Compliance period as defined in Section XI.E.1.c. of the application;
(k) Financial assurance (see Section XI.E.); and
(l) An ACL variance under 30 TAC 335.160(b), if applicable.

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Observation Wells, Piezometers,

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

etc.). Complete CP Table V - Designation of Wells by Function and make changes as applicable to plans referenced in Section XI.C.1.b.

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in Table CP IV accordingly to develop the constituent list for the Compliance Monitoring Program. Also, list the PQL, MQL, or background concentration for each constituent in CP Table IV. CP Table IV shall become part of the final Compliance Plan to be analyzed at least annually as required by 30 TAC 335.165(7).

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IV., complete CP Table IVA - Compliance Monitoring Program, Table of Detected Hazardous Constituents and the Groundwater Protection Standard for Compliance Monitoring, accordingly. CP Table IVA shall become part of the final Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.165(6). **Not Applicable**

(5) Frequency of monitoring should be specified in CP Table VIII

(6) Provisions for reporting groundwater data at least on an annual basis should be specified in CP Table VII).

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI - Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan.

b. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Monitoring System Plan If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The Monitoring System Plan must include:

(a) Monitoring System Design and Specifications Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

(b) Well Drilling and Well Casing Specifications Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report Provide a report per Section X.I.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based.

2. Waste Management Units Monitored

a. Delineate and identify the following for each waste management unit in the proposed groundwater monitoring program.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units subject to compliance monitoring should be listed in CP Table I - Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring which shall become part of the final Compliance Plan.

(2) The proposed point of compliance (30 TAC 335.161) and point of exposure wells.

(3) Any other proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells be designated to monitor the downgradient extent of the plume.

(4) Features which may serve as conduits for subsurface contamination.

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance and/or point of exposure wells should be indicated in CP Table V - Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for compliance monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Compliance Plan.

3. Implementation Schedule

Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application or are not completed at the time of issuance of the final draft Permit/Compliance Plan, then the items should be added to the CP Table VIII - Compliance Schedule of the application.

D. Corrective Action Program

As required by 30 TAC 335.166, the owner or operator must take corrective action to ensure that Regulated Units are in compliance with the Groundwater Protection Standards (GWPS) under 30 TAC 335.158. As required under 30 TAC 335.167, all releases of hazardous constituents from any solid waste management unit at the facility must also be addressed. For existing corrective action programs which have been approved by the TCEQ, the applicant shall provide a copy of the TCEQ corrective action system approval letter, design system specifications and any updates as requested in Section XI.D.3.a.(1) of this section. The applicant must provide the information requested below when proposing a corrective action program which has not been previously approved by the TCEQ including a detailed description of a corrective action or a combination of corrective actions that will remedy the groundwater contamination at the waste management unit and a proposed plan for a monitoring program that will demonstrate the effectiveness of the corrective action.

The owner or operator may also apply for a the Facility Operations Area (FOA) pursuant to the requirements of 30 TAC 350.131 - 350.135 of the Texas Risk Reduction Program (TRRP) rules, provided the applicant meets the FOA pre-approval process steps 1 through 3 approved by the Commission.

Also, the owner or operator may apply for alternative groundwater Corrective Action Program pursuant 30 TAC 335.151, 335.156 and 30 TAC 350, where there are commingled releases from RCRA-regulated unit from one or more SWMUs, PCO, and/or AOC.

1. Type of Corrective Action Proposed
From the list below, indicate the type of groundwater corrective action proposed for each hazardous waste unit/area. Discuss in detail if more than one corrective action is to be used in a waste management area. Submit the discussion and descriptions as an attachment to the application.
   a. Groundwater well recovery with surface treatment
   b. Groundwater well recovery/surface treatment/re injection
   c. Groundwater well recovery and disposal **Active groundwater recovery was dicontinued in April 2013 after GWPS met for 3 consectuive years (per TCEQ approval dated April 19, 2013). Recovery system will be reactivated if GWPS are exceeded in the future.**
   d. Vapor extraction system
   e. Interceptor trench recovery and disposal
   f. Interceptor trench recovery and surface treatment
   g. In-situ treatment - bioreclamation
   h. In-situ treatment - chemical reaction
   i. Barrier walls/encapsulation
   j. Permeable treatment beds
   k. Other, please describe **Plume Management Zone - See Attachment XI.D.6.**

2. Program Description
Attach a technical report providing a detailed description of a complete corrective action system including above and below ground equipment/facilities. Include discussions on the following concerns for each type of corrective action as applicable. **S**

   a. Recovery Wells

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

(1) Indicate on a plan view of the waste management area the anticipated location of Recovery Well(s) which would optimize the extraction of the groundwater contaminants.
(2) Indicate on a plan view the estimated radius of influence of each Recovery Well.
(3) Indicate the optimum pumping rate of each Recovery Well determined from the aquifer pump test.
(4) Describe the design of the Recovery Wells and pump system including diameter, construction material, gravel packing, screen slot sizes and patterns, type of pumps and maintenance requirements.
(5) Describe the collection and storage of the contaminated groundwater which is classified hazardous waste (on site storage of hazardous waste shall require compliance with the applicable regulations):
    (a) Less than 90-day tanks (see 40 CFR 262.34/40 CFR 265 Subpart J);
    (b) Permitted Tanks (see 40 CFR 264 Subpart J);
    (c) (Less than 90-day Container Storage Area (see 40 CFR 262.34/40 CFR 265 Subpart I);
    (d) Permitted Container Storage Area (see 40 CFR 264 Subpart I); and
    (e) Temporary Units (see CFR 264.553).
(6) Describe the treatment and/or final disposition of the hazardous and nonhazardous contaminated groundwater.

b. Vapor Extraction System
(1) Indicate on a plan view of the waste management area the anticipated location of the vapor extraction system which would optimize the extraction of hazardous constituents from the vadose zone.
(2) Describe the construction design of the vapor extraction system in detail, including all diagrams and drawings.
(3) Describe the emission control equipment used to comply with air quality regulations.
(4) Provide the anticipated volatile contaminants to be remediated along with information on the expected effectiveness of the vapor extraction system at the waste management unit.
(5) Provide established treatability data for the proposed design.
(6) Specify the hazardous constituents affected by this type of treatment.

c. Interceptor Trenches
(1) Indicate on a plan view of the waste management area the anticipated location of the interceptor trench.
(2) Provide the construction design.
(3) Describe the procedure for construction.
(4) Describe the liquid removal and collection system.
(5) Describe the surface storage and/or treatment of the contaminated groundwater.
(6) Describe the final disposition of the contaminated groundwater.

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d. In-situ Treatment - Chemical Reaction
   (1) Characterize the chemical agents to treat the contaminated groundwater and/or soils in the vadose zone.
   (2) Provide laboratory treatability data.
   (3) Specify the hazardous constituents affected by this type of treatment.
   (4) Specify the reaction by products produced during the chemical reactions.
   (5) Indicate degradation time for each treated hazardous constituent and any resulting chemical reaction by products.
   (6) Describe the potential health risks caused by human exposure to the reaction by products.
   (7) Describe potential damage to wildlife, crops, vegetation and physical structures caused by exposure to reaction by products.
   (8) Describe the persistence and permanence of the potential effects of the reaction by products.
   (9) Describe the method of chemical reactant injection and other important aspects of the system design.

e. In-situ Treatment Bioreclamation
   (1) Describe the type of bacteria most appropriate for the degradation of the hazardous constituents present in the groundwater and/or soil in the vadose zone.
   (2) Describe the nutrients necessary and application frequency to encourage effective bioreclamation.
   (3) Provide laboratory data from treatability studies utilizing the contaminated groundwater and describe any potential hazardous by products.
   (4) Indicate the degradation time for each hazardous constituent affected by this treatment.
   (5) Describe the method of injecting the bacteria and nutrients and describe the delivery system design.

f. Barrier Walls
   (1) Provide laboratory permeability data using the actual contaminated groundwater.
   (2) Describe the barrier wall materials.
   (3) Summarize construction design and installation procedures.

g. Permeable Treatment Beds
   (1) Provide laboratory data of treatability simulations using actual contaminated groundwater in combination with the material proposed to be used in treatment beds.
   (2) Discuss the properties of the treatment material which would make it effective for use at this site.
   (3) Indicate which hazardous constituents will be affected by this treatment. Indicate the reactions which will take place and the resulting reactant by products. Discuss the anticipated lifetime of the permeable treatment beds.
   (4) Provide the construction design and installation procedures.

h. Other

Discuss in detail, any other corrective action (soils and groundwater) not

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included above which is proposed for use at the affected waste management area(s).

3. Groundwater Monitoring and Corrective Action Program Description

a. Describe the proposed groundwater monitoring system to be used to monitor corrective action and compliance with the GWPS which includes the following information.

(1) Changes, if applicable, from the current groundwater monitoring program at the waste management unit that will be required to comply with the corrective action monitoring program described in 30 TAC 335.166. This description should address changes concerning:

(a) Geological and/or hydrogeological information differences since the submittal of the previous application [must submit a Geologic and Hydrogeologic Report in accordance with Section XI.A.4;
(b) Waste management areas/units;
(c) Construction details for monitor wells to evaluate compliance with "Attachment B" well specification requirements;
(d) The number and locations of additional monitor wells [must submit the Monitoring System Plan/Report required by Section XI.D.3.c.(2);
(e) Sample handling, chain of custody, and analytical procedures (also see "Attachment C");
(f) Frequency of monitoring;
(g) Monitoring parameters;
(h) Evaluation of compliance with GWPS (statistical methods);
(i) Other Sampling and Analysis Plan information to be incompliant with "Attachment C";
(j) Compliance period as defined in Section XI.E.1.c. of the application;
(k) Financial assurance; and
(l) An ACL variance under 30 TAC 335.160(b), if applicable.

(2) The number, depth and location of all monitor wells (Background Wells, Point of Compliance Wells, Corrective Action Observation Wells, Supplemental Wells, piezometers, etc.) and all Recovery Wells and complete CP Table V - Designation of Wells by Function. Also, make revisions as applicable to plans referenced in Section XI.D.3.c. **CP Table V has been completed**

(3) The proposed hazardous constituent monitoring list which is based on constituents that were monitored during detection monitoring (if applicable), constituents detected in accordance with 30 TAC 335.164, and degradational constituents identified in CP Table III accordingly to develop the constituent list for the Corrective Action Monitoring Program. CP Table III shall become part of the final Compliance Plan. **The COC list is the same as in the existing Compliance Plan. CP Table III has been completed.**

(4) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table III complete CP Table IIIA - Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard,

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accordingly. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7). T**he COC list is the same as in the existing Compliance Plan. CP Table III has been Completed**

(5) Frequency of monitoring should be specified in CP Table VIII

(6) Provisions for reporting groundwater data at least on an annual basis should be specified in CP Table VII)

(7) Annual determination of contamination plume rate and direction of migration.

(8) Compliance period. Calculate the compliance period as required by 30 TAC 335.162 and 335.165(1)(d). Include calculations and complete CP Table VI - Compliance Period for RCRA-Regulated Units which shall become part of the final Compliance Plan

b. Proposed methods of evaluating the effectiveness of the corrective action in the saturated and vadose zone.

c. Submit the following plans and reports.

(1) Current Sampling and Analysis Plan The Sampling and Analysis Plan must include information required by 30 TAC 335.163(4) and 335.163(5) and 40 CFR Subpart 270.30(j). For guidance, please see "Attachment C" to the application.

(2) Groundwater Recovery and Monitoring System Plan At a minimum, the plan must include:

(a) Recovery System Plan The applicant should propose a recovery system design that will achieve the performance requirement to protect human health and the environment. The plan should provide detailed plans, information and specifications on the recovery system's design and well installation specifications. All new recovery wells must be installed in accordance with applicable specifications outlined in "Attachment B", unless an alternative well design is approved by the agency prior to installation of the well. The Recovery System Plan must include Recovery System Design and Specifications Certified by a Texas Registered Professional Engineer. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.;

(b) Monitoring System Plan If the applicant is proposing a monitoring well or a monitoring system in the application, the applicable well installation specifications outlined in "Attachment B" of this application should be followed. All new monitoring wells must be installed in accordance with the specifications outlined in "Attachment B", unless an alternative design is approved by the agency prior to installation. If the applicant proposes as part of the monitoring system, any well (existing or proposed) that does not meet or exceed the requirements outlined in "Attachment B", then the proposed alternative design must be described in detail in the Monitoring System Plan and must be submitted with this application. The

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Monitoring System Plan must include:

(i.) Monitoring System Design and Specifications Certified by a qualified engineer and/or geologist which provides detailed plans and specifications on the monitoring system design; and

(ii.) Well Drilling and Well Casing Specifications Certified by a qualified engineer and/or geologist which provides details on well casing specification, drilling logs and reports.

(3) Current Geologic and Hydrogeologic Report - Provide a report per Section XI.A.4 of this application discussing the geologic and hydrogeologic conditions of the facility and the specific area affected by the waste management areas. This report should include the most up-to-date information from which the design of the groundwater monitoring system was based. **Not Applicable**

4. Waste Management Units/Areas Monitored Under Corrective Action Programs **CP Table I has been completed.**

a. Delineate and identify the following for each waste management unit/area in the proposed groundwater monitoring and corrective action programs.

(1) Boundary of the waste management unit and, if applicable, the proposed waste management area which includes more than one waste management unit (identify all waste management units which are included in the waste management area). These waste management units/areas subject to corrective action pursuant to 30 TAC 335.166 and 335.167 should be listed in CP Table I -Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring. CP Table I shall become part of the final Compliance Plan. **CP Table I has been completed**

(2) The proposed point of compliance (30 TAC 335.161), point of exposure wells, or alternate point of exposure wells. **The approved POC and POE wells are provided in CP Table V**

(3) Any proposed monitor wells such as supplemental wells, observation wells, background wells, etc. If appropriate the groundwater monitoring system should have a sufficient number of wells to monitor the downgradient extent of the plume.

(4) Features which may serve as conduits for subsurface contamination.

(5) Corrective action system.

b. For each waste management unit/area in the proposed groundwater monitoring system, submit the locations of individual waste management unit/area monitor wells (existing or proposed) and any soil borings (plugged and unplugged) specifically drilled for assessment of contamination. These individual monitor wells shall be identified by respective well number on a plan view drawing and only the background, point of compliance, point of exposure wells and/or alternate point of exposure wells should be indicated in CP Table V - Designation of Wells by Function. The plan view map depicting the location of individual monitoring wells for corrective action monitoring should be labeled as "CP Attachment A, sheet xx of xx" in the text box. The title box should also include reference to the facility name, Permit/Compliance Plan Number, Solid Waste Registration Number, Unit

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

Description or name with Notice of Registration (NoR) Unit No. 0000. The "CP Attachment A" map(s) and CP Table V shall also become part of the final Permit/Compliance Plan. **CP Table V has been completed**

5. Waste Management Units/Areas Addressed Under Other Corrective Action Programs -Facility Operations Area (FOA), specific to the requirements of 30 TAC 350.131 - 350.135. The Permittee should also complete Sections XI.D.4. for other units not addressed by the FOA that may require corrective action outside the FOA boundary. For other units not addressed by the FOA, either within the FOA or outside the FOA which may require compliance monitoring, the Permittee should complete Section XI.C. of this application accordingly. **Not Applicable**

   a. Provide an approved version of the FOA Qualifying Criteria Checklist and evidence that Steps 1 through 3 of the FOA pre-approval process has been approved by the Commission.

   b. Provide a discussion on exceptions to the TRRP rule requested.

   c. Provide a summary of the SWMUs/AOCs that will be addressed within the FOA boundary and a discussion of the multiple sources of COCs present and how FOA will better address these sources.

   d. Provide maps of appropriate scale depicting the following (maps may be combined where appropriate):

      (1) The number, location and type of monitoring points in each stratigraphic unit to be monitored individual monitoring wells should be identified by respective well number on a plan view drawing, to include the background, Point of Compliance (POC), Point of Exposure (POE), FOA Boundary of Compliance wells, FOA piezometers or supplemental wells, Corrective Action Observation ((CAO), Corrective Action System (CAS) wells that are applicable for FOA monitoring program should be labeled as "CP Attachment A, sheet no xx of xx" in the title box. The title box should also include reference to the facility name, Permit/ Compliance Plan Number (00000), TCEQ Solid Waste Registration Number and Unit Description or Name. The "CP Attachment A" map(s) shall become part of the final Permit/Compliance Plan.
      (2) HWMUs/SWMUs/AOCs addressed
      (3) Surrounding land use
      (4) FOA lateral boundaries
      (5) Potential source areas
      (6) Potentiometric surface of all relevant transmissive units
      (7) Surrounding water wells
      (8) Extent of known contamination in each transmissive unit
      (9) Areas of potential ecological impact
      (10) Known occurrences of NAPL or DNAPL in each transmissive units
      (11) FOA access control components

   e. Provide cross-sections in accordance with Section XI.A.4. depicting the following (maps may be combined where appropriate);

      (1) The vertical boundaries of the FOA;
      (2) The vertical extent of contamination;
      (3) Groundwater level elevations for each transmissive unit.

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f. Provide tabulated information for;
   (1) Results of Appendix IX GW sampling.
   (2) Proposed PCLs for each hazardous constituent and principal degradational constituent for each monitoring point with supporting documentation (including a discussion of exposure pathways) should be listed in CP Table III - CORRECTIVE ACTION PROGRAM Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard. CP Table III shall become part of the final Compliance Plan.
   (3) The proposed indicator parameter monitoring list. From the list of constituents and GWPS identified in CP Table IIIA. CP Table IIIA shall become part of the Compliance Plan to be analyzed at least semiannually as required by 30 TAC 335.166(7).
   (4) Only the background, POC, POE, FOA Boundary of Compliance wells should be listed in CP Table V which shall become part of the final Permit/Compliance Plan.

g. Provide a discussion of the types of corrective action that will be employed to address contaminated media.
h. Provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.
i. Provide a detailed description of the ground water monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.
j. Provide a Sampling and Analysis plan for the proposed FOA that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures for evaluating analytical results (Appendix C).
k. Propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.
l. Propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.
m. Provide Financial Assurance in accordance with Section XI.E.
n. Provide draft language intended to comply with the deed notification requirements of 30 TAC 350.111 and 350.135(a)(11).
o. Provide a summary of the approved workers protection plan.
p. Provide a discussion of areas of ecological impact, if any, and development of associated Protective Concentration Limits (PCLs).
q. Provide a discussion of how NAPL occurrences, if any, will be addressed inside and outside the FOA.
r. Provide a schedule of implementation for items not completed at the time of application See also Section XI.D.8.

6. Waste Management Units/Areas Monitored Under Corrective Action Programs - Plume Management Zone (PMZ)
   a. Please provide a summary of the HWMUs and SWMUs/AOCs that will be addressed within the PMZ boundary.
   b. Please provide a discussion of the multiple sources of COCs present and how PMZ will better address these sources.
   c. Please provide maps of appropriate scale depicting the following (maps may be combined where appropriate);
      (1) HWMUs/SWMUs/AOCs addressed

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(2) surrounding land use
(3) PMZ lateral boundaries
(4) potential source areas
(5) Potentiometric surface of all relevant transmissive units
(6) Surrounding water wells
(7) extent of known contamination in each transmissive unit
(8) number, location and type of monitoring points in each stratigraphic unit to be monitored
(9) Areas of potential ecological impact
(10) known occurrences of LNAPL or DNAPL in each transmissive unit

d. Please provide sufficient cross-sections depicting the following (maps may be combined where appropriate);
   (1) The vertical boundaries of the PMZ;
   (2) The vertical extent of contamination;
   (3) potentiometric surfaces for each transmissive unit.

e. Please provide tabulated information for;
   (1) history of all relevant units or AOCs;
   (2) summary of hydrogeologic data for each affected transmissive unit;
   (3) results of Appendix IX GW sampling;
   (4) proposed PCLs for each constituent for each monitoring point (Point of Exposure wells, alternate point of exposure wells, etc.) with supporting documentation (including a discussion of exposure pathways). This should also include the designation/ establishment of sufficient number of Attenuation Monitoring Points (AMPs) beginning at an appropriate hydraulically upgradient location within the groundwater protective concentration level exceedance (PLCE) zone and continuing down the approximate central flow path of the constituent of concern (COC) in the downgradient extent of the Plume Management Zone(s) in accordance with 30 TAC 350.33(f)(4)(D).
   (5) Establish/Calculate Attenuation Action Levels (AALs) (critical PCLs) for each attenuation monitoring point in accordance with 30 TAC 350.33(f)(4)(D)(ii). The established AALs (critical PCLs) for each AMP well should be graphically presented in table format on the plan view map depicting the location of individual monitoring wells (including AMP wells) for corrective action monitoring labeled "CP Attachment A, Sheet xx of xx", referenced in XI.D.4.b.

f. Please provide a discussion of the types of corrective action that will be employed to address contaminated media.
g. Please provide detailed descriptions of GW recovery and other remedial technologies such as vapor extraction, interceptor trenches, hydraulic containment, barrier walls, etc., including radius of influence, estimated optimum recovery rates, location of collection, storage or disposal facilities.
h. Please provide a detailed description of the groundwater monitoring system including placement of monitoring wells, hydrogeologic characteristics of monitored units and well completion details.
i. Please provide a Sampling and Analysis plan for the proposed PMZ that includes development of COCs to be monitored, sampling methodology, sample handling procedures, sampling frequency and statistical procedures

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

for evaluating analytical results.

j. Please propose a methodology for evaluating the effectiveness of remedial measures and potential remedial system enhancements.
k. Please propose a reporting schedule to provide updated information on the installation and operation of remedial and monitoring systems.
l. Please provide a thorough detailed description of an estimate of all costs that will be incurred by implementing, operating, and maintaining the corrective action and monitoring systems addressed by the compliance plan.
m. Please provide draft language intended to comply with the deed notification requirements of 350.111, and schedule to verify compliance with institutional control requirements in accordance with 30 TAC 350.31(g) which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time as constituents of concern may be reduced to below the GWPS.
n. Schedule for notification requirements if an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property pursuant to 30 TAC 350.33(k).
o. Please provide a summary of the approved soil response action plan.
p. Please provide a discussion of areas of ecological impact, if any, and development of associated PCLs.
q. Please provide a discussion of how NAPL occurrences, if any, will be addressed inside the PMZ.
r. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

7. Waste Management Units/Areas Monitored Under Alternative Corrective Action Program for Co-mingled plumes Alternative groundwater Corrective Action Program apply, pursuant 30 TAC 335.151, 335.156 and 350, for commingled release from RCRA-regulated unit and from one or more SWMUs and/or AOC. **Not Applicable**

   a. Complete Sections XI.D.1. through 4.;
   b. In addition to the CP Attachment A maps in Section XI.D.4.b., CP Attachment A maps should clearly depict those waste management unit or areas of the facility which have commingled plumes and the alternative corrective action applies.
   c. Please provide a schedule of implementation for items not completed at the time of application {See also Section XI.D.8.}

8. Implementation Schedule
   Itemize and discuss, in detail, the estimated time schedule necessary for any testing and assessments, system design, construction and installation, and final implementation of the groundwater monitoring program for each Regulated Unit and solid waste management unit. If the schedule of implementation for items are not completed at the time of the application or are not completed at the time of issuance of the final draft Compliance Plan, then the items should be added to the CP Table VIII - (Compliance Schedule) of the application. CP Table VIII is complete

E. Cost Estimates For Financial Assurance

As required by 30 TAC 335.156 and 335.167, the applicant must provide cost estimates for groundwater monitoring and corrective action to determine the amount of financial assurance. Please complete the applicable parts of this form. Cost estimates should be filled out for each proposed corrective action/monitoring system at the site; or any additional corrective action system not covered in this Part. Please note, the Executive

Director may request from the applicant documentary evidence for cost estimates.

If an item is not applicable, please mark it NA. Please Complete the following tables, as applicable:

1. CP Table XI.E. - General Infomation **Table Completed**
2. CP Table XI.E.1. - Corrective Action Program Cost Estimate **Not Applicable**
3. CP Table XI.E.2.e - Groundwater Monitoring Cost Estimate **Not Applicable**
4. CP Table XI.E.3. - Financial Assurance Summary **Table Completed**

Table XI.E. -General Information

Waste Management Area/Units Description	N.O.R Unit No. (as applicable)	Compliance Period For WMA Year(s) [1] [2]
LandFill - Former Drum Burial Trench	NOR No. 005	2
	Remove Last Row	Add Row

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 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.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. Landfill-Former Drum Burial Trench	Former Drum Burial Trench	005	1/1/1986	F001/ F002	Approx. 350 crushed drums containing spent solvents along with other debris	None-drums, debris and contaminated soils removed in June 1988	12/1/1986	2/1/1996	Mar 7, 1996	Yes
2.		B								
3.		C								
		D								

Remove Last Row | Add Row

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 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 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.1. Corrective Action Program Cost Estimate Not Applicable		
1. Pumping Capacity Per Year:		
A. Daily average system pumping rate	NA	gal/day
B. Annual groundwater volume recovered	NA	gal/yr
2. Off-Site Liquid Treatment / Disposal Cost:		
A. Volume of treated contaminated water to be disposed of off-site yearly	NA	gal/yr
B. Transportation of liquid waste disposed of off-site yearly		
(1) Transportation cost per gallon	NA	$/gal
(2) Gallons of contaminated water shipped per year	NA	gal/yr
(3) Annual cost of transportation (1 x 2)	NA	$/yr
C. On-site yearly storage cost prior to off-site disposal	NA	$/yr
D. Off-site yearly treatment cost of liquid waste		
(1) Treatment charge per gallon	NA	$/gal
(2) Total volume to be treated per year	NA	gal/yr
(3) Annual treatment cost (1 x 2)	0	$/yr
E. Off-site disposal cost of liquid waste per year		
(1) Disposal charge per gallon	NA	$/gal
(2) Total volume to be disposed per year	NA	gal/yr
(3) Annual disposal cost (1 x 2)	NA	$/yr
***Annual Off-Site Liquid Treatment / Disposal Cost(2B3 + 2C +2D3 + 2E3)**	0	$
3. On-site Waste Water 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.		
A. Initial capital expenditure for treatment system including start up maintenance		
***On-Site Waste Water Treatment System Capital Cost (3A)**		
B. Gallons of contaminated water to be treated on-site per year	NA	gal/yr
C. Cost of on-site treatment per gallon	NA	$/gal

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

Table XI.E.2.e - Groundwater Monitoring Cost Estimate NOT APPLICABLE	
1. Annual Sampling and Analysis Cost:	
A. Background Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
B. Point of Compliance Wells	
(1) Number of wells	
2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
C. Recovery Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
D. Corrective Action Observation Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
E. Point of Exposure Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
F. Supplemental Wells	
(1) Number of wells	
(2) Sample analysis cost per well	$/well

Table XI.E.2.e - Groundwater Monitoring Cost Estimate	
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
G. Field Quality Control Sampling	
(1) Number of wells	
(2) Sample analysis cost per well	$/well
(3) Number of sampling events per year	/yr
(4) Sampling cost (1 x 2 x 3)	
H. Sampling Analysis Cost (1.A+1.B+1.C+1.D+1.E+1.G)	
2. Sampling Labor Cost:	
A. Hours of sampling per well	hrs/well
B. Number of sampling technicians per well	/yr
C. Charge per hour	$/hr
D. Total number of wells to be sampled annually	
E. Total number of wells sampled semi-annually	
F. Total number of wells sampled quarterly	
G. Total number of wells sampled monthly	
H. Total number of wells sampled per year (2D) + (2E x 2) + (2F x 4) + (2G x 12)	0
I. Sampling Labor Cost (2A x 2B x 2C x 2H)	$0.00
***Annual Groundwater Monitoring Cost**	$0.00
3. Well Installation (typical cost):	
A. Monitor well installation cost per well	$/well
B. Number of monitor wells to be installed	
C. Cost of monitor well system (A x B)	
D. Recovery well installation cost per well	$/well
E. Number of Recovery Wells to be installed	
F. Cost of Recovery well system (D x E)	
***Total Well Installation Cost (3C + 3F)**	
4. Administrative Cost:	

Table XI.E.2.e - Groundwater Monitoring Cost Estimate	
A. Annual cost for record-keeping and report preparation	
***Annual Administrative Cost (4A)**	$
5. Inspection and Maintenance Cost for the Monitoring Program:	
A. Operator's time (hours) on-site for inspections and maintenance per year	$/hr
B. Charge or salary per hour	$/hr
C. Annual cost of labor (4A x 4B)	$/hr
D. Replacement of parts and equipment per year	$/hr
***Annual Inspections / Maintenance Cost for the Groundwater Monitoring Program (5C + 5D)**	

Table XI.E.3. - Financial Assurance Summary

Task	Cost
Annual Off-Site Liquid Treatment / Disposal Cost	0
Annual On-Site Treatment / Disposal Cost	0
Annual Inspection / Maintenance / Operation Cost For The Corrective Action Program	0
Annual Groundwater Monitoring Cost	12,540
Annual Administrative Cost	6,000
Annual Inspection And Maintenance Cost For The Groundwater Monitoring Program	300
Annual Sub Total	18,840
Total Years Used For Calculating Financial Assurance for Corrective Action and/or Compliance Monitoring Program	2 Years
Remediation Cost (Annual Sub Total x Total Years Used)	37,680
On-Site Waste Water Treatment System Capital Cost Total Well Cost	0
10% Contingency	3,768
Total Cost	0
Grand Total Cost (round to nearest $1000)	41,448

Remove Last Unit from Closure Estimate | Add Unit for Closure Estimate

D. Cost of sludge, or solids disposal per year	NA	$/yr
E. Cost per year of maintenance on treatment system and recovery	NA	$/yr
F. Cost of on-site disposal per year	NA	$/yr
***Annual On-Site Treatment / Disposal Cost [(3B x 3C) + 3D + 3E + 3F]**		
4. Inspections, Maintenance and Operation Cost for the Corrective Action Program:	NA	hour/yr
A. Operator's time on-site for inspections and maintenance per year	NA	$/hr
B. Charge of salary per hour	NA	$/yr
C. Annual cost of labor (4A x 4B)	NA	$/yr
D. Replacement of parts and equipment per year	NA	$/yr
E. Electricity cost per year	NA	$/yr
***Annual Inspections / Maintenance / Operation Cost for the Corrective Action Program (4C + 4D + 4E)**		

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	Date Program Requirement and Remedy Standard Completed[4]
Former Drum Burial Trench	005	No-Further-Action letter recieved 11/25/24. Remedy Standard A achieved for all media (RACR March 28, 2024, revised July 22, 2024).

Remove Last Row | Add Row

B. Compliance Monitoring[1] (30 TAC Section 335.165)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]

Remove Last Row | Add Row

C. Corrective Action[2] (30 TAC Section 335.167)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]
Not Applicable		

Remove Last Row | Add Row

D. Alternative Corrective Action[3] (30 TAC Section 335.151)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]
Not Applicable		

Remove Last Row | Add Row

E. Facility Operations Area (FOA)[4] (30 TAC Section 335.156 and Chapter 350)

Unit Name	Notice of Registration (NOR) Number, if applicable	Date Program Requirement and Remedy Standard Completed[4]
Not Applicable		

Remove Last Row | Add Row

Note: If a specific program is not applicable to the unit/area then the program should be marked as "Reserved."

Foot Note:

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 RCRA-regulated unit and from one or more SWMUs and/or AOCs.
4. List SWMUs, additional units/areas of Investigation, AOCs, RCRA-regulated units within the FOA that are subject to corrective action. For RCRA units, SWMUs and/ or AOC outside the FOA boundary for which compliance monitoring and/ or corrective action applies should be listed separately in Items A, B or C as appropriate.

5. For the purpose of maintaining a historical record to verify the units/areas have met the program requirements in accordance with Permit Provisions XI.A.2, XI.A.3., XI.A.4. and/or XI.A.5., the permittee shall update CP Table I to reflect the new status of the unit/area to include the remedy standard achieved for all media of concern and the date of the Commission's No Further Action (NFA) approval letter. The units/area shall not be deleted from CP Table I until the program objectives have been completed and no further action has been approved through modification or amendment to the Permit.

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

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 [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC[1,2]	
Landfill - Former Drum Burial Trench	Acetone	22	GW GW ING	22	GW GW ING
	Benzene	0.005	GW GW ING	0.005	GW GW ING
	2-Butanone (MEK)	15	GW GW ING	15	GW GW ING
	Carbon Tetrachloride	0.54	GW GW ING	0.54	GW GW ING
	Chlorobenzene	3.56	GW GW ING	3.56	GW GW ING
	Chloroethane (Ethyl Chloride)	9.8	GW GW ING	9.8	GW GW ING
	Chloroform	0.24	GW GW ING	0.24	GW GW ING
	Chloromethane (Methyl Chloride)	0.07	GW GW ING	0.07	GW GW ING
	Dichlorodifluoromethane	4.9	GW GW ING	4.9	GW GW ING
	1,1-Dichloroethane	143	GW GW ING	143	GW GW ING
	1,2-Dichloroethane	30.7	GW GW ING	30.7	GW GW ING
	1,1-Dichloroethene (DCE)	83.3	GW GW ING	83.3	GW GW ING
	cis-1,2-Dichloroethene	0.07	GW GW ING	0.07	GW GW ING
	trans-1,2-Dichloroethene	0.1	GW GW ING	0.1	GW GW ING
	Ethylbenzene	0.7	GW GW ING	0.7	GW GW ING
	Methylene Chloride	332	GW GW ING	332	GW GW ING
	4-Methyl-2-pentanone (MIBK)	2.0	GW GW ING	2.0	GW GW ING
	1,1,2,2-Tetrachloroethane	0.0046	GW GW ING	0.0046	GW GW ING
	Tetrachloroethene	2.72	GW GW ING	2.72	GW GW ING
	Toluene	1.0	GW GW ING	1.0	GW GW ING
	1,1,1-Trichloroethane	136	GW GW ING	136	GW GW ING
	1,1,2-Trichloroethane	0.005	GW GW ING	0.005	GW GW ING
	Trichloroethene	30.8	GW GW ING	30.8	GW GW ING
	Trichlorotrifluoroethane (Freon 113)	730	GW GW ING	730	GW GW ING
	Vinyl Chloride	1.33	GW GW ING	1.33	GW GW ING
	Xylenes, total	10	GW GW ING	10	GW GW ING
	Acenaphthene	1.5	GW GW ING	1.5	GW GW ING
		Remove Last Parameter Row		Add Parameter Row	

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/l) at the POC [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC[1,2]	
	bis(2-ethylhexyl)phthalate	2.28	GW GW ING	2.28	GW GW ING
	1,2-Dichlorobenzene	6.11	GW GW ING	6.11	GW GW ING
	1,4-Dichlorobenzene	6.11	GW GW ING	6.11	GW GW ING
	2,4-Dichlorophenol	0.073	GW GW ING	0.073	GW GW ING
	2,4-Dimethlyphenol	0.49	GW GW ING	0.49	GW GW ING
	2-Methylnaphthalene	0.0098	GW GW ING	0.0098	GW GW ING
	2-Methylphenol (o-cresol)	1.2	GW GW ING	1.2	GW GW ING
	3&4-Methylphenol (m&p-cresol)	0.12	GW GW ING	0.12	GW GW ING
	Naphthalene	0.49	GW GW ING	0.49	GW GW ING
	Phenanthrene	0.73	GW GW ING	0.73	GW GW ING
	Phenol	7.3	GW GW ING	7.3	GW GW ING
	Pyrene	0.73	GW GW ING	0.73	GW GW ING
	1,2,4-Trichlorobenzene	0.07	GW GW ING	0.07	GW GW ING
		Remove Last Parameter Row		Add Parameter Row	

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, mark "Reserved" next to the CP Table III heading.

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 RCRA-regulated unit, SWMU, and/or AOC can exit the Corrective Action Program.

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 waste management area.

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 become a part of the Permit by reference.

Footnotes:

1. Use Column C to specify the GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP), or FBOC for those sites with FOA authorization. Put "N/A" if

a specific program or column item is not applicable.

2. For each COC, select the appropriate GWPS designation and definition 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).

Select ONE GWPS designation: ○ RRR GWPS Designation ○ TRRP GWPS Designation

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 POC [2]		**Column C** Groundwater Protection Standards (mg/l) at the POE or APOE, or FBOC[1,2]	
Landfill - Former Drum Burial Trench	Carbon Tetrachloride	0.54	SW GW	0.54	SW GW
	Chlorobenzene	3.56	SW GW	3.56	SW GW
	1,1-Dichloroethane	143	SW GW	143	SW GW
	1,2-Dichloroethane	30.7	SW GW	30.7	SW GW
	1,1-Dichloroethene (DCE)	83.3	SW GW	83.3	SW GW
	Methylene Chloride	332	SW GW	332	SW GW
	Tetrachloroethene	2.72	SW GW	2.72	SW GW
	1,1,1-Trichloroethane	136	SW GW	136	SW GW
	Trichloroethene	30.8	SW GW	30.8	SW GW
	Vinyl Chloride	1.33	SW GW	1.33	SW GW
	Remove Last Parameter Row			Add Parameter Row	

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, mark "Reserved" next to the CP Table III heading.

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 RCRA-regulated unit, SWMU, and/or AOC can exit the Corrective Action Program.

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 waste management area.

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 become a part of the Permit by reference.

Footnotes:

CP Table V: Designation of Wells

Point of Compliance Wells	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: MW-5, MW-6, MW-23	
Remove Last Unit and Wells	Add Unit and Wells
Point of Exposure Wells	
[*Add "None" if there are no POE wells] NOTE: This row will not appear when printed	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: MW-25, MW-26, MW-27, MW-36, MW-37	
Remove Last Unit and Wells	Add Unit and Wells
Alternate Point of Exposure Wells	
[*Add "None" if there are no APOE wells] NOTE: This row will not appear when printed	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: None	
Remove Last Unit and Wells	Add Unit and Wells
Background Wells	
Unit Name: Landfill - Former Drum Burial Trench	
Well Numbers: MW-1	
Remove Last Unit and Wells	Add Unit and Wells
FOA Boundary of Compliance Wells	
Exposure Pathway: (e.g. SWGW - Groundwater to surface water PCL for Brazos River or Barge Canal, etc)	
Unit Name: OW-6	
Well Numbers:	
Remove Last Unit and Wells	Add Unit and Wells

Wells that are not listed in this table, but are required by Permit Section XI.B.2 (e.g. AMP wells, CAO wells, etc.,) and depicted only in CP Attachment A are subject to change, upon approval by the Executive Director, without modification to the Compliance Plan.

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 CP Table VII and become a part of the Permit by reference.

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

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	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. 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	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.	During the first thirty (30) days	30 TAC §350.31(g)	Corrective action monitoring shall be conducted on a semiannual basis for any RCRA-regulated units subject to corrective action program, listed in CP Table I.A program.
D.	During the first thirty (30) days	30 TAC §350.33(k)	Compliance monitoring shall be conducted on a semiannual basis for any RCRA-regulated units subject to corrective action program listed in CP Table I.B.
E.	During the first thirty (30) days	30 TAC §335.167	For SWMUs and/or AOCs subject to alternative corrective monitoring, corrective action monitoring shall be conducted on a semiannual basis for the solid waste management units (SWMUs) and/or areas of concern (AOC) listed in CP Table I.C.

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
F	During the first thirty (30) days	30 TAC §335.151	For units subject to alternative corrective action, alternative corrective action shall be conducted on a semiannual basis for those units listed in CP Table I.D.
G.	During the first thirty (30) days	30 TAC Section 335.156 and Chapter 350	Corrective action monitoring shall be conducted on a semiannual basis for the RCRA Units, solid waste management units (SWMUs) and/or areas of concern (AOC) listed in CP Table I.E. located within the FOA Boundary
H.	120	30 TAC §350.31(g)	If a PMZ has been authorized, submit to the Executive Director proof of compliance with institutional control requirements which provides notice of the existence and location of the Plume Management Zone (PMZ) which prevents exposure to groundwater from this zone until such a time as constituents of concern may be reduced to below the GWPS of CP Table III.
I.	Notify within 30 days	30 TAC §350.33(k)	If a PMZ has been authorized, after an unexpected event occurs, or a condition is detected, during post-response action care period which indicates that additional response actions will be required at an affected property.
			See Note 2
			See Note 2
	Remove Last Row		Add Row

[1]Note: 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]Note: Add other site specific activities listed in the implementation schedule of the application that are not completed at the time of application submittal or issuance of the final draft compliance plan. Otherwise, delete requirement if no additional items necessary}. Some common examples are listed below..*

Example (PMZ-specific items that haven't been completed):

Within sixty (60) days of issuance of the Compliance Plan (or other specified time frame), the Permittee shall submit a schedule for completion of the following activities:

Designation/establishment of Attenuation Monitoring Point (AMP) well locations, AMP-xx, AMP-xx that provides appropriate hydraulically upgradient location within the groundwater protective concentration level exceedance (PLCE) zone and continuing down the approximate central flow path of the constituent of concern (COC in the downgradient extent of (unit/area) in accordance with 30 TAC Section 350.33(f)(4)(D).

Establishment/calculate Attenuation Action Levels (AALs) for AMP, AMP-xx, AMP-xx, in accordance with 30 TAC Section 350.33(f)(4)(D)(ii).

Example (installation of additional monitor wells):

Within sixty (60) days of issuance of the Compliance Plan (or other specified time frame), the Permittee shall submit a schedule for completion of the following activities:

The installation of additional wells MW-xx, MW-xx, POE-xx, etc., as depicting in CP Attachment A-monitor well location map. All newly installed wells must meet the requirements of XI.C and CP Attachment C.

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

Please note that, as per recent discussions, Murray understands that no-further-action letter for the purposes of future groundwater monitoring is being prepared by the Corrective Action section of the TCEQ. Hence, as per 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the current permit, this application seeks to remove the requirements for groundwater monitoring for the remainder time period of the compliance plan (until 2026). Also as discussed, in the coming months Murray intends to seek complete termination of permit and compliance plan.

Attachment A

Alternate Concentration Limits

Alternate Concentration Limits (ACLs) must be submitted by hazardous waste facility owners or operators who seek ACLs for any hazardous constituent as provided by 30 TAC 335.160(b) as a part of a compliance monitoring or corrective action program. An ACL demonstration should follow the guidance provided in this attachment. Compliance Plan Application, Section XI.B.2.b. outlines when an ACL demonstration must be conducted. Where possible in "Attachment A", the applicant may copy information previously submitted to the Commission and reference the information submitted in other Sections (Sections I and XI.B. through E.) of this Compliance Plan Application.

Alternate Concentration Limit Demonstration

An ACL petition is based on a demonstration that hazardous constituents detected in the groundwater will not pose a substantial present or future threat to human health or the environment at the ACL levels. Potential adverse effects on both groundwater quality and hydraulically connected surface water quality must be addressed. Using Environmental Protection Agency published lists of 40 CFR Part 264 Appendix IX hazardous constituents, the applicant must submit a list of all contaminants in the groundwater. For all the petitioned ACL constituents, the applicant must address all known synergistic and additive effects on human health and the environment to develop appropriate ACL levels.

Required Information for Alternate Concentration Limits

In addition to rule specific requirements (i.e., 30 TAC Chapter 335 Subchapter S RRR, or 30 TAC Chapter 350 TRRP), the following items must be addressed for each hazardous constituent for which an alternate concentration is sought (CP Tables III and IV, XII.B.). If the information required in this part has been furnished in other parts of Compliance Plan Application, please provide an adequate reference.

1. Potential adverse effects on groundwater quality, considering:
   a. The physical and chemical characteristics of the waste in the Regulated Unit, Solid Waste Management Unit(SWMU) or Area of Concern (AOC), including its potential for migration;
   b. The hydrogeological characteristics of the facility and surrounding land;
   c. The quantity of groundwater r and the direction of groundwater flow;
   d. The proximity and withdrawal rates of groundwater users;
   e. The current and future uses of groundwater in the area;
   f. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
   g. The potential for health risks caused by human exposure to waste constituents;
   h. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and,
   i. The persistence and permanence of the potentially adverse effects.

2. Potentially adverse effects on hydraulically connected surface water quality, considering:
   a. The volume and physical and chemical characteristics of the waste in the Regulated Unit, Solid Waste Management Unit (SWMU) or Area of Concern (AOC);

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b. The hydrogeological characteristics of the facility and surrounding land;
c. The quantity and quality of groundwater, and the direction of groundwater flow;
d. The patterns of rainfall in the region;
e. The proximity of the Regulated Unit to surface waters;
f. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
g. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;
h. The potential for health risks caused by human exposure to waste constituents;
i. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and,
j. The persistence and permanence of the potentially adverse effects.

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Attachment B

Well Design And Construction Specifications

The following well design and construction specifications should be used as guidance when designing a groundwater Compliance Monitoring Program (Section XI.C.) or a Corrective Action Program (Section XI.D.). This guidance is provided to establish minimum well design and construction specifications for the Compliance Plan.

1. Well drilling methods that minimize potential adverse effects on the quality of water samples withdrawn from the well and that minimize or eliminate the introduction of foreign fluids into the borehole must be utilized.

2. All wells shall be constructed such that the wells can be routinely sampled with a pump, bailer, or alternate sampling device. Piping associated with recovery wells should be fitted with sample ports or an acceptable alternative sampling method to facilitate sampling of the recovered groundwater on a well by well basis.

3. Above the saturated zone the well casing may be two (2) inch diameter or larger schedule 40 or 80 polyvinyl chloride (PVC) rigid pipe or stainless steel or polytetrafluoroethylene (PTFE or "teflon") or an approved alternate material. The PVC casing must bear the National Sanitation Foundation logo for potable water applications (NSF pw). Solvent cementing compounds shall not be used to bond joints and all connections shall be flush threaded. In and below the saturated zone, the well casing shall be stainless steel or PTFE.

   PVC or fiberglass reinforced resin may be used as an alternate well casing material in and below the saturated zone provided that it yields samples for groundwateruality analysis that are unaffected by the well casing material.

4. Any well that has deteriorated due to incompatibility of the casing material with the groundwater contaminants or due to any other factors must be replaced.

5. Well casings and screens shall be steam cleaned prior to installation to remove all oils, greases, and waxes. Well casings and screens made of fluorocarbon resins shall be cleaned by detergent washing.

6. Screen length shall not exceed ten (10) feet within a given transmissive zone unless otherwise approved by the executive director. Screen lengths exceeding ten (10) feet may be installed in groundwater recovery or injection wells to optimize the groundwater remediation process in accordance with standard engineering practice.

7. The intake portion of a well shall be designed and constructed so as to allow sufficient water flow into the well for sampling purposes and minimize the passage of formation materials into the well during pumping. The intake portion of a well shall consist of commercially manufactured stainless steel or PTFE screen or approved alternate material. The annular space between the screen and the borehole shall be filled with clean siliceous granular material (i.e., filter pack) that has a proper size gradation to provide mechanical retention of the formation sand and silt. The well screen slot size shall be compatible

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with the filter pack size as determined by sieve analysis data. The filter pack should extend no more than three (3) feet above the well screen. A silt trap, no greater than one (1) foot in length, may be added to the bottom of the well screen to collect any silt that may enter the well. The bottom of the well casing shall be capped with PTFE or stainless steel or approved alternate material.

Groundwater recovery and injection wells shall be designed in accordance with standard engineering practice to ensure adequate well production and accommodate ancillary equipment. Silt traps exceeding one (1) foot may be utilized to accommodate ancillary equipment. Well heads shall be fitted with mechanical wellseals, or equivalent, to prevent entry of surface water or debris.

8. A minimum of two (2) feet of pellet or granular bentonite shall immediately overlie the filter pack in the annular space between the well casing and borehole. Where the saturated zone extends above the filter pack, pellet or granular bentonite shall be used to seal the annulus. The bentonite shall be allowed to settle and hydrate for a sufficient amount of time prior to placement of grout in the annular space. Above the minimum two (2) foot thick bentonite seal, the annular space shall be sealed with a cement/bentonite grout mixture. The grout shall be placed in the annular space by means of a tremie pipe or pressure grouting methods equivalent to tremie grouting standards.

   The cement/bentonite grout mixture or TCEQ approved alternative grout mixture shall fill the annular space to within two (2) feet of the surface. A suitable amount of time shall be allowed for settling to occur. The annular space shall be sealed with concrete, blending into a cement apron at the surface that extends at least two (2) feet from the outer edge of the monitor well for above ground completions. Alternative annular space seal material may be proposed with justification and must be approved by the executive director prior to installation.

   In cases where flush to ground completions are unavoidable, a protective structure such as a utility vault or meter box should be installed around the well casing and the concrete pad design should prevent infiltration of water into the vault. In addition, the following requirements must also be met 1) the well/cap juncture is watertight; 2) the bond between the cement surface seal and the protective structure is watertight; and 3) the protective structure with a steel lid or manhole cover has a rubber seal or gasket.

9. Water added as a drilling fluid to a well shall contain no bacteriological or chemical constituents that could interfere with the formation or with the chemical constituents being monitored. For groundwater recovery and injection wells, drilling fluids containing freshwater and treatment agents may be utilized in accordance with standard engineering practice to facilitate proper well installation. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

10. Upon completion of installation of a well, the well must be developed to remove any fluids used during well drilling and to remove fines from the formation to provide a particulate free discharge to the extent achievable by accepted completion methods and by commercially available well screens. Development

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shall be accomplished by reversing flow direction, surging the well or by air lift procedures. No fluids other than formation water shall be added during development of a well unless the aquifer to be screened is a low yielding water bearing aquifer. In these cases, the water to be added should be chemically analyzed to evaluate its potential impact on in-situ water quality, and to assess the potential for formation damage.

For recovery and injection wells, well development methods may be utilized in accordance with standard engineering practice to remove fines and maximize well efficiency and specific capacity. Addition of freshwater and treatment agents may be utilized during well development or re development to remove drilling fluids, inorganic scale or bacterial slime. In these cases, the water and agents added should be chemically analyzed to evaluate their potential impact on in-situ water quality and to assess the potential for formation damage. All such additives shall be removed to the extent practicable during well development.

11. Each well shall be secured and/or designed to maintain the integrity of the well borehole and groundwater.

12. The above ground portion of the well must be protected by bumper guards and/ or metal outer casing protection when wells are located in traffic areas or outside the secured plant area.

13. The attached Table of Well Construction Details (Item 13) is to be completed or updated for each well installed and kept on site. Items in the table that require a yes or no answer indicate diagrams plans, or procedures that shall be kept on site and made available to inspection. The completed table and other records shall include all the following information:

- name/number of well (well designation);
- intended use of the well(sampling, recovery, etc.);
- date/time of construction;
- drilling method and drilling fluid used;
- well location (+ 0.5 ft.);
- bore hole diameter and well casing diameter;
- well depth (+ 0.1 ft.);
- drilling and lithologic logs;
- depth to first saturated zone;
- casing materials;
- screen materials and design;
- casing and screen joint type;
- screen slot size/length;

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- filter pack material/size;
- filter pack volume (how many bags, buckets, etc.);
- filter pack placement method;
- sealant materials;
- sealant volume (how many bags, buckets, etc.);
- sealant placement method;
- surface seal design/construction;
- well development procedure;
- type of protective well cap;
- ground surface elevation (+ 0.01 ft. MSL);
- top of casing elevation (+ 0.01 ft. MSL); and,
- detailed drawing of well (include dimensions).

14. Construction or plugging and abandonment of each well shall be completed in accordance with the requirements of 16 TAC Chapter 76 and must be reported/ certified to the TCEQ that such proper construction or plugging and abandonment has occurred following installation or plugging and abandonment. Well completion logs for each newly installed or replaced well shall be included with the report. The certification shall be prepared by a qualified geologist or geotechnical engineer. Each well certification shall be accompanied by a certification report, including an accurate log of the soil boring, which thoroughly describes and depicts the location, elevations, material specifications, construction details, and soil conditions encountered in the boring for the well. A copy of the certification and certification report shall be kept on site, and a second copy shall be submitted to the executive director.

15. The well number must be clearly marked and maintained on each well at the site.

16. The elevation of the top of each well casing must be measured in feet above mean sea level to the nearest 0.01 foot.

17. Wells must be replaced at any time the well integrity or materials of construction or well placement no longer enable the well to yield samples representative of groundwater quality.

18. Soil test borings shall be plugged and wells removed from service with a cement/bentonite grout mixture so as to prevent the preferential migration of fluids in the area of the borehole. Certification of each plugging shall be reported in accordance with Provision 14. The plugging of wells shall be in accordance with 16 TAC Chapter 76 dealing with Well Drilling, Completion, Capping and Plugging.

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19. A well's screened interval shall be appropriately designed and installed to meet the well's specific objective (i.e., either DNAPL, LNAPL, both, or other objective of the well). All wells designed to detect, monitor, or recover DNAPL must be drilled to intercept the bottom confining layer of the aquifer. The screened interval to detect DNAPL should extend from the top of the lower confining layer to above the portion of the aquifer saturated with DNAPL. The screened interval for all wells designed to detect, monitor, or recover LNAPL must extend high enough into the vadose zone to provide for fluctuations in the seasonal water table. In addition, the sandpacks for the recovery or monitoring well's screened interval shall be coarser than surrounding media to ensure the movement of NAPL to the well.

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Attachment C - Sampling And Analysis Plan

Introduction and Purpose

This Attachment was prepared for the purpose of providing guidance for the preparation of a Groundwater Sampling and Analysis Plan (SAP) to meet the requirements of 30 Texas Administrative Cod (TAC) 335.163(4) and (5) and also 40 CFR 270.30(j). This guidance is based on the publication, RCRA Groundwater Monitoring: Draft Technical Guidance (TEGD Update) (November 1992, USEPA), and its updates, and is not intended to be rule or policy, or include all acceptable practices.

When preparing the SAP, the applicant may insert copies of areas of the Compliance Plan Application already completed which provides any necessary information for completion of the SAP. The SAP should include the information described in the following sections. When certain sections are not applicable, please provide justification for omission from the SAP.

1. Pre Field Activity
   a. The log book format should be outlined in the SAP and should contain at a minimum:
      - the names of those conducting the sampling event;
      - the purpose and provision(s) of the compliance plan requiring the sampling event;
      - weather conditions at time of sampling;
      - date and time of collection;
      - well identification;
      - integrity of well;
      - monitoring well measurements, including: total well depth; static water level depth; measurement techniques; height of water column; well volume; and, notation of the presence or absence of accumulated silt (including thickness and measurement procedures);
      - notation of the presence or absence of NAPLs (including thickness and detection method);
      - well purging procedures, including equipment, purge volume, pumping rate, and well purge time;
      - sampling methods, including well sampling sequence, sampling equipment and withdrawal procedures;
      - visual and measured water quality parameters required for analysis, such as appearance, pH, conductivity, temperature and turbidity; and,
      - sample preservation and handling procedures, including types of sample bottles, sample identification numbers, preservatives used, and internal temperature of field and shipping containers.
   b. The SAP should reference the Provisions or Tables within the Compliance Plan regarding monitor well designations, parameters to be monitored, and sampling frequency, rather than utilizing detailed lists.
   c. The SAP should include examples of the log book format, chain of custody, and information to be included on the container labels and seals.
   d. The SAP should reference both the Health and Safety Plan, and Field Emergency Contingency Plan. These Plans should be checked to determine if they adequately address health and safety issues that may occur during a sampling event.
2. Prior to Purging Well

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a. A. Procedures for evaluating the physical condition and integrity of the well should include:
   - inspecting the casing and cap for cracks, signs of deterioration or tampering;
   - determination if the cap and monitoring well are secure;
   - inspecting the well pad for cracks, or signs of deterioration, erosion, settling, and/or animal and insect burrowing; and,
   - where appropriate, inspect any dedicated equipment for signs of cleanliness, structural integrity and deterioration.

b. Procedures and equipment used for measuring groundwater elevations, well depths, silt accumulation, and Non Aqueous Phase Liquids (NAPLs) should be included in the SAP. Water levels should be measured from the surveyed datum on the top of the well casing, with a precision of ±0.01 foot. If present, accumulated silt and light/dense NAPLs should be measured for thickness.

c. Procedures for monitoring site specific weather conditions at the time of sampling should be incorporated into the SAP, including precipitation (when applicable), temperature, and approximate wind speed and direction.

3. Sampling Preparation Activity

a. Well purging methods:

(1) A sampling contingency plan should be developed for wells which are purged to dryness or purged such that full recovery exceeds two hours. In such instances, samples should be taken as soon as a sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

(2) In all instances of purging, the SAP should describe in detail the equipment used (dedicated or non dedicated), purging rate, and the method for determining volume purged.

(3) Although purging and sampling by bailers is acceptable, the EPA recommends the use of dedicated pumping equipment designed for low flow rates.

(4) When utilizing micropurging methods, the purge rate may range between 0.1 to 0.5 liter/minute. During micropurging, drawdown should not exceed 0.1 meter. The applicant should provide justification for any alternate sampling procedure. The SAP should also specify the well screen interval at which the pump intake is placed and a copy of the boring log for each well utilizing micropurging. In line measurements of redox, dissolved O2 and turbidity during purging of groundwater should stabilize within 10% over at least two measurements prior to sampling.

b. Field filtering of groundwater samples should not be conducted unless the applicant has provided a justification and field filtration is approved by the TCEQ. If samples are field filtered, a 10 micron filter should be used while still fulfilling the data quality objectives for the groundwater monitoring program.

c. The container type, size, and labeling method for each procedure performed should be referenced and/or tabulated in the SAP.

d. Sample blanks, field blanks, trip blanks and split sampling procedures, including frequency and preservation should be specified in the SAP as quality control checks for each sampling event. The preparation, analysis,

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and evaluation of replicates, duplicates and spikes should also be included.

4. Well Sampling
   a. Well sampling equipment, collection procedures, and sampling sequence of wells, should be specified in the SAP. The SAP should include sampling equipment that is constructed of inert material, which should not alter analyte concentration due to loss of analyte via absorption, or gain via desorption, degradation or corrosion.
   b. Field QA/QC and sample preservation methods used to control pH, chemical addition and refrigeration of samples should be described in the SAP and follow the methods described in the current editions of EPA Report SW 846, "Test Methods for Evaluating Solid Waste" and American Society for Testing and Materials (ASTM) Standard Test Methods or other methods accepted by the TCEQ. The SAP should indicate that chemical preservatives are to be added to samples in the field and not in the laboratory. The SAP should indicate that coolants used for refrigerating samples need to be contained (e.g. blue ice).
   c. Procedures for sampling inorganics and volatile/semi volatile organics should be described in the SAP and follow the methods of SW 846 and ASTM or other methods accepted by the TCEQ.
5. Post Sampling Activity
   a. Decontamination procedures should be included in the SAP when dedicated equipment is not used for purging and sampling, or when dedicated equipment is stored outside the well. The procedures should include disassembly, cleaning of equipment, packaging and storage of equipment when not in use.
   b. Analytical methods and holding times should be tabulated in the SAP in accordance with SW 846 and ASTM or other methods accepted by the TCEQ.
   c. Chain of custody and shipping procedures should be described and intended to prevent misidentification of samples, to identify and prevent tampering of the samples during shipping and storage, and allow easy tracking of the shipment from the field to final analyses. A Chain of Custody Form should accompany each sample shipment and include the following information:
      - sample identification number;
      - signature of collector;
      - date and time of collection;
      - sample type (e.g. groundwater);
      - identification of sampling point (well);
      - number of containers;
      - parameters requested for analysis;
      - preservatives used;
      - signature(s) of person(s) involved in the chain of possession;
      - inclusive dates and time of possession;
      - internal temperature of shipping container when samples were sealed into the container for shipping; and,
      - internal temperature of container upon opening in the laboratory.

Samples should be shipped in coolers or similar containers designed to keep samples at a constant 4˚C and prevent breakage. Containers used for sample shipment should be

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sealed with the seal signed and dated by the sampler.

d. Disposal methods of contaminated equipment, wash water and purged groundwater should be described.

e. Laboratory QA/QC procedures should include control samples as defined in Chapter I of SW 846. An appropriate statistical method/procedure should be used to monitor and document performance and to implement an effective program to resolve testing problems (instrument maintenance). Data from the control samples (i.e. spiked samples, duplicates and blanks) should be used as a measure of performance or as an indicator of potential source of cross contamination (i.e. from instrumentation). QA/QC documentation for reporting values should be tabulated on laboratory data sheet and include: target analyte; unit of measure (e.g. ppm); method analyses; and, time/dates of sample collection and analyses.

1. Use Column C to specify the GWPS assigned at a POE or APOE (i.e. for sites with MNA or PMZ proposals as applicable under TRRP), or FBOC for those sites with FOA authorization.

   Put "N/A" if a specific program or column item is not applicable.

2. For each COC, select the appropriate GWPS designation and definition 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; PQL = practical quantitation limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B

Select ONE GWPS Designation ○ RRR GWPS Designation ◉ TRRP GWPS Designation

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XII. Hazardous Waste Permit Application Fee

Provide all Part B responsive information in Appendix XII. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

In accordance with 30 TAC 305.53, complete Tables XII.A. - Hazardous Waste Units (For Application Fee Calculations) and XII.B. - Hazardous Waste Permit Application Fee Worksheet. Use the following information in calculating your fee. The application fee will be non-refundable once an initial review of the application has been completed. 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 necessary.

A. The minimum permit application fee for a permit or a permit renewal for each hazardous waste facility to be used for Storage, Processing, Disposal, or Closure/Post-Closure Care (disposal has already occurred) of hazardous waste shall be $2,000, plus notice fee, and the maximum shall be $50,000, calculated according to these instructions:

1. Process Analysis - $1,000.00.

2. Management/Facility Analysis - $500.00.

3. A facility unit(s) analysis of $500 per unit is charged for the following:

   a. each cell of a landfill (note that multiple cells that are identical in type and use are subject to a single $500 fee);

   b. tanks and container storage areas (note that multiple tanks and container storage areas that are identical in type and use are subject to a single $500 fee)

   c. identical in type and use means the following:
      (1) made of the same material and same design;
      (2) the same size/capacity within + 10%;
      (3) store the same waste (as identified by USEPA hazardous waste number - 40 CFR 261 Subparts C & D); and
      (4) have the same management characteristics (e.g., storage only).

   d. Each incinerator, boiler/industrial furnace unit, surface impoundment, waste pile, land treatment unit, drip pad, miscellaneous unit, or containment building.

4. Site Evaluation - $100 per acre of surface used for hazardous waste management up to 300 acres. No additional fee thereafter. This shall be calculated as any acreage which will be permitted to manage hazardous waste. This shall include, for example, the entire area within the secondary containment of a tank farm, the area within a fence that surrounds individual units (other than the facility fence), or the area defined by the toe of the dike surrounding a landfill or impoundment, etc.

5. An applicant shall also include with each initial application a fee of $50 to be applied toward the cost of providing the required notice. An additional notice

fee of $15 is required with each application for renewal.

B. The application fee for a major amendment or a Class 2 or 3 modification to a hazardous waste permit for operation, closure, or post-closure care is subject to the fees listed below:

1. A management/facility analysis fee of $500.

2. The notice fee is $50.

3. If a unit is added or a unit area is expanded for any purpose, $100 per additional acre is assessed, until the total additional acreage reaches 300 acres.

4. If one or more of the following reports are added or are significantly revised, the process analysis fee of $1000 is assessed:

   a. waste analysis plan;

   b. site-specific or regional geology report;

   c. site-specific or regional geohydrology report;

   d. groundwater and/or unsaturated zone monitoring;

   e. closure and/or post-closure care plan; or

   f. RCRA Facility Assessments (RFAs), or corrective action reports;

   g. Alternate Concentration Limit (ACL) demonstration or Development of Protective Concentration Limits (PCLs);

   h. Regulated Unit Facility Assessment, Corrective Action (CA) work plans or reports for Regulated Units; and/or

   i. RCRA Facility Investigation (RFI)/Affected Property Assessment (APA), Remedy Selection, Corrective Measure Implementation (CMI)/Remedial Action Plan for solid waste management units, and/or areas of concern;

   j. Facility Operations Area (FOA).

5. A unit analysis fee of $500 per unit is assessed if any of the following occur:

   a. if a unit is added (even if identical to units already in place, using the criteria discussed in A.3 above);

   b. if there are design changes in an existing unit; or

   c. if a unit status changes from closure to post-closure care;

   d. Changes in the number, location, depth, or design of wells approved in compliance plan or a permit (unless it is a replacement well);

   e. Changes in point of compliance and compliance monitoring program;

   f. Changes in Groundwater Protection Standards, indicator parameters, Alternate Concentration Limits or Protective Concentration Limits; and/or

   g. Changes in corrective action program.

C. The application fee for a minor amendment, a Class 1, or a Class 1^1 modification of a

hazardous waste permit is $100 plus the notice fee of $50.

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]
Former Drum Burial Trench	N/A	0.11	1	N/A
		Total[4] 0.11	Total[4] 1	
			Remove Last Row	Add Row

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: Murray Corporation

Solid Waste Registration Number: 33063

1. Process Analysis - $1,000..... $ 1,000.

2. Facility Management Analysis - $500..... $ 500

3. Unit Analysis - 1 unit(s) @ $500 per unit..... $ 500

4. Site Evaluation – 0.11 acres @ $100 per acre..... $ 11

(Maximum of 300 acres)

5. Minor amendment, Class 1, or Class 1[1] modification - $100..... $

6. Cost of Providing Notice - $50 (+ $15 for a renewal) $65

Pay This Amount **Total** $ 2,076

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
197267410	8/27/2024	$2,076.00

XIII. Confidential Material-RESERVED

APPENDIX A-1

SITE LEGAL DESCRIPTION
Attachment B

This attachment contains a legal description of the permitted facility addressed by Murray Corporation's Hazardous Waste Permit No. HW-50328. Although previously owned by Murray Corporation, the property (consisting of Tracts 1, 2, 4 and 5) and buildings located on the property are now owned by GKG Palestine Property LLC (GKG). To allow GKG to obtain any necessary permits, registration or identification numbers required by their business, the land identified within Tract 3 remains excluded from the permitted facility. Legal descriptions and maps of the individual tracts, as well as a map of the permitted facility are provided in this Attachment. The following is a historical summary of the acreage included in the permitted facility.

In March, 1990, Murray Corporation applied to the then Texas Water Commission (TWC) for the original post-closure care permit (Permit HW-50328), which was issued December 2, 1992. The facility was described as being located on a 5.7 acre tract of land near the City of Palestine, Anderson County, Texas. The said 5.7 acre permitted facility was contained within 16.244 acres owned by Murray Corporation that was made up of two tracts being 7.721 acres and 8.523 acres (Tracts 1 and 2). The certain tracts are located within the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas and are recorded in the Deed Records of Anderson County, Texas in Volume 965, Page 559 and Volume 888, Page 879 respectively. At the time of the original permit application, the remainder of the 16.244 acres was being leased to the operator of the manufacturing facility located on the property. The leased portion of the property (described as Tract 3) consisted of 10.522 acres and was excluded from the permitted facility. The real property descriptions of Tracts 1, 2 and 3 are provided in this Attachment.

In 1990, Murray Corporation acquired a certain 3.15 acre tract in the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas located between the Union Pacific Railroad Right-of-Way and County Road No. 2144 (recorded in Volume 1243, Page 736 of the Anderson County Land Records). This 3.15-acre tract is described as Tract 4 in this Attachment and is part of the permitted facility.

Finally, in 1992, Murray Corporation acquired a certain 12.962 acre tract in the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas located between County Road No. 2144 and Town Creek (recorded in Volume 454, Page 135 of the Deed Records of Anderson County). This tract is described as Tract 5 in this Attachment and is part of the permitted facility.

The total acreage of the permitted facility is currently 21.8 acres.

EXHIBIT A
to
DEED OF TRUST, SECURITY AGREEMENT, ASSIGNMENT OF RENTS AND FINANCING STATEMENT from Murray Corporation to Cad Williams, as Mortgage Trustee

Real Property Description

TRACT ONE

A L That certain tract or parcel of land, a part of the JOSEPH JORDAN SURVEY ABSTRACT No. 33, Anderson County, Texas, also being a part of that certain called 45.35 acre Second Tract conveyed to Anderson County Chamber of Commerce by Jack B. Bishop et ux, March 31, 1953, and recorded in Volume 434, page 135 of the Deed Records of Anderson County, Texas, also being all of that certain called 7.721 acre tract conveyed to Murray Corporation of Texas by Palestine Industrial Foundation, Inc., June 23, 1982, recorded in Volume 965, page 559 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

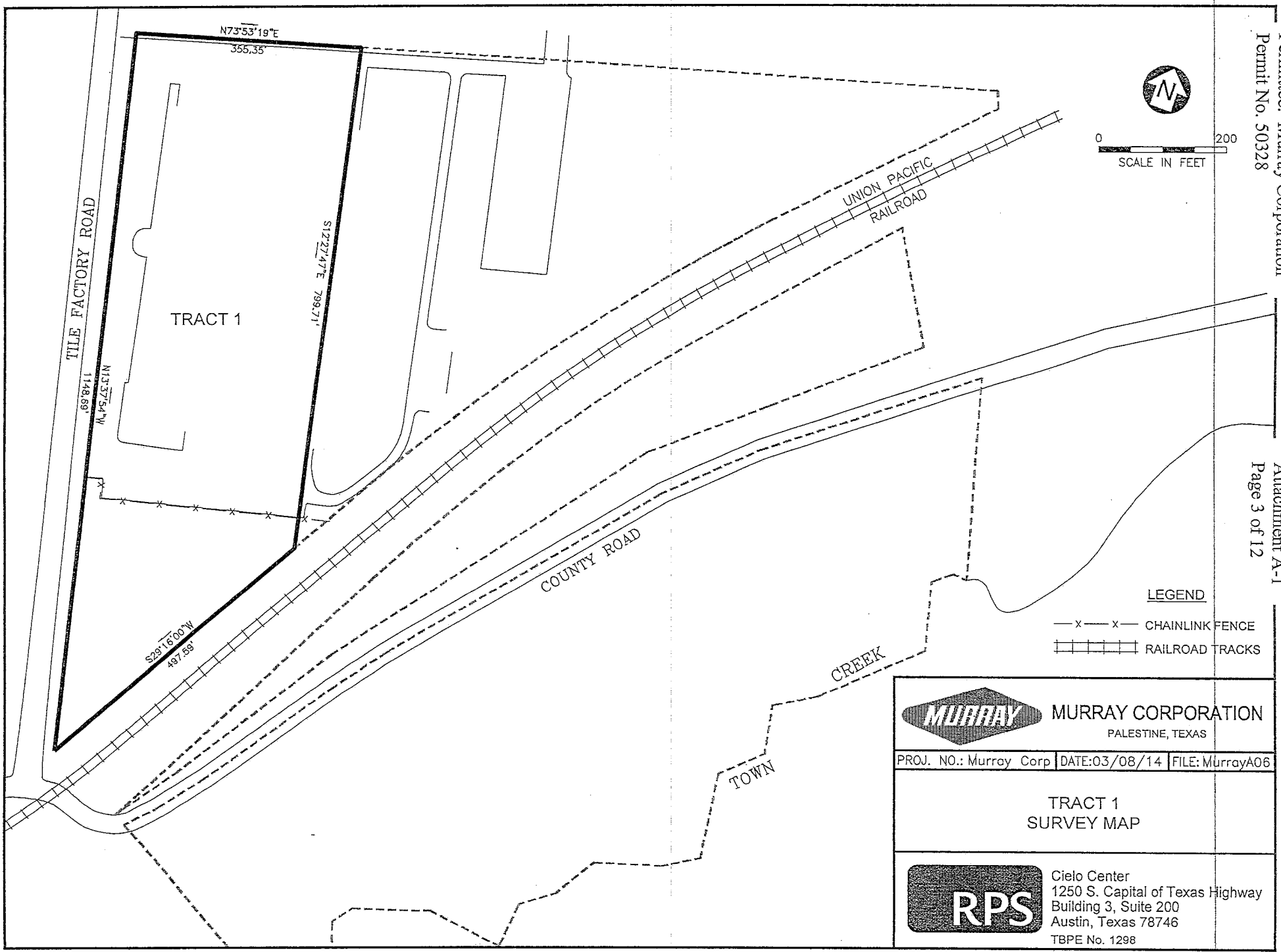
BEGINNING at a 1/2" Iron Rod for corner in the North line of the above mentioned 45.35 acre tract, said corner Brs. S 73° 53' 19" W - 1005.00 feet from the Northeast corner of said tract.

THENCE S 12° 27' 47" E a distance of 799.71 feet to a 1/2" Iron Rod for corner in the Northwest R. O. W. line of the Missouri and Pacific Railroad.

THENCE S29° 16' W with the Northwest R. O. W. line of the Missouri and Pacific Railroad a distance of 497.59 feet to a 1/2" Iron Rod for corner in the East margin of Tile Factory Road.

THENCE N 13° 37' 54" W with the East margin of Tile Factory Road a distance of 1148.69 feet to a 1 1/2" Iron Pipe found for corner in the North line of said Second Tract.

THENCE N 73° 53' 19" E with the North line of said tract a distance of 351.35 feet to the place of beginning, containing 7.721 acres of land.



MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp	DATE:03/08/14	FILE: MurrayA06

TRACT 1
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298

TRACT 2

VOL 236 PAGE 389

EXHIBIT A (Cont.)

TRACT TWO

ALL that certain tract or parcel of land, a part of the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas, also being a part of that certain called 45.35 acre Second Tract conveyed to Anderson County Chamber of Commerce by Jack E. Bishop et ux, March 31, 1935, recorded in Volume 454, page 135 of the Deed Records of Anderson County, Texas, also being all of that certain called 8.523 acre tract conveyed to Murray Corporation by Palestine Industrial Foundation, Inc., January 30, 1979, recorded in Volume 888, page 879 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

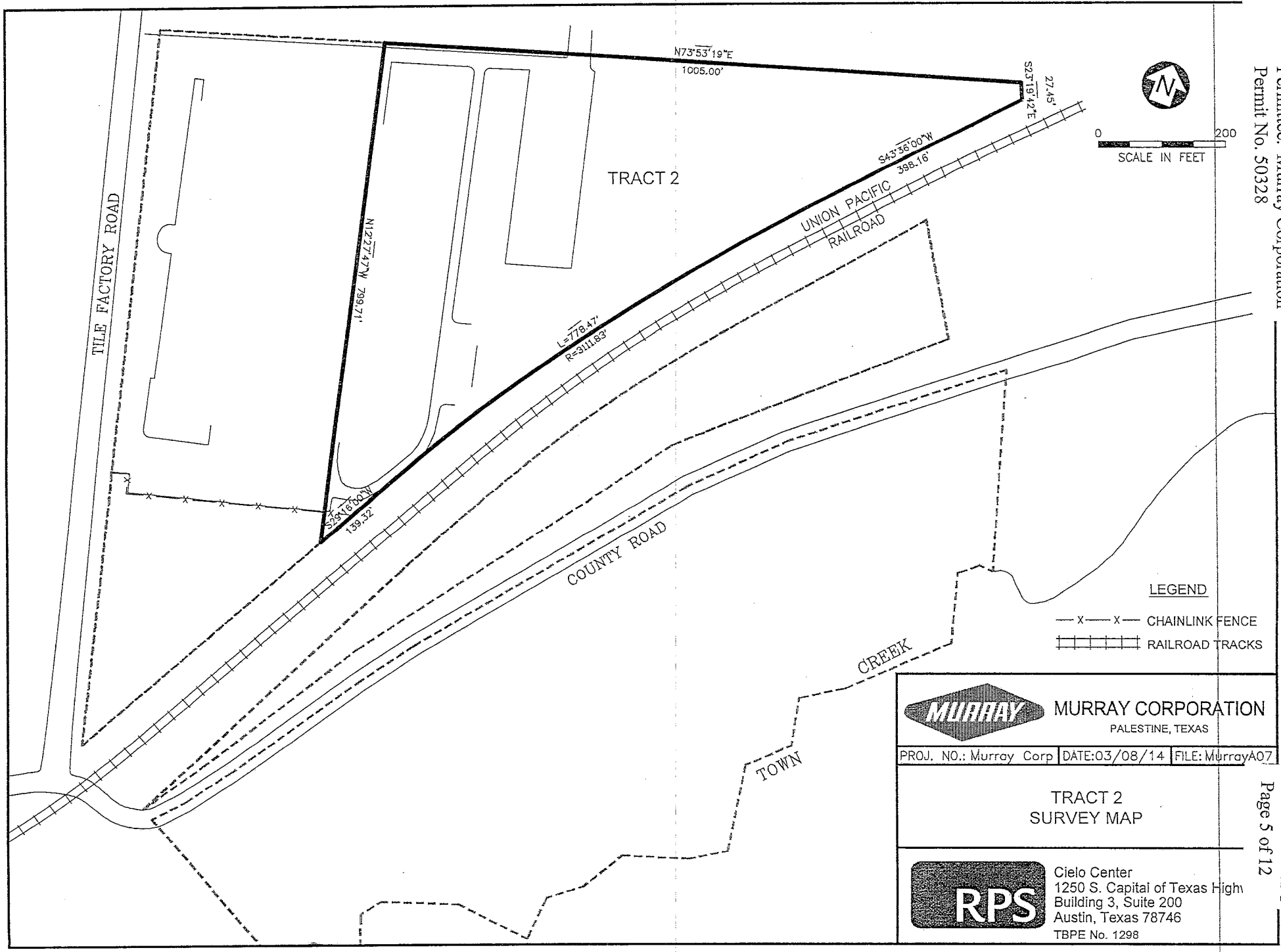
BEGINNING at a 1/2" Iron Rod for corner at the Northeast corner of the above mentioned Second Tract.

THENCE S 23° 19' 42" E with the East line of said tract a distance of 27.45 feet to a 1/2" Iron Rod for corner in the Northwest R. O. W. line of Missouri and Pacific Railroad.

THENCE in a Southwesterly direction with the Northwest R. O. W. line of the Missouri and Pacific Railroad as follows: S 43° 36' W - 398.16 feet to the P. C. of a curve to the left, with said curve which has a delta angle of 14° 20', a R. of 3111.83 feet, a T. of 391.28 feet, a L. of 778.47 feet, and a D. of 1.84122 feet to the P. T. of said curve, and S 29° 16' W - 139.32 feet to a 1/2" Iron Rod for corner.

THENCE N 12° 27' 47" W a distance of 799.71 feet to a 1/2" Iron Rod for corner in the North line of said Second Tract.

THENCE N 73° 53' 19" E with the North line of said tract a distance of 1005.00 feet to the place of beginning, containing 8.523 acres of land.



Permittee: Murray Corporation
Permit No. 50328

Attachment A-1
Page 5 of 12

TRACT 3

Excluded from permitted facility

FIELD NOTE DESCRIPTION

ALL that certain tract of land in Palestine,, Anderson County, Texas in the JOSEPH JORDAN SURVEY, Abstract 33, being a part of that certain tract called 16.244 acres described in two tracts in Volume 965, Page 559 and Volume 888, Page 817 of the Anderson County Deed Records and being more particularly described as follows:

BEGINNING at a 1" iron pipe in the East line of Tile Factory Road at the Northwest corner of said 16.244 acre tract and the Southwest corner of a tract called .993 acre, owned by Southern Heritage, Inc.

THENCE; S 15° 52' 38" E, with the East line of Tile Factory Road, 708.49 feet to corner.

THENCE; N 75° 43' 24" E 145.69 feet to a chain link fence corner.

THENCE; S 16° 16' 04" E 23.56 feet to a chain link fence corner.

THENCE; N 74° 44' 12" E 235.35 feet to corner in the Northwest line of the Union Pacific Railroad.

THENCE; N 26° 54' 00" E, with the Railroad, 94.17 feet to point of curve to the right.

THENCE; With the curve to the right with a central angle of 5° 11' 44", a radius of 2914.79 feet and a length of 264.30 feet to corner.

THENCE; N 14° 40' 30" W 176.28 feet to corner.

THENCE; N 74° 21' 35" E 50.00 feet to corner.

THENCE; N 14° 40' 30" W 338.00 feet to corner in the North line of the 16.244 acre tract.

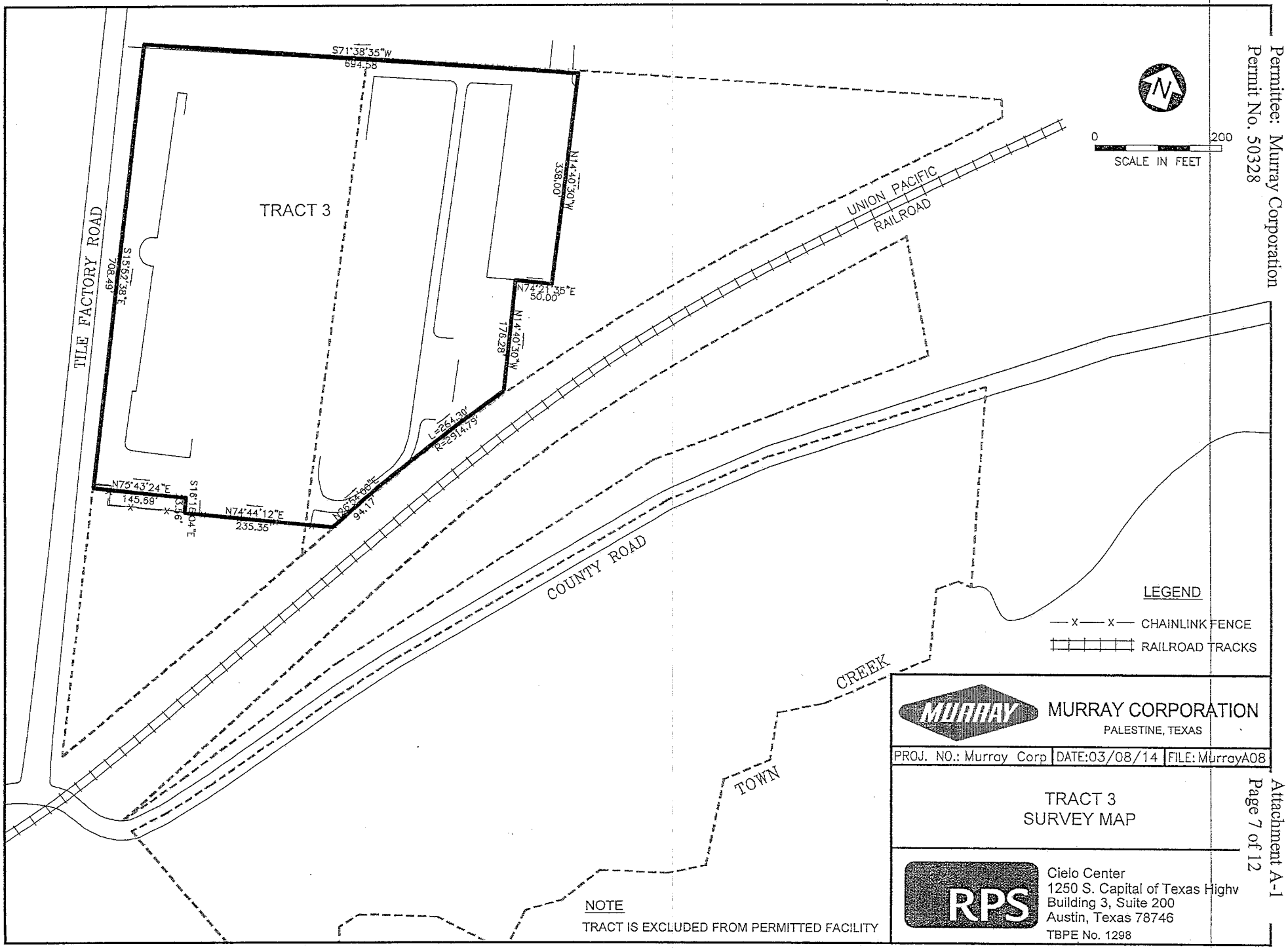
THENCE; S 71° 38' 35" W 694.58 feet to the PLACE OF BEGINNING, containing 10.522 acres.

I hereby certify that these field notes are a true and accurate representation of a survey made on the ground by me in March, 1991.

STATE OF TEXAS
REGISTERED
PAUL W. IVES
1659
PROFESSIONAL
LAND SURVEYOR

Paul W. Ives

PAUL W. IVES
Registered Professional Land Surveyor
State of Texas #1659



MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp | DATE:03/08/14 | FILE: MurrayA08

TRACT 3
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highv
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298

Permittee: Murray Corporation
Permit No. 50328

Attachment A-1
Page 7 of 12

TRACT 4

FIELD NOTE DESCRIPTION

ALL that certain tract or parcel of land in Palestine, Anderson County, Texas, in the JOSEPH JORDAN SURVEY, Abstract 33, being that same tract called 3.23 acres in deed to MURRAY CORPORATION OF MARYLAND, recorded in Volume 1243, Page 736 of the Anderson County Land Records and being more particularly described as follows:

BEGINNING at a 1/2" iron rod in the North margin of an oiled county road (also called West Reagan Street) at the Southwest corner of a tract called 1 acre in Volume 938, Page 781 of the Deed Records and the Southeast corner of said 3.23 acre tract.

THENCE; N 30° 21' 00" W 191.21 feet to a 1/2" iron rod in the Southeast line of the Union Pacific Railroad Right-of-Way at the Northwest corner of said 1 acre tract and the Northeast corner of said 3.23 acre tract.

THENCE; With the Southeast line of said railroad right-of-way, S 41° 24' 00" W 289.06 feet to point of curve to the left.

THENCE; With said curve having a central angle of 14° 30' 00", a radius of 2814.79 feet and a length of 712.35 feet to point of tangency.

THENCE; S 26° 54' 00" W 560.34 feet to a 1/2" iron rod at the intersection of the railroad right-of-way and the North line of said county road.

THENCE; With the North line of said road as follows:

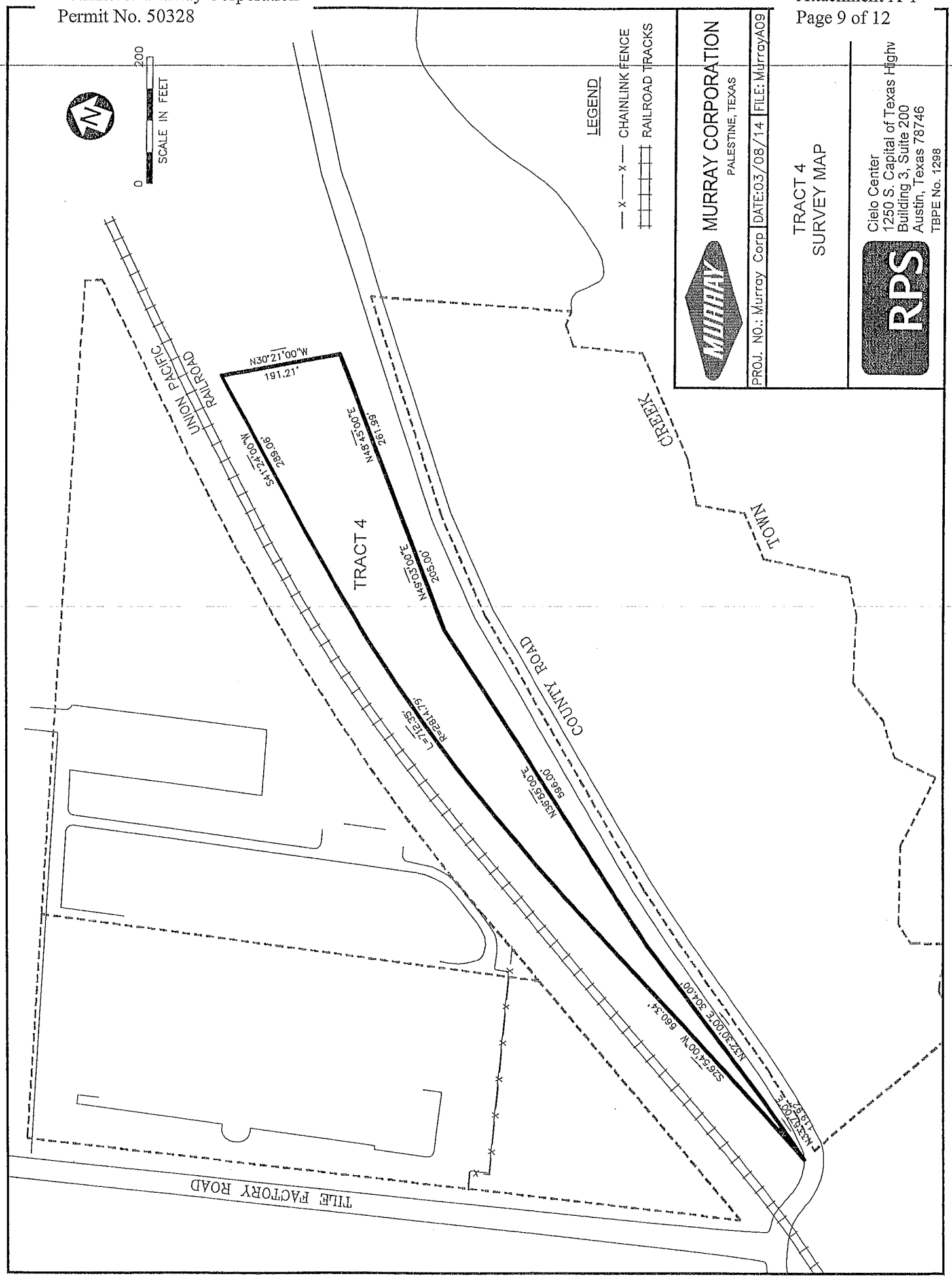
N 33° 57' 00" E	119.92 feet
N 32° 30' 00" E	304.00 feet
N 36° 55' 00" E	596.00 feet
N 49° 03' 00" E	205.00 feet
N 48° 45' 00" E	261.99 feet

to the PLACE OF BEGINNING, containing 3.15 acres.

I hereby certify that these field notes are a true and accurate representation of a survey made on the ground by me in December, 1989.

STATE OF TEXAS
PAUL W. IVES
1659

PAUL W. IVES
Registered Public Surveyor #1659


N
0
200
SCALE IN FEET
LEGEND
CHAINLINK FENCE
RAILROAD TRACKS
MURRAY CORPORATION
PALESTINE, TEXAS
PROJ. NO.: Murray Corp
DATE:03/08/14
FILE: MurrayA09
TRACT 4
SURVEY MAP
Cielo Center
1250 S. Capital of Texas Highw
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298
RPS
UNION PACIFIC RAILROAD
TRACT 4
COUNTY ROAD
CREEK
TOWN
TILE FACTORY ROAD
N30°21'00"W
191.21'
S41°24'00"W
289.06'
N48°45'00"E
267.99'
N49°03'00"E
205.00'
N36°65'00"E
596.00'
L=718.35'
R=2281.79'
N32°30'00"E 304.00'
S26°54'00"W 660.34'
N33°51'00"E
1,193'

TRACT 5

SUBDIVISIONS
WELL LOCATIONS
LEASE SURVEYS
PIPE LINES
CONSTRUCTION SURVEYS

605 AVENUE A
PALESTINE, TEXAS 75801
PHONE (903) 723-3116

Description of a 12.962 acre tract
JOSEPH JORDAN SURVEY, ABSTRACT NO. 33
Anderson County, Texas

ALL that certain tract or parcel of land, being a part of the JOSEPH JORDAN SURVEY, ABSTRACT NO. 33, Anderson County, Texas, also being a part of that certain called 20.96 acre tract conveyed to Anderson County Chamber of Commerce by Jack B. Bishop, March 31, 1953, recorded in Volume 454, page 135 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

BEGINNING at the Northeast corner of the above mentioned 20.96 acre tract, the Southeast corner of a 3.23 acre tract described in Volume 1243, page 736 of the Deed Records of Anderson County, Texas, in the center line of County Road No. 2144 (Bonner's Ferry Road), from which a 1/2" Iron Rod Brs. S 15° 40' 32" E - 16.63 feet.

THENCE S 15° 40' 32" E with the Northeast line of said 20.96 acre tract a distance of 320.78 feet to the center line of Town Creek, being the Southeast corner of said 20.96 acre tract, from which a 1/2" Iron Rod Brs. N 15° 40' 32" W - 29.20 feet.

THENCE in a Southerly direction with the Southeast line of said 20.96 acre tract and the center line of Town Creek, as follows: N 85° 27' 42" W - 22.30 feet, S 50° 47' 27" W - 36.75 feet, S 14° 30' 09" E - 112.58 feet, S 46° 32' 01" W - 183.15 feet, S 58° 28' 11" W - 73.95 feet, S 10° 48' 13" E - 77.38 feet, S 46° 22' 35" W - 79.11 feet, S 8° 31' 29" E - 143.89 feet, S 58° 20' 00" W - 61.23 feet, S 72° 47' 56" W - 106.84 feet, S 31° 21' 46" W - 77.90 feet, S 53° 17' 38" W - 60.46 feet, S 5° 29' 19" W - 73.29 feet, N 82° 29' 55" W - 121.02 feet, S 71° 53' 08" W - 123.53 feet, S 37° 58' 07" W - 37.67 feet, S 17° 54' 49" E - 55.34 feet, S 77° 58' 02" W - 73.50 feet, S 45° 23' 58" W - 29.82 feet, and S 0° 41' 34" W - 44.41 feet to the Southeast corner of a 7.46 acre tract described in Volume 1144, page 269 of the Deed Records of Anderson County, Texas, from which a 1/2" Iron Rod Brs. N 59° 31' 34" W - 58.46 feet.

THENCE N 59° 31' 34" W with the Northeast line of said 7.46 acre tract a distance of 330.16 feet to the Northeast corner of said 7.46 acre tract, in the center line of County Road No. 2144, the Northwest line of said 20.96 acre tract, and the Southeast line of said 3.23 acre tract, from which a 1/2" Iron Rod Brs. S 59° 31' 34" E - 21.88 feet.

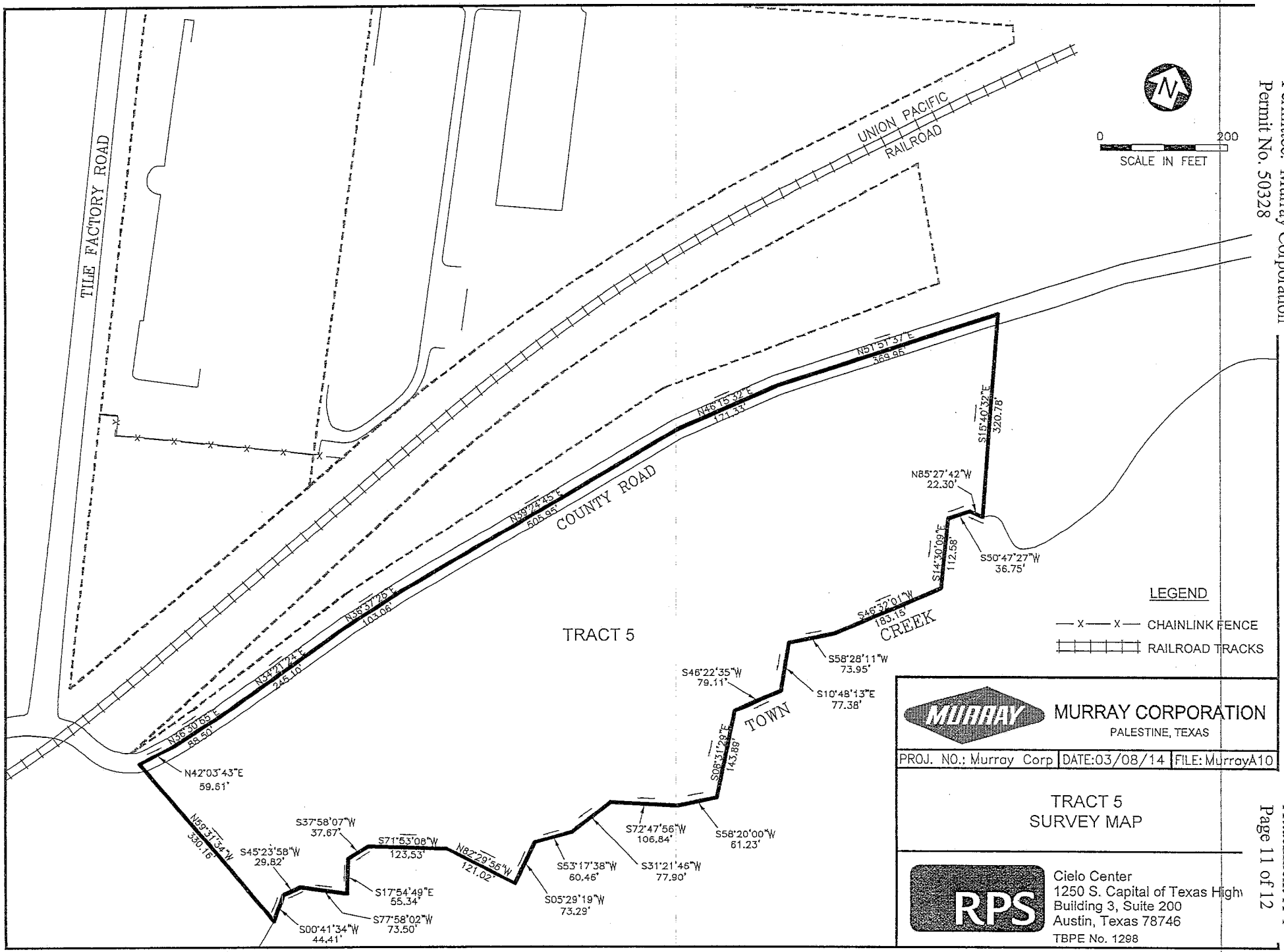
THENCE in a Northeast direction with the Northwest line of said 20.96 acre tract, the Southeast line of said 3.23 acre tract, the center line of County Road No. 2144, as follows: N 42° 03' 43" E - 59.61 feet, N 36° 30' 55" E - 88.50 feet, N 34° 21' 24" E - 245.10 feet, N 36° 37' 25" E - 103.06 feet, N 39° 24' 45" E - 500.95 feet, N 46° 15' 32" E - 171.33 feet, and N 51° 51' 37" E - 369.95 feet to the place of beginning, containing 12.962 acres of land, of which 0.61 of an acre is in the R. O. W. of County Road No. 2144.

I, F. D. McBride, Registered Professional Land Surveyor No. 1548, do hereby declare that the above field notes were prepared from an actual survey made by me on the ground during the month of October, 1991.

GIVEN UNDER MY HAND AND SEAL this the 28th day of October, 1991.

REGISTERED PROFESSIONAL LAND SURVEYOR NO. 1548

STATE OF TEXAS
REGISTERED

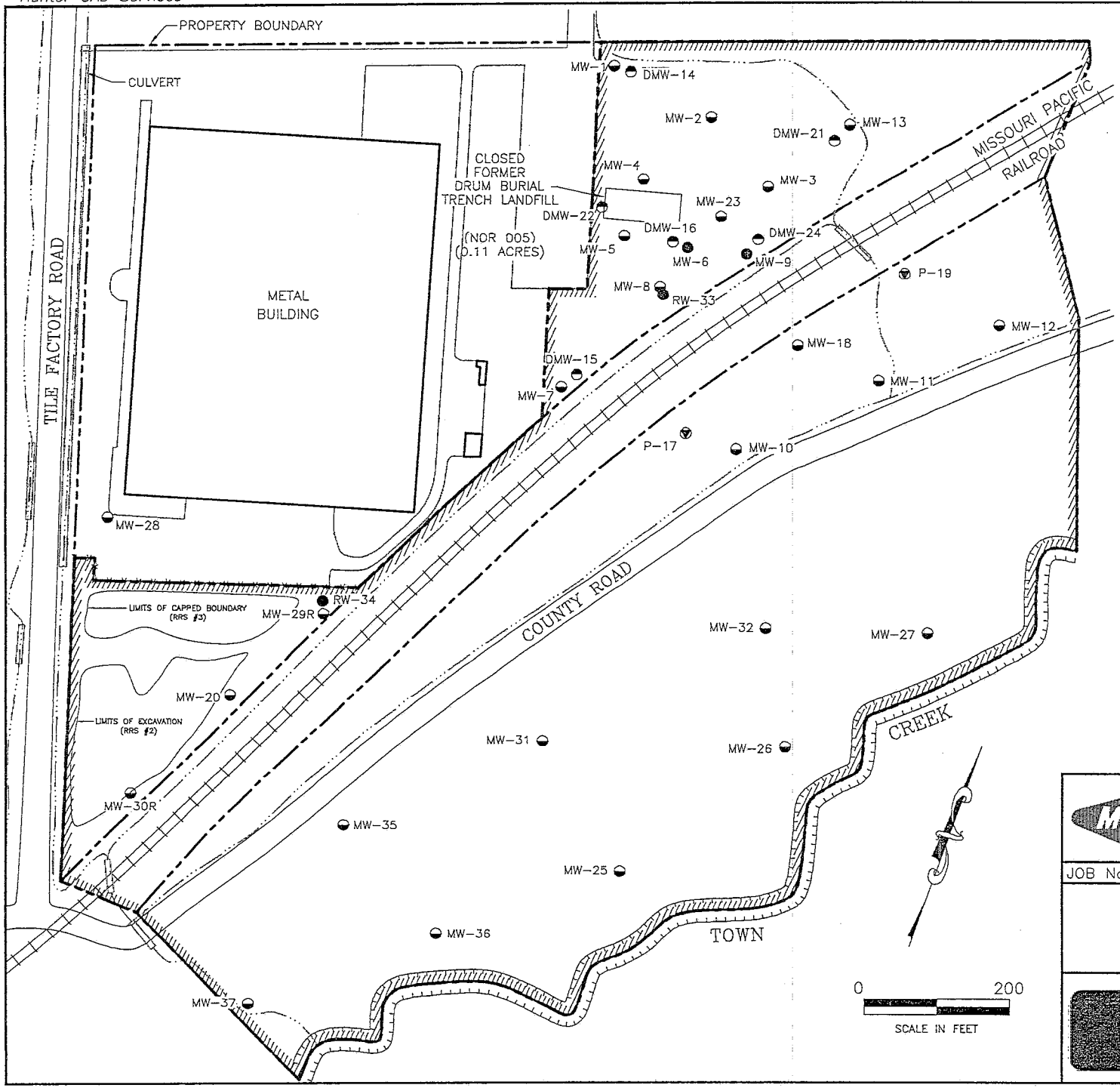


MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp	DATE:03/08/14	FILE: MurrayA10

TRACT 5
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highw
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



LEGEND

- CREEK OR DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- DMW-14 — DEEP MONITOR WELL LOCATION & NUMBER
- PERMITTED FACILITY BOUNDARY

MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 3/05/14	001010-58F.dwg

PERMITTED FACILITY

RPS
Cielo Center
1250 S. Capital of Texas Highway
Building Three, Suite 200
Austin, Texas 78746

APPENDIX A-2

AGREEMENT FOR RIGHT OF ENTRY

COUNTY OF ANDERSON
STATE OF TEXAS

THIS AGREEMENT is entered by and between MURRAY CORPORATION, a Maine corporation duly authorized to do business in the State of Texas, hereinafter referred to as "Murray," and GKG Palestine Property LLC, hereinafter referred to as "Owner."

WHEREAS:

A. Owner is the owner of five parcels of real property located in Palestine, Texas, described as [1] 7.721 acres, more or less, A-33, Joseph Jordan Survey, Block 1207, Tract 20 (V2055/P580); [2] 8.523 acres, more or less, A-33, Joseph Jordan Survey, Block 1207, Tract 20A (V2055/P580); [3] 3.15 acres, more or less, A-33, Joseph Jordan Survey, Block 1206, Tract 2 (V2055/P580); [4] 12.962 acres, more or less, A-33, Joseph Jordan Survey, Block 1206, Tract 3 (V2055 /P580); [5] 7.46 acres, more or less, A-33, Joseph Jordan Survey, Block 1206, Tract 1 (V2055/P580) (collectively hereinafter referred to as "the Property");

B. At various times in the past, Murray owned the parcels that constitute the Property;

C. Murray is the holder of permit and compliance plan number HW-/CP-50328 (the "Permit") issued by the Texas Commission on Environmental Quality ("TCEQ"). The Permit area includes certain portions of the Property identified therein, and requires Murray to take certain actions (the "Permit-Required Work") with regard to the installation, maintenance, testing and/or sampling of certain wells, pumps and associated equipment located at various locations on the Property.

D. The performance of the aforementioned Permit-Required Work will be at no cost or expense to Owner or Owner's lessees, assignees or agents, and all Permit-Required Work will be performed by Murray or Murray's agents;

E. It will be necessary for Murray personnel, or persons performing under contract for Murray, to enter upon the Property for the purpose of conducting said Permit-Required Work; and

F. It is the desire and intention of Murray and Owner to make this mutual agreement with respect to such activities.

NOW, THEREFORE, for and in consideration of the premises and the sum of ONE and NO/100 dollar ($1.00) paid to Owner by Murray and the promises and agreements herein stated:

1. Owner, grants to Murray, its contractors, subcontractors, and their employees and agents, a license to enter upon the areas of the Property shown on the Plat attached hereto (the "Licensed Area") for the purpose of conducting the Permit-Required Work and the performance

of all acts necessary in connection therewith, including the right to access the Licensed Area across Owner's parking lots located on the Property. Such license to enter the Licensed Area shall continue in force until all Permit-Required Work has been completed.

2. Owner and any lessees, licensees or agents of Owner agree not to prohibit, interfere with or obstruct such entry or activity upon the Licensed Area or destroy the sampling devices or wells or other equipment so installed prior to the end of this license, and not to cause or permit same to be done by others.

3. Murray agrees that such entry upon and activities upon the Licensed Area shall be limited to the extent necessary for the performance of the Permit-Required Work undertaken by Murray.

4. Upon completion of activity upon the Licensed Area, Murray will cause any tools, equipment, or materials placed thereon to be removed and will exercise reasonable diligence to restore the said Licensed Area to its approximate former condition. Any wells installed by Murray or Murray's contractors shall remain in place until permission to abandon them is granted by TCEQ.

5. This agreement is intended to be and shall be construed only as a license to enter and conduct the Permit-Required Work upon the Property and not as a grant of easement or any other interest in the Property. The term of this license shall be co-terminus with the Permit.

6. This agreement shall be binding upon the parties hereto and their respective successors, representatives, heirs and assigns.

7. Murray agrees to indemnify and defend Owner and all lessees, licensees, or agents of Owner from any and all claims for personal injury or physical real or personal property damage arising out of or attributable to Murray's performance of the activities undertaken upon the Property pursuant to this Agreement, provided however, that this indemnity shall not extend to any consequential damages, loss of use, loss of revenue or other losses arising out of the restrictions on the use of the Property inherent in the Permit or arising out of the Permit-Required Work or the existence of the wells and other equipment on the Property.

8. The Permit-Required Work shall be conducted in such a manner as not to interfere unreasonably with the operations of Owner on the Property. In particular, the activities shall be conducted insofar as practicable in such manner as not to interfere with vehicular or pedestrian ingress and egress during business hours except as expressly approved by Owner following written notice beforehand.

IN WITNESS HEREOF, Murray and Owner have executed two (2) original copies of the Agreement on the dates specified immediately adjacent to their respective signatures.

EXECUTED ON

June 4, 2013.

Attest _____

MURRAY CORPORATION

By: _____

Title: CEO

STATE OF MARYLAND)

) SS.

COUNTY OF Baltimore)

On the 4 day of June, 2013, before me personally came Harold T Gould of Murray Corporation, known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the foregoing instrument on behalf of said corporation.

My Commission Expires 3/31/16

KATHLEEN SCHMIDT NOTARY PUBLIC BALTIMORE COUNTY, MD COMM. EXP. MARCH 31, 2016

Kathleen Schmidt
Notary Public

EXECUTED ON

May 20, 2013.

Attest _____

GKG PALESTINE PROPERTY LLC

By: _____
Greg Goree
Manager

COUNTY OF Dallas)

) SS.

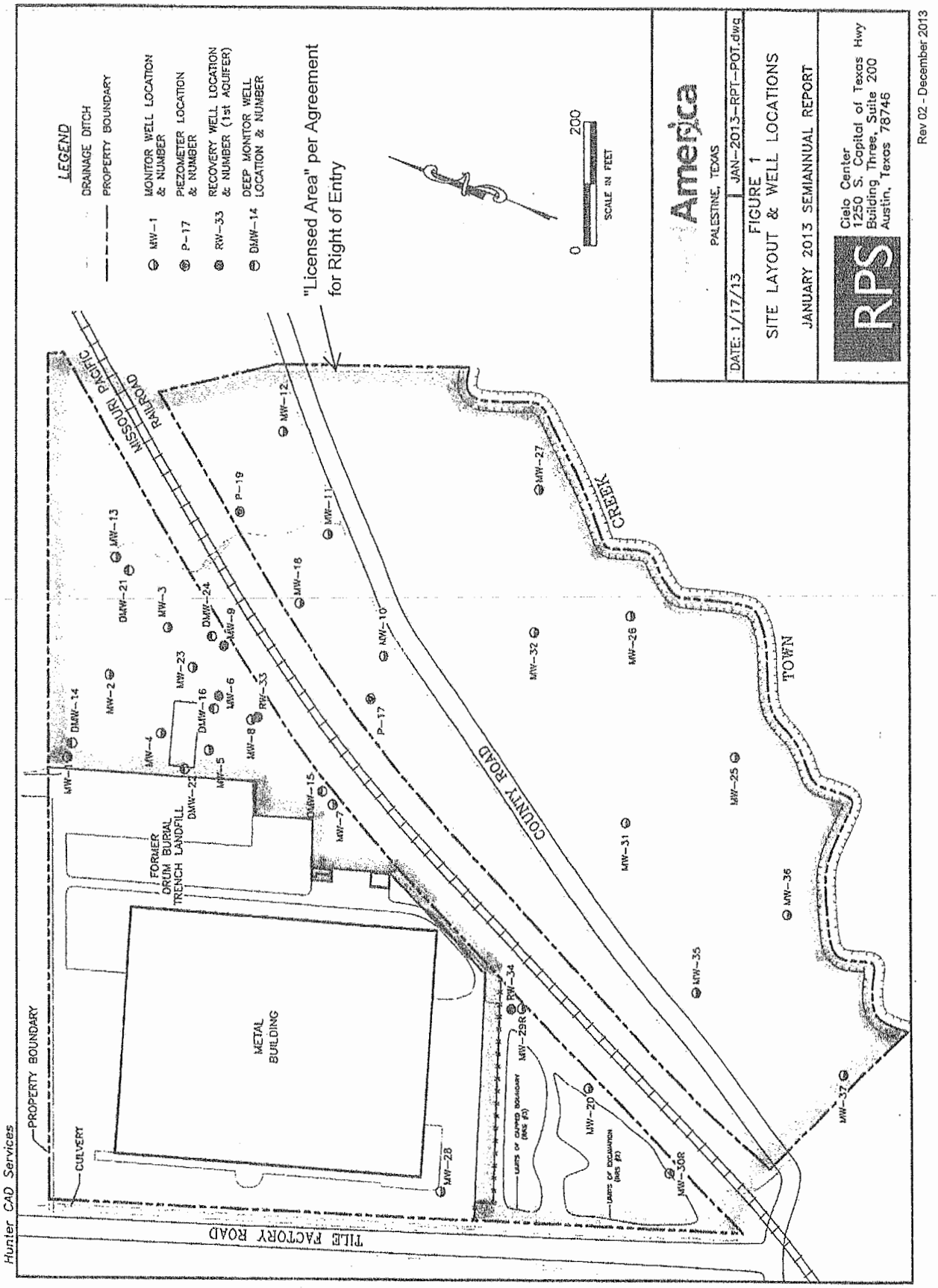
STATE OF TEXAS)

On the 20th day of May, 2013, before me personally came Greg Goree, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the foregoing instrument.

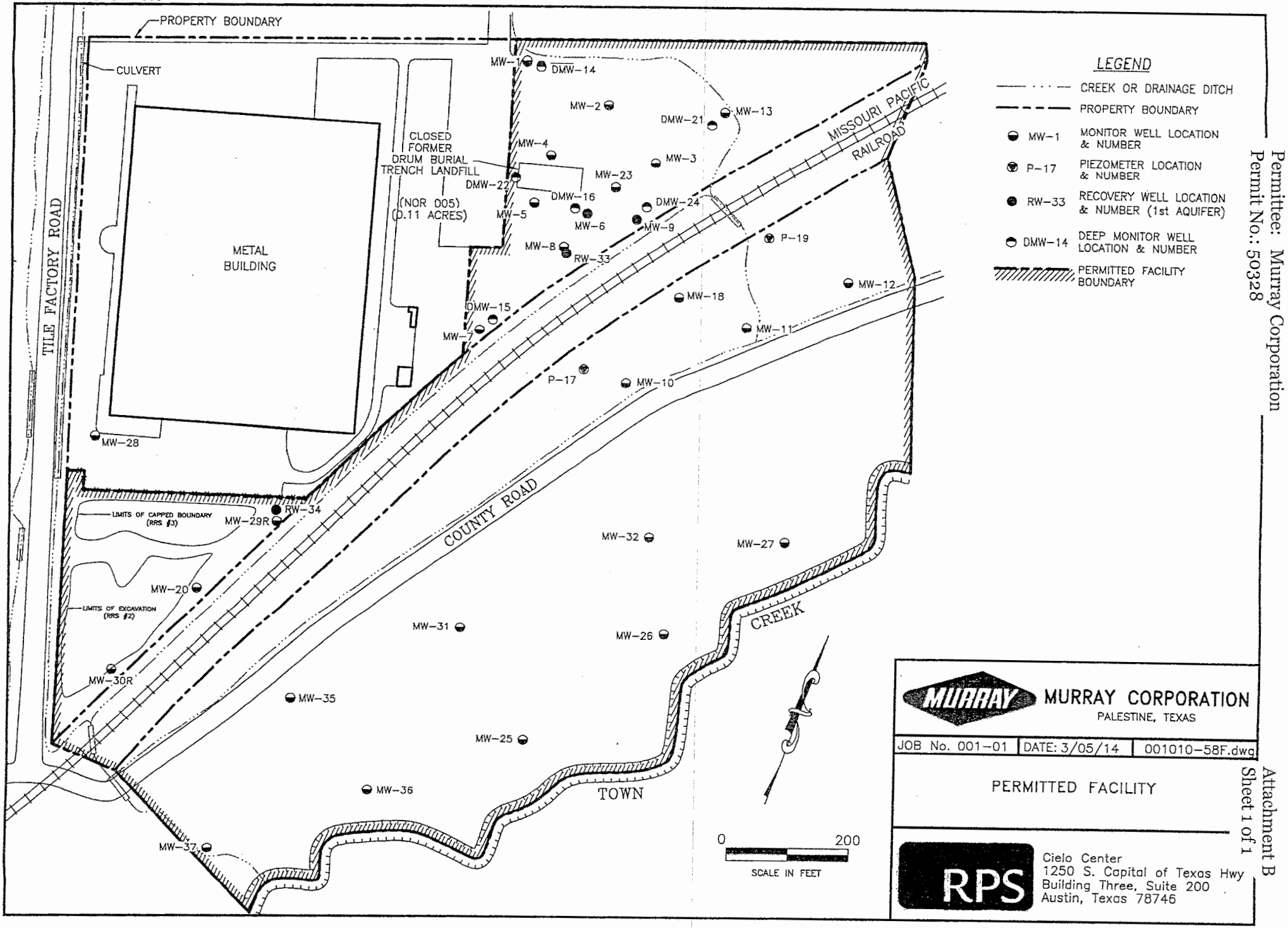
My Commission Expires 1/11/2014

D Wilcox
Notary Public

DIONNE WILCOX
Notary Public, State of Texas
My Commission Expires
January 11, 2014


LEGEND
DRAINAGE DITCH
PROPERTY BOUNDARY
MW-1 MONITOR WELL LOCATION & NUMBER
P-17 PIEZOMETER LOCATION & NUMBER
RW-33 RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
DMW-14 DEEP MONITOR WELL LOCATION & NUMBER
"Licensed Area" per Agreement for Right of Entry
0
200
SCALE IN FEET
America
PALESTINE, TEXAS
DATE: 1/17/13
JAN-2013-RPT-POT.dwg
FIGURE 1
SITE LAYOUT & WELL LOCATIONS
JANUARY 2013 SEMIANNUAL REPORT
RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746
Rev 02 - December 2013
MISSOURI PACIFIC RAILROAD
CREEK
COUNTRY ROAD
TOWN
TILE FACTORY ROAD
PROPERTY BOUNDARY
CULVERT
FORMER DRUM BURIAL TRENCH LANDFILL
METAL BUILDING
Hunter CAD Services

Hunter CAD Services



MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 3/05/14	001010-58F.dwg

PERMITTED FACILITY

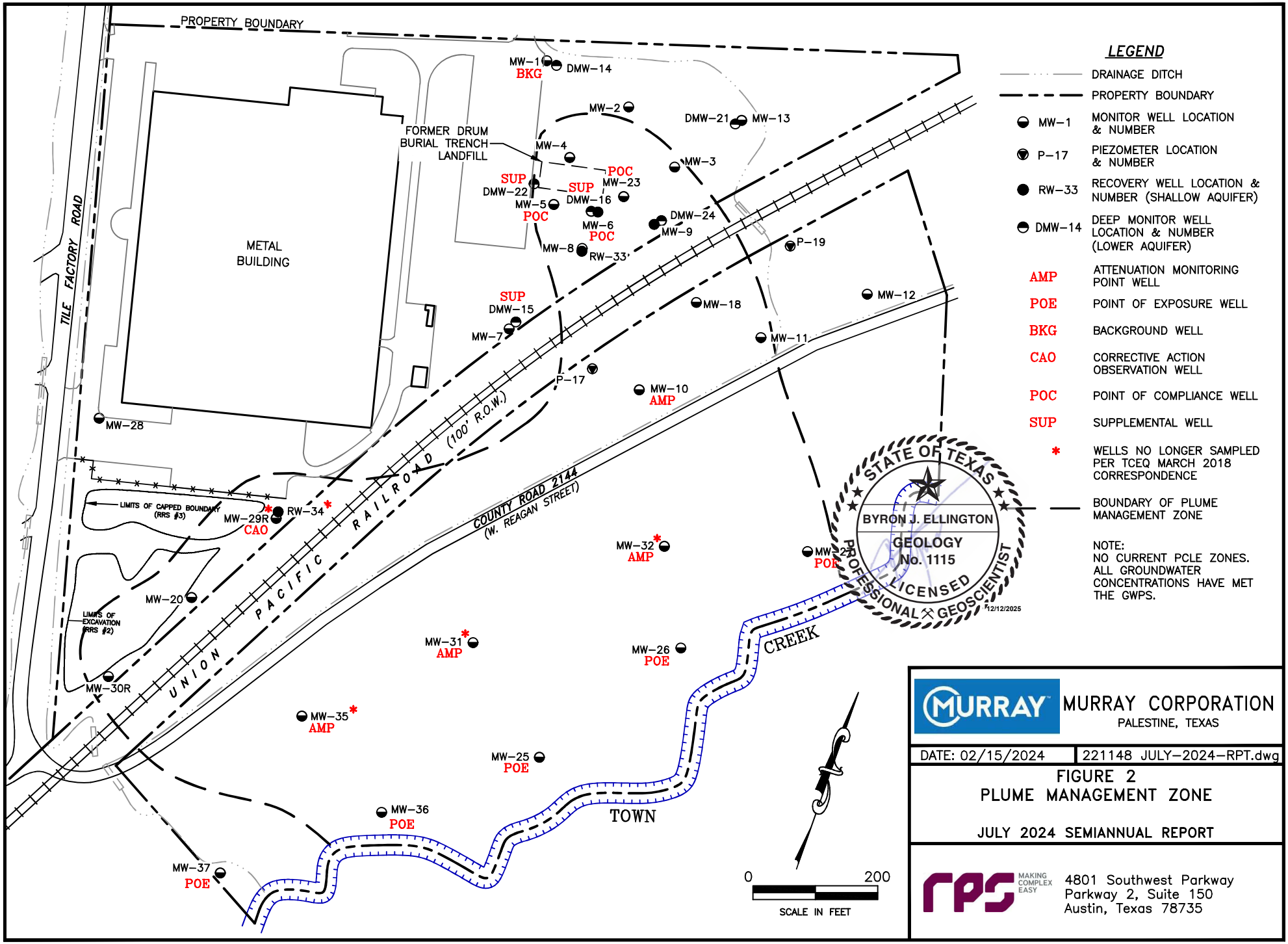
RPS
Cielo Center
1250 S. Capital of Texas Hwy
Building Three, Suite 200
Austin, Texas 78746

Permittee: Murray Corporation
Permit No.: 50328

Attachment B
Sheet 1 of 1

APPENDIX A-3

Attachment F - Map(s) Indicating Point of Compliance and Groundwater Monitoring Wells



Attachment C

Redline/Strikeout of 2014 Issued Permit

Hazardous Waste Permit No. 50328
EPA ID. No. TXD053115978
ISWR No. 33063

Texas Commission on Environmental Quality
Austin, Texas

Permit for Industrial Solid Waste Management Site issued under provisions of Texas Health and Safety Code ANN. Chapter 361 and Chapter 26 of the Texas Water Code

Name of Permittee:	Murray Corporation 2002 Tile Factory Road Palestine, Texas 75801-2281
Site Owner:	GKG Palestine Property LLC 6001 W Industrial Ave Midland, Texas 79706-2841
Registered Agent for Service:	CT Corporation 350 North St. Paul Street Dallas, Texas 75201
Classification of Site:	Hazardous industrial solid waste post-closure care.

The permittee is authorized to conduct post-closure care in accordance with the limitations, requirements, and other conditions set forth herein. This permit is granted subject to the rules of the Commission and other Orders of the Commission, and laws of the State of Texas. This permit does not exempt the permittee from compliance with the Texas Clean Air Act. This permit will be valid until canceled, amended, modified or revoked by the Commission, except that the authorization to conduct post-closure care of wastes shall expire midnight, ten (10) years after the date of renewal permit approval. This permit/compliance plan was originally issued on December 2, 1992, and the permit/compliance plan was renewed on November 7, 2003.

All provisions in this permit stem from State and/or Federal authority. Those provisions marked with an asterisk (*) stem from Federal authority and will implement the applicable requirements of HSWA for which the Texas Commission on Environmental Quality has not been authorized. Those provisions marked with a double asterisk (**) stem from federal authority only.

Issued Date: October 3, 2014

For the Commission

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~~CP Table IIIA: Corrective Action Program Table of Indicator Parameters and Groundwater Protection Standard~~
CP Table IV: Compliance Monitoring Program Table of Hazardous and Solid Waste

Constituents and Quantitation Limits – Reserved
CP Table IVA – Compliance Monitoring Program *[Note: Short List Monitored Semi-Annually]
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A - Legal Description of Facility
A-1 Legal Description of Facility
A-2 Site Access Legal Agreement
B - Facility Map
C - List of Incorporated Application Materials
D - List of Permitted Facility Units

List of Compliance Plan Attachments:

CP A Facility Site Maps
Sheet 1 of 2 Facility Site Map
Sheet 2 of 2 Former Drum Burial Trench Plume Management Zone (PMZ)

CP B Public Participation in HSWA Corrective Action
CP C Well Design, Construction, Installation, Certification, Plugging and Abandonment Procedures and Specifications

Attachment D

Murray No Further Action Letter from TCEQ Corrective Action Dated November 25, 2024

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

Via Email

November 25, 2024

Mr. Thorne Gould
President
Murray Corporation
260 Schilling Circle
Hunt Valley, MD 21031

Re: Approval of No Further Action
Response to Comments, dated July 22, 2024
Response Action Completion Report
Murray Corporation
2002 Tile Factory Road, Palestine, Anderson County
SWR No. 33063, CN603297029, RN100639897
Compliance Plan No. 50328

Dear Mr. Gould,

The Texas Commission on Environmental Quality (TCEQ) has reviewed the above-referenced submittal. The information requested in the TCEQ's June 19, 2024 letter has been adequately addressed. The site has met the post-response action care conditions for a plume management zone (PMZ) closure, per 30 Texas Administrative Code §350.33(i)(3). The Response Action Completion Report is approved. No further action for the PMZ is necessary under the Texas Risk Reduction Program.

Questions concerning this letter should be directed to me at [redacted]When responding by mail, please submit one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the local TCEQ Region Office. The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response.

Sincerely,

Mike Duffin, Ph.D., P.G.
VCP-CA Section
Remediation Division
Texas Commission on Environmental Quality

cc: Ms. Michelle Baetz, Waste Section Manager, TCEQ Region 5 Office, Tyler, via email

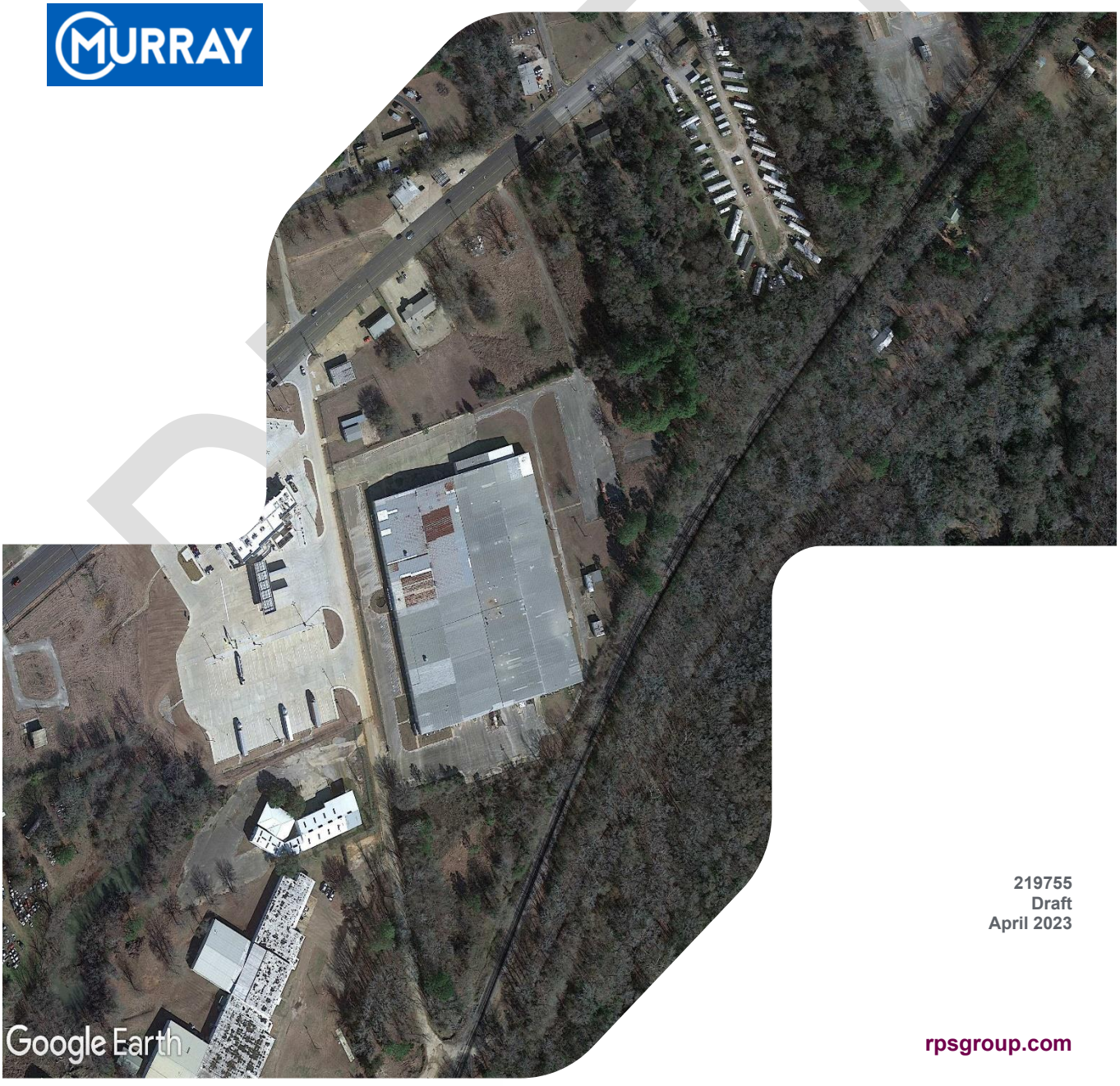
Attachment E

Compliance Plan Termination Demonstration Report-April 2023 (Draft and submitted to TCEQ April 2023)

COMPLIANCE PLAN TERMINATION DEMONSTRATION REPORT

HAZARDOUS WASTE COMPLIANCE PLAN 50328

Closed Landfill - Former Drum Burial Trench
Murray Corporation
Anderson County, Texas
Industrial Solid Waste Registration No. 33063



DRAFT

219755
Draft
April 2023

rpsgroup.com

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4 SAMPLE COLLECTION AND ANALYSIS 4
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Appendix A Deed Notice

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1 EXECUTIVE SUMMARY

In accordance with 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the Compliance Plan (CP-50328), Murray is requesting to be released from the remainder of the post-response action care period and that associated financial assurance.

Murray Corporation was first issued Compliance Plan CP-50328, which specified a Corrective Action Program for the closed Landfill - Former Drum Burial Trench, by the Texas Commission on Environmental Quality (TCEQ) on December 2, 1992. Murray was issued a renewed Permit and Compliance Plan on October 3, 2014. The Compliance Plan (Section XI of the Hazardous Waste Permit) incorporates a plume management zone (PMZ) and groundwater monitoring program for monitored natural attenuation that were specified within the revised Response Action Plan (RAP) dated June 2013. The PMZ also covers groundwater contamination from an historical leak associated with the closed landfill's groundwater recovery discharge line. The October 3, 2014 Compliance Plan also incorporated new groundwater protection standards (GWPS) that were consistent with revised surface water quality standards (SWQS) for certain constituents.

Groundwater samples have historically been collected from each background, POC, AMP, POE, CAO, and supplemental (lower aquifer monitoring well) wells on a semiannual basis with groundwater sampling occurring in January and July of each year (Figure 2). The GWPS have not been exceeded in any POC, AMP, POE, and CAO well since July 2007 or in recovery well RW-34 since July 2013. Based on this continuing trend, TCEQ issued approval to discontinue groundwater monitoring in recovery well RW-34, CAO well MW-29R, and AMP wells MW-31, MW-32, and MW-35 on March 20, 2018.

Murray conducts semiannual groundwater monitoring in accordance with the RAP. Post-response action care groundwater monitoring continues on a semiannual basis. The initial post-response action care period is 30 years which began in April 1996 and is scheduled to end in April 2026. However, in accordance with 30 TAC §350.33(i)(3), Murray may submit a request to cancel the remainder of the post-response action care period if a demonstration can be made that the groundwater protective concentration level exceedance (PCLE) zone has reduced in size and is sufficiently smaller than the boundary of an institutional control so as to preclude any potential for the groundwater PCLE zone to migrate beyond the boundary of the institutional control.

For this demonstration, Murray aggregated approximately 707 groundwater sampling collected since 2001. This data set includes approximately 234 groundwater sample results collected since 2014 (representing 18 groundwater monitoring events, two events/year, since 2014). The analytical results were directly compared to the Groundwater Protection Standard as defined in the renewed Compliance Plan issued October 3, 2014 as well as the most recent TRRP Tier 1 $^{GW}GW_{Ing}$ Groundwater Ingestion Protective Concentration Levels (PCL) for Class I and Class 2 groundwater (PCL Tables published March 2022). Sediment samples were also collected in six locations along town creek in July of 2021. The sediment samples were analyzed for 1,1-DCE 1-1-DCA.

Results of this demonstration show that:

- Of the approximately 234 samples collected since 2014, detections of each analyte were below the relevant GWPS and TRRP $^{GW}GW_{Ing}$ values.
- There is evidence of attenuation or of no migration COCs in all of the monitoring wells and throughout the PMZ;
- There is no likely potential for a future migration of COCs; and
- There is no likely potential for receptors to be exposed to COCs.

Based on this demonstration, Murray requests that groundwater monitoring required under CP-50328 be terminated.

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2 BACKGROUND

Murray Corporation (Murray) holds Hazardous Waste Permit HW-50328 and Compliance Plan CP-50328 at its former facility located in Palestine, Texas. The property was originally transferred to SeedAmerica Property 56, LLC of Apollo Beach, Florida through a 561 Exchange program in September 2007. While Murray remains the permit holder, the property is now owned by GKG Palestine Property LLC (GKG) after being purchased in April 2013. The Murray Corporation Facility is located at 2002 Tile Factory Road, Palestine, in Anderson County, Texas and is within the drainage area of Segment 0804 in the Trinity River Basin (North Latitude 31° 43' 45", West Longitude 95° 40' 30"). The nearest water body, Town Creek, borders the Plume Management Zone to the southeast.

Murray Corporation was issued Compliance Plan CP 50328 by the Texas Commission on Environmental Quality (TCEQ) on December 2, 1992 for the closed Landfill - Former Drum Burial Trench. Murray was issued a renewed Permit and Compliance Plan on October 3, 2014. The Compliance Plan (Section XI of the Hazardous Waste Permit) incorporates a plume management zone (PMZ) and groundwater monitoring program for monitored natural attenuation that were specified within the revised Response Action Plan (RAP) dated June 2013. The PMZ also covers groundwater contamination from an historical leak associated with the closed landfill's groundwater recovery discharge line. The October 3, 2014 Compliance Plan also incorporated new groundwater protection standards (GWPS) that were consistent with revised surface water quality standards (SWQS) for certain constituents and in accordance with the Compliance Plan, Murray collects groundwater samples on a semiannual basis. Semiannual Corrective Action Reports are submitted in accordance with the reporting requirements of CP Table VII of the renewed Compliance Plan. Each groundwater monitoring event is conducted according to the last revised and approved Sampling and Analysis plan (June 2013).

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3 DEMONSTRATION APPROACH

The intent of this demonstration is to show that future groundwater monitoring is not necessary based on the current conditions within the PMZ and the historical results of groundwater monitoring showing no exceedances of the GWPS. To accomplish this, Murray aggregated 6 sediment samples results, approximately 707 groundwater sample results collected since 2001, and potentiometric and isopleth maps. These data sets included approximately 234 groundwater sampling results (representing 18 groundwater monitoring events, two events/year) collected since 2014. The analytical results were directly compared to the Groundwater Protection Standard as defined in the renewed Compliance Plan issued October 3, 2014 as well as the most recent TRRP Tier 1 $^{GW}GW_{Ing}$ PCL for Class I and Class 2 groundwater (PCL Tables published March 2022).

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4 SAMPLE COLLECTION AND ANALYSIS

Each groundwater monitoring event has been conducted according to the last revised and TCEQ-approved Sampling and Analysis plan (June 2013). Groundwater has been collected from each background, POC, AMP, POE, CAO, and supplemental (lower aquifer monitoring well) well on a semiannual basis using low-flow purging sampling/techniques. Water level and total depth measurements were recorded prior to purging the wells. The wells have been purged with a peristaltic pump and new disposable tubing. During purging specific conductivity, temperature, turbidity, and pH were monitored in a flow through cell using a multi-parameter water quality meter. Upon parameter stabilization, samples were collected as noted.

After collection of groundwater samples, the sample containers were transferred to a chilled cooler and submitted under chain-of-custody to a contract laboratory that is National Environmental Accreditation Program (NELAP) accredited in Texas. Groundwater samples were analyzed for Volatile Organic Compounds (VOC's) using Environmental Protection Agency (EPA) Method 8260B and Semi Volatile Organic Compounds (SVOCs) using EPA Method 6270C.

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5 ANALYTICAL RESULTS AND DATA EVALUATION

Since July 2009, only the concentration of 1,1-DCE in RW-34 (July 2013) has exceeded the existing GWPS established for the POC wells and AMP well MW-10. However, CAO well (MW-29R) located approximately 20 feet downgradient from RW-34 has been compliant with the GWPS since January 2006. Figures showing the 1,1-DCE PCLE zone since January 2014 are provided in Figure 2.

All other point of compliance (POC), point of exposure (POE), attenuation monitoring points (AMP), and corrective action observation (CAO) wells have been in compliance with the GWPS for the analyzed constituents since 2009.

The analytical results are summarized in Table 1, along with the permit issued GWPS and the most recent TRRP Tier 1 $^{GW}GW_{Ing}$ PCL for Class I and Class 2 groundwater (PCL Tables published March 2022).

TCEQ requested sediment samples be collected from Town Creek downgradient from POE wells MW-25, MW-26, and MW-36 to determine if 1,1-dichloroethane (1,1-DCA) and/or 1,1-dichloroethene (1,1-DCE) detected in the 1999 sediment samples have increased in concentrations above current TCEQ sediment benchmarks. The 6 sediment samples collected in July 2021 were analyzed for 1,1-DCE and 1,1-DCA via method 2540 G-2011. Neither 1,1-DCE or 1,1-DCA were detected above the laboratory detection limits.

5.1 Future Migration Assessment

As shown on Figure 1 potentiometric maps, groundwater beneath the area generally flows to the southeast towards town creek. Groundwater elevation measurements indicate that the flow velocity is between 28 feet/year and 51 feet/year. The PMZ is effective in controlling the migration of hazardous constituents in the vicinity of the closed landfill as evidenced by the results of the groundwater monitoring program. As described in Section 4, laboratory analytical results did not identify exceedances of the updated 2021 GWPS since 2009 with the exception of 1,1-DCE in RW-34 in July 2013.

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6 CONCLUSIONS

The following conclusions are made based on historical groundwater monitoring data and evaluation of the data presented in this demonstration report:

- Of the approximately 234 samples collected since 2014, detections of each analyte were below the relevant GWPS and TRRP $^{GW}GW_{Ing}$ values;
- The 6 Town Creek sediment samples did not reveal a detectable level of 1,1-DCE or 1,1-DCA;
- There is evidence of attenuation or of no migration COCs in all of the monitoring wells and throughout the PMZ;
- There is no likely potential for a future migration of COCs; and
- There is no likely potential for receptors to be exposed to COCs.

Therefore, based on this demonstration, Murray Corporation requests that groundwater monitoring required under CP-50328 be terminated and that HW Permit No. 50328 be allowed to expire.

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7 REFERENCES

Hazardous Waste Permit and Compliance Plan, Permit No. 50328, December 1992

Groundwater Sampling and Analysis Plan, Murray Corporation, Palestine, Texas, June 2013 TCEQ

RPS/JDC 2004, Response Action Plan, SWR No. 33063, May September 2004 RPS/JDC 2013 Revised

Renewed Hazardous Waste Permit and Compliance Plan, Permit No. 50328, October 2014

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TABLE 1

Historical Groundwater Analytical Data

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD
Volatile Organic Compounds				**11/14/01**	**4/24/02**	**11/24/02**	**5/15/03**	**10/27/03**	**3/18/04**	**7/25/04**	**1/29/05**	**7/16/05**	**1/23/06**	**7/25/06**	**2/6/07**	**7/16/07**	**1/29/08**	**7/15/08**
Acetone	2.4	22	22	<0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.003	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.003	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	<0.005	NA	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	<0.003	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	<0.003	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.003	NA	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.003	NA	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.050	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.003	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.002	NA	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.0001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.0001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.0001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.0001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD
Volatile Organic Compounds				**2/3/09**	**7/28/09**	**1/28/10**	**7/27/10**	**2/7/11**	**7/19/11**	**1/31/12**	**7/30/12**	**1/30/13**	**7/1/13**	**1/29/14**	**7/28/14**	**1/26/15**	**7/28/15**	**1/19/16**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000739 J	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	0.000475 J	0.000291 J
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000472 J	<0.002	<0.002	0.000996 J	<0.002	0.000904 J	<0.001
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.002	0.000354 J	<0.002	<0.002	<0.002
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	0.000267 J	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--	--	--	--

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
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Table 1
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2002 Tile Factory Road
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	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-1 BGD	MW-4 SUP
Volatile Organic Compounds				**7/27/16**	**1/10/17**	**7/22/17**	**1/12/18**	**7/30/18**	**1/29/19**	**7/30/19**	**1/23/20**	**7/9/20**	**1/15/21**	**7/15/21**	**2/9/22**	**8/1/22**	**1/25/23**	**11/14/01**
Acetone	2.4	22	22	<0.010	--	--	--	<0.010	0.00279 J	<0.01	<0.050	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.025
Benzene	0.005	0.005	0.005	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Chloroethane	9.8	9.8	9.8	<0.002	--	--	--	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	0.000567 J	--	--	--	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003
Chloromethane	0.07	0.07	0.07	<0.002	--	--	--	<0.002	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.004
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.387
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.248
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Ethylbenzene	0.7	0.7	0.7	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
2-Butanone (MEK)	15	15	15	<0.002	--	--	--	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.013
Methylene Chloride***	889	332	741	0.000633 J	0.000758 J	<0.002	<0.002	0.000766 J	0.000676 J	0.000489 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	--	--	--	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	<0.013
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	0.000124 J	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046
Trichlorotrifluoroethane	730	730	730	<0.002	--	--	--	<0.002	<0.002	<0.002	<0.001	--	<0.001	<0.001	<0.001	<0.001	<0.001	0.238
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.021
Toluene	1	1	1	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.038
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.008
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	--	--	--	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005
o-Xylene	(10.0 Xylenes)	10	10	<0.001	--	--	--	<0.001	<0.001	<0.001	<0.003	NA	NA	NA	NA	NA	NA	<0.003
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.0001
1,2-Dichlorobenzene***	6.11	6.11	6.11	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
Naphthalene	0.49	0.49	0.49	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.0001
Phenanthrene	0.73	0.73	0.73	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.0001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.003	0.005
Pyrene	0.73	0.73	0.73	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.0001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
Phenol	7.3	7.3	7.3	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
2-Methylnaphthalene	0.49	0.098	0.098	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.001	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.005

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*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
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	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-4 SUP	MW-4 SUP	MW-4 SUP	MW-4 SUP	MW-4 SUP	MW-4 SUP	MW-4 SUP	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC
Volatile Organic Compounds				**4/24/02**	**11/24/02**	**5/15/03**	**10/27/03**	**3/20/04**	**7/26/04**	**1/30/05**	**11/14/01**	**4/25/02**	**11/24/02**	**5/15/03**	**10/27/03**	**3/20/04**	**7/26/04**	**1/30/05**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	<0.025	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	NA	<0.003	NA	NA	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	NA	NA	NA	NA	NA	NA	NA	<0.003	NA	NA	NA	NA	NA	NA	NA
Chloroethane	9.8	9.8	9.8	NA	<0.005	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	<0.003	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.074	1.3	0.090	0.26	0.040	0.11	0.058	0.012	<0.005	0.010	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.070	0.64	0.058	0.14	0.023	0.057	0.033	0.127	0.98	0.265	0.094	0.093	0.072	0.035	0.046
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	0.003	NA	NA	<0.005	<0.005	<0.005	<0.003	NA	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	<0.003	NA	NA	<0.005	<0.005	<0.005	<0.003	NA	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	<0.025	NA	NA	NA	NA	NA	<0.013	<0.025	<0.025	<0.005	<0.010	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	0.005	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	<0.013	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	<0.0046	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	<0.003	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	NA	0.050	NA	NA	<0.005	0.007	0.005	0.004	<0.003	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	0.006	0.069	<0.005	0.012	<0.005	<0.005	<0.005	0.004	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.003	0.019	<0.005	<0.005	<0.005	<0.005	<0.005	0.004	<0.003	0.007	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	NA	<0.002	NA	NA	<0.002	<0.002	<0.002	<0.002	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	<0.005	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.010	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	<0.003	NA	NA	NA	NA	NA	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NA	NS	NS	NS	NS	NS	<0.0001	NA	NA	NA	NA	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NA	NS	NS	NS	NS	NS	<0.005	NA	NA	NA	NA	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NA	NS	NS	NS	NS	NS	<0.005	NA	NA	NA	NA	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NA	NS	NS	NS	NS	NS	<0.0001	NA	NA	NA	NA	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NA	NS	NS	NS	NS	NS	<0.0001	NA	NA	NA	NA	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NA	NS	NS	NS	NS	NS	0.005	NA	NA	NA	NA	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NA	NS	NS	NS	NS	NS	<0.0001	NA	NA	NA	NA	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NA	NS	NS	NS	NS	NS	<0.005	NA	NA	NA	NA	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NA	NS	NS	NS	NS	NS	<0.005	NA	NA	NA	NA	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	<0.010	NS	NS	NS	NS	NS	<0.005	<0.005	<0.010	<0.010	<0.005	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	<0.010	NS	NS	NS	NS	NS	<0.005	<0.005	<0.010	<0.010	<0.005	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NA	NS	NS	NS	NS	NS	<0.005	NA	NA	NA	NA	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	<0.010	NS	NS	NS	NS	NS	<0.005	<0.005	<0.010	<0.010	<0.005	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	<0.010	NS	NS	NS	NS	NS	<0.005	<0.005	<0.010	<0.010	<0.005	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC
Volatile Organic Compounds				**7/17/05**	**1/24/06**	**7/26/06**	**2/8/07**	**7/18/07**	**1/31/08**	**7/16/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**
Acetone	2.4	22	22	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.010
Benzene	0.005	0.005	0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Chloroethane	9.8	9.8	9.8	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.001
Chloroform	0.10	0.24	0.08	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Chloromethane	0.07	0.07	0.07	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	0.000259 J
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	NS	0.00345
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.002	0.003 J	<0.002	0.002 J	<0.002	NS	0.00491
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.076	0.145	0.071	0.060	0.016	0.029	0.039	0.028	0.018	0.011	0.009	0.018	0.014	NS	0.0113
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	0.001 J	<0.001	<0.001	<0.001	NS	0.00338
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.002
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	NS	0.000281 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	0.025	0.0036 J	0.008	0.010	NS	<0.001
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	0.002 J	0.002 J	NS	0.00268
Toluene	1	1	1	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	0.008	0.005	<0.005	<0.005	<0.005	<0.002	0.003 J	<0.002	<0.002	<0.002	NS	0.00358
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	0.002 J	<0.002	NS	0.000924 J
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	0.000334 J
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	<0.010
Naphthalene	0.49	0.49	0.49	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	NS	<0.010
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	<0.005	<0.005	<0.005	0.02	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	NS	<0.010
Pyrene	0.73	0.73	0.73	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	NS	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	NS	<0.010
Phenol	7.3	7.3	7.3	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	NS	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	NS	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
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SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC
Volatile Organic Compounds				**1/31/13**	**7/2/13**	**1/30/14**	**7/29/14**	**1/27/15**	**7/30/15**	**1/21/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/30/18**	**7/31/18**	**1/31/19**	**7/31/19**	**1/24/20**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.050
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
Chloromethane	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.0025
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	0.000950 J	0.00332	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
1,1-Dichloroethane***	285	143	11.7	0.00210	<0.001	0.00383	0.00453	0.00186	0.0014	0.000307 J	0.00118	0.000618 J	<0.001	0.000650 J	0.00044 J	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.00751	0.00690	0.0109	0.0103	0.00267	0.00694	0.00155	0.01290	0.0103	0.0107	0.00974	0.00684	0.00138	0.00104	0.00164
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000840 J	<0.001	0.00229	0.00314	0.000496 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010
Methylene Chloride***	889	332	741	0.000257 J	<0.002	0.00158 J	0.00548 J	<0.002	0.000809 J	<0.002	0.000614 J	0.000728 J	<0.002	0.00127 J	0.000605 J	0.000632 J	0.000623 J	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.001	<0.001	0.0381	0.0449	0.0112	0.00753	0.00319	0.00692	0.00539	0.00658	0.00826	0.00572	0.00153 J	0.00379	0.00404
Tetrachloroethene***	17.9	2.72	15.6	0.00247	0.00301	0.00478	0.005	0.000678 J	0.00180	0.000762 J	0.00233	0.00144	0.00167	0.00175	0.00164	0.000526 J	0.00262	0.00212
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	0.000194 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	0.00161	0.00205	0.00343	0.00263	<0.001	0.000338 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	0.000474 J	0.000513 J	<0.001	0.000892 J	0.000306 J	0.000455 J	<0.001	0.000395 J	0.000609 J	0.000554 J	0.000531 J	0.000411 J	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
Naphthalene	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
Phenol	7.3	7.3	7.3	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00191 J
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.010

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-5 POC	MW-6 POC/REC	MW-6 POC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-36 POE	MW-6 POC/REC	MW-6 POC/REC
Volatile Organic Compounds				**7/9/20**	**1/15/21**	**7/16/21**	**2/10/22**	**8/2/22**	**1/25/23**	**11/15/01**	**4/25/02**	**11/24/02**	**10/27/03**	**3/19/04**	**7/26/04**	**7/25/04**	**1/31/05**	**7/17/05**
Acetone	2.4	22	22	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05	<0.025	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.134	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	NA	NA	NA	NA	NA	NA	NA	<0.005
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	NA
Chloroform	0.10	0.24	0.08	<0.005	<0.005	0.00889	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	.000129 J	0.000180 J	<0.001	0.000175 J	0.000106 J	<0.001	0.308	0.022	0.171	0.14	0.190	0.098	0.130	0.120	0.145
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NA	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.00208	0.00295	<0.001	0.00545	0.00237	0.00501	0.49	0.187	0.48	0.18	0.220	0.130	0.110	0.150	0.146
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	NA	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	NA	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	NA
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.010	<0.010	<0.01	<0.010	<0.010	<0.01	<0.013	<0.025	<0.025	<0.010	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.020	<0.005	0.007	0.109	0.044	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.010	<0.010	<0.01	<0.010	<0.010	<0.01	<0.013	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	--	0.00278	<0.001	0.00321	0.00175	0.00189	<0.003	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.00184	0.000550 J	<0.001	0.000920 J	<0.001	0.00146	0.056	<0.003	0.045	0.021	0.045	0.022	<0.005	0.034	0.013
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.948	0.027	1.35	0.27	0.535	0.240	<0.005	0.290	0.173
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	0.000327 J	<0.001	0.000392 J	0.024	<0.003	0.024	0.008	0.014	0.008	<0.005	0.010	0.007
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	0.005	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	0.009	<0.003	0.013	<0.005	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	NA	NA	NA	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	NA	NA	NA	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	NA	NA	NA	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.001	<0.001	<0.002	<0.001	0.00107	<0.001	<0.0001	NA	NA	NA	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	NA	NA	NA	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.005	NA	NA	NA	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	NA	NA	NA	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	NA	NA	NA	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	NA	NA	NA	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.010	<0.005	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.010	<0.005	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	<0.001	<0.002	<0.001	0.00107	<0.001	<0.005	NA	NA	NA	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.010	<0.005	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.010	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.010	<0.005	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC	MW-6 POC/REC
Volatile Organic Compounds				**1/25/06**	**7/26/06**	**2/8/07**	**7/18/07**	**1/31/08**	**7/16/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**	**1/31/13**
Acetone	2.4	22	22	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.010
Benzene	0.005	0.005	0.005	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	0.031	0.011	<0.005	0.027	<0.002	<0.002	<0.002	0.018	0.015	NS	NS	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Chloroethane	9.8	9.8	9.8	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.001
Chloroform	0.10	0.24	0.08	NA	NA	0.006	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	0.000470 J
Chloromethane	0.07	0.07	0.07	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
1,1-Dichloroethane***	285	143	11.7	0.069	0.076	0.17	0.072	0.19	0.076	0.058	0.029	0.051	0.041	0.030	0.016	NS	NS	0.0494
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	NS	NS	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.243	0.750	1.2	0.10	0.10	0.096	0.223	0.190	0.112	0.042	0.071	0.051	NS	NS	0.0901
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	0.046	<0.005	<0.005	<0.005	<0.005	<0.001	0.007	0.001 J	<0.001	<0.001	NS	NS	0.00330
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	0.017	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.002
Methylene Chloride***	889	332	741	<0.005	<0.005	0.059	<0.050	<0.050	<0.050	<0.050	<0.003	0.003 J	<0.003	<0.003	<0.003	NS	NS	0.000373 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	NS	NS	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	0.166	0.102	<0.005	0.048	0.080	NS	NS	<0.001
Tetrachloroethene***	17.9	2.72	15.6	0.012	0.140	0.33	0.051	0.034	0.017	0.045	0.114	0.072	0.025	0.036	0.042	NS	NS	0.139
Toluene	1	1	1	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
1,1,1-Trichloroethane***	272	136	273	0.157	3.30	7.4	0.26	0.094	0.070	0.217	0.326	0.187	0.04	0.066	0.066	NS	NS	0.133
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	**0.014**	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.001
Trichloroethene***	34	30.8	3.99	0.010	0.052	0.11	0.010	0.006	0.007	0.018	0.022	0.013	0.003 J	0.008	0.008	NS	NS	0.0146
Vinyl Chloride***	23.1	1.33	0.917	0.002	<0.002	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	0.00115
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	0.069	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	0.15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	NS	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	NS	<0.010
Naphthalene	0.49	0.49	0.49	NS	NS	0.045	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	NS	NS	<0.010
Phenanthrene	0.73	0.73	0.73	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	NS	NS	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	0.010	<0.005	0.006	<0.01	<0.012	<0.006	0.008 J	<0.008	<0.008	<0.008	NS	NS	<0.010
Pyrene	0.73	0.73	0.73	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	NS	NS	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	NS	NS	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	NS	NS	<0.010
Phenol	7.3	7.3	7.3	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	NS	NS	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	0.006	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	NS	NS	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	NS	NS	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC
Volatile Organic Compounds				**7/2/13**	**1/30/14**	**7/29/14**	**1/27/15**	**7/30/15**	**1/21/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/30/18**	**7/31/18**	**1/31/19**	**7/31/19**	**1/24/20**	**7/9/20**
Acetone	2.4	22	22	<0.010	<0.100	0.0443 J	<0.010	<0.010	0.00403 J	<0.010	0.0175	<0.010	<0.010	<0.010	<0.10	<0.01	<0.050	<0.050
Benzene	0.005	0.005	0.005	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.001	<0.010	<0.010	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.02	<0.002	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000208 J	0.00169 J	<0.001	<0.005	<0.005
Chloromethane	0.07	0.07	0.07	<0.001	<0.010	<0.010	<0.001	0.000513 J	<0.002	<0.002	0.000669 J	<0.002	<0.001	<0.002	<0.02	<0.002	<0.0025	<0.0025
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.005	<0.005
1,1-Dichloroethane***	285	143	11.7	0.0373	0.0677	0.0541	0.0277	0.00736	0.00765	0.00864	0.00598	0.00390	0.00203	0.01030	0.00942 J	0.00205	0.00388	0.00197
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0793	0.115	0.127	0.0517	0.0385	0.0363	0.0173	0.0162	0.0102	0.0110	0.0062	0.00869 J	0.00515	0.00504	0.00426
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.00562	0.0399	0.0418	0.00648	0.00179	0.00981	0.00195	0.000564 J	0.00159	0.000257 J	0.0273	0.0523	0.00182	0.0178	0.0160
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.002	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.010	<0.010
Methylene Chloride***	889	332	741	0.000634 J	<0.020	0.0124 J	0.000339 J	0.000529 J	0.000696 J	0.00146 J	0.000797J	0.000520 J	0.00102 J	<0.002	0.00911 J	0.00163 J	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.001	<0.010	<0.010	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.010	<0.010
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.001	0.0899	0.142	0.0739	0.0689	0.0582	0.0412	0.0437	0.0471	0.0403	0.0419	0.0305	0.0136	0.0193	--
Tetrachloroethene***	17.9	2.72	15.6	0.242	0.417	0.554	0.275	0.198	0.242	0.155	0.141	0.114	0.0683	0.253	0.204	0.0513	0.153	0.104
Toluene	1	1	1	<0.001	<0.010	<0.010	<0.001	0.000176 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	0.152	0.224	0.158	0.0757	0.0351	0.0292	0.0281	0.0164	0.0116	0.00468	0.0101	<0.01	0.00418	0.00514	0.00356
1,1,2-Trichloroethane	0.005	0.005	0.005	0.000694 J	<0.010	<0.010	0.000787 J	0.000267 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	0.0202	0.0421	0.0548	0.0199	0.00978	0.0127	0.00901	0.00615	0.00640	0.00316	0.02530	0.0255	0.0028	0.0111	0.0113
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.02	<0.002	<0.003	<0.003
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.01	<0.001	<0.003	
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.001	<0.001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.01	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.01	<0.01
Naphthalene	0.49	0.49	0.49	<0.010	0.00281 J	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.002	<0.001	<0.001
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.001	<0.001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.003	<0.003
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.001	<0.001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.01	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.01	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.01	<0.01
Phenol	7.3	7.3	7.3	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.002	0.00562 J	<0.01
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.001	<0.001
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.050	<0.005	<0.005	<0.005	<0.01	<0.01
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.100	<0.010	<0.010	<0.01	0.000302 J	<0.010

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-6 POC	MW-7 USP	MW-8 REC	MW-8 SUP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP
Volatile Organic Compounds				**1/15/21**	**7/16/21**	**2/10/22**	**8/2/22**	**1/25/23**	**11/14/01**	**11/15/01**	**4/24/02**	**11/14/01**	**4/24/02**	**11/24/02**	**5/15/03**	**10/27/03**	**3/19/04**	**7/26/04**
Acetone	2.4	22	22	<0.050	<0.05	<0.050	<0.050	<0.05	<0.025	0.053	NA	<0.025	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	NA	<0.003	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	**0.97**	NA	0.059	NA	NA	NA	NA	0.061	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	NA	<0.003	NA	NA	NA	NA	NA	NA
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	NA	<0.005	NA	NA	NA	NA	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.005	0.00891	<0.005	<0.005	<0.005	<0.003	0.015	NA	<0.003	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.005	NA	<0.005	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	NA	0.009	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.00348	0.00273	0.000664 J	0.000628 J	0.00117	0.005	0.192	0.095	0.218	0.286	0.077	0.18	0.044	0.15	0.210
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.034	NA	<0.003	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.00810	0.00361	0.00313	0.00186	0.00534	<0.003	**36**	**9.64**	1.135	**2.27**	0.459	1.5	0.22	1.45	1.69
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.0254	<0.001	0.00439	0.01110	0.00777	<0.003	<0.003	NA	<0.003	NA	NA	NA	NA	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	NA	<0.003	NA	NA	NA	NA	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.056	NA	<0.003	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013	0.48	NA	<0.013	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	7.1	3.22	<0.005	<0.005	<0.005	<0.005	0.041	<0.005	0.012
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013	<0.013	NA	<0.013	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046	<0.0046	NA	<0.0046	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	0.0145	0.00504	0.00843	0.0117	0.0119	<0.003	0.024	NA	0.364	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.124	<0.001	0.0677	0.0704	0.0452	<0.003	0.26	NA	0.010	NA	NA	NA	NA	0.011	0.015
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.133	NA	<0.003	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	0.0120	<0.001	0.00152	0.00106	0.00511	<0.003	7.9	4.33	0.368	1.19	0.142	0.37	0.061	0.558	0.817
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	**0.012**	NA	<0.003	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.0144	<0.001	0.00501	0.00830	0.00481	<0.003	0.286	0.12	0.018	0.037	0.009	0.025	<0.005	0.02	0.037
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	NA	<0.002	NA	NA	NA	NA	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	0.218	NA	<0.005	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10						<0.003	0.138	NA	<0.003	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	0.0002	NS	<0.0001	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	NS	<0.005	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	NS	<0.005	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.001	<0.001	<0.001	0.00109	<0.001	<0.0001	0.038	NS	<0.0001	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	NS	<0.0001	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	0.008	NS	0.008	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	0.0003	NS	<0.0001	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	NS	<0.005	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	NS	<0.005	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	NS	<0.005	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	0.040	NS	<0.005	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.001	<0.001	<0.001	0.000904 J	<0.001	<0.005	0.005	NS	<0.005	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	0.131	NS	<0.005	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	0.066	NS	<0.005	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
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All results in mg/L
NA - Constituent not analyzed
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SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP
Volatile Organic Compounds				**1/31/05**	**7/17/05**	**1/25/06**	**7/25/06**	**2/8/07**	**7/18/07**	**1/30/08**	**7/16/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	0.025	0.007	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chlorobenzene***	3.56	3.56	3.56	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chloroethane	9.8	9.8	9.8	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.140	0.203	0.029	0.016	0.016	0.063	0.044	0.043	0.011	0.016	0.025	0.02	<0.002	0.005	0.00703
1,2-Dichloroethane***	4.11	30.7	20.2	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	**1.78**	**2.36**	0.120	0.059	0.076	0.720	0.36	0.329	0.059	0.082	0.132	0.158	0.008	0.016	0.0186
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.005	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.016	0.010	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.002 J	0.002 J	<0.002	<0.002	<0.002	0.000525 J
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	0.820	0.754	0.040	0.019	0.014	0.210	0.065	0.067	0.005	0.01	0.012	0.011	0.042	<0.002	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.026	0.025	<0.005	<0.005	<0.005	0.011	<0.005	0.007	<0.005	<0.002	0.003 J	<0.002	<0.002	<0.002	0.000411 J
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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Table 1
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	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP
Volatile Organic Compounds				7/31/12	1/31/13	7/2/13	1/30/14	7/29/14	1/27/15	7/29/15	1/20/16	7/28/16	1/11/17	7/23/17	1/30/18	7/31/18	1/30/19	7/31/19
Acetone	2.4	22	22	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00880 J	<0.010	<0.010	<0.010	<0.010	<0.05
Benzene	0.005	0.005	0.005	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Chloroethane	9.8	9.8	9.8	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.004	<0.002	<0.001	<0.002	<0.002	<0.01
Chloroform	0.10	0.24	0.08	NA	NA	<0.001	<0.001	<0.001	<0.001	0.000346 J	<0.001	0.000386 J	<0.002	0.000206 J	<0.001	<0.001	<0.001	0.000966 J
Chloromethane	0.07	0.07	0.07	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.004	<0.002	<0.001	<0.002	<0.002	<0.01
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	0.000533 J	<0.001	<0.002	<0.001	0.000310 J	<0.001	<0.001	<0.005
1,1-Dichloroethane***	285	143	11.7	0.00532	0.00678	0.00512	0.00491	0.00819	0.0215	0.0272	0.0241	0.0307	0.0243	0.00571	0.0189	0.016	0.0257	0.0183
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000261 J	<0.001	0.000169 J	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0140	0.0201	0.0132	0.0167	0.0459	0.129	0.462	0.258	0.320	0.158	0.0577	0.0569	0.0404	0.0673	0.109
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	<0.001	<0.001	<0.001	<0.001	0.000519 J	<0.001	0.000688 J	0.000382 J	0.000149 J	0.000346 J	0.000177 J	0.000793 J	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Ethylbenzene	0.7	0.7	0.7	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
2-Butanone (MEK)	15	15	15	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.01
Methylene Chloride***	889	332	741	<0.002	0.000245 J	<0.002	<0.002	0.00064 J	<0.002	0.000736 J	0.000380 J	<0.002	<0.004	<0.010	0.000880 J	0.000504 J	<0.002	<0.01
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.01
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Trichlorotrifluoroethane	730	730	730	NA	NA	<0.001	0.00562	0.0151	0.0475	0.0800	0.0654	0.0802	0.0445	0.0131	0.0273	0.0162	0.0264	0.0284
Tetrachloroethene***	17.9	2.72	15.6	0.000400 J	0.000433 J	0.000353 J	0.000311 J	0.00034 J	0.000594 J	0.00312	0.00475	0.00594	0.00489	0.00178	0.00683	0.00497	0.00677	0.0076
Toluene	1	1	1	NA	NA	<0.001	<0.001	<0.001	<0.001	0.000229 J	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	0.000546 J	<0.001	0.00206	0.00826	0.00326	0.00808	0.00250	0.000719 J	0.000778 J	0.000671 J	0.000864 J	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	<0.001	<0.001	<0.001	<0.001	0.000404 J	0.000238 J	0.000406 J	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Trichloroethene***	34	30.8	3.99	<0.001	0.000368 J	<0.001	<0.001	0.000405 J	0.00128	0.00535	0.00367	0.00608	0.00327	0.000919 J	0.00167	0.00154	0.00197	0.00207 J
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.01
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.005
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene	0.49	0.49	0.49	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
Phenanthrene	0.73	0.73	0.73	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	0.00209 J	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene	0.73	0.73	0.73	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenol	7.3	7.3	7.3	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-10 AMP	MW-11 SUP	MW-12 SUP	MW-13 SUP	MW-18 SUP	MW-18 SUP	MW-18 SUP	MW-18 SUP
Volatile Organic Compounds				**1/24/20**	**7/9/20**	**1/15/21**	**7/16/21**	**2/10/22**	**8/2/22**	**1/25/23**	**11/14/01**	**11/14/01**	**11/14/01**	**11/14/01**	**4/24/02**	**11/24/02**	**5/15/03**	**10/27/03**
Acetone	2.4	22	22	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05	<0.025	<0.025	<0.025	<0.025	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	<0.005	0.000113 J	<0.005	0.00288 J	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	0.006	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.0171	0.0281	0.0213	<0.001	0.0158	0.0184	0.0118	<0.003	<0.003	<0.003	0.028	0.030	0.043	0.016	0.027
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0162	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0404	0.140	0.0568	<0.001	0.0480	0.0554	0.0362	<0.003	<0.003	<0.003	0.091	0.095	0.216	0.039	0.14
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000589 J	0.00175	0.00122	<0.001	0.00162	0.00272	0.00100	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013	<0.013	<0.013	<0.013	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	0.00104 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013	<0.013	<0.013	<0.013	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046	<0.0046	<0.0046	<0.0046	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	0.0262	--	0.0377	<0.001	0.0213	0.0187	0.0207	<0.003	0.005	<0.003	0.081	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.00754	0.0115	0.0113	<0.001	0.0141	0.00908	0.00816	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	0.000638 J	0.00135	0.000500 J	<0.001	0.000397 J	0.000559 J	0.000332 J	<0.003	<0.003	<0.003	<0.003	0.006	0.008	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.00128	0.00291	0.00161	<0.001	0.00185	0.00188	0.00156	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	NA	NA	NA	NA
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.003							<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.001	<0.001	<0.001	<0.002	<0.001	0.000760 J	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	0.00104 J	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.001	<0.001	<0.001	<0.002	<0.001	0.000774 J	<0.001	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	0.000341 J	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-18 SUP	MW-18 SUP	MW-18 SUP	MW-20 SUP	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC
Volatile Organic Compounds				**3/20/04**	**7/25/04**	**1/30/05**	**11/15/01**	**11/14/01**	**4/25/02**	**11/24/02**	**5/15/03**	**10/27/03**	**3/19/04**	**7/26/04**	**1/31/05**	**7/17/05**	**1/24/06**	**7/26/06**
Acetone	2.4	22	22	NA	NA	NA	<0.025	<0.025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.003	0.011	0.069	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	NA	NA	NA	0.017	<0.003	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	NA	NA	NA
Chloroform	0.10	0.24	0.08	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	<0.003	0.009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.011	0.022	0.013	0.013	0.411	0.153	0.476	0.013	0.13	0.076	0.026	0.047	0.047	0.294	0.210
1,2-Dichloroethane***	4.11	30.7	20.2	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.036	0.073	0.052	<0.003	0.451	0.251	0.416	0.023	0.14	0.086	0.051	0.057	0.046	0.153	0.150
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.003	<0.003	NA	0.004	<0.005	<0.005	0.007	<0.005	<0.005	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	<0.005	<0.005	<0.003	<0.003	NA	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	NA	NA	<0.013	<0.013	<0.025	<0.025	<0.005	<0.010	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	0.005	0.010	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	<0.005	0.019	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	<0.013	<0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	<0.0046	<0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	<0.003	0.443	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.003	0.031	0.041	0.010	<0.005	0.005	0.008	<0.005	0.006	<0.005	0.014	0.020
Toluene	1	1	1	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.003	0.089	0.651	0.042	<0.005	0.014	0.008	0.006	0.006	0.005	0.014	0.097
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.003	0.009	0.011	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.010	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	<0.003	<0.003	0.006	<0.003	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	<0.0001	<0.0001	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	0.006	<0.005	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	<0.005	<0.005	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NS	NS	0.0001	<0.0001	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	0.0001	<0.0001	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	<0.005	0.006	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NS	NS	0.0001	<0.0001	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	<0.005	<0.005	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	<0.005	<0.005	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	<0.005	<0.005	<0.005	<0.010	SB	<0.005	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	NS	NS	<0.005	<0.005	<0.005	<0.010	SB	<0.005	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	<0.005	<0.005	NA	NA	SB	NA	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	<0.005	<0.005	<0.005	<0.010	SB	<0.005	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	<0.005	<0.005	<0.005	<0.010	SB	<0.005	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC
Volatile Organic Compounds				**2/8/07**	**7/18/07**	**1/31/08**	**7/16/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**	**1/31/13**	**7/2/13**	**1/30/14**
Acetone	2.4	22	22	<0.010	<0.010	0.022	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	0.0084 J	<0.001	<0.001	<0.010	<0.100
Benzene	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	0.000163 J	<0.001	<0.001	<0.010
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	0.004 J	<0.001	<0.001	<0.001	<0.001	<0.010
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.010
Chloroform	0.10	0.24	0.08	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000326 J	0.000762 J	0.000412 J	<0.001	<0.010
Chloromethane	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.000267 J	<0.001	<0.001	<0.010
Dichlorodifluoromethane	4.9	4.9	4.9	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010
1,1-Dichloroethane***	285	143	11.7	0.23	0.085	0.35	0.115	0.120	0.162	0.172	0.209	0.084	0.026	0.0616	0.207	0.0845	0.122	0.210
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.34	0.037	0.13	0.056	0.101	0.113	0.139	0.069	0.042	0.034	0.0778	0.187	0.0834	0.0765	0.0757
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	0.002 J	<0.001	<0.001	0.000245 J	0.00468	0.000959 J	0.00105	<0.010
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010
Ethylbenzene	0.7	0.7	0.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010
2-Butanone (MEK)	15	15	15	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.020
Methylene Chloride***	889	332	741	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000206 J	0.000335 J	0.000595 J	<0.020
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.010
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010
Trichlorotrifluoroethane	730	730	730	<0.005	<0.005	<0.005	<0.005	<0.005	0.039	0.055	0.017	0.038	0.023	<0.001	<0.001	<0.001	<0.001	0.0276
Tetrachloroethene***	17.9	2.72	15.6	0.039	0.012	0.031	0.007	0.022	0.042	0.044	0.024	0.026	0.015	0.0138	0.0995	0.0675	0.0722	0.0961
Toluene	1	1	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010
1,1,1-Trichloroethane***	272	136	273	0.67	0.010	0.034	0.013	0.046	0.106	0.200	0.027	0.034	0.018	0.0673	0.353	0.141	0.160	0.249
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000238 J	0.000451 J	0.000451 J	<0.001	<0.010
Trichloroethene***	34	30.8	3.99	0.015	<0.005	0.005	<0.005	<0.005	0.008	0.010	0.003 J	0.004 J	0.003 J	0.00365	0.0200	0.00882	0.00885	0.0119
Vinyl Chloride***	23.1	1.33	0.917	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	0.007	<0.002	<0.002	<0.001	<0.001	0.00164	<0.001	<0.010
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.020
o-Xylene	(10.0 Xylenes)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.010
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	0.73	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.005	<0.005	<0.005	<0.01	0.015	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	0.73	<0.005	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010
Phenol	7.3	7.3	7.3	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
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Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC	MW-23 POC
Volatile Organic Compounds				**7/29/14**	**1/27/15**	**7/30/15**	**1/21/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/30/18**	**7/31/18**	**1/31/19**	**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/16/21**
Acetone	2.4	22	22	<0.100	<0.010	<0.010	0.00381 J	<0.010	0.0137	<0.010	0.00677 J	<0.010	0.00422 J	<0.01	<0.050	<0.050	<0.050	<0.05
Benzene	0.005	0.005	0.005	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.010	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	0.000998 J	0.000340 J	0.000238 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005
Chloromethane	0.07	0.07	0.07	<0.010	<0.001	0.000335 J	<0.002	<0.002	0.00137 J	<0.002	<0.001	<0.002	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025
Dichlorodifluoromethane	4.9	4.9	4.9	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethane***	285	143	11.7	0.168	0.0678	0.0290	0.0305	0.0341	0.0275	0.0456	0.0125	0.00822	0.0140	0.026	0.0293	0.0245	0.0124	0.0119
1,2-Dichloroethane***	4.11	30.7	20.2	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.131	0.0691	0.0505	0.0400	0.0354	0.0245	0.0358	0.0177	0.0133	0.0136	0.0137	0.0219	0.0182	0.0115	0.0315
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.00941	0.00174	0.00153	0.00136	0.00149	0.000945 J	<0.001	<0.001	<0.001	0.00974	0.00197	0.000852 J	0.000787 J	0.00149	0.000633 J
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.01
Methylene Chloride***	889	332	741	<0.020	<0.002	0.000393 J	0.000420 J	0.00114 J	<0.002	<0.002	0.000910 J	0.000595 J	0.000716 J	<0.002	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.010	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.01
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	0.0571	0.0664	0.0578	0.0512	0.0350	0.0307	0.0328	0.0268	0.0284	0.0222	0.00906	0.0113	--	0.0203	0.00675
Tetrachloroethene***	17.9	2.72	15.6	0.177	0.124	0.0988	0.149	0.0854	0.0778	0.0733	0.0565	0.057	0.0616	0.0441	0.0387	0.0507	0.0697	0.00148
Toluene	1	1	1	<0.010	<0.001	0.000235 J	<0.001	<0.001	0.000101 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	0.236	0.0954	0.0553	0.0461	0.0413	0.0261	0.0289	0.00710	0.00998	0.0117	0.0129	0.0171	0.0198	0.00846	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	0.000456 J	0.000272 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	0.0242	0.0123	0.00715	0.00842	0.00562	0.00521	0.00402	0.00358	0.00274	0.00558	0.00259	0.00370	0.00218	0.00324	0.000791 J
Vinyl Chloride***	23.1	1.33	0.917	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003
o-Xylene	(10.0 Xylenes)	10	10	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003			
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Naphthalene	0.49	0.49	0.49	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001	<0.001	<0.001	<0.001
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Phenol	7.3	7.3	7.3	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00282 J	0.00499 J	<0.01	<0.01
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	0.000875 J	<0.01	<0.01	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-23 POC	MW-23 POC	MW-23 POC	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE
Volatile Organic Compounds				**2/10/22**	**8/2/22**	**1/25/2023**	**11/14/01**	**4/24/03**	**3/20/04**	**7/25/04**	**1/30/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/7/07**	**7/17/07**	**1/30/08**	**7/16/08**
Acetone	2.4	22	22	<0.050	<0.050	<0.05	<0.025	<0.050	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.003	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.005	<0.005	<0.005	<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Chloromethane	0.07	0.07	0.07	<0.0025	<0.0025	<0.0025	<0.005	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	<0.005	<0.005	<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.020	<0.020	<0.020	<0.020
1,1-Dichloroethane***	285	143	11.7	0.00688	0.0052	0.00531	0.021	0.0026 J	0.068	<0.005	0.029	0.009	<0.005	<0.005	0.017	0.011	0.005	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.003	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.00743	0.00804	0.00743	0.021	0.0033 J	0.078	0.006	0.036	0.012	<0.005	<0.005	0.016	0.009	0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000681 J	0.000325 J	0.000921 J	<0.003	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.003	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
2-Butanone (MEK)	15	15	15	<0.010	<0.01	<0.01	<0.013	<0.025	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010
Methylene Chloride***	889	332	741	<0.005	0.000967 J	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.050	<0.050
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.010	<0.01	<0.01	<0.013	<0.025	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.0046	<0.002	NA	NA	NA	NA	NA	NA	<0.004	<0.004	<0.004	<0.004
Trichlorotrifluoroethane	730	730	730	0.00652	0.0153	0.00967	<0.003	0.010 J	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene***	17.9	2.72	15.6	0.0344	0.0397	0.0466	<0.003	0.0019 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane***	272	136	273	0.00421	0.00517	<0.001	<0.003	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	0.00639	<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Trichloroethene***	34	30.8	3.99	0.00208	0.0019	0.00197	<0.003	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	<0.003	<0.003	<0.005	<0.010	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010
o-Xylene	(10.0 Xylenes)	10	10				<0.003	<0.005	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.001	<0.001	<0.001	<0.0001	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
Naphthalene	0.49	0.49	0.49	<0.001	0.000495 J	<0.001	<0.0001	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
Phenanthrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.0001	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	<0.003	0.00142 J	<0.005	0.002	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
Pyrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.0001	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
Phenol	7.3	7.3	7.3	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
2-Methylnaphthalene	0.49	0.098	0.098	<0.001	0.000440 J	<0.001	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.01	<0.01	<0.01	<0.005	<0.001	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE
Volatile Organic Compounds				**2/4/09**	**7/29/09**	**1/28/10**	**7/27/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**	**1/31/13**	**7/2/13**	**1/30/14**	**7/29/14**	**1/27/15**	**7/29/15**	**1/20/16**
Acetone	2.4	22	22	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
Chloroform	0.10	0.24	0.08	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	0.000617 J	<0.001	<0.001	<0.001	0.00108
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.002	0.010	<0.002	0.003 J	<0.002	0.00104	0.00141	0.0015	<0.001	0.0302	0.00236	0.00896	0.00162	0.00130
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.005	<0.002	0.009	<0.002	<0.002	<0.002	0.00069 J	0.000998 J	0.000924 J	0.000822 J	0.0172	0.00138	0.00530	0.000685 J	0.00983
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000207 J	<0.002	<0.002	0.000663 J	<0.002	0.000795 J	0.000433 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.005	<0.005	0.034	0.0011 J	0.011	<0.005	<0.001	<0.001	<0.001	<0.001	0.197	0.0157	0.0494	0.00399	0.0825
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	0.000976 J	<0.001	0.000489 J	<0.001	0.000555 J
Toluene	1	1	1	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000161 J	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	0.00111	<0.010	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.005	<0.002	<0.002	<0.002	0.003 J	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	0.00150	<0.001	0.000510 J	<0.001	0.00102
Vinyl Chloride***	23.1	1.33	0.917	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	0.49	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
Phenanthrene	0.73	0.73	0.73	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	0.73	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Phenol	7.3	7.3	7.3	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005
2-Methylnaphthalene	0.49	0.098	0.098	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-25 POE	MW-26 POE
Volatile Organic Compounds				**7/28/16**	**1/11/17**	**7/23/17**	**1/13/18**	**7/31/18**	**1/30/19**	**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/16/21**	**2/9/22**	**8/1/22**	**1/26/2023**	**11/14/01**
Acetone	2.4	22	22	0.00345 J	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05	<0.025
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Chlorobenzene***	3.56	3.56	3.56	0.000115 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Chloroethane	9.8	9.8	9.8	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003
Chloromethane	0.07	0.07	0.07	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	0.000770 J	<0.001	<0.001	0.000768 J	<0.001	<0.005	<0.005	<0.005	0.00284 J	<0.005	<0.005	<0.005	<0.003
1,1-Dichloroethane***	285	143	11.7	0.0065	0.00447	0.00844	0.00516	0.0022	0.00891	0.00479	0.00913	0.0386	0.0174	0.0337	0.0214	0.0153	0.0139	0.117
1,2-Dichloroethane***	4.11	30.7	20.2	0.000089 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.00335	0.00198	0.00435	0.00248	0.000402 J	0.00467	0.000668 J	0.00271	0.0286	0.00650	0.0265	0.00900	0.00162	0.00115	0.294
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000126 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00117	0.000380 J	0.00148	0.00103	<0.001	<0.001	<0.003
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013
Methylene Chloride***	889	332	741	0.000533 J	0.000689 J	<0.002	<0.002	0.000707 J	0.000688 J	0.000554 J	<0.005	<0.005	<0.005	<0.005	<0.005	0.00124 J	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046
Trichlorotrifluoroethane	730	730	730	0.0161	0.0135	0.0319	0.017	0.00128 J	0.0330	0.00379	0.00793	--	0.027	0.106	0.0248	0.0016	<0.001	<0.003
Tetrachloroethene***	17.9	2.72	15.6	0.000212 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00121	0.000309 J	0.00102	<0.001	<0.001	<0.001	<0.003
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.013
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003
Trichloroethene***	34	30.8	3.99	0.000486 J	<0.001	0.000542 J	0.000327 J	<0.001	0.000544 J	<0.001	<0.001	0.00341	0.00105	0.00323	0.0108	<0.001	<0.001	0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000259 J	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003							<0.003
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
Naphthalene	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	0.000458 J	<0.001	<0.0001
Phenanthrene	0.73	0.73	0.73	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.005
Pyrene	0.73	0.73	0.73	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
Phenol	7.3	7.3	7.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.000727 J	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	0.000183 J	<0.002	<0.001	0.000401 J	<0.001	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE
Volatile Organic Compounds				**11/24/02**	**4/24/03**	**10/27/03**	**3/20/04**	**7/25/04**	**10/24/04**	**1/30/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/7/07**	**7/17/07**	**1/30/08**	**7/15/08**	**2/4/09**
Acetone	2.4	22	22	NA	<0.050	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon Tetrachloride***	0.47	0.54	0.54	NA	<0.005	NA	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	NA	<0.005	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	NA	<0.005	NA	<0.005	<0.005	NA	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	0.07	0.07	0.07	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Dichlorodifluoromethane	4.9	4.9	4.9	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.020	<0.020	<0.020	<0.020	<0.020
1,1-Dichloroethane***	285	143	11.7	0.035	0.083	0.029	0.100	0.120	NA	0.077	0.115	0.027	<0.005	0.11	0.045	0.069	0.061	0.104
1,2-Dichloroethane***	4.11	30.7	20.2	NA	<0.005	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.093	0.26	0.12	**0.390**	**0.460**	**0.450**	0.310	**0.490**	0.125	<0.005	**0.63**	0.091	0.19	0.165	**0.400**
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	0.0021 J	NA	<0.005	<0.005	NA	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	<0.005	NA	<0.005	<0.005	NA	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
2-Butanone (MEK)	15	15	15	NA	<0.025	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.050	<0.050	<0.050
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	<0.025	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	<0.004	<0.004	<0.004	<0.004	<0.004
Trichlorotrifluoroethane	730	730	730	NA	0.038	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene***	17.9	2.72	15.6	NA	0.0058	NA	0.009	0.010	NA	0.008	<0.005	<0.005	<0.005	0.005	<0.005	0.006	<0.005	0.005
Toluene	1	1	1	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	0.010	<0.005	NA	<0.005	<0.005	<0.005	<0.005	0.024	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene***	34	30.8	3.99	0.006	0.0047	<0.005	0.006	0.008	NA	0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	0.007
Vinyl Chloride***	23.1	1.33	0.917	NA	<0.002	NA	<0.002	<0.002	NA	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.002	<0.005
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	<0.010	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010
o-Xylene	(10.0 Xylenes)	10	10	NA	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
Naphthalene	0.49	0.49	0.49	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
Phenanthrene	0.73	0.73	0.73	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	0.002	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.012
Pyrene	0.73	0.73	0.73	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
2,4-Dichlorophenol	0.073	0.073	0.073	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
2,4-Dimethylphenol	0.49	0.49	0.49	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
Phenol	7.3	7.3	7.3	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
2-Methylnaphthalene	0.49	0.098	0.098	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE
Volatile Organic Compounds				**7/29/09**	**1/28/10**	**7/27/10**	**2/8/11**	**7/20/11**	**1/31/12**	**7/31/12**	**1/31/13**	**7/2/13**	**1/30/14**	**7/29/14**	**1/27/15**	**7/29/15**	**1/20/16**	**7/28/16**
Acetone	2.4	22	22	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.100	<0.100	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.002	<0.002	<0.002
Chloroform	0.10	0.24	0.08	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.000257 J	<0.001	<0.001	<0.010	<0.010	<0.001	<0.002	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	0.000301 J	<0.001	<0.001	<0.011	<0.010	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	0.046	0.060	0.034	0.047	0.020	0.0127	0.0235	0.00646	0.0156	0.0408	0.0342	0.0292	0.0180	0.00801	0.0147
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.147	0.219	0.101	0.137	0.070	0.0564	0.0923	0.0313	0.0647	0.131	0.047	0.0468	0.0368	0.0238	0.0272
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.002 J	0.005 J	<0.001	0.004 J	0.002 J	0.000569 J	0.00111	0.000340 J	<0.001	<0.010	0.000746 J	0.000699 J	0.000567 J	<0.001	0.000469 J
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.012	<0.010	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000202 J	0.000300 J	<0.002	<0.020	<0.020	<0.002	0.000746 J	0.000359 J	0.000991 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.010	<0.010	<0.001	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	0.031	0.065 E	0.010	0.032	0.013	<0.001	<0.001	<0.001	<0.001	0.0187 J	0.0076 J	0.00551	0.00146 J	0.00168 J	0.00138 J
Tetrachloroethene***	17.9	2.72	15.6	0.005 J	0.006	0.004 J	0.005 J	0.003 J	0.00242	0.00225	0.00141	0.00205	0.00241 J	0.00226	0.00177	0.00132	0.00140	0.00123
Toluene	1	1	1	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	0.000221 J	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	0.004 J	0.005 J	0.002 J	0.004 J	0.003 J	0.0015	0.00156	0.000881 J	0.00133	<0.010	0.000891 J	0.000881 J	0.000688 J	0.000577 J	0.000674 J
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
Naphthalene	0.49	0.49	0.49	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005
Phenanthrene	0.73	0.73	0.73	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
Pyrene	0.73	0.73	0.73	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
Phenol	7.3	7.3	7.3	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005
2-Methylnaphthalene	0.49	0.098	0.098	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-26 POE	MW-27 POE	MW-27 POE	MW-27 POE
Volatile Organic Compounds				**1/11/17**	**7/23/17**	**1/13/18**	**7/31/18**	**1/30/19**	**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/16/21**	**2/9/22**	**1/26/2023**	**11/14/01**	**4/24/03**	**3/19/04**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.050	<0.050	<0.050	<0.05	<0.050	<0.05	<0.025	<0.050	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000213 J	<0.001	<0.003	<0.005	NA
Chloroethane	9.8	9.8	9.8	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	0.0008 J	NA
Chloromethane	0.07	0.07	0.07	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.005	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.005	NA
1,1-Dichloroethane***	285	143	11.7	0.0227	0.0225	0.00699	0.0125	0.0239	0.0187	0.00737	0.0181	0.00587	0.0127	0.0251	0.00436	<0.003	0.0030 J	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0460	0.0515	0.0192	0.035	0.0644	0.0437	0.0293	0.0546	0.0193	0.0335	0.0960	0.0248	<0.003	0.015	<0.005
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000832 J	0.00106	0.000221 J	0.000611 J	0.00109	0.000816 J	0.000430 J	0.000887 J	0.000280J	0.000691 J	0.00157	<0.001	<0.003	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	NA
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.013	<0.025	NA
Methylene Chloride***	889	332	741	<0.002	<0.002	<0.002	0.000712 J	0.000695 J	0.000626 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.013	<0.025	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046	<0.002	NA
Trichlorotrifluoroethane	730	730	730	0.00578	0.00312	0.00131 J	0.00372	0.0103	0.00466	0.00250	--	<0.001	0.00935	0.0178	<0.001	<0.003	0.0064 J	NA
Tetrachloroethene***	17.9	2.72	15.6	0.00226	0.00168	0.00122	0.00217	0.00220	0.00184	0.00144	0.00248	0.00175	0.00157	0.00395	0.00199	<0.003	<0.005	<0.005
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.0003 J	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.005	NA
Trichloroethene***	34	30.8	3.99	0.00134	0.00109	0.000655 J	0.000573 J	0.00130	0.000993 J	0.000861 J	0.00117	0.000755 J	0.000903 J	0.00261	0.000871 J	<0.003	0.0055	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	0.000258 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000263 J	<0.001	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.010	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003						<0.003	<0.005	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.0001	<0.001	NA
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA
Naphthalene	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.0001	<0.001	NA
Phenanthrene	0.73	0.73	0.73	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.0001	<0.001	NA
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.005	0.012	<0.005
Pyrene	0.73	0.73	0.73	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	0.000135 J	<0.0001	<0.001	NA
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA
2,4-Dichlorophenol	0.073	0.073	0.073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA
2,4-Dimethylphenol	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA
Phenol	7.3	7.3	7.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.000436 J	0.00465 J	<0.01	<0.02	0.00654 J	<0.01	<0.005	<0.001	NA
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	0.000150 J	<0.005	<0.001	NA
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.005	<0.001	NA

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE
Volatile Organic Compounds				**7/25/04**	**1/29/05**	**7/16/05**	**1/23/06**	**7/25/06**	**2/7/07**	**7/17/07**	**1/30/08**	**7/15/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/27/10**	**2/7/11**	**7/19/11**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	<0.010	<0.010	--	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Chlorobenzene***	3.56	3.56	3.56	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	<0.020	<0.020	--	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
1,2-Dichloroethane***	4.11	30.7	20.2	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	<0.005	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	<0.010	<0.010	--	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	--	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	<0.004	<0.004	--	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Toluene	1	1	1	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	--	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	--	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	<0.010	<0.010	--	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	<0.005	<0.005	--	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	<0.005	0.015	--	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	<0.005	<0.005	--	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE
Volatile Organic Compounds				**1/31/12**	**7/30/12**	**1/30/13**	**7/1/13**	**1/30/14**	**7/28/14**	**1/27/15**	**7/29/15**	**1/20/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/13/18**	**7/31/18**	**1/30/19**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00251 J
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	<0.002	0.000258 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000347 J	<0.001	0.000487 J	0.000317 J	0.00028 J	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000338 J	<0.001	0.000426 J	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.002	<0.002	0.000225 J	<0.002	0.00152 J	0.000612 J	<0.002	0.000726 J	0.000309 J	0.000578 J	0.000631 J	<0.002	<0.002	0.000705 J	0.000704 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.001	<0.001	<0.001	<0.001	<0.002	0.000414 J	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenol	7.3	7.3	7.3	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-27 POE	MW-28 SUP	MW-29 CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO
Volatile Organic Compounds				**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/15/21**	**2/9/22**	**8/1/22**	**1/26/2023**	**11/15/01**	**11/15/01**	**6/12/02**	**8/20/02**	**3/19/04**	**7/26/04**	**1/31/05**
Acetone	2.4	22	22	<0.01	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05	<0.025	<0.025	<0.050	<0.050	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	<0.005	<0.005	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.207	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	0.007	<0.005	NA	NA	NA
Chloroethane	9.8	9.8	9.8	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018	0.092	0.025	0.080	0.035	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.005	0.018	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.005	<0.005	<0.010	<0.010	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.005	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.000432 J	<0.001	<0.001	<0.001	0.000490 J	<0.001	<0.001	<0.001	<0.003	7.25	**19**	9.3	8.19	8.50	1.76
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.021	0.13	0.045	NA	NA	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.000235 J	<0.001	<0.001	<0.001	0.000328 J	<0.001	<0.001	<0.001	<0.003	**3.76**	**30**	**18.6**	**3.60**	**4.93**	**1.95**
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	0.029	0.010	<0.005	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	0.013	0.006	<0.005	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	0.11	0.043	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.002	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013	<0.013	0.25	0.074	NA	NA	NA
Methylene Chloride***	889	332	741	0.000562 J	<0.005	<0.005	<0.005	<0.005	<0.005	0.000817 J	<0.005	<0.005	0.155	2.0	0.96	0.216	0.243	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.010	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	<0.013	<0.013	0.044	<0.025	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0046	**0.007**	<0.010	<0.010	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	<0.002	<0.001	--	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.034	1.05	0.47	0.110	0.089	0.035
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.022	0.66	0.26	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	1.8	33	20.9	0.948	2.00	0.68
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	<0.003	**0.010**	<0.005	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	0.13	1.25	0.97	0.160	0.160	0.052
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	0.005	0.033	0.013	0.014	0.006	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	0.010	0.29	0.12	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.003							<0.003	0.012	0.38	0.15	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.01	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	0.212	2.4	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	0.035	0.32	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	0.000524 J	<0.001	<0.0001	0.004	0.043	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.01	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.005	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	<0.005	<0.005	0.091	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.01	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	0.011	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	0.014	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	<0.01	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.002	0.00186 J	0.00461 J	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	2.4	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	<0.001	<0.001	0.000225 J	<0.002	<0.001	0.000474 J	<0.001	<0.005	<0.005	<0.01	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	0.057	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.005	<0.005	**0.23**	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO
Volatile Organic Compounds				**7/17/05**	**1/25/06**	**7/26/06**	**2/8/07**	**7/18/07**	**1/31/08**	**7/16/08**	**2/5/09**	**7/30/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	0.058	0.020	<0.005	0.042	<0.002	<0.002	<0.002	<0.002	0.08 E	<0.010	<0.010
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	8.04	1.45	1.20	0.55	1.40	0.82	0.950	1.063	0.950	0.964	1.42	0.842	1.52	1.06	1.15
1,2-Dichloroethane***	4.11	30.7	20.2	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	0.002 J	0.001 J	0.003 J	<0.001	0.003 J	<0.010	<0.010
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	**4.59**	1.32	0.640	0.18	0.52	0.33	0.794	0.536	0.346	0.154	<0.002	0.230	0.379	0.0774	0.503
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	0.051	0.015	<0.005	<0.050	<0.050	<0.050	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.020	0.016 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.035	0.025	0.020	0.006	0.016	0.016	0.024	0.022	0.018	0.014	0.034	0.028	0.042	0.00921 J	0.0305
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	2.4	0.520	0.270	0.20	0.66	0.17	0.443	0.377	0.222	0.401	0.453	0.279	0.401	1.80	0.440
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.097	0.047	0.027	0.008	0.019	0.013	0.063	0.027	0.018	0.011	0.029	0.015	0.030	0.00422 J	0.0227
Vinyl Chloride***	23.1	1.33	0.917	<0.005	<0.002	<0.002	<0.002	0.004	<0.005	<0.002	<0.002	0.008	<0.002	<0.002	<0.002	0.015	<0.010	<0.010
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-29R CAO	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP
Volatile Organic Compounds				**1/31/13**	**7/2/13**	**1/30/14**	**7/29/14**	**1/28/15**	**7/30/15**	**1/21/16**	**7/29/16**	**1/12/17**	**7/24/17**	**1/30/18**	**6/12/02**	**4/24/03**	**3/20/04**	**7/25/04**
Acetone	2.4	22	22	NA	<0.010	0.548 J	0.409 J	<0.010	<0.250	<0.250	<0.250	0.0286 J	0.934	<0.200	<0.050	<0.050	NA	NA
Benzene	0.005	0.005	0.005	NA	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
Chloroethane	9.8	9.8	9.8	NA	<0.001	<0.100	<0.100	<0.001	0.0519	<0.050	0.597	0.142	0.212	<0.020	<0.010	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	NA	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	0.0100 J	<0.020	<0.005	0.0008 J	NA	NA
Chloromethane	0.07	0.07	0.07	NA	<0.001	<0.100	<0.100	<0.001	<0.050	<0.050	<0.050	<0.020	<0.100	<0.020	<0.010	<0.005	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
1,1-Dichloroethane***	285	143	11.7	<0.001	3.57	1.91	1.54	1.24	3.24	2.05	3.04	1.37	2.39	0.737	0.096	0.034	0.029	0.029
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	0.00432	<0.100	<0.100	<0.001	0.00527 J	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0893	1.15	0.152	0.0827 J	0.103	**1.80**	0.0908	1.03	0.118	1.25	0.190	0.14	0.059	0.052	0.054
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	0.00119	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	0.0021 J	<0.005	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	0.7	0.7	0.7	NA	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
2-Butanone (MEK)	15	15	15	NA	<0.002	<0.200	<0.200	<0.002	<0.050	<0.050	<0.050	<0.020	<0.100	<0.040	<0.025	<0.025	NA	NA
Methylene Chloride***	889	332	741	<0.001	0.00228	<0.200	0.0975 J	0.00264	0.0793	0.0201 J	0.0428 J	0.00776 J	0.0379 J	0.0130 J	<0.010	<0.005	0.006	0.011
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	<0.001	<0.100	<0.100	<0.001	<0.050	<0.050	<0.050	<0.020	<0.100	<0.040	<0.025	<0.025	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	<0.001	0.0379 J	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.010	<0.002	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	<0.001	1.49	0.432	0.655	7.06	1.07	3.70	1.23	8.04	1.65	NA	0.027	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.00782	0.0427	<0.100	<0.100	0.00498	0.0160 J	0.0223 J	0.0370	0.0122	0.0472 J	0.0156 J	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	NA	<0.001	<0.100	<0.100	0.000218 J	0.0076 J	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	1.12	1.02	0.309	0.952	1.79	2.60	1.48	0.732	1.23	0.407	0.031	<0.005	0.023	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	<0.001	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
Trichloroethene***	34	30.8	3.99	0.00535	0.0381	<0.100	<0.100	0.00282	0.0286	0.00541 J	0.0251	0.00654 J	0.0445 J	0.00988 J	0.010	0.0041 J	<0.005	0.006
Vinyl Chloride***	23.1	1.33	0.917	0.0133	0.00102	<0.100	<0.100	<0.001	<0.025	<0.025	<0.025	<0.010	<0.05	<0.020	<0.010	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	<0.002	<0.200	<0.200	0.000304 J	<0.050	<0.050	<0.050	<0.020	0.00864 J	<0.040	<0.010	<0.010	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	<0.001	<0.100	<0.100	0.000319 J	<0.025	<0.025	0.00250 J	<0.010	<0.05	<0.020	<0.005	<0.005	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.010	0.0287	0.00593 J	0.00636 J	0.0736	0.00461 J	0.0358	0.00493 J	0.0468	0.00743	<0.02	<0.001	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.010	0.00499 J	<0.010	<0.010	0.00977 J	<0.010	0.00486 J	0.00186 J	0.00591	0.00195 J	<0.01	<0.001	NS	NS
Naphthalene	0.49	0.49	0.49	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	0.009	NS	NS
Pyrene	0.73	0.73	0.73	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
Phenol	7.3	7.3	7.3	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.01	<0.001	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.01	<0.001	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP
Volatile Organic Compounds				**1/30/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/8/07**	**7/18/07**	**7/16/08**	**2/4/09**	**7/30/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.019	0.043	0.019	0.019	0.023	0.020	0.019	0.025	0.022	0.025	0.01	0.020	0.009	0.0244	0.0080
1,2-Dichloroethane***	4.11	30.7	20.2	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.031	0.074	0.034	0.028	0.031	0.026	0.020	0.039	0.034	0.039	0.009	0.031	0.009	0.0359	0.00594
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.003 J	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.005 J	<0.002	0.003 J	0.003 J	0.00451	0.00154
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-31 AMP	MW-32 AMP	MW-32 AMP	MW-32 AMP	RW-33 REC
Volatile Organic Compounds				**1/31/13**	**7/2/13**	**1/30/14**	**7/30/14**	**1/28/15**	**7/30/15**	**1/21/16**	**7/29/16**	**1/12/17**	**7/24/17**	**1/13/18**	**6/12/02**	**4/24/03**	**3/20/04**	**4/19/02**
Acetone	2.4	22	22	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00778 J	NS	<0.050	<0.050	NA	<0.025
Benzene	0.005	0.005	0.005	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.003
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	<0.005	<0.003
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.010
Chloroethane	9.8	9.8	9.8	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.010	<0.010	<0.005	<0.005
Chloroform	0.10	0.24	0.08	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.003
Chloromethane	0.07	0.07	0.07	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.010	<0.010	NA	<0.005
Dichlorodifluoromethane	4.9	4.9	4.9	NA	<0.001	0.000509 J	0.000359 J	<0.001	<0.001	<0.001	<0.001	<0.001	0.00213	NS	<0.005	<0.005	NA	<0.003
1,1-Dichloroethane***	285	143	11.7	0.0221	0.00923	0.0253	0.0224	0.0238	0.0256	0.0247	0.0241	0.0251	0.0220	NS	0.405	0.087	0.076	0.048
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.003
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0281	0.00453	0.0259	0.0139	0.0236	0.0207	0.0250	0.0182	0.0230	0.0190	NS	**0.95**	0.12	0.170	0.11
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	0.000447 J	0.000946 J	0.000757 J	0.000972 J	0.000855 J	0.000828 J	.000657 J	0.000980 J	0.00107	NS	<0.005	<0.005	<0.005	0.008
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	<0.005	<0.003
Ethylbenzene	0.7	0.7	0.7	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.003
2-Butanone (MEK)	15	15	15	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.025	<0.025	NA	<0.025
Methylene Chloride***	889	332	741	0.000265 J	<0.002	<0.002	0.000562 J	0.000343 J	0.000435 J	0.000407 J	0.000546 J	0.000724 J	<0.002	NS	<0.010	<0.010	<0.005	0.014
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.025	<0.025	NA	<0.013
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.010	<0.010	NA	<0.0046
Trichlorotrifluoroethane	730	730	730	NA	<0.001	0.0550	0.0543	0.0496	0.0445	0.0670	0.0787	0.0729	0.0646	NS	NA	<0.025	NA	<0.003
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	0.000253 J	<0.001	<0.001	0.000273 J	<0.001	0.000272 J	0.000255 J	NS	<0.005	<0.005	<0.005	0.13
Toluene	1	1	1	NA	<0.001	<0.001	<0.001	<0.001	0.000223 J	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.003
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	0.000436 J	<0.001	0.000840 J	<0.001	<0.001	<0.001	<0.001	<0.001	NS	0.19	<0.005	0.013	1.09
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	**0.010**	<0.005	NA	<0.003
Trichloroethene***	34	30.8	3.99	0.00357	0.00128	0.00299	0.00244	0.00285	0.00210	0.00311	0.00259	0.00428	0.00301	NS	0.017	<0.005	<0.005	0.010
Vinyl Chloride***	23.1	1.33	0.917	0.000565 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.010	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	NS	<0.010	<0.010	NA	<0.005
o-Xylene	(10.0 Xylenes)	10	10	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NS	<0.005	<0.005	NA	<0.003
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.02	<0.001	NS	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
Naphthalene	0.49	0.49	0.49	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
Phenanthrene	0.73	0.73	0.73	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	0.003	NS	<0.05
Pyrene	0.73	0.73	0.73	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
Phenol	7.3	7.3	7.3	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
2-Methylnaphthalene	0.49	0.098	0.098	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	NS	<0.01	<0.001	NS	<0.01
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	NS	<0.01	<0.001	NS	<0.01

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** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
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All results in mg/L
NA - Constituent not analyzed
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Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC	RW-33 REC
Volatile Organic Compounds				**11/24/02**	**5/15/03**	**10/27/03**	**3/19/04**	**7/26/04**	**1/31/05**	**7/17/05**	**1/25/06**	**7/26/06**	**2/8/07**	**7/18/07**	**1/31/08**	**7/16/08**	**2/5/09**	**7/30/09**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	NA	NA	NA	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
Chlorobenzene***	3.56	3.56	3.56	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
Chloroethane	9.8	9.8	9.8	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.031	0.019	0.013	0.018	0.021	0.016	0.027	<0.005	0.031	0.019	0.013	0.016	0.023	0.010	0.026
1,2-Dichloroethane***	4.11	30.7	20.2	NA	NA	NA	NA	NA	NA	<0.005	0.023	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.70	0.66	0.48	0.587	0.892	0.725	1.35	0.665	1.20	0.76	0.37	0.59	0.563	0.286	0.917
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	0.080	<0.005	0.057	0.056	0.043	<0.005	0.042	<0.005	<0.005	<0.050	<0.050	<0.050	0.023	<0.050	<0.003
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	NA	NA	NA	0.013	0.012	0.015	0.008	<0.005	0.009	0.006	<0.005	0.005	<0.005	<0.005	0.009
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	0.057	0.24	0.029	0.062	0.057	0.065	0.097	0.011	0.047	0.014	0.007	0.009	0.009	<0.005	0.01
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.007	0.013	0.007	0.008	0.011	0.009	0.013	0.009	0.015	0.009	0.006	0.007	<0.005	<0.005	0.012
Vinyl Chloride***	23.1	1.33	0.917	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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Volatile Organic Compounds				**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**	**1/31/13**	**4/24/03**	**3/19/04**	**7/26/04**	**1/31/05**	**7/17/05**	**1/25/06**	**7/26/06**	**2/8/07**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	<0.050	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	**1.31**	<0.005	<0.005	<0.005	<0.005	<0.005	<0.5
Chlorobenzene***	3.56	3.56	3.56	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.5
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	0.011	0.016	<0.005	0.012	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.023	0.02	0.010	0.006	0.00351	0.0180	0.00797	9.7	5.76	6.55	5.50	2.8	3.9	5.20	3.1
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	0.011	<0.005	<0.005	<0.5
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.742	0.869	0.132	0.136	0.0395	0.574	0.264	**11.8**	**7.60**	**9.60**	**4.45**	**2.91**	**2.4**	**1.80**	**4.9**
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	0.008	0.006	<0.005	<0.005	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	0.022	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	0.047	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.003	0.005	<0.003	<0.003	<0.002	0.000340 J	<0.001	0.74	0.434	0.707	<0.005	0.088	0.286	<0.005	<5.0
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	<0.025	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	41.9	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.008	0.008	0.004 J	0.002 J	0.0208	0.00597	0.00248	0.36	0.150	0.240	0.110	0.039	0.061	0.045	<0.5
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	0.009	0.012	0.004 J	0.002 J	0.0155	0.00215	<0.001	22.3	11.1	14.9	9.10	3.95	4.0	11.0	4.9
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	<0.005	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.011	0.011	0.004 J	0.004 J	0.00233	0.00757	0.00358	0.37	0.260	0.340	0.170	0.076	0.138	0.050	<0.5
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	0.000337 J	0.004	0.006	0.004	<0.002	<0.002	<0.002	0.012	<0.5
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	0.066	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	0.083	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	<0.002	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	1.05	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	0.12	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	0.040	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	<0.002	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	0.39	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	<0.002	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	0.009	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	<0.002	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	<0.002	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	1.77	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	0.018	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	0.009	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	**0.19**	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
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*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC	RW-34 REC (Inact)	RW-34 REC (Inact)	RW-34 REC (Inact)
Volatile Organic Compounds				**7/18/07**	**1/31/08**	**7/16/08**	**2/5/09**	**7/30/09**	**1/28/10**	**7/28/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**	**1/31/13**	**7/2/13**	**1/30/14**	**7/29/14**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Carbon Tetrachloride***	0.47	0.54	0.54	0.47	0.29	<0.010	<0.005	<0.008	<0.008	<0.075	<0.002	**0.969**	<0.100	<0.010	0.00849	<0.010	<1.00	<1.00
Chlorobenzene***	3.56	3.56	3.56	<0.10	<0.080	<0.010	<0.005	<0.01	<0.01	<0.10	<0.002	<0.002	<0.100	<0.010	<0.001	<0.010	<1.00	<1.00
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
1,1-Dichloroethane***	285	143	11.7	2.3	3.3	1.57	0.031	2.21	1.74	1.16	1.92	4.57	3.61	3.97	1.54	**13.7**	4.88	0.303
1,2-Dichloroethane***	4.11	30.7	20.2	<0.10	<0.080	<0.010	<0.005	<0.005	0.007 J	<0.05	0.005	0.025	<0.100	0.0191	<0.001	0.0415	<1.00	<1.00
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	**2.4**	**2.3**	0.948	0.014	**2.32**	1.10	<0.075	1.52	**6.14**	**2.09**	**4.65**	1.60	**18.5**	1.73	0.0349
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Methylene Chloride***	889	332	741	<0.10	<1.0	0.077	<0.050	<0.015	0.057	<0.150	0.079	0.159	0.123 J	0.129	0.120	0.310	<2.00	0.0052 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Tetrachloroethene***	17.9	2.72	15.6	0.12	0.29	0.269	<0.005	0.064	0.068	<0.075	0.039	0.090	0.0795 J	0.124	1.31	0.252	<1.00	0.00161 J
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
1,1,1-Trichloroethane***	272	136	273	3.9	2.4	1.85	0.027	2.25	1.45	1.41	1.96	5.01	4.88	3.55	1.56	17.7	4.93	0.146
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Trichloroethene***	34	30.8	3.99	0.10	0.11	0.117	<0.005	0.090	0.075	<0.010	0.059	0.142	0.0702 J	0.117	0.105	0.338	<1.00	0.000956 J
Vinyl Chloride***	23.1	1.33	0.917	<0.040	<0.080	<0.004	<0.002	<0.008	<0.008	<0.075	0.002 J	0.099 E	<0.100	0.00425 J	0.0137	0.00657 J	<1.00	<1.00
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	--	--
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	--	--	--

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Project Number 219755

Table 1
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2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	RW-34 REC (Inact)	RW-34 REC (Inact)	RW-34 REC (Inact)	RW-34 REC (Inact)	RW-34 REC (Inact)	RW-34 REC (Inact)	RW-34 REC (Inact)	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP
Volatile Organic Compounds				**1/28/15**	**7/30/15**	**1/21/16**	**7/29/16**	**1/12/17**	**7/24/17**	**1/30/18**	**4/23/03**	**3/20/04**	**7/25/04**	**1/30/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/8/07**
Acetone	2.4	22	22	--	--	--	0.123 J	--	--	0.864	<0.050	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	--	--	--	<0.050	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.050	<0.050	<0.050	<0.500	<0.05	<0.050	0.0036 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.050	<0.050	<0.050	<0.500	<0.05	<0.050	0.007	NA	NA	NA	0.010	0.019	0.016	0.015
Chloroethane	9.8	9.8	9.8	--	--	--	0.126	--	--	<0.050	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	--	--	--	<0.050	--	--	0.00745 J	0.0021 J	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	--	--	--	<0.100	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	--	--	--	<0.050	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	3.95	7.61	3.84	8.40	6.14	7.58	3.77	0.057	0.089	0.088	0.180	0.264	0.156	0.120	0.094
1,2-Dichloroethane***	4.11	30.7	20.2	0.00707	0.0244 J	<0.050	0.0290 J	<0.500	0.0138 J	<0.050	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	1.69	**14.6**	**3.22**	12.0	1.35	7.75	0.284	0.14	0.230	0.250	0.435	0.468	0.140	0.093	0.023
cis-1,2-Dichloroethene	0.07	0.07	0.07	--	--	--	<0.050	--	--	<0.050	0.0021 J	<0.005	<0.005	0.011	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	--	--	--	<0.050	--	--	<0.050	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	--	--	--	<0.050	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	--	--	--	<0.100	--	--	<0.100	<0.025	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	0.0679	0.253	0.119	0.248	0.442 J	<1.0	0.0621 J	0.0044 J	<0.005	0.040	<0.005	<0.005	<0.005	<0.005	<0.050
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	--	--	--	<0.100	--	--	<0.100	<0.025	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	--	--	--	<0.050	--	--	<0.050	<0.002	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	--	--	--	30.8	--	--	12.0	0.431	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	0.0327	0.123	0.0706	0.150	<0.500	0.139	0.0807	0.0035 J	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	--	--	--	0.108	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	3.58	12.2	7.13	10.8	5.54	7.61	3.32	0.026	0.055	0.060	0.092	0.114	0.019	0.017	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	--	--	--	<0.050	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	0.0366	0.265	0.0488 J	0.318	<0.500	0.180	0.0208 J	0.009	0.015	0.015	0.024	0.028	0.011	0.007	<0.005
Vinyl Chloride***	23.1	1.33	0.917	0.00266	<0.050	<0.050	<0.050	<0.500	<0.05	<0.050	0.0008 J	<0.002	<0.002	0.002	0.007	0.005	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	--	--	--	0.0624 J	--	--	0.0158 J	<0.010	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	--	--	--	0.0460 J	--	--	<0.050	<0.005	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	--	--	--	--	--	--	--	0.019	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	--	--	--	--	--	--	--	0.004	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	--	--	--	--	--	--	--	<0.001	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP
Volatile Organic Compounds				**7/18/07**	**1/30/08**	**7/16/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/27/10**	**2/8/11**	**7/20/11**	**2/1/12**	**7/31/12**	**1/31/13**	**7/2/13**	**1/30/14**	**7/29/14**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	<0.010	0.00291 J
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	0.014	0.020	0.036	0.021	0.019	0.013	0.015	0.013	0.016	0.00444	0.00799	0.00604	0.00855	0.00558	0.00752
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	0.082	0.11	0.140	0.101	0.101	0.090	0.094	0.080	0.077	0.0389	0.0643	0.0440	0.0582	0.0412	0.0439
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.013	0.025	0.051	0.021	0.009	0.006	0.009	0.010	0.008	0.00525	0.0327	0.00414	0.00633	0.00319	0.00251
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	0.000432 J	0.000589 J
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.050	<0.050	<0.005	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000251 J	<0.002	0.00187 J	0.000649 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	0.00435	0.00199 J
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000461 J	0.00136	0.000243 J	0.000363 J	0.000188 J	0.000263 J
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	0.00485	<0.001	0.000822 J	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	0.002 J	0.000723 J	0.00240	0.000375 J	0.000612 J	0.000317 J	0.000429 J
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	0.007	<0.002	0.003 J	<0.002	0.006	0.003 J	0.002 J	0.000802 J	0.00194	0.00218	0.00146	0.00128	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.00643 J	0.0107	0.00834 J
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	0.00247 J	<0.010
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.020	<0.020	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
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Table 1
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Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-35 AMP	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE
Volatile Organic Compounds				**1/27/15**	**7/29/15**	**1/20/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/13/18**	**4/23/03**	**8/6/03**	**10/27/03**	**3/20/04**	**7/25/04**	**1/30/05**	**7/16/05**	**1/24/06**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	0.00336	0.00833	0.00701	0.00764	0.00534	0.00774	0.00720	<0.005	NA	NA	NA	NA	NA	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.005	NA	NA	<0.005	<0.005	<0.005	NA	NA
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.001	0.000111 J	<0.001	<0.001	<0.001	0.0036 J	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	0.0252	0.0486	0.0222	0.0358	0.0284	0.0633	0.0341	0.11	NA	NA	0.023	0.130	<0.005	0.172	0.078
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.00238	0.00717	0.00322	0.00439	0.00564	0.0231	0.00786	0.079	0.010	0.089	0.038	0.110	<0.005	0.157	0.083
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000473 J	0.00114	0.000423 J	0.000707 J	0.000765 J	0.00296	0.000919 J	0.0008 J	NA	NA	<0.005	<0.005	<0.005	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	<0.005	<0.005	<0.005	NA	NA
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.025	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	0.000524 J	0.000711 J	0.000358 J	0.000554 J	0.000721 J	<0.002	<0.002	0.0045 J	NA	NA	<0.005	0.044	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.025	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	0.000541 J	0.00137 J	0.00122 J	0.00329	0.00548	0.0132	0.0109	0.0169	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.001	0.000202 J	0.000197 J	0.000283 J	0.000242 J	0.000536 J	0.000356 J	<0.005	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	<0.001	0.000225 J	<0.001	<0.001	0.000109 J	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.001	0.000476 J	0.000336 J	0.000518 J	0.000568 J	0.00137	0.000818 J	<0.005	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	0.00144	0.00282	0.00227	0.00145	<0.001	0.00202	0.00161	<0.002	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	0.00697	<0.005	0.00660	0.00751	0.00556	0.00782	<0.001	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	0.00155 J	0.00155 J	0.00126 J	0.00147 J	<0.001	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.001	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.001	NS	NS	NS	NS	NS	NS	NS

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** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
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	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE
Volatile Organic Compounds				**7/25/06**	**2/7/07**	**7/17/07**	**1/30/08**	**7/16/08**	**7/29/09**	**1/28/10**	**7/27/10**	**2/8/11**	**7/20/11**	**7/31/12**	**1/31/13**	**1/30/14**	**7/29/14**	**1/27/15**
Acetone	2.4	22	22	NA	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroform	0.10	0.24	0.08	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	4.9	4.9	NA	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	0.044	0.021	0.015	0.024	0.068	0.037	0.010	0.013	0.009	0.035	0.00418	0.00568	0.00658	0.00604	0.00362
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.041	0.014	0.017	0.027	0.085	0.047	0.013	0.019	0.010	0.040	0.00609	0.00785	0.00926	0.00841	0.00557
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	NA	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.005	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000328 J	0.00183 J	0.000492 J	0.000344 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	NA	<0.005	<0.005	<0.005	<0.005	0.007	0.008	0.0023 J	0.007	<0.005	<0.001	<0.001	0.00316	0.00296	0.00277
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.000265 J	<0.001	<0.001	0.000238 J	0.000291 J
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	0.49	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	0.73	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	<0.005	<0.005	<0.005	<0.01	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010	<0.010	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	0.73	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	<0.005	<0.005	<0.005	<0.01	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010	<0.010	<0.010	<0.010	<0.010
Phenol	7.3	7.3	7.3	NS	<0.005	<0.005	<0.005	<0.01	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	<0.005	<0.005	<0.005	<0.01	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010	<0.010	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	<0.005	<0.005	<0.005	<0.01	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020	<0.020	<0.020	<0.020	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-36 POE	MW-37 POE
Volatile Organic Compounds				**7/29/15**	**1/20/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/30/18**	**1/30/19**	**7/31/19**	**7/9/20**	**1/15/21**	**7/16/21**	**2/10/22**	**8/1/22**	**1/26/2023**	**7/25/04**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	<0.010	0.0189	<0.010	<0.01	<0.050	<0.050	<0.05	<0.050	<0.050	<0.05	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
Chloroethane	9.8	9.8	9.8	0.000423 J	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA
Chloromethane	0.07	0.07	0.07	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	0.000352 J	<0.001	<0.001	0.00476	0.00344	0.000778 J	<0.001	<0.001	<0.001	0.000445 J	<0.005	<0.005	<0.005	NA
1,1-Dichloroethane***	285	143	11.7	0.0504	0.00602	0.0507	0.0282	0.0581	0.0846	0.0102	0.0691	0.111	0.121	0.00701	0.126	0.103	0.0992	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000109 J	<0.001	NA
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	0.0634	0.0103	0.0608	0.0366	0.0666	0.0792	0.0138	0.0879	0.174	0.159	0.0114	0.165	0.158	0.175	<0.005
cis-1,2-Dichloroethene	0.07	0.07	0.07	0.000430 J	<0.001	0.000263 J	0.000264 J	0.000576 J	0.000721 J	<0.001	0.000698 J	0.00156	0.00149	<0.001	0.00156	0.00172	0.0017	<0.005
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	NA
Methylene Chloride***	889	332	741	0.000748 J	0.000279 J	<0.002	0.000776 J	<0.002	0.00126 J	0.000674 J	0.000551 J	<0.005	<0.005	<0.005	<0.005	0.000446 J	<0.005	0.038
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.010	<0.01	<0.01	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
Trichlorotrifluoroethane	730	730	730	0.00203	0.00374	0.00125 J	0.00582	0.00227	0.00386	0.00633	0.000899 J	--	<0.001	0.0186	<0.001	<0.001	<0.001	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0133	<0.001	NA
Trichloroethene***	34	30.8	3.99	0.000371 J	0.000314 J	0.000364 J	0.000451 J	0.000541 J	0.000747 J	0.000613 J	0.000474 J	0.00141	0.00127	0.000278 J	0.00157	0.00143	0.00166	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000364 J	<0.001	<0.001	0.000429 J	0.000370 J	0.000527 J	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001							NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS
Naphthalene	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001	<0.001	<0.002	<0.001	0.000639 J	<0.001	NS
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	NS
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS
Phenol	7.3	7.3	7.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.002	<0.001	0.000558 J	<0.001	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.02	<0.01	<0.010	<0.01	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE
Volatile Organic Compounds				**1/30/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/7/07**	**7/17/07**	**1/30/08**	**7/15/08**	**2/4/09**	**7/29/09**	**1/28/10**	**7/27/10**	**2/7/11**	**7/19/11**	**1/31/12**
Acetone	2.4	22	22	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chlorobenzene***	3.56	3.56	3.56	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chloroethane	9.8	9.8	9.8	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	<0.020	<0.020	<0.020	<0.020	<0.020	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.005	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	<0.004	<0.004	<0.004	<0.004	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Toluene	1	1	1	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.004	<0.004	<0.004	<0.004	<0.010
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.003	<0.003	<0.003	<0.003	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.012	<0.006	<0.008	<0.008	<0.008	<0.008	<0.010
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.004	<0.006	<0.006	<0.006	<0.006	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.006	<0.006	<0.006	<0.006	<0.010
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.006	<0.003	<0.003	<0.003	<0.003	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.003	<0.004	<0.004	<0.004	<0.004	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	<0.005	<0.005	<0.005	<0.01	<0.004	<0.002	<0.005	<0.005	<0.005	<0.005	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE
Volatile Organic Compounds				**7/30/12**	**1/30/13**	**7/1/13**	**1/30/14**	**7/29/14**	**1/27/15**	**7/29/15**	**1/20/16**	**7/28/16**	**1/11/17**	**7/23/17**	**1/13/18**	**7/31/18**	**1/30/19**	**7/31/19**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002
Chloroform	0.10	0.24	0.08	<0.001	0.000255 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	0.000339 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.002	<0.001	<0.002	0.00187 J	<0.002	0.00103 J	0.000688 J	0.000419 J	<0.002	<0.002	<0.002	<0.002	0.000708 J	<0.002	0.000543 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.001	<0.001	<0.001	<0.002	0.00066 J	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000185 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenol	7.3	7.3	7.3	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	MW-37 POE	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP
Volatile Organic Compounds				**1/24/20**	**7/9/20**	**1/15/21**	**7/15/21**	**2/9/22**	**8/1/22**	**1/26/2023**	**3/18/04**	**7/26/04**	**1/29/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/7/07**	**7/17/07**
Acetone	2.4	22	22	<0.050	<0.050	<0.05	<0.05	<0.05	<0.050	<0.05	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.030	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	<0.005	<0.005	<0.005	<0.005	0.000662 J	<0.005	<0.005	0.023	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	<0.001	--	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.026	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	0.00240 J	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
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All results in mg/L
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Project Number 219755

Table 1
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Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP
Volatile Organic Compounds				**1/30/08**	**7/15/08**	**2/3/09**	**7/28/09**	**1/28/10**	**7/27/10**	**2/7/11**	**7/19/11**	**1/31/12**	**7/30/12**	**1/30/13**	**7/1/13**	**1/29/14**	**7/28/14**	**1/26/15**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	<0.010	<0.010	<0.010
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000282 J	0.000228 J	<0.001	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	0.000587 J	<0.002	0.00186 J	0.000835 J	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.002	<0.002	<0.002
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00229	<0.001	<0.001	0.000235 J
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00215	0.000828 J	<0.001	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00126	0.000379 J	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.020	<0.020	<0.020	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
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	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP	DMW-15 SUP
Volatile Organic Compounds				**7/28/15**	**1/19/16**	**7/27/16**	**1/10/17**	**7/22/17**	**1/30/18**	**7/30/18**	**1/29/19**	**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/15/21**	**2/9/22**	**8/1/22**
Acetone	2.4	22	22	0.00446 J	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.050	<0.050	<0.05	<0.05	<0.05	<0.050
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	0.07	0.07	0.07	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
Methylene Chloride***	889	332	741	0.00110 J	<0.002	0.000579 J	0.000730 J	<0.002	<0.002	0.000608 J	0.000750 J	0.000621 J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	--	<0.001	<0.001	<0.001	<0.001
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	0.000135 J	0.000135 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	0.000271 J	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	0.000095 J	0.000095 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Naphthalene	0.49	0.49	0.49	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Phenol	7.3	7.3	7.3	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00223 J	<0.01	<0.01	<0.02	<0.01	<0.01
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-15 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP
Volatile Organic Compounds				1/25/23	7/26/04	1/29/05	7/16/05	1/24/06	7/25/06	2/7/07	7/17/07	1/30/08	7/15/08	2/3/09	7/28/09	1/28/10	7/27/10	2/7/11
Acetone	2.4	22	22	<0.05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Chlorobenzene***	3.56	3.56	3.56	<0.001	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Chloroethane	9.8	9.8	9.8	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	NA	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.005	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	<0.005	0.017	<0.005	<0.005	<0.005	<0.005	<0.050	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Toluene	1	1	1	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.001	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP
Volatile Organic Compounds				**7/19/11**	**1/31/12**	**7/30/12**	**1/30/13**	**7/1/13**	**1/29/14**	**7/28/14**	**1/26/15**	**7/29/15**	**1/20/16**	**7/27/16**	**1/10/17**	**7/22/17**	**1/30/18**	**7/30/18**
Acetone	2.4	22	22	NA	NA	NA	NA	0.00717 J	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.00578 J	<0.010
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	<0.001	<0.001	0.000438 J	<0.001	0.000634 J	0.000387 J	<0.002	<0.002	<0.002	<0.001	<0.002
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.003	<0.002	0.000195 J	0.000661 J	<0.002	0.00174 J	0.000831 J	<0.002	0.000771 J	0.000304 J	0.000611 J	0.000765 J	<0.002	<0.002	0.000759 J
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.000138 J	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	<0.001	<0.002	0.000359 J	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Tetrachloroethene***	17.9	2.72	15.6	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	NA	NA	NA	NA	<0.001	<0.001	<0.001	0.000307 J	0.000193 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	<0.010	0.00621 J	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	<0.010	0.00162 J	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-16 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP
Volatile Organic Compounds				**1/29/19**	**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/15/21**	**2/9/22**	**8/1/22**	**1/25/2023**	**7/26/04**	**1/29/05**	**7/16/05**	**1/24/06**	**7/25/06**	**2/7/07**
Acetone	2.4	22	22	0.00526 J	0.00241 J	<0.050	<0.050	<0.05	<0.05	<0.05	<0.050	<0.05	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.005	<0.005	<0.005	<0.005
Chloroethane	9.8	9.8	9.8	<0.002	<0.002	0.00178 J	<0.005	<0.005	0.000572 J	<0.005	0.000674 J	<0.005	<0.005	<0.005	NA	NA	NA	NA
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Chloromethane	0.07	0.07	0.07	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	NA	NA	NA	NA
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	NA	NA	NA	NA
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA	NA	NA
Methylene Chloride***	889	332	741	0.000708 J	0.000533 J	<0.005	<0.005	<0.005	<0.005	<0.005	0.00100 J	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.050
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA
Trichlorotrifluoroethane	730	730	730	<0.002	<0.002	<0.001	--	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	1	1	1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	NA	NA	NA	NA	NA	NA
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
Naphthalene	0.49	0.49	0.49	<0.005	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001	0.000703 J	<0.001	NS	NS	NS	NS	NS	NS
Phenanthrene	0.73	0.73	0.73	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.005	<0.005	<0.003	<0.003	<0.003	<0.006	<0.003	<0.003	<0.003	NS	NS	NS	NS	NS	NS
Pyrene	0.73	0.73	0.73	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	NS	NS	NS	NS	NS	NS
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
2,4-Dichlorophenol	0.073	0.073	0.073	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
2,4-Dimethylphenol	0.49	0.49	0.49	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
Phenol	7.3	7.3	7.3	<0.005	<0.002	0.00142 J	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
2-Methylnaphthalene	0.49	0.098	0.098	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	0.000642 J	<0.001	NS	NS	NS	NS	NS	NS
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.010	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	NS	NS	NS	NS	NS	NS

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP
Volatile Organic Compounds				**7/17/07**	**1/30/08**	**7/15/08**	**2/3/09**	**7/28/09**	**1/28/10**	**7/27/10**	**2/7/11**	**7/19/11**	**1/31/12**	**7/30/12**	**1/30/13**	**7/1/13**	**1/29/14**	**7/28/14**
Acetone	2.4	22	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00752 J	<0.010	<0.010
Benzene	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Chloroform	0.10	0.24	0.08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Chloromethane	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Dichlorodifluoromethane	4.9	4.9	4.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
1,1-Dichloroethane***	285	143	11.7	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.002	<0.002	<0.002
Methylene Chloride***	889	332	741	<0.050	<0.050	<0.050	<0.050	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	0.000197 J	0.000603 J	<0.002	<0.002	<0.002
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.002	0.000347 J
Tetrachloroethene***	17.9	2.72	15.6	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000988 J	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.005	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000890 J	<0.002	<0.002
o-Xylene	(10.0 Xylenes)	10	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000438 J	<0.001	<0.001
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
1,2-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
1,4-Dichlorobenzene***	6.11	6.11	6.11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Naphthalene	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Phenanthrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Pyrene	0.73	0.73	0.73	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
1,2,4-Trichlorobenzene	0.07	0.07	0.07	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2,4-Dichlorophenol	0.073	0.073	0.073	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2,4-Dimethylphenol	0.49	0.49	0.49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
Phenol	7.3	7.3	7.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2-Methylnaphthalene	0.49	0.098	0.098	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.010	<0.010	<0.010
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.020	<0.020	<0.020

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP	DMW-22 SUP
Volatile Organic Compounds				**1/26/15**	**7/28/15**	**1/19/16**	**7/27/16**	**1/10/17**	**7/22/17**	**1/30/18**	**7/30/18**	**1/29/19**	**7/31/19**	**1/24/20**	**7/9/20**	**1/15/21**	**7/15/21**	**2/9/22**
Acetone	2.4	22	22	<0.010	<0.010	<0.010	<0.010	0.00238 J	<0.010	<0.010	<0.010	0.00373 J	0.00463 J	<0.050	<0.050	<0.05	<0.05	<0.05
Benzene	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
Chloromethane	0.07	0.07	0.07	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002	<0.002	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Dichlorodifluoromethane	4.9	4.9	4.9	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	0.00297 J
Methylene Chloride***	889	332	741	<0.002	0.000738 J	<0.002	0.000576 J	0.000774 J	<0.002	0.00106 J	0.000607 J	0.000709 J	0.000562 J	<0.005	<0.005	<0.005	<0.005	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.001	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.010	<0.010	<0.01	<0.01	<0.01
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	--	<0.001	<0.001	<0.001
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1	1	1	0.000172 J	0.000317 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	0.000268 J	<0.003	0.000268 J
o-Xylene	(10.0 Xylenes)	10	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.003	--	--	--	--
Semivolatile Organic Compounds																		
Acenaphthene	1.5	1.5	1.5	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01
Naphthalene	0.49	0.49	0.49	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.001	<0.001	<0.001	<0.002	<0.001
Phenanthrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.006	<0.003
Pyrene	0.73	0.73	0.73	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	<0.01
Phenol	7.3	7.3	7.3	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	0.00496 J	0.00584 J	<0.01	<0.02	0.0167
2-Methylnaphthalene	0.49	0.098	0.098	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.010	<0.010	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.02	0.000117 J
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.020	<0.020	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

Project Number 219755

Table 1
Historical Groundwater Analytical Data

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

	Sept. 2005 GWPS	2013 GWPS *	2021 GWPS **	DMW-22 SUP 8/1/22	DMW-22 SUP 1/25/23
Volatile Organic Compounds					
Acetone	2.4	22	22	<0.050	<0.05
Benzene	0.005	0.005	0.005	<0.001	<0.001
Carbon Tetrachloride***	0.47	0.54	0.54	<0.001	<0.001
Chlorobenzene***	3.56	3.56	3.56	<0.001	<0.001
Chloroethane	9.8	9.8	9.8	<0.005	<0.005
Chloroform	0.10	0.24	0.08	<0.005	0.000835 J
Chloromethane	0.07	0.07	0.07	<0.0025	<0.0025
Dichlorodifluoromethane	4.9	4.9	4.9	<0.005	<0.005
1,1-Dichloroethane***	285	143	11.7	<0.001	<0.001
1,2-Dichloroethane***	4.11	30.7	20.2	<0.001	<0.001
1,1-Dichloroethene***	1.76/0.52/0.32	83.3	168	<0.001	<0.001
cis-1,2-Dichloroethene	0.07	0.07	0.07	<0.001	0.00289
trans-1,2-Dichloroethene	0.1	0.1	0.1	<0.001	<0.001
Ethylbenzene	0.7	0.7	0.7	<0.001	<0.001
2-Butanone (MEK)	15	15	15	<0.01	<0.01
Methylene Chloride***	889	332	741	0.000650 J	<0.005
4-Methyl-2-Pentanone (MIBK)	2.0	2.0	2.0	<0.01	<0.01
1,1,2,2-Tetrachloroethane	0.0046	0.0046	0.0046	<0.001	<0.001
Trichlorotrifluoroethane	730	730	730	<0.001	<0.001
Tetrachloroethene***	17.9	2.72	15.6	<0.001	<0.001
Toluene	1	1	1	<0.001	<0.001
1,1,1-Trichloroethane***	272	136	273	<0.001	<0.001
1,1,2-Trichloroethane	0.005	0.005	0.005	<0.001	<0.001
Trichloroethene***	34	30.8	3.99	<0.001	0.000393 J
Vinyl Chloride***	23.1	1.33	0.917	<0.001	<0.001
m,p-Xylenes or Total Xylenes	(10.0 Xylenes)	10	10	<0.003	<0.003
o-Xylene	(10.0 Xylenes)	10	10	--	--
Semivolatile Organic Compounds					
Acenaphthene	1.5	1.5	1.5	<0.001	<0.001
1,2-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01
1,4-Dichlorobenzene***	6.11	6.11	6.11	<0.01	<0.01
Naphthalene	0.49	0.49	0.49	<0.001	<0.001
Phenanthrene	0.73	0.73	0.73	<0.001	<0.001
bis(2-Ethylhexyl)Phthalate***	0.39	2.28	0.419	<0.003	<0.003
Pyrene	0.73	0.73	0.73	<0.001	<0.001
1,2,4-Trichlorobenzene	0.07	0.07	0.07	<0.01	<0.01
2,4-Dichlorophenol	0.073	0.073	0.073	<0.01	<0.01
2,4-Dimethylphenol	0.49	0.49	0.49	<0.01	<0.01
Phenol	7.3	7.3	7.3	<0.01	<0.01
2-Methylnaphthalene	0.49	0.098	0.098	<0.001	<0.001
2-Methylphenol (o-Cresol)	1.2	1.2	1.2	<0.01	<0.01
3&4-Methylphenol (m&p-Cres	0.12	0.12	0.12	<0.01	<0.01

* PCLs updated in 2013 permit renewal to reflect TRRP PCL tables (June 29, 2011) and Surface Water Quality Standards (Jan. 19, 2011)
** PCLs updated in 2021 to reflect current TRRP PCLs (January 6, 2021) and Surface Water Quality Standards (March 2018 and August 2019)
*** Constituent with GWPS based on Groundwater to Surface Water (SWGW) PCLs.
Values indicate constituent exceeds Former GWPS
Values indicate constituent exceeds 2013 or 2021 Updated GWPS
All results in mg/L
NA - Constituent not analyzed
NS - Not sampled
SB - Sample bottle broke in transit to laboratory

TABLE 2

1999 and 2021 Town Creek Sampling Data

Project Number 219755

Table 2
1999 Town Creek Sampling Analysis and July 2021 Town Creek Sediment Sampling Analysis

Murray Corporation
2002 Tile Factory Road
Palestine, Texas 75801

Chemical of Concern	GWPS (mg/L)	1999 Stream Sampling Locations									
		S1 (mg/L)	S2 (mg/L)	S3 (mg/L)	S4 (mg/L)	S5 (mg/L)	S5D (mg/L)	S5B (mg/L)	S6 (mg/L)	US1 (mg/L)	US2 (mg/L)
1,1-Dichloroethane	3.65	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
1,1-Dichloroethene	0.087	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methylene Chloride	160.0	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,1,1-Trichloroethane	0.20	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Trichloroethene	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

GWPS - Ground-water protection standard as set forth by CP-50152

Stream Sampling Stations S1 through S6 were located downstream of MW-26.

Stream Sampling Stations US1 and US2 were located upstream of MW-26.

Surface water sample S5D is a duplicate sample collected at Stream Sampling Station S5.

Surface water sample S5B is a field blank collected at Stream Sampling Station S5.

Chemical of Concern	Freshwater Benchmark	Freshwater Second Effects Level	Freshwater Benthic PCL	July 2021 Town Creek Sediment Sampling Locations					
				S-1 7/14/21	S-2 7/14/21	S-3 7/14/21	S-4 7/14/21	S-5 7/15/21	S-6 7/15/21
1,1-dichloroethane	2.32	2.32	13.89	<0.00396	<0.00344	<0.00363	<0.00357	<0.00361	<0.00449
1,1-dichloroethene	3.74	3.74	11.2	<0.00396	<0.00344	<0.00363	<0.00357	<0.00361	<0.00449

mg/kg - milligrams per kilogram. Results reported on a dry weight basis

Results were compared to the August 2021 TCEQ Ecological Screening Benchmarks for sediment

Sediement samples were collected by request of TCEQ to determine if 1,1-dichloroethane (1,1-DCA) and/or 1,1-dichloroethene (1,1-DCE) detected in the 1999 sediment samples have increased in concentrations above current TCEQ sediment benchmarks

FIGURE 1

Well Location Maps

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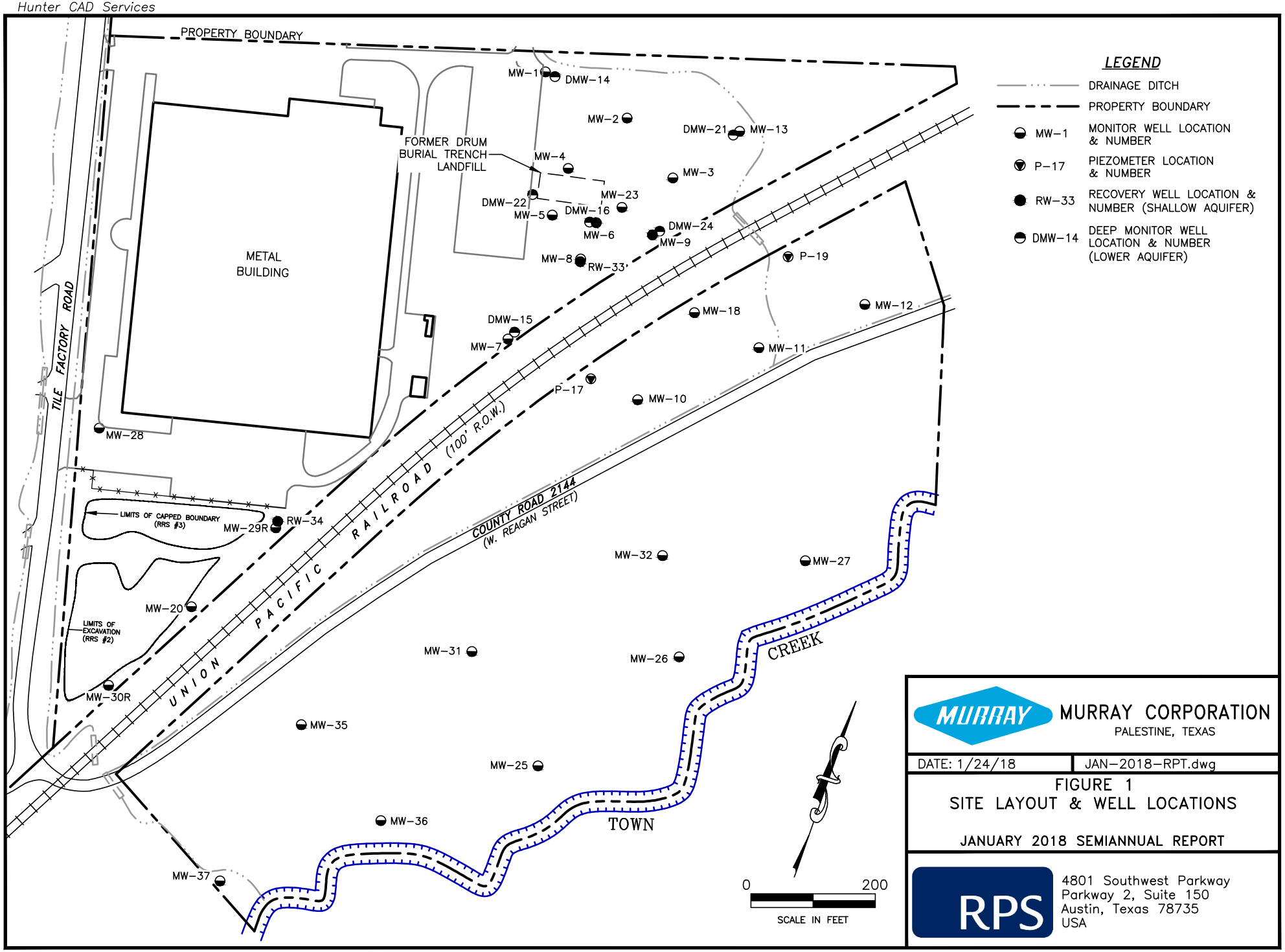

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FIGURE 1
SITE LAYOUT & WELL LOCATIONS

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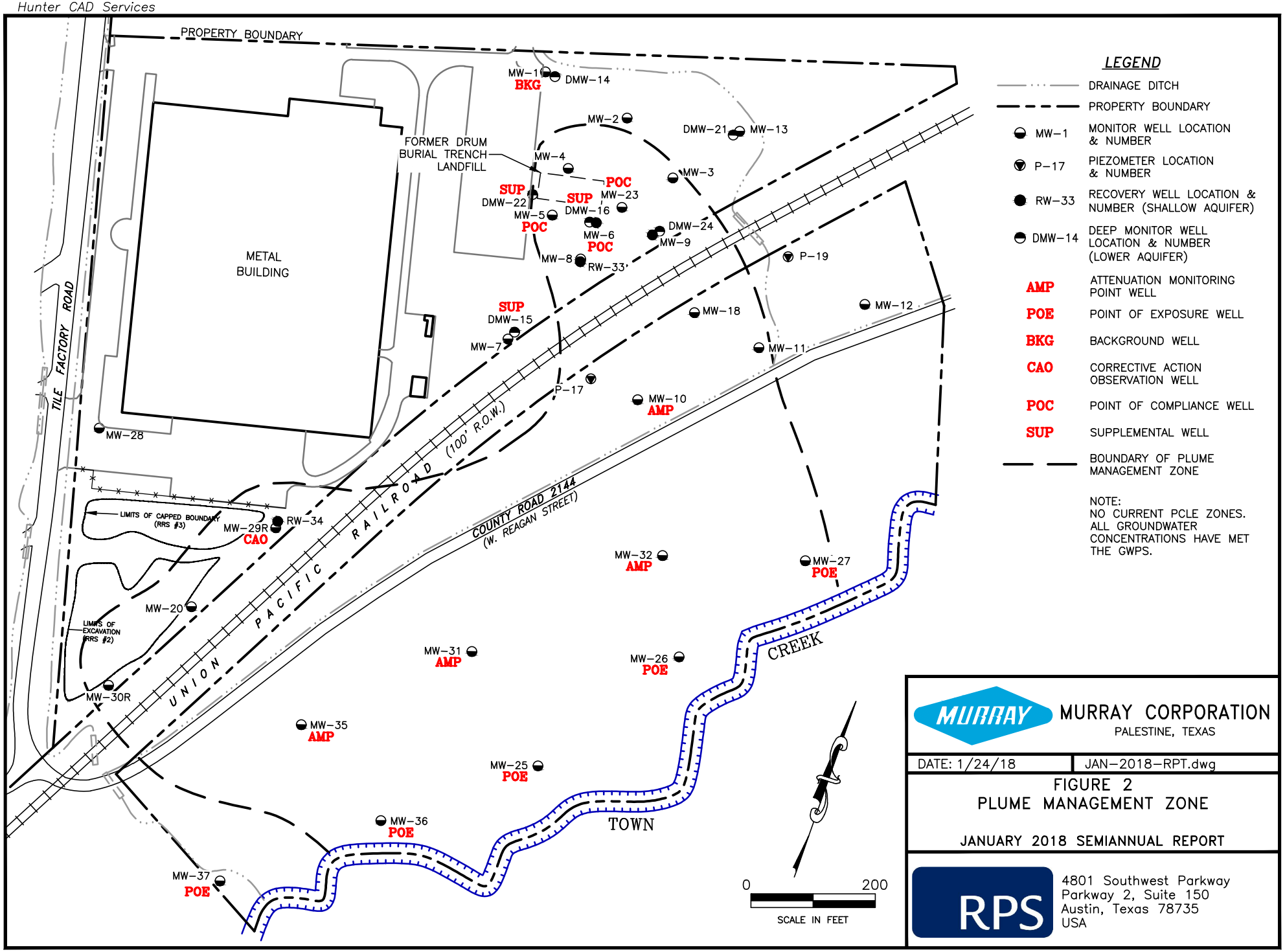

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- DMW-14 — DEEP MONITOR WELL LOCATION & NUMBER (LOWER AQUIFER)
- AMP — ATTENUATION MONITORING POINT WELL
- POE — POINT OF EXPOSURE WELL
- BKG — BACKGROUND WELL
- CAO — CORRECTIVE ACTION OBSERVATION WELL
- POC — POINT OF COMPLIANCE WELL
- SUP — SUPPLEMENTAL WELL
- BOUNDARY OF PLUME MANAGEMENT ZONE

NOTE:
NO CURRENT PCLE ZONES.
ALL GROUNDWATER CONCENTRATIONS HAVE MET THE GWPS.

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FIGURE 2
PLUME MANAGEMENT ZONE

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FIGURE 2

Potentiometric Surface Maps

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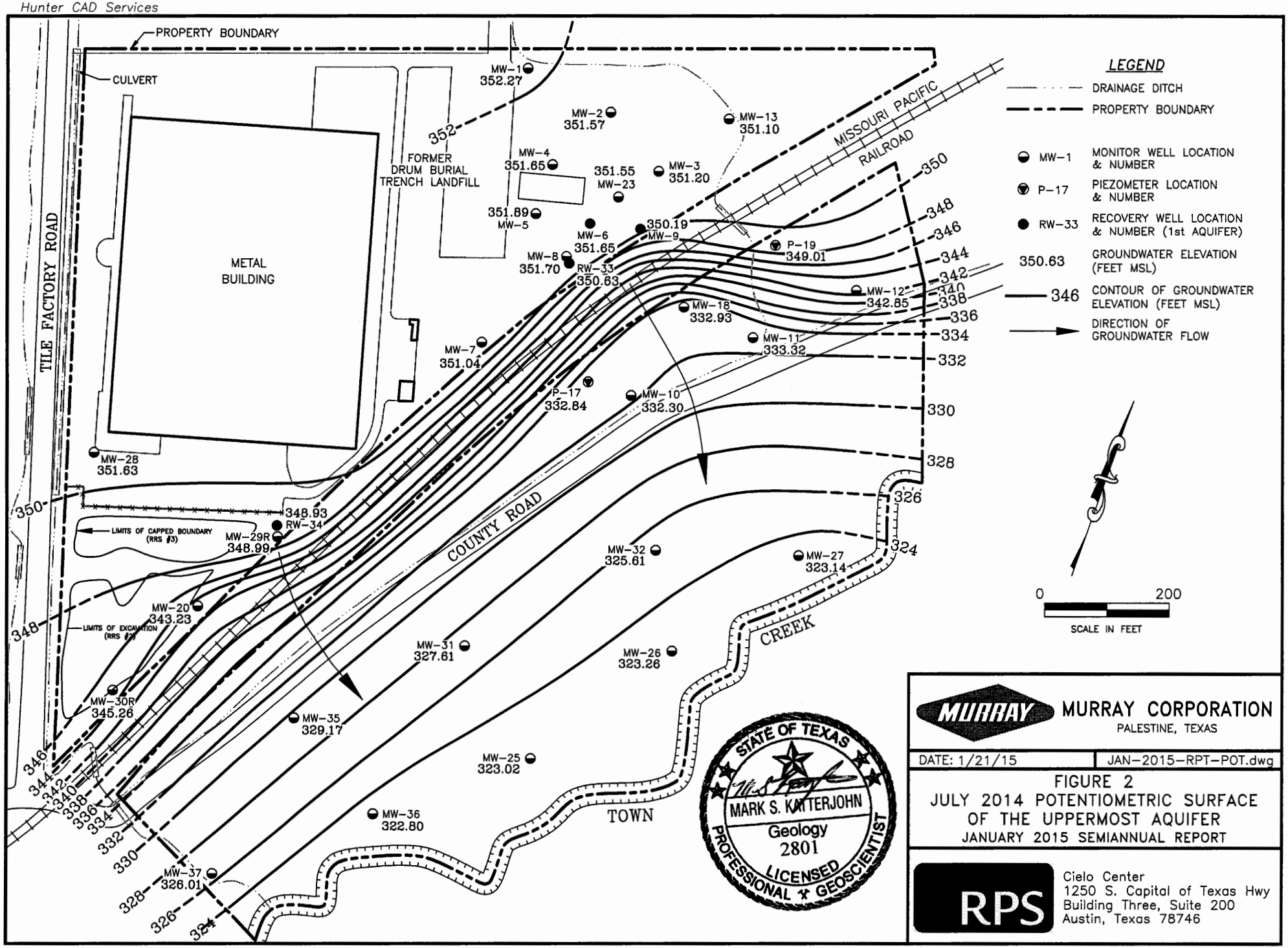

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FIGURE 2
JULY 2014 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2015 SEMIANNUAL REPORT

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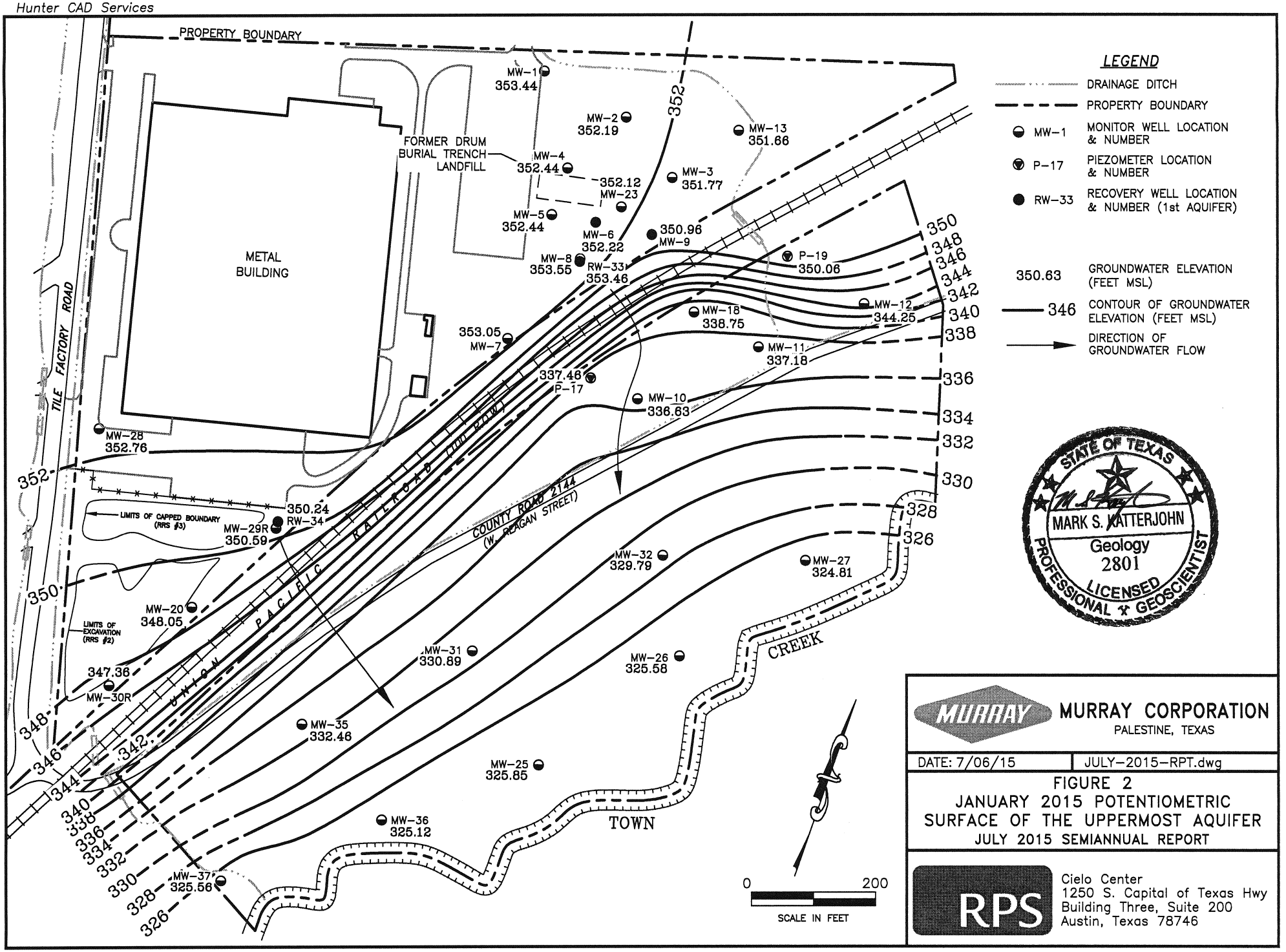

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FIGURE 2
JANUARY 2015 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JULY 2015 SEMIANNUAL REPORT

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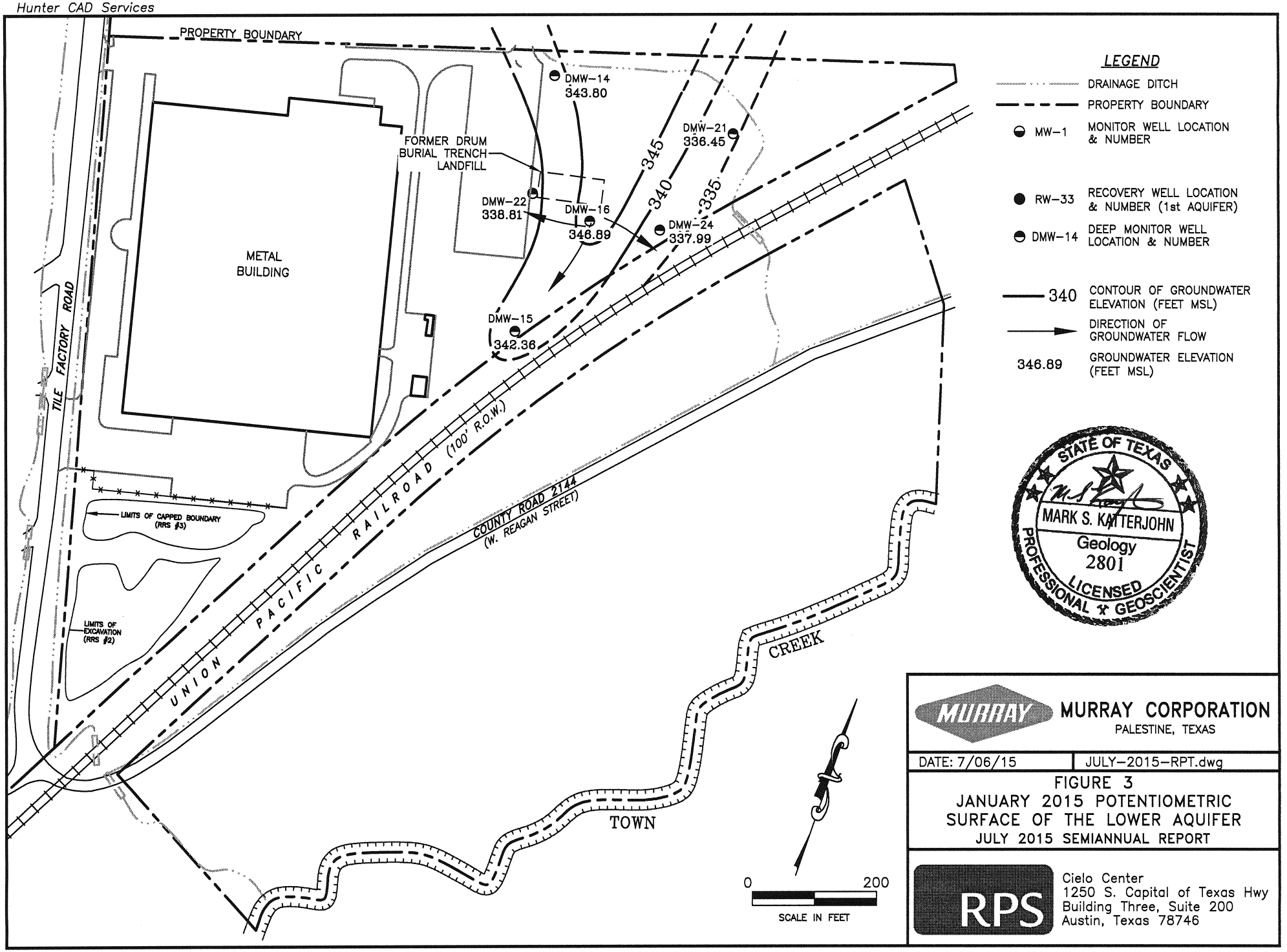

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FIGURE 3
JANUARY 2015 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JULY 2015 SEMIANNUAL REPORT

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Hunter CAD Services

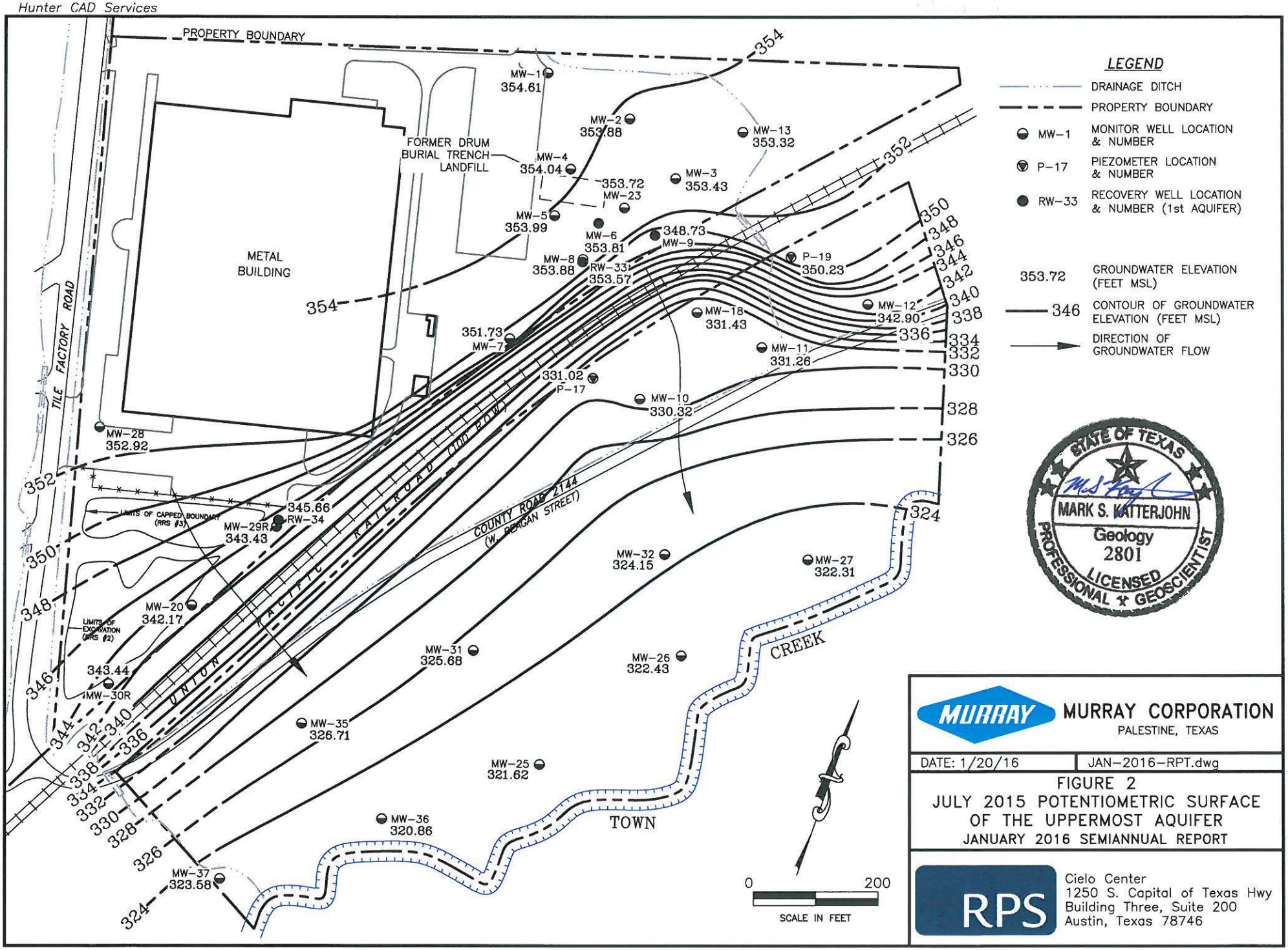

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FIGURE 2
JULY 2015 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2016 SEMIANNUAL REPORT

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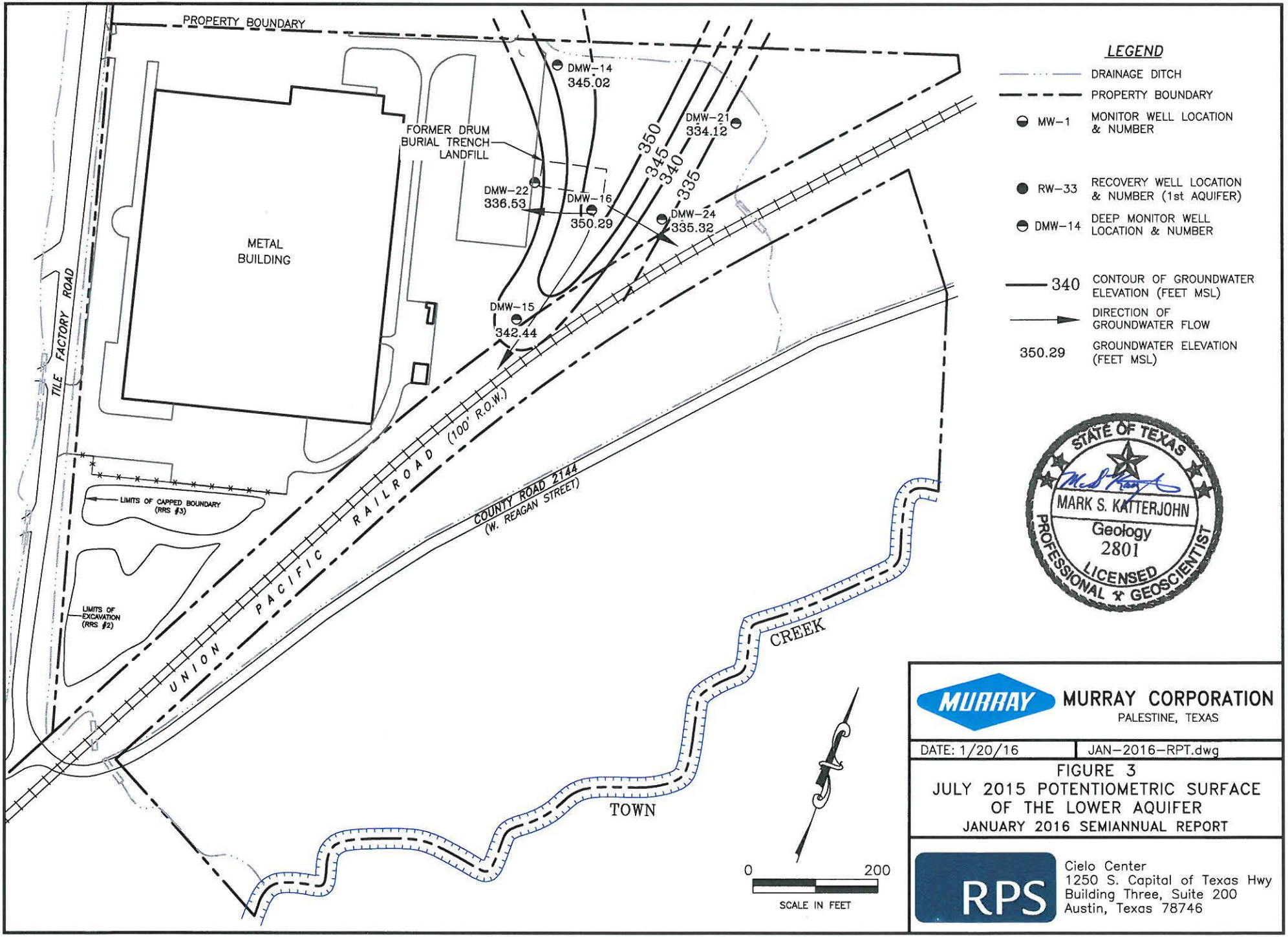

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FIGURE 3
JULY 2015 POTENTIOMETRIC SURFACE
OF THE LOWER AQUIFER
JANUARY 2016 SEMIANNUAL REPORT

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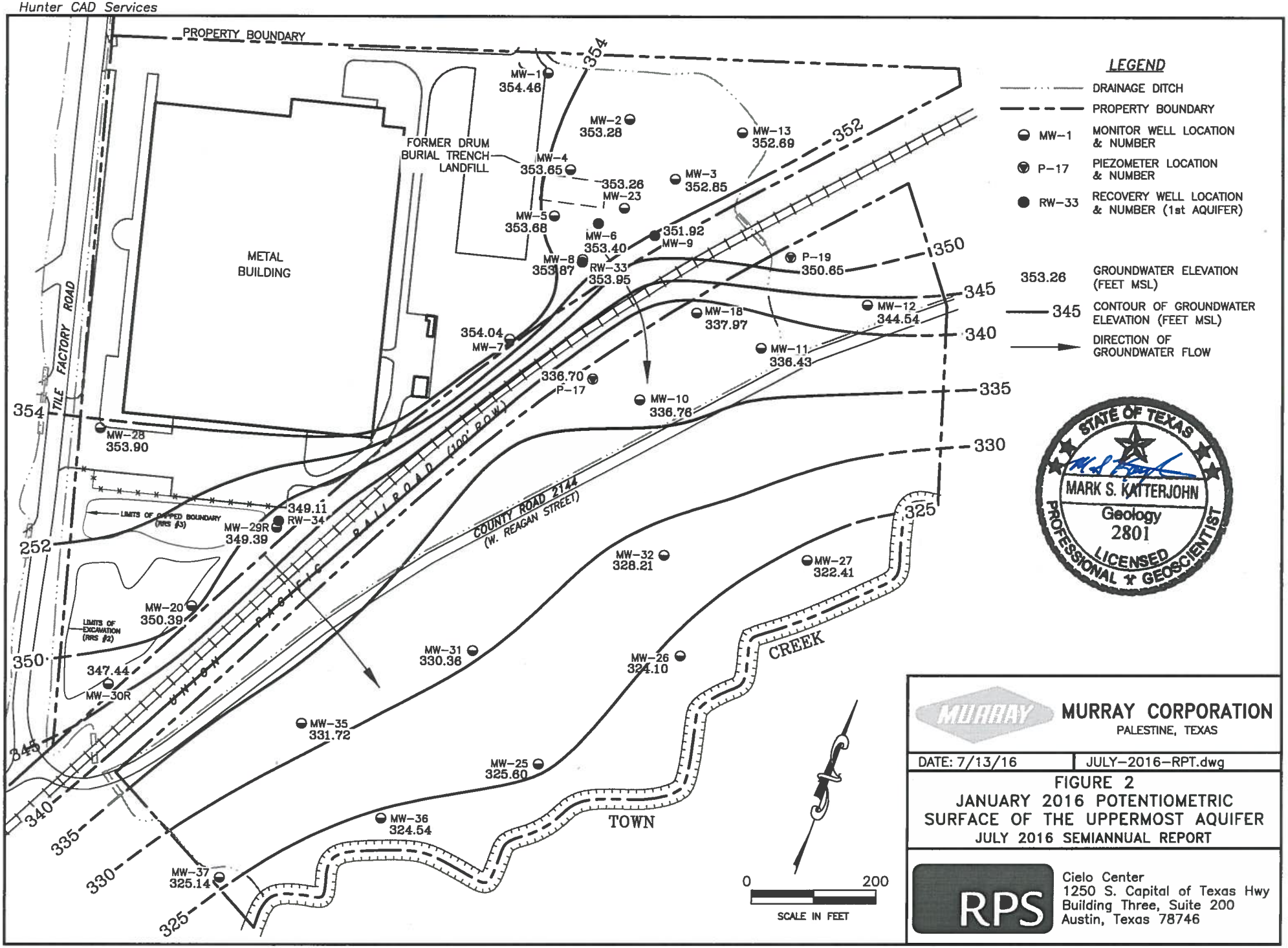

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 353.26 — GROUNDWATER ELEVATION (FEET MSL)
- 345 — CONTOUR OF GROUNDWATER ELEVATION (FEET MSL)
- DIRECTION OF GROUNDWATER FLOW

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FIGURE 2
JANUARY 2016 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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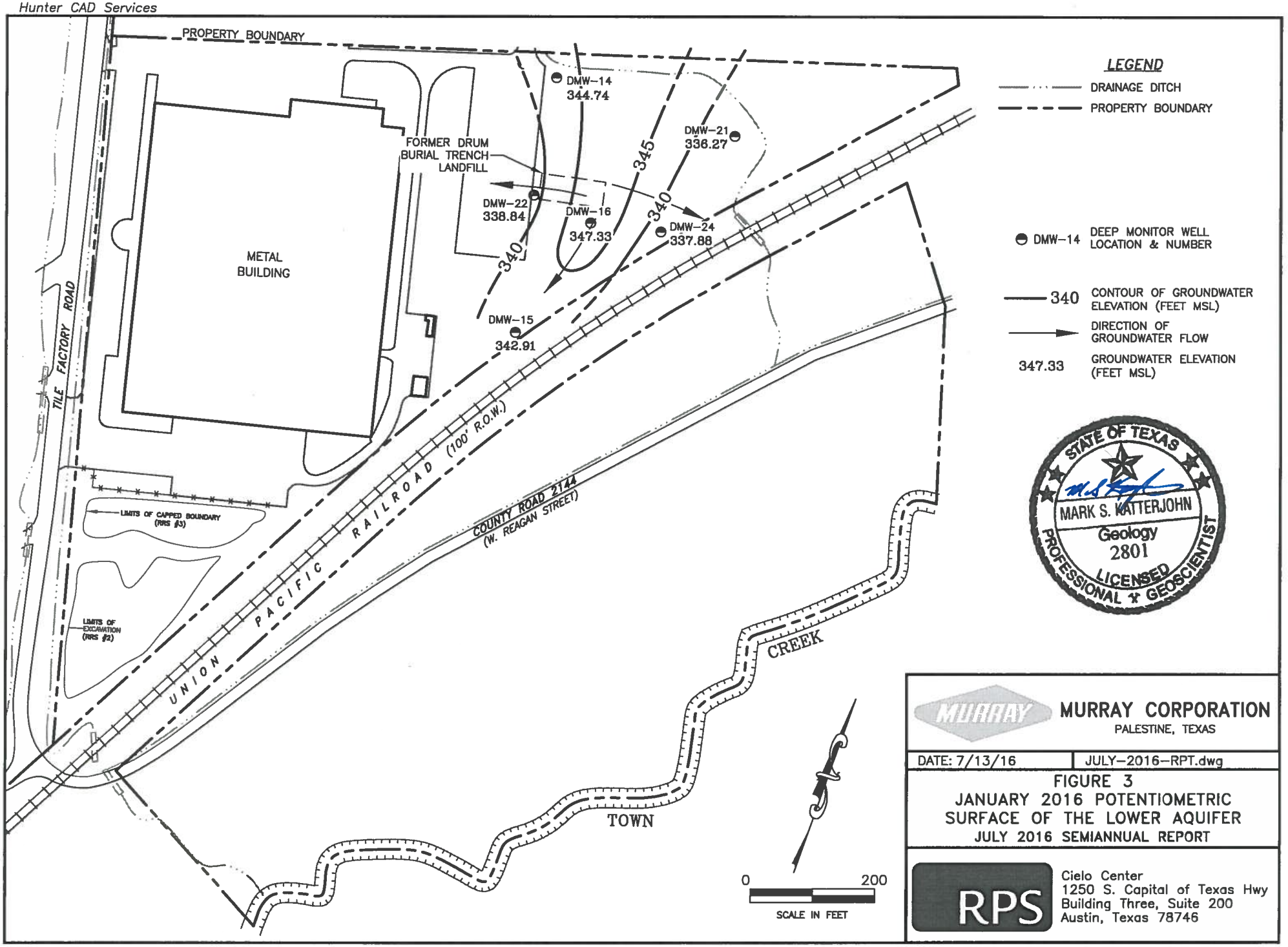

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FIGURE 3
JANUARY 2016 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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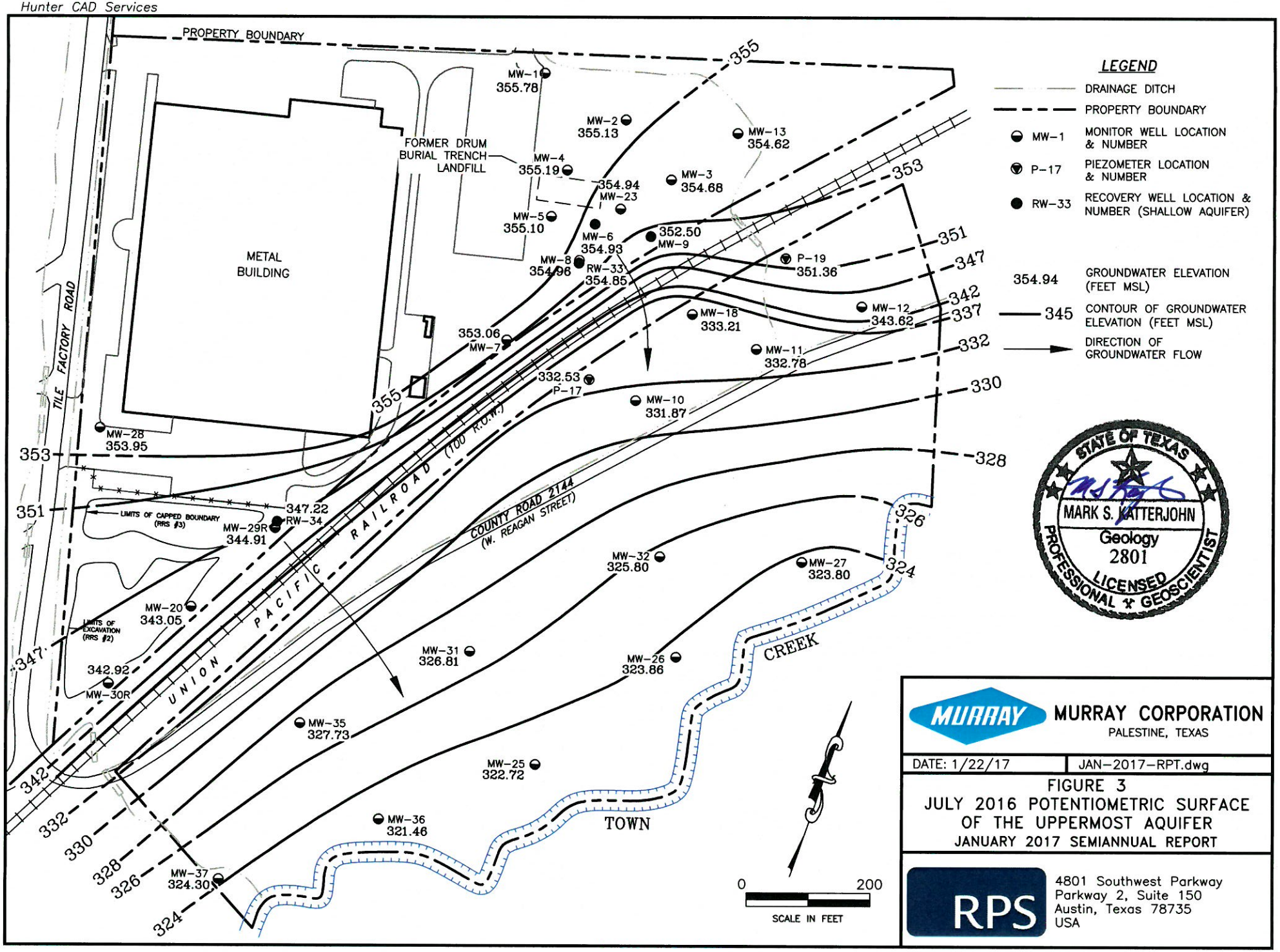

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
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- 345 — CONTOUR OF GROUNDWATER ELEVATION (FEET MSL)
- DIRECTION OF GROUNDWATER FLOW

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FIGURE 3
JULY 2016 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2017 SEMIANNUAL REPORT

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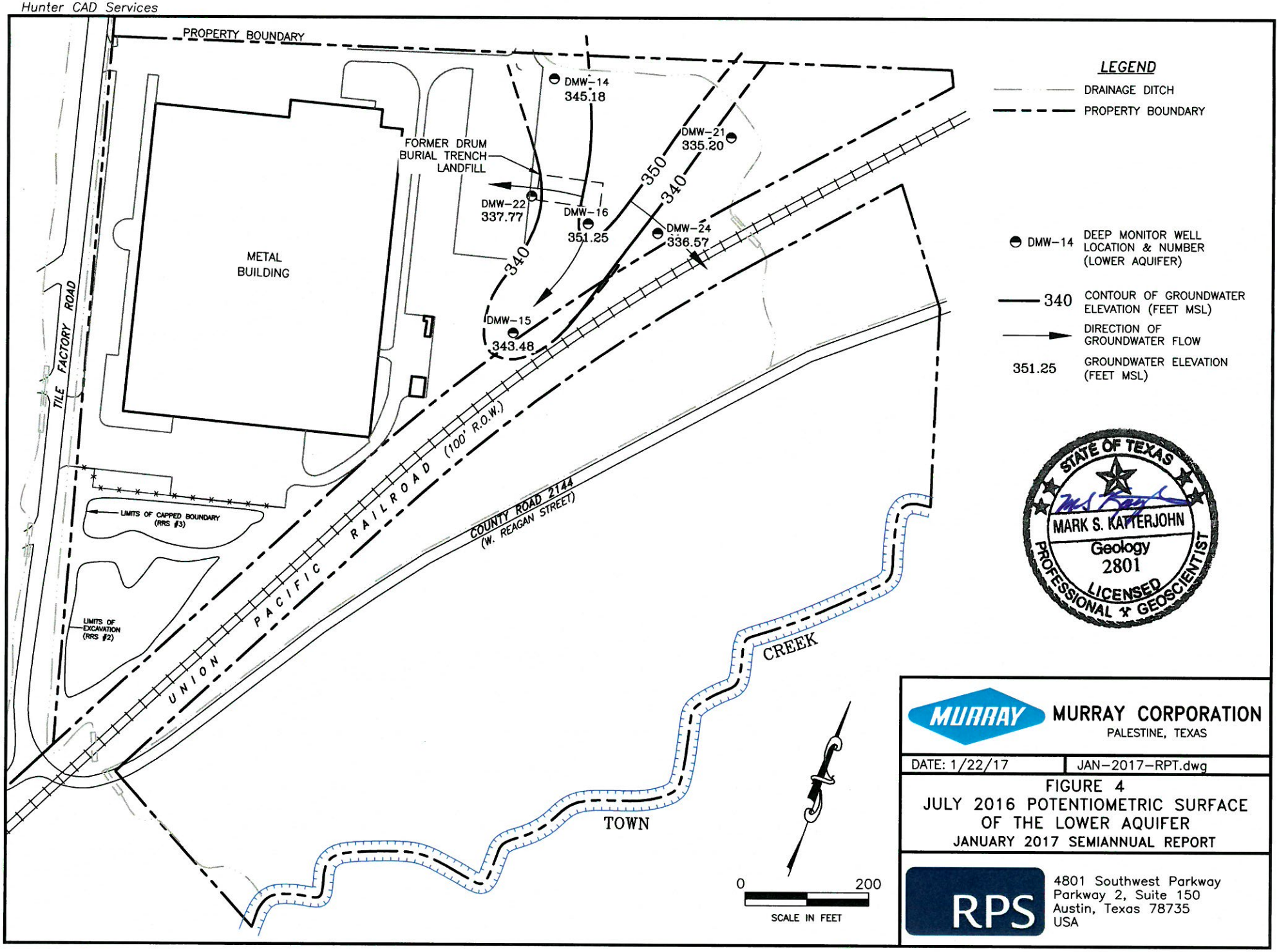

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FIGURE 4
JULY 2016 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JANUARY 2017 SEMIANNUAL REPORT

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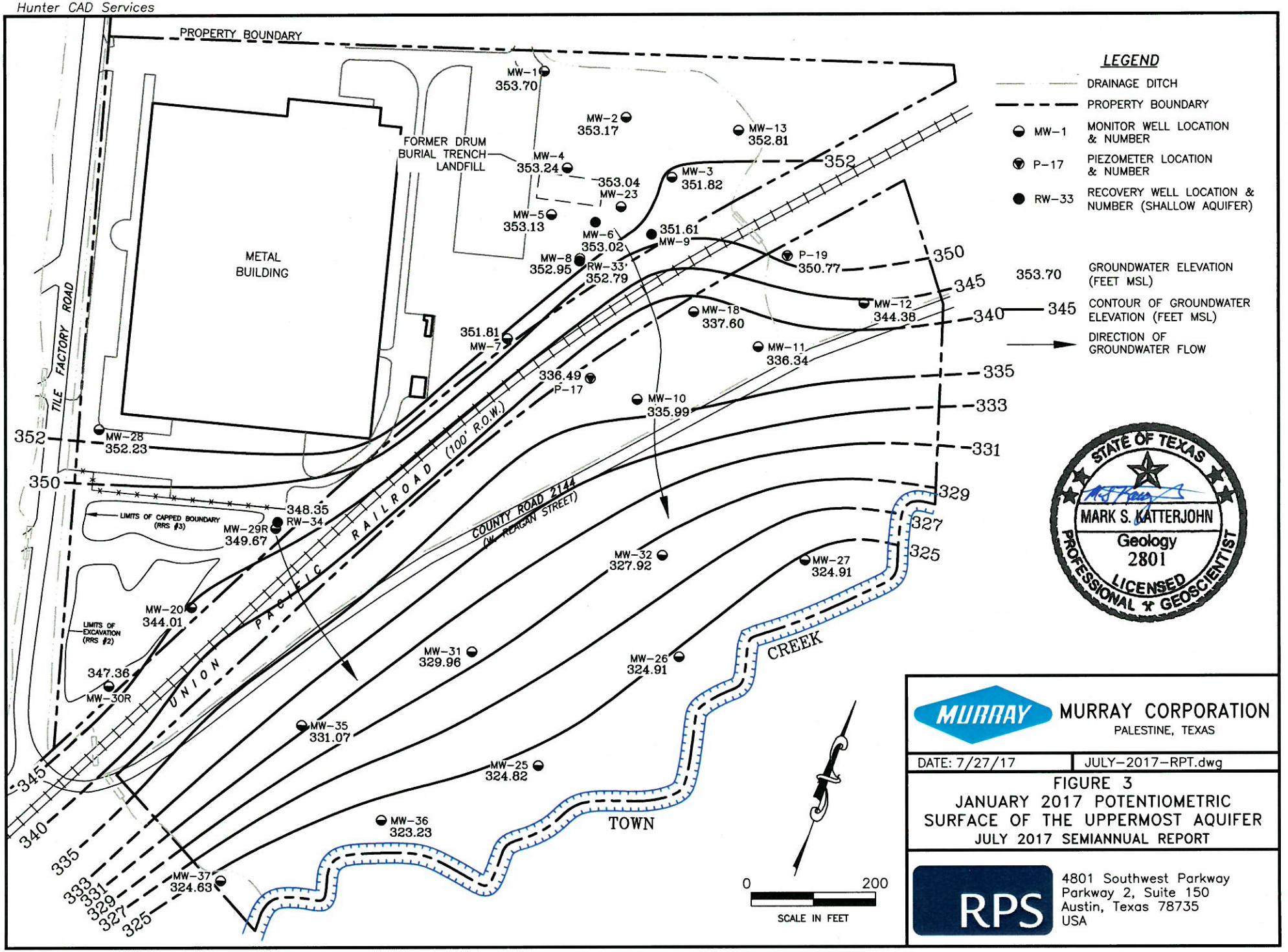

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FIGURE 3
JANUARY 2017 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JULY 2017 SEMIANNUAL REPORT

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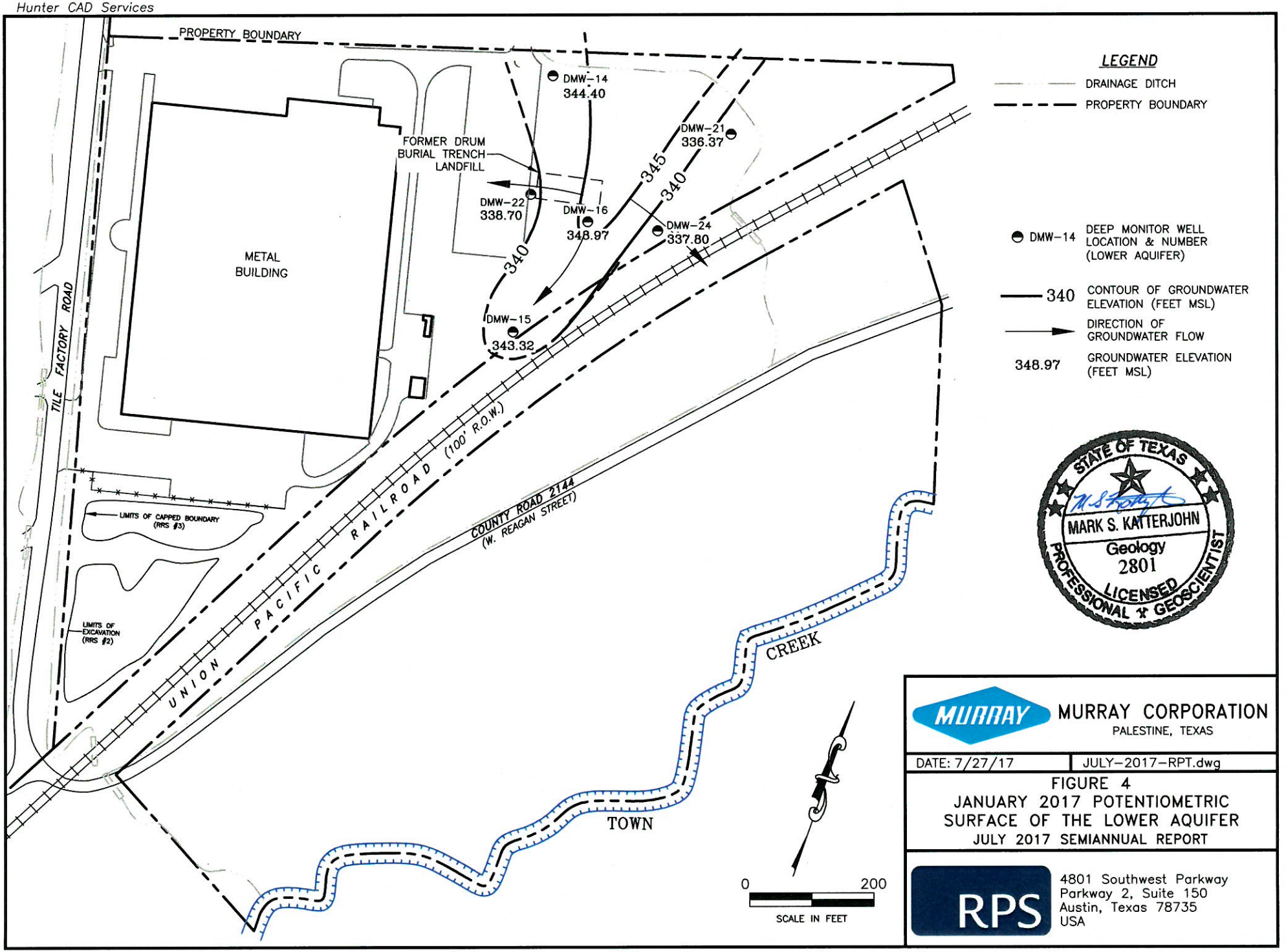

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FIGURE 4
JANUARY 2017 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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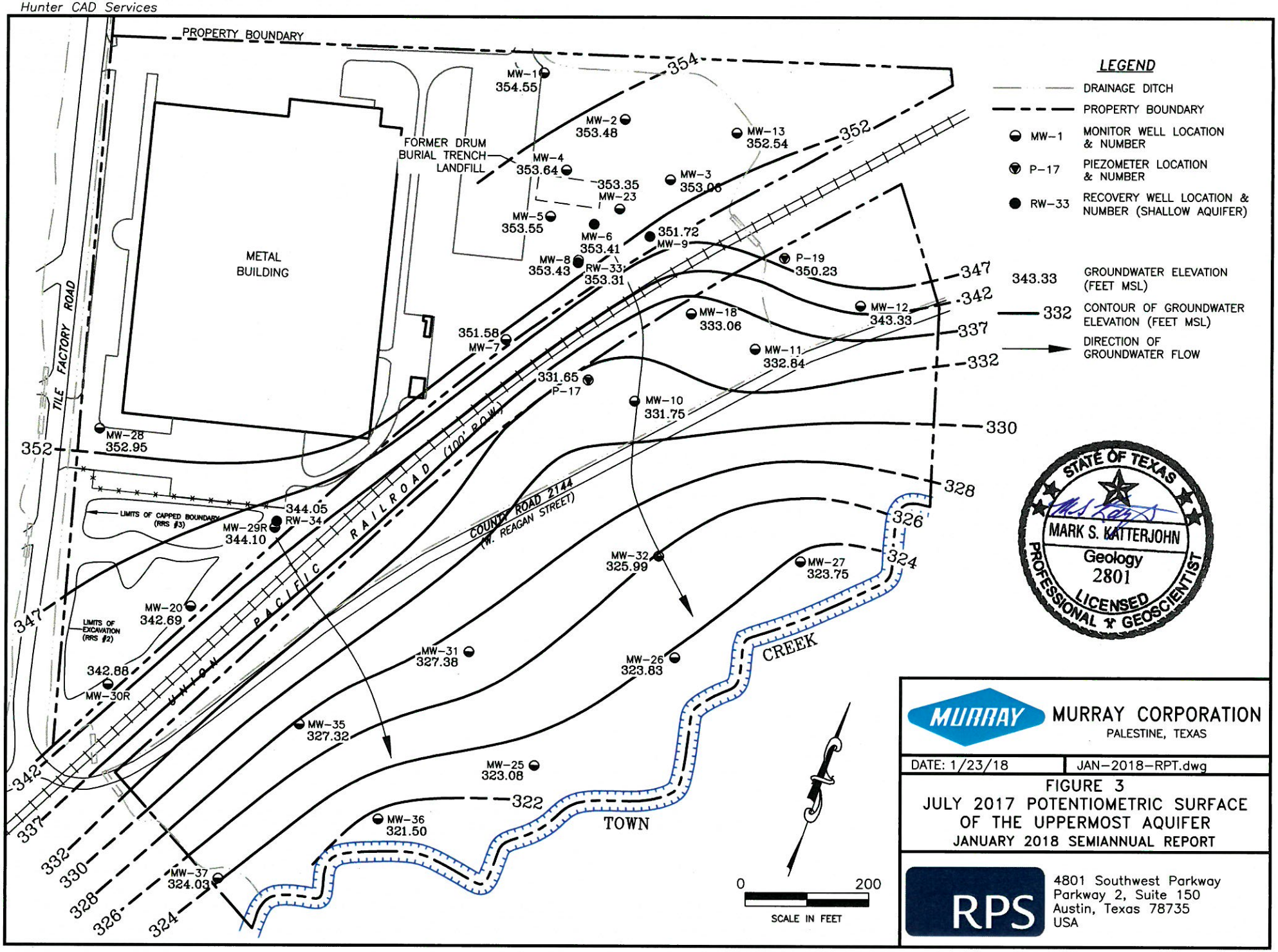

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FIGURE 3
JULY 2017 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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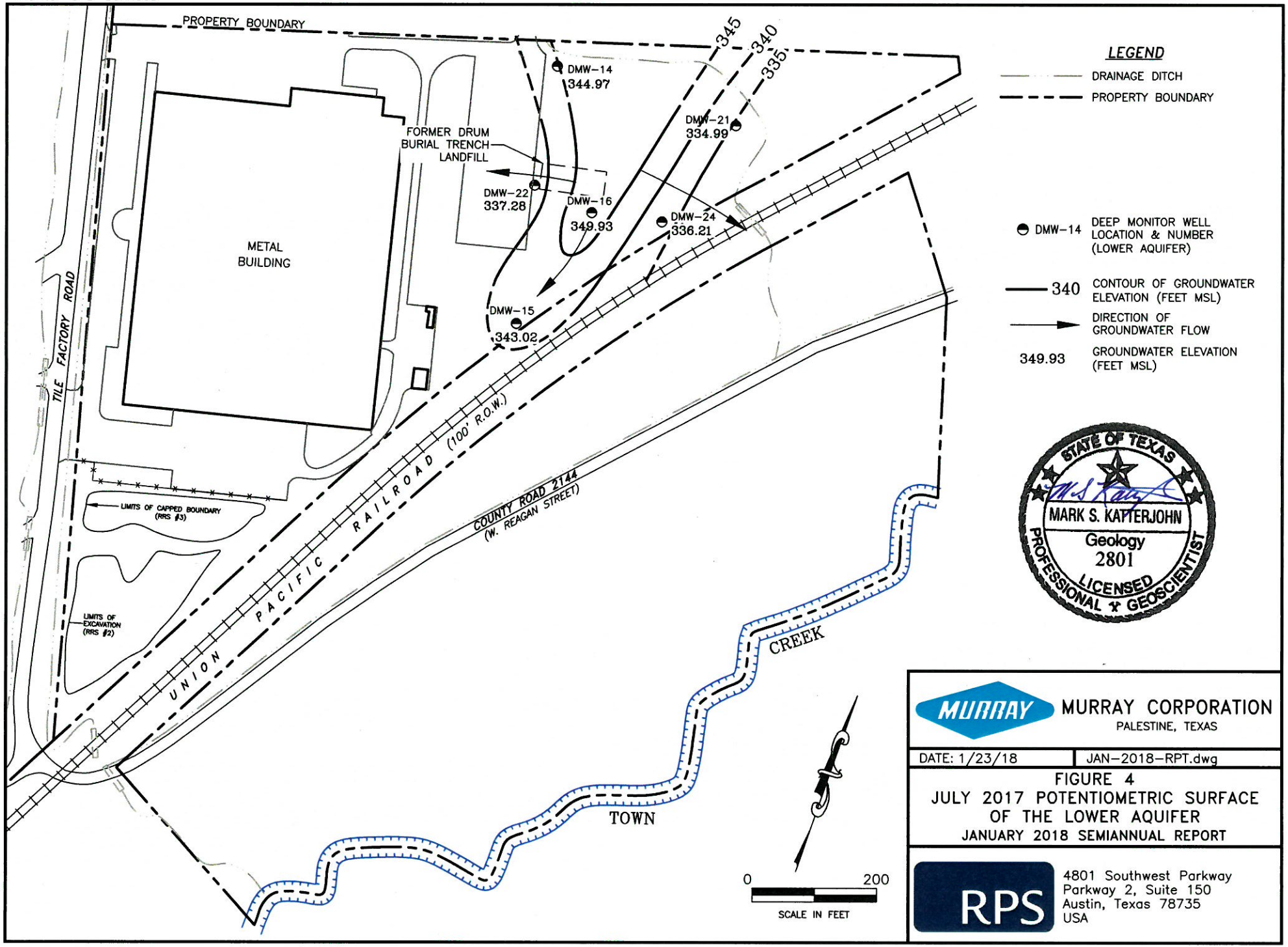

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FIGURE 4
JULY 2017 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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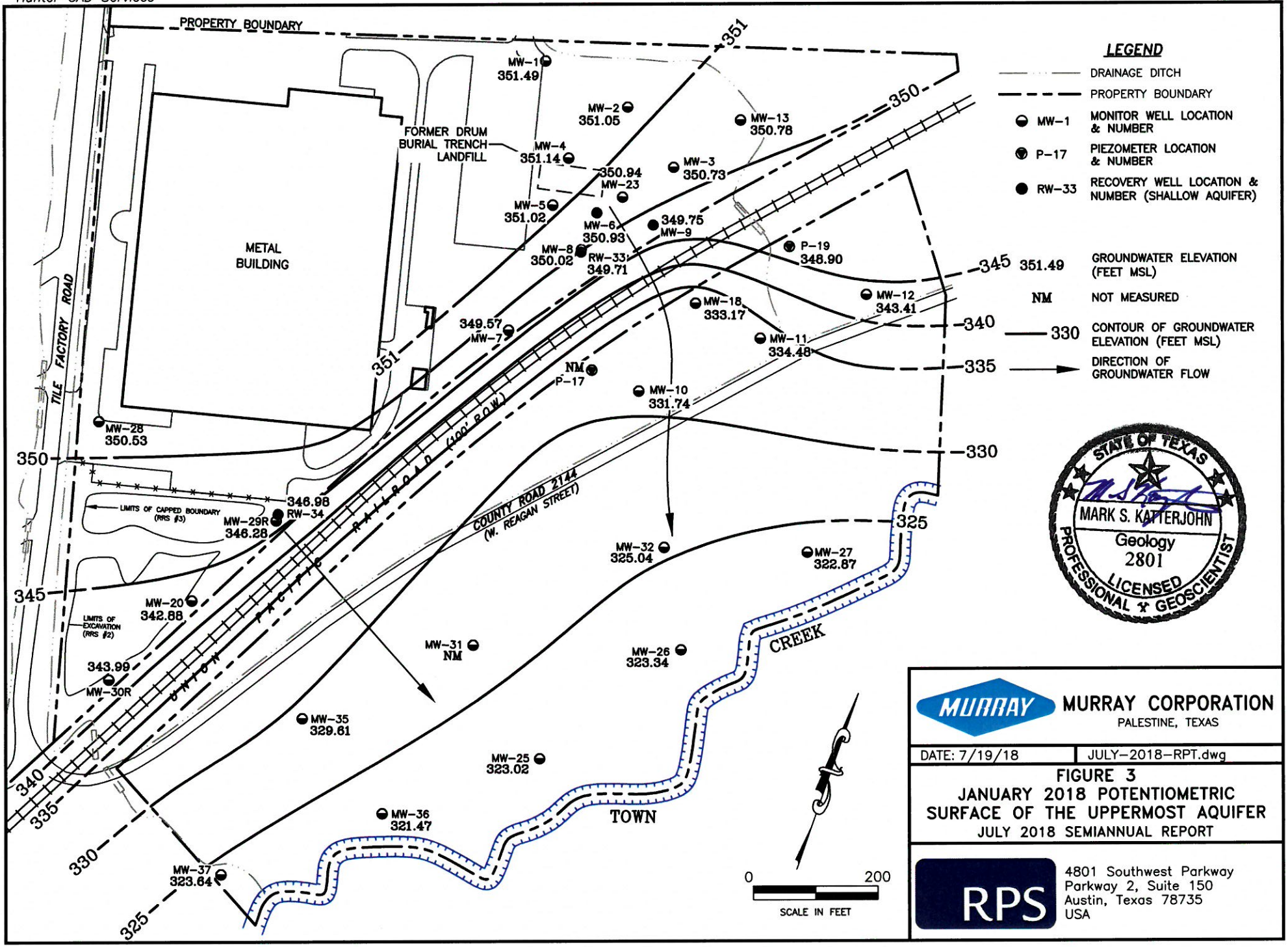

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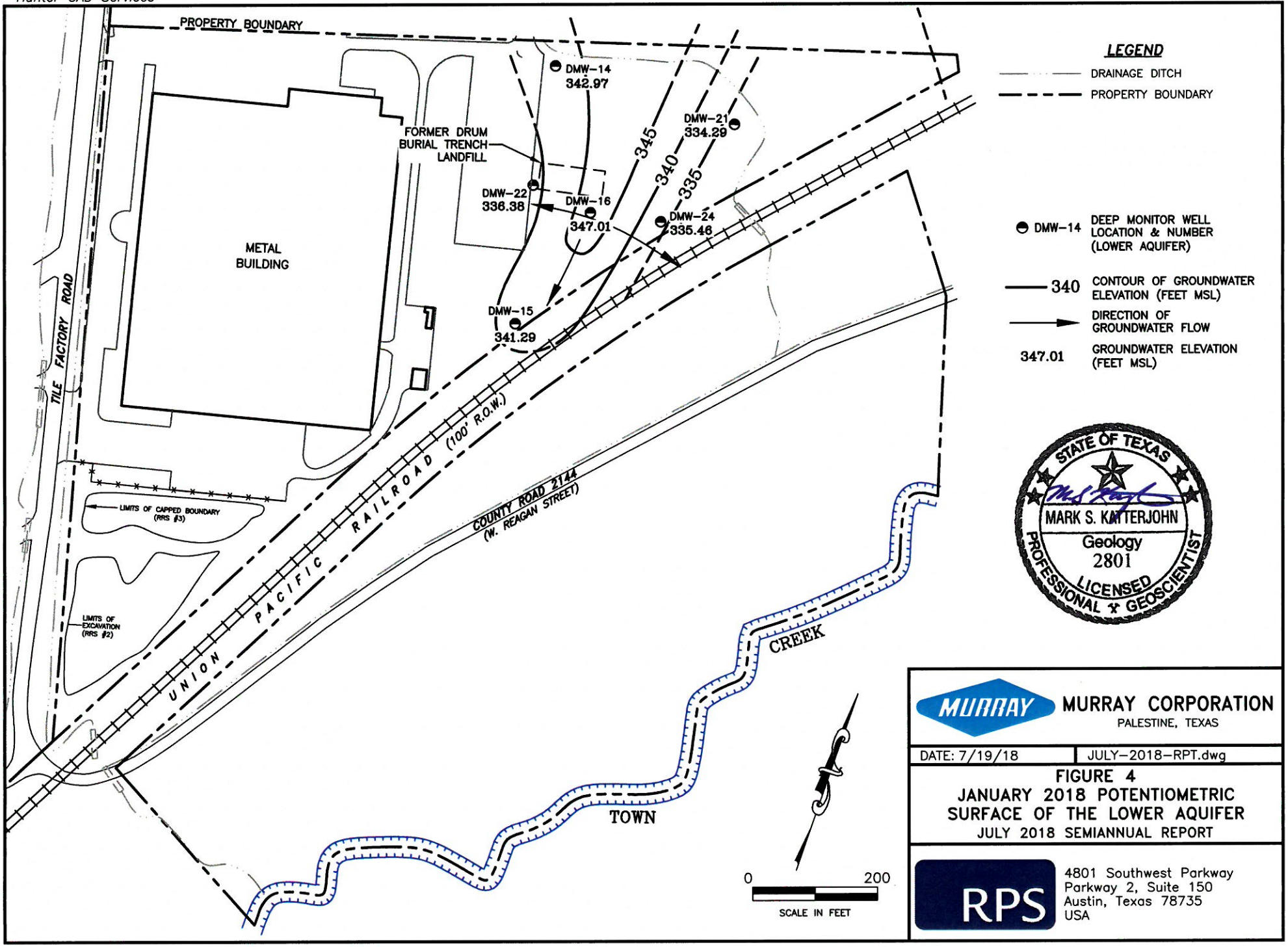

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FIGURE 4
JANUARY 2018 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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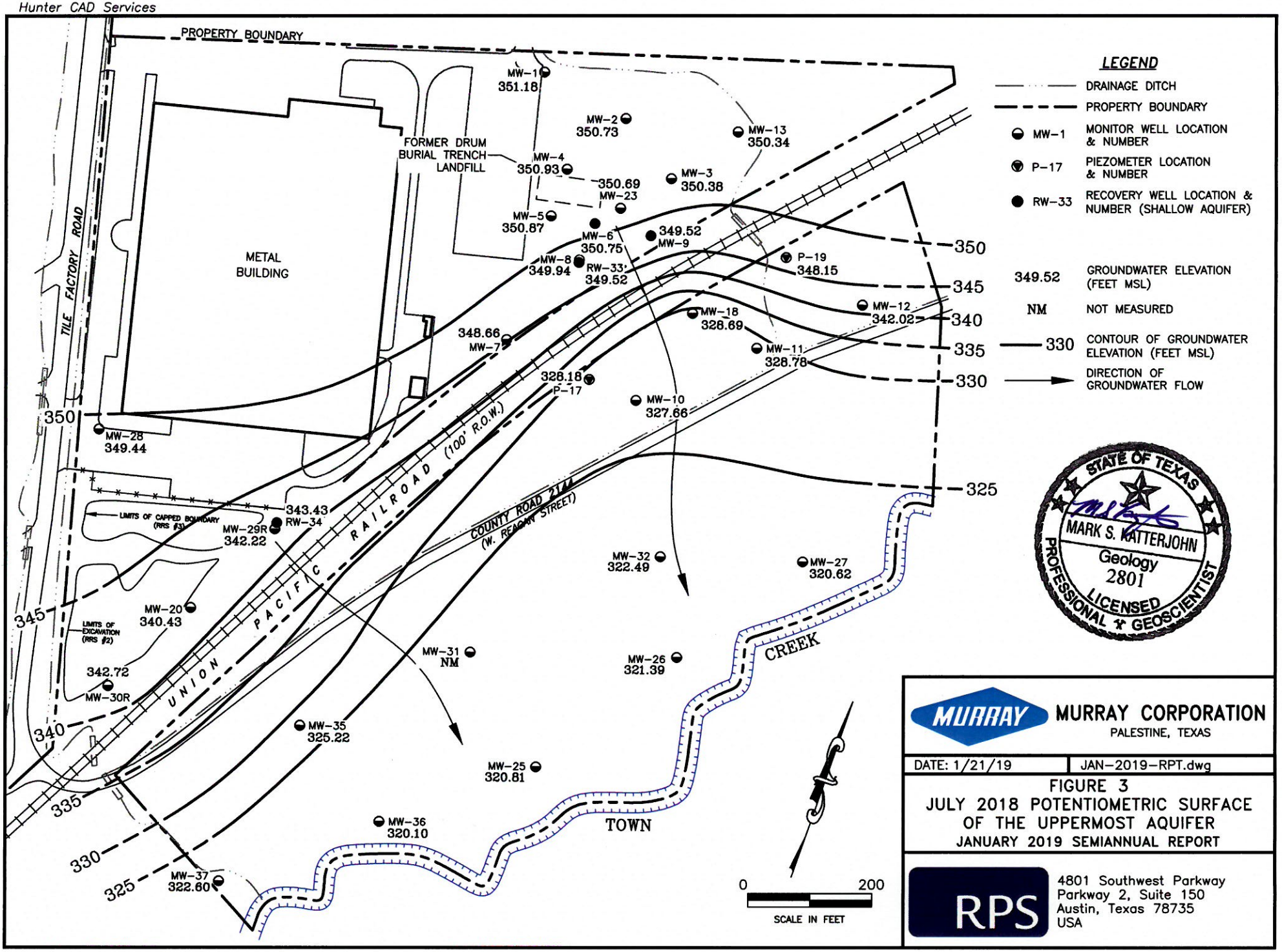

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FIGURE 3
JULY 2018 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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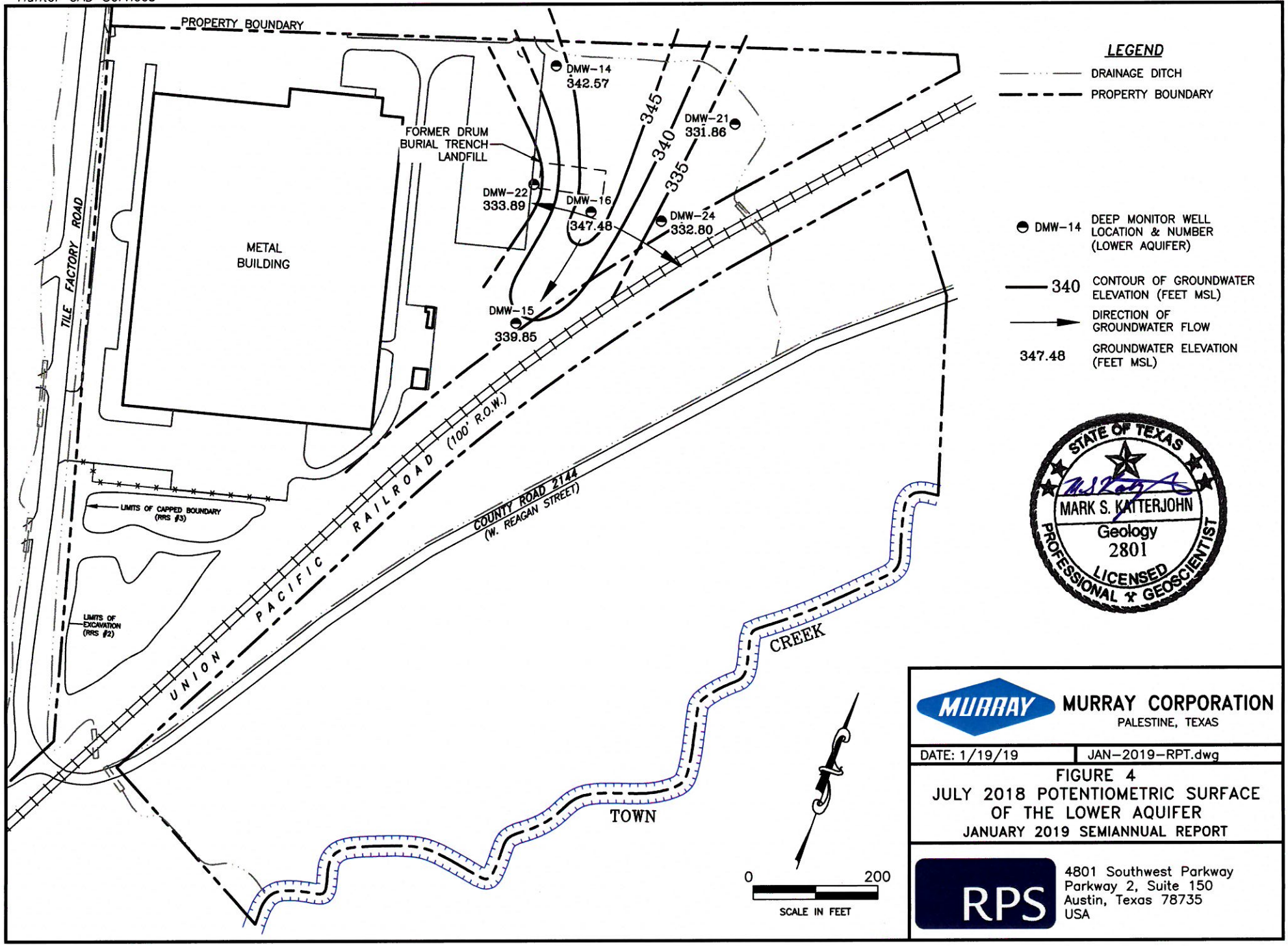

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FIGURE 4
JULY 2018 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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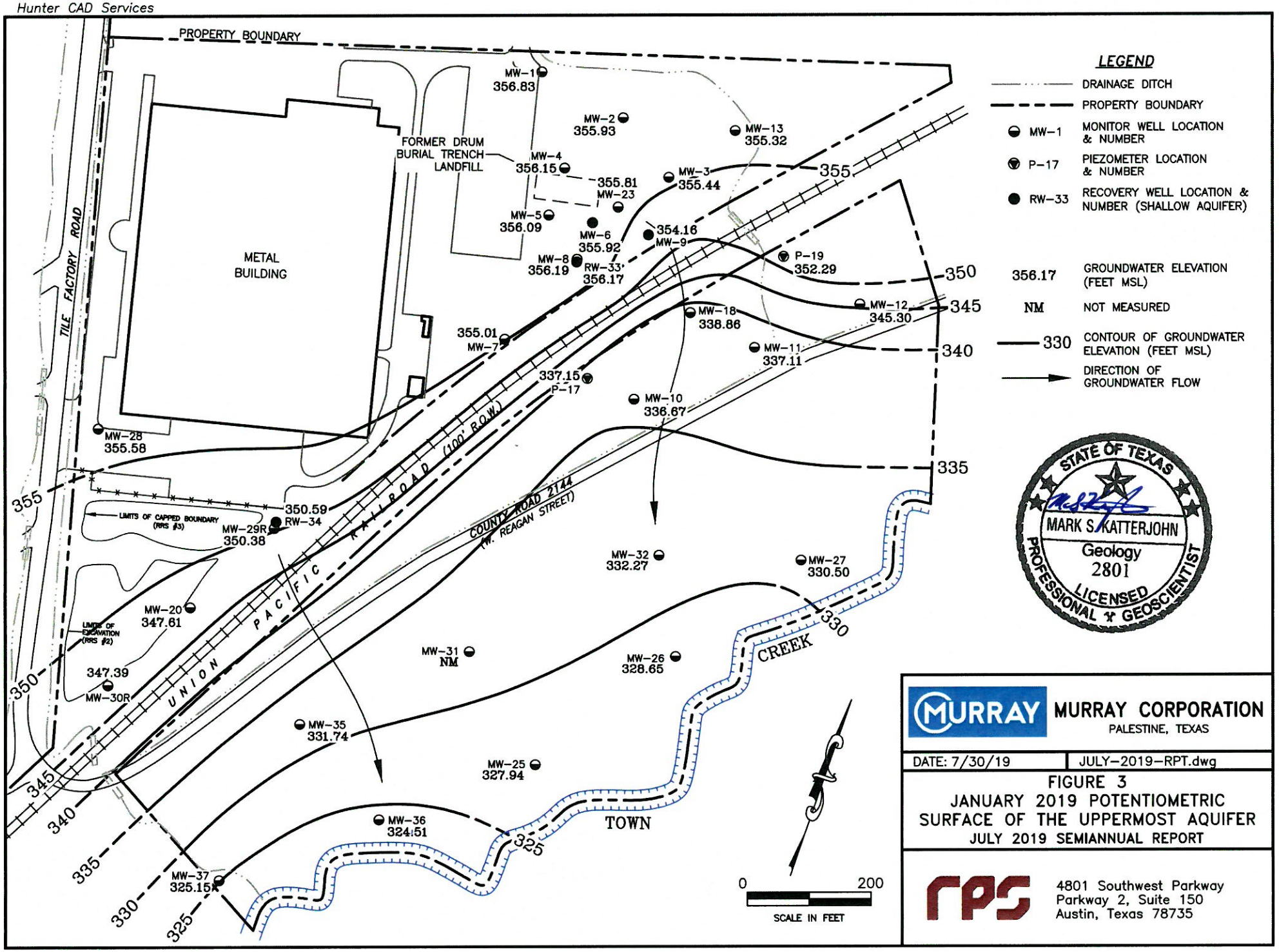

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FIGURE 3
JANUARY 2019 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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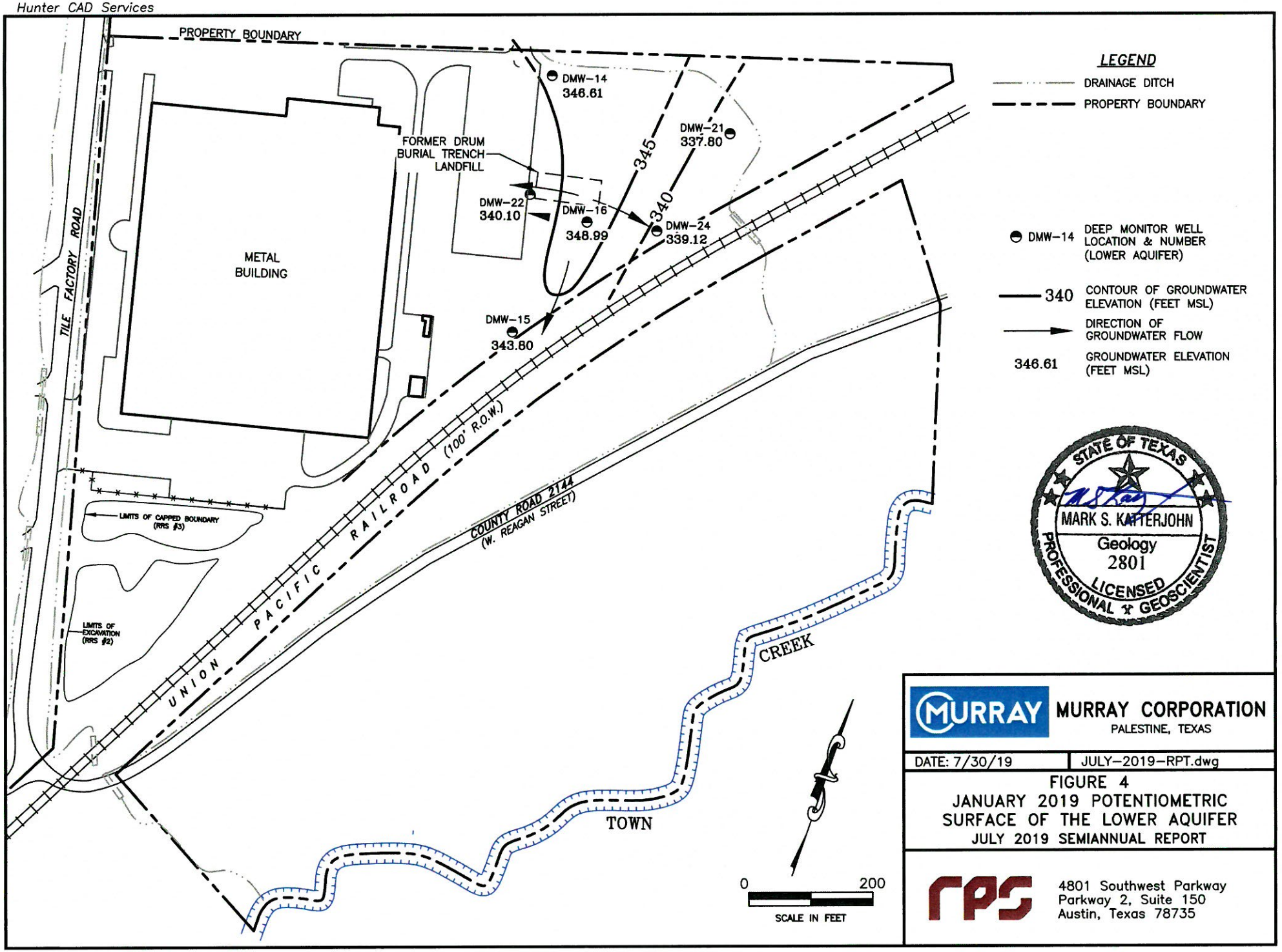

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FIGURE 4
JANUARY 2019 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
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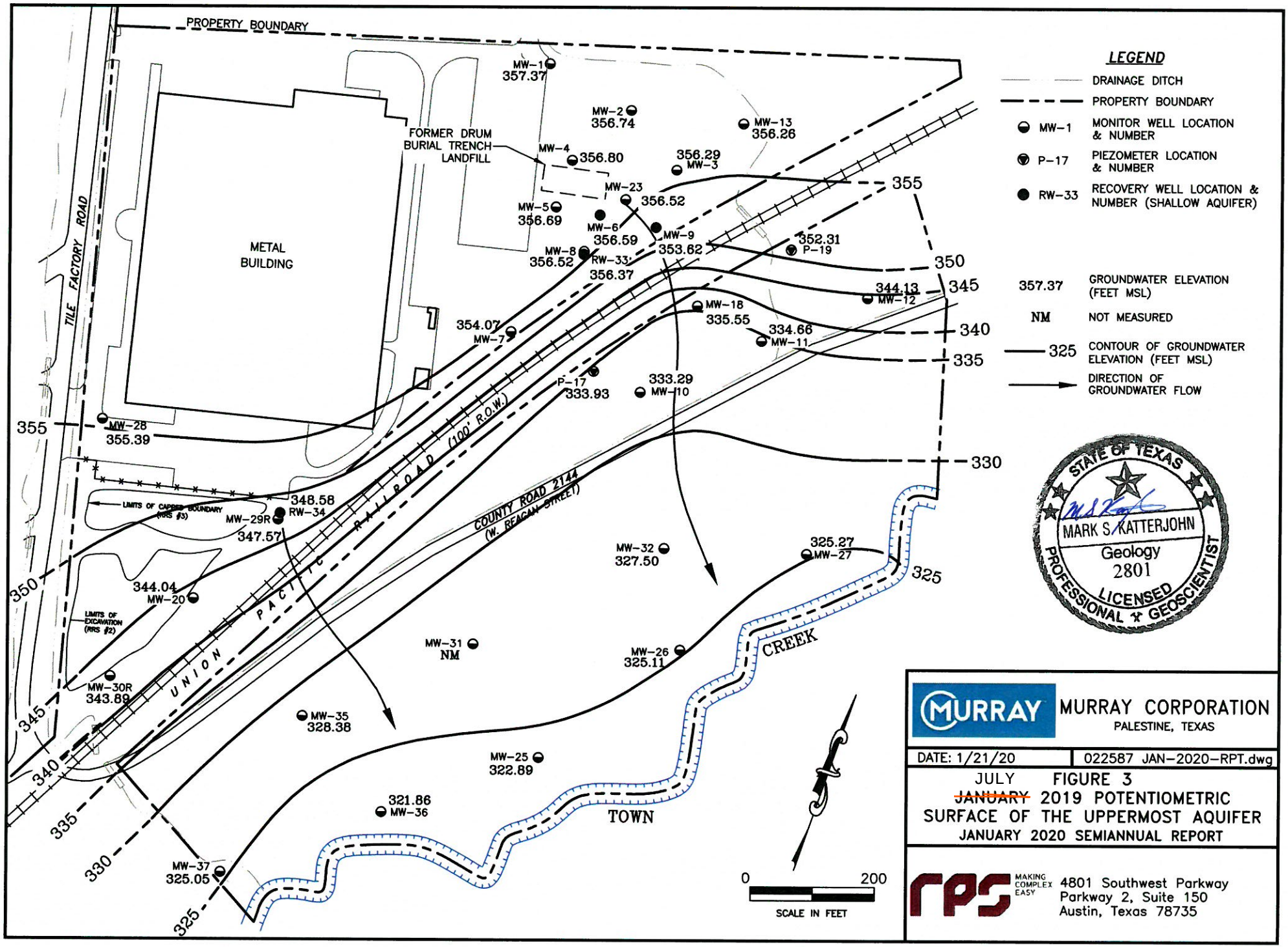

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DATE: 1/21/20 | 022587 JAN-2020-RPT.dwg

JULY FIGURE 3
~~JANUARY~~ 2019 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2020 SEMIANNUAL REPORT

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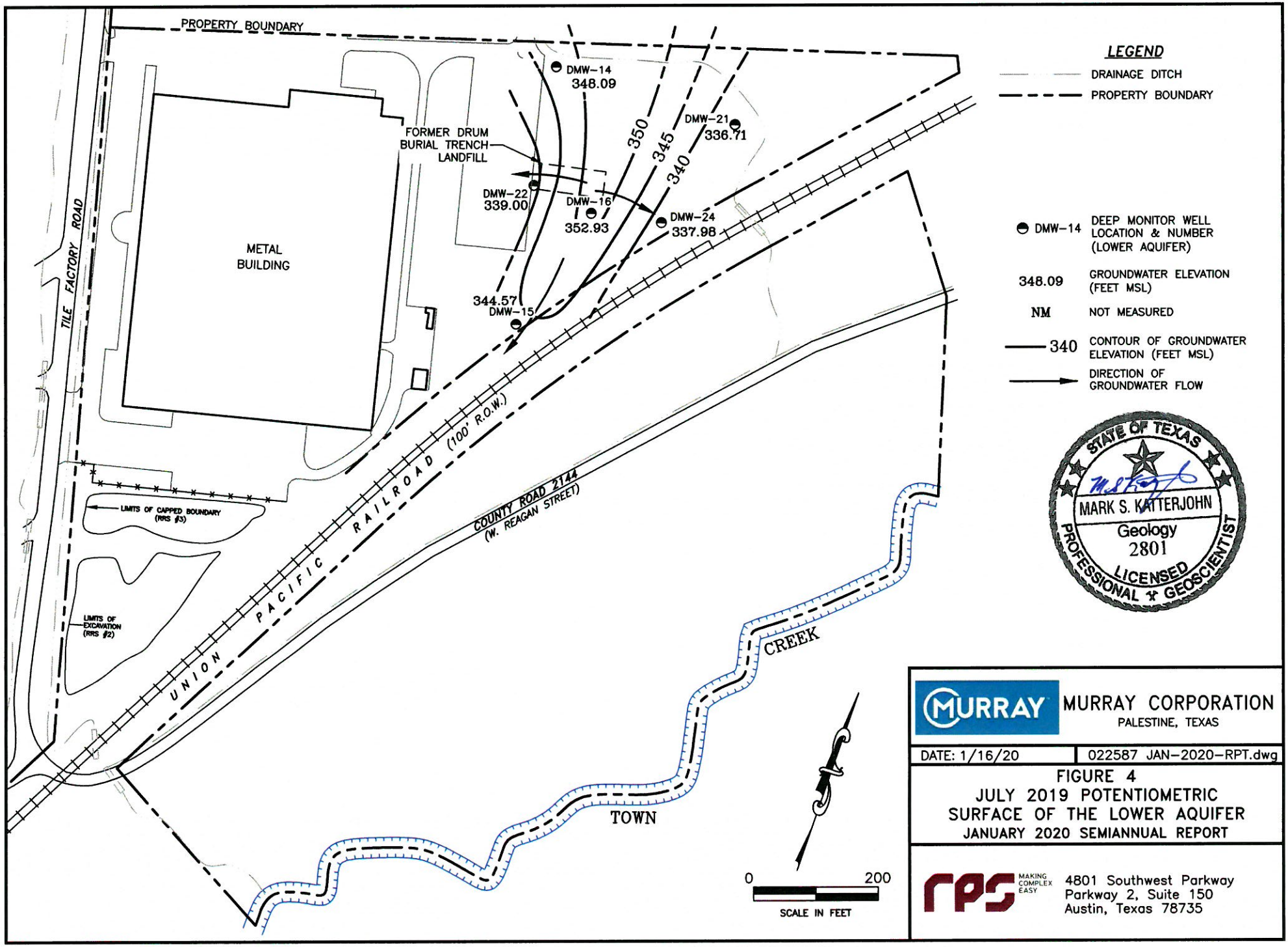

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FIGURE 4
JULY 2019 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JANUARY 2020 SEMIANNUAL REPORT

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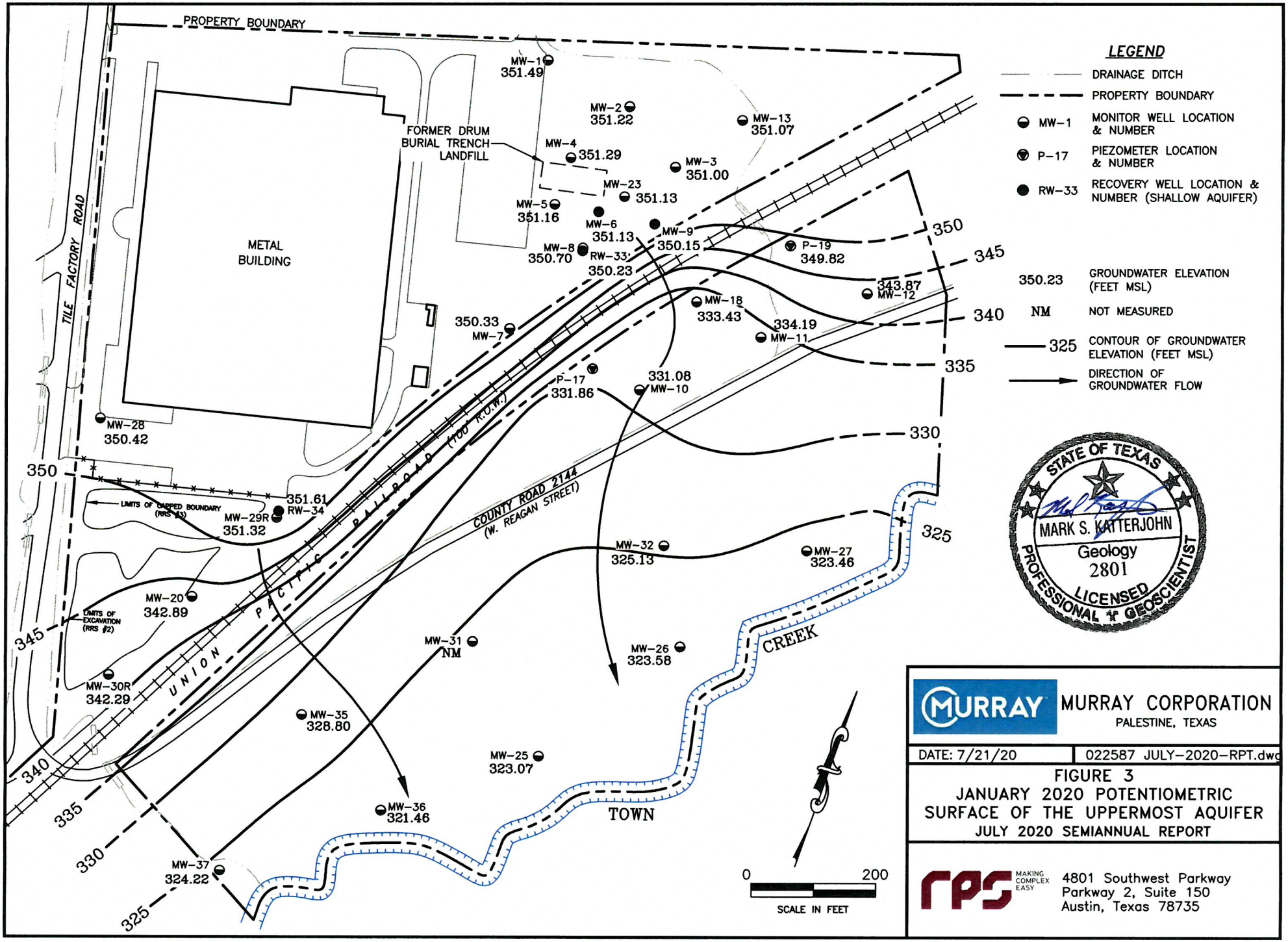

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FIGURE 3
JANUARY 2020 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JULY 2020 SEMIANNUAL REPORT

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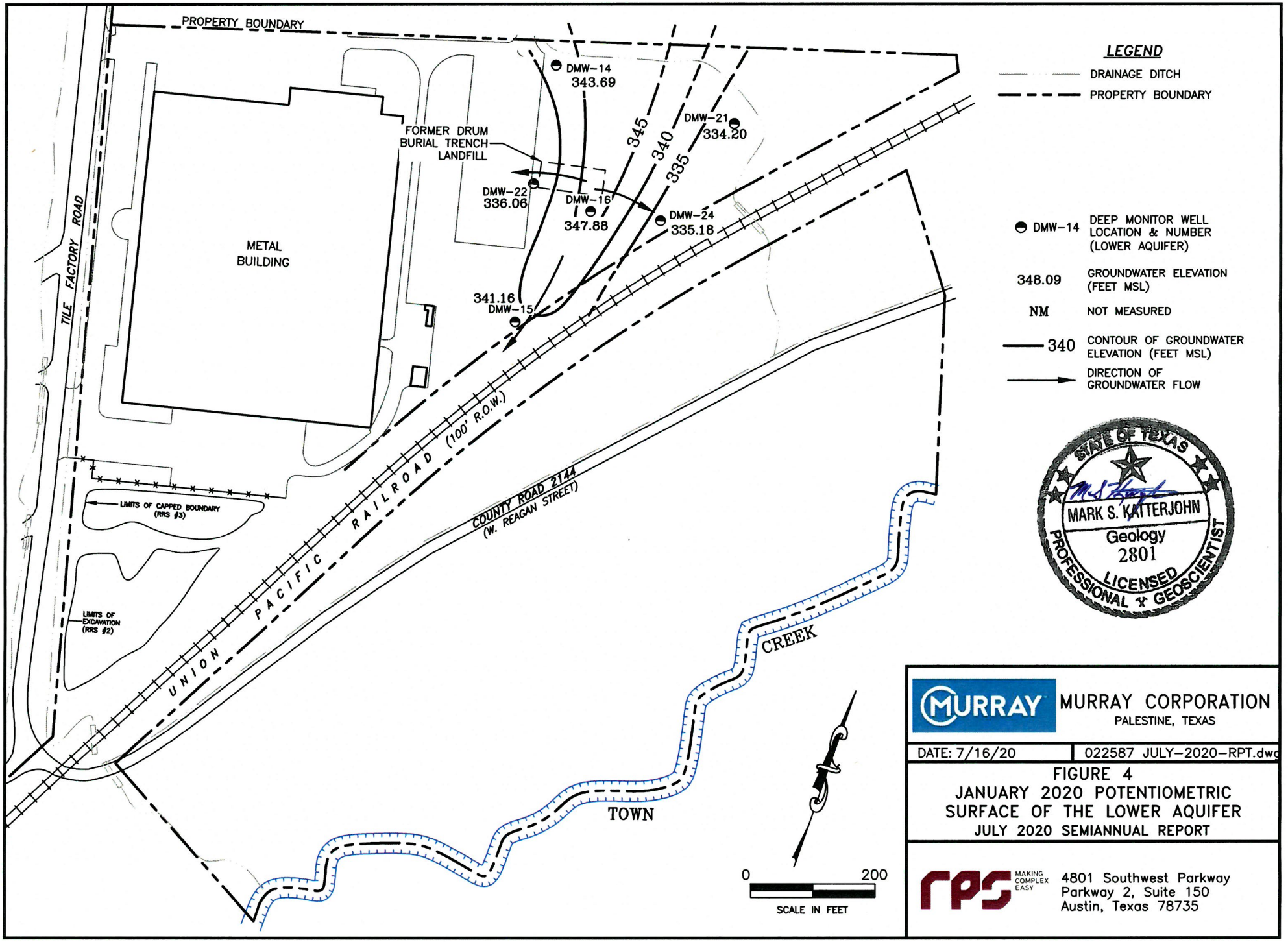

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FIGURE 4
JANUARY 2020 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JULY 2020 SEMIANNUAL REPORT

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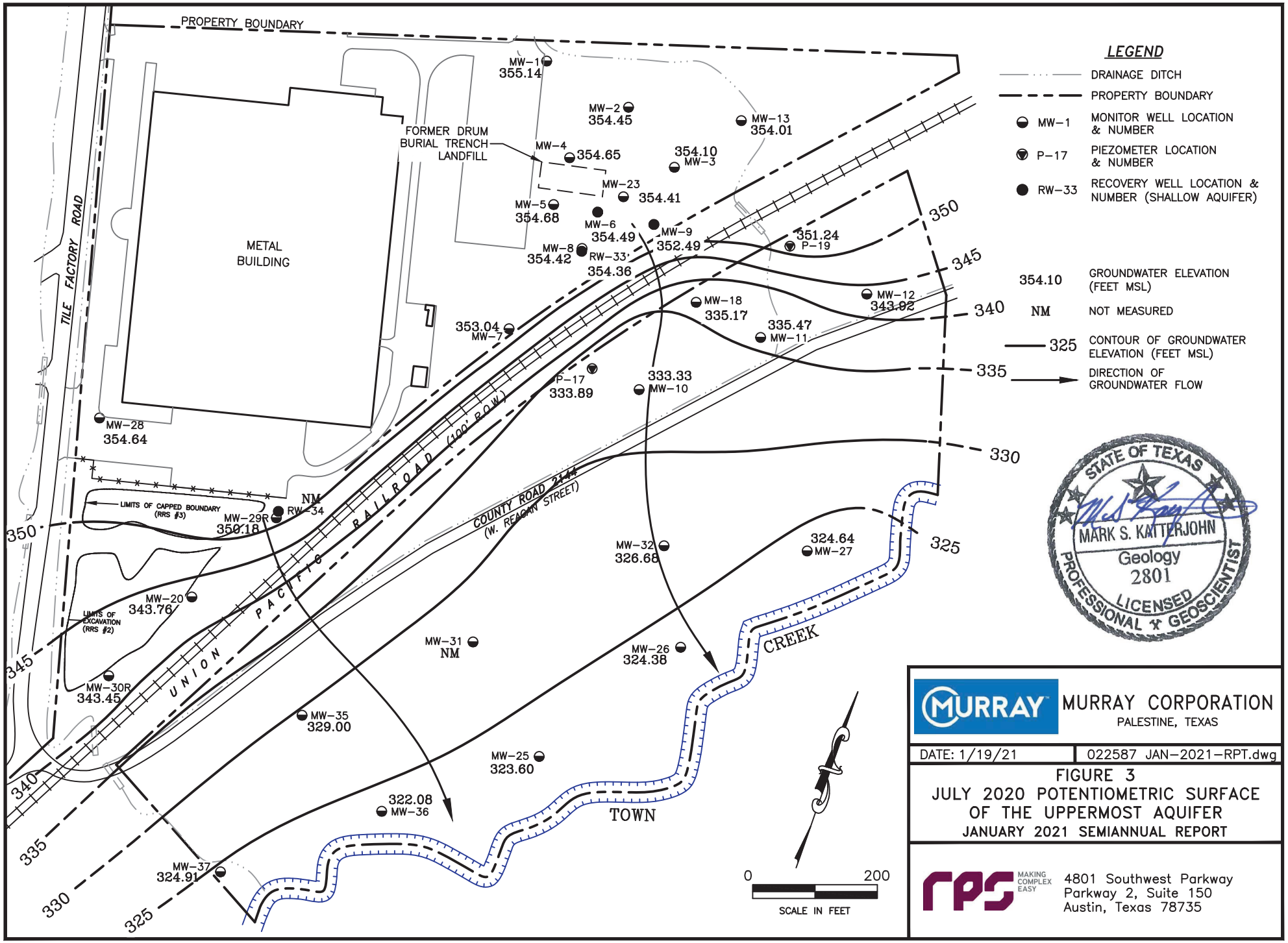

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FIGURE 3
JULY 2020 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
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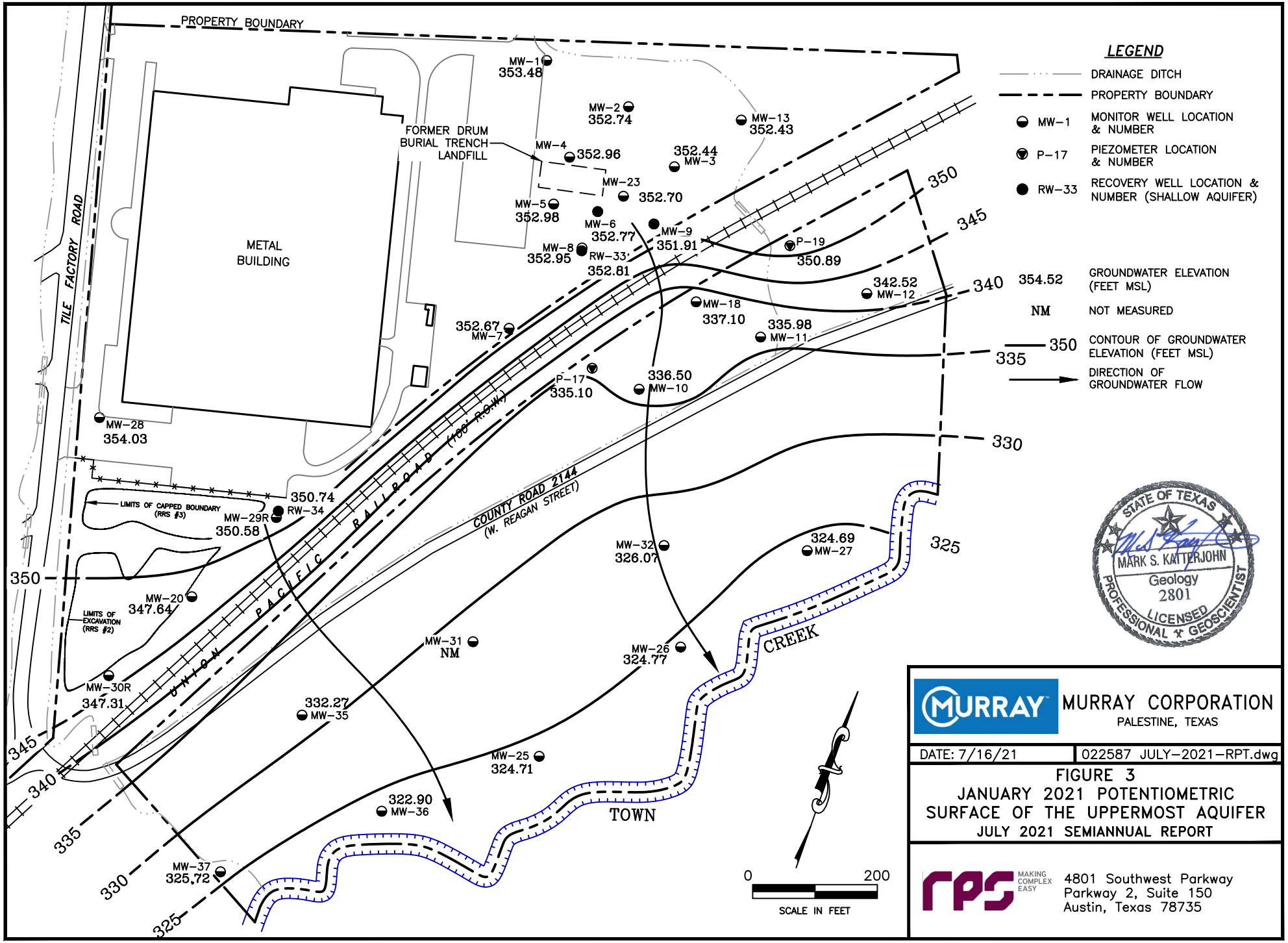

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FIGURE 3
JANUARY 2021 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JULY 2021 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
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Austin, Texas 78735

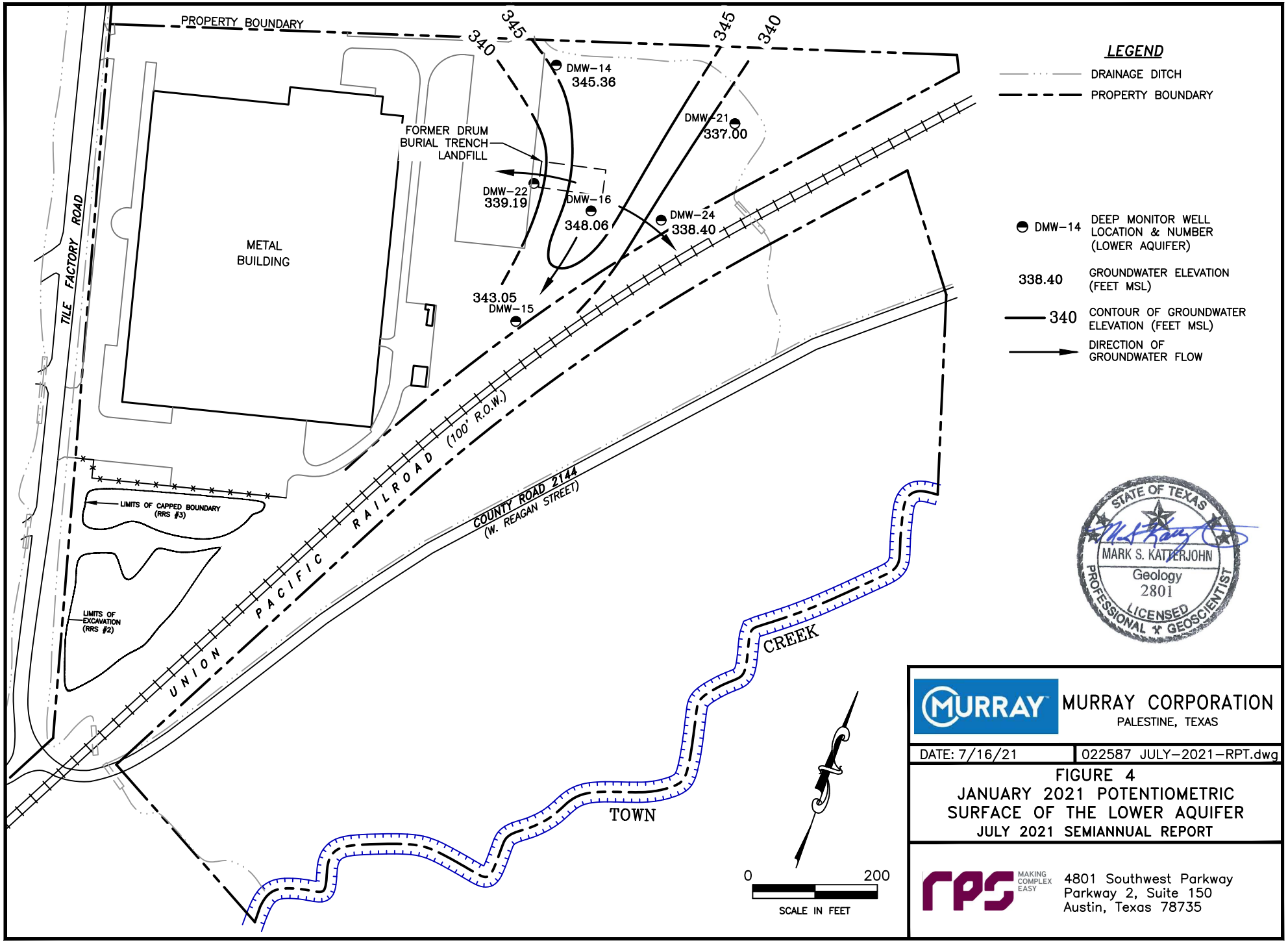

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FIGURE 4
JANUARY 2021 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JULY 2021 SEMIANNUAL REPORT

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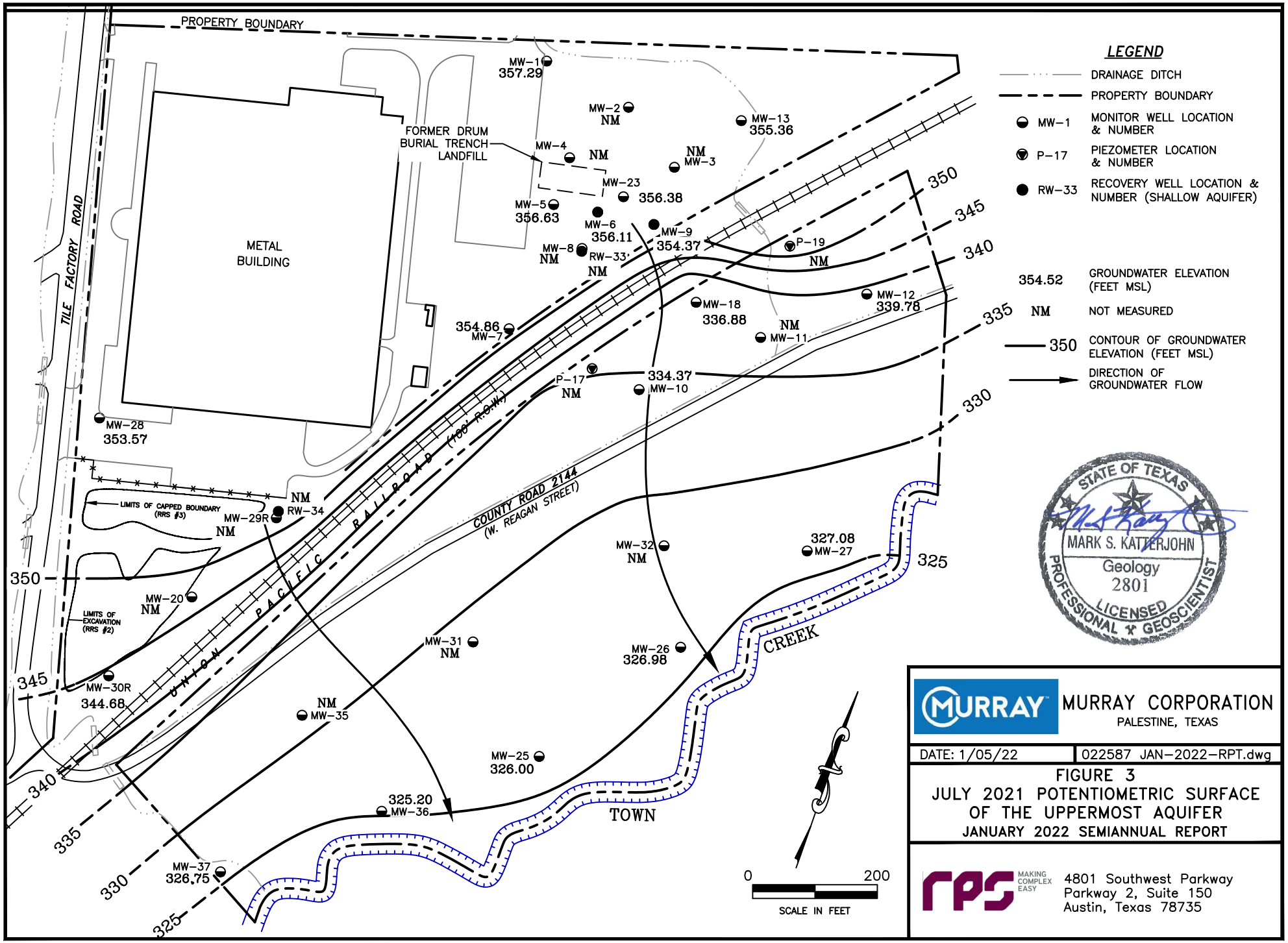

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FIGURE 3
JULY 2021 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2022 SEMIANNUAL REPORT

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4801 Southwest Parkway
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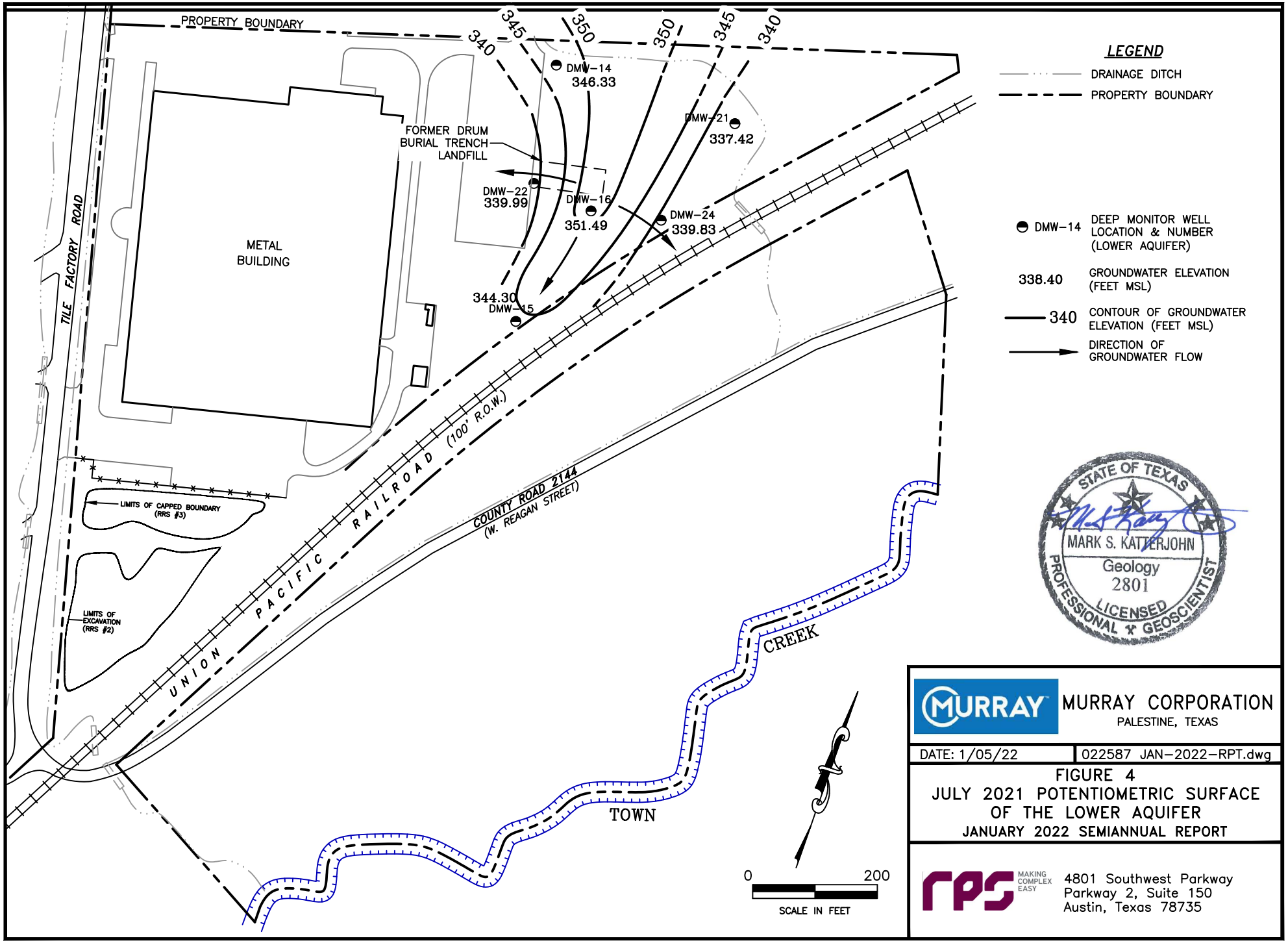

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FIGURE 4
JULY 2021 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JANUARY 2022 SEMIANNUAL REPORT

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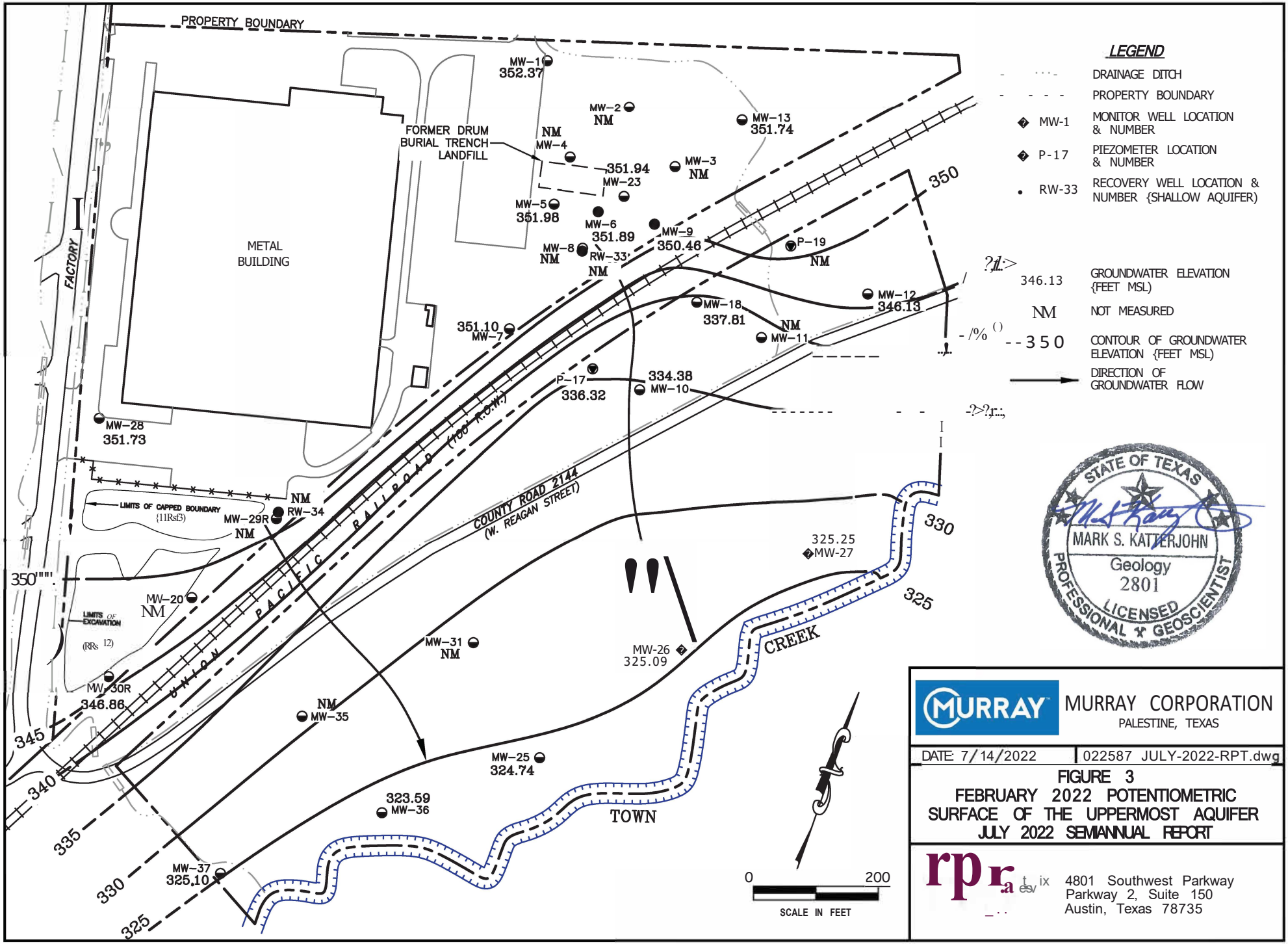

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FIGURE 3
FEBRUARY 2022 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
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4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

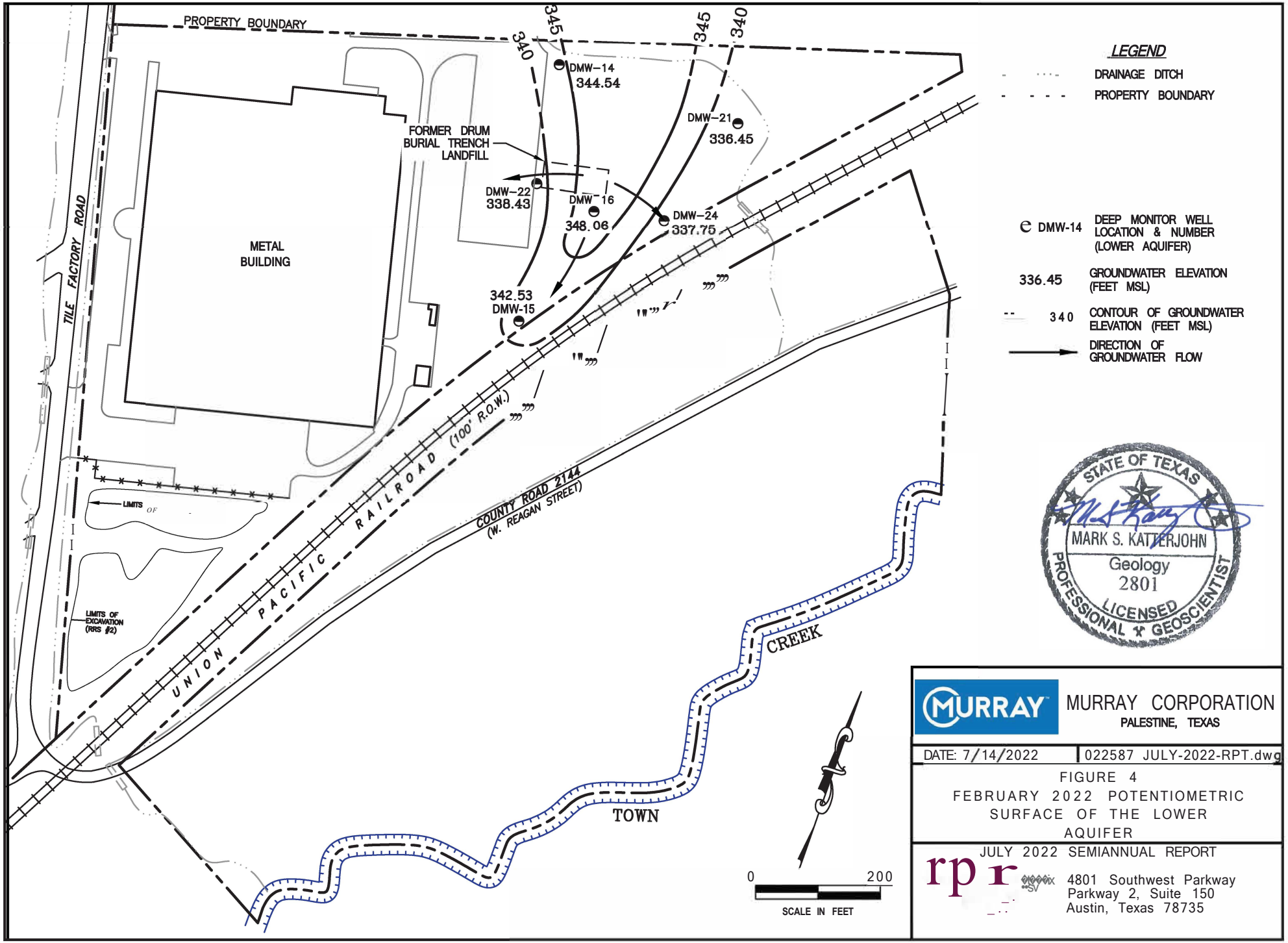

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FIGURE 4
FEBRUARY 2022 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER

JULY 2022 SEMIANNUAL REPORT

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4801 Southwest Parkway
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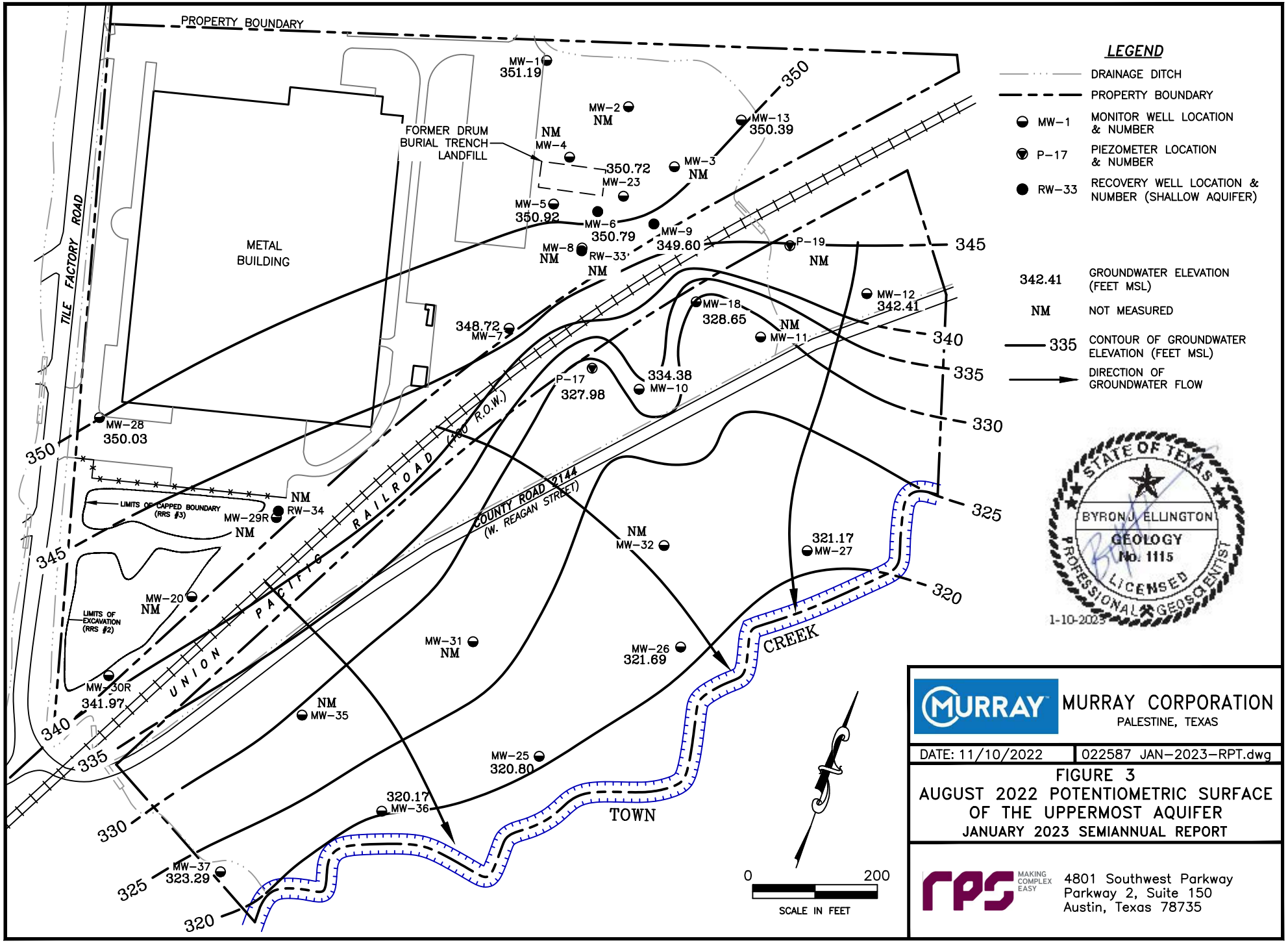

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FIGURE 3
AUGUST 2022 POTENTIOMETRIC SURFACE OF THE UPPERMOST AQUIFER
JANUARY 2023 SEMIANNUAL REPORT

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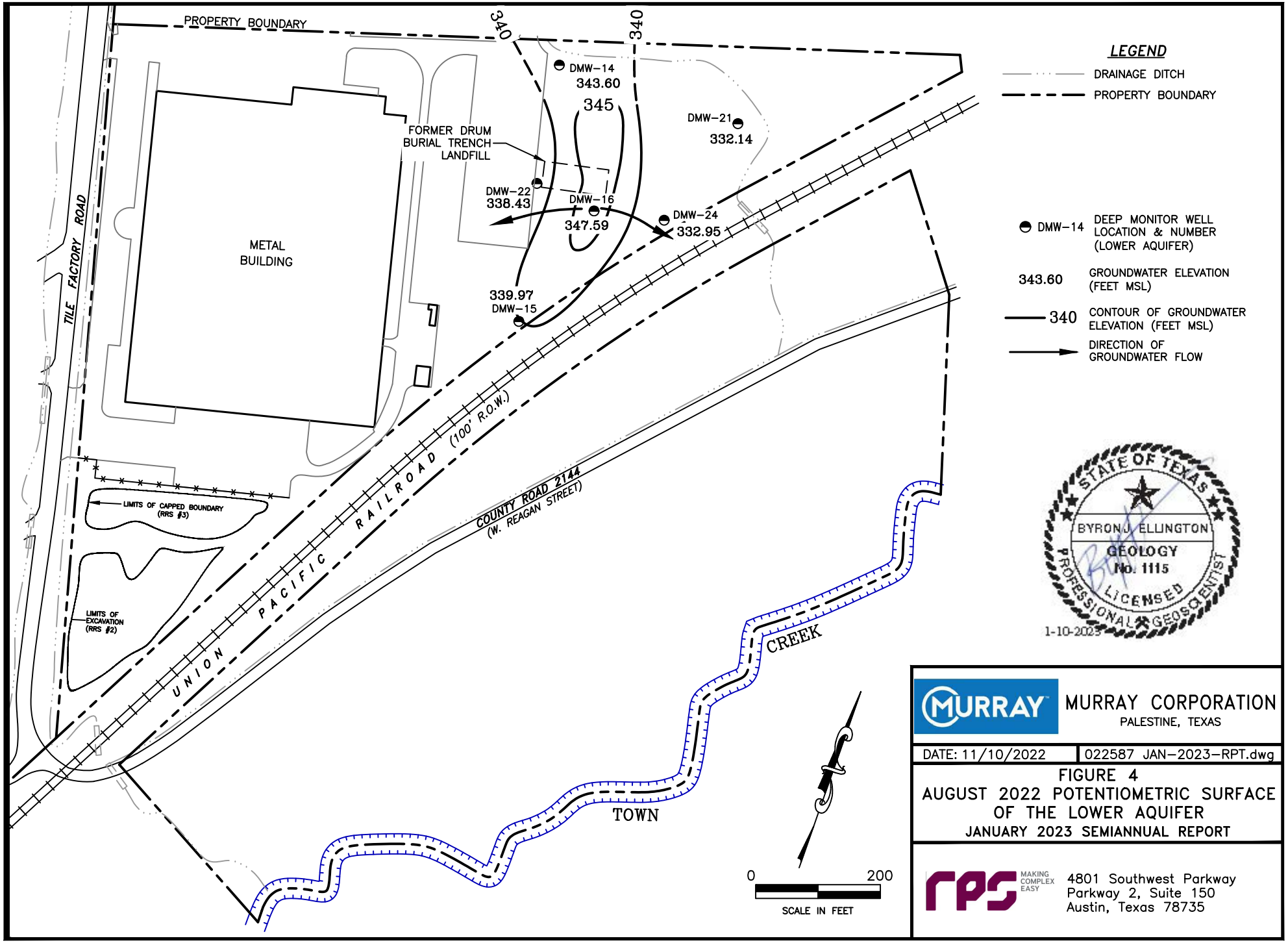

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FIGURE 4
AUGUST 2022 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JANUARY 2023 SEMIANNUAL REPORT

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FIGURE 3

Isopleth Concentration Maps

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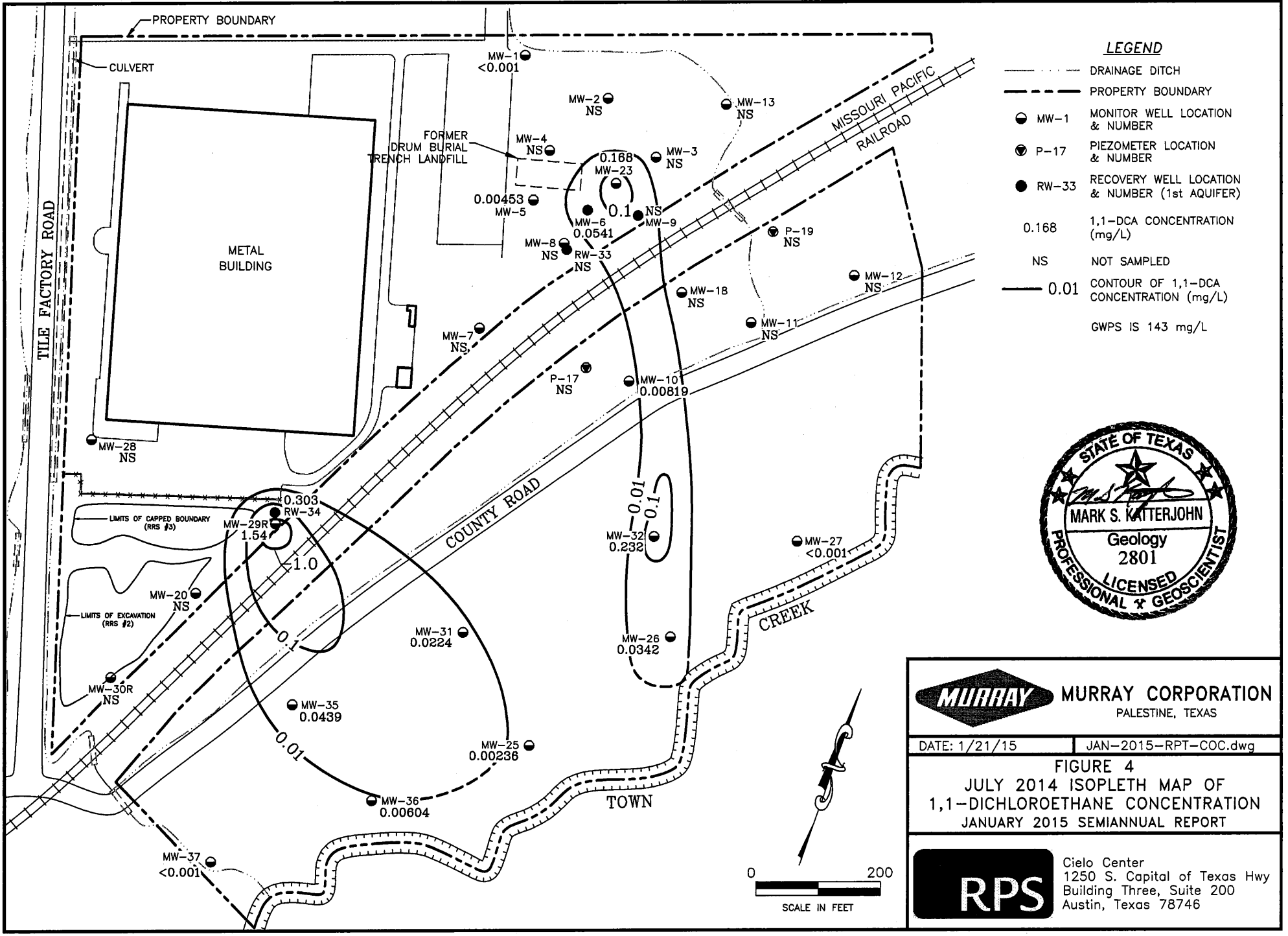

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.168 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)
- GWPS IS 143 mg/L

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FIGURE 4
JULY 2014 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
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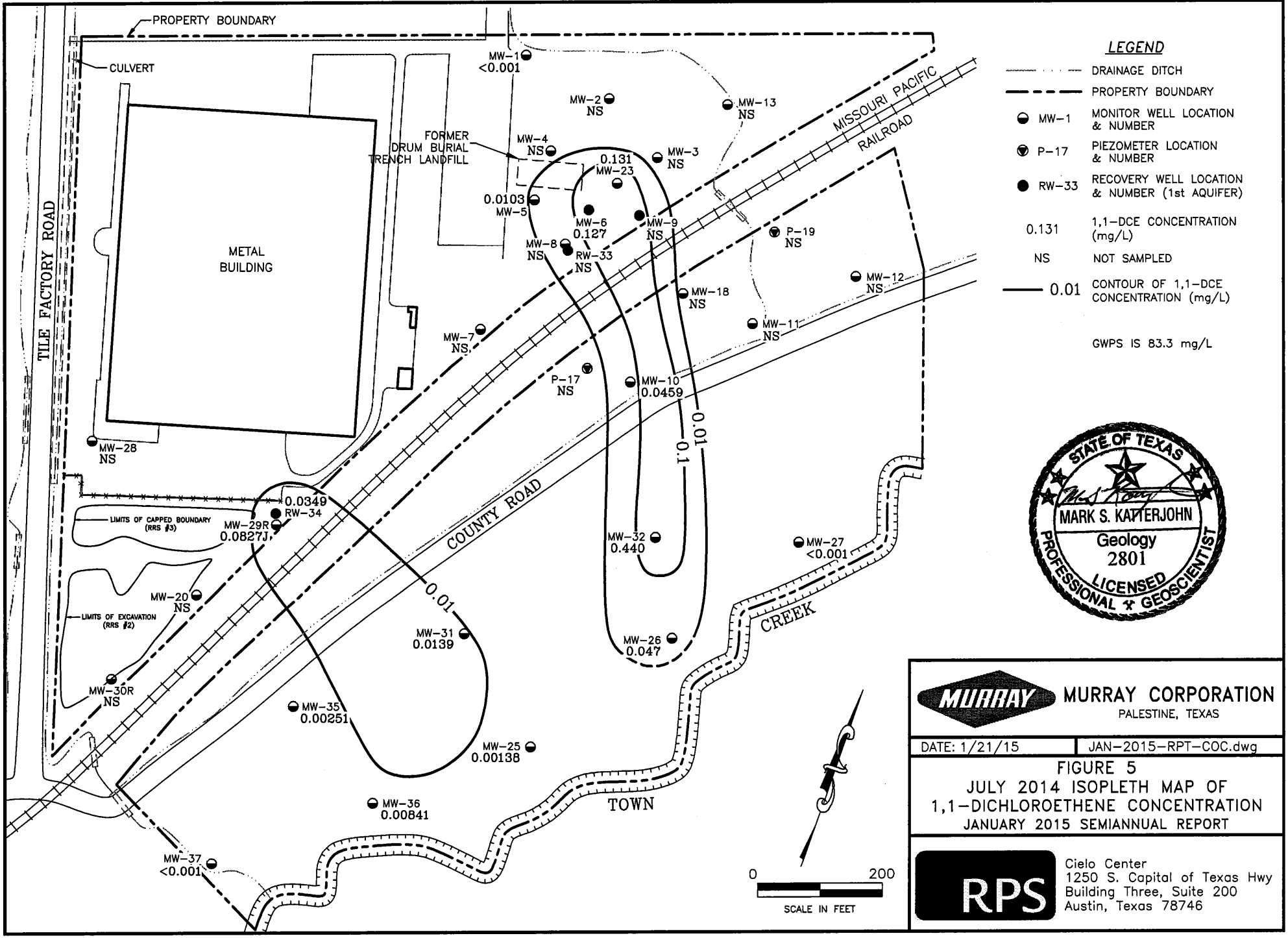

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.131 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 5
JULY 2014 ISOPLETH MAP OF
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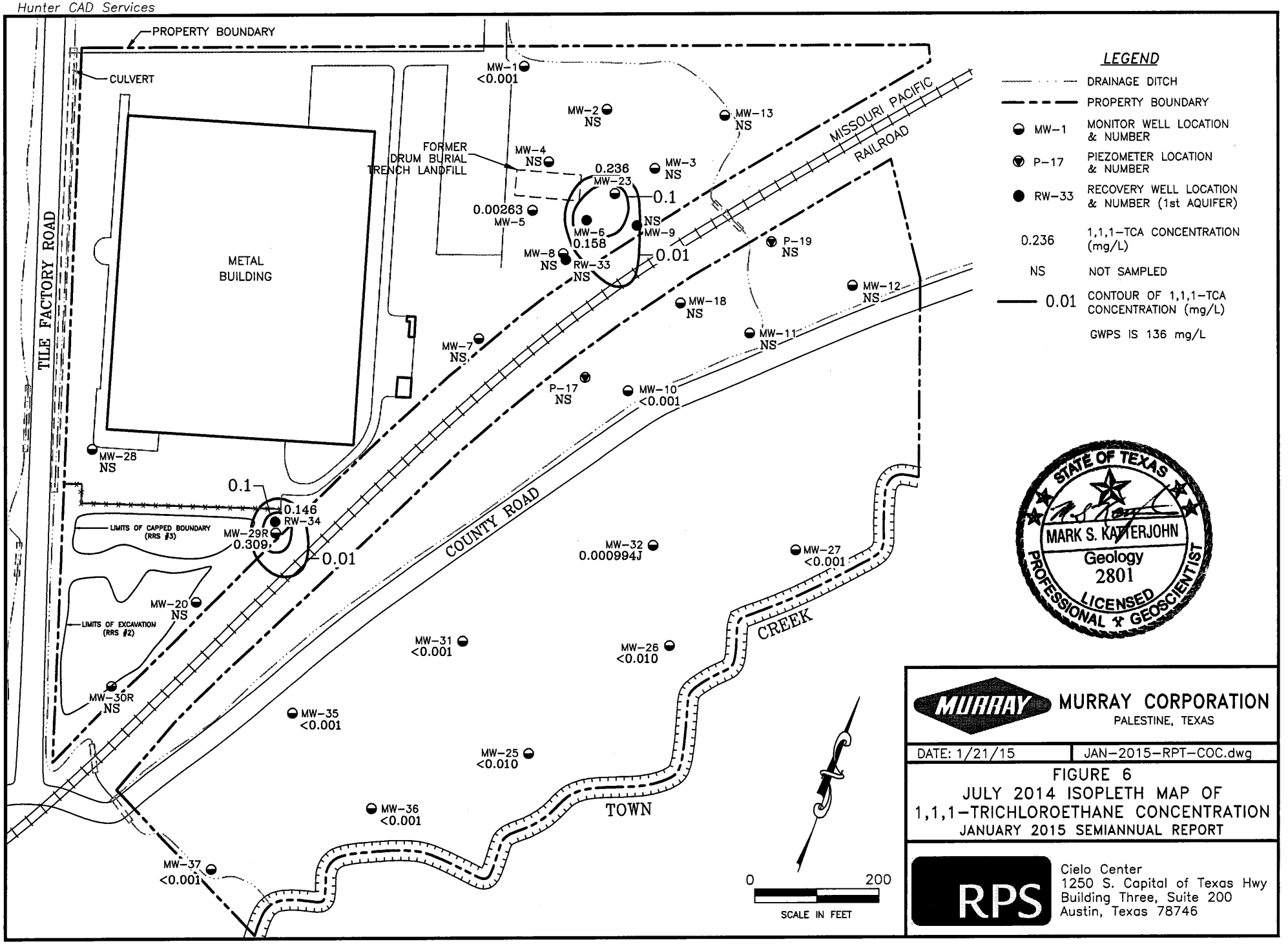

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.236 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)
- GWPS IS 136 mg/L

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FIGURE 6
JULY 2014 ISOPLETH MAP OF 1,1,1-TRICHLOROETHANE CONCENTRATION
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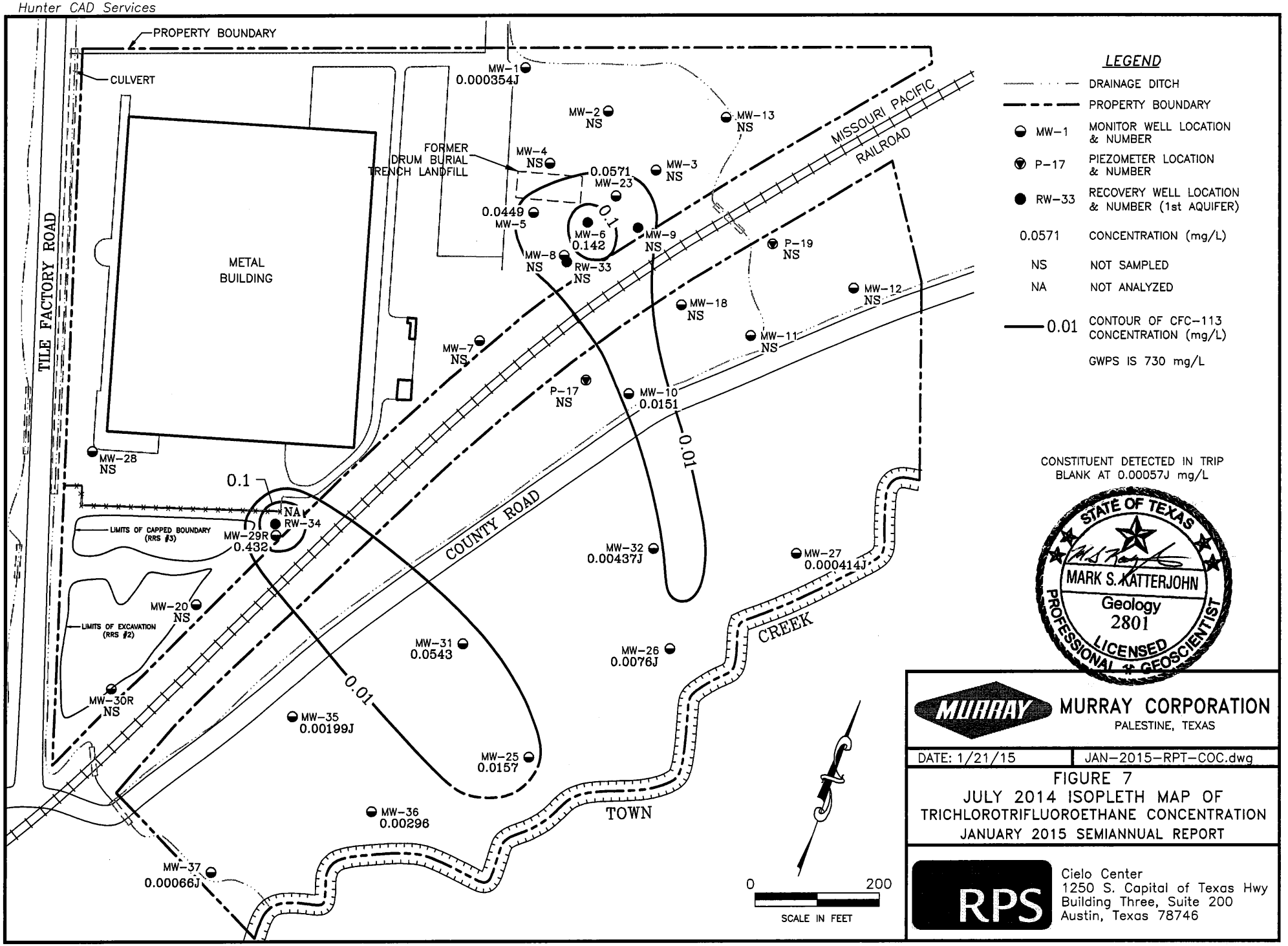

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0571 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)
- GWPS IS 730 mg/L

CONSTITUENT DETECTED IN TRIP BLANK AT 0.00057J mg/L

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FIGURE 7
JULY 2014 ISOPLETH MAP OF
TRICHLOROTRIFLUOROETHANE CONCENTRATION
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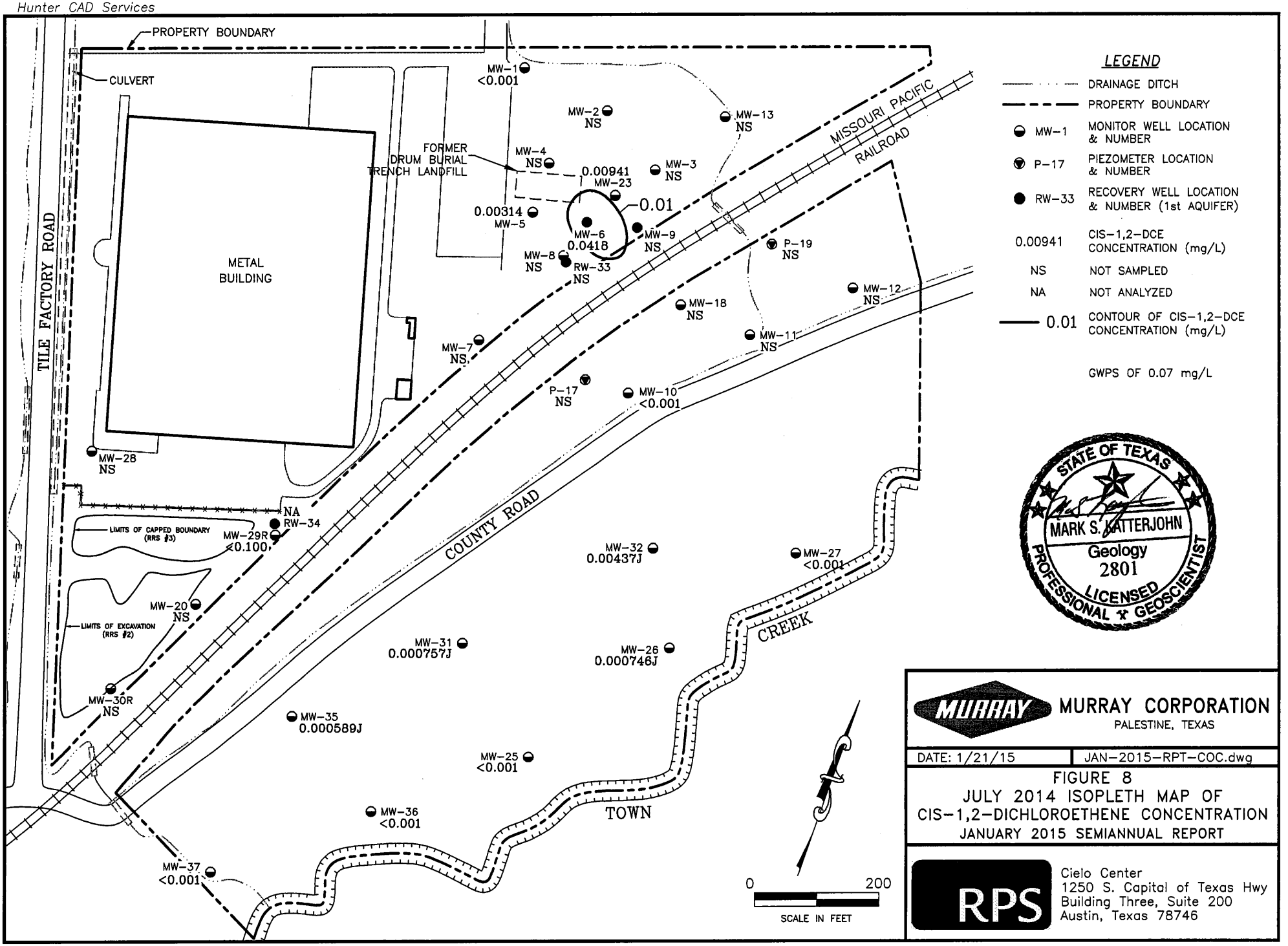

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00941 — CIS-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CIS-1,2-DCE CONCENTRATION (mg/L)

GWPS OF 0.07 mg/L

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FIGURE 8
JULY 2014 ISOPLETH MAP OF
CIS-1,2-DICHLOROETHENE CONCENTRATION
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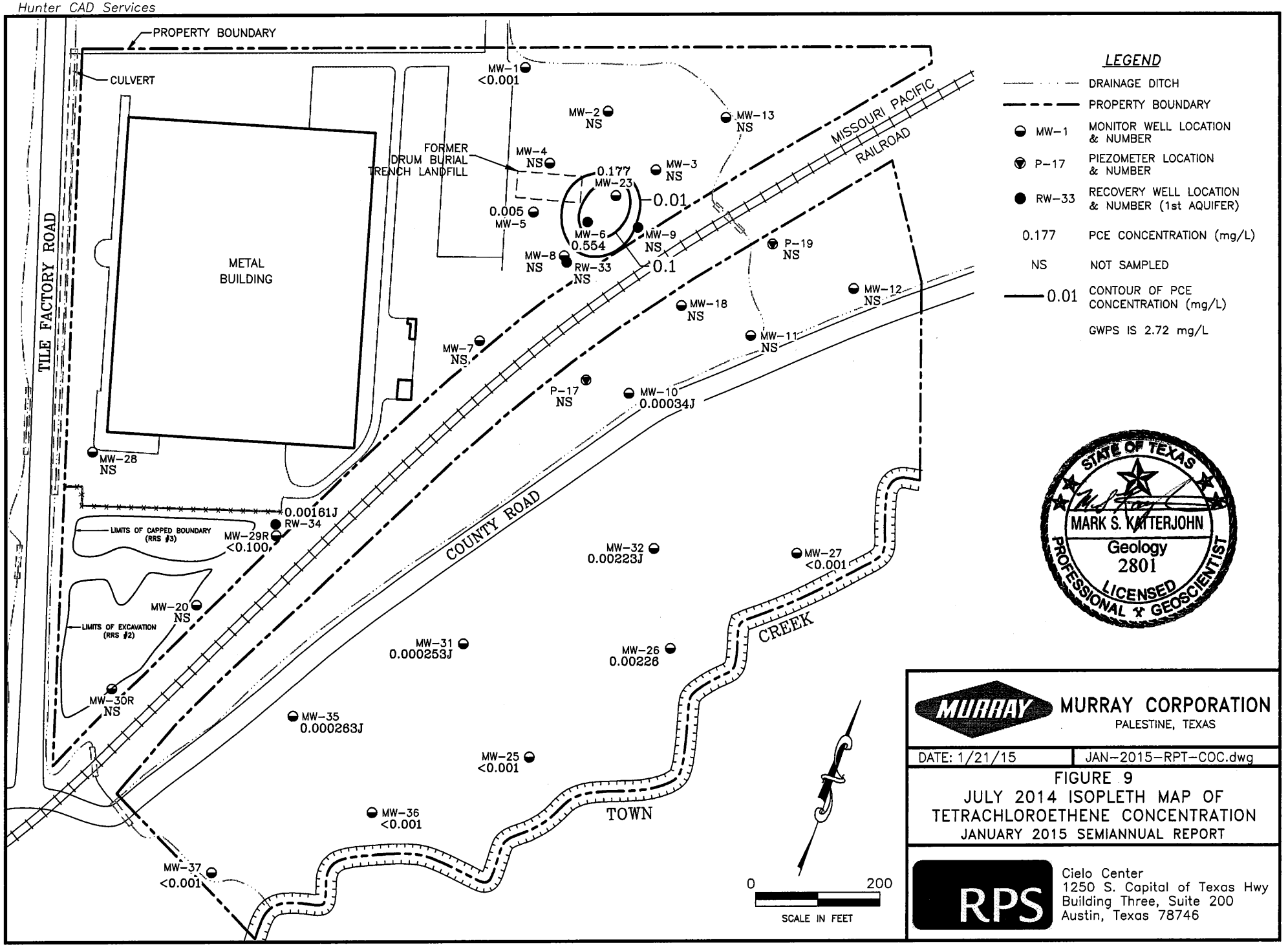

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.177 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L)
- GWPS IS 2.72 mg/L

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FIGURE 9
JULY 2014 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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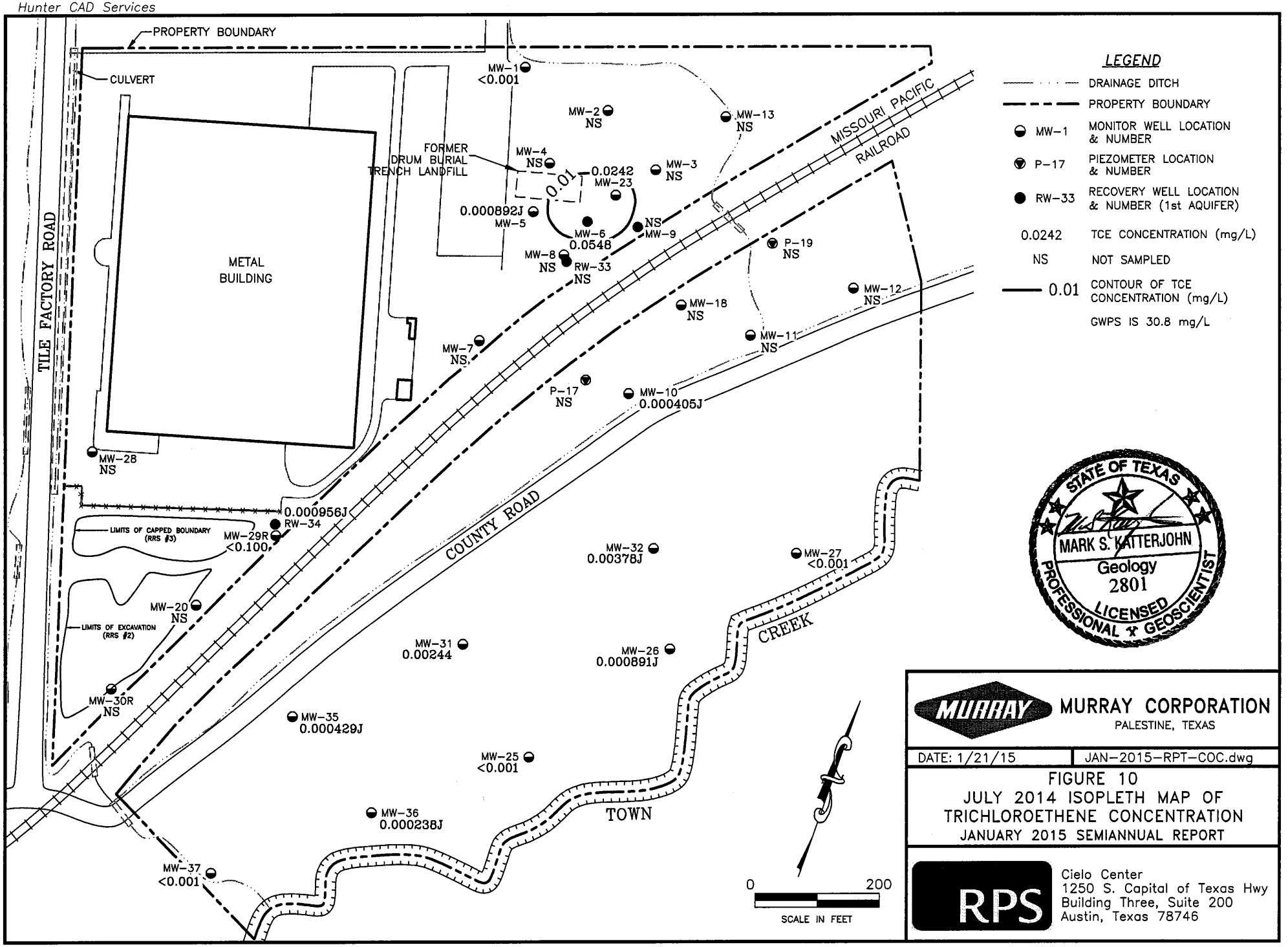

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0242 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 30.8 mg/L

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FIGURE 10
JULY 2014 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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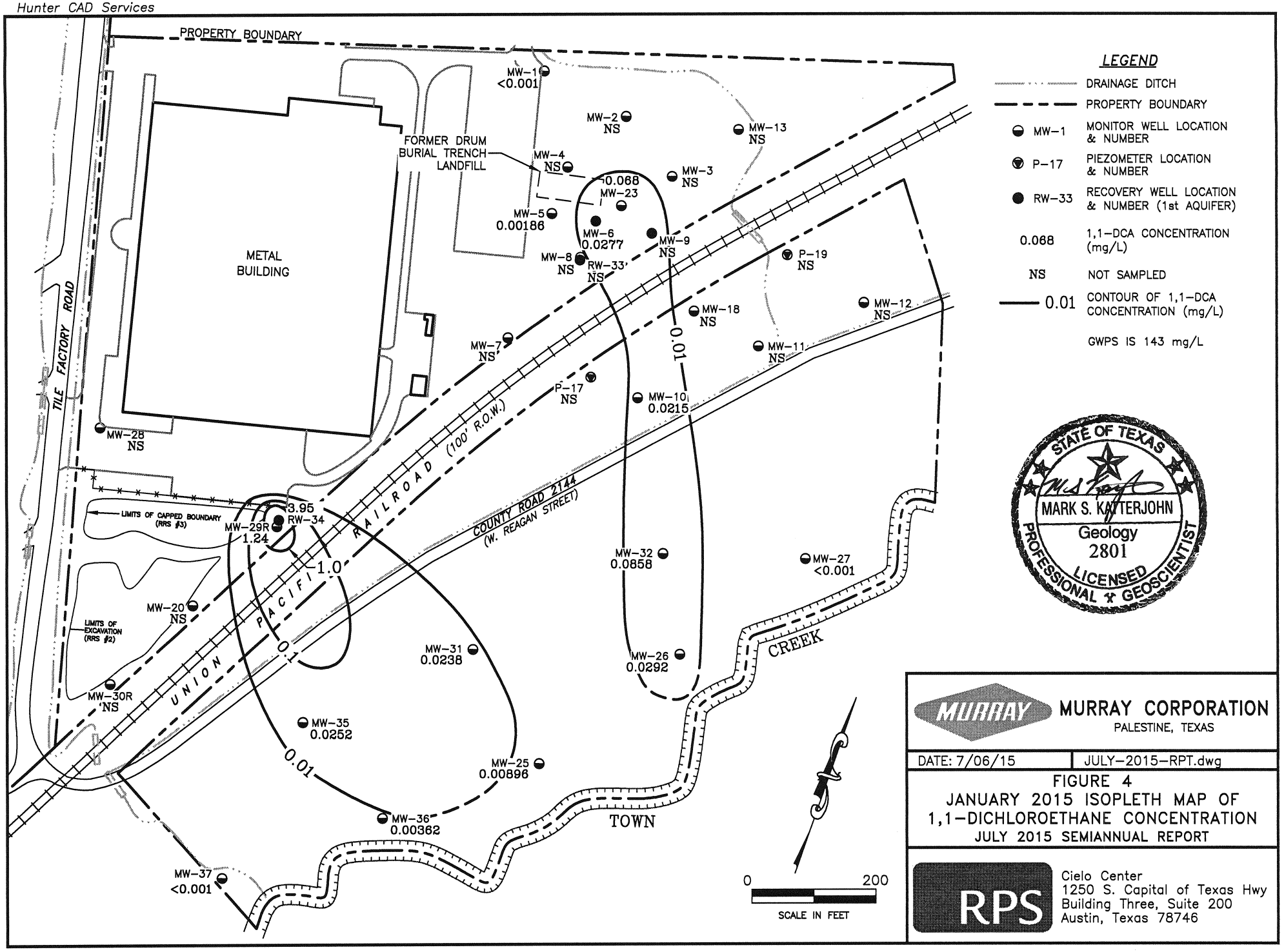

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.068 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)

GWPS IS 143 mg/L

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FIGURE 4
JANUARY 2015 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
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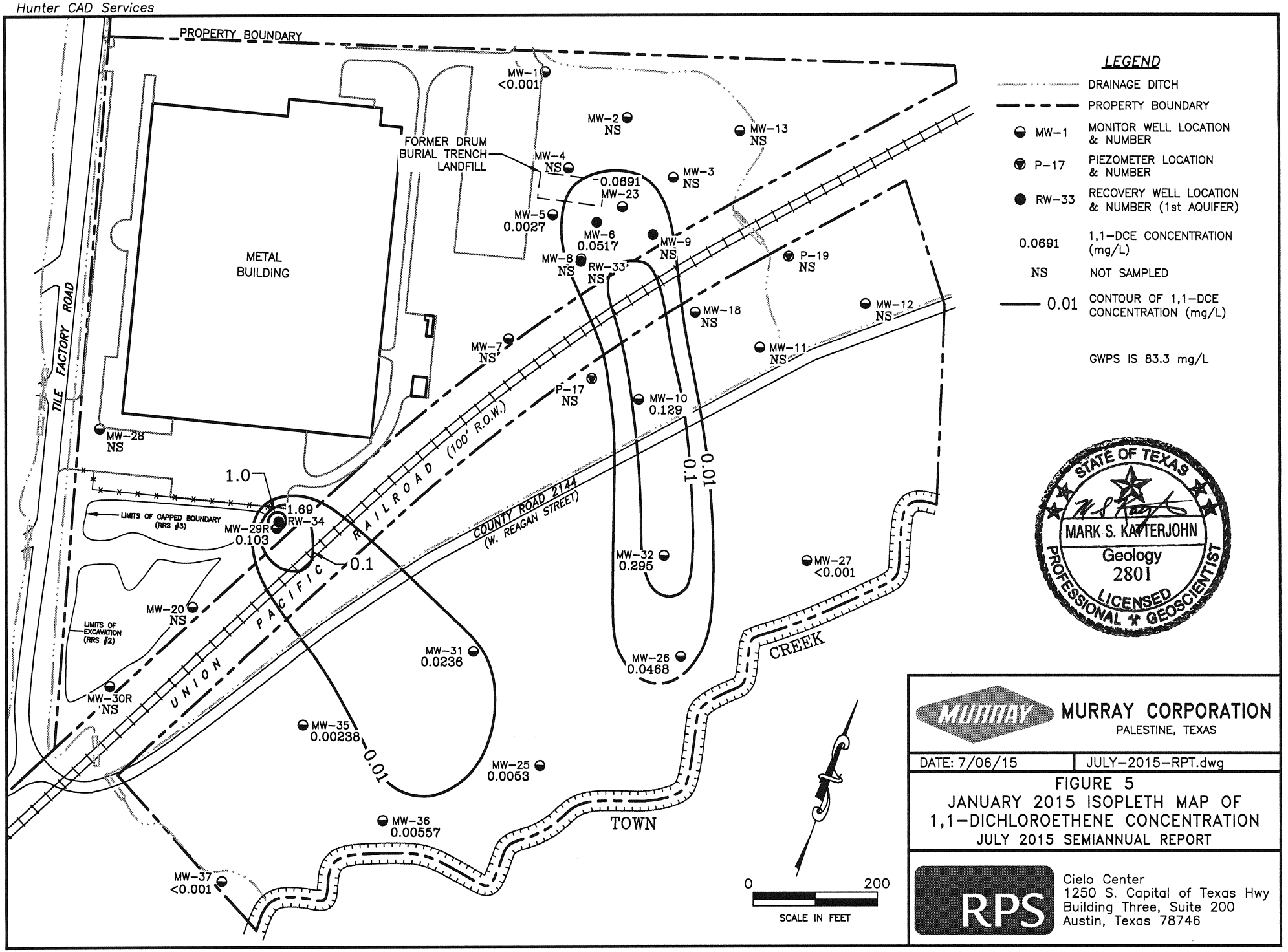

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0691 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 5
JANUARY 2015 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
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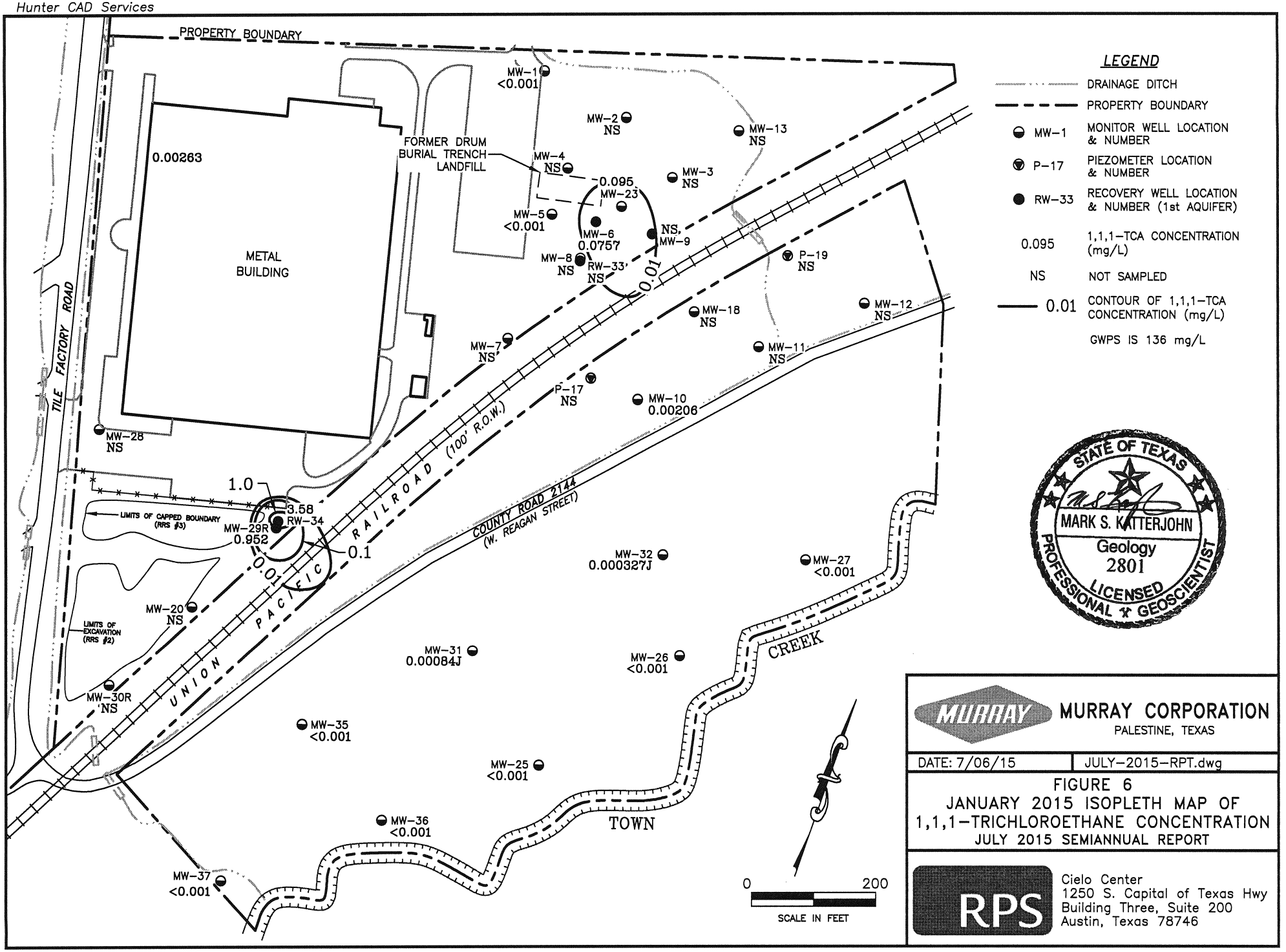

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.095 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)

GWPS IS 136 mg/L

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FIGURE 6
JANUARY 2015 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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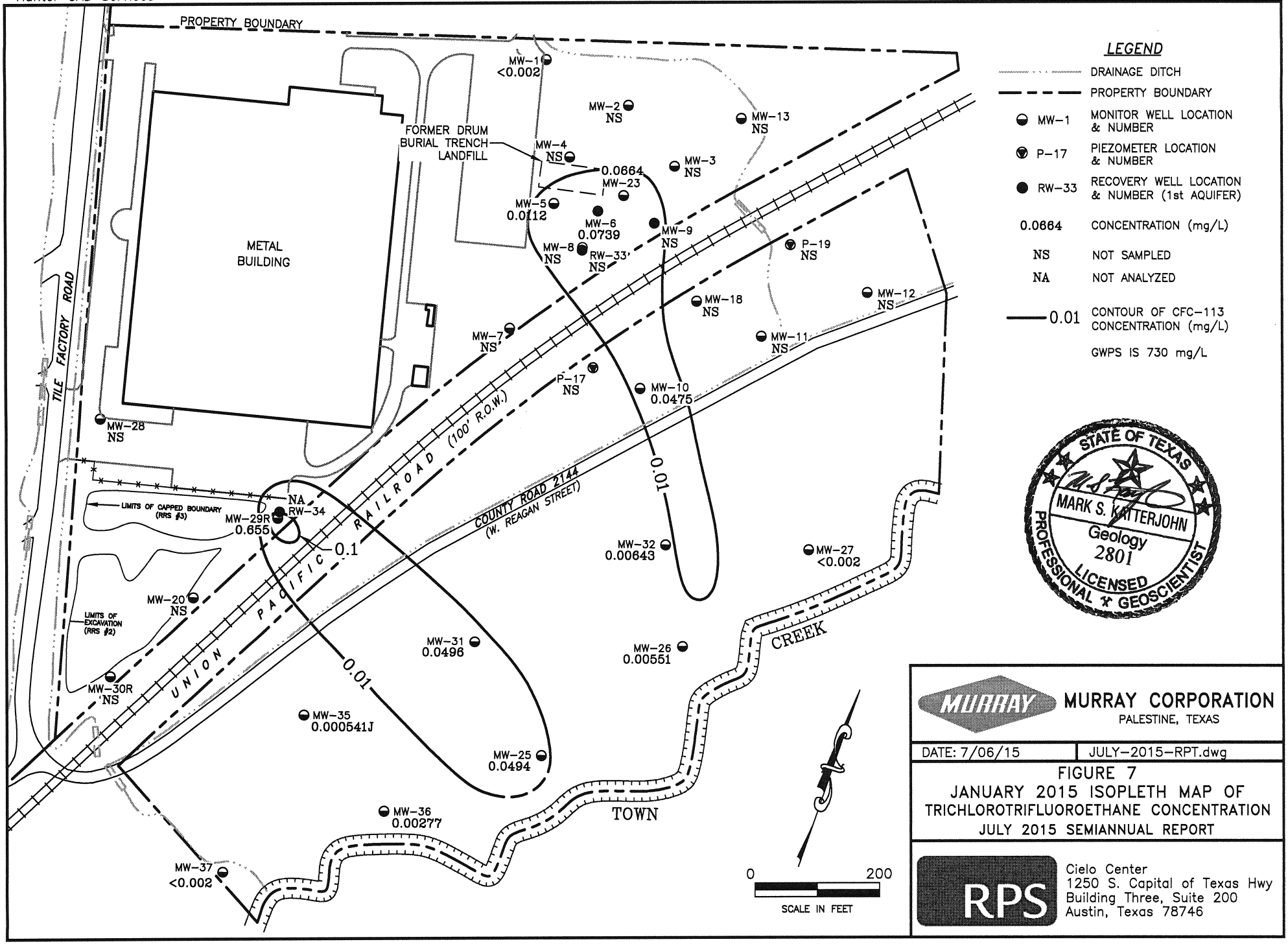

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0664 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)
- GWPS IS 730 mg/L

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FIGURE 7
JANUARY 2015 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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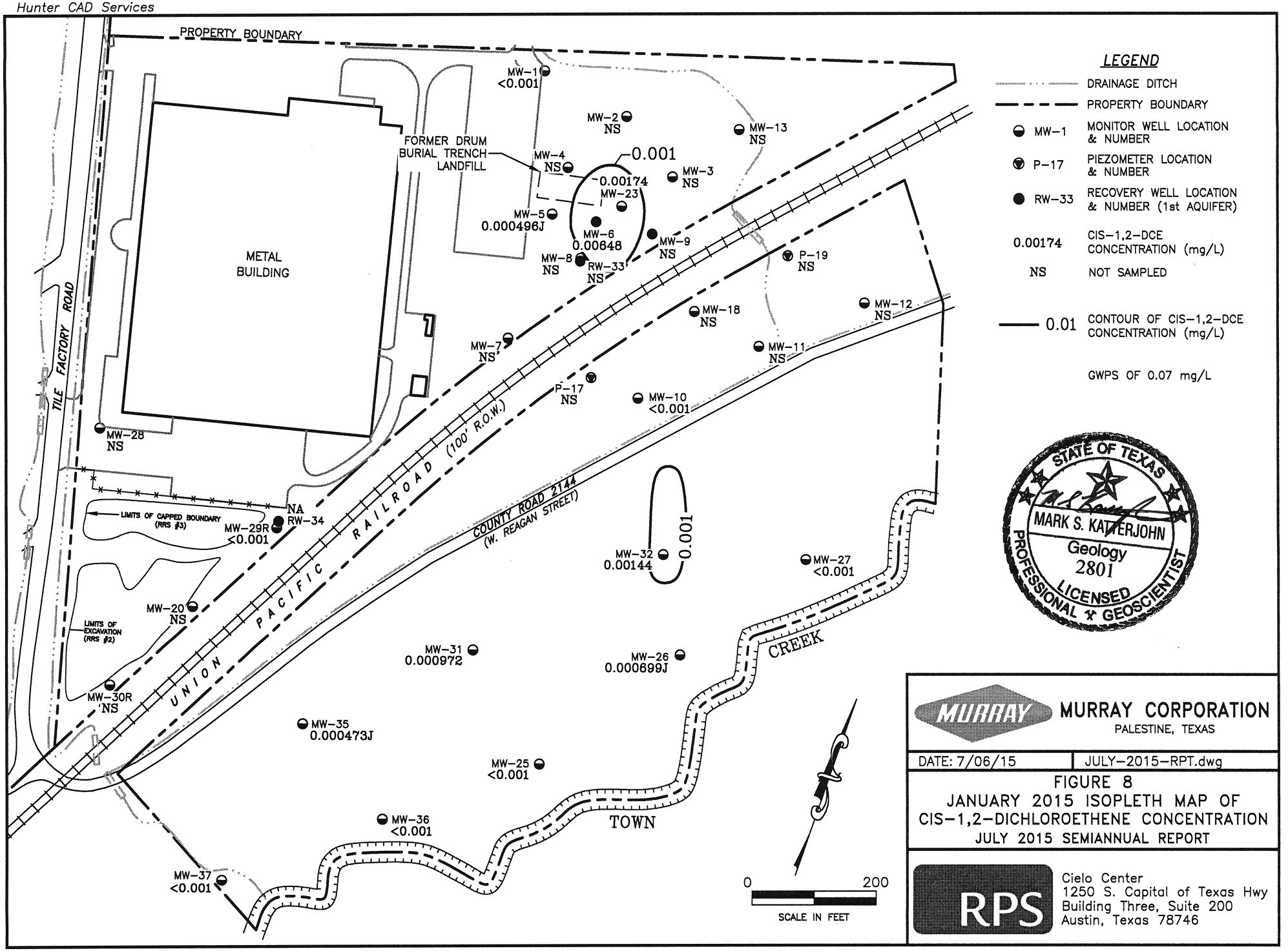

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00174 — CIS-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF CIS-1,2-DCE CONCENTRATION (mg/L)
- GWPS OF 0.07 mg/L

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FIGURE 8
JANUARY 2015 ISOPLETH MAP OF
CIS-1,2-DICHLOROETHENE CONCENTRATION
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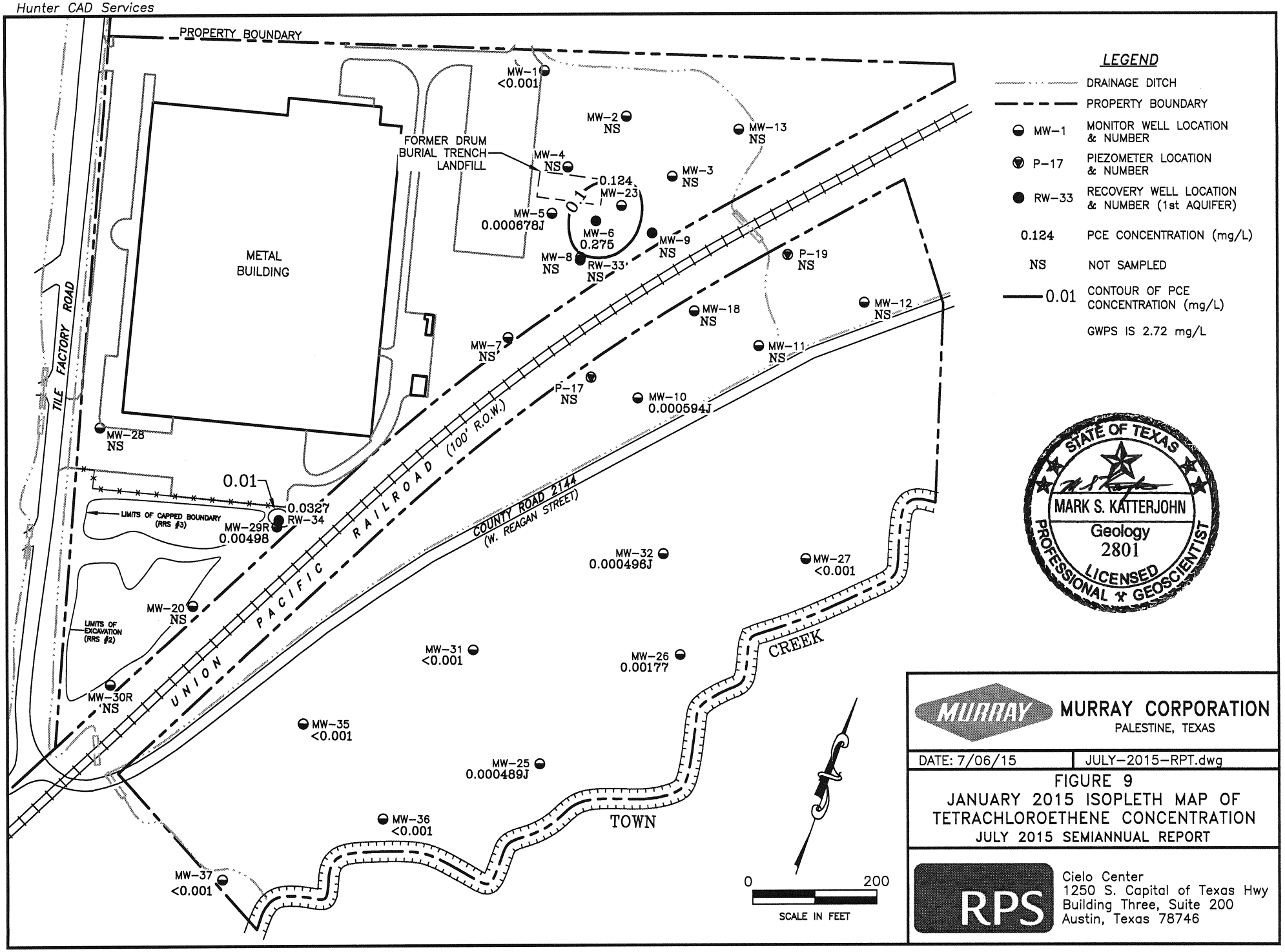

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.124 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L)

GWPS IS 2.72 mg/L

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FIGURE 9
JANUARY 2015 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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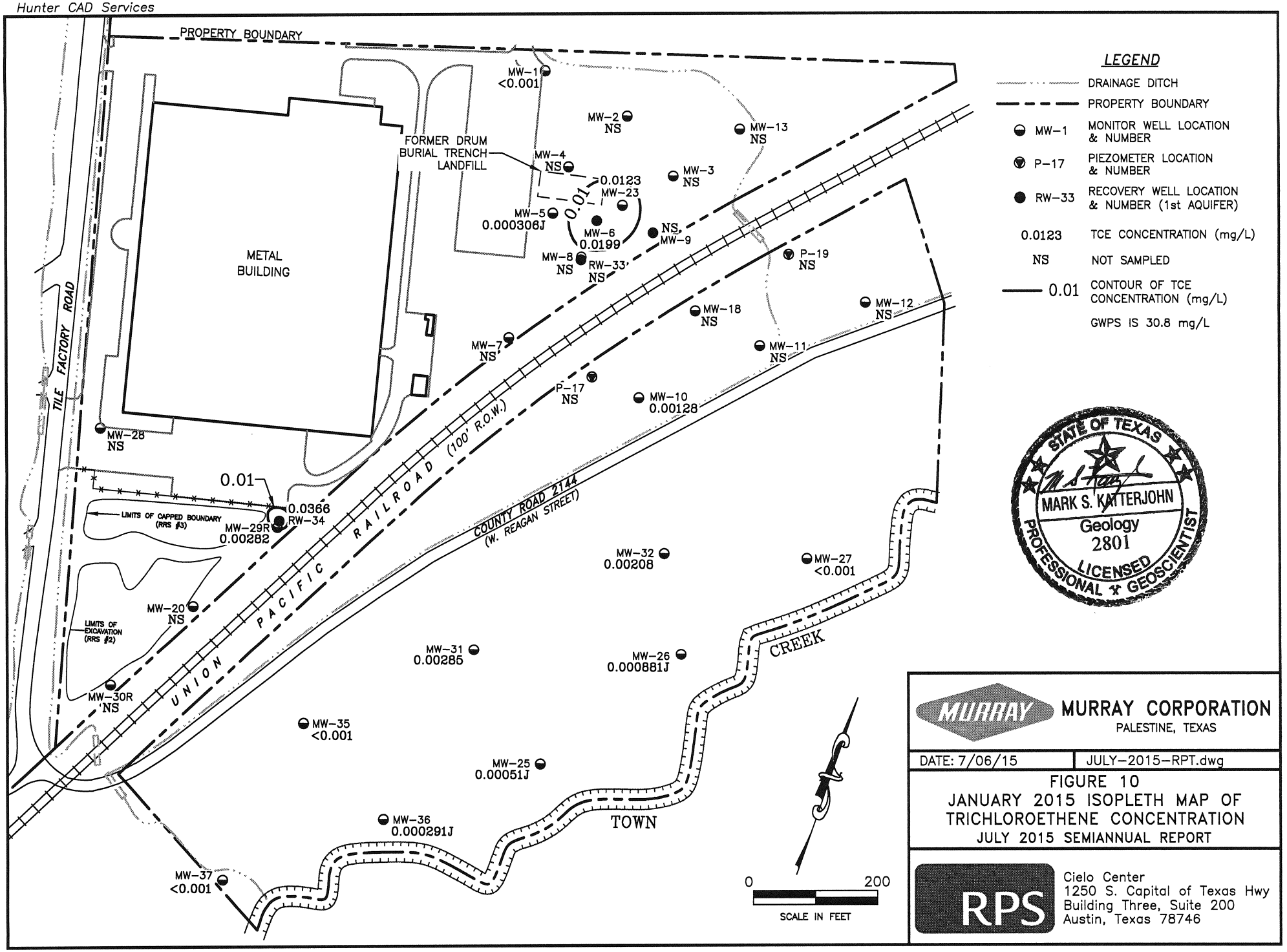

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0123 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)

GWPS IS 30.8 mg/L

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FIGURE 10
JANUARY 2015 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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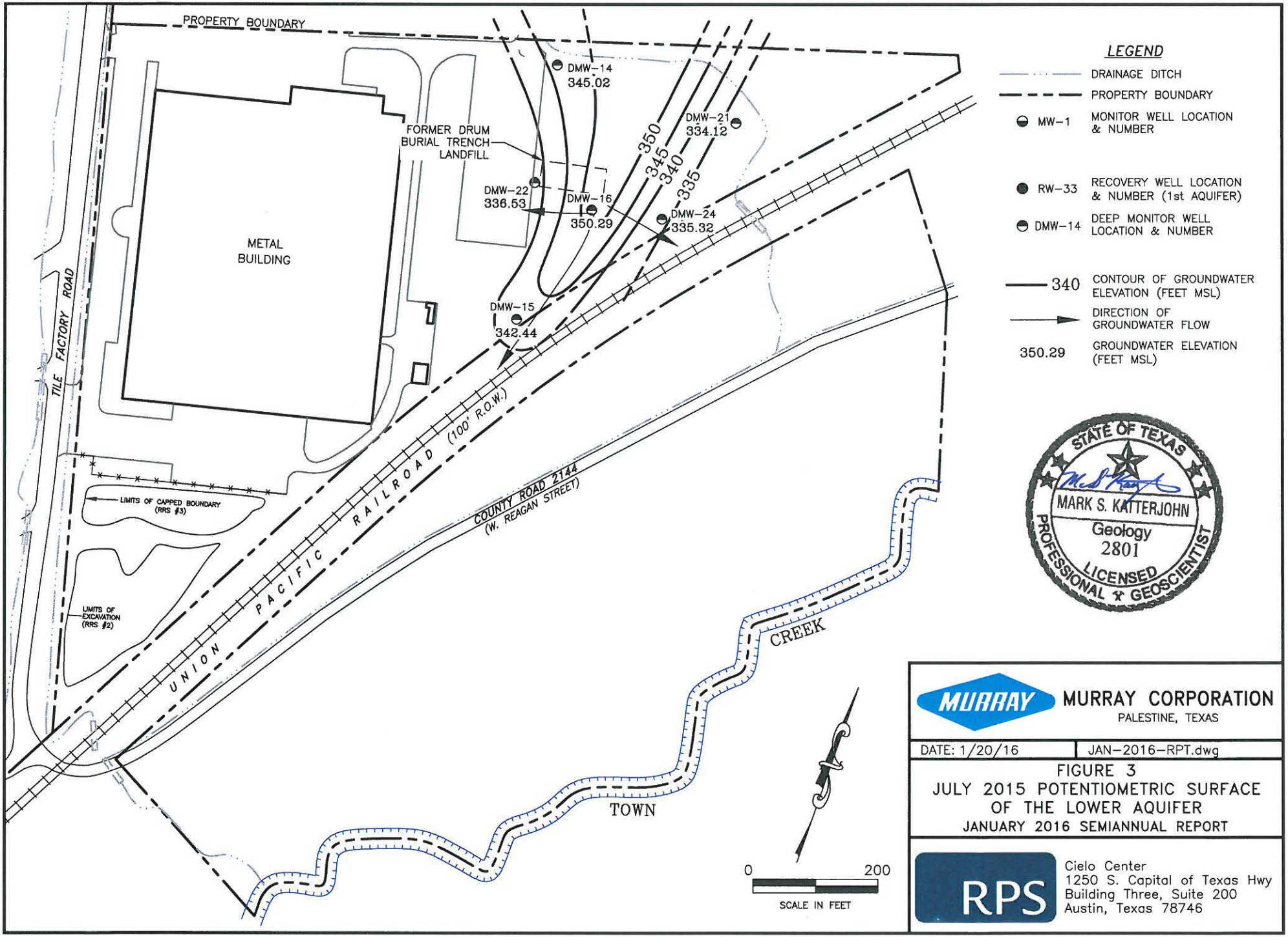

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FIGURE 3
JULY 2015 POTENTIOMETRIC SURFACE
OF THE LOWER AQUIFER
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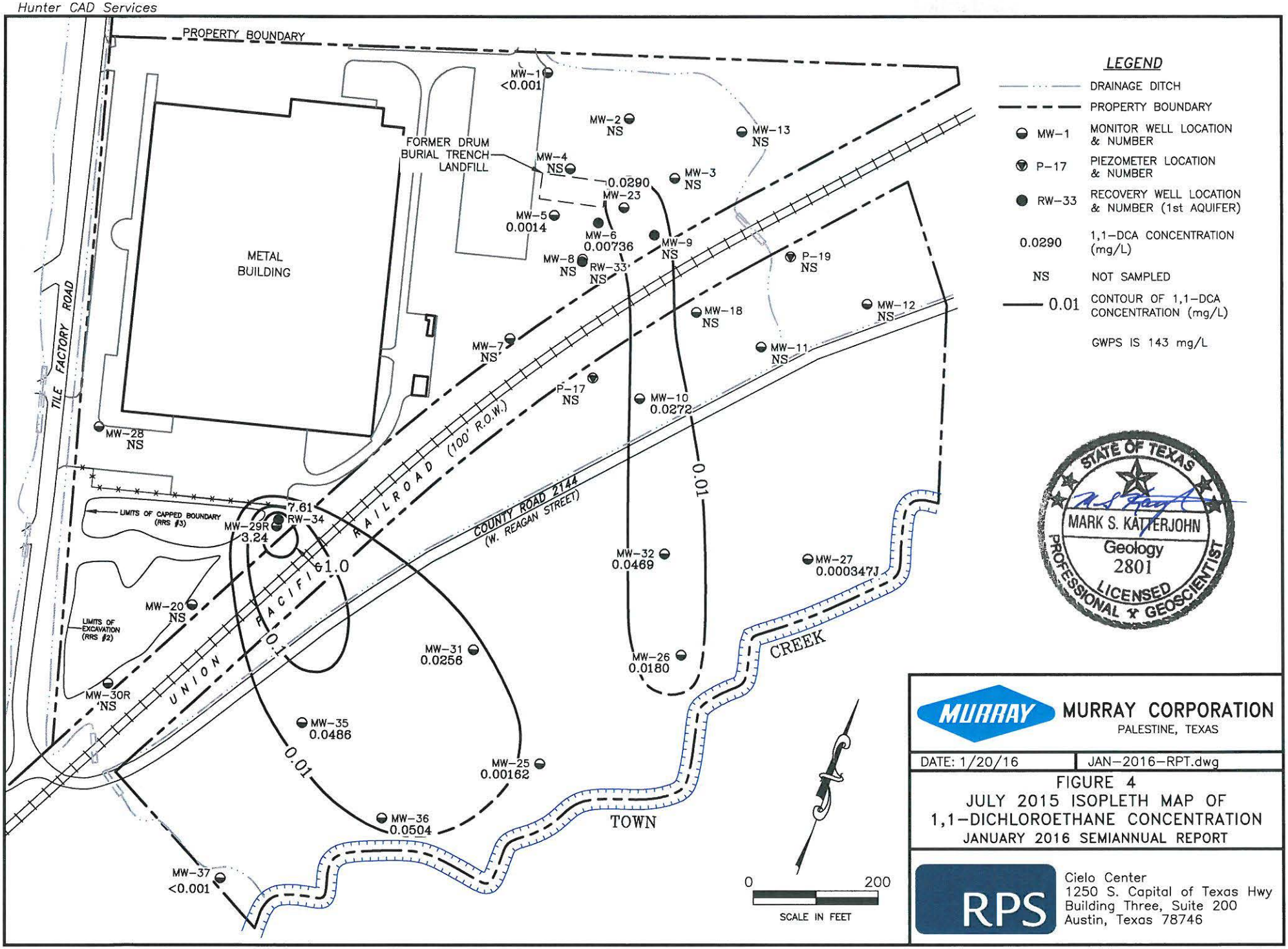

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0290 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)
- GWPS IS 143 mg/L

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FIGURE 4
JULY 2015 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
JANUARY 2016 SEMIANNUAL REPORT

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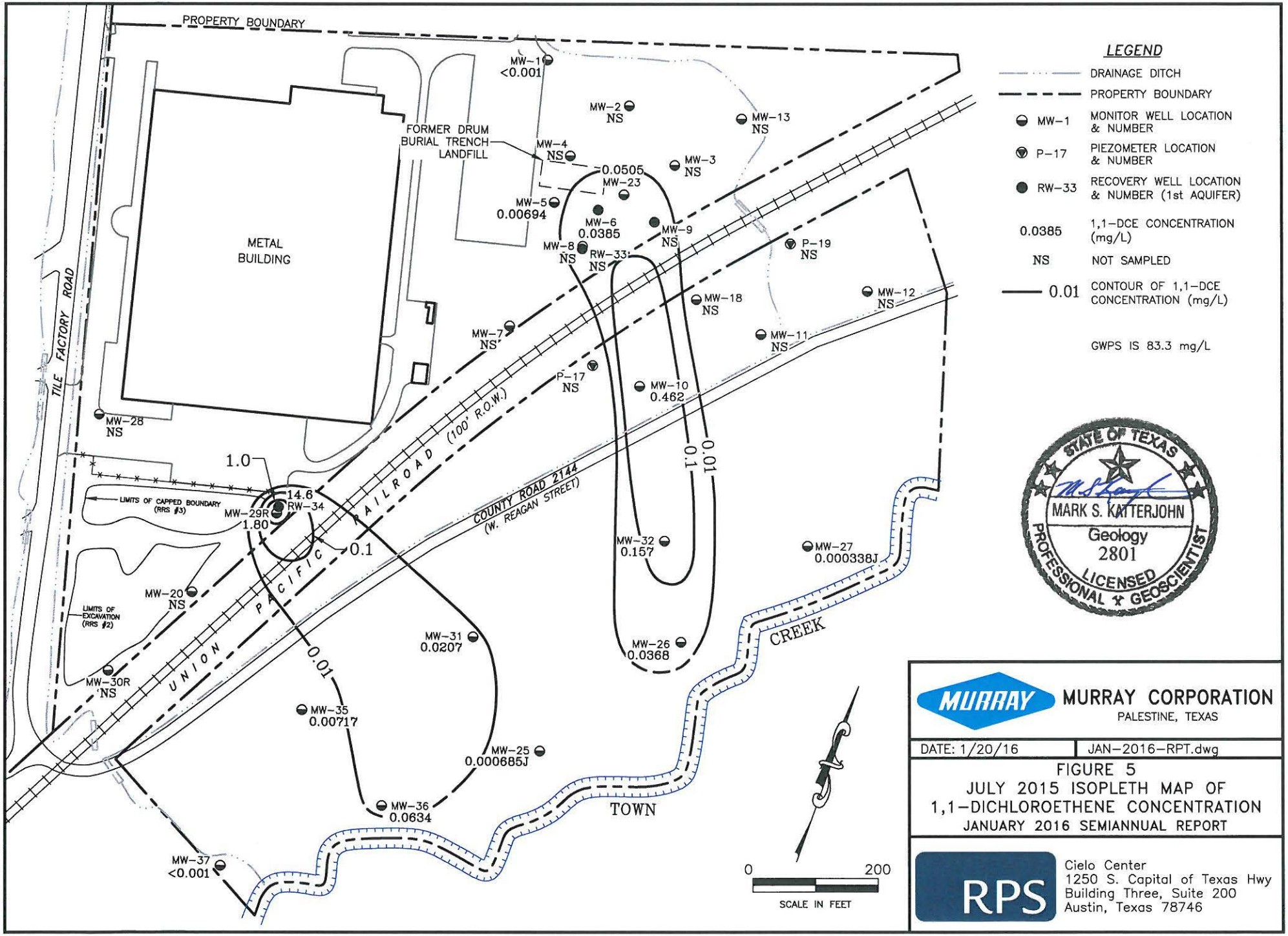

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0385 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 5
JULY 2015 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
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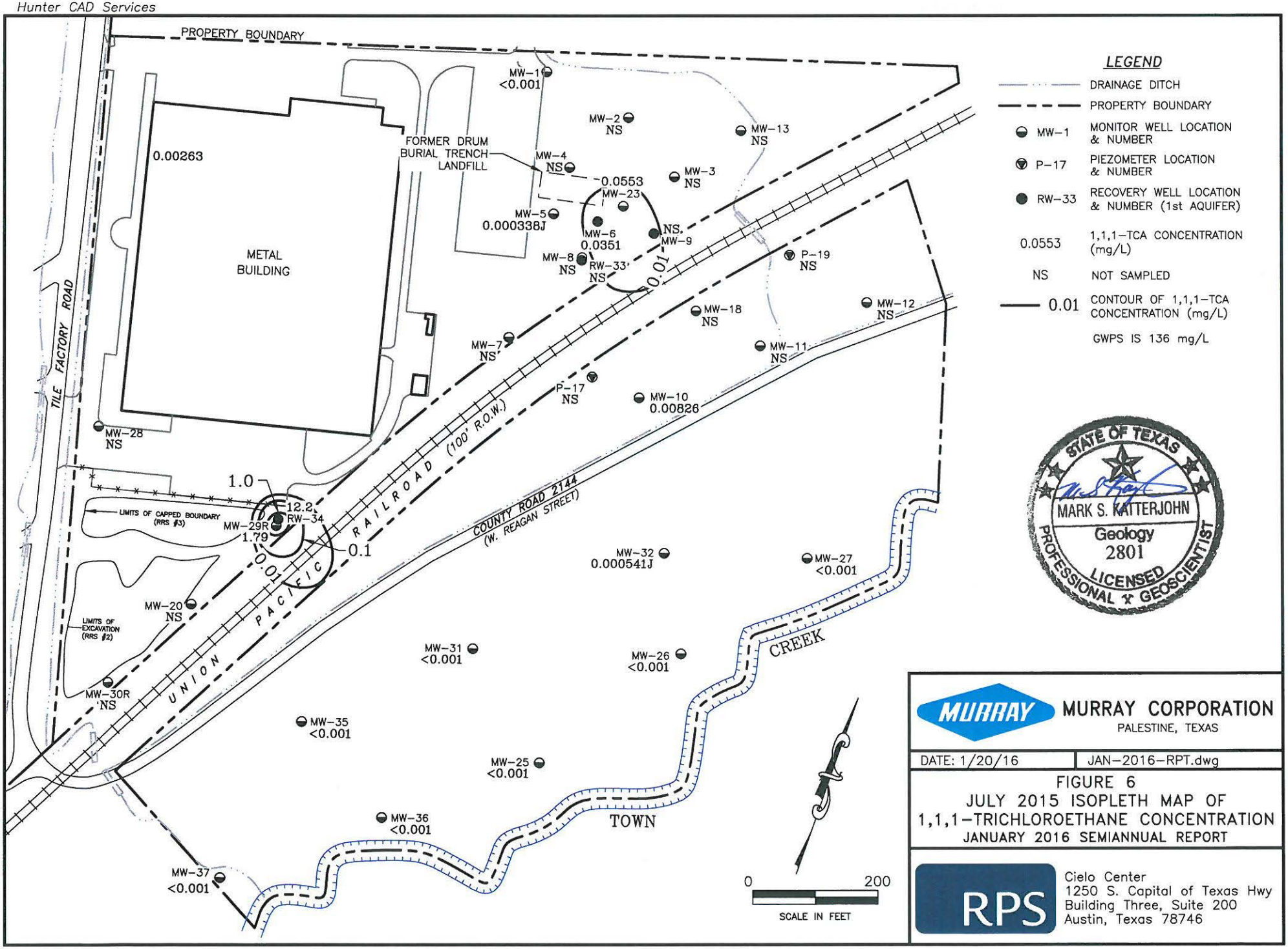

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0553 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)
- GWPS IS 136 mg/L

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FIGURE 6
JULY 2015 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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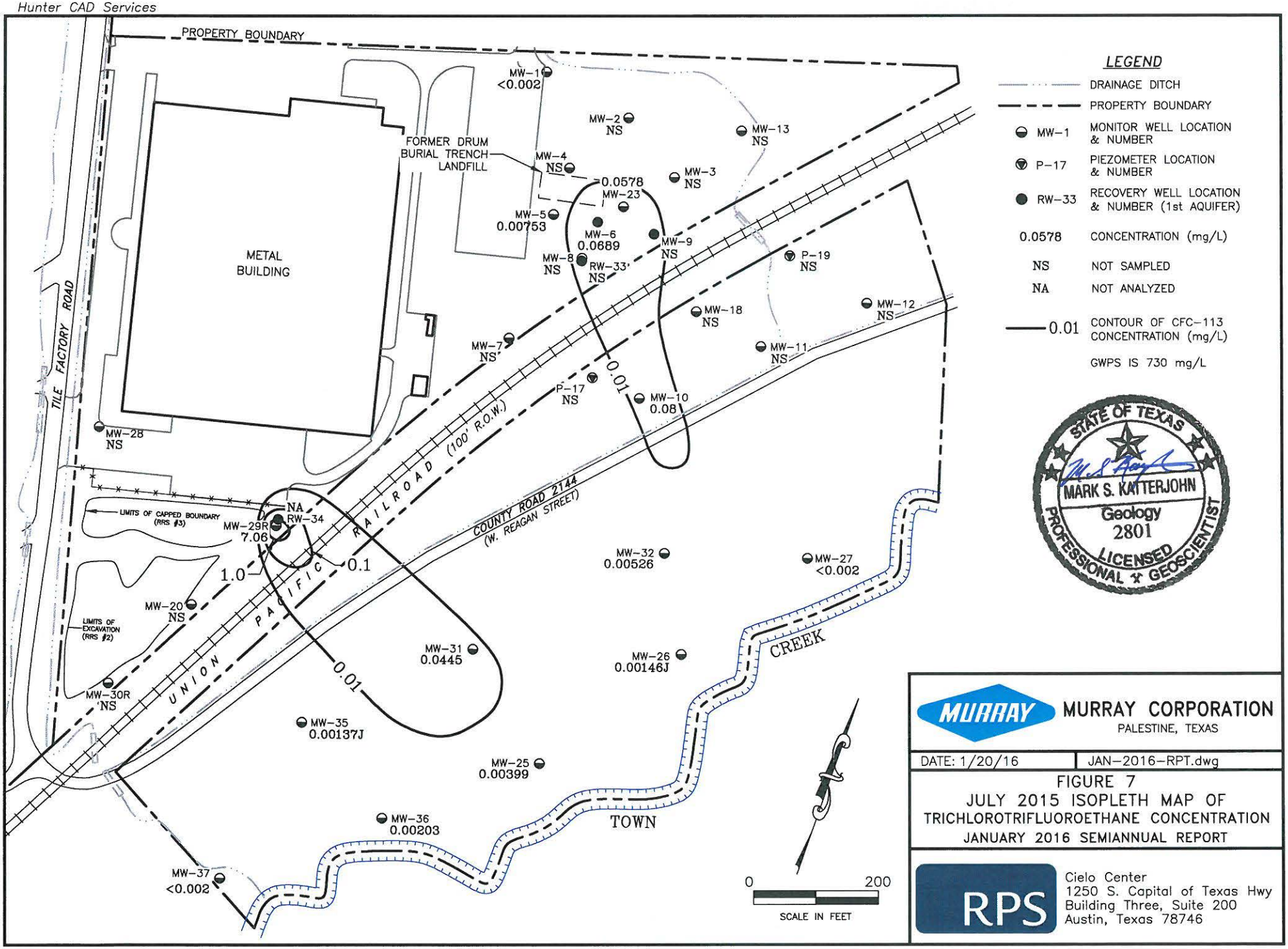

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0578 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)
- GWPS IS 730 mg/L

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FIGURE 7
JULY 2015 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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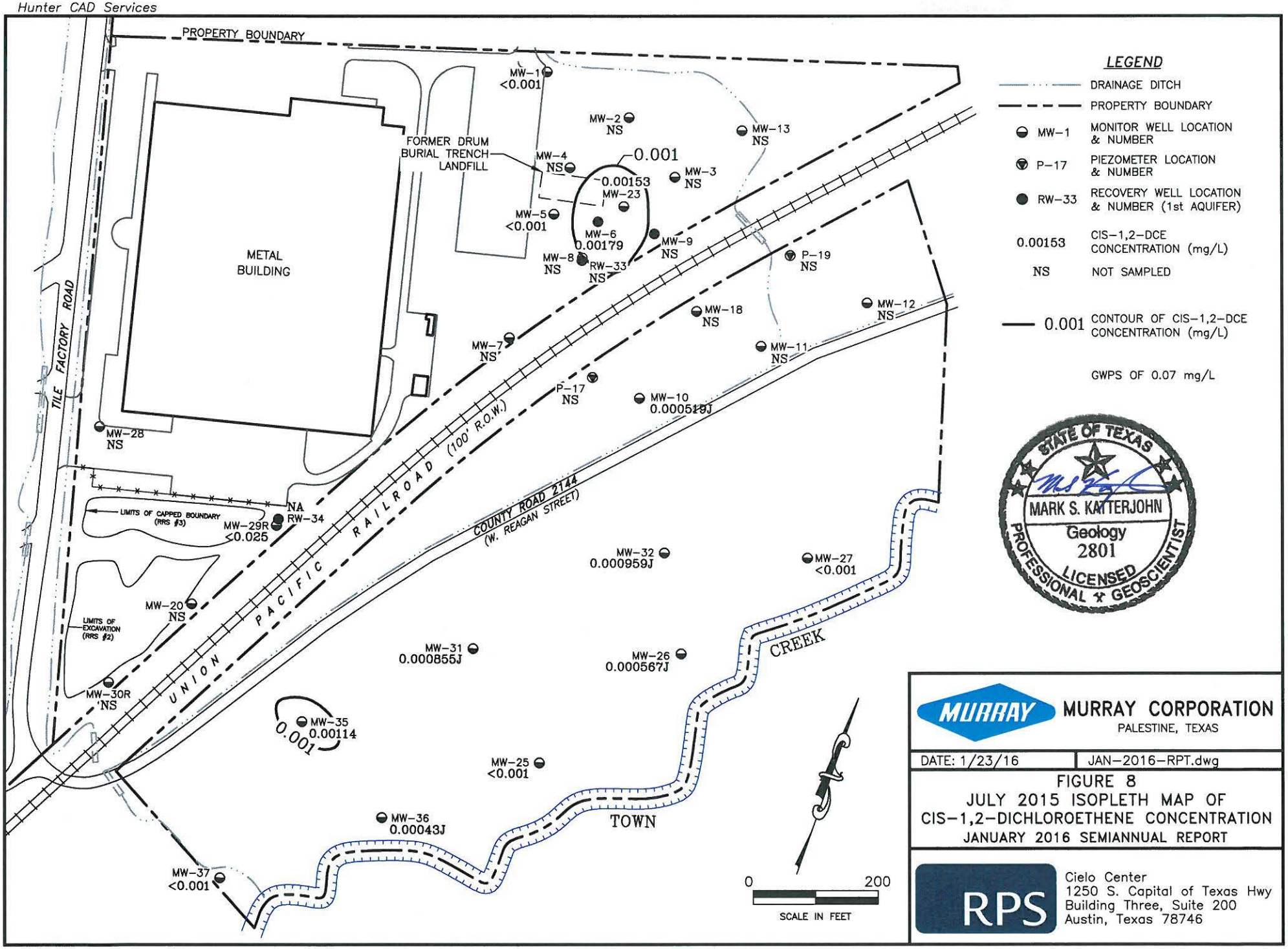

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00153 — CIS-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF CIS-1,2-DCE CONCENTRATION (mg/L)
- GWPS OF 0.07 mg/L

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FIGURE 8
JULY 2015 ISOPLETH MAP OF
CIS-1,2-DICHLOROETHENE CONCENTRATION
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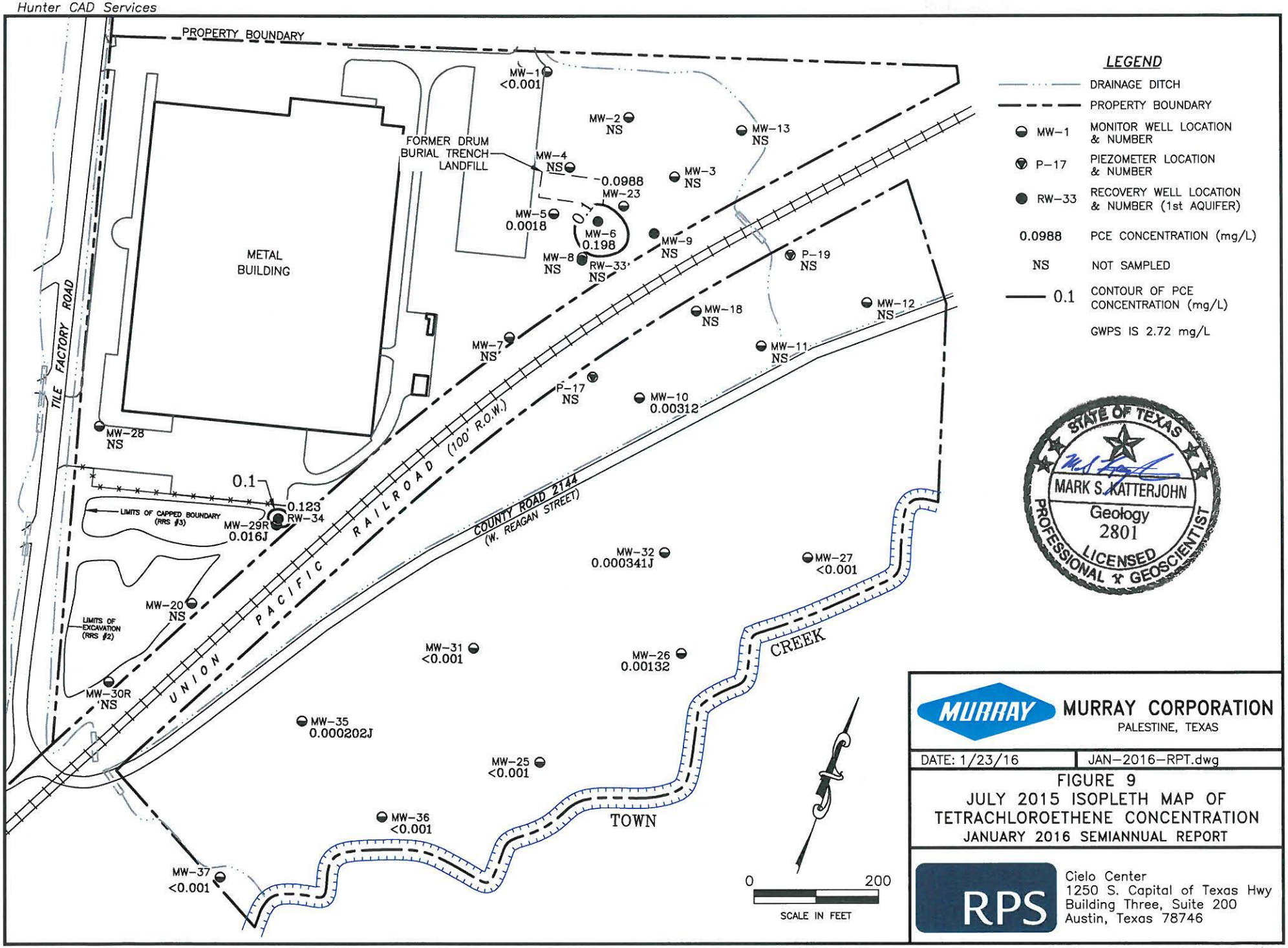

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0988 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.1 — CONTOUR OF PCE CONCENTRATION (mg/L)

GWPS IS 2.72 mg/L

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FIGURE 9
JULY 2015 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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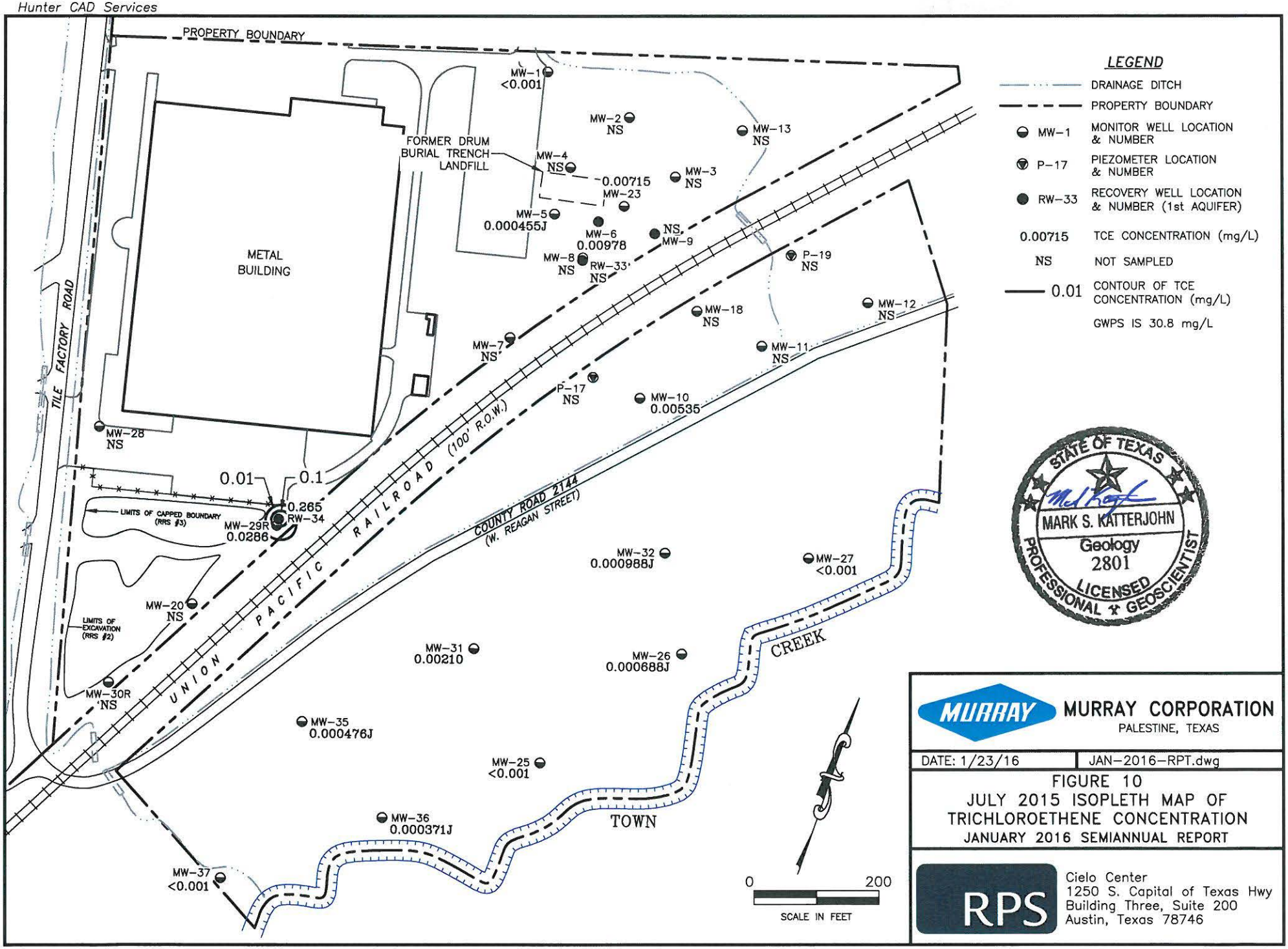

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00715 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)

GWPS IS 30.8 mg/L

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FIGURE 10
JULY 2015 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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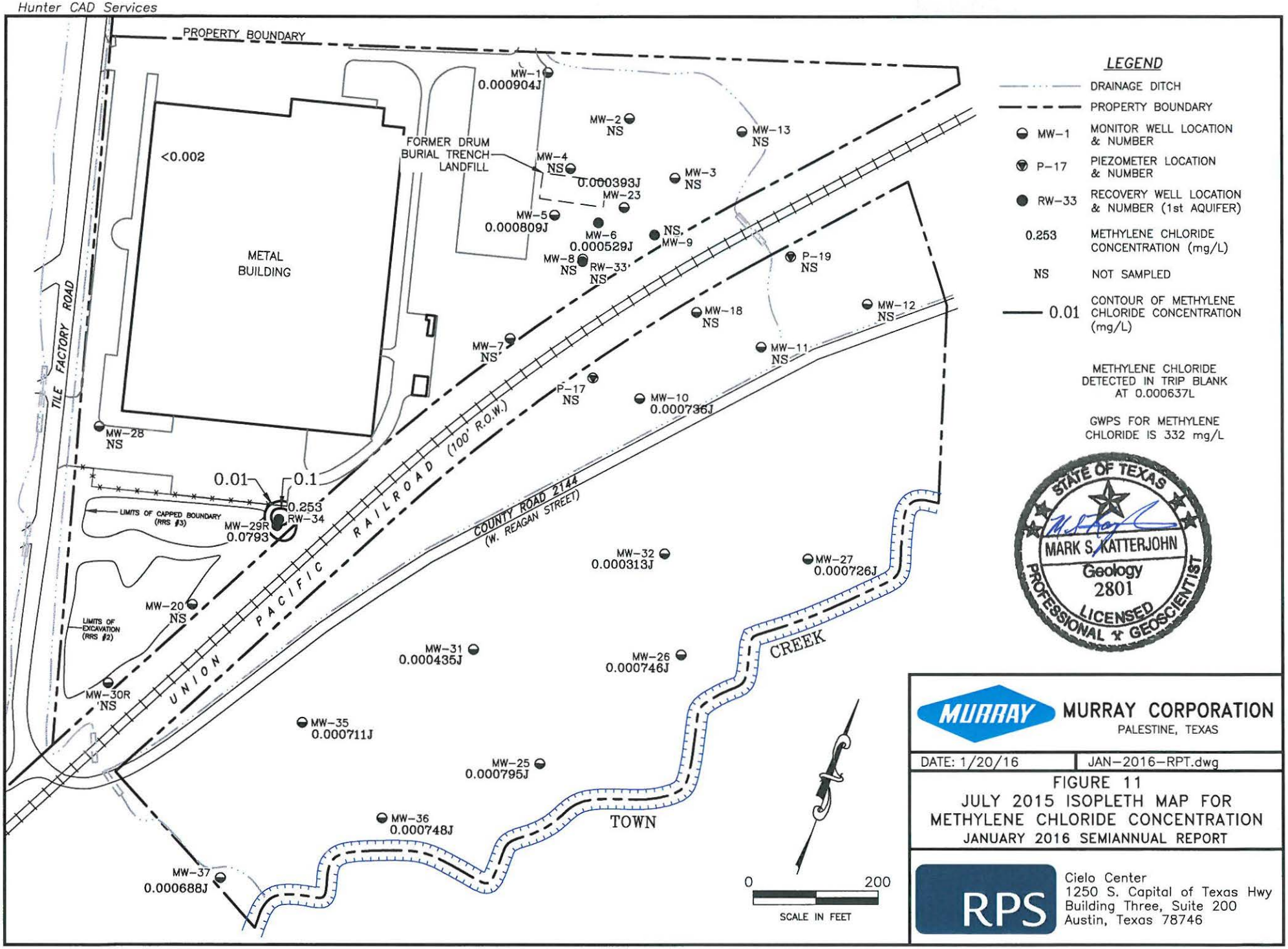

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.253 — METHYLENE CHLORIDE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF METHYLENE CHLORIDE CONCENTRATION (mg/L)

METHYLENE CHLORIDE DETECTED IN TRIP BLANK AT 0.000637L

GWPS FOR METHYLENE CHLORIDE IS 332 mg/L

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FIGURE 11
JULY 2015 ISOPLETH MAP FOR METHYLENE CHLORIDE CONCENTRATION
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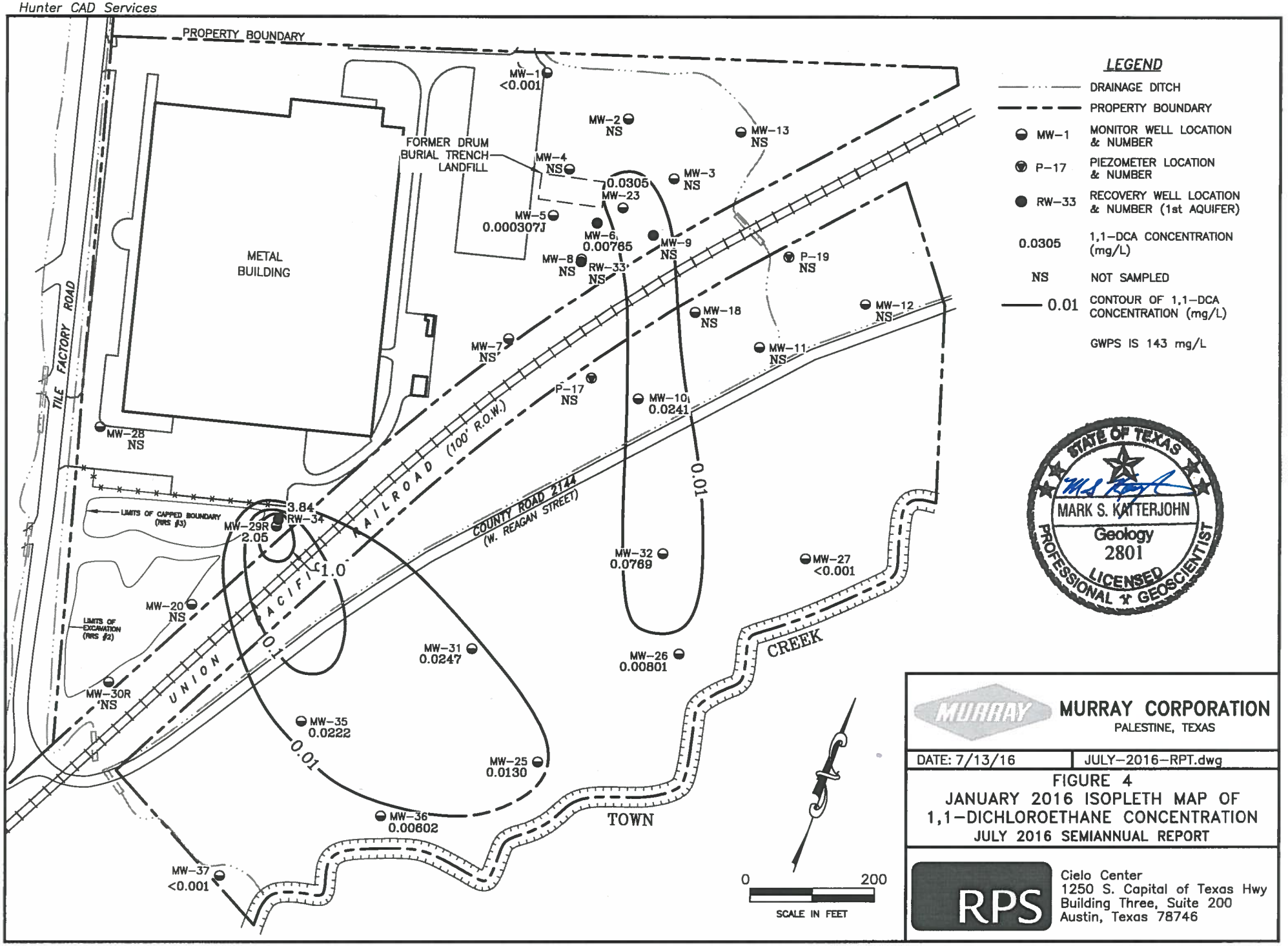

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0305 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)
- GWPS IS 143 mg/L

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FIGURE 4
JANUARY 2016 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
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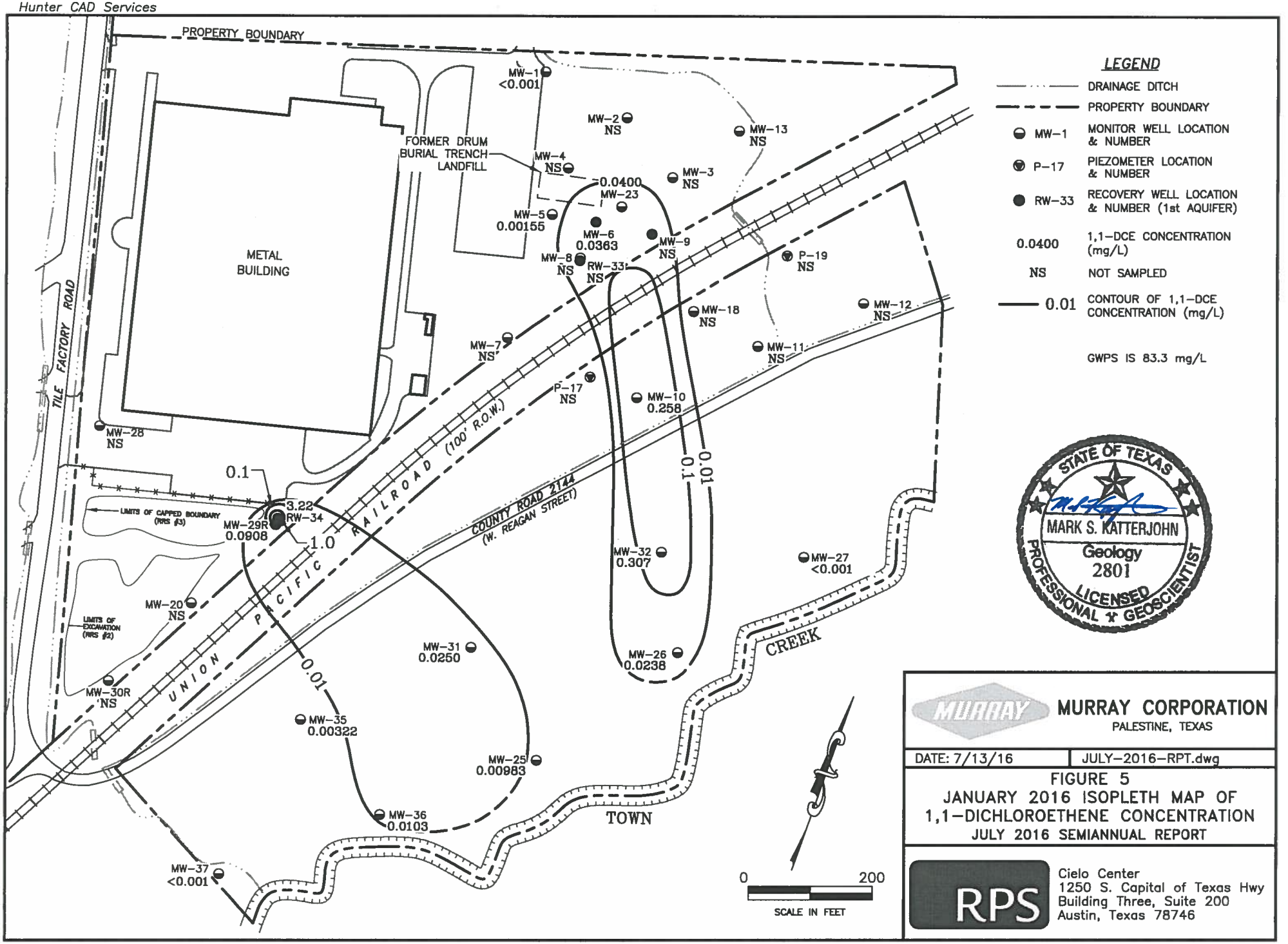

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0400 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 5
JANUARY 2016 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
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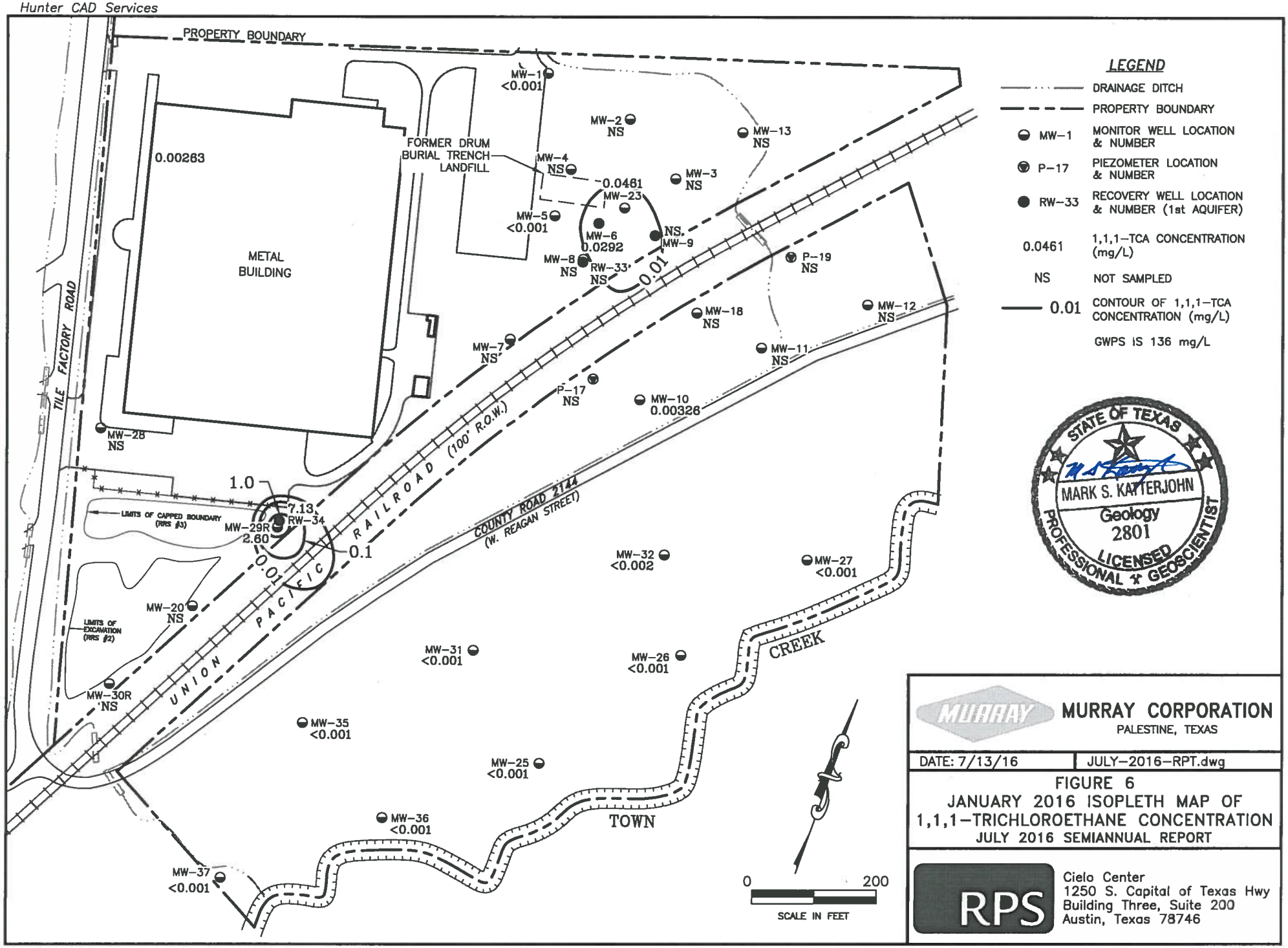

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0461 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)

GWPS IS 136 mg/L

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FIGURE 6
JANUARY 2016 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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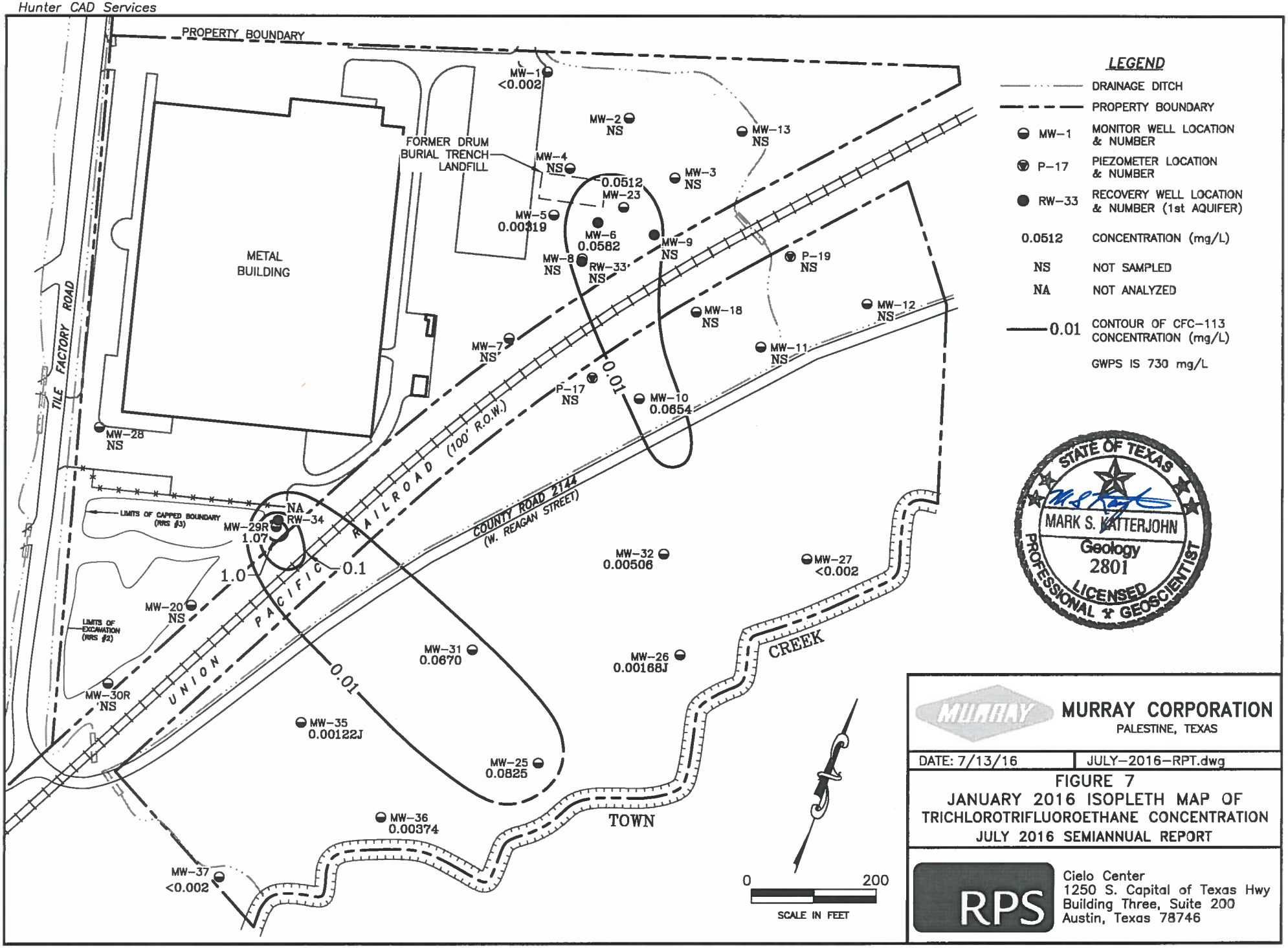

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.0512 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)

GWPS IS 730 mg/L

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FIGURE 7
JANUARY 2016 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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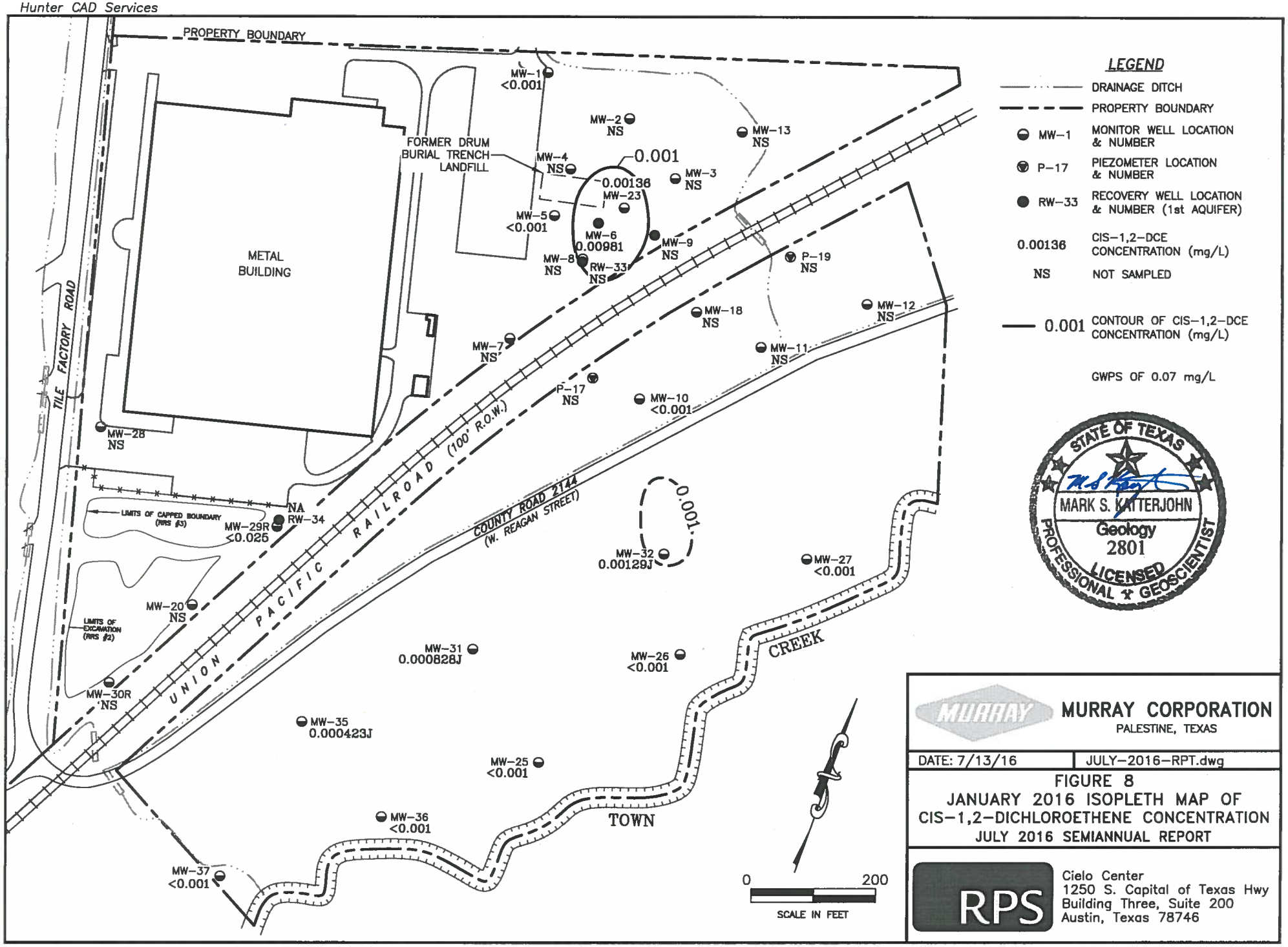

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00136 — CIS-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF CIS-1,2-DCE CONCENTRATION (mg/L)
- GWPS OF 0.07 mg/L

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FIGURE 8
JANUARY 2016 ISOPLETH MAP OF CIS-1,2-DICHLOROETHENE CONCENTRATION
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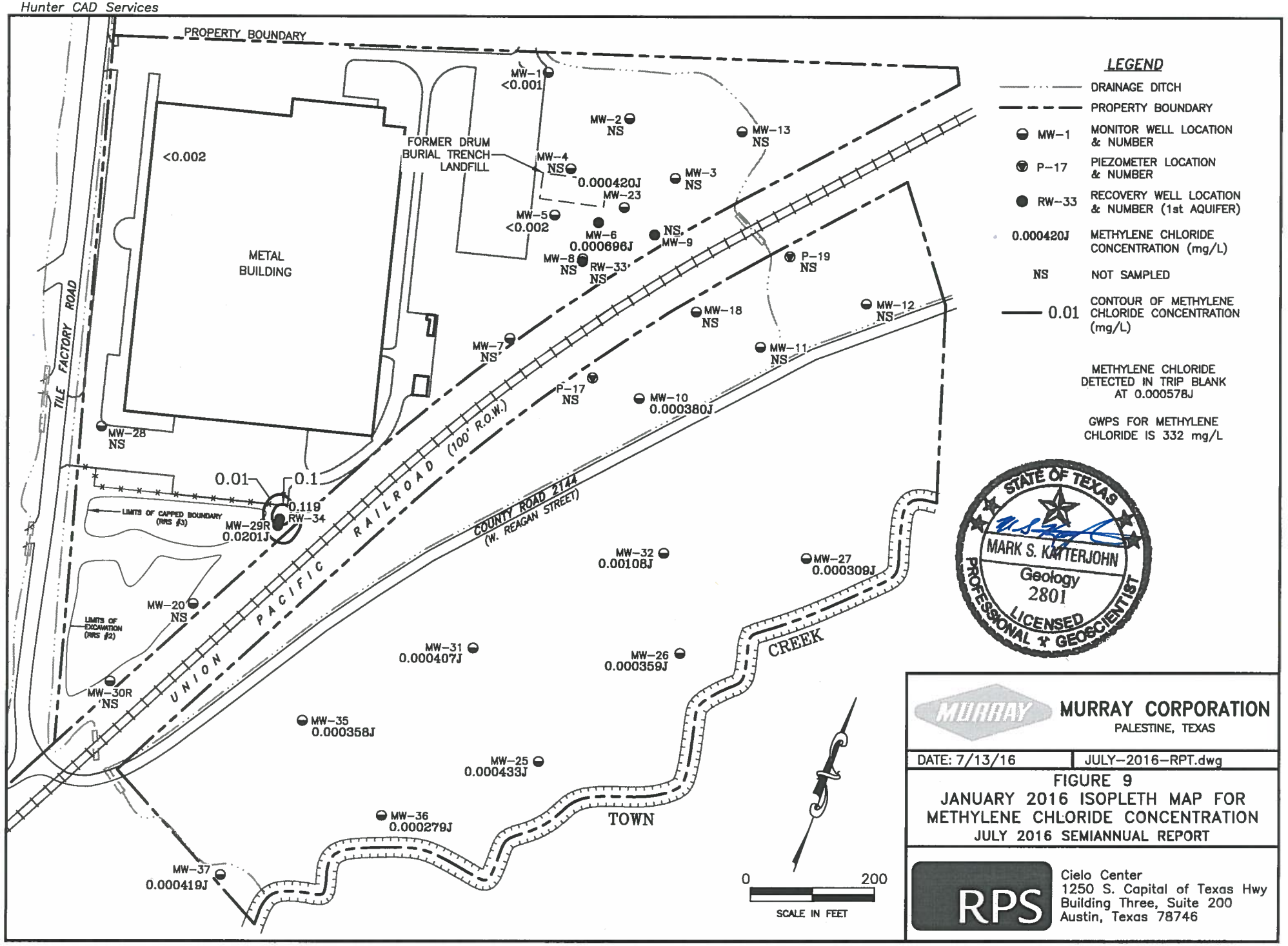

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.000420J — METHYLENE CHLORIDE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF METHYLENE CHLORIDE CONCENTRATION (mg/L)

METHYLENE CHLORIDE DETECTED IN TRIP BLANK AT 0.000578J

GWPS FOR METHYLENE CHLORIDE IS 332 mg/L

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FIGURE 9
JANUARY 2016 ISOPLETH MAP FOR METHYLENE CHLORIDE CONCENTRATION
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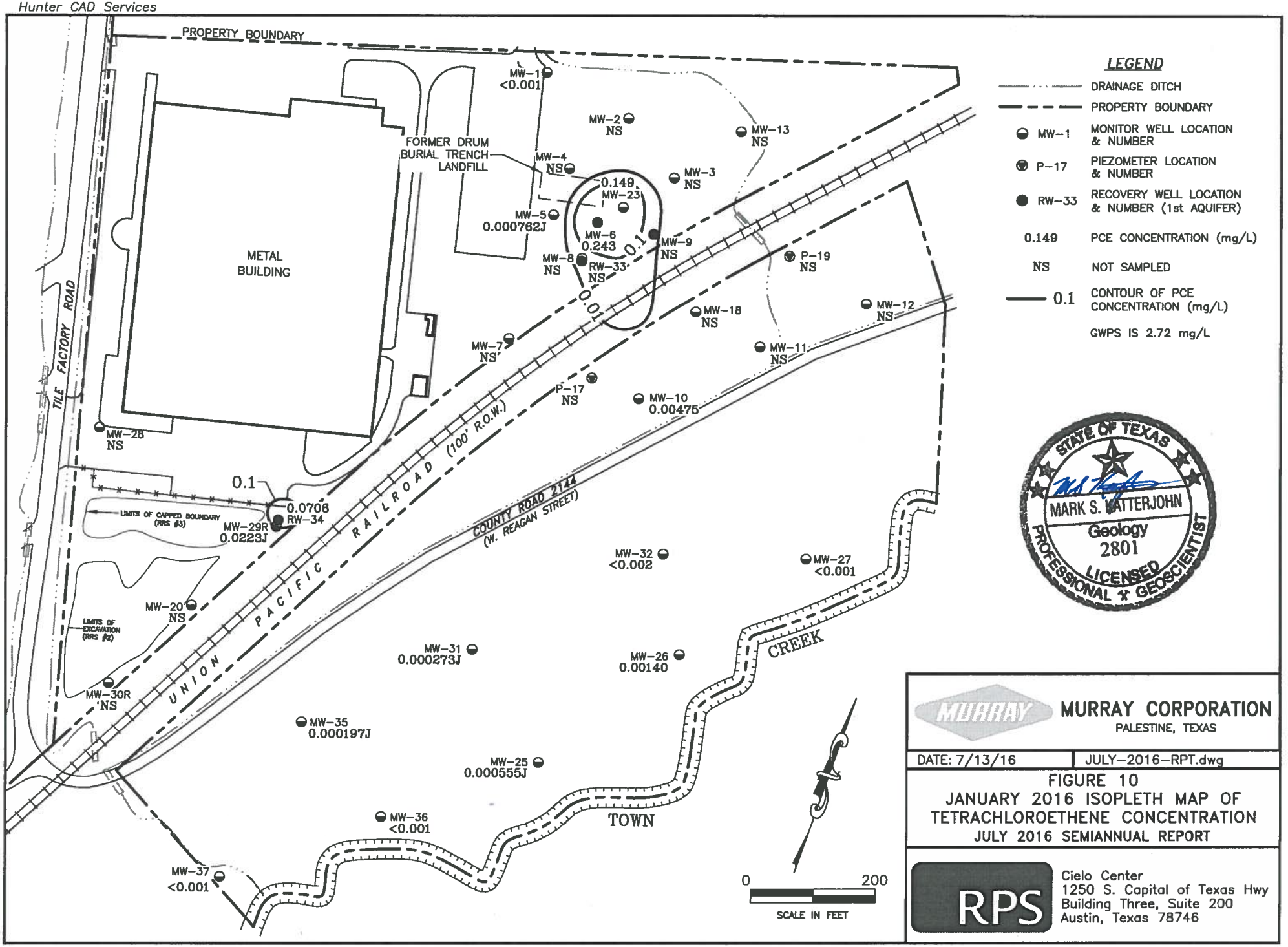

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.149 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.1 — CONTOUR OF PCE CONCENTRATION (mg/L)
- GWPS IS 2.72 mg/L

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FIGURE 10
JANUARY 2016 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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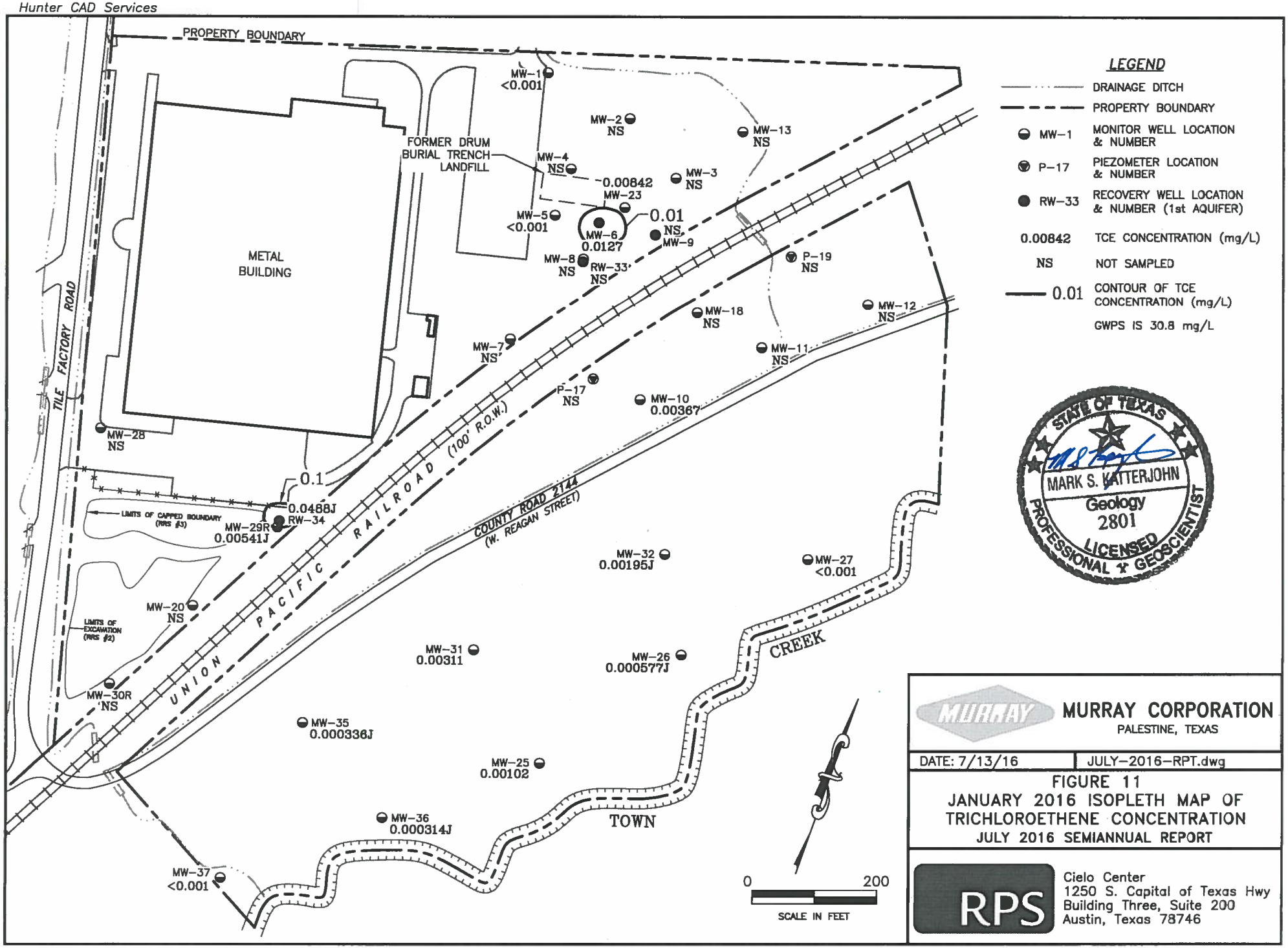

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- 0.00842 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 30.8 mg/L

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FIGURE 11
JANUARY 2016 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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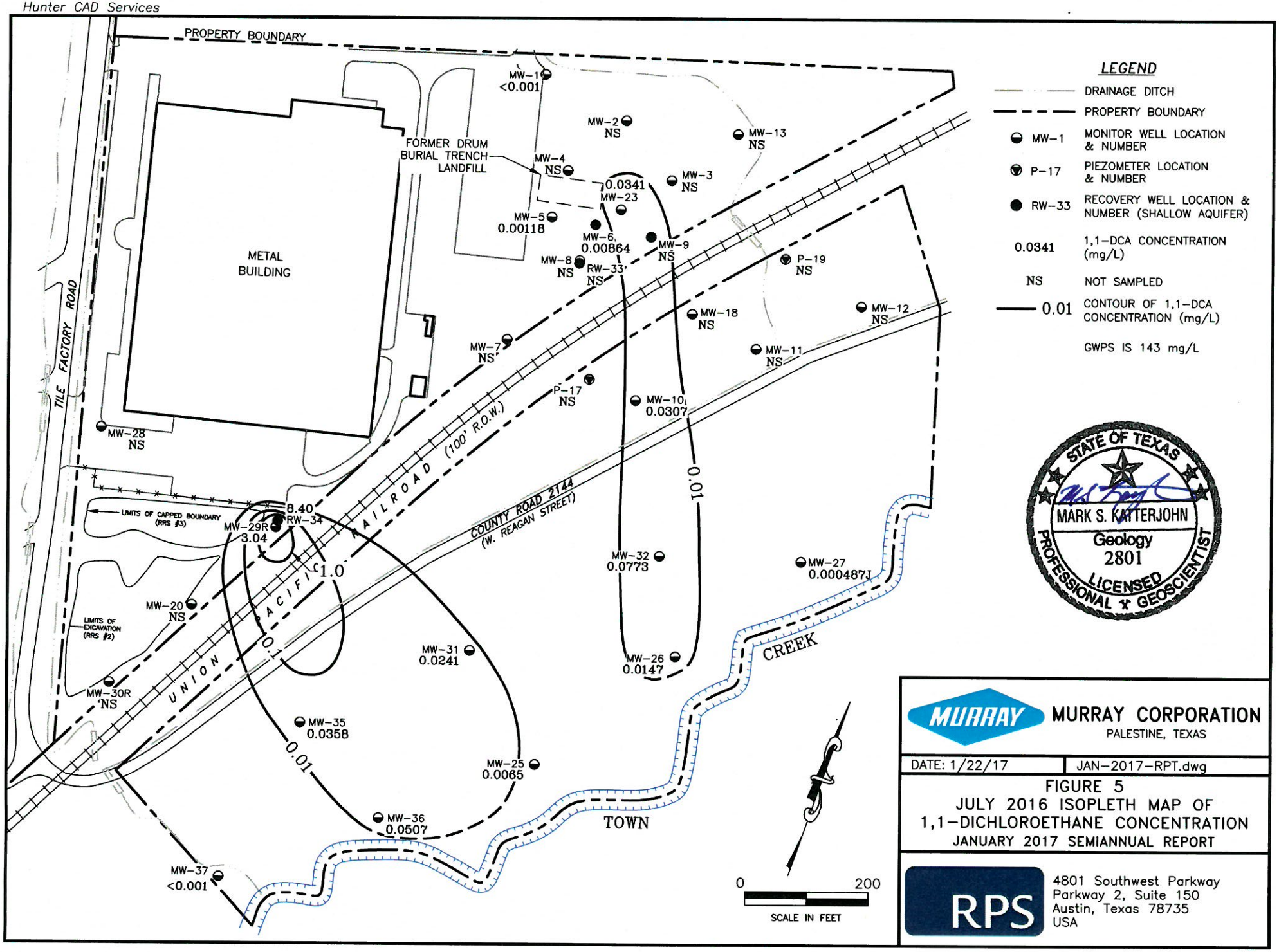

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0341 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)

GWPS IS 143 mg/L

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FIGURE 5
JULY 2016 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
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RPS
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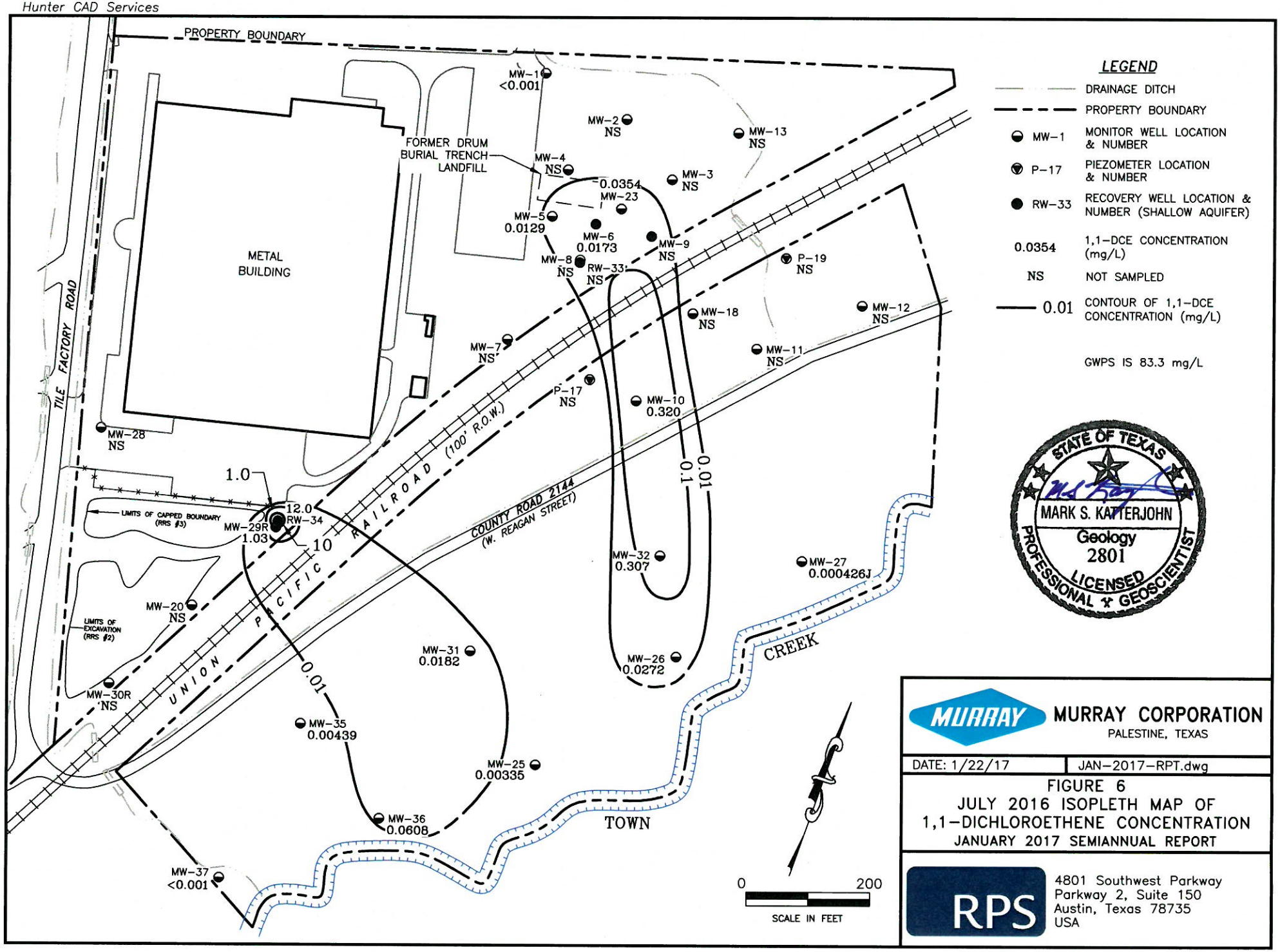

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0354 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 6
JULY 2016 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
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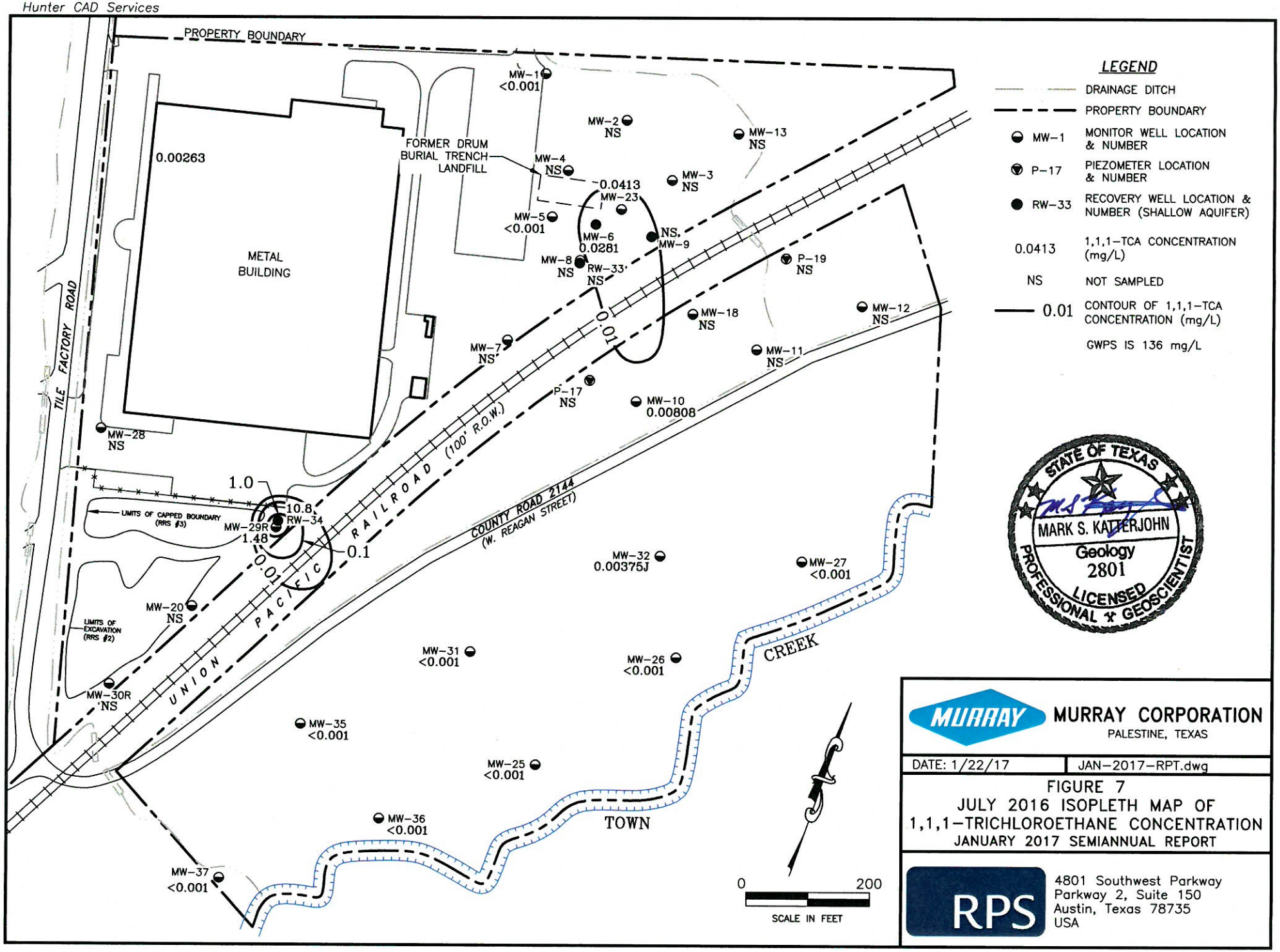

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0413 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)

GWPS IS 136 mg/L

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FIGURE 7
JULY 2016 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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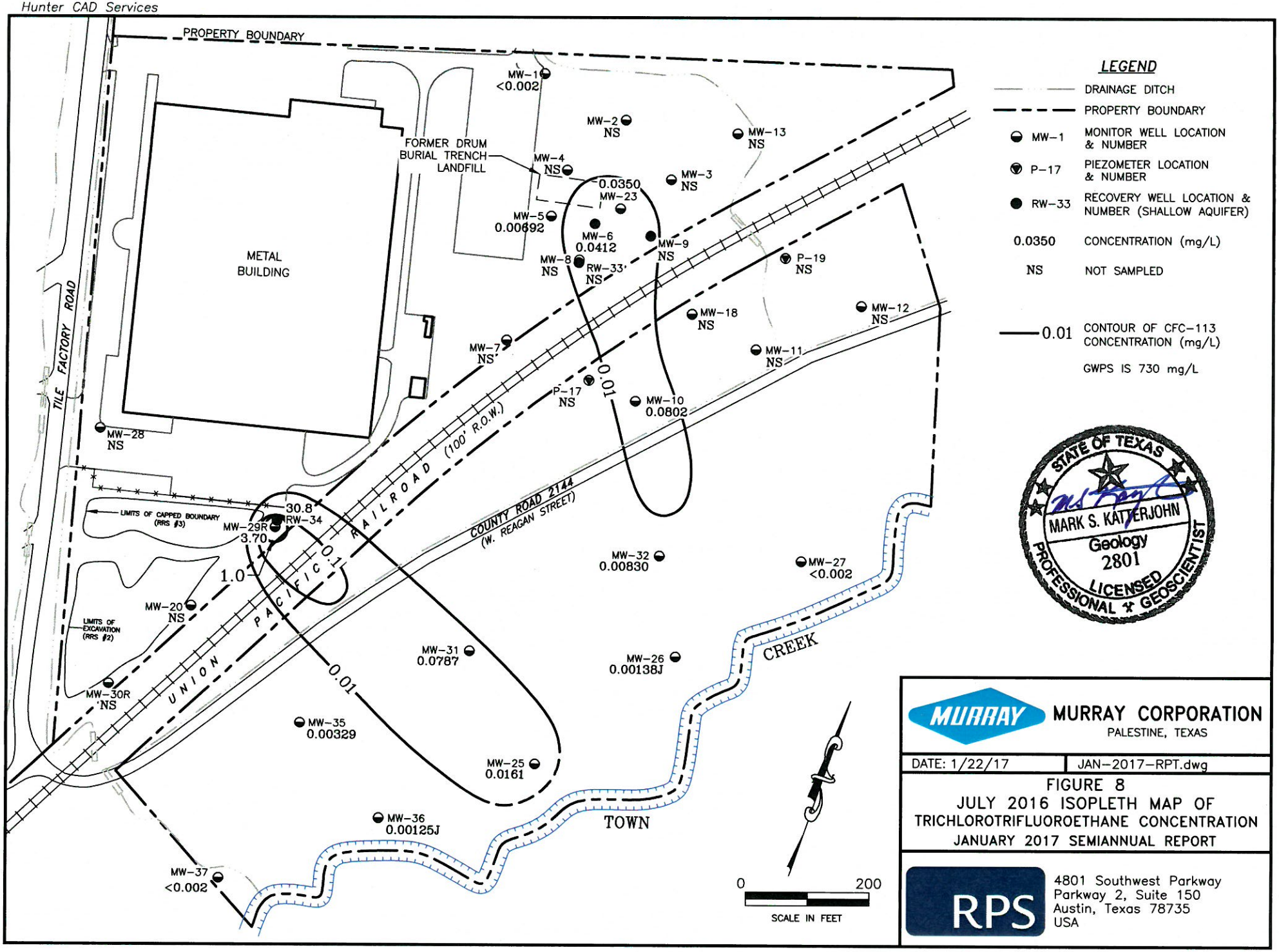

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0350 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)
- GWPS IS 730 mg/L

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FIGURE 8
JULY 2016 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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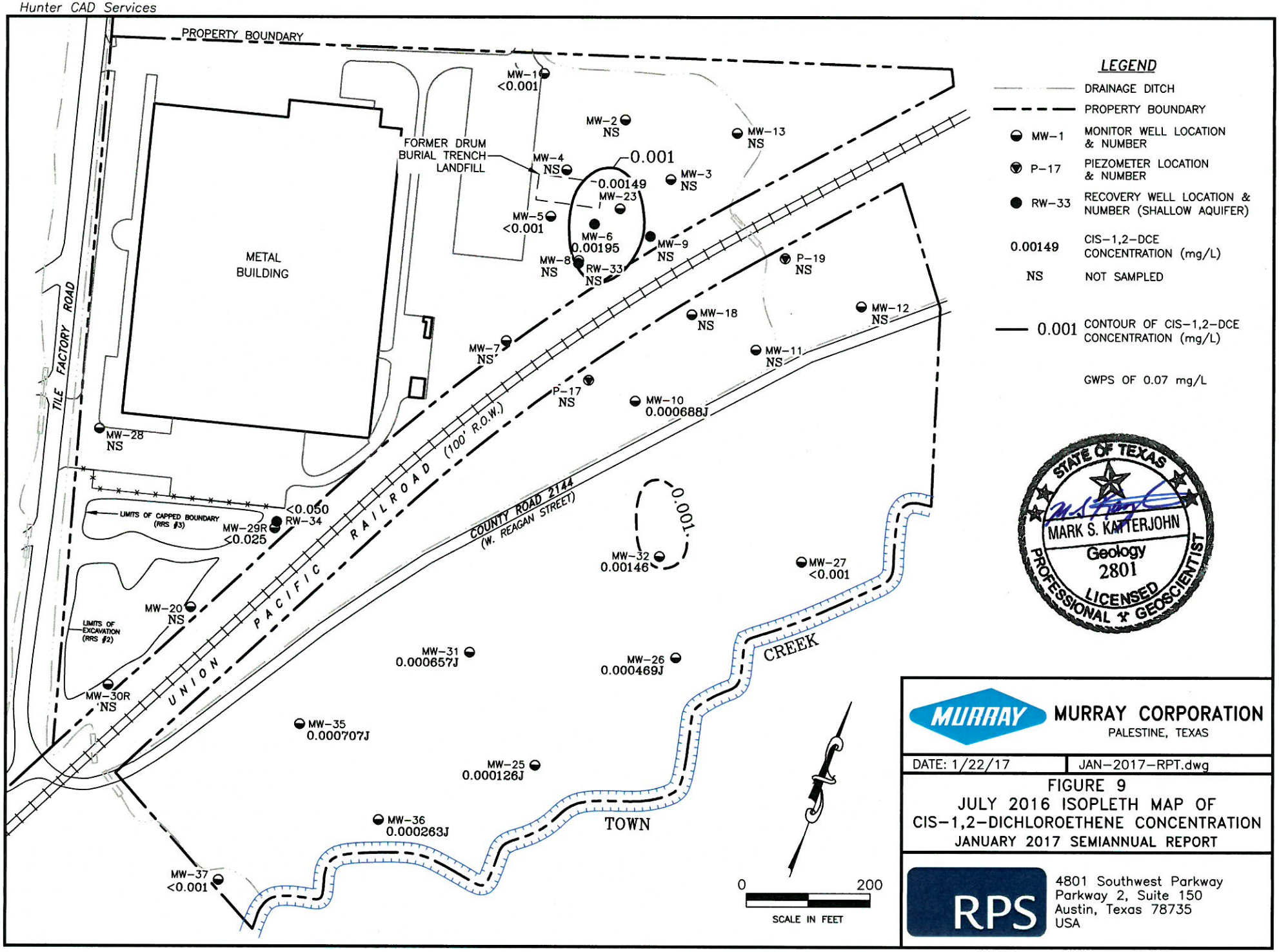

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00149 — CIS-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF CIS-1,2-DCE CONCENTRATION (mg/L)
- GWPS OF 0.07 mg/L

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FIGURE 9
JULY 2016 ISOPLETH MAP OF
CIS-1,2-DICHLOROETHENE CONCENTRATION
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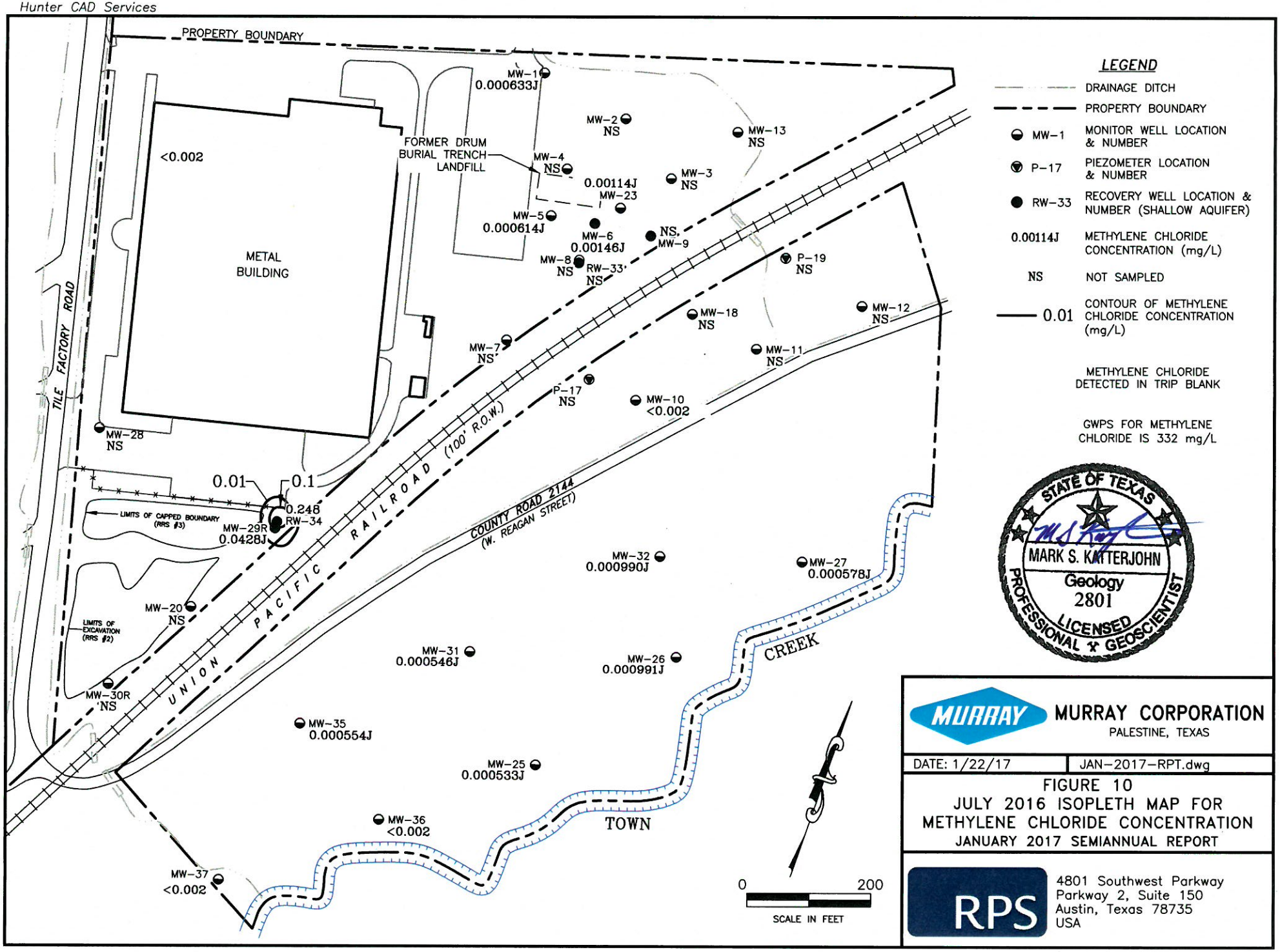

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00114J — METHYLENE CHLORIDE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF METHYLENE CHLORIDE CONCENTRATION (mg/L)

METHYLENE CHLORIDE DETECTED IN TRIP BLANK

GWPS FOR METHYLENE CHLORIDE IS 332 mg/L

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FIGURE 10
JULY 2016 ISOPLETH MAP FOR METHYLENE CHLORIDE CONCENTRATION
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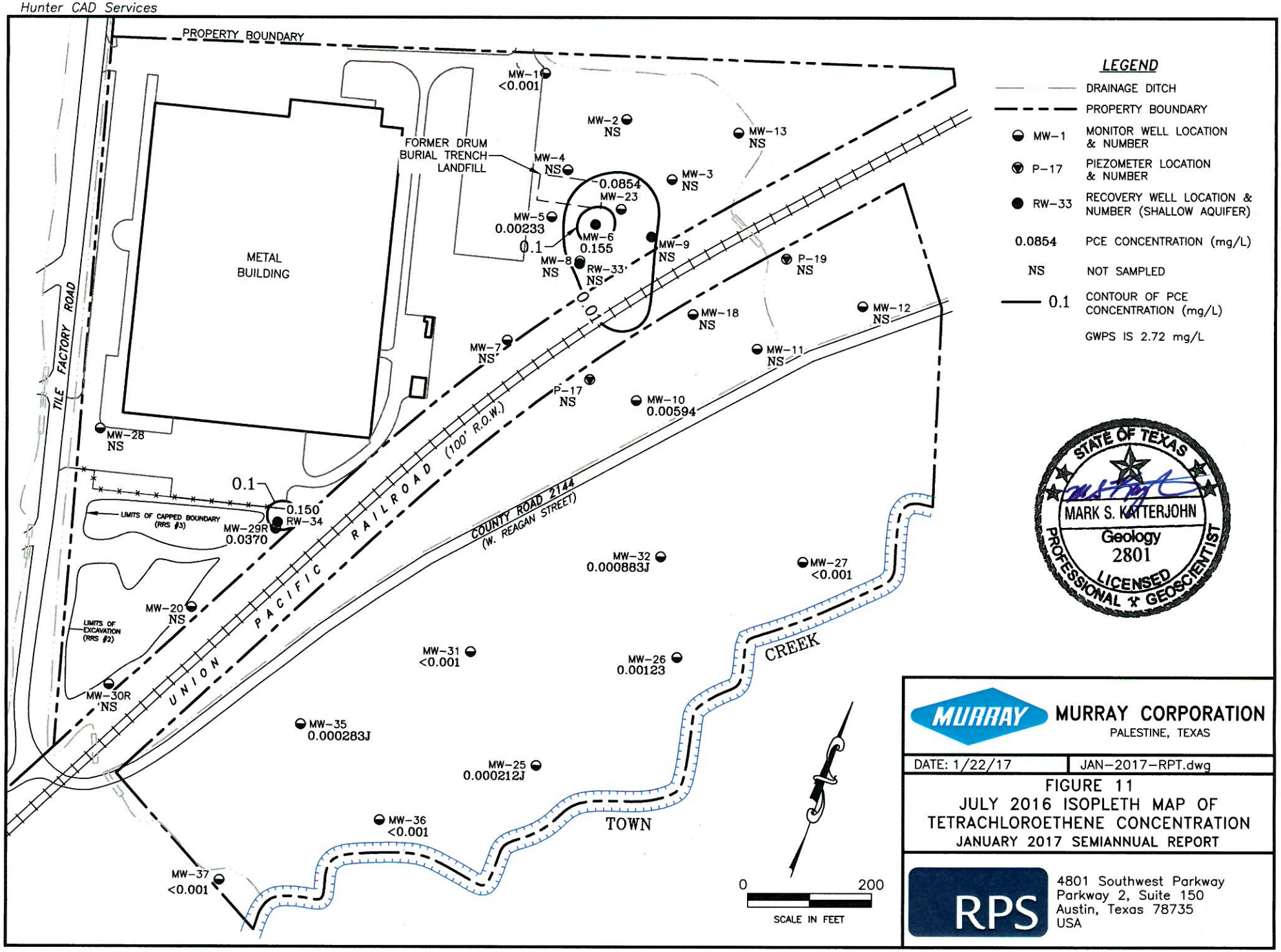

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0854 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.1 — CONTOUR OF PCE CONCENTRATION (mg/L)
- GWPS IS 2.72 mg/L

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FIGURE 11
JULY 2016 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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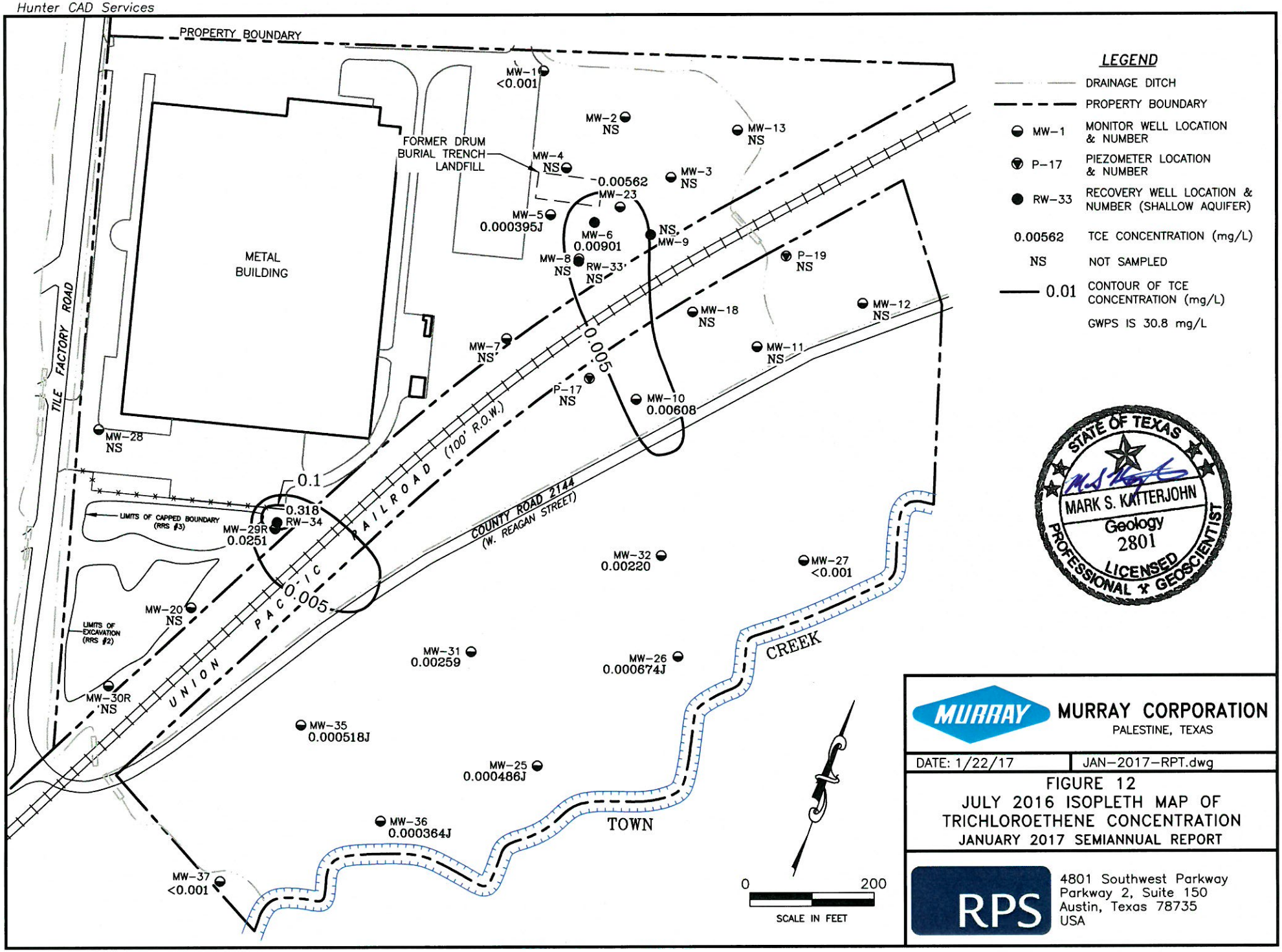

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00562 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 30.8 mg/L

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FIGURE 12
JULY 2016 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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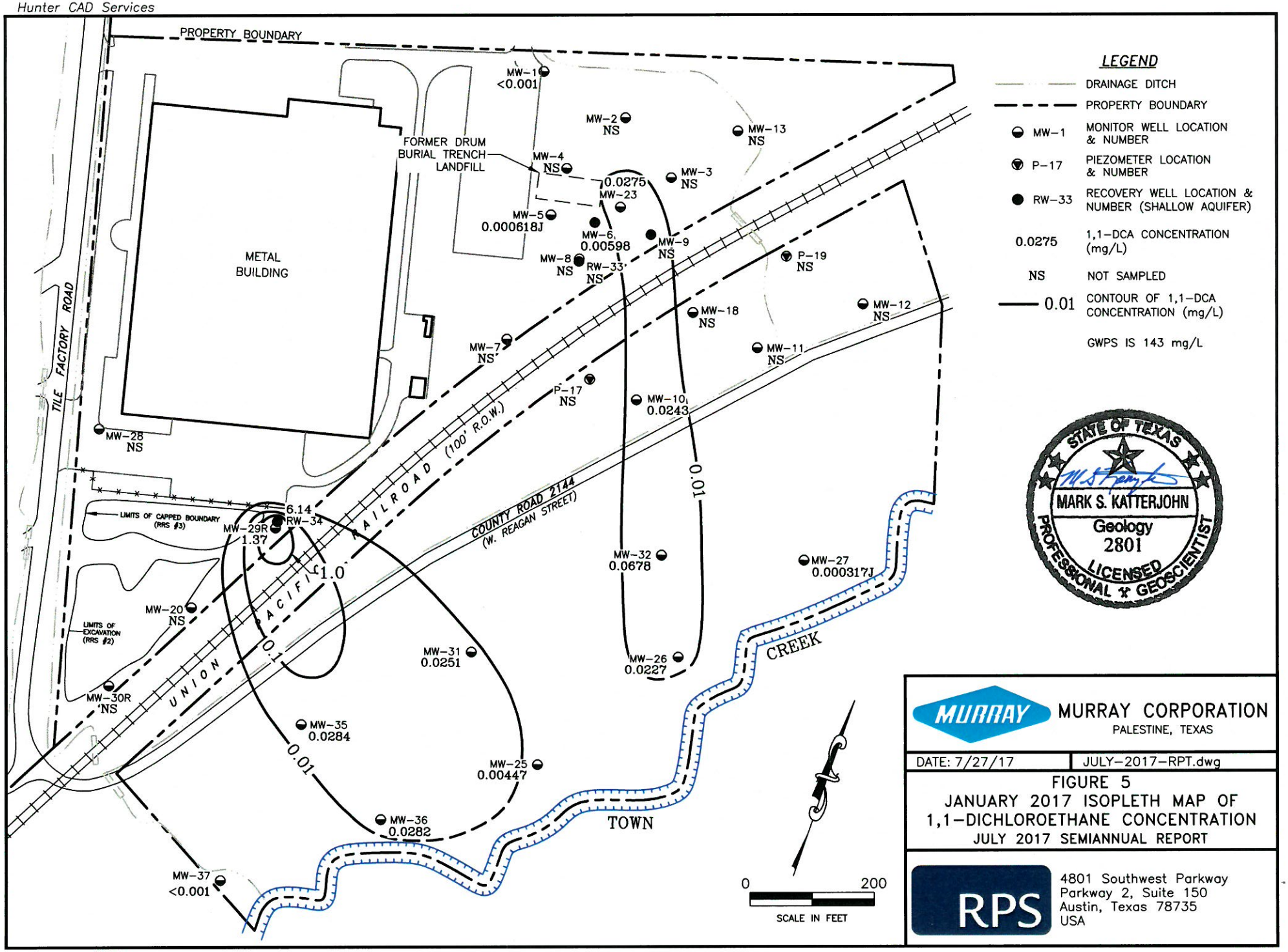

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FIGURE 5
JANUARY 2017 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
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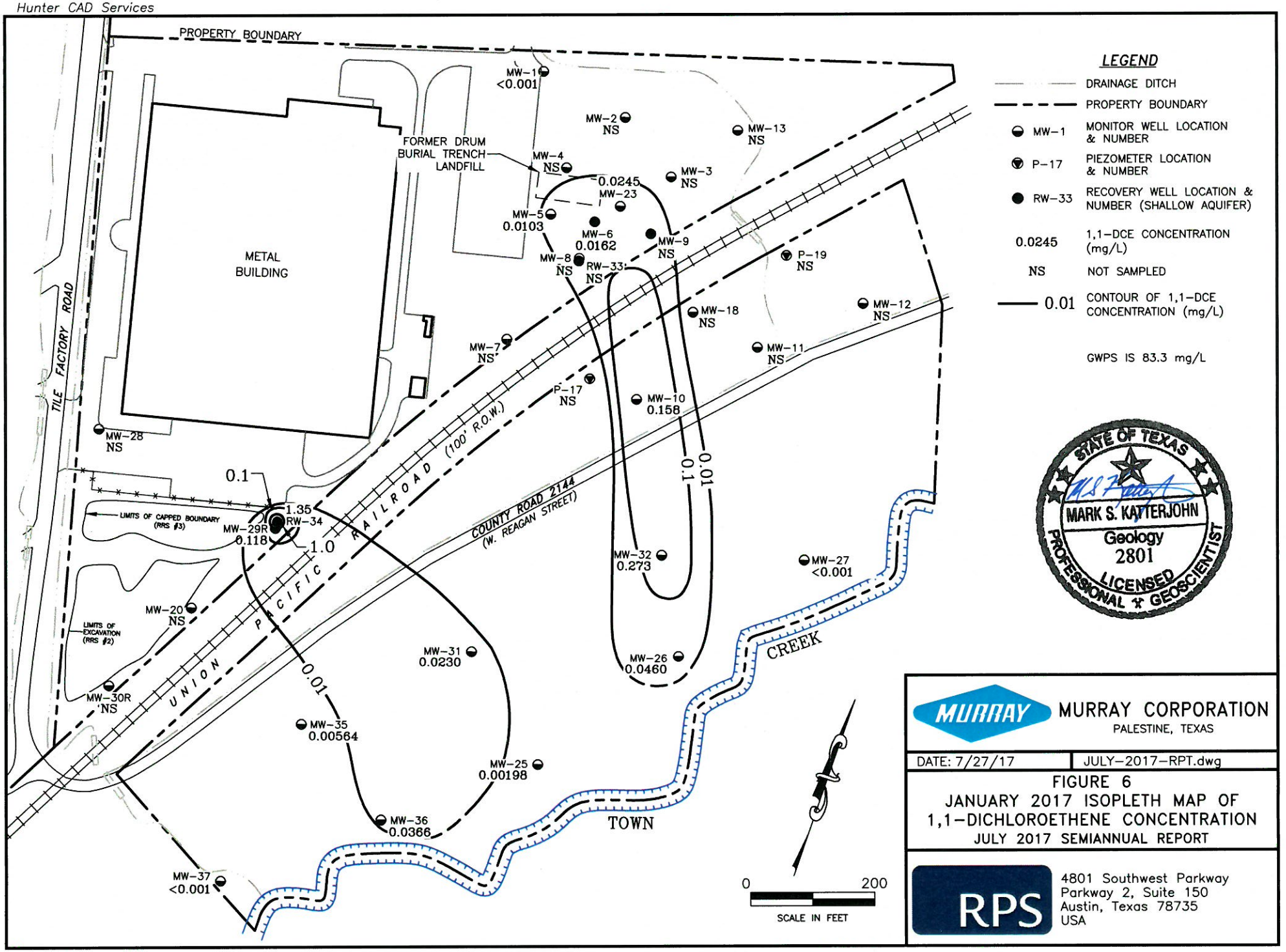

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0245 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 6
JANUARY 2017 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
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RPS
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Parkway 2, Suite 150
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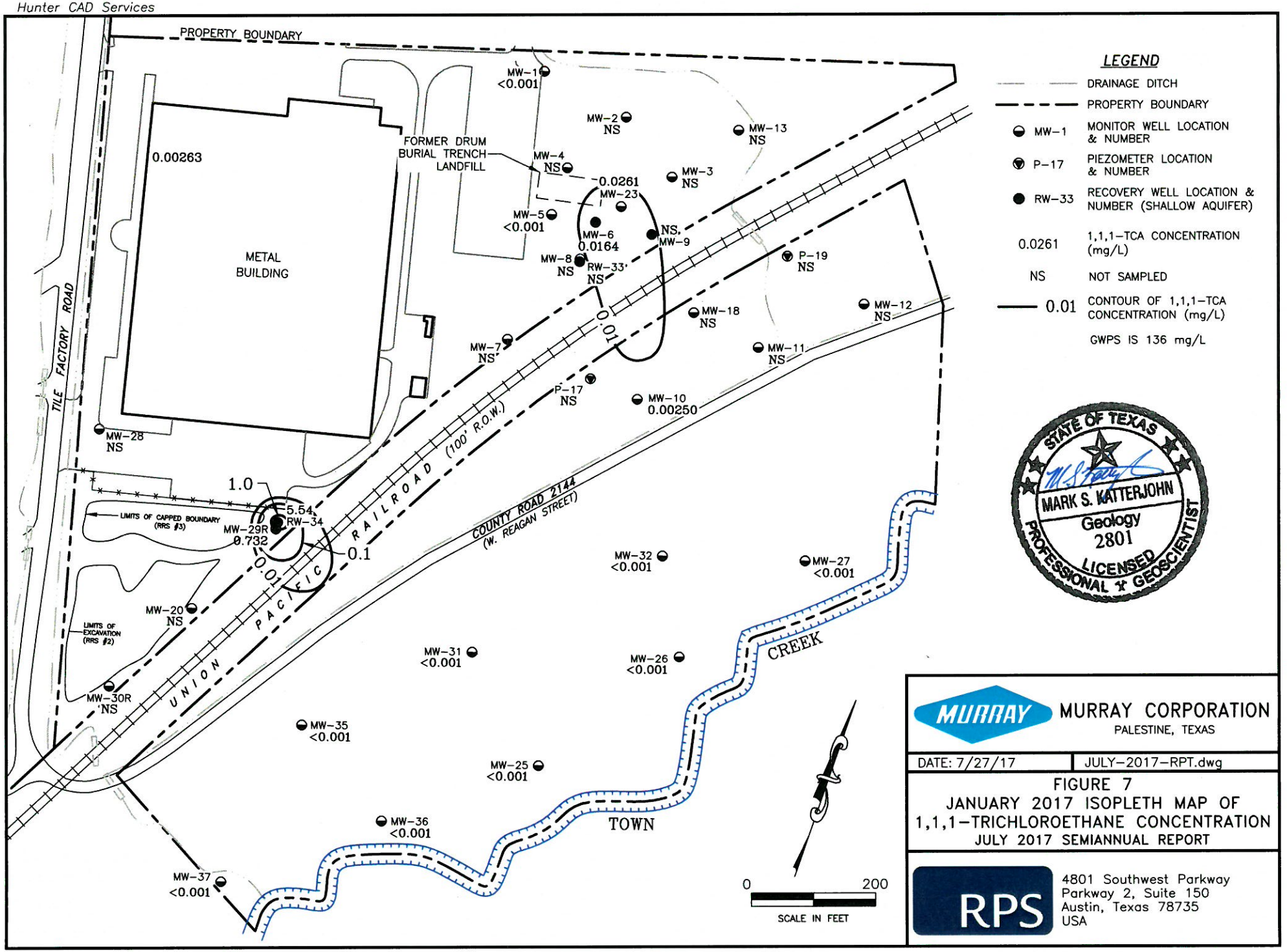

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0261 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)
- GWPS IS 136 mg/L

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FIGURE 7
JANUARY 2017 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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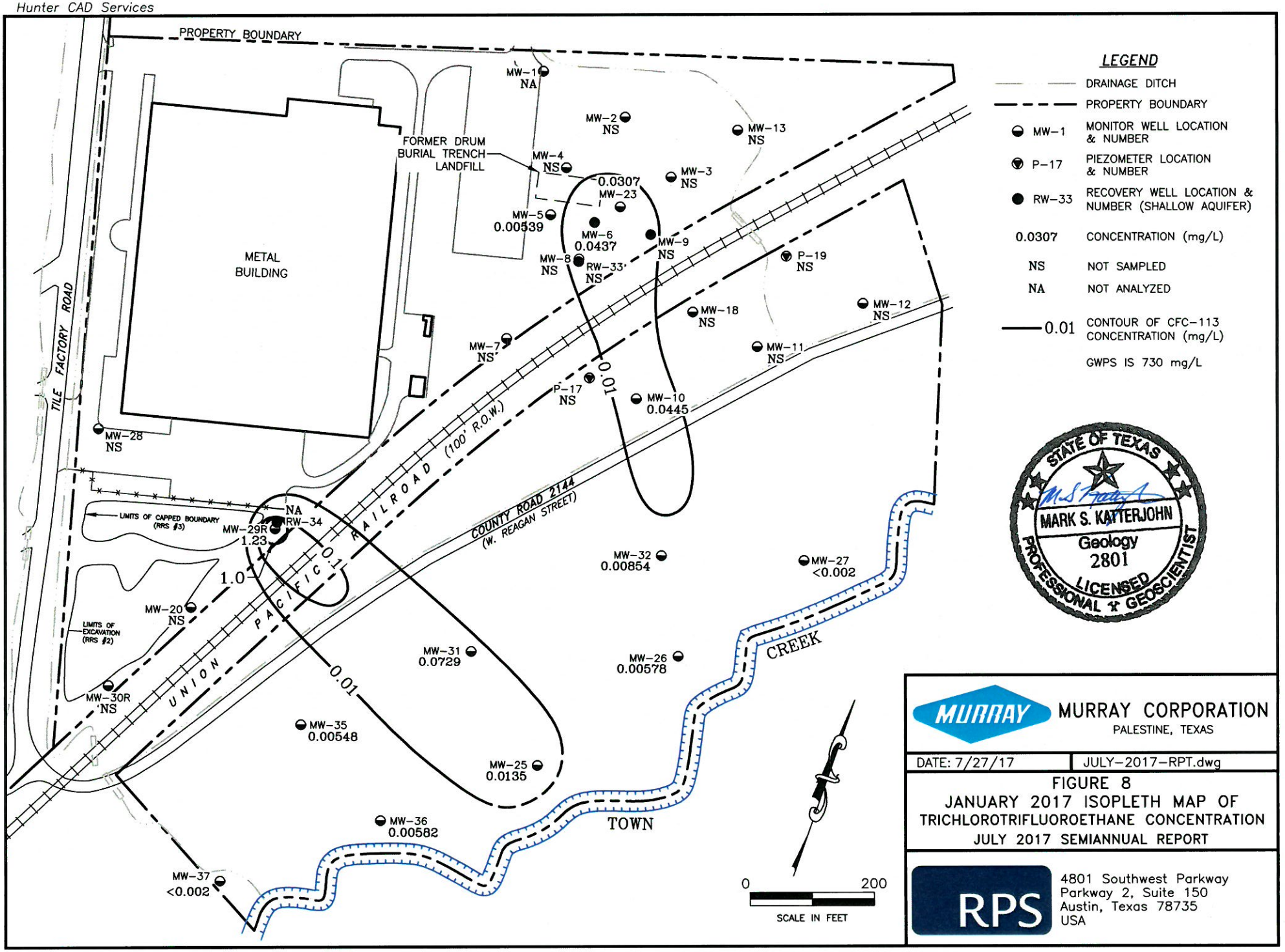

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0307 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)
- GWPS IS 730 mg/L

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FIGURE 8
JANUARY 2017 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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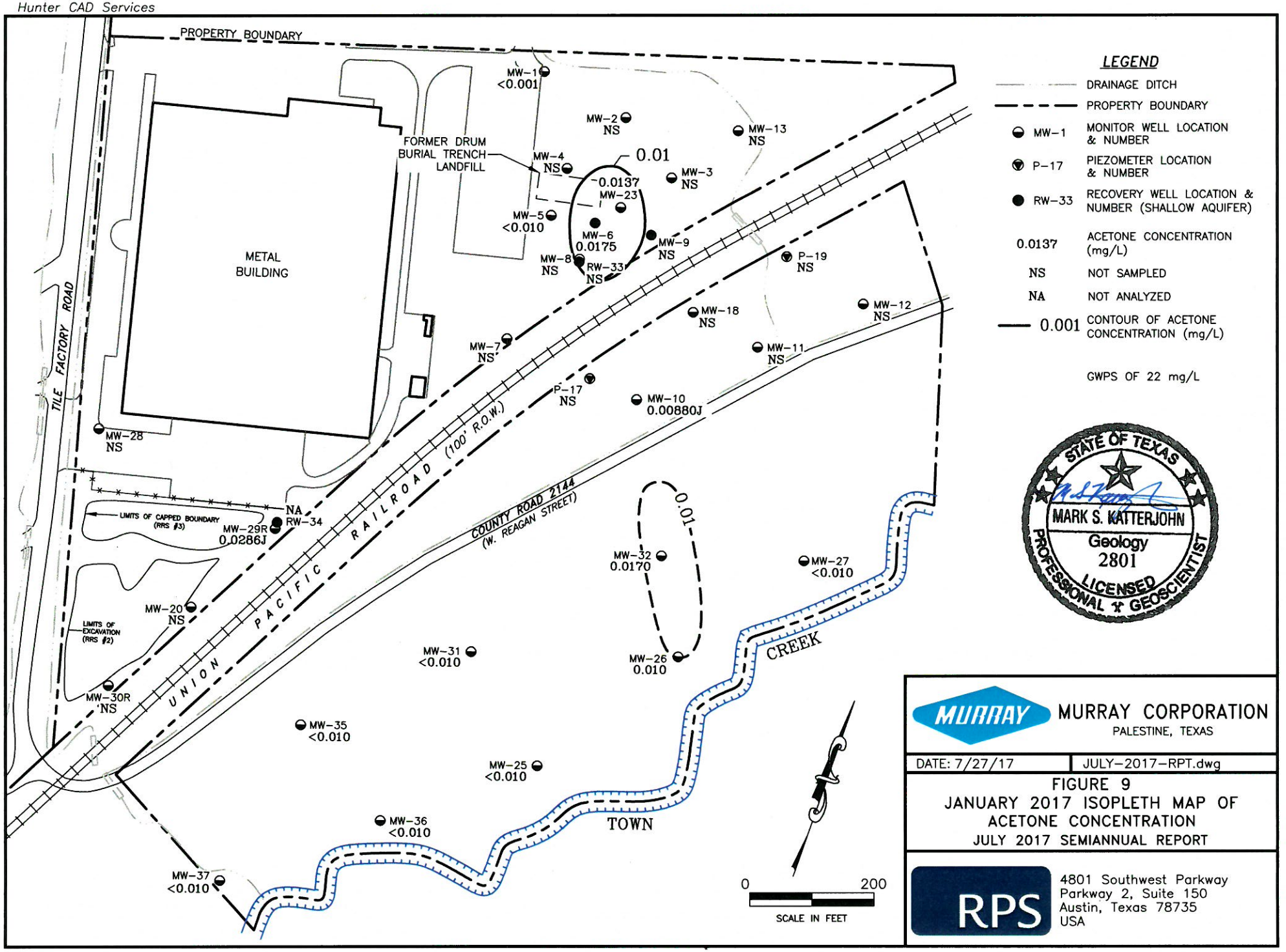

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0137 — ACETONE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.001 — CONTOUR OF ACETONE CONCENTRATION (mg/L)

GWPS OF 22 mg/L

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FIGURE 9
JANUARY 2017 ISOPLETH MAP OF ACETONE CONCENTRATION
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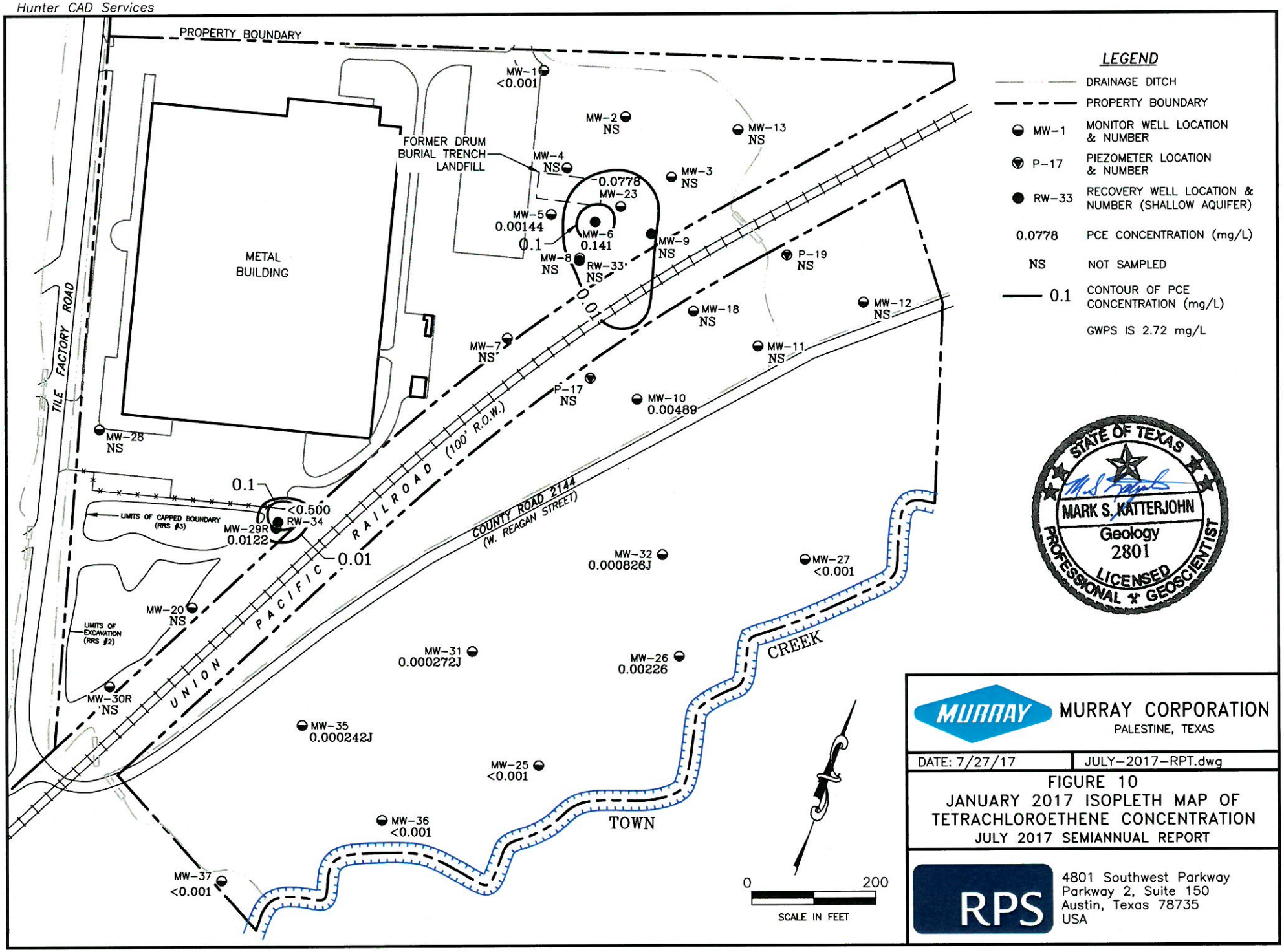

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0778 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.1 — CONTOUR OF PCE CONCENTRATION (mg/L)
- GWPS IS 2.72 mg/L

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FIGURE 10
JANUARY 2017 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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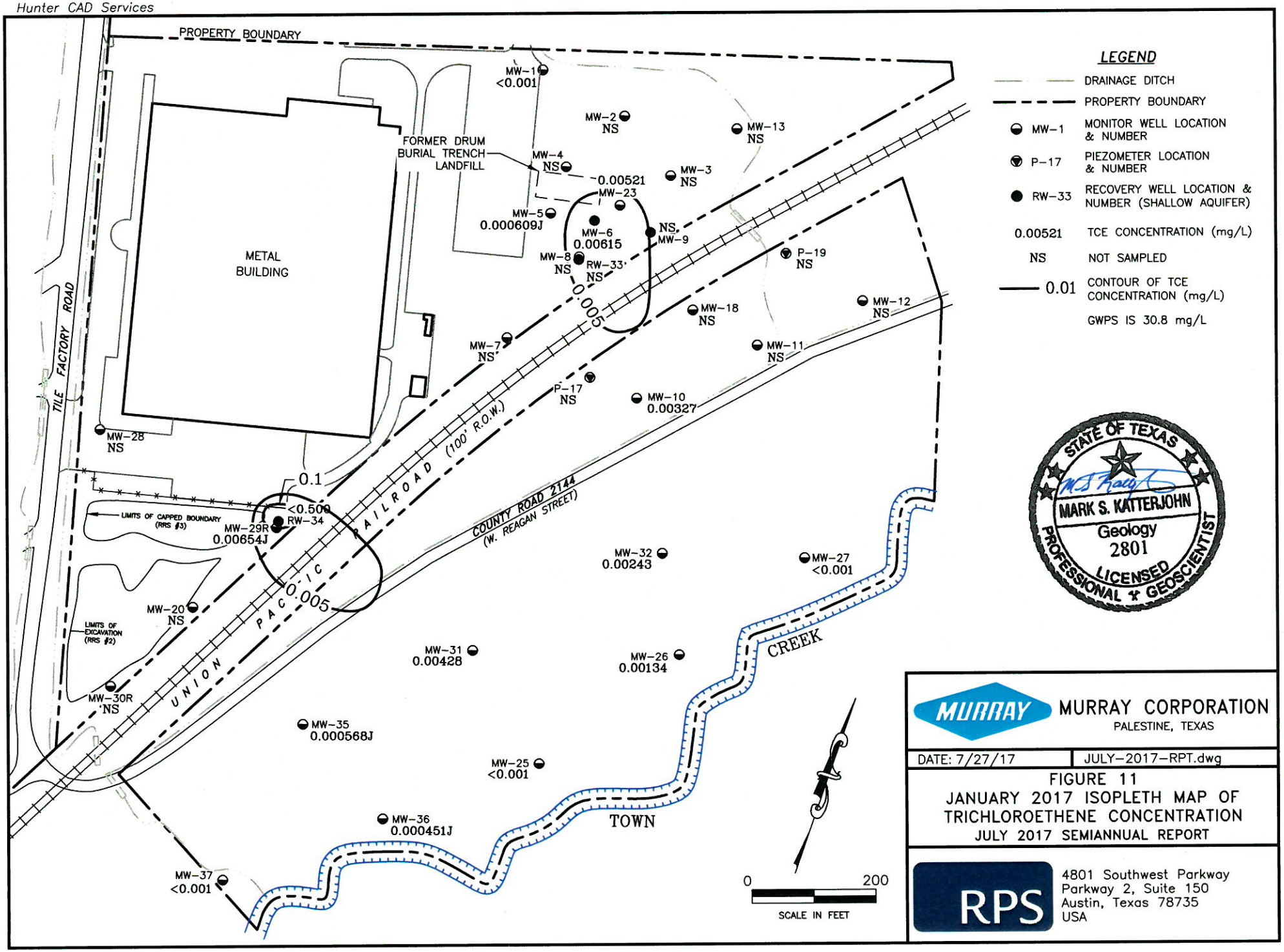

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00521 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 30.8 mg/L

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FIGURE 11
JANUARY 2017 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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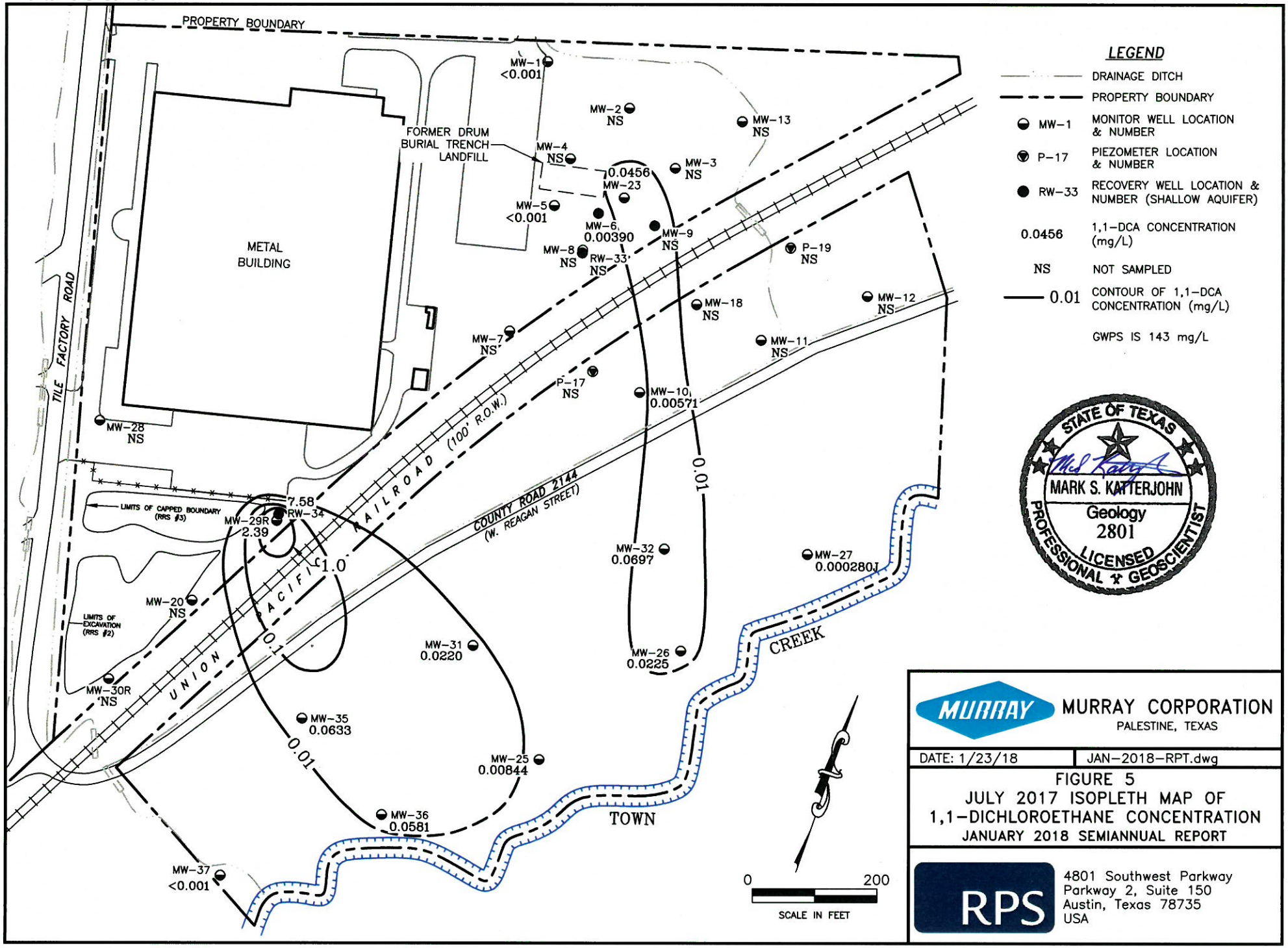

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0456 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)
- GWPS IS 143 mg/L

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FIGURE 5
JULY 2017 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
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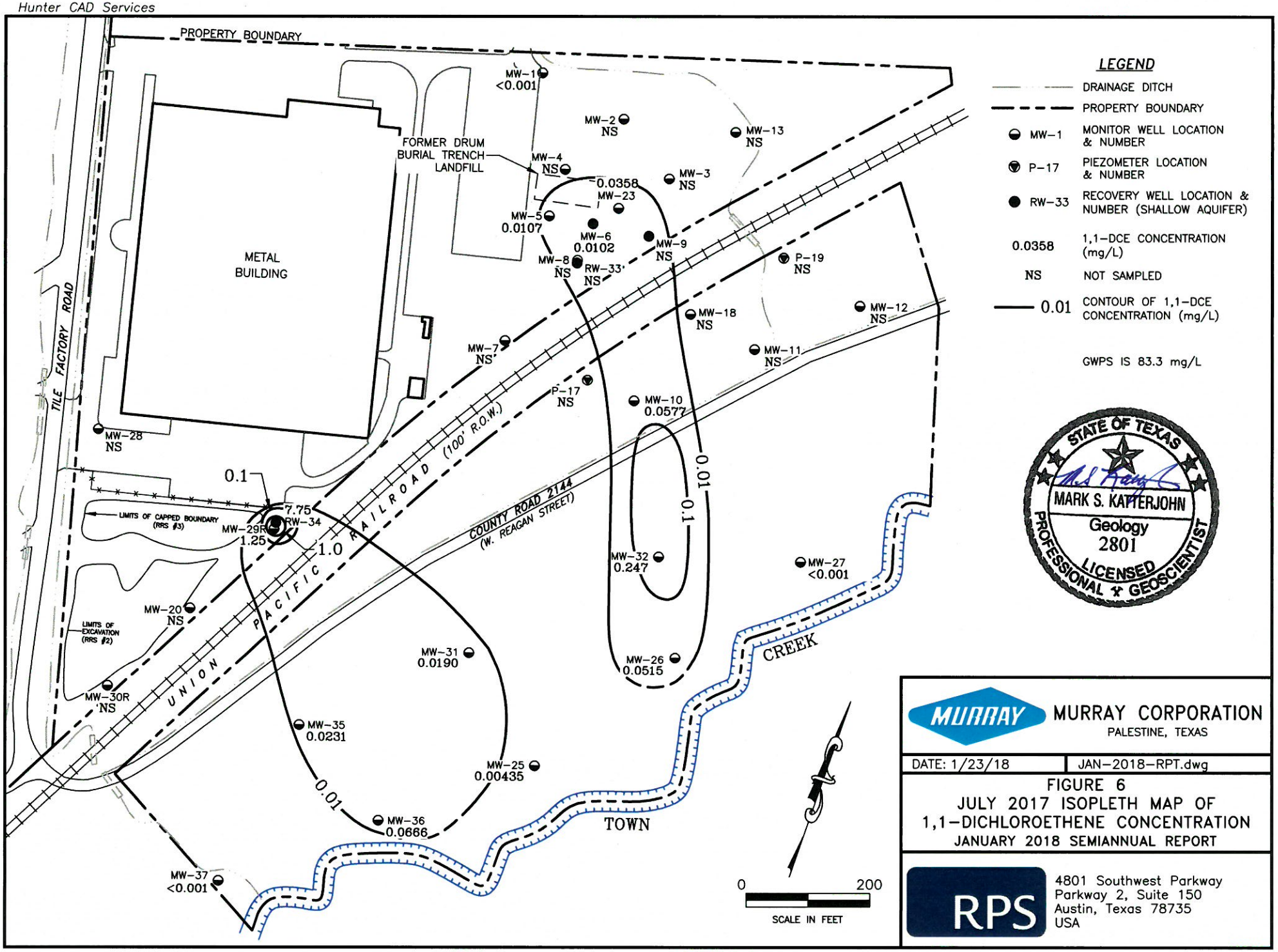

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0358 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 6
JULY 2017 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2018 SEMIANNUAL REPORT

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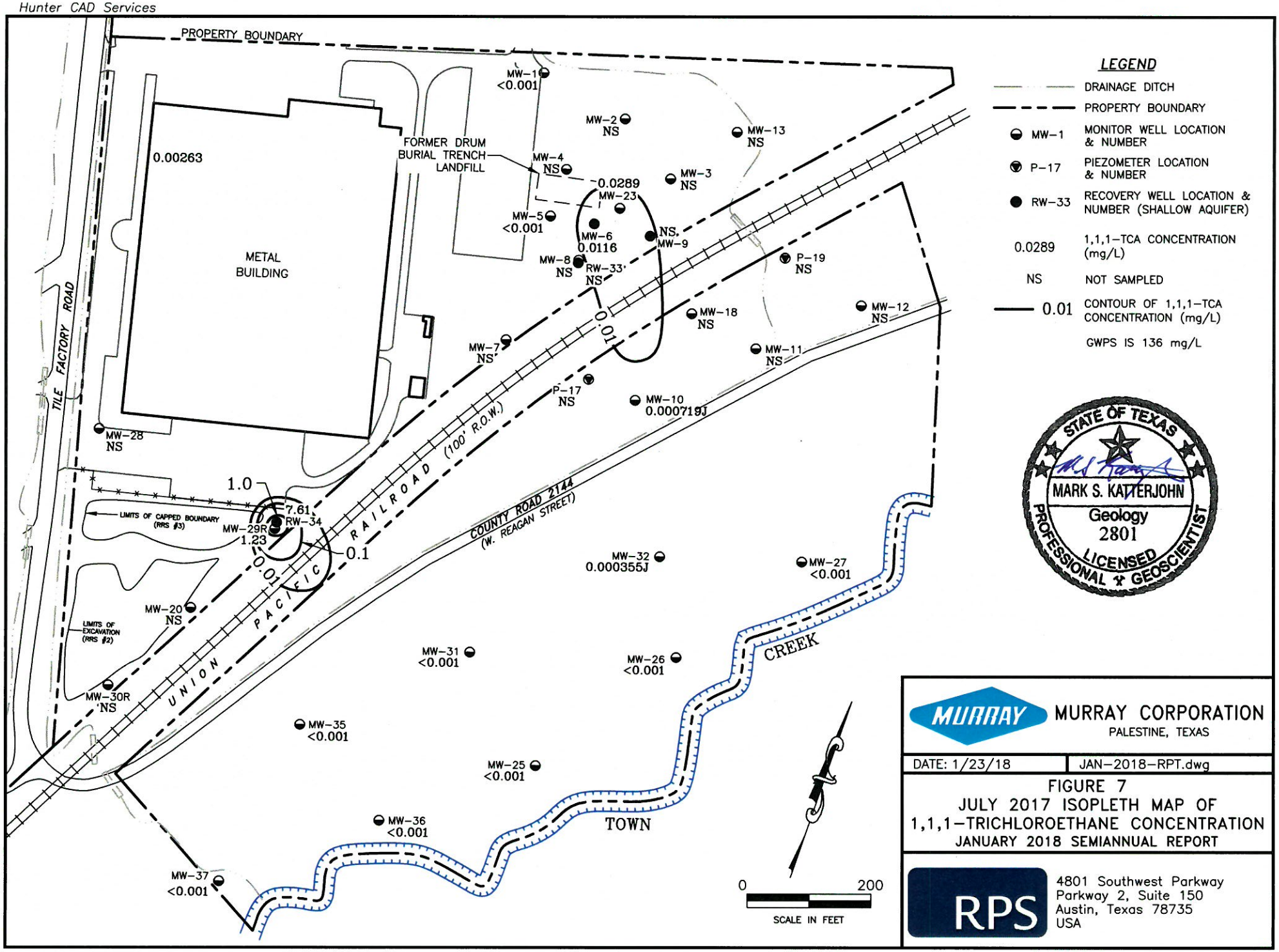

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0289 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)

GWPS IS 136 mg/L

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FIGURE 7
JULY 2017 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
JANUARY 2018 SEMIANNUAL REPORT

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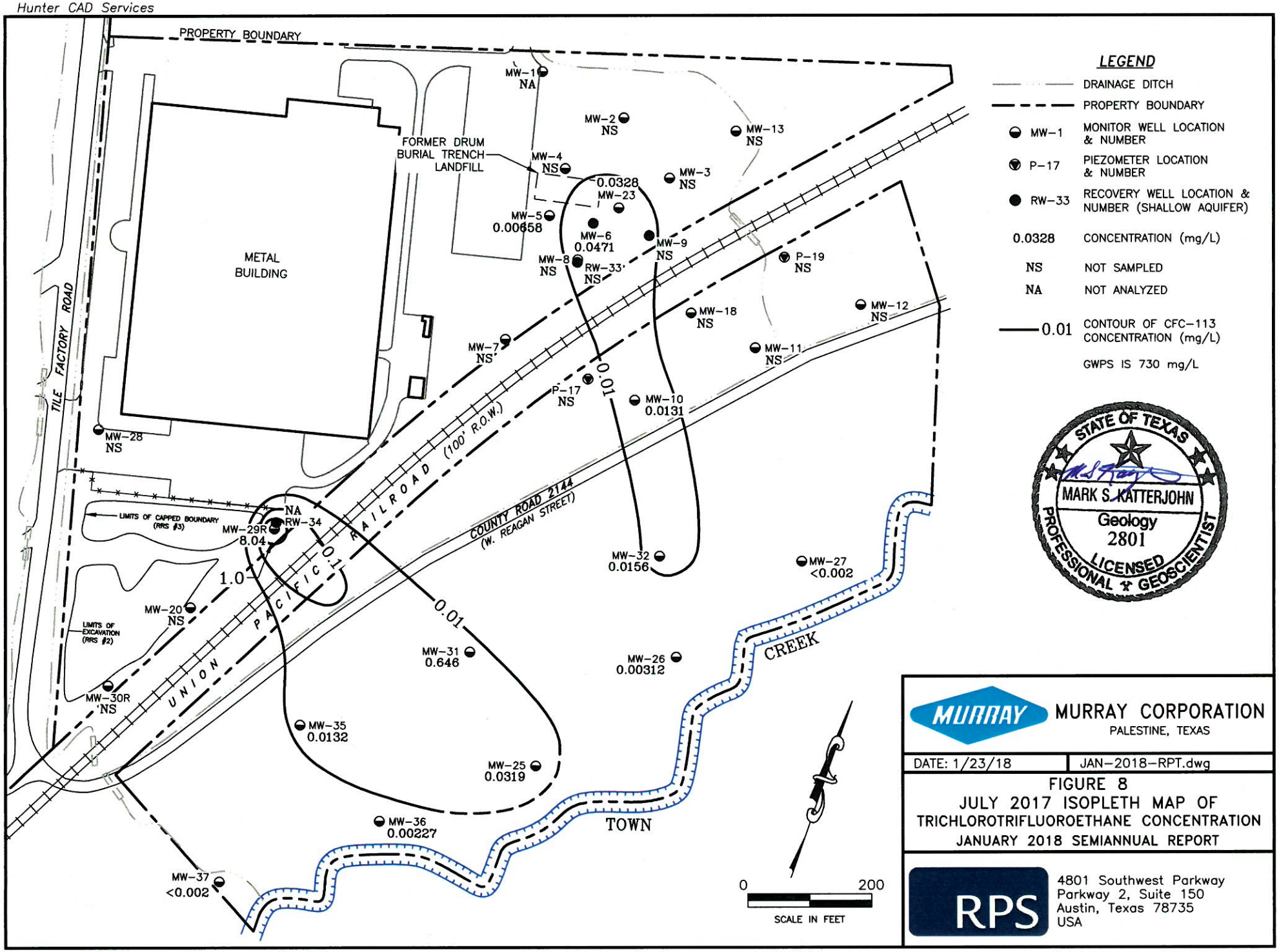

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0328 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)

GWPS IS 730 mg/L

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FIGURE 8
JULY 2017 ISOPLETH MAP OF
TRICHLOROTRIFLUOROETHANE CONCENTRATION
JANUARY 2018 SEMIANNUAL REPORT

RPS
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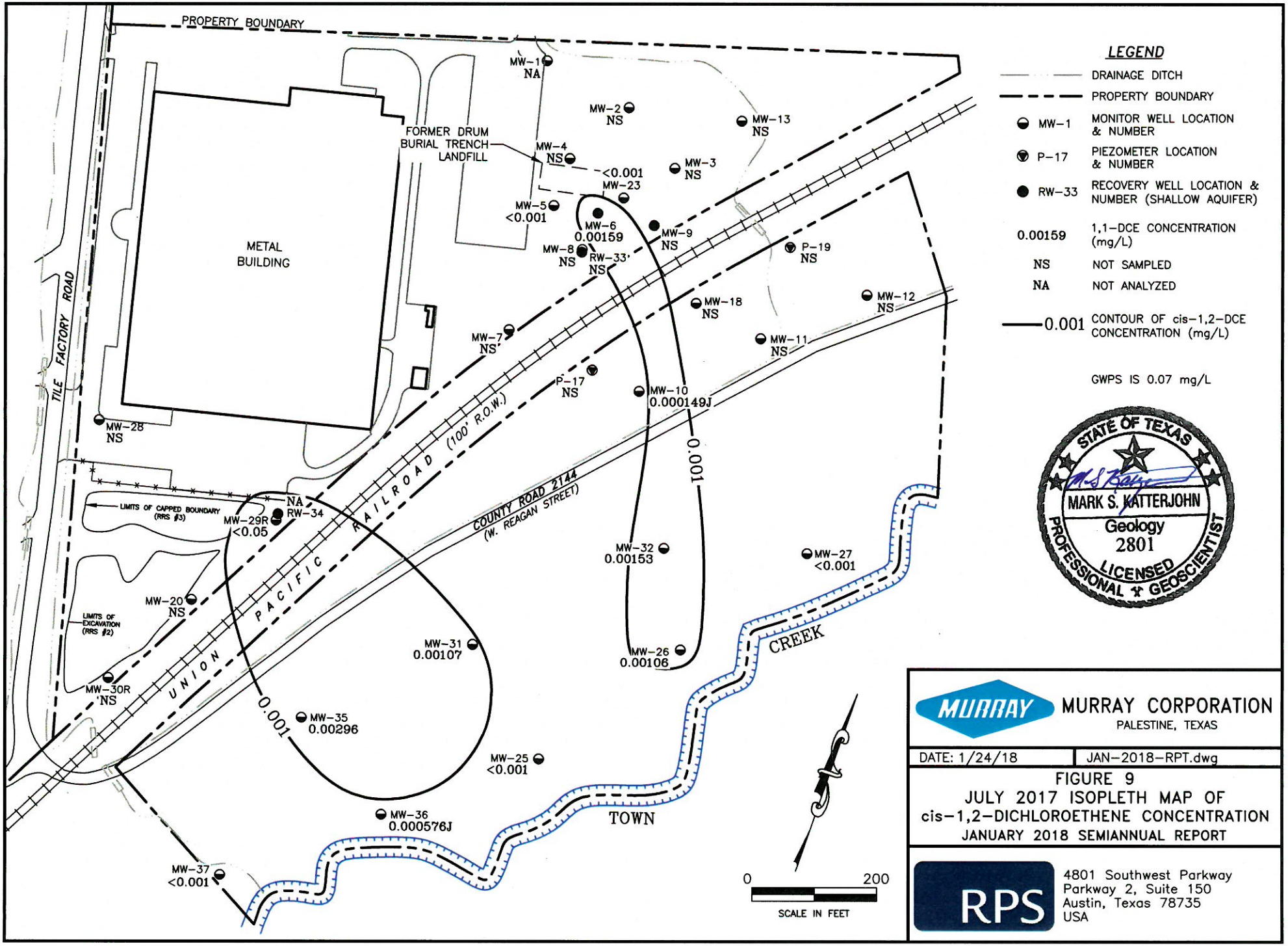

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00159 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.001 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L)

GWPS IS 0.07 mg/L

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FIGURE 9
JULY 2017 ISOPLETH MAP OF
cis-1,2-DICHLOROETHENE CONCENTRATION
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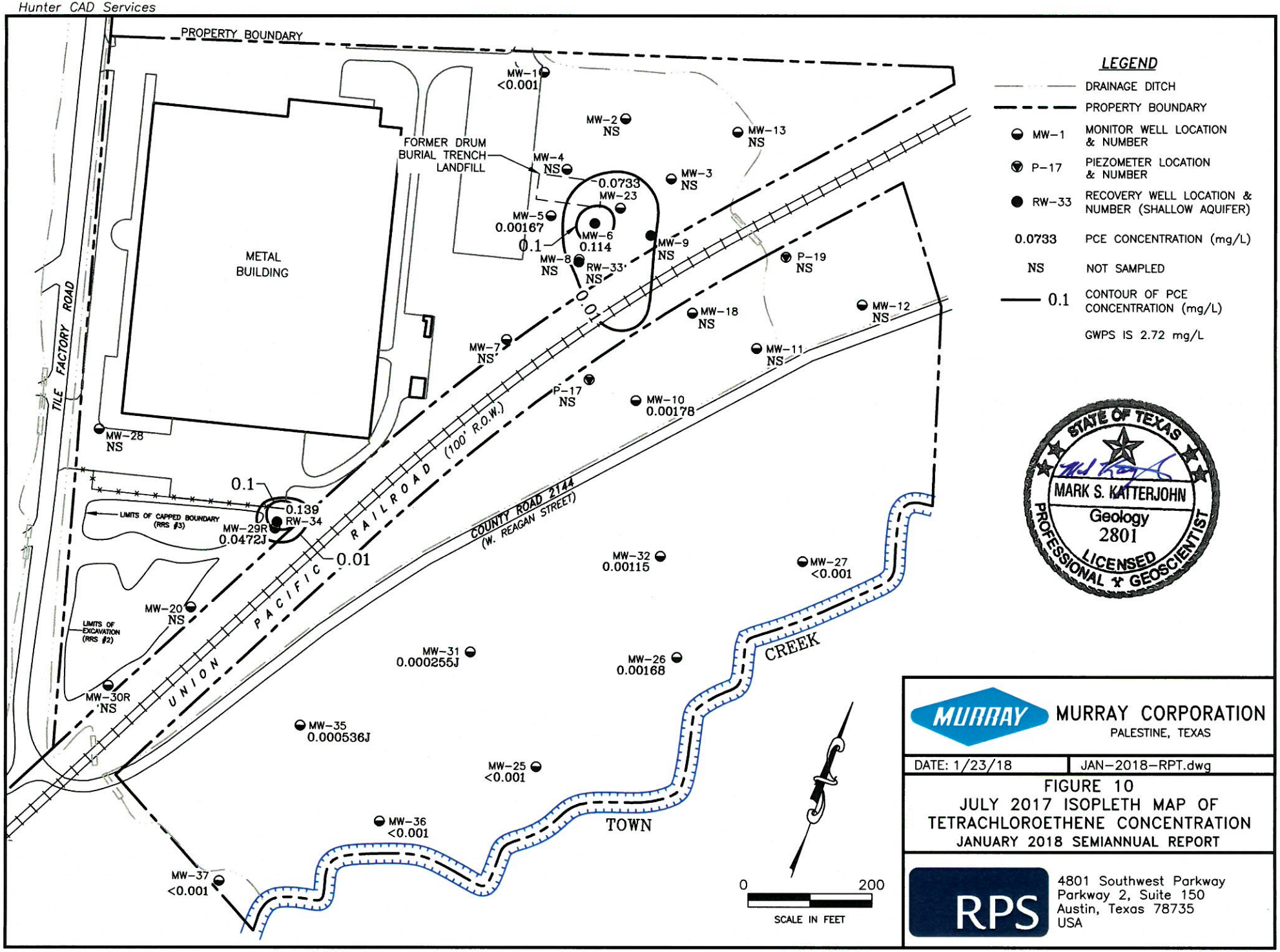

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0733 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.1 — CONTOUR OF PCE CONCENTRATION (mg/L)
- GWPS IS 2.72 mg/L

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FIGURE 10
JULY 2017 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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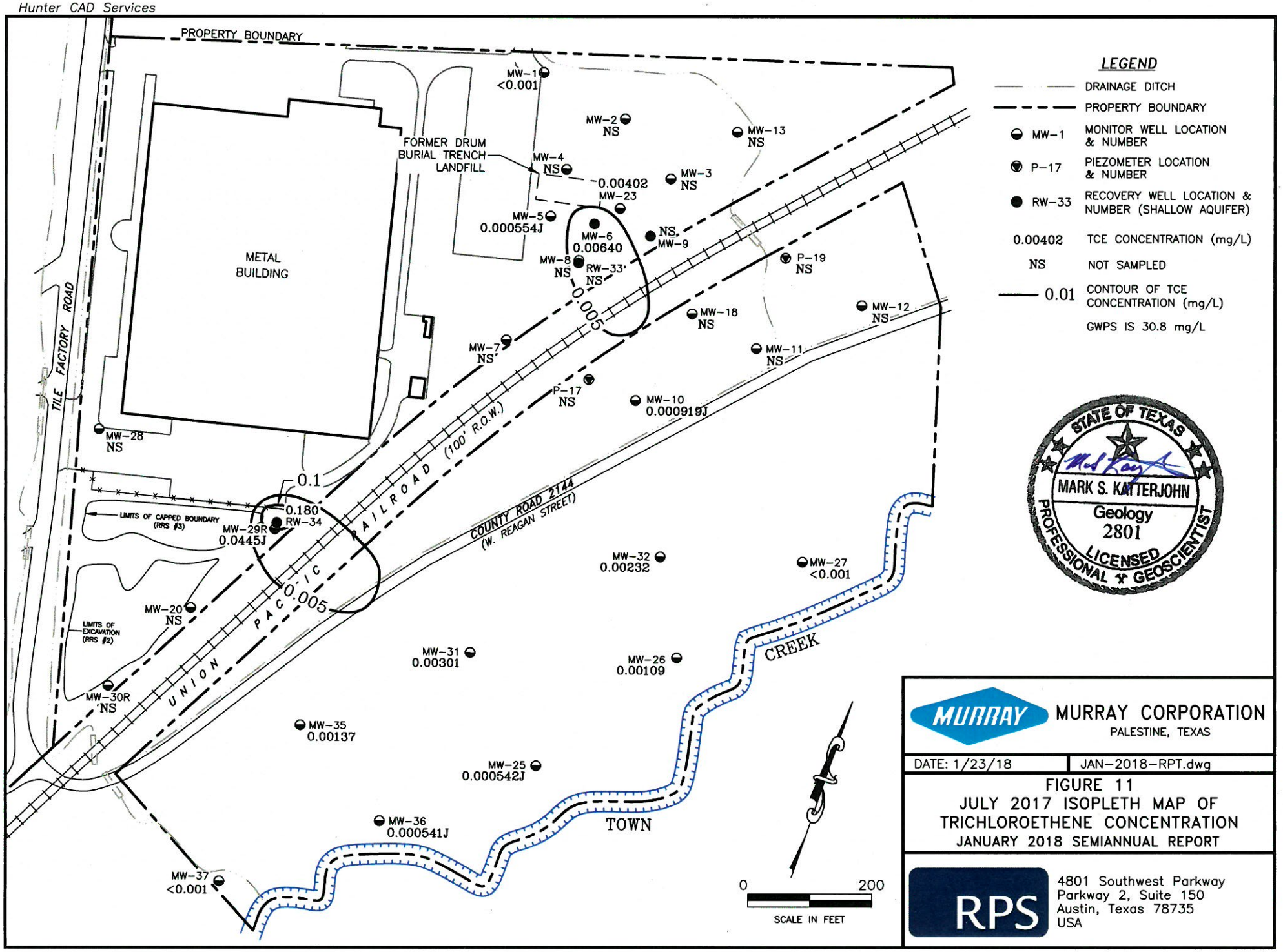

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00402 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 30.8 mg/L

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FIGURE 11
JULY 2017 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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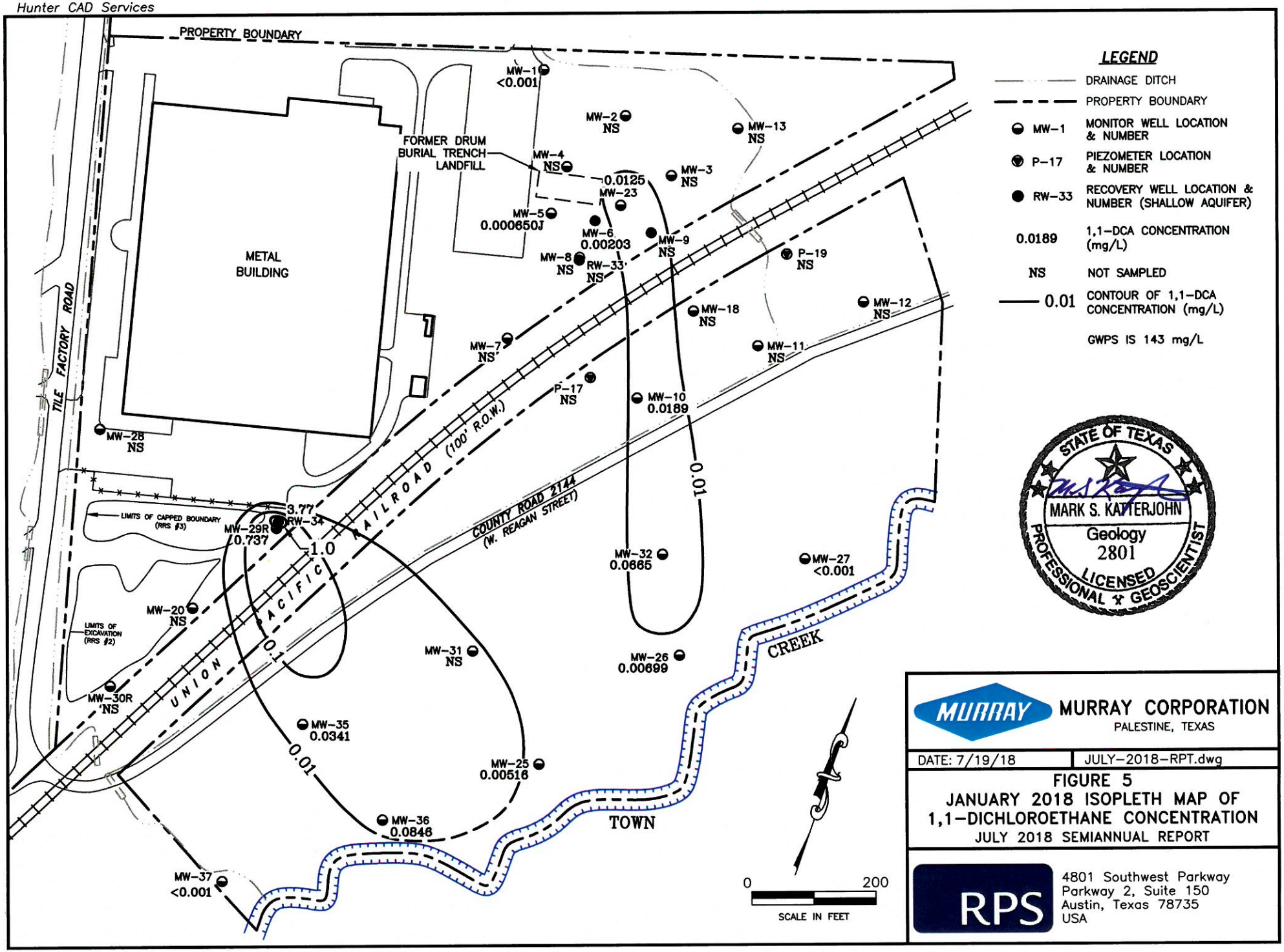

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0189 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L)

GWPS IS 143 mg/L

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FIGURE 5
JANUARY 2018 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
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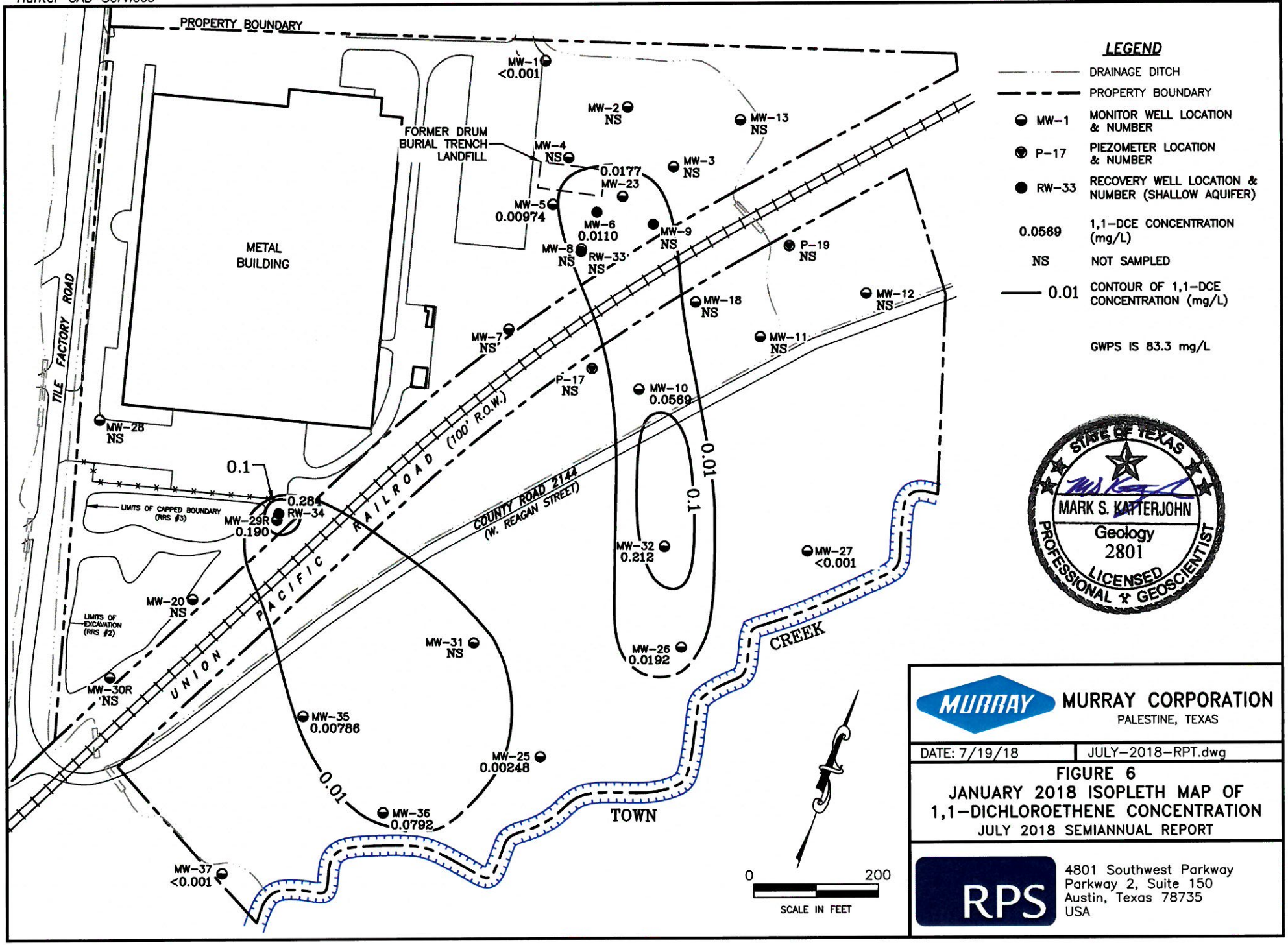

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0569 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L)

GWPS IS 83.3 mg/L

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FIGURE 6
JANUARY 2018 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
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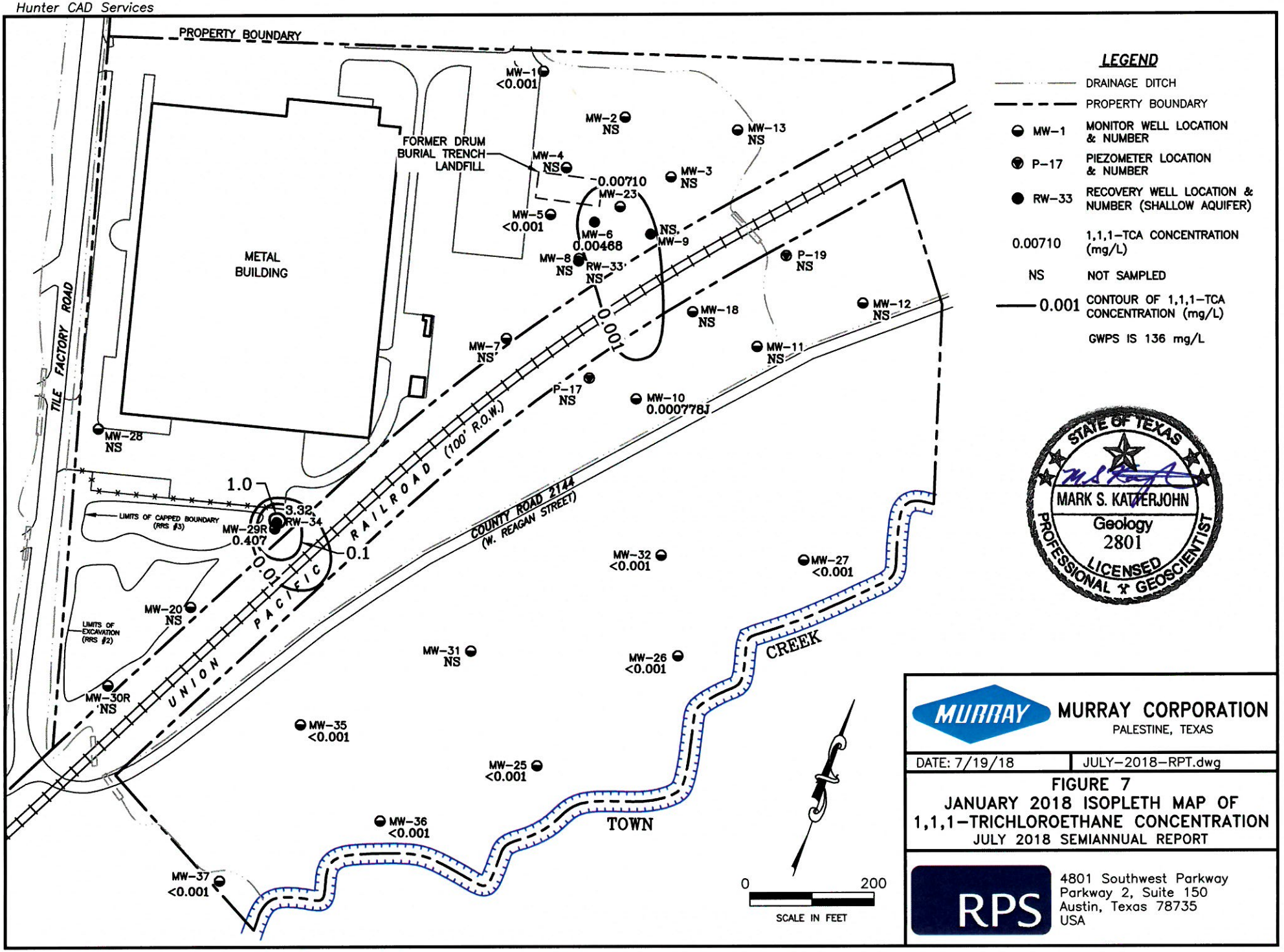

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00710 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L)
- GWPS IS 136 mg/L

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FIGURE 7
JANUARY 2018 ISOPLETH MAP OF 1,1,1-TRICHLOROETHANE CONCENTRATION
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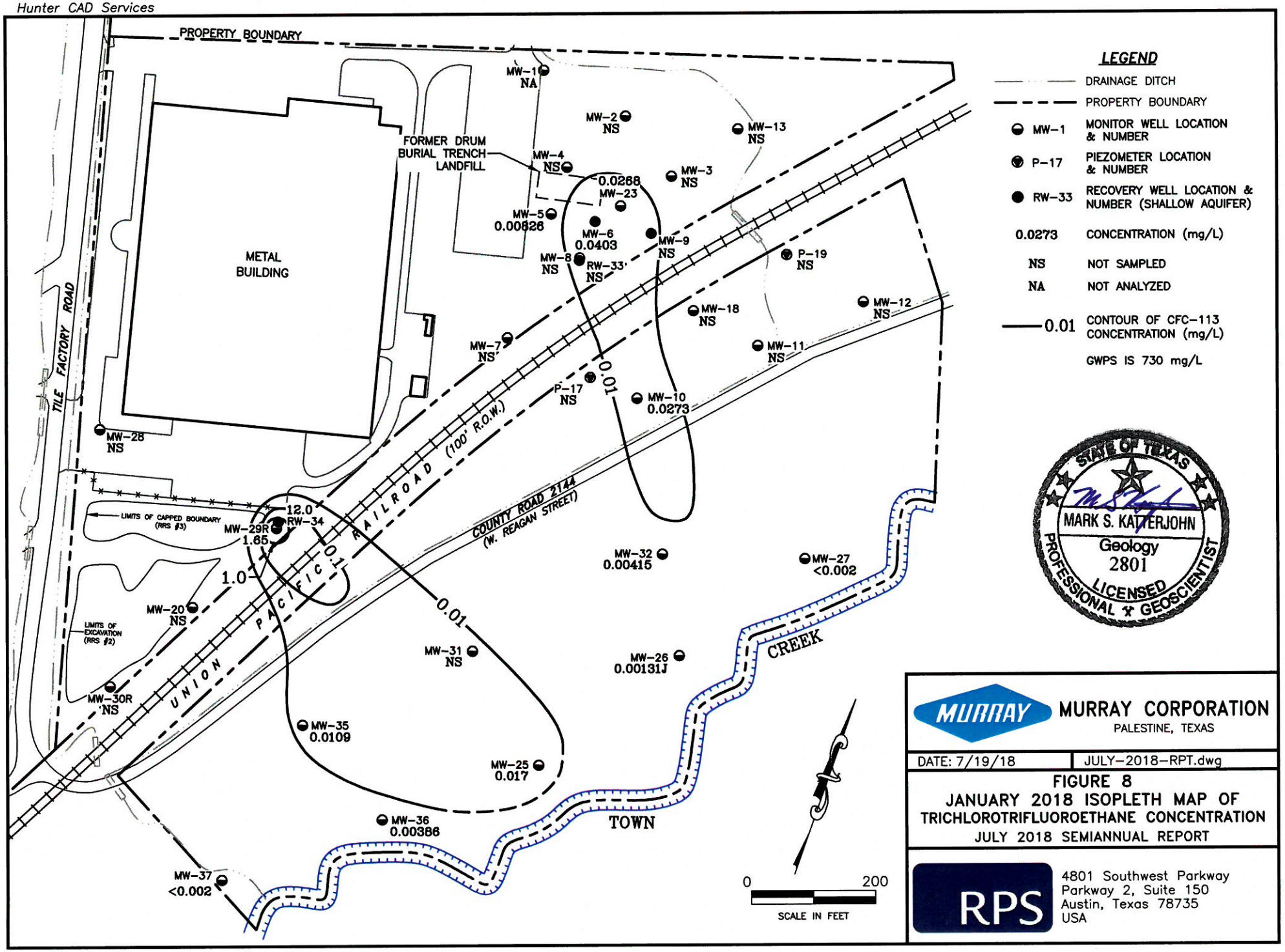

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0273 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L)
- GWPS IS 730 mg/L

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FIGURE 8
JANUARY 2018 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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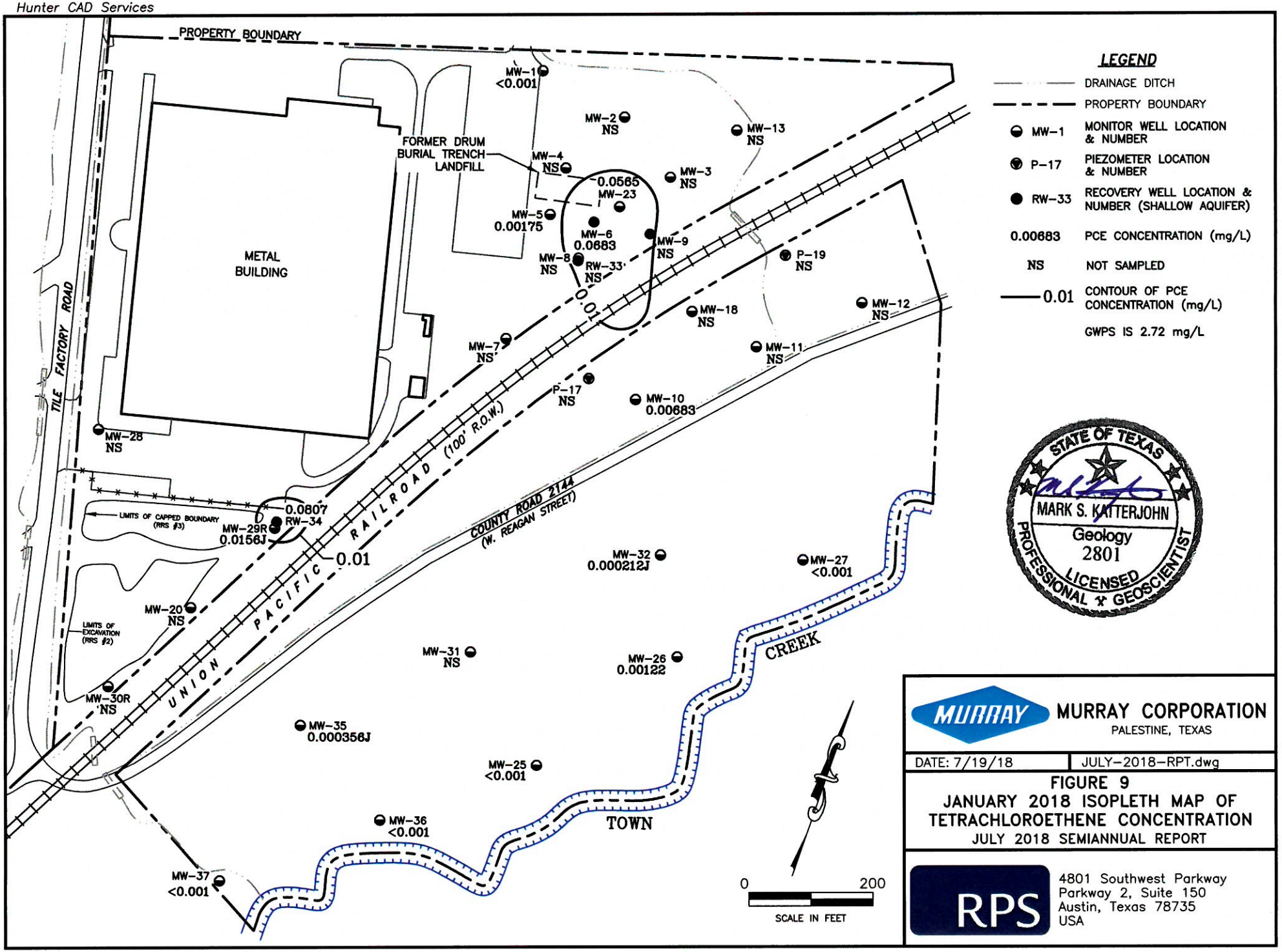

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00683 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L)
- GWPS IS 2.72 mg/L

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FIGURE 9
JANUARY 2018 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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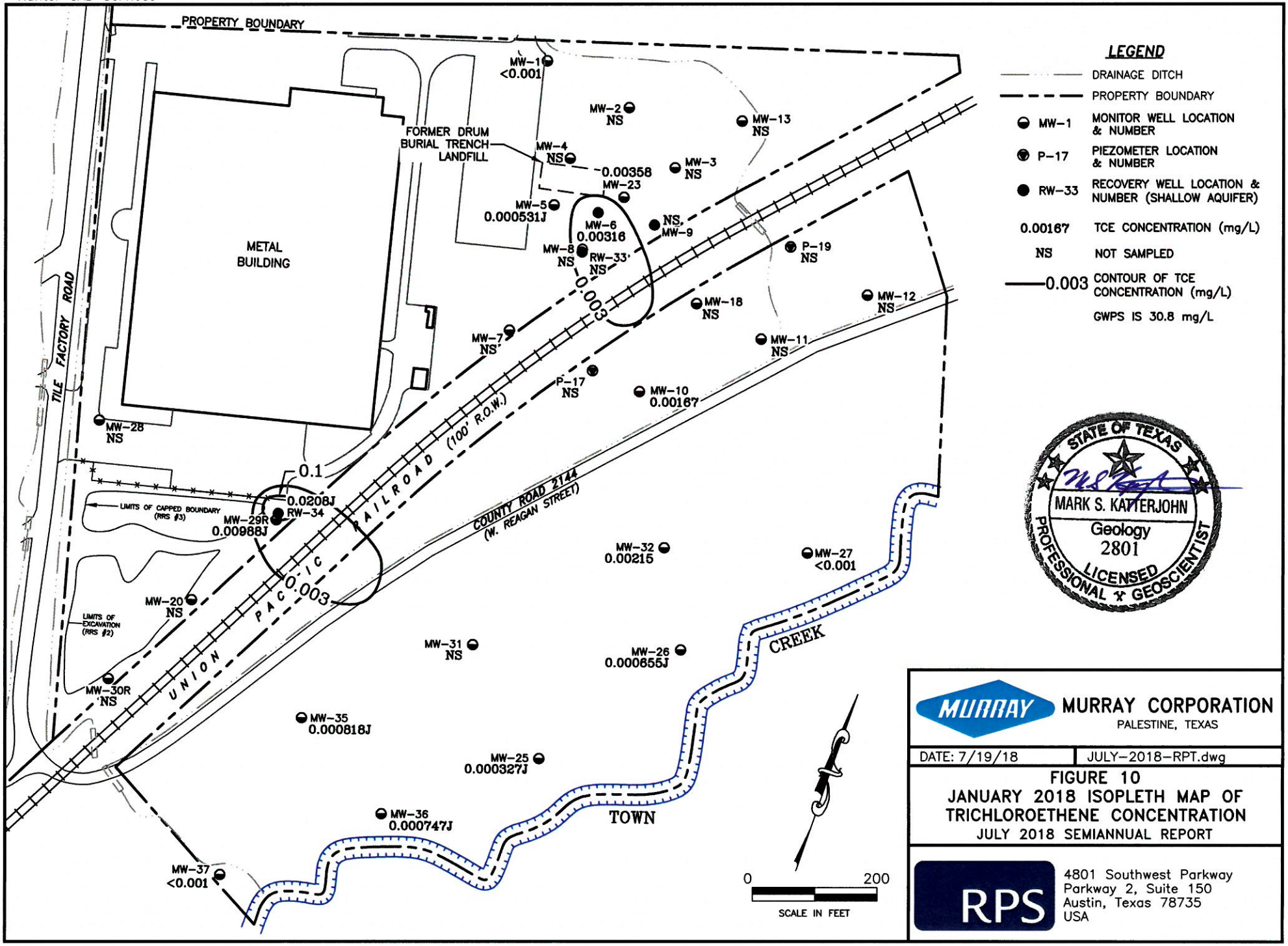

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00167 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.003 — CONTOUR OF TCE CONCENTRATION (mg/L)
- GWPS IS 30.8 mg/L

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FIGURE 10
JANUARY 2018 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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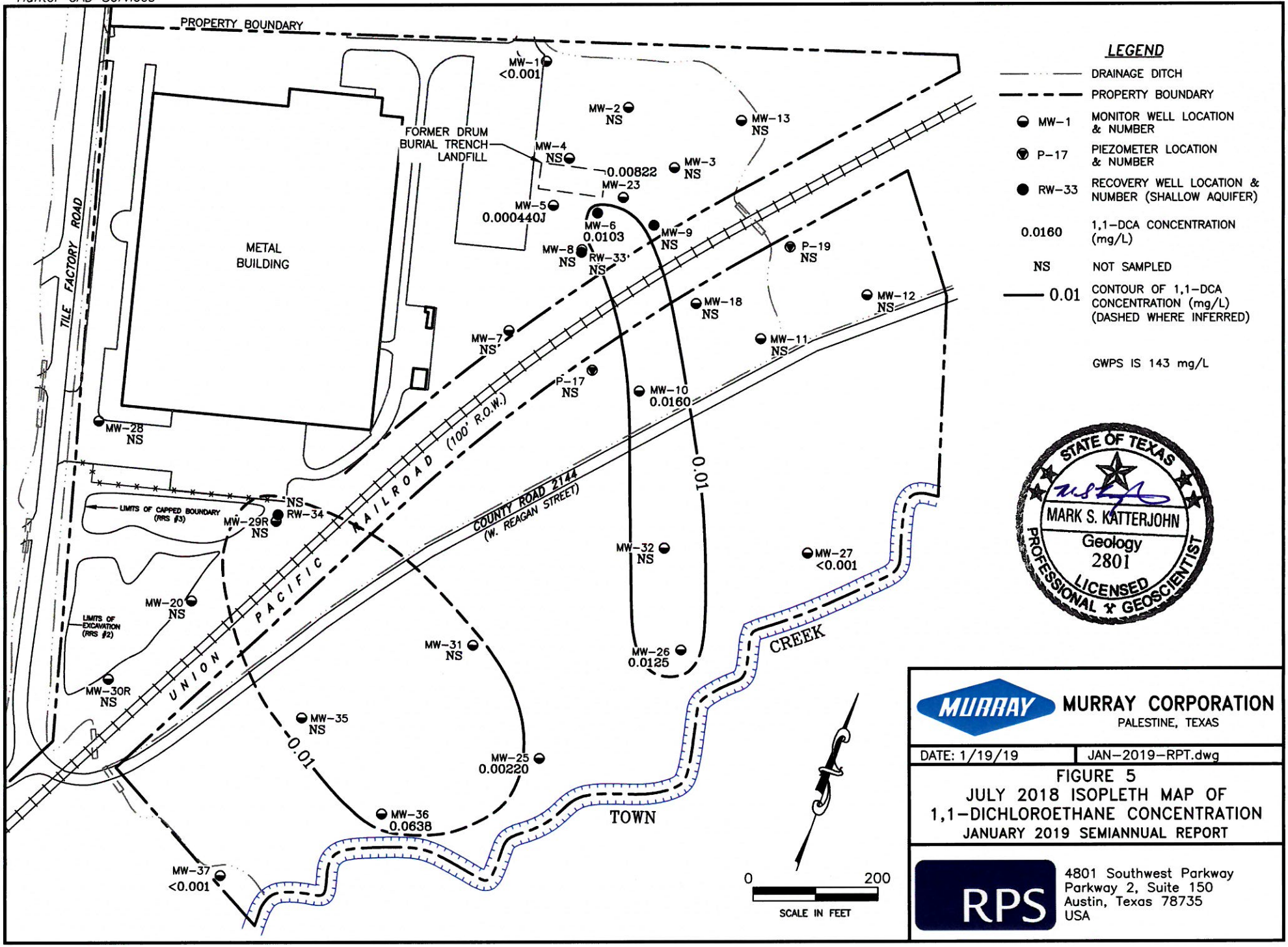

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0160 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 143 mg/L

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FIGURE 5
JULY 2018 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
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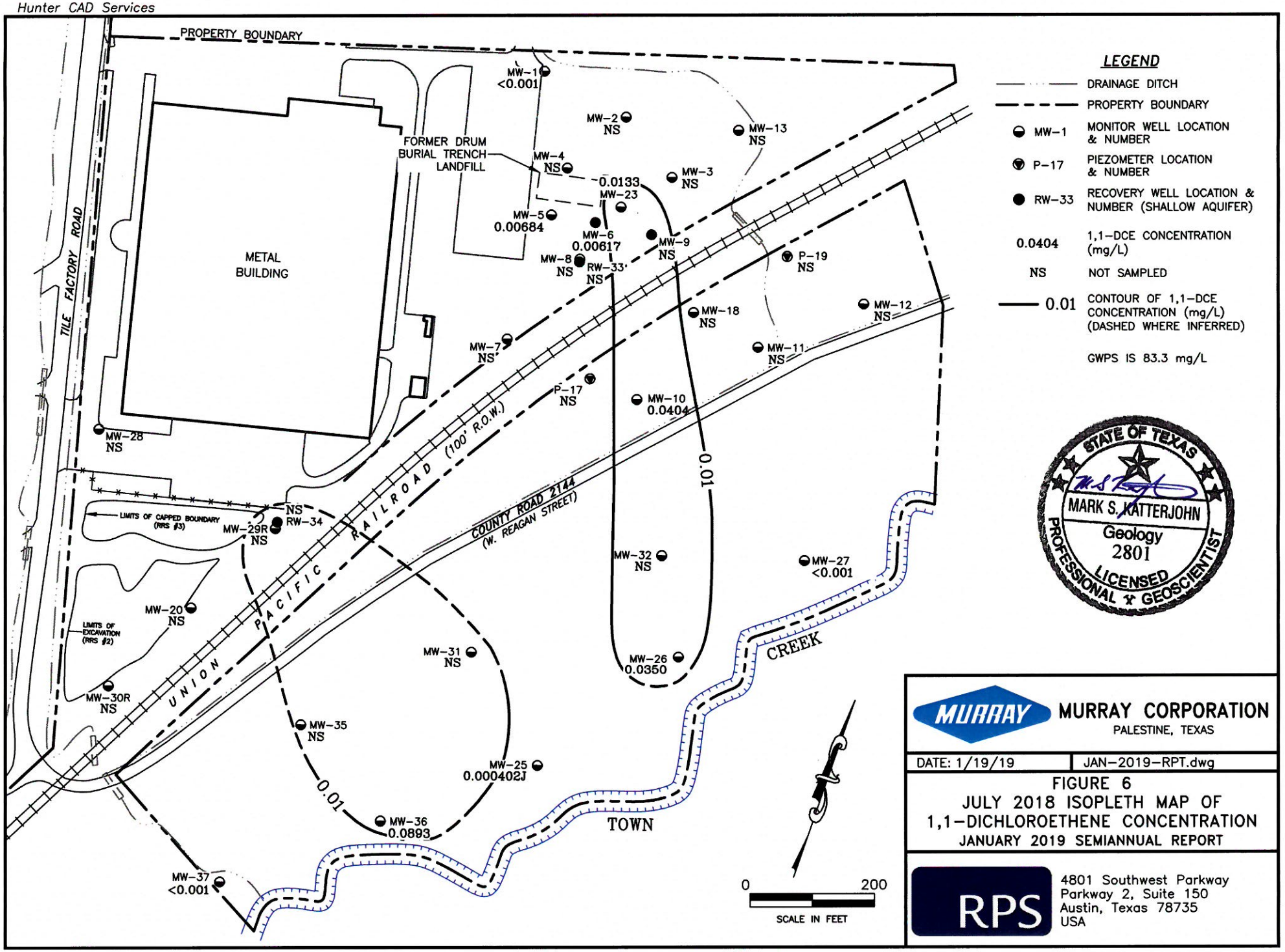

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0404 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 83.3 mg/L

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FIGURE 6
JULY 2018 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
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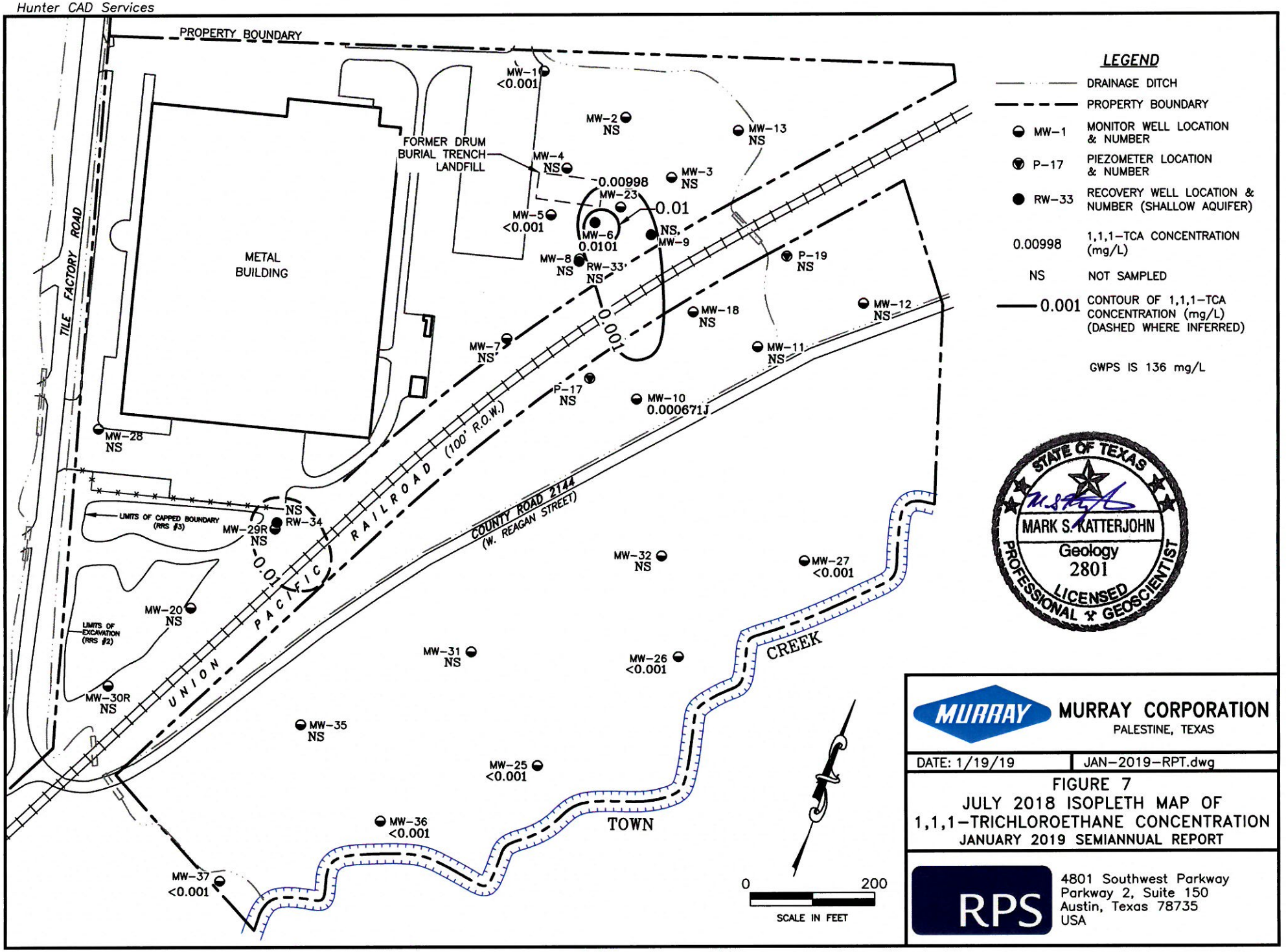

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00998 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 136 mg/L

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FIGURE 7
JULY 2018 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
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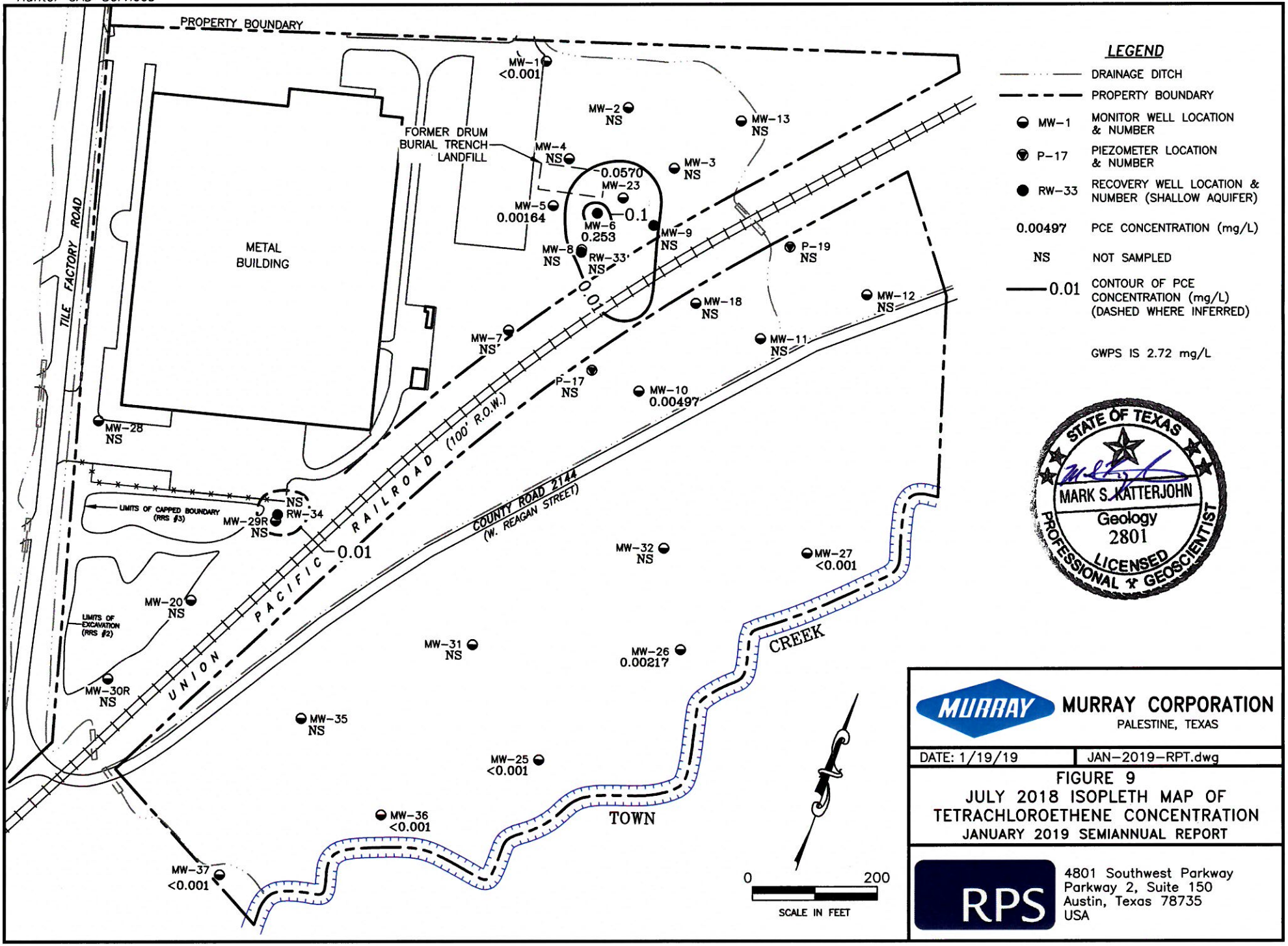

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00497 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 2.72 mg/L

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FIGURE 9
JULY 2018 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
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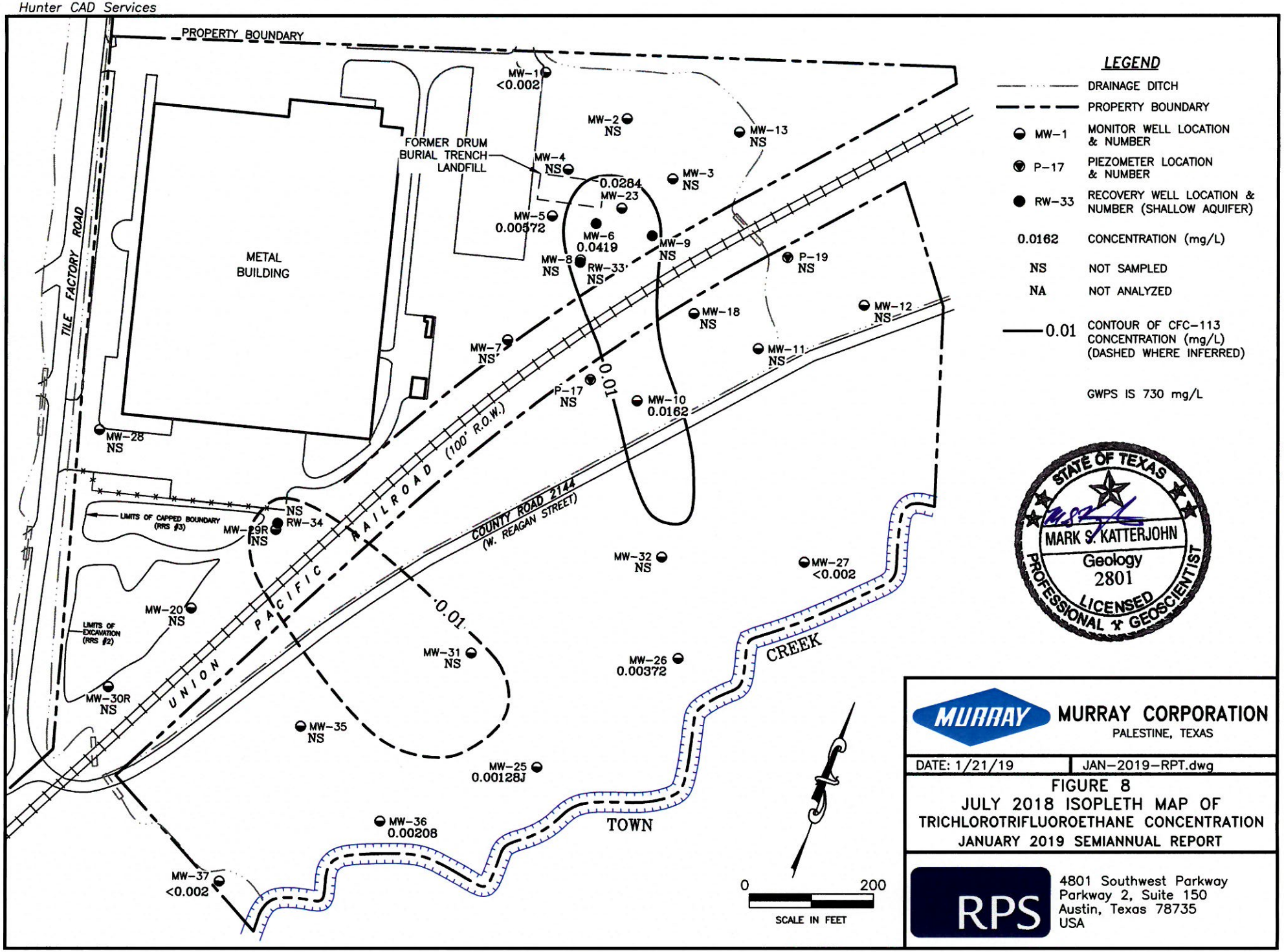

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0162 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 730 mg/L

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FIGURE 8
JULY 2018 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
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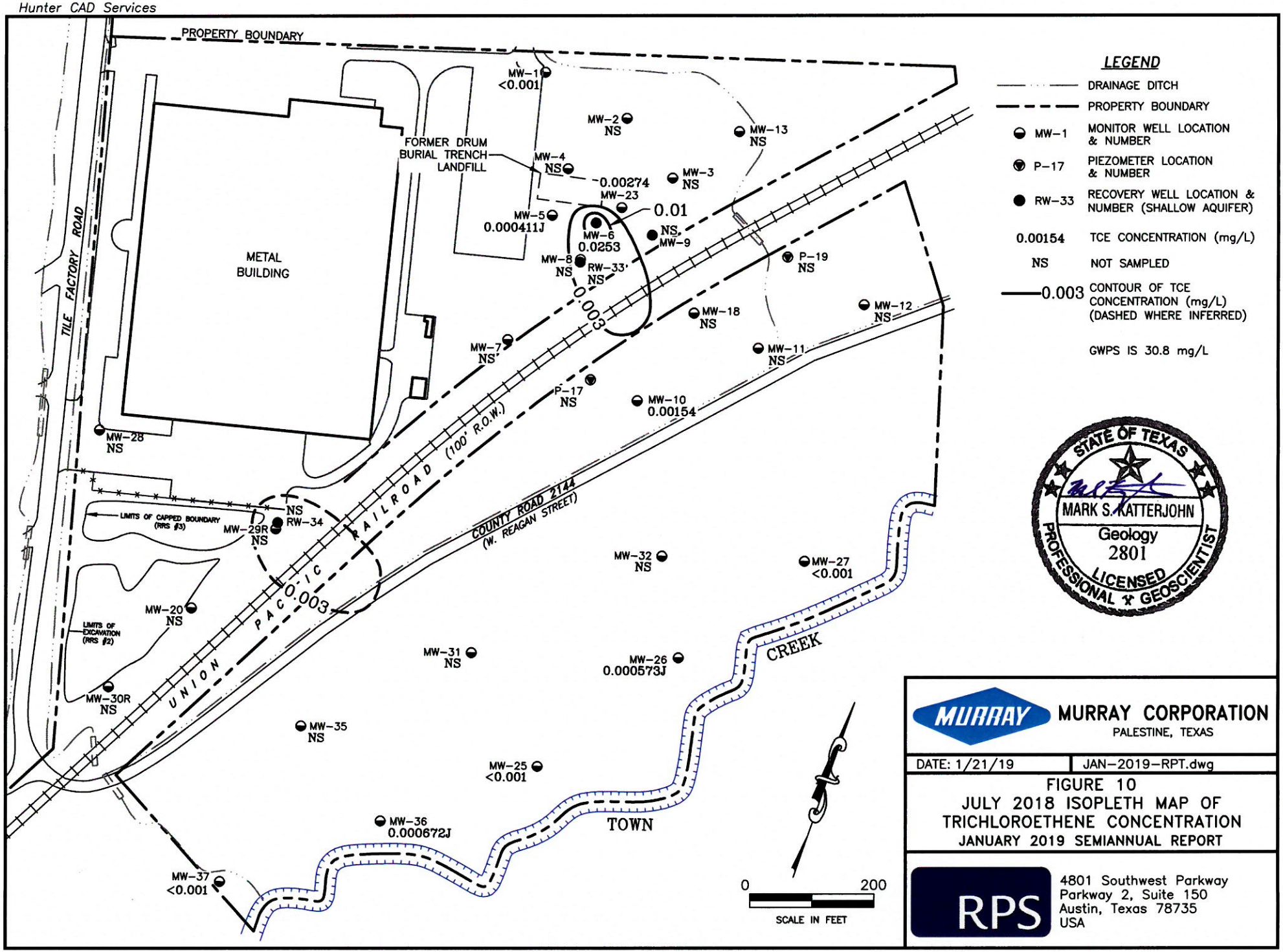

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00154 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.003 — CONTOUR OF TCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 30.8 mg/L

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FIGURE 10
JULY 2018 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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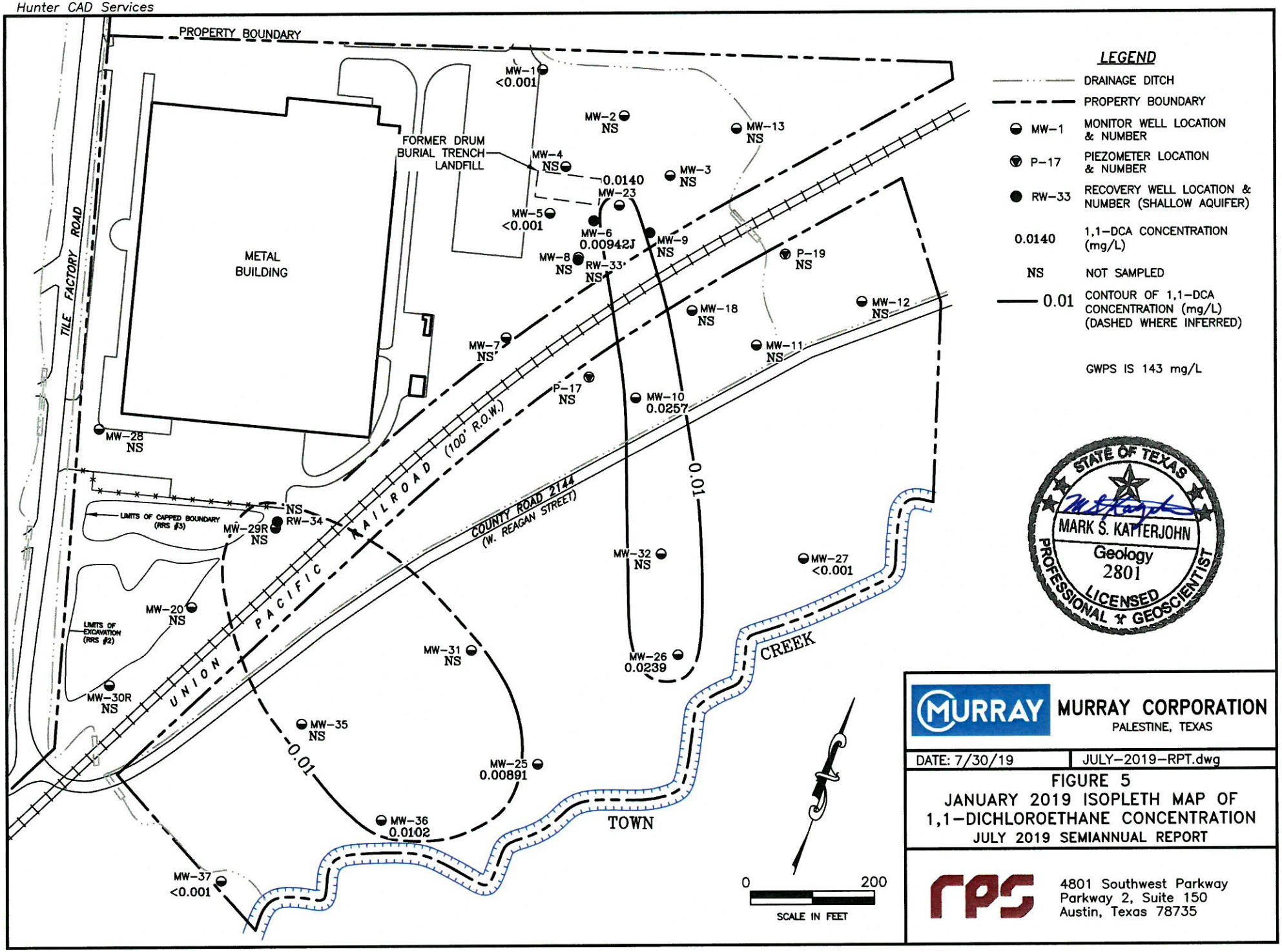

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0140 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 143 mg/L

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FIGURE 5
JANUARY 2019 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
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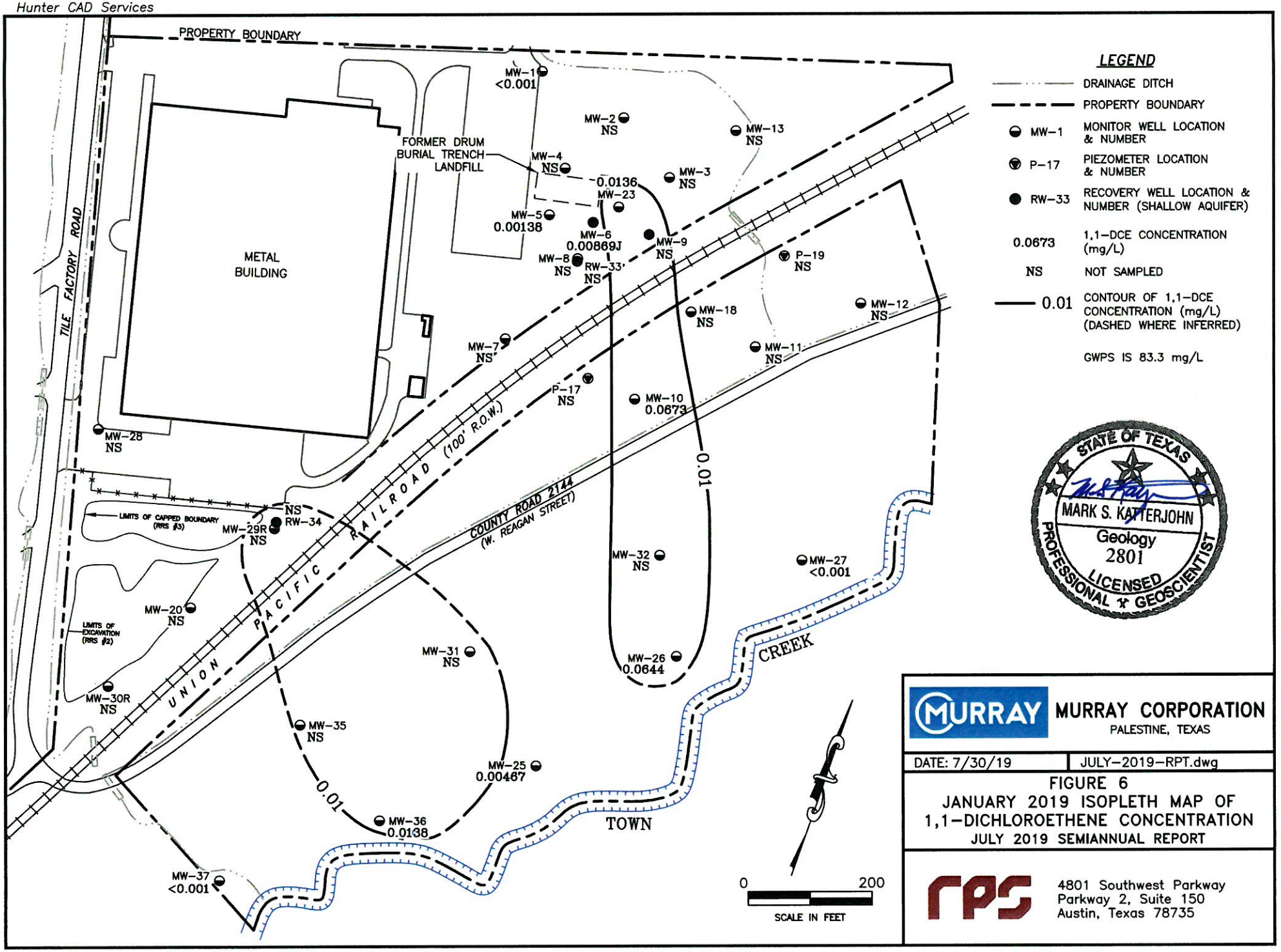

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0673 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 83.3 mg/L

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FIGURE 6
JANUARY 2019 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JULY 2019 SEMIANNUAL REPORT

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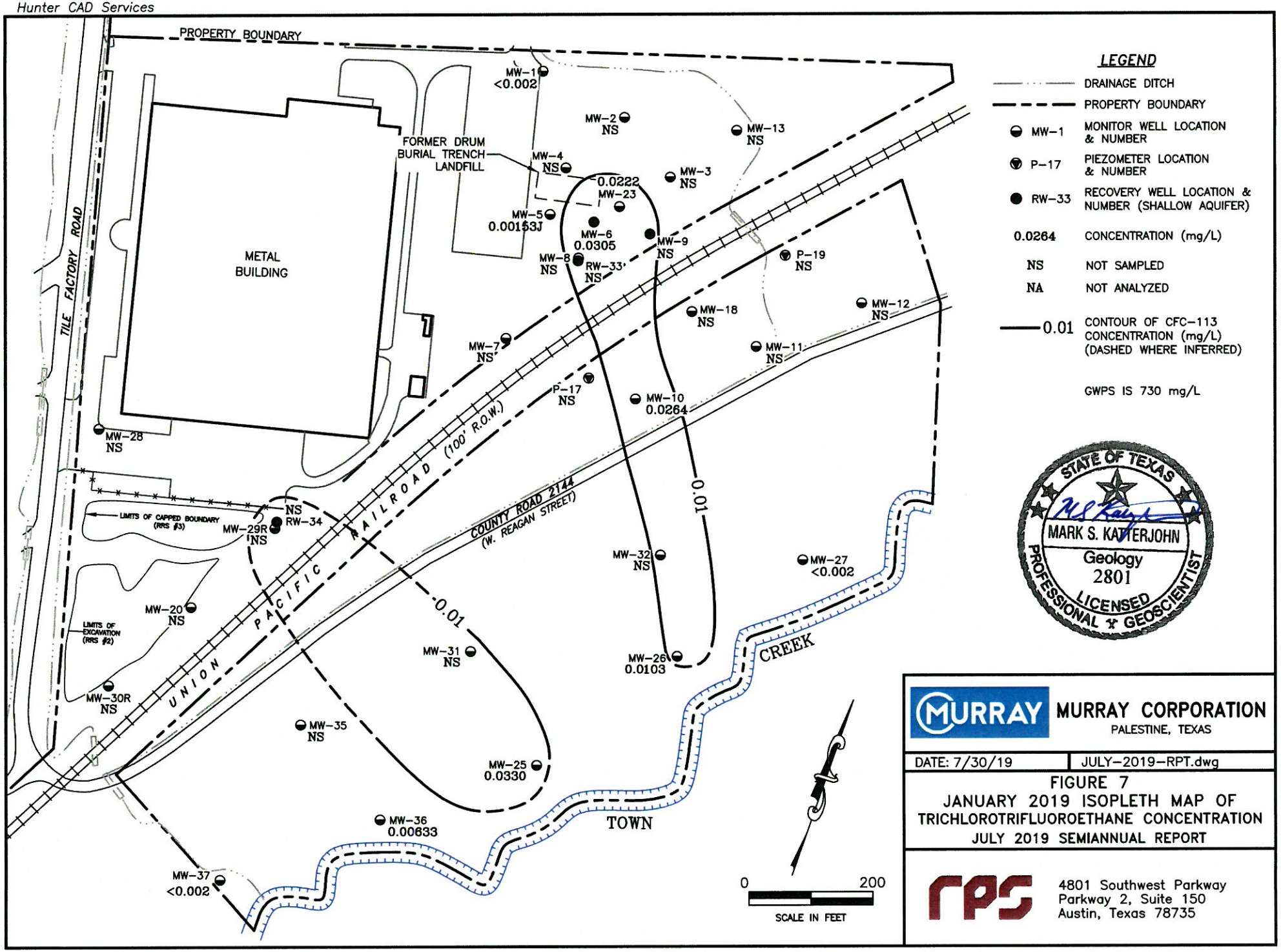

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0264 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 730 mg/L

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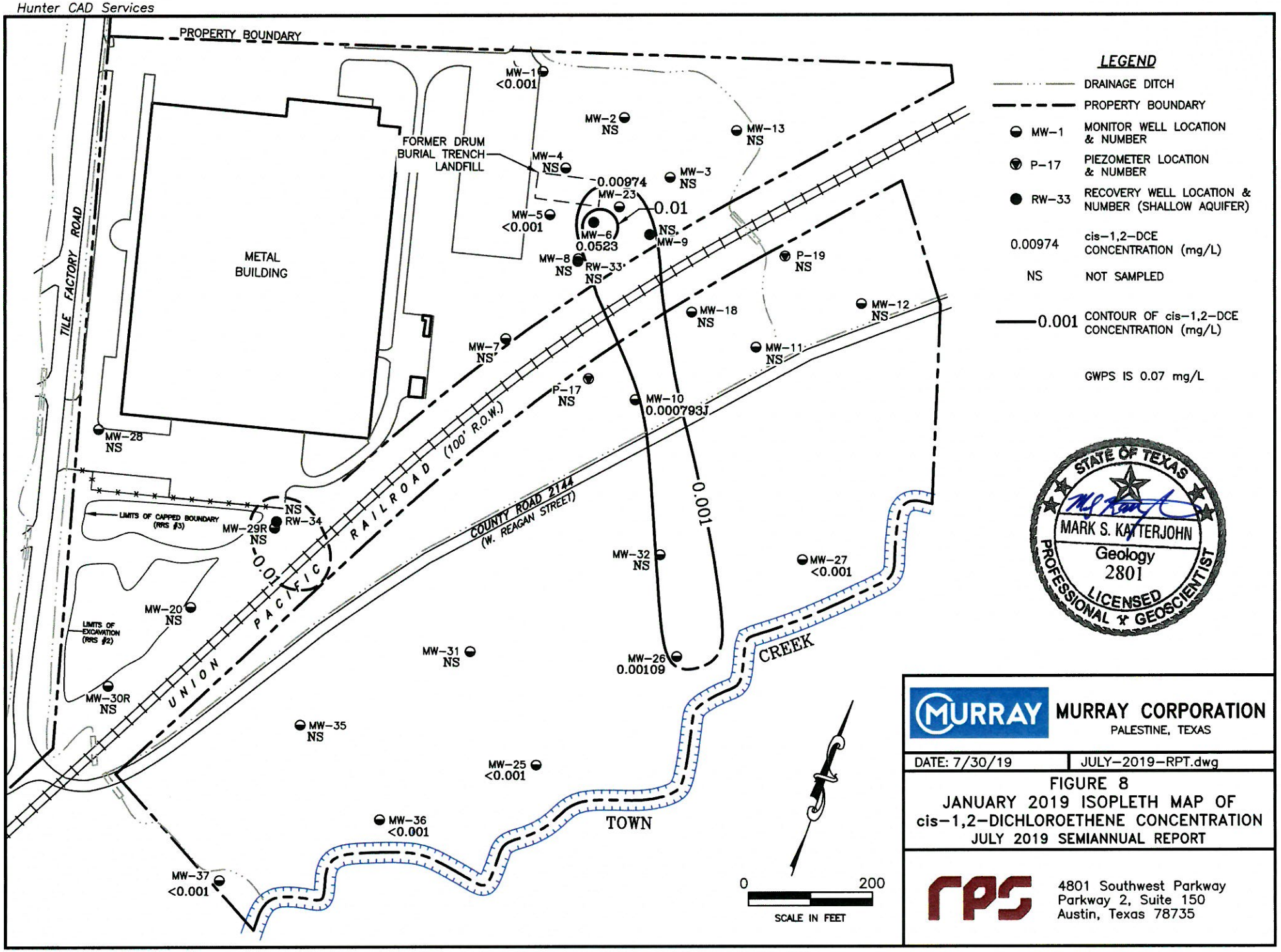
FIGURE 7
JANUARY 2019 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
JULY 2019 SEMIANNUAL REPORT

4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00974 — cis-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L)

GWPS IS 0.07 mg/L

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FIGURE 8
JANUARY 2019 ISOPLETH MAP OF
cis-1,2-DICHLOROETHENE CONCENTRATION
JULY 2019 SEMIANNUAL REPORT

rps
4801 Southwest Parkway
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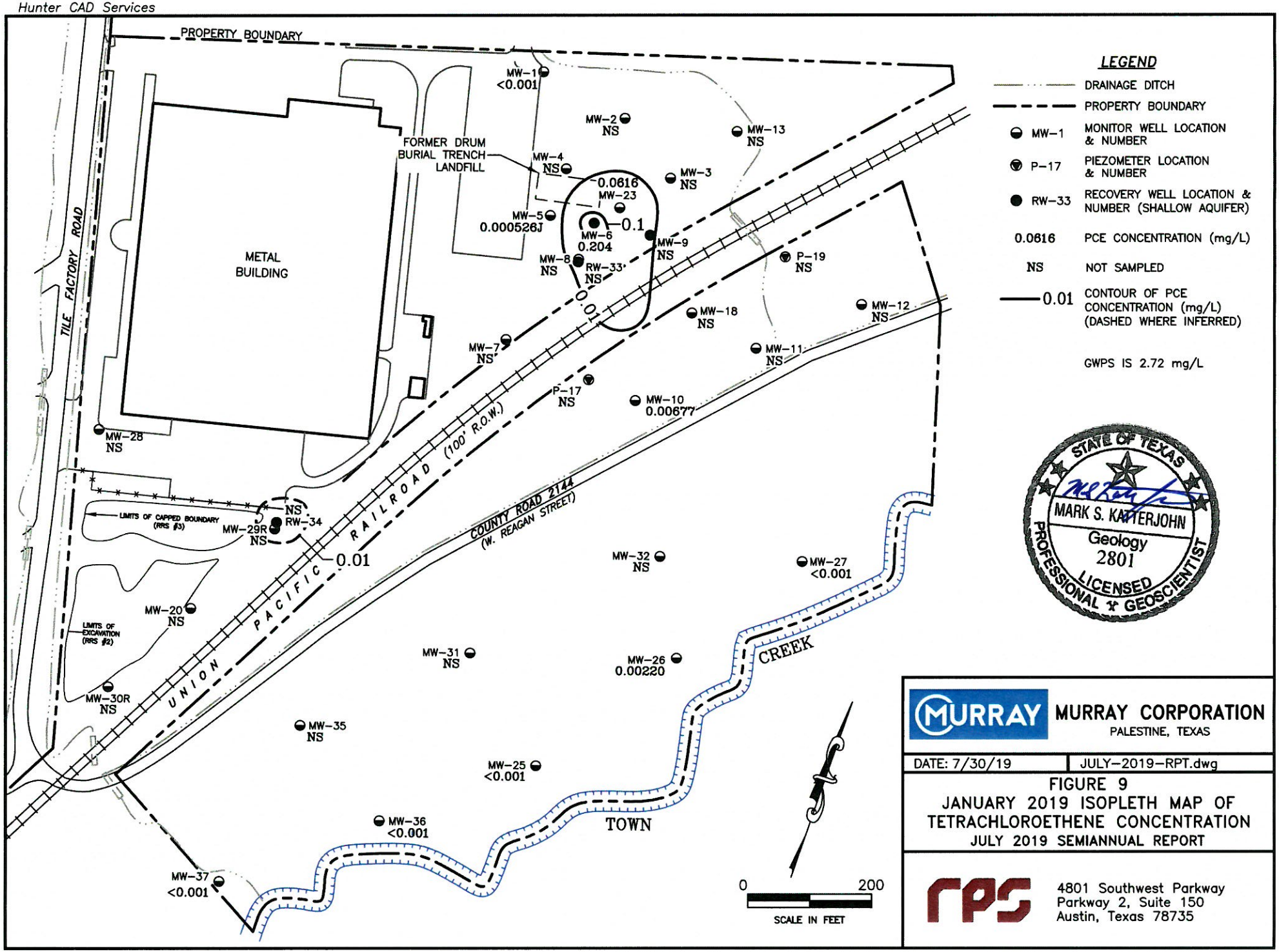

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0616 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 2.72 mg/L

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FIGURE 9
JANUARY 2019 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
JULY 2019 SEMIANNUAL REPORT

rps
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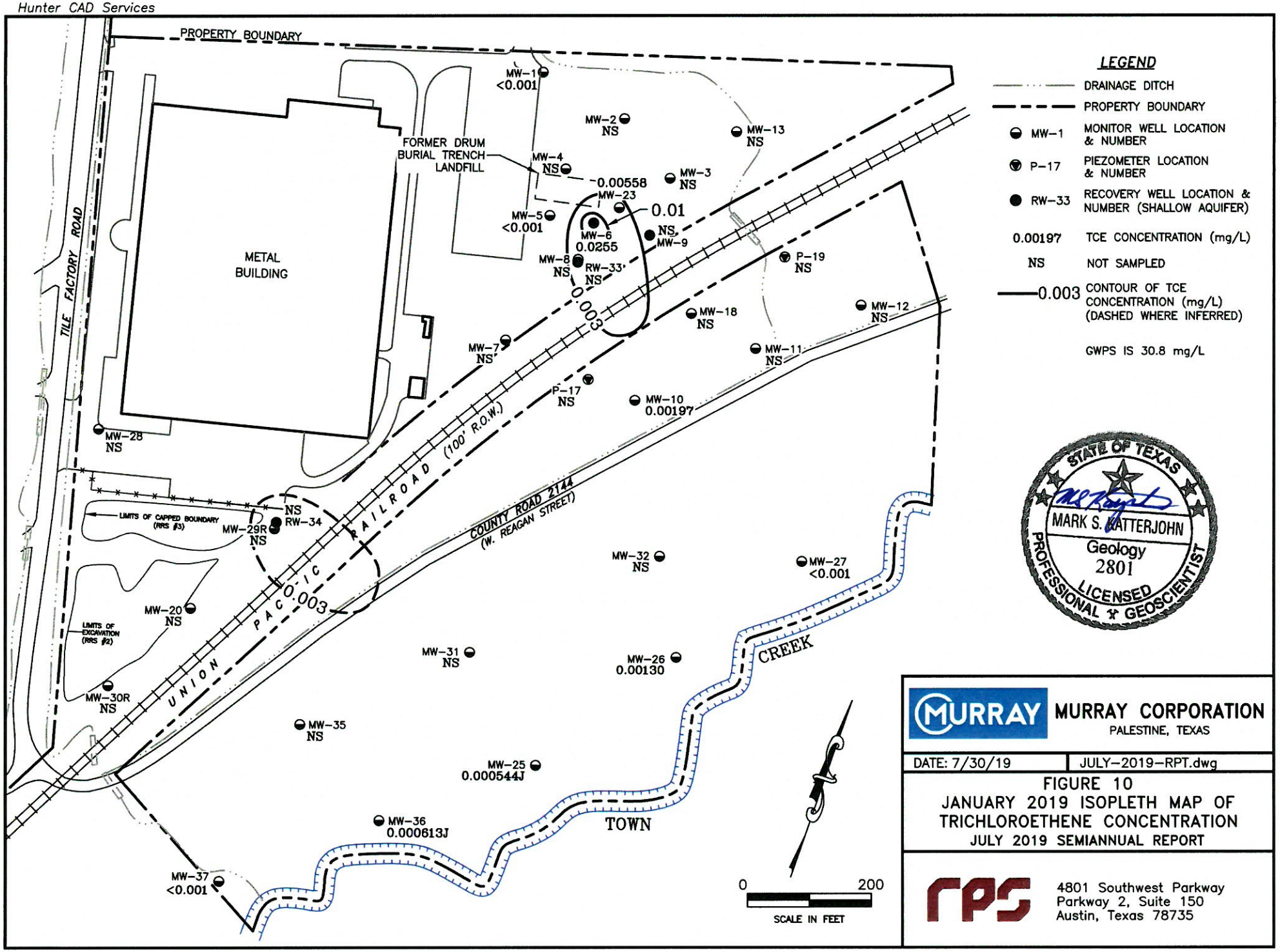
Hunter CAD Services



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00197 — TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.003 — CONTOUR OF TCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 30.8 mg/L

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FIGURE 10
JANUARY 2019 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
JULY 2019 SEMIANNUAL REPORT

rps
4801 Southwest Parkway
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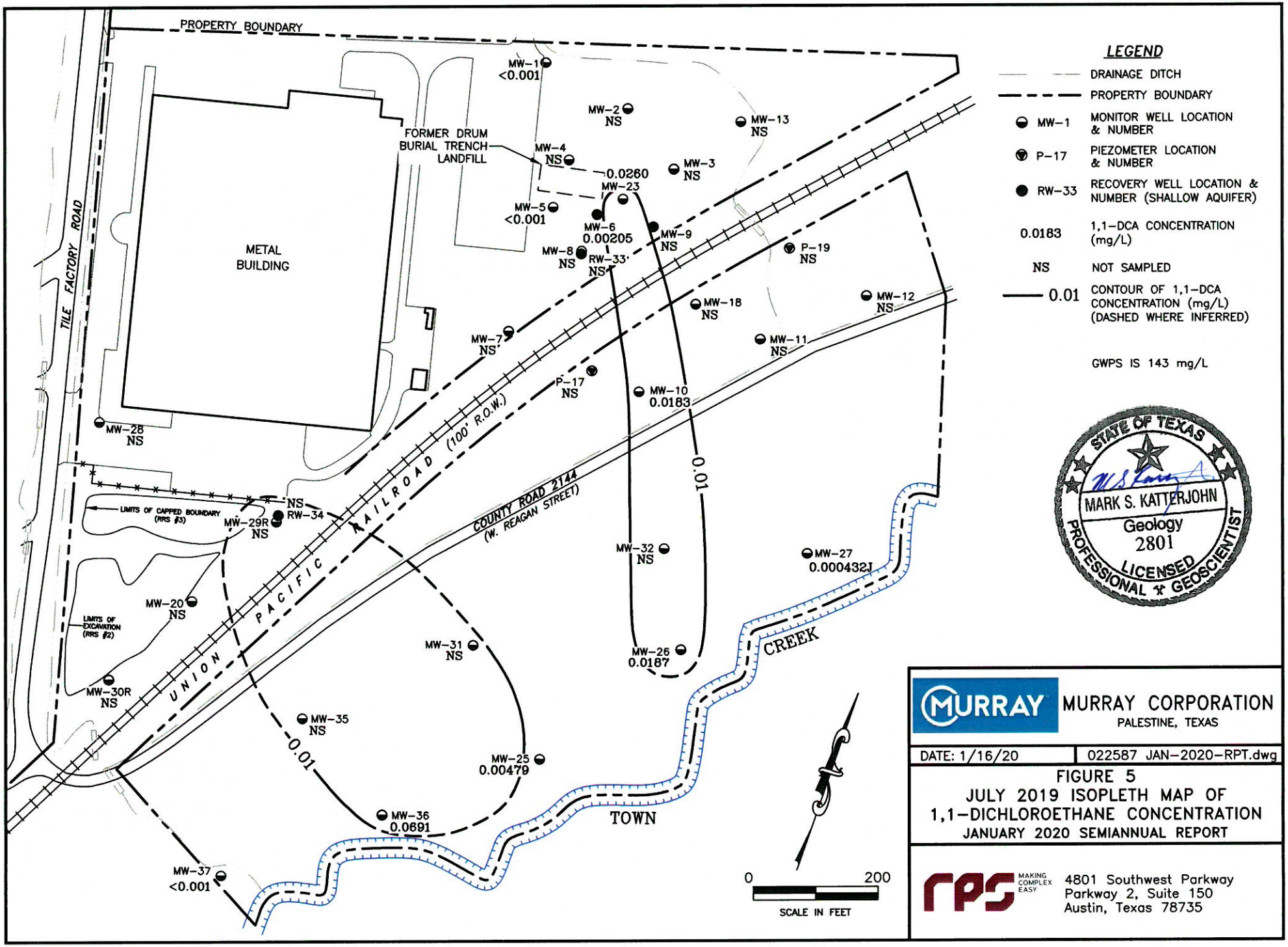

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0183 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 143 mg/L

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FIGURE 5
JULY 2019 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
JANUARY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

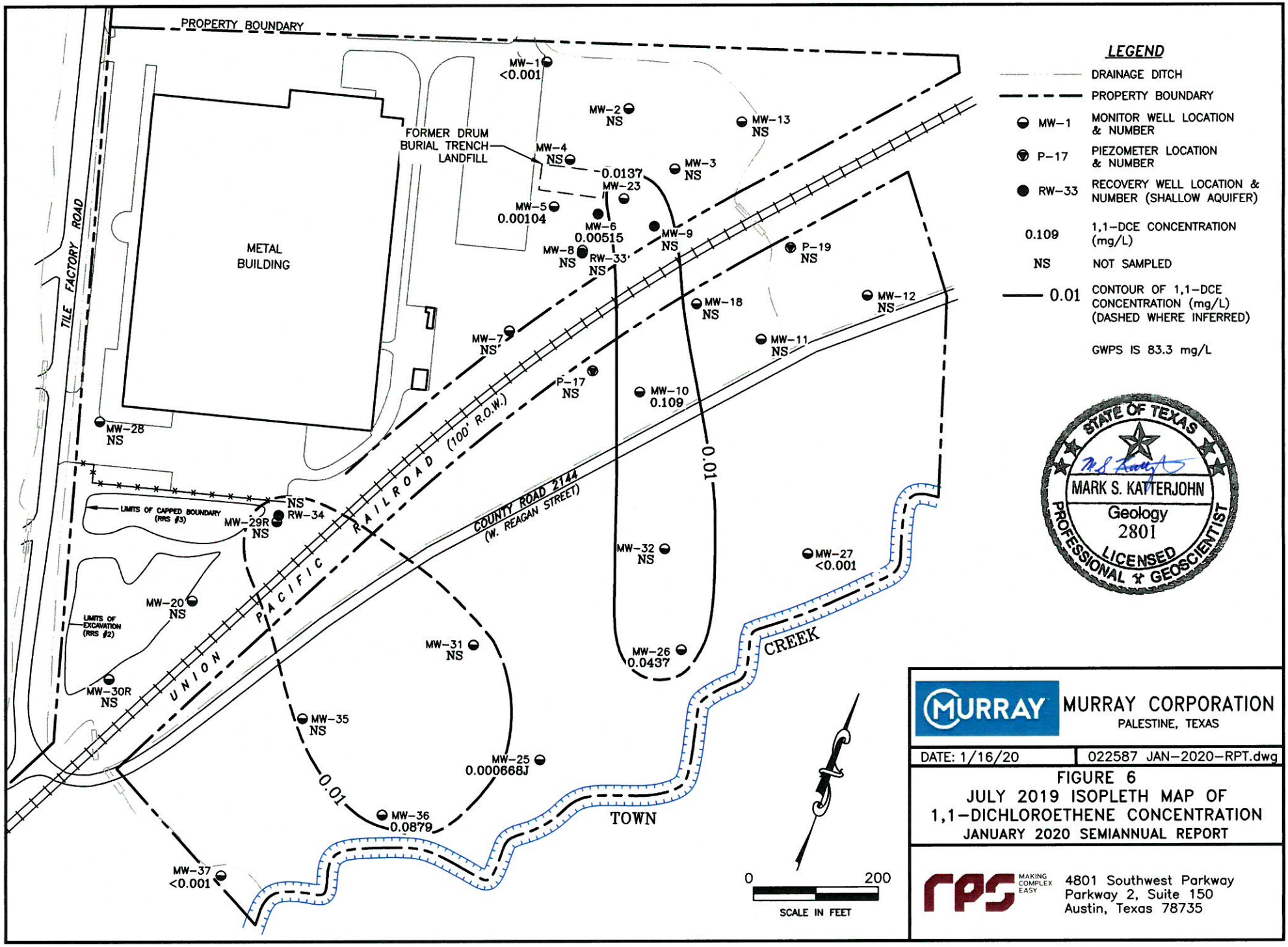

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FIGURE 6
JULY 2019 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

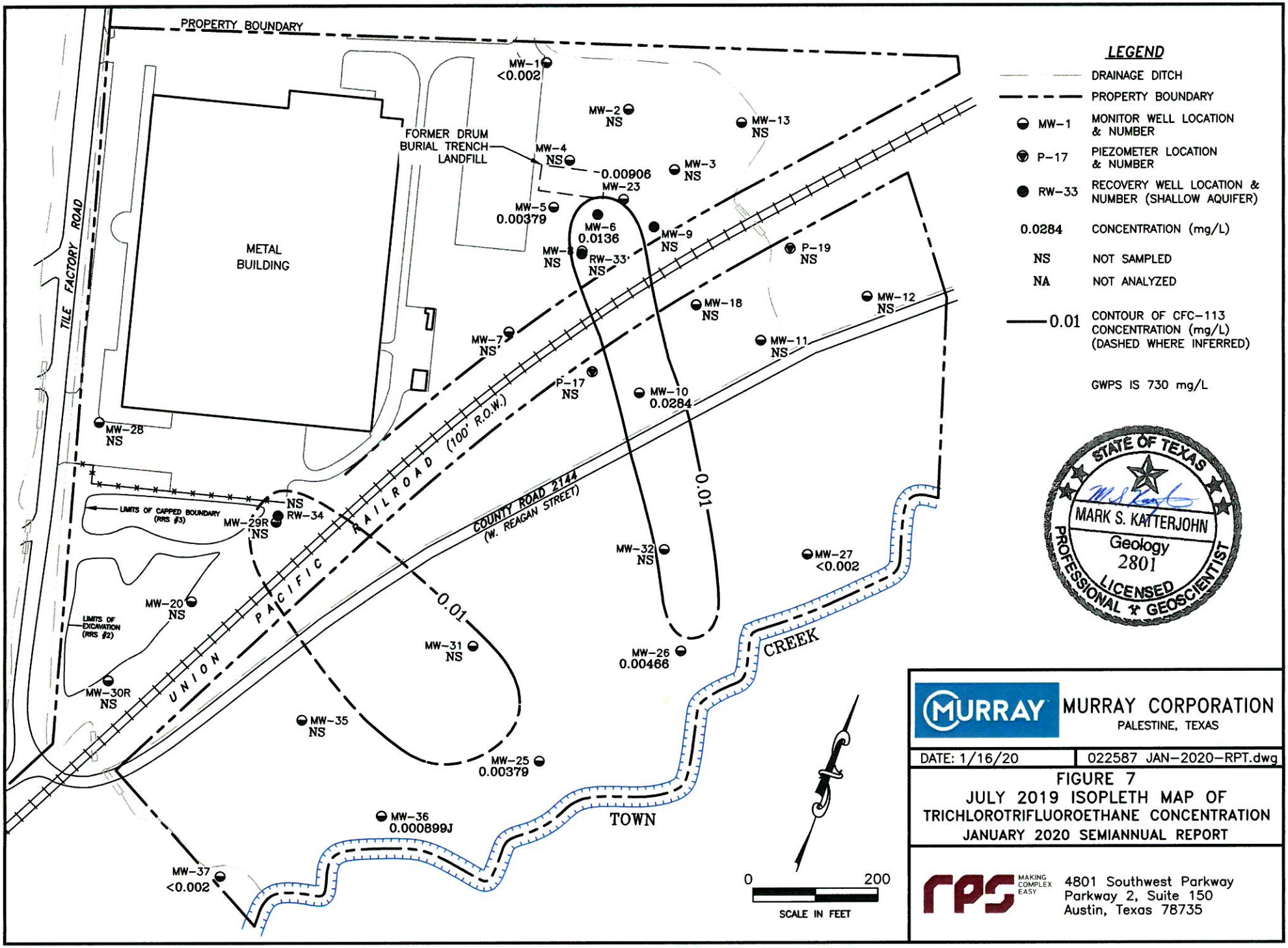

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FIGURE 7
JULY 2019 ISOPLETH MAP OF
TRICHLOROTRIFLUOROETHANE CONCENTRATION
JANUARY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
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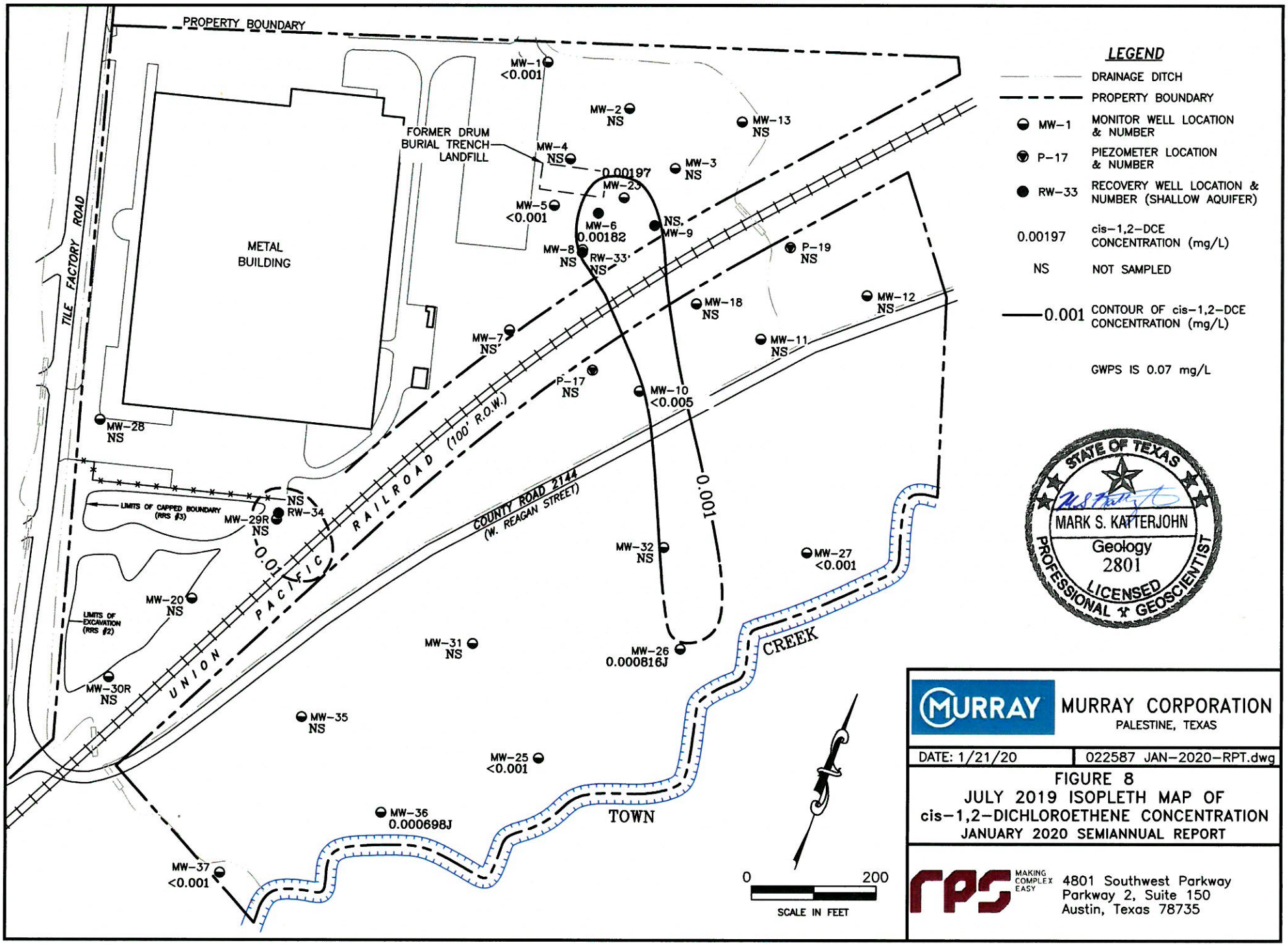
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00197 — cis-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L)

GWPS IS 0.07 mg/L

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FIGURE 8
JULY 2019 ISOPLETH MAP OF cis-1,2-DICHLOROETHENE CONCENTRATION
JANUARY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

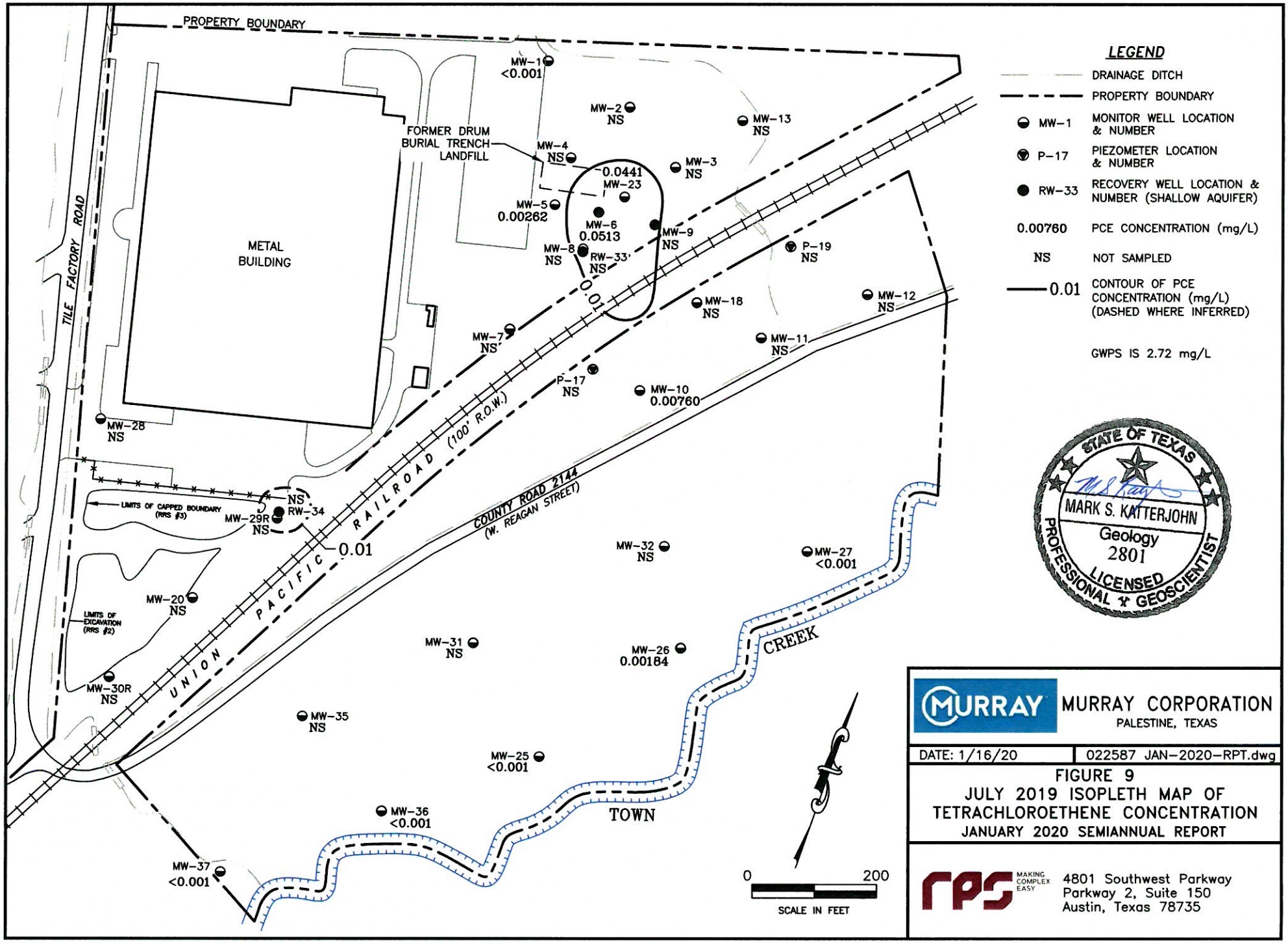

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FIGURE 9
JULY 2019 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
JANUARY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
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Parkway 2, Suite 150
Austin, Texas 78735

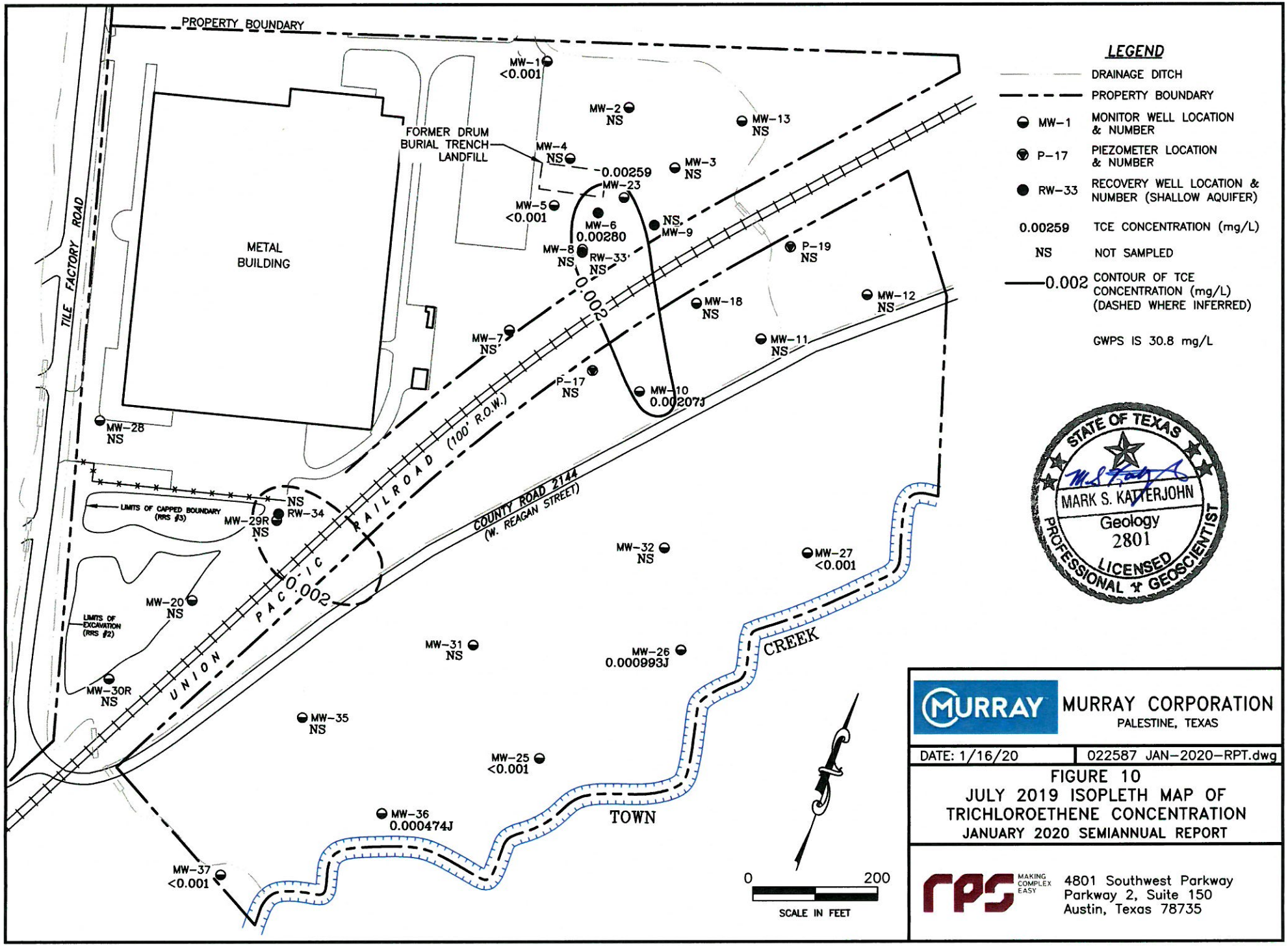

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FIGURE 10
JULY 2019 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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rps MAKING COMPLEX EASY
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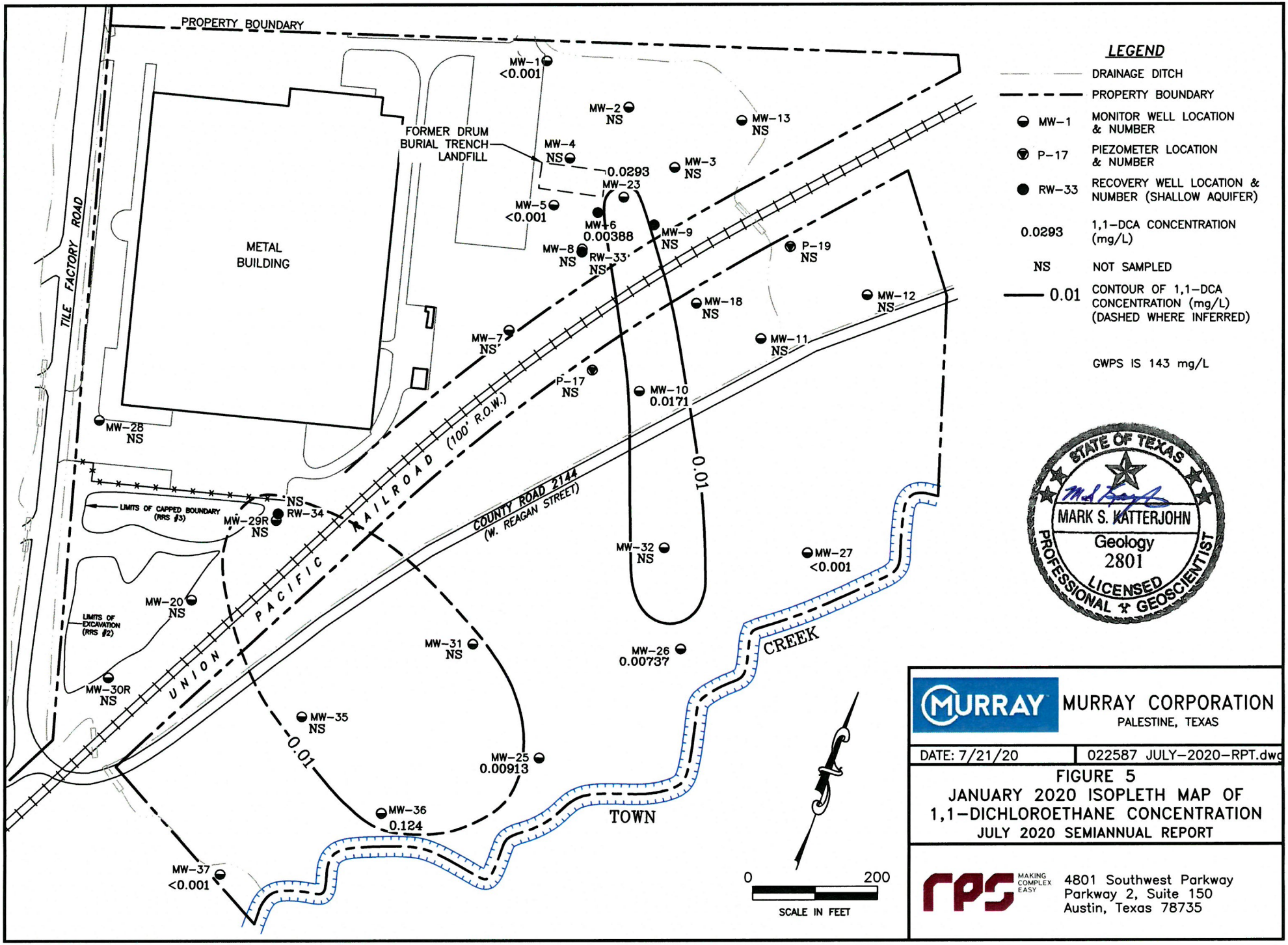

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0293 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 143 mg/L

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FIGURE 5
JANUARY 2020 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
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rps MAKING COMPLEX EASY
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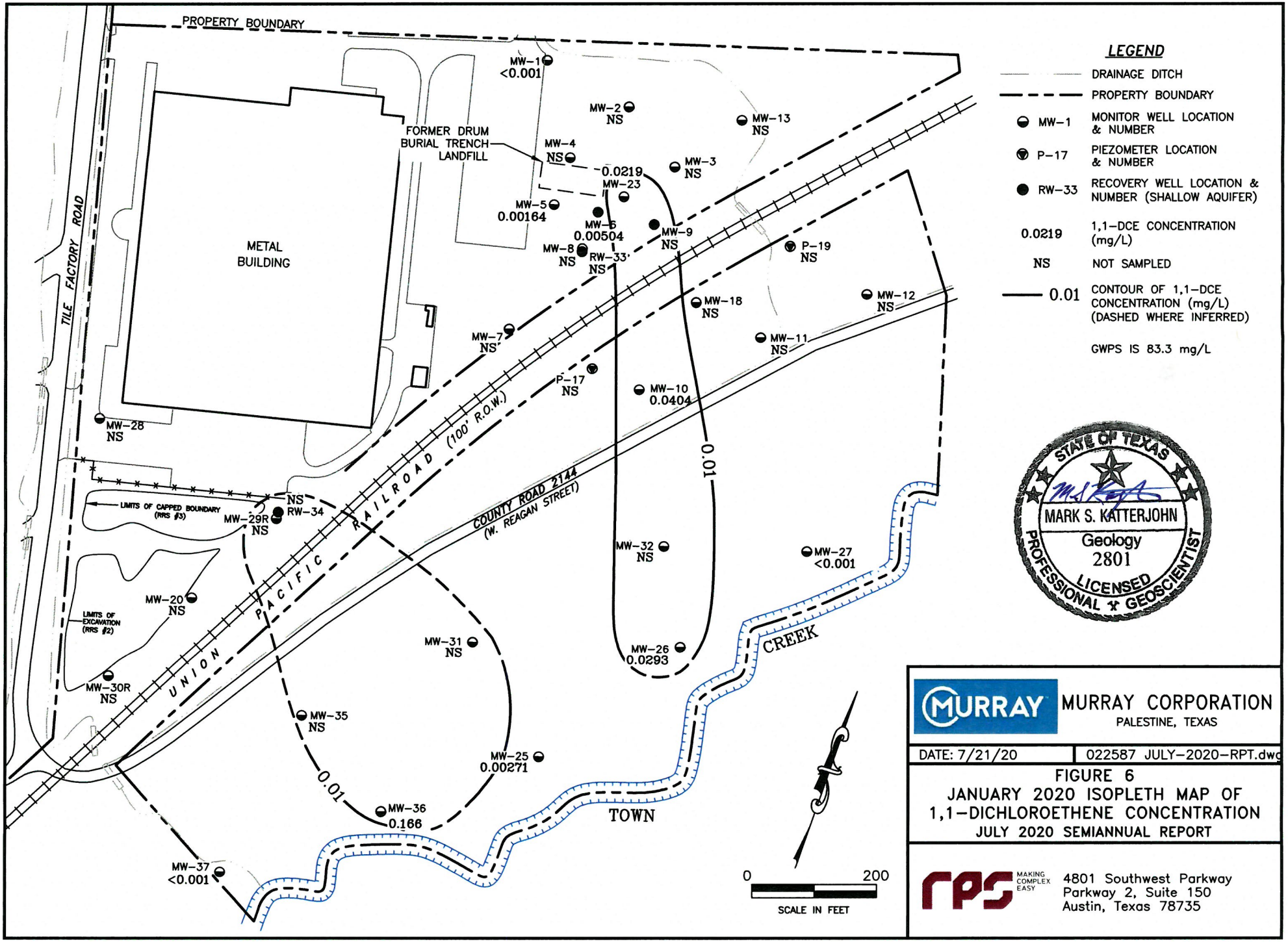

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FIGURE 6
JANUARY 2020 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
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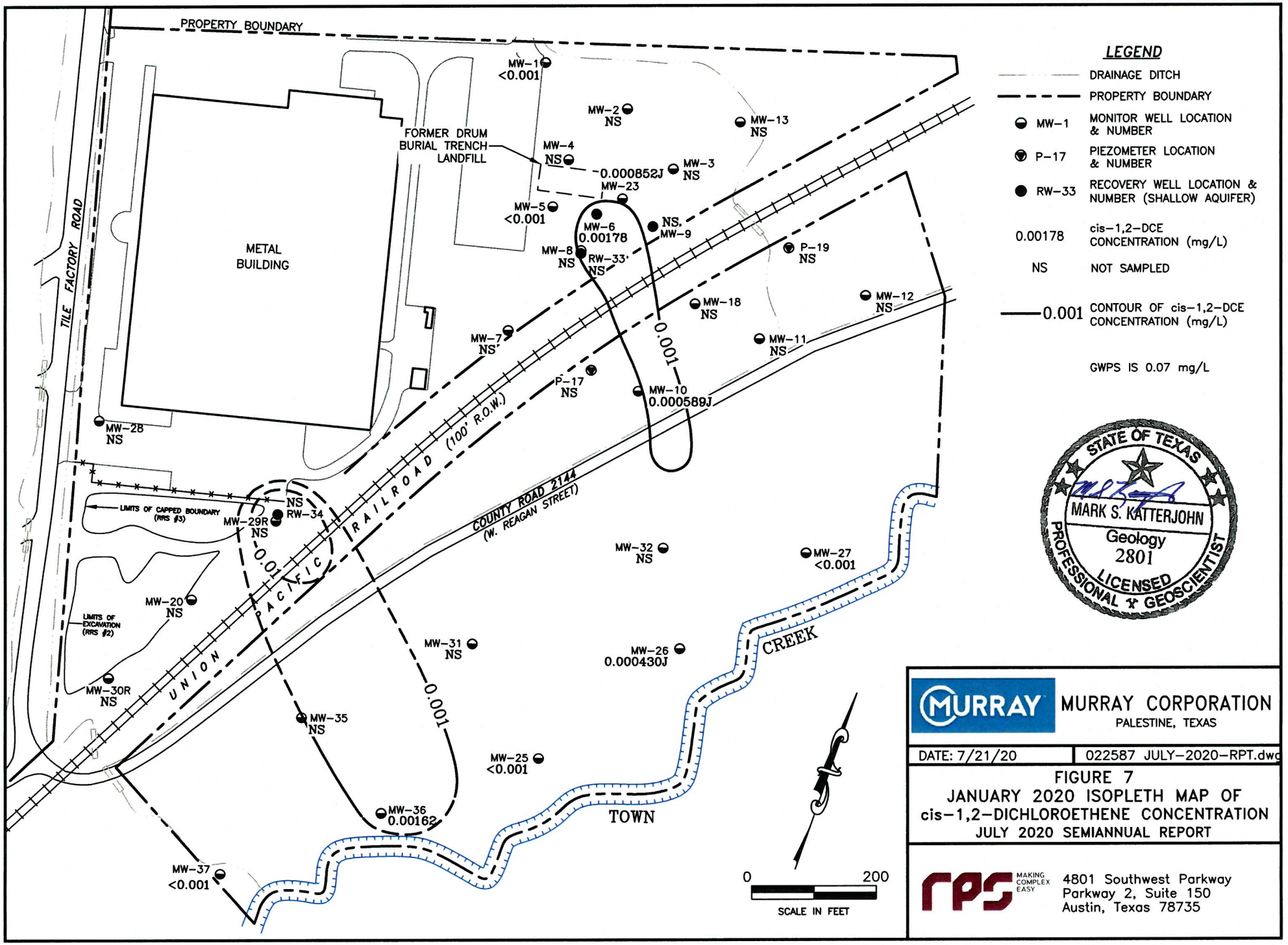

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00178 — cis-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L)

GWPS IS 0.07 mg/L

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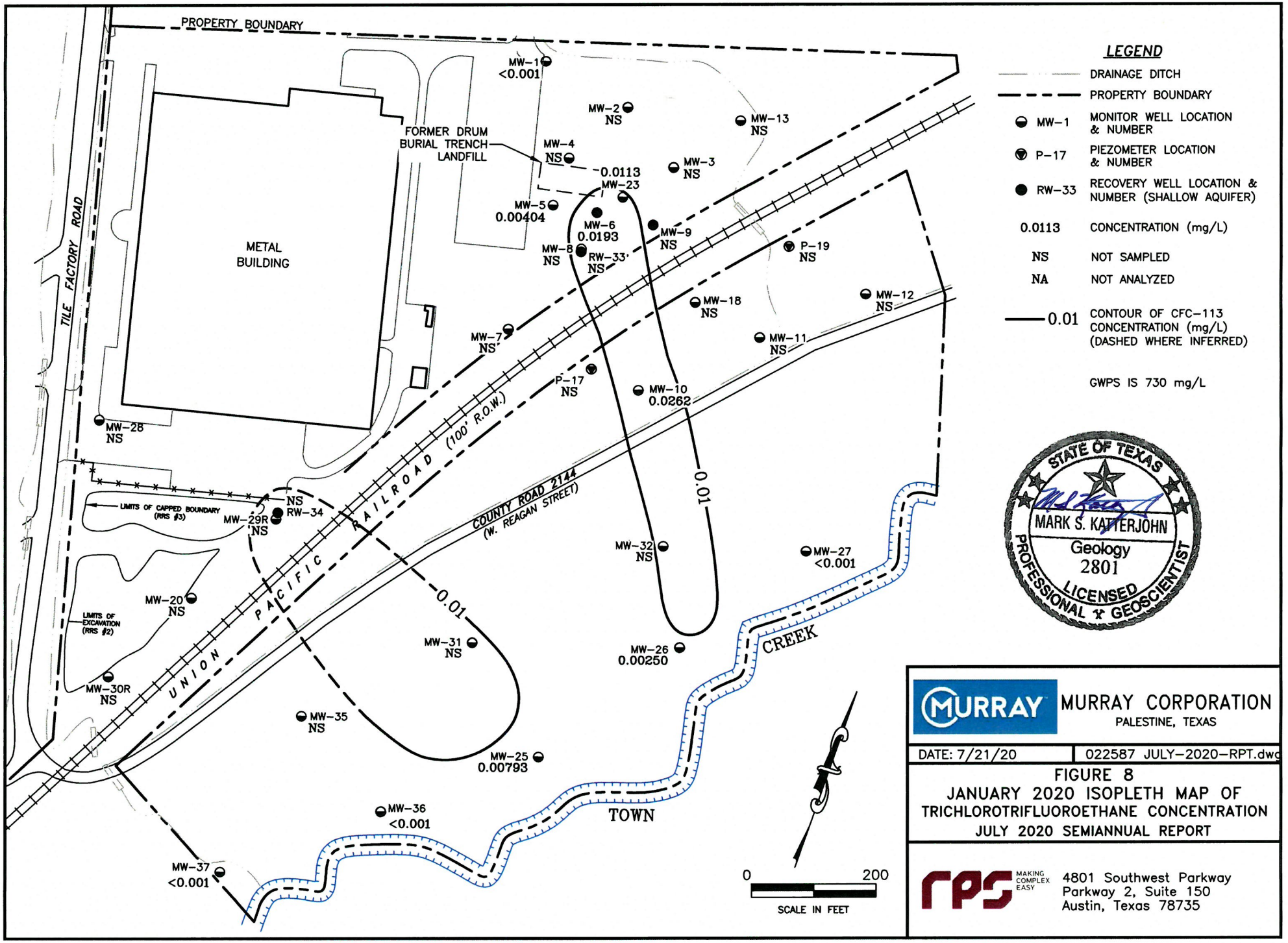
FIGURE 7
JANUARY 2020 ISOPLETH MAP OF cis-1,2-DICHLOROETHENE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0113 — CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF CFC-113 CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 730 mg/L

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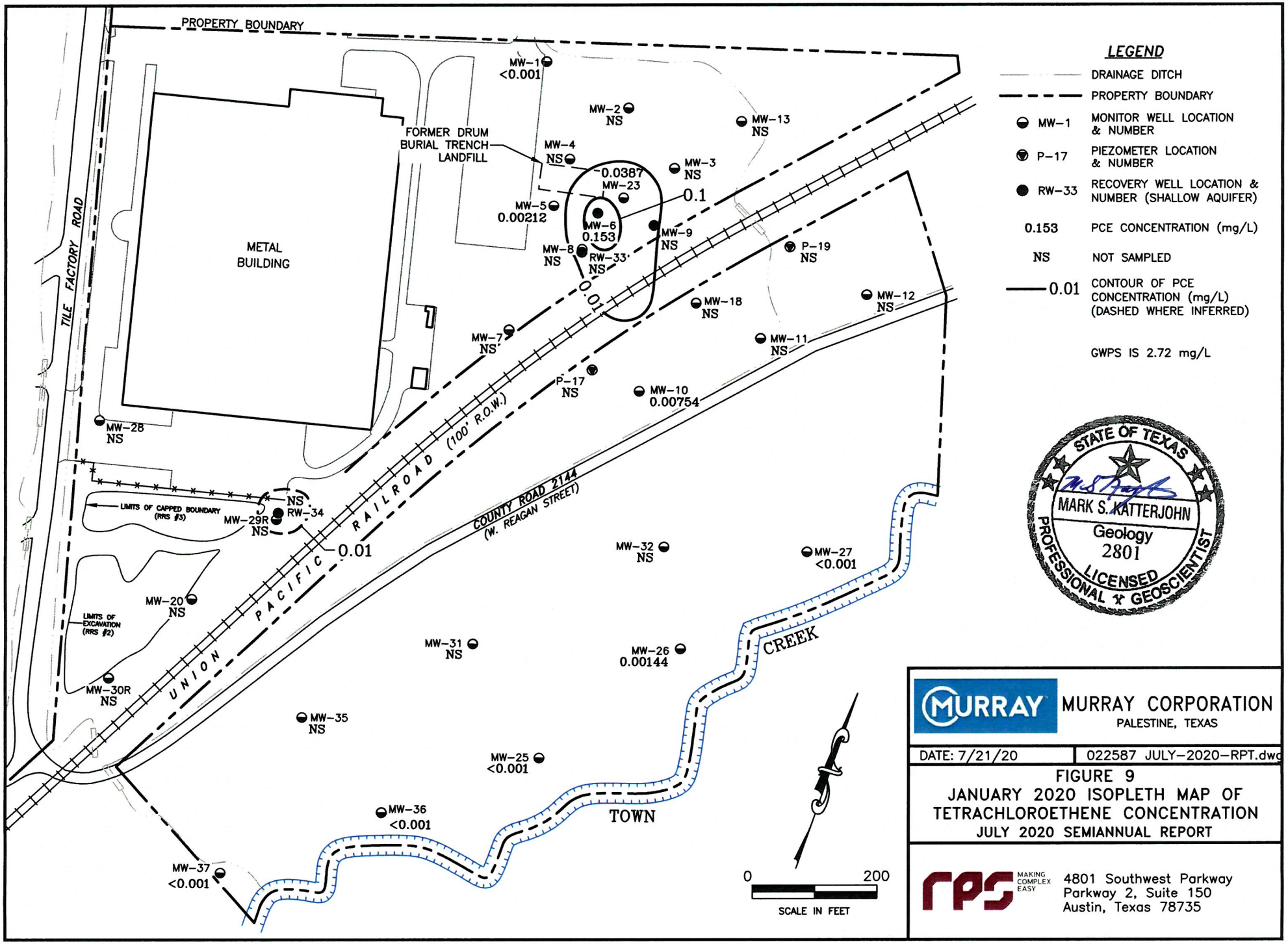
FIGURE 8
JANUARY 2020 ISOPLETH MAP OF TRICHLOROTRIFLUOROETHANE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.153 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF PCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 2.72 mg/L

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FIGURE 9
JANUARY 2020 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
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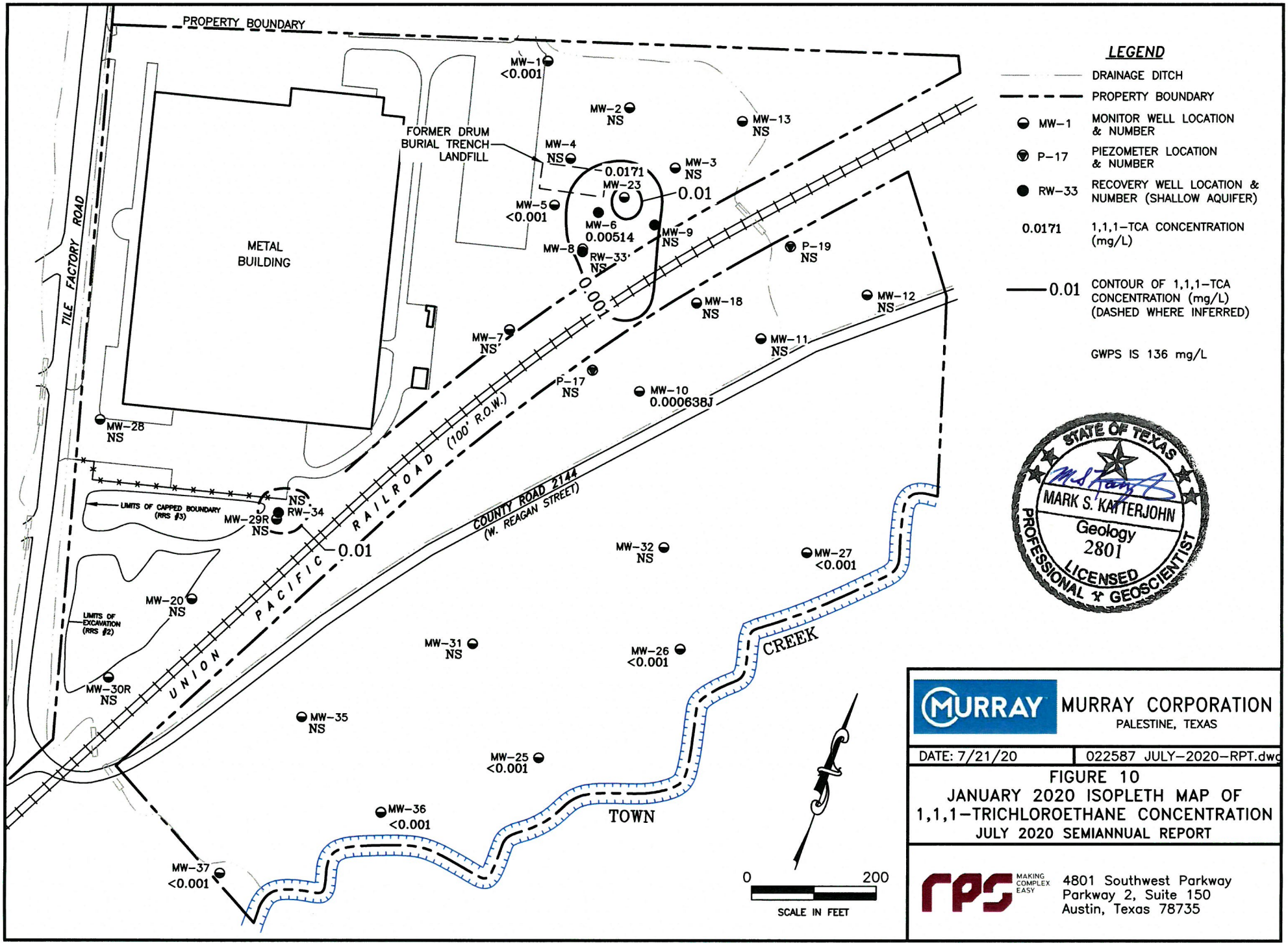

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0171 — 1,1,1-TCA CONCENTRATION (mg/L)
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 136 mg/L

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FIGURE 10
JANUARY 2020 ISOPLETH MAP OF
1,1,1-TRICHLOROETHANE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

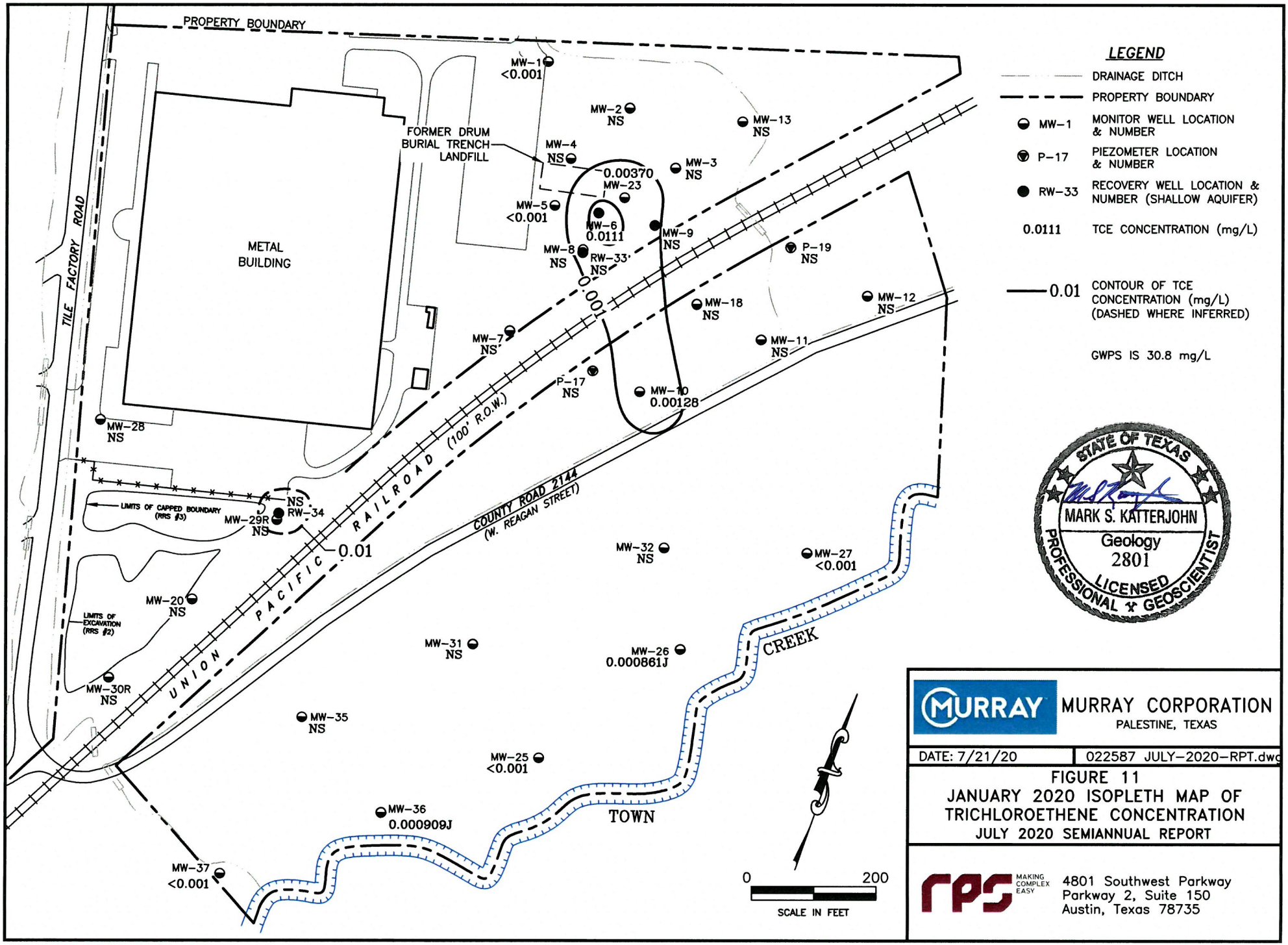

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FIGURE 11
JANUARY 2020 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

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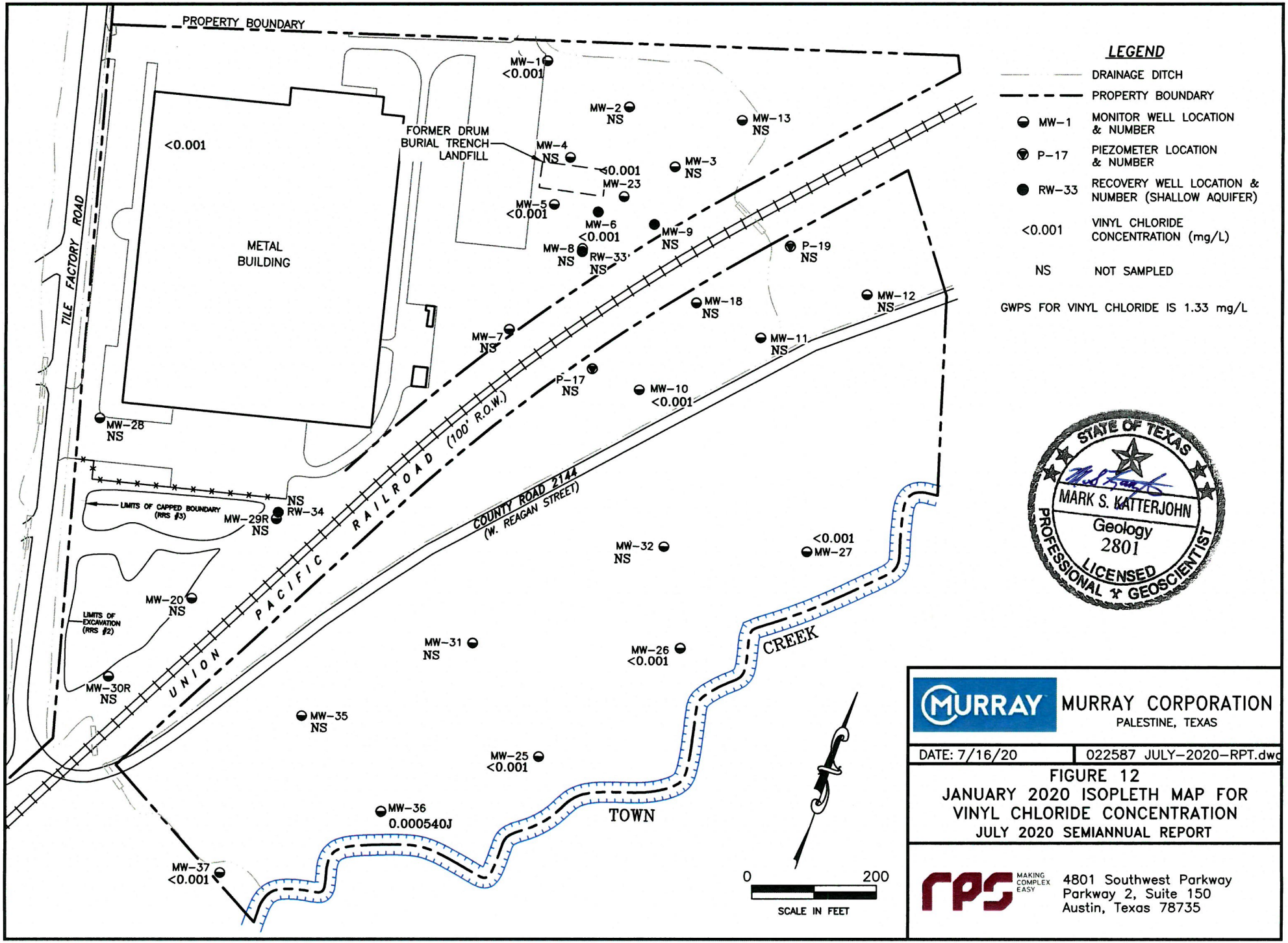
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- <0.001 — VINYL CHLORIDE CONCENTRATION (mg/L)
- NS — NOT SAMPLED

GWPS FOR VINYL CHLORIDE IS 1.33 mg/L

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FIGURE 12
JANUARY 2020 ISOPLETH MAP FOR VINYL CHLORIDE CONCENTRATION
JULY 2020 SEMIANNUAL REPORT

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Austin, Texas 78735

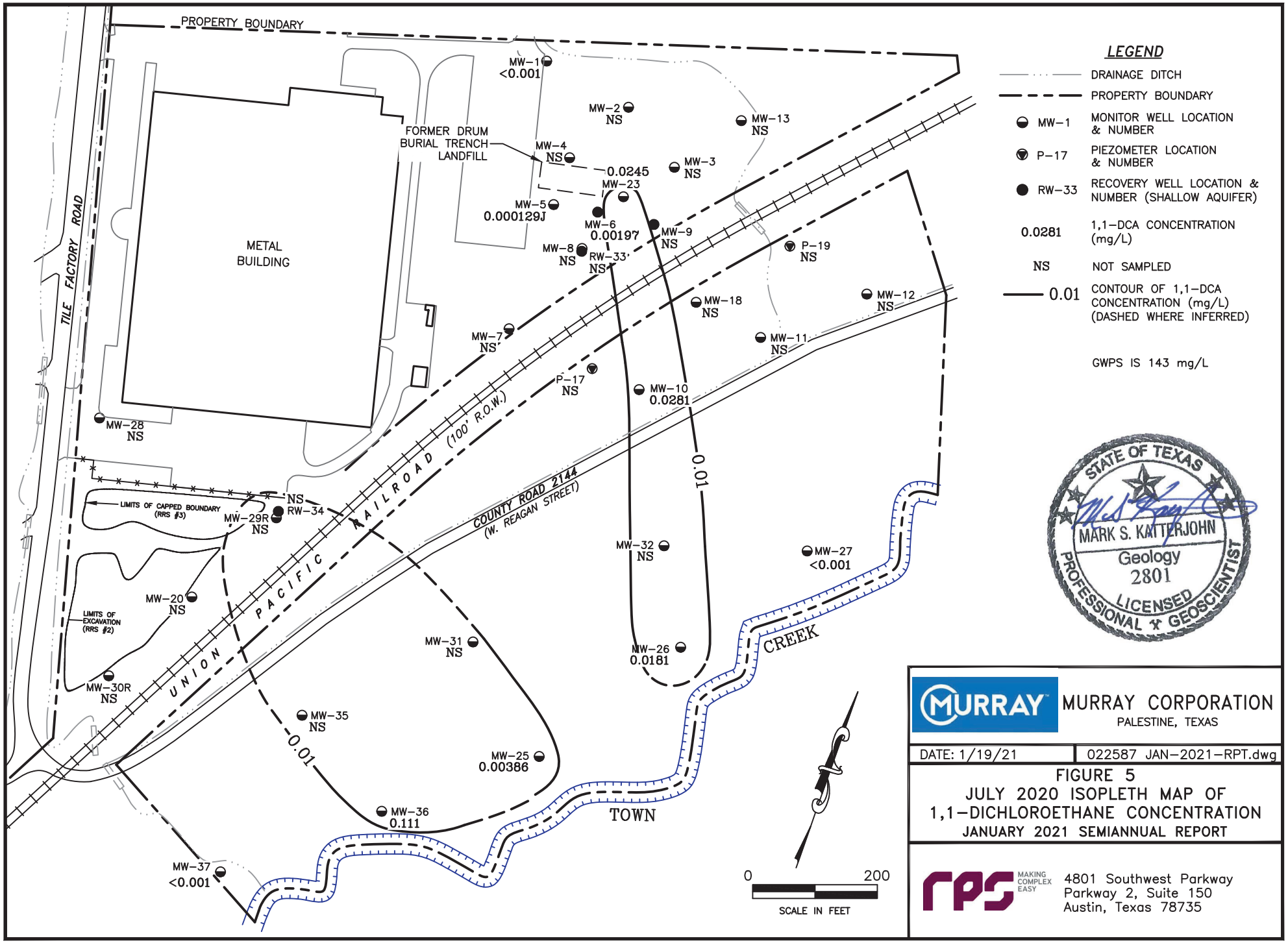

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FIGURE 5
JULY 2020 ISOPLETH MAP OF
1,1-DICHLOROETHANE CONCENTRATION
JANUARY 2021 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

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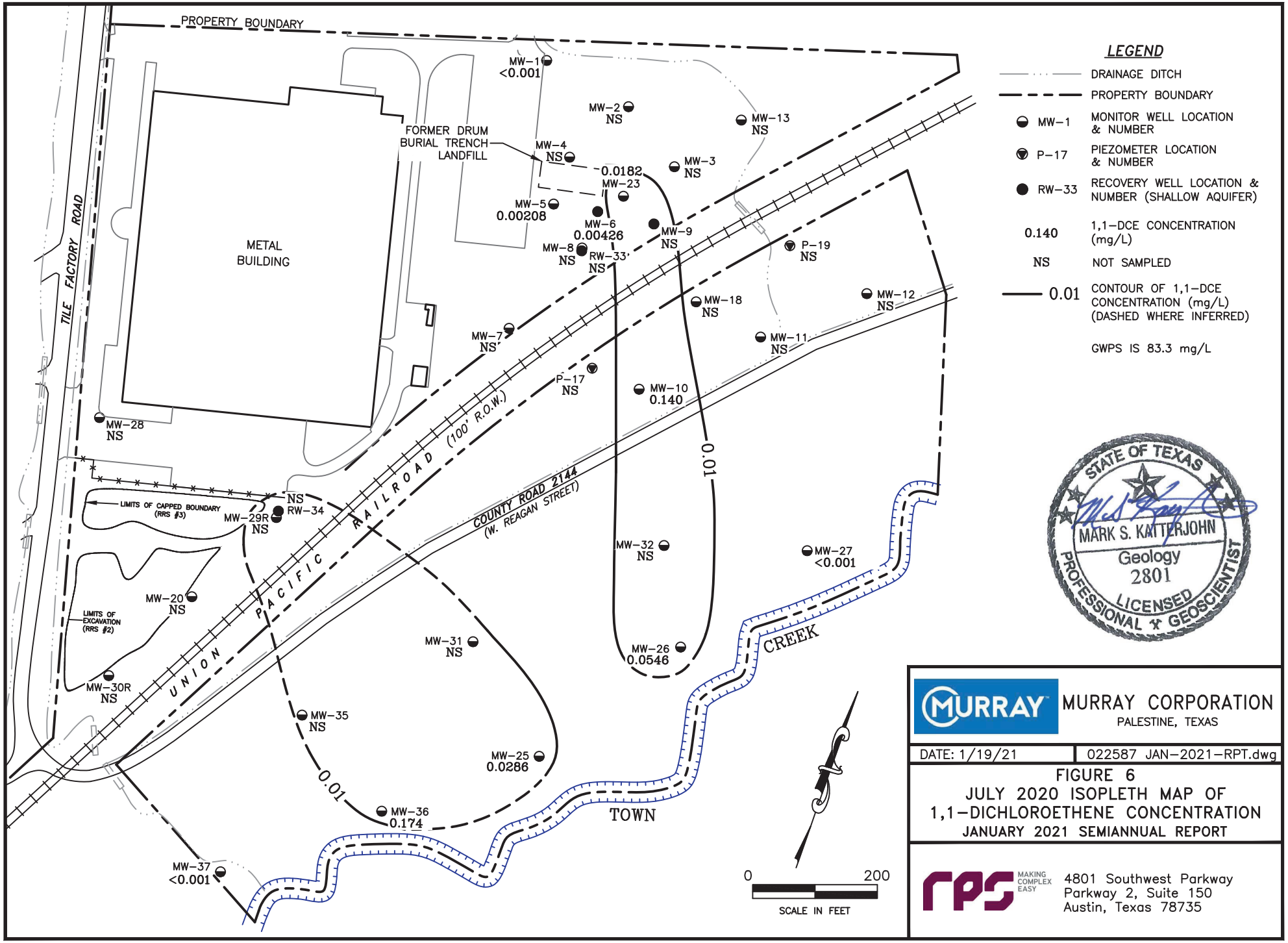

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FIGURE 6
JULY 2020 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2021 SEMIANNUAL REPORT

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Austin, Texas 78735

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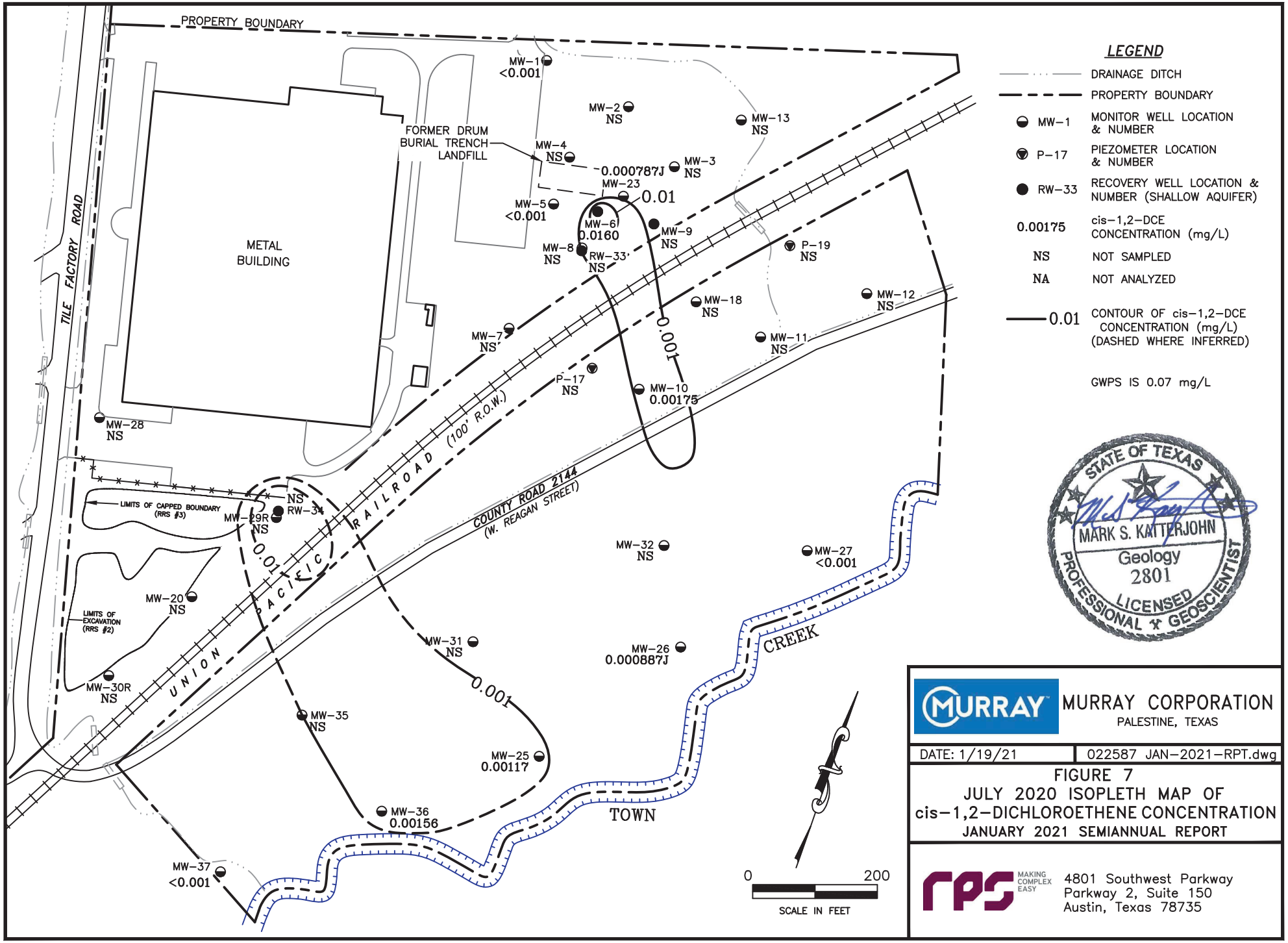

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00175 — cis-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 0.07 mg/L

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MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 1/19/21 | 022587 JAN-2021-RPT.dwg

FIGURE 7
JULY 2020 ISOPLETH MAP OF cis-1,2-DICHLOROETHENE CONCENTRATION
JANUARY 2021 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
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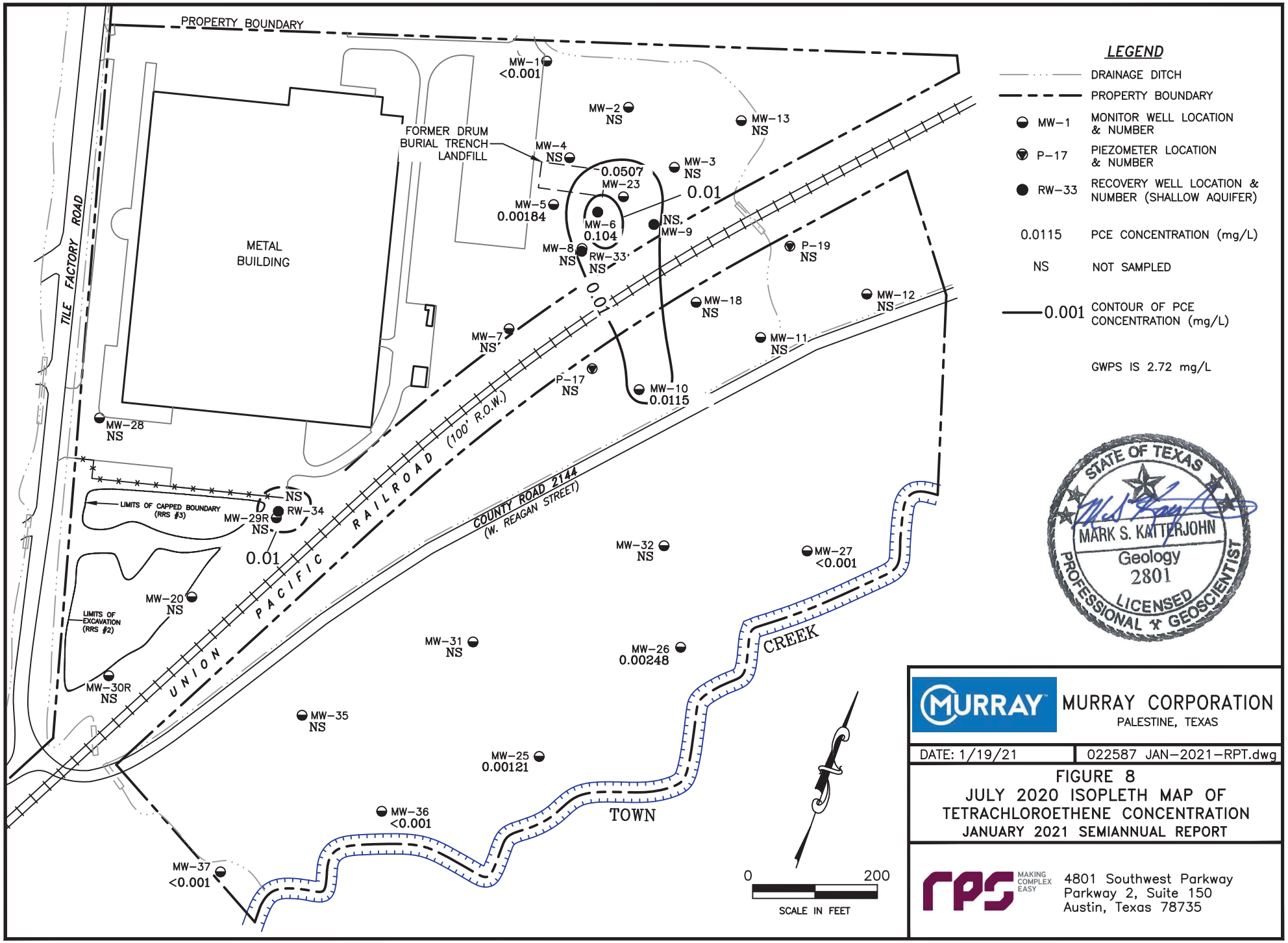

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0115 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF PCE CONCENTRATION (mg/L)

GWPS IS 2.72 mg/L

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FIGURE 8
JULY 2020 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
JANUARY 2021 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

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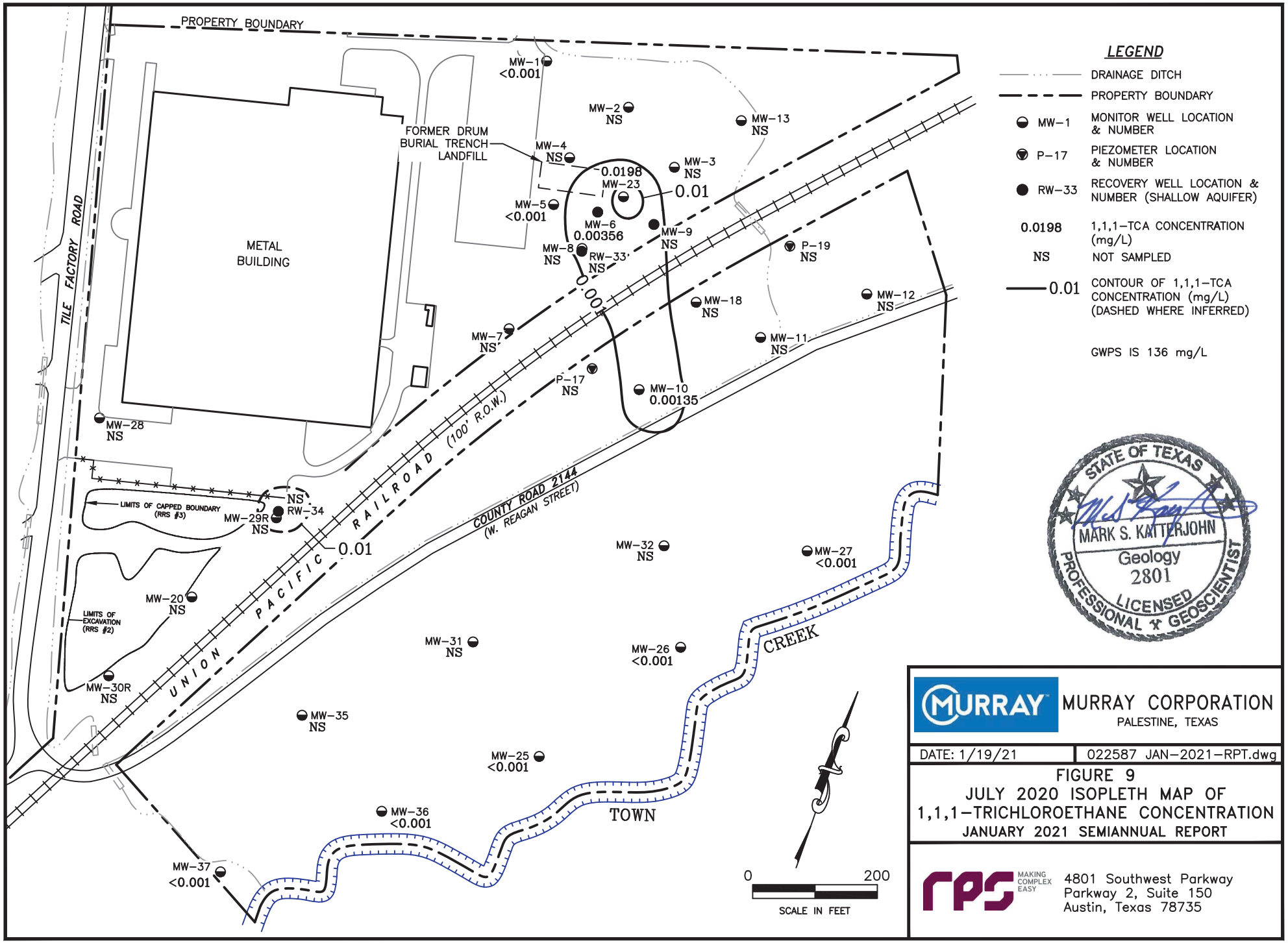

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0198 — 1,1,1-TCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 136 mg/L

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FIGURE 9
JULY 2020 ISOPLETH MAP OF 1,1,1-TRICHLOROETHANE CONCENTRATION
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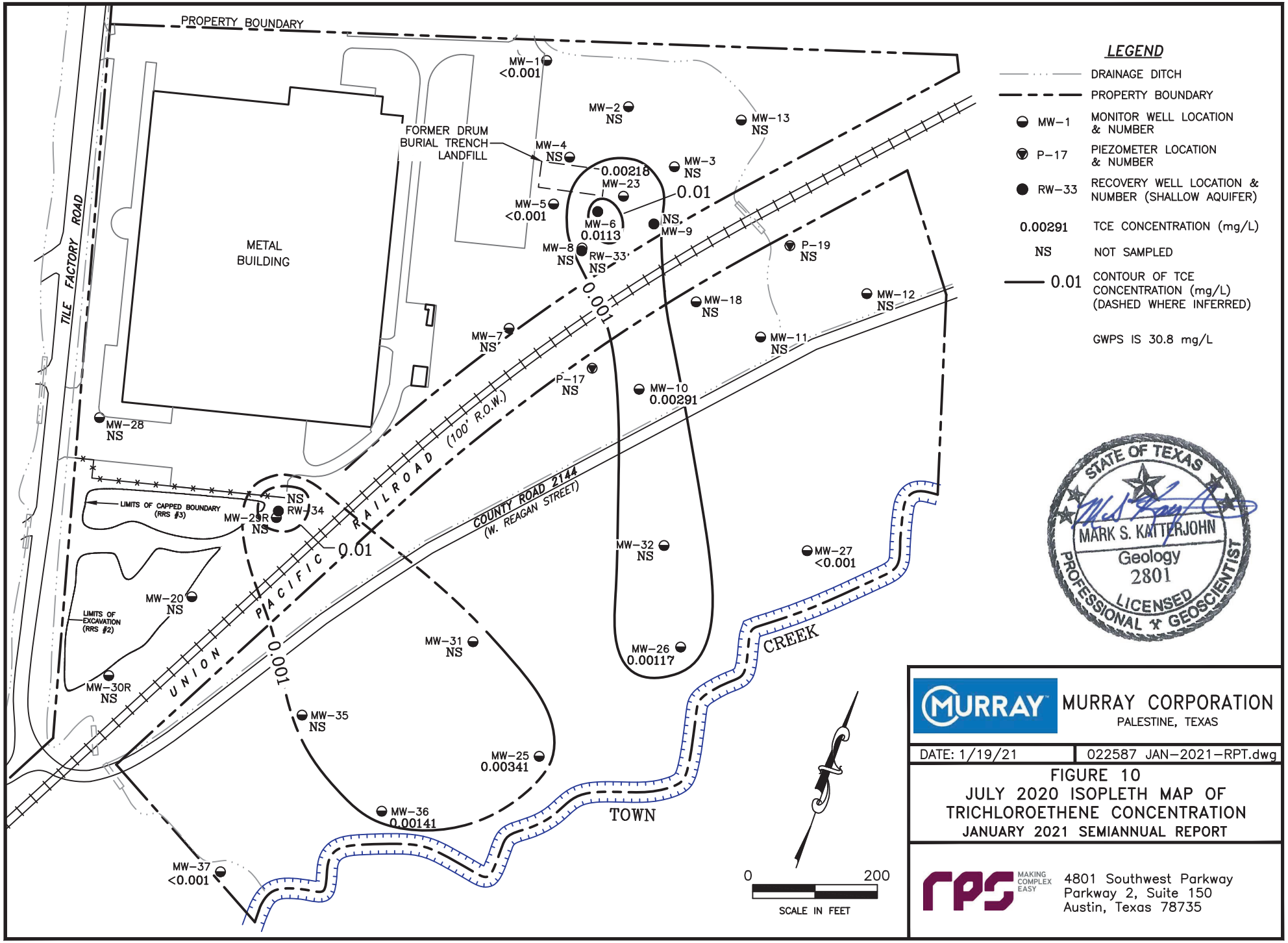

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FIGURE 10
JULY 2020 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
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RPS MAKING COMPLEX EASY
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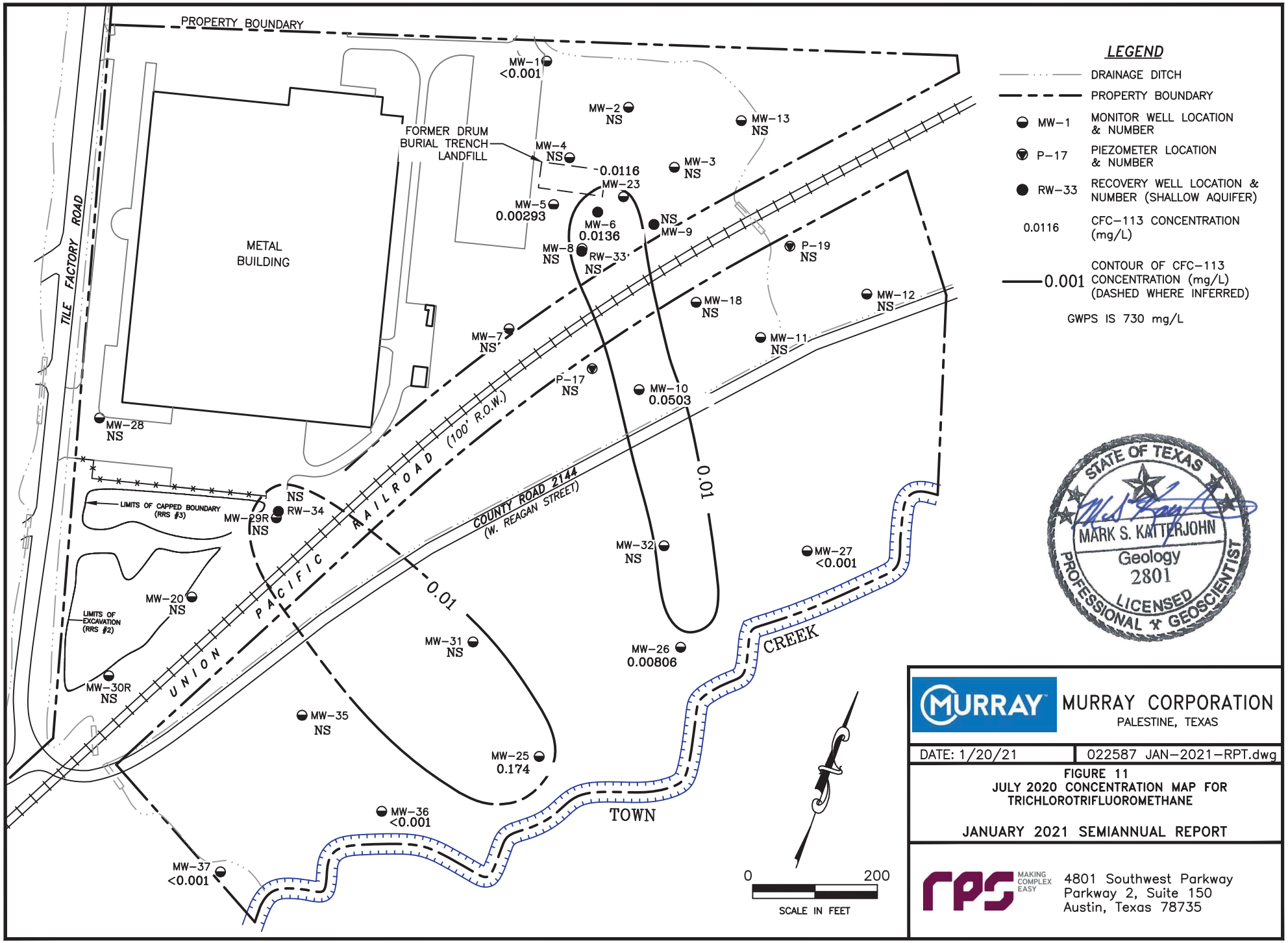

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FIGURE 11
JULY 2020 CONCENTRATION MAP FOR TRICHLOROTRIFLUOROMETHANE

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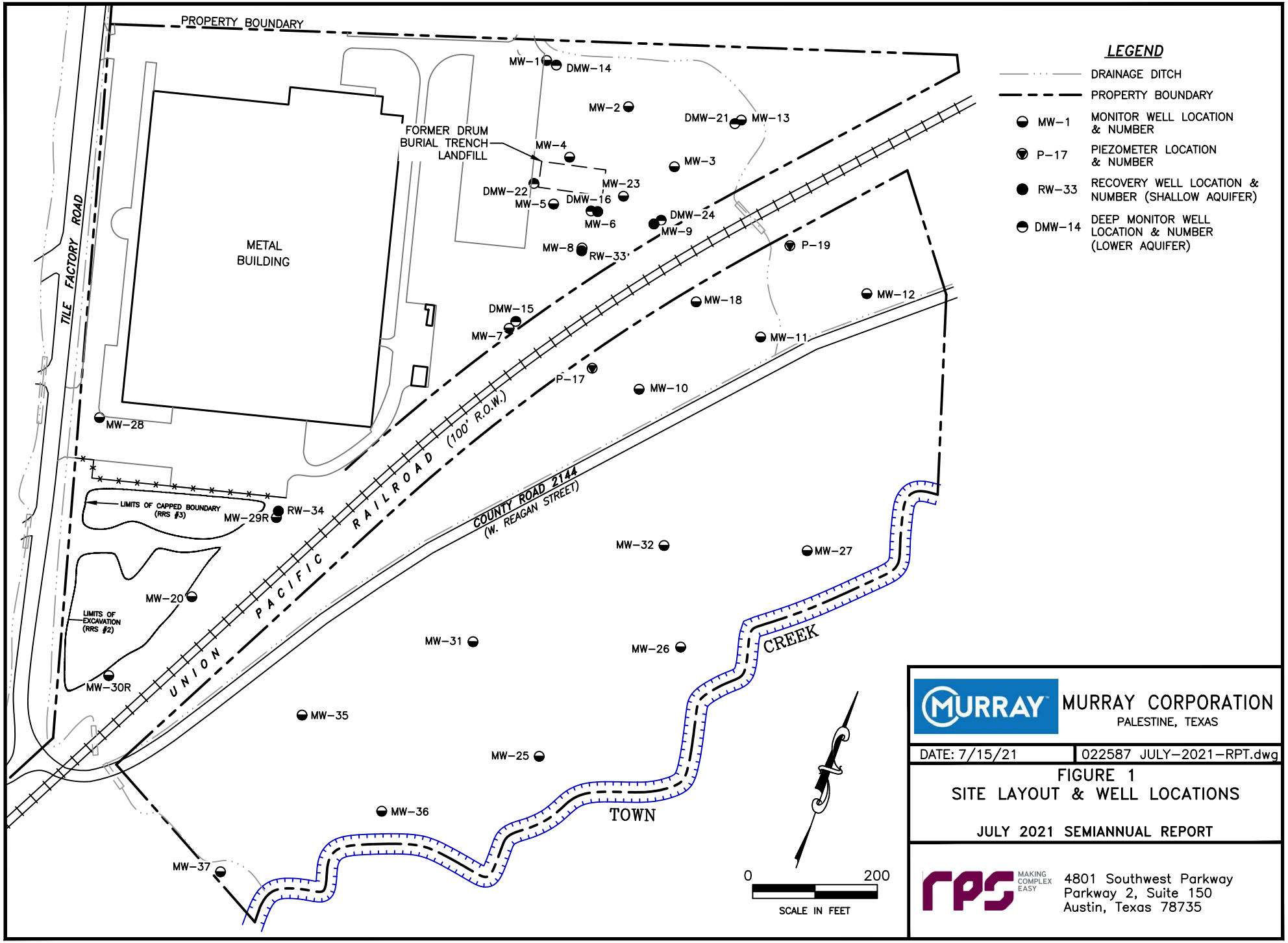

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FIGURE 1
SITE LAYOUT & WELL LOCATIONS

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4801 Southwest Parkway
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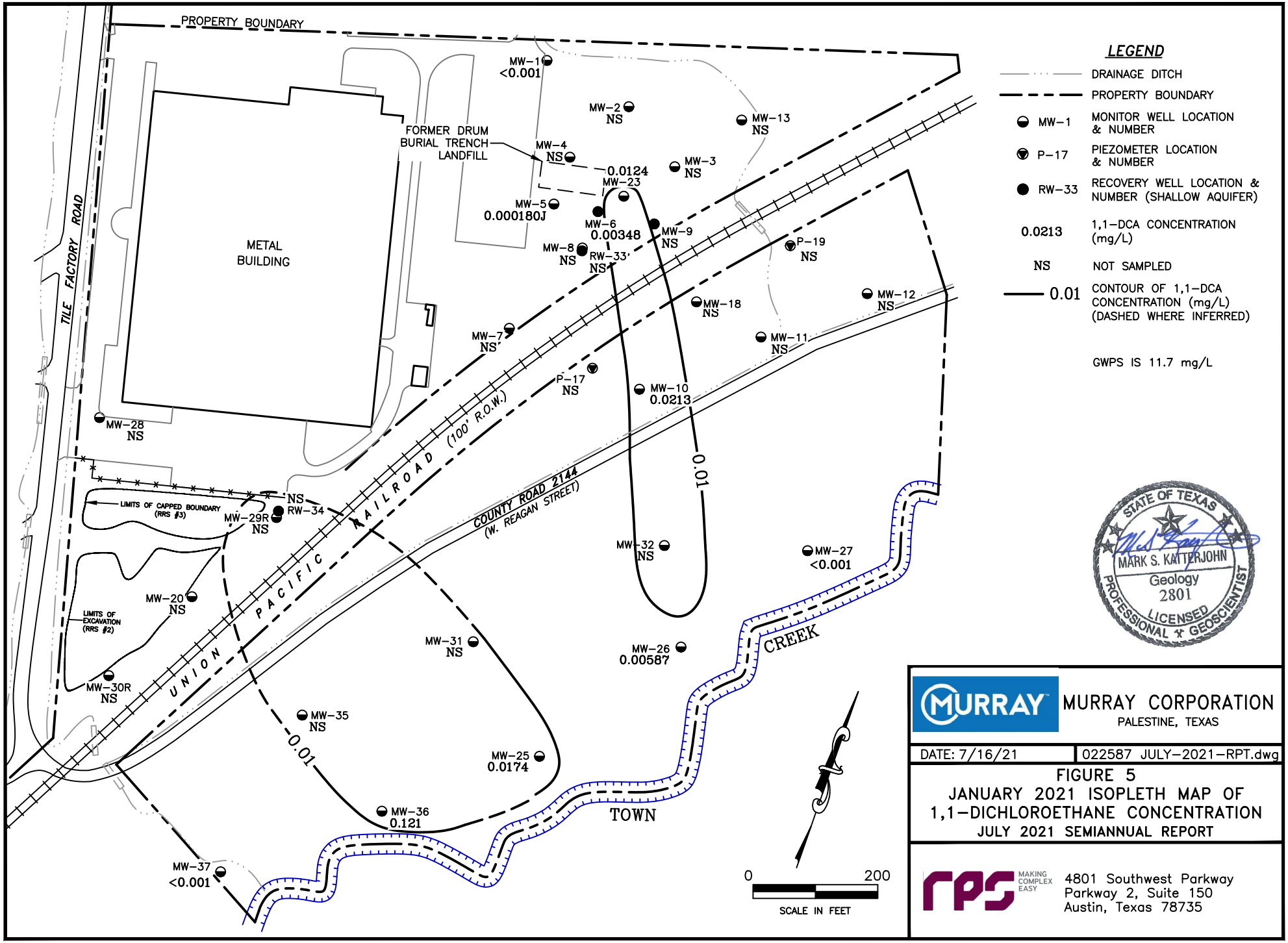

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FIGURE 5
JANUARY 2021 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
JULY 2021 SEMIANNUAL REPORT

MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

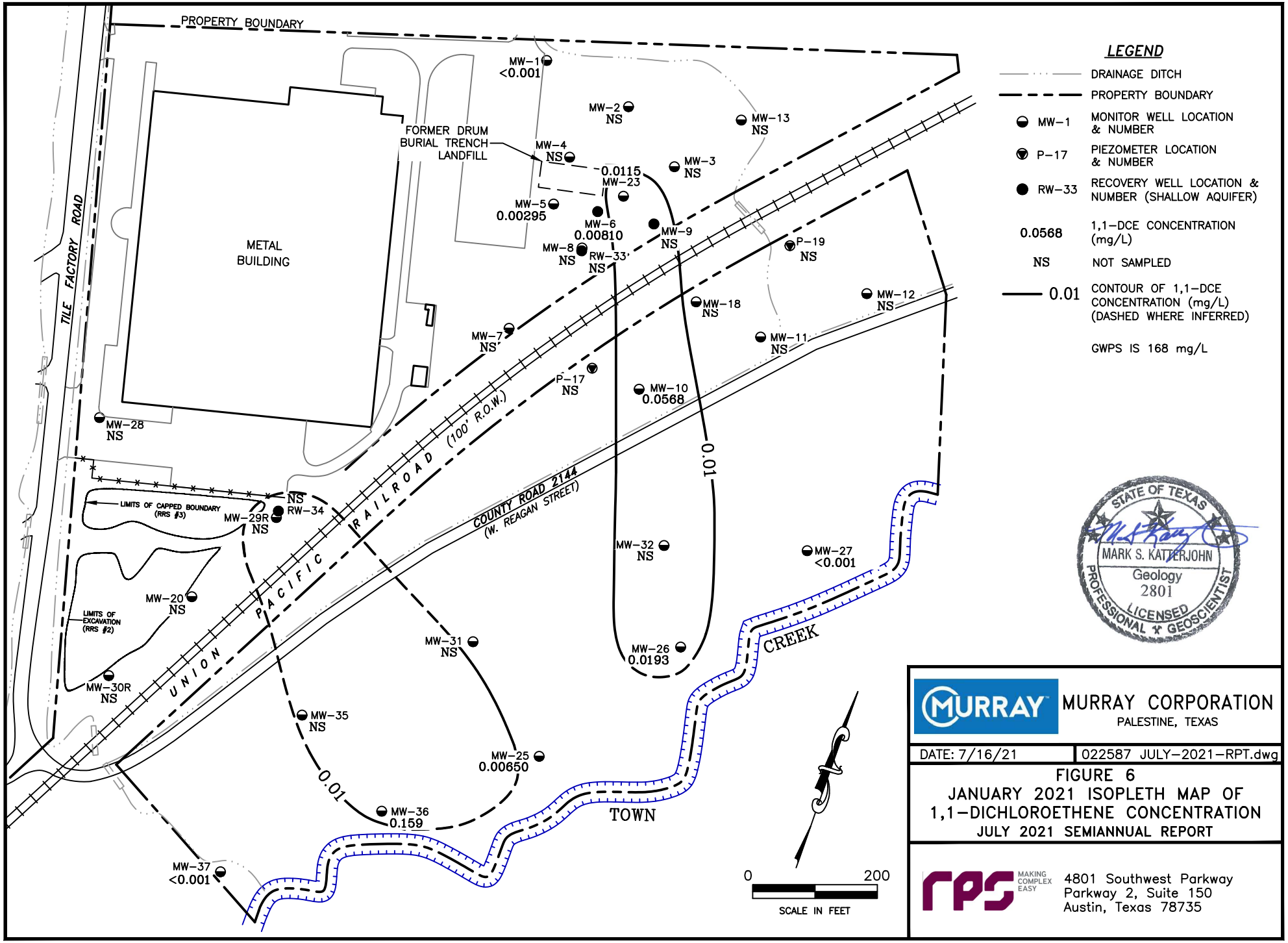

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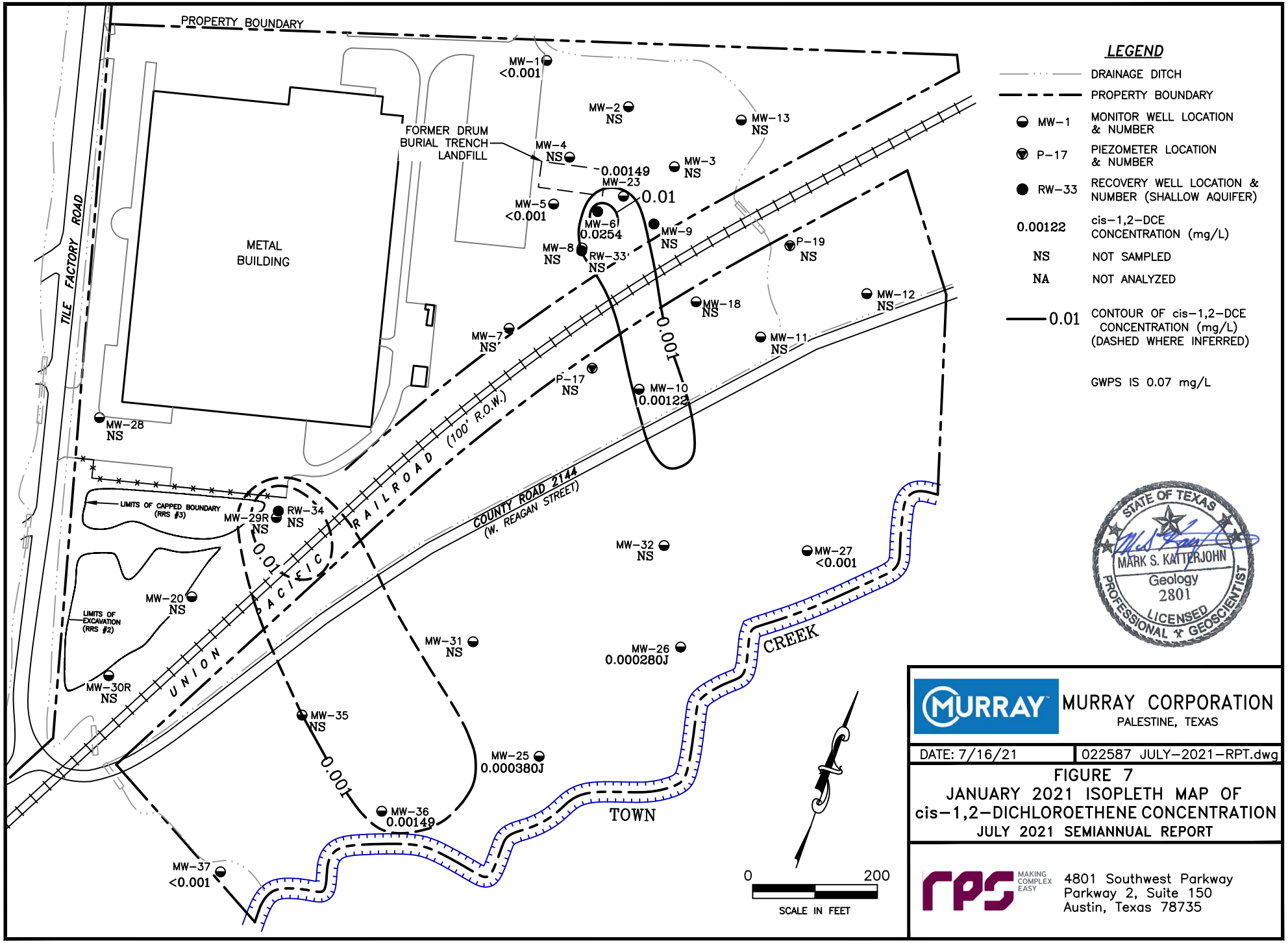
FIGURE 6
JANUARY 2021 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JULY 2021 SEMIANNUAL REPORT

MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00122 — cis-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.01 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 0.07 mg/L

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FIGURE 7
JANUARY 2021 ISOPLETH MAP OF cis-1,2-DICHLOROETHENE CONCENTRATION
JULY 2021 SEMIANNUAL REPORT

MAKING COMPLEX EASY
4801 Southwest Parkway
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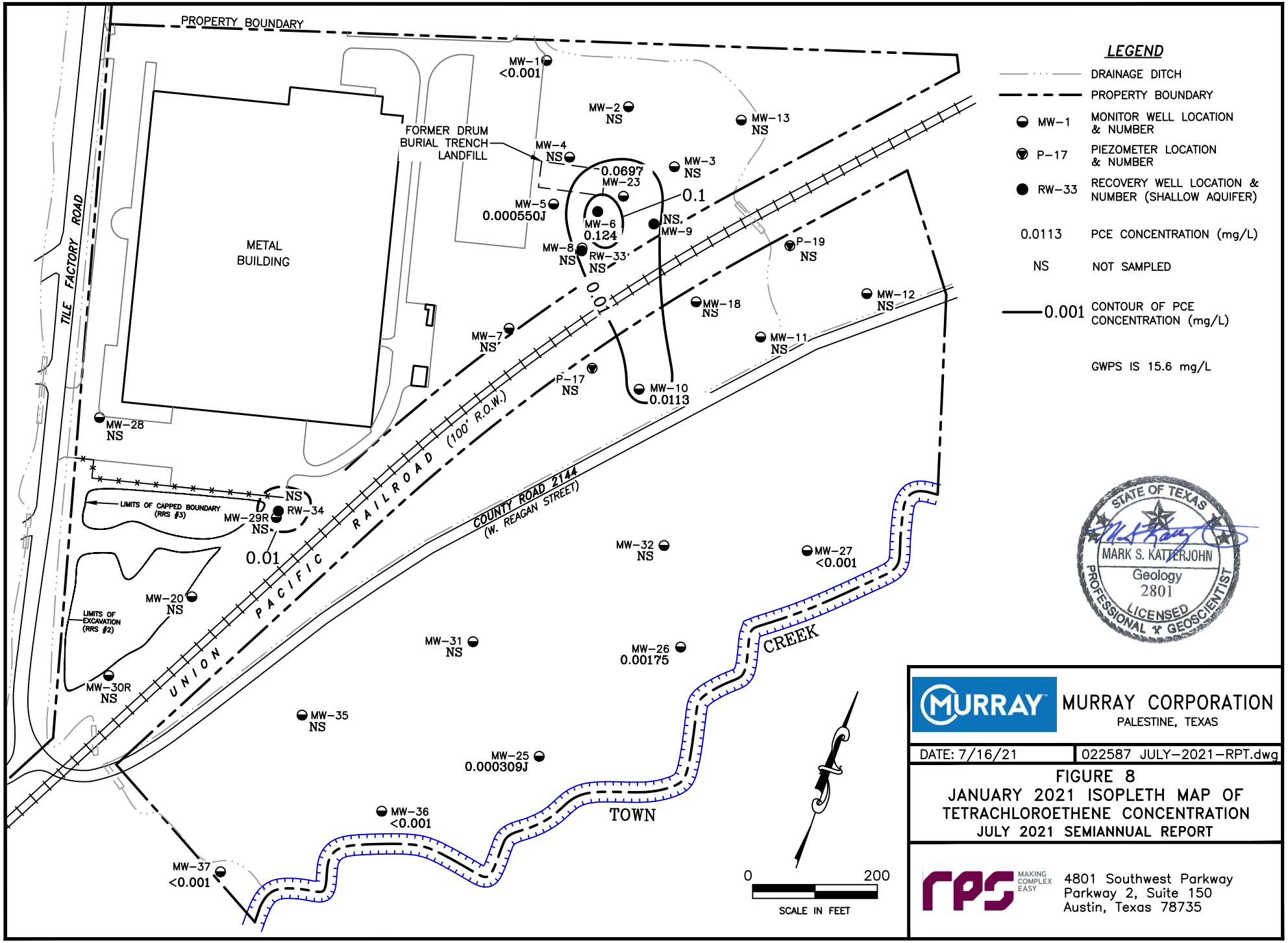
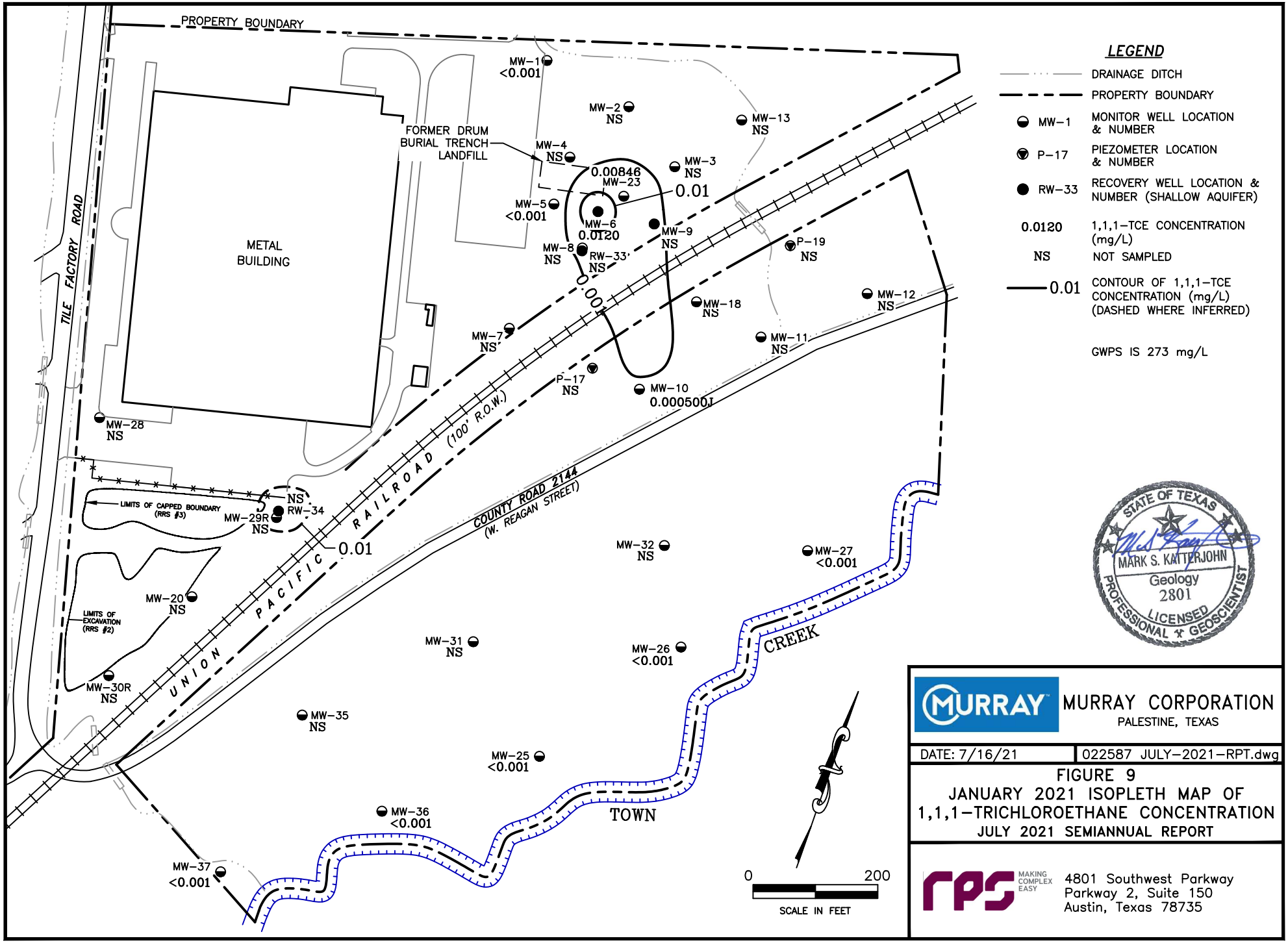

PROPERTY BOUNDARY
TILE FACTORY ROAD
METAL BUILDING
FORMER DRUM BURIAL TRENCH LANDFILL
UNION PACIFIC RAILROAD (100' R.O.W.)
COUNTY ROAD 2144 (W. REAGAN STREET)
CREEK
TOWN
LIMITS OF CAPPED BOUNDARY (RRS #3)
LIMITS OF EXCAVATION (RRS #2)
MW-1 <0.001
MW-2 NS
MW-3 NS
MW-4 NS
MW-5 0.000550J
MW-6 0.124
MW-7 NS
MW-8 NS
MW-9 NS
MW-10 0.0113
MW-11 NS
MW-12 NS
MW-13 NS
MW-18 NS
MW-19 NS
MW-20 NS
MW-23 0.0697
MW-25 0.000309J
MW-26 0.00175
MW-27 <0.001
MW-28 NS
MW-29R NS
MW-30R NS
MW-31 NS
MW-32 NS
MW-35 NS
MW-36 <0.001
MW-37 <0.001
P-17 NS
RW-33 NS
RW-34 NS
0.1
0.01
0
0
0



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0120 — 1,1,1-TCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1,1-TCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 273 mg/L

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FIGURE 9
JANUARY 2021 ISOPLETH MAP OF 1,1,1-TRICHLOROETHANE CONCENTRATION
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MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

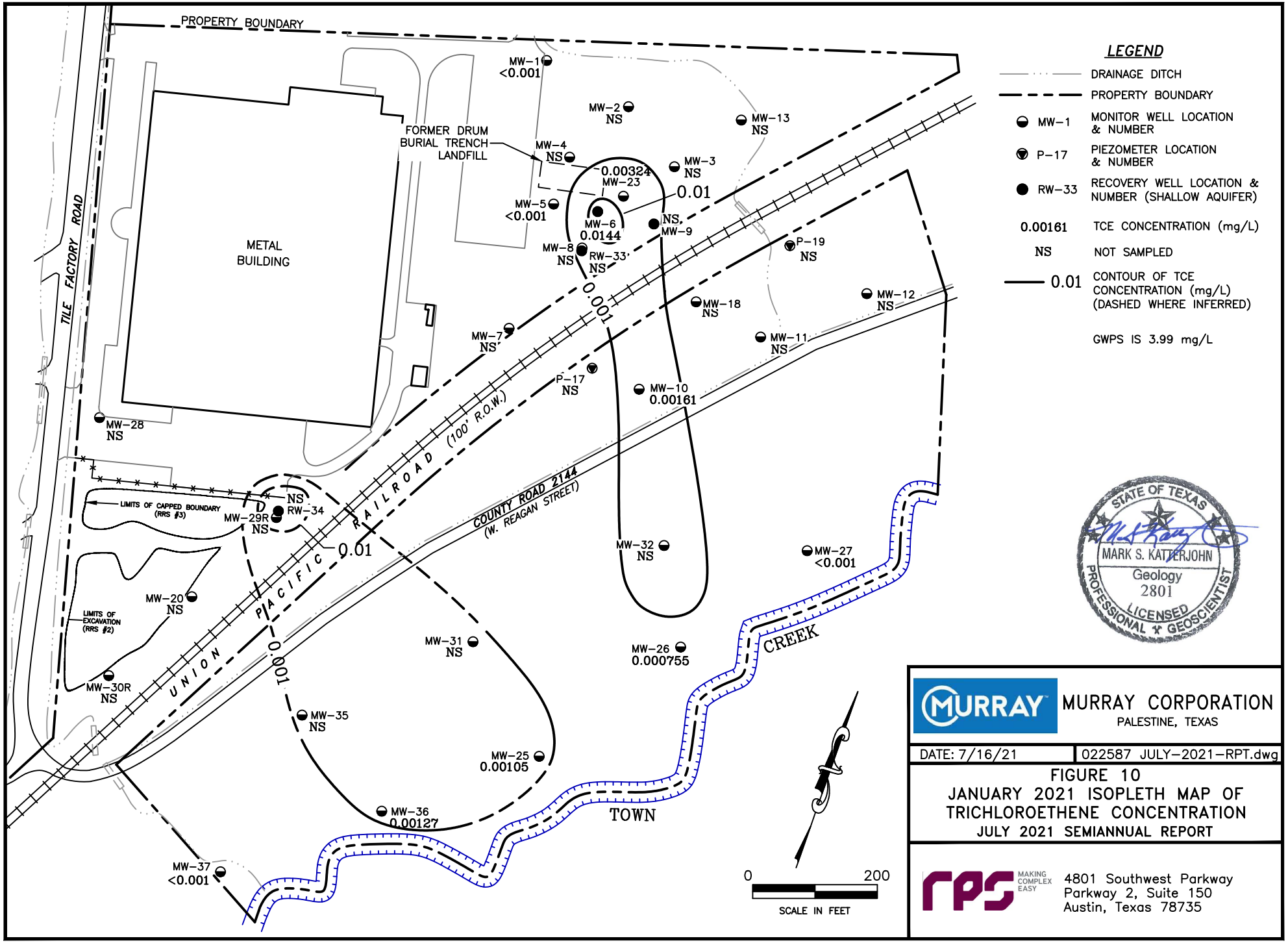

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FIGURE 10
JANUARY 2021 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
JULY 2021 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
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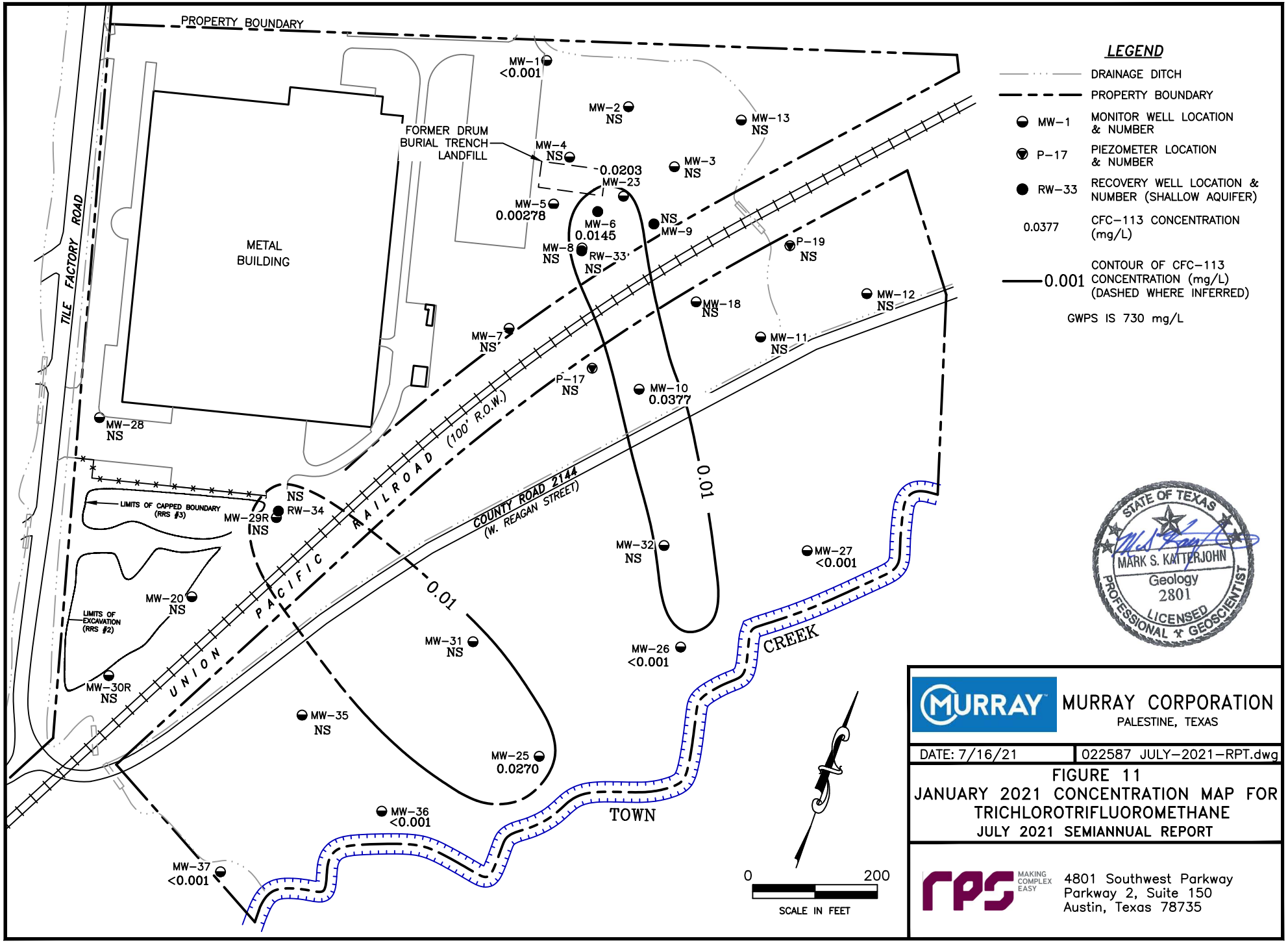

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0377 — CFC-113 CONCENTRATION (mg/L)
- 0.001 — CONTOUR OF CFC-113 CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 730 mg/L

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FIGURE 11
JANUARY 2021 CONCENTRATION MAP FOR TRICHLOROTRIFLUOROMETHANE
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MAKING COMPLEX EASY
4801 Southwest Parkway
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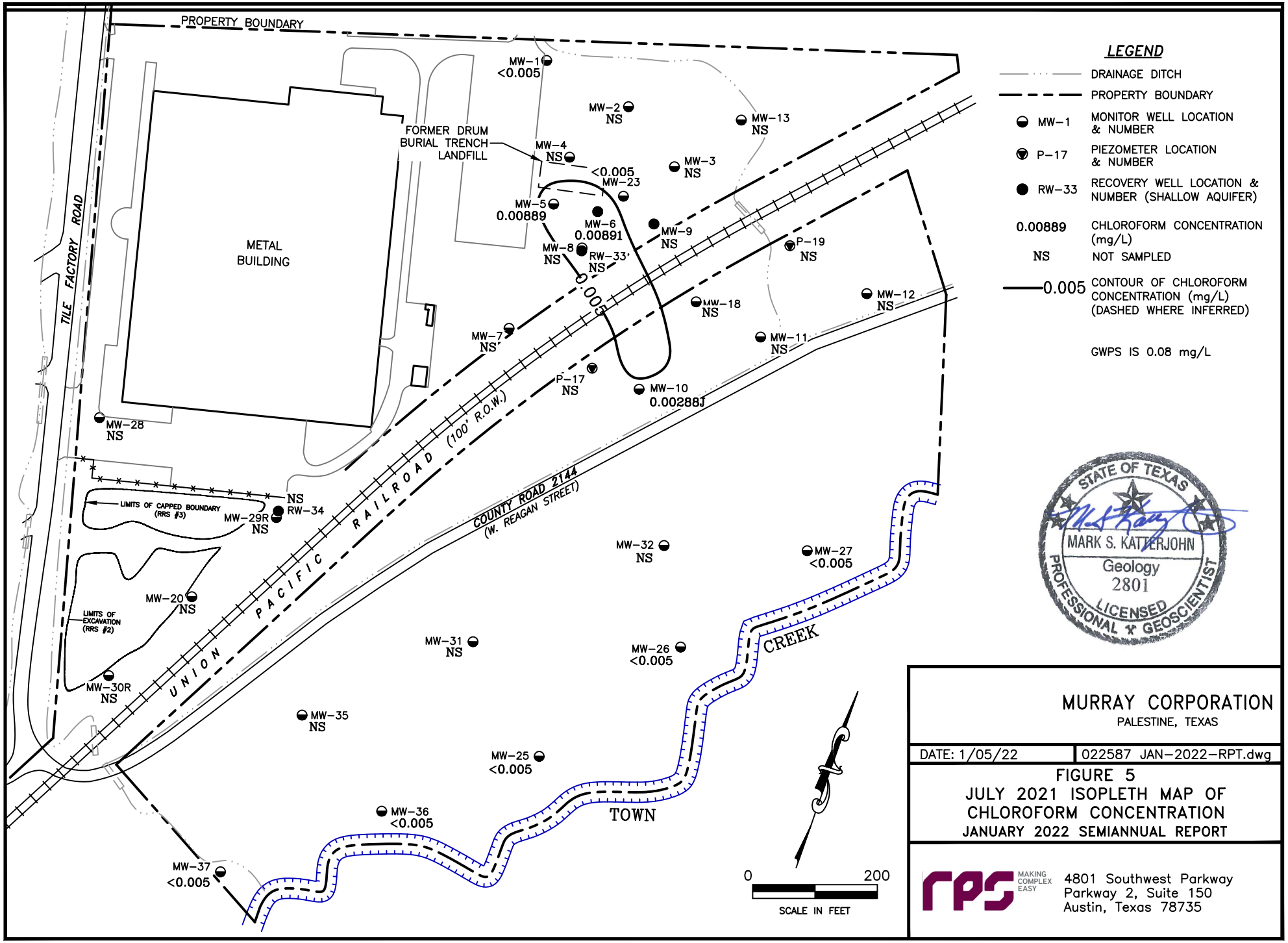

LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00889 — CHLOROFORM CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.005 — CONTOUR OF CHLOROFORM CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 0.08 mg/L

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FIGURE 5
JULY 2021 ISOPLETH MAP OF CHLOROFORM CONCENTRATION
JANUARY 2022 SEMIANNUAL REPORT

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4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

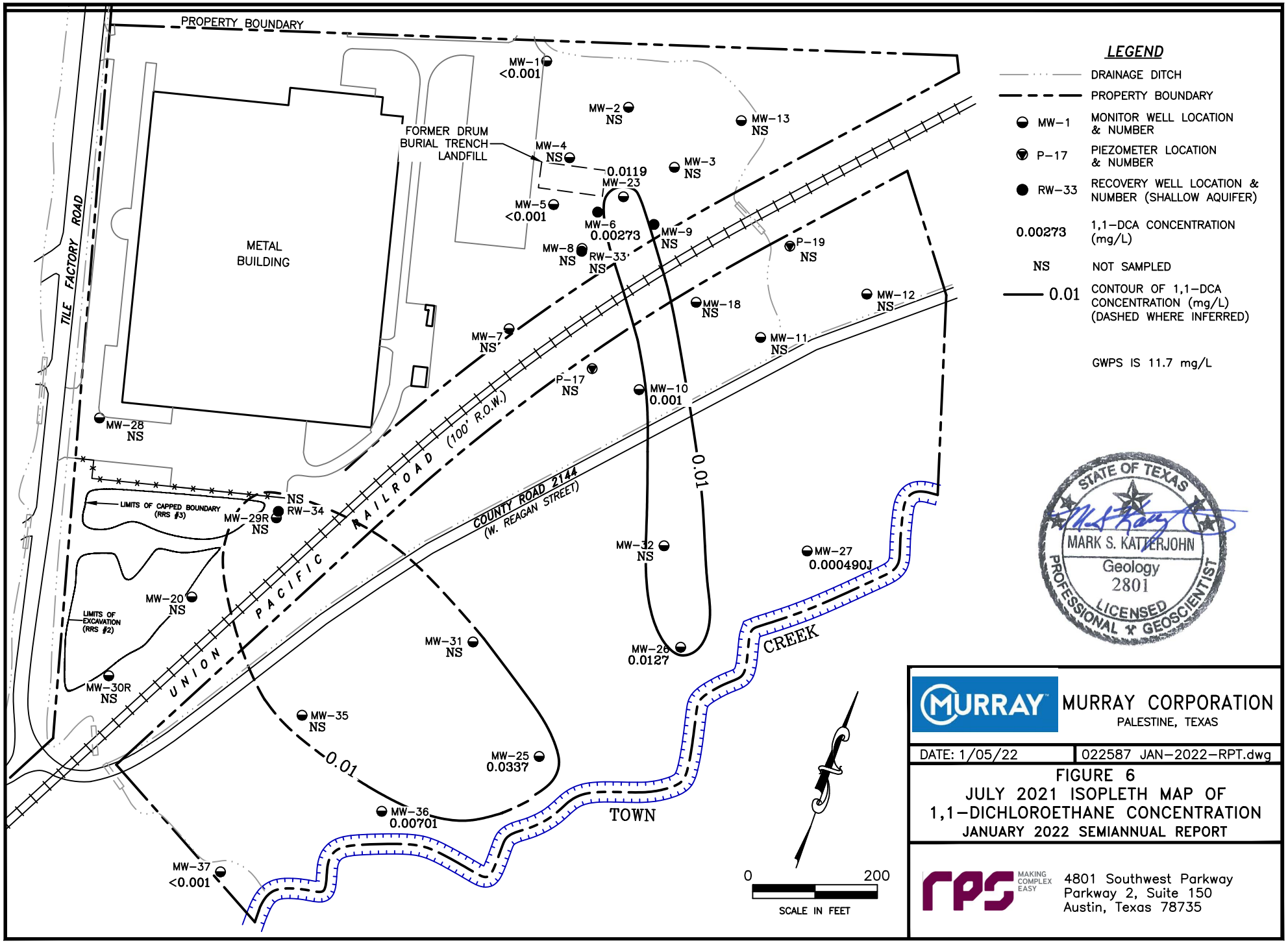

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FIGURE 6
JULY 2021 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
JANUARY 2022 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
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Austin, Texas 78735

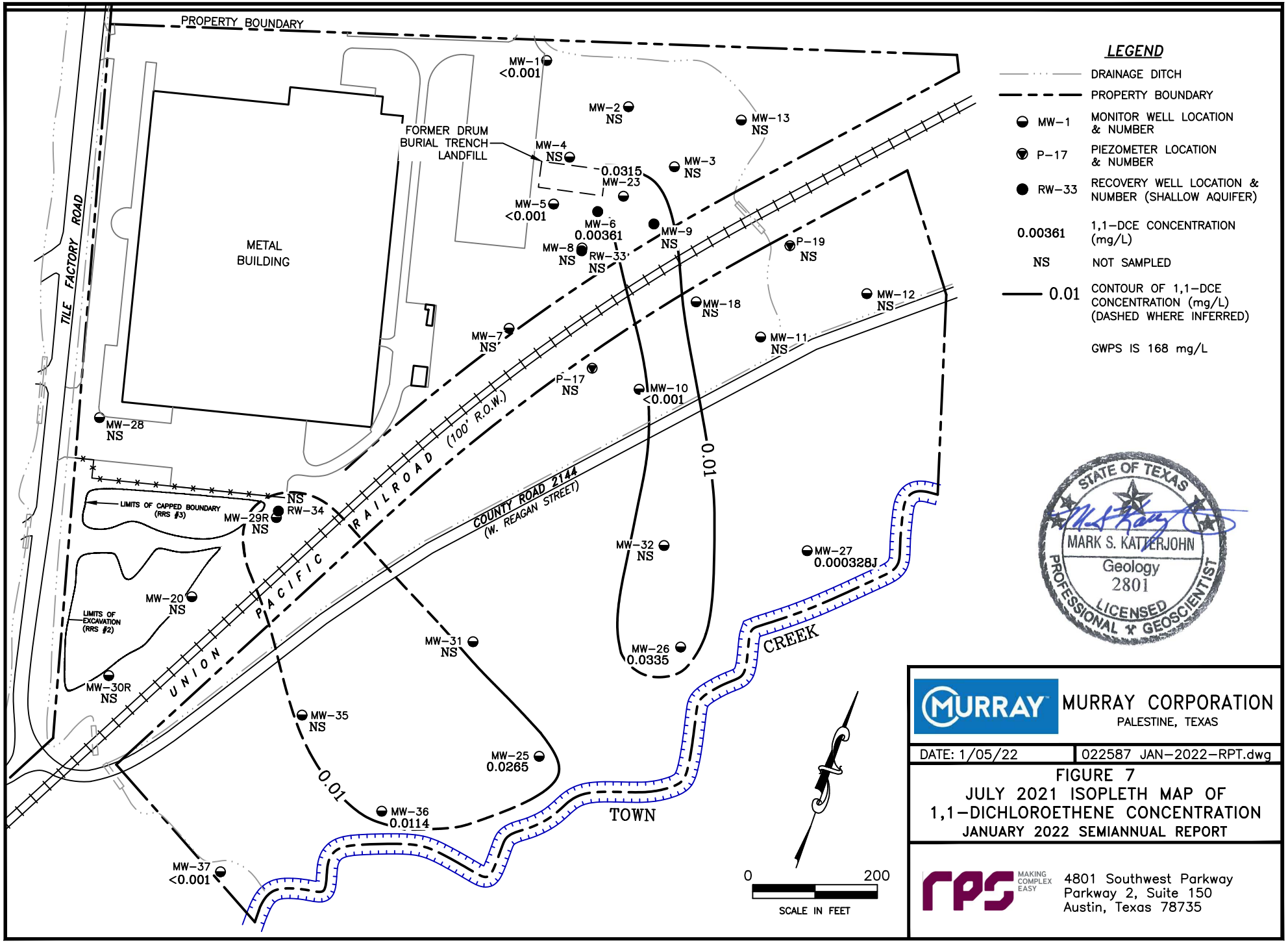

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FIGURE 7
JULY 2021 ISOPLETH MAP OF
1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2022 SEMIANNUAL REPORT

MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
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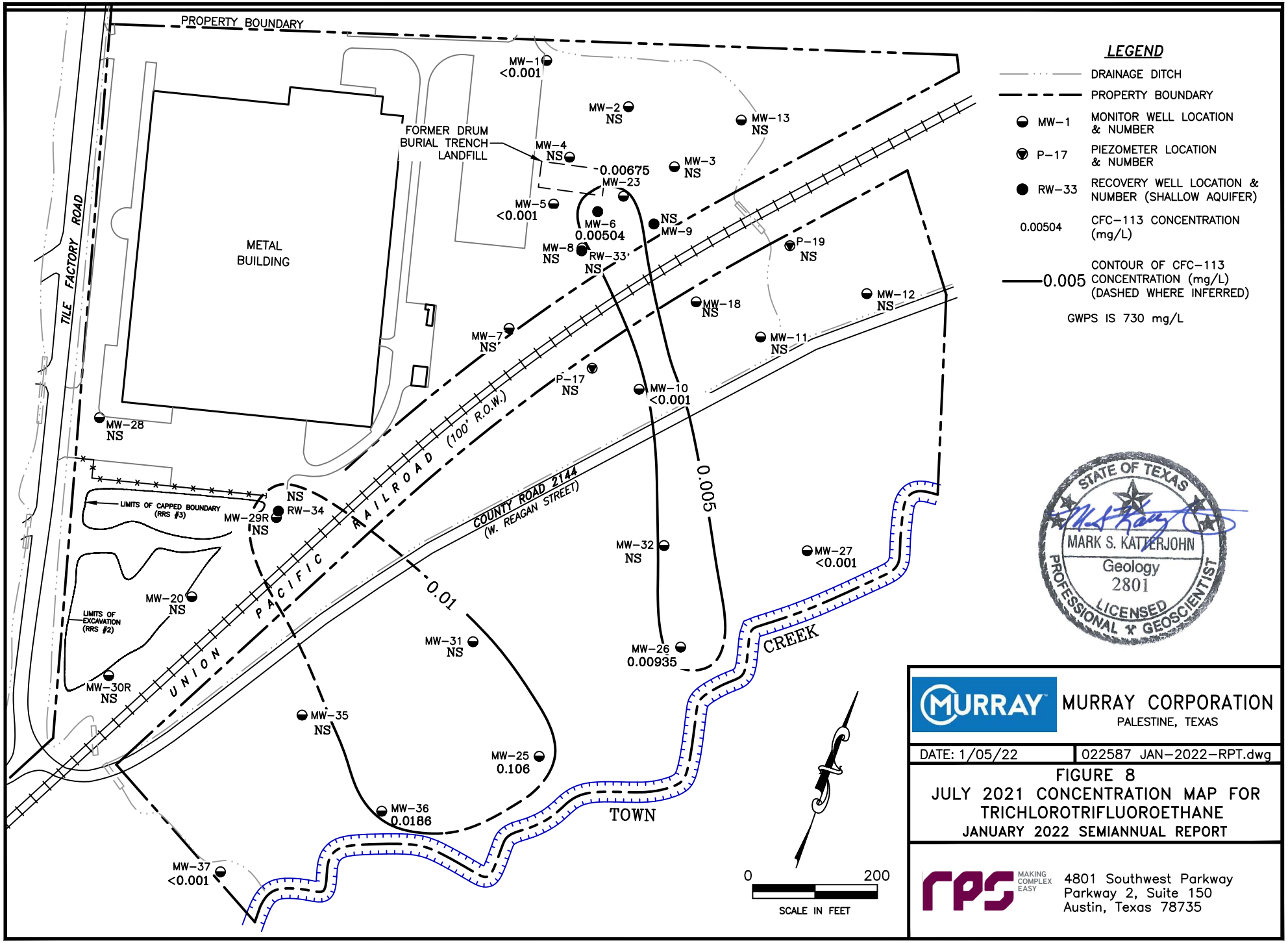

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FIGURE 8
JULY 2021 CONCENTRATION MAP FOR TRICHLOROTRIFLUOROETHANE
JANUARY 2022 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
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Austin, Texas 78735

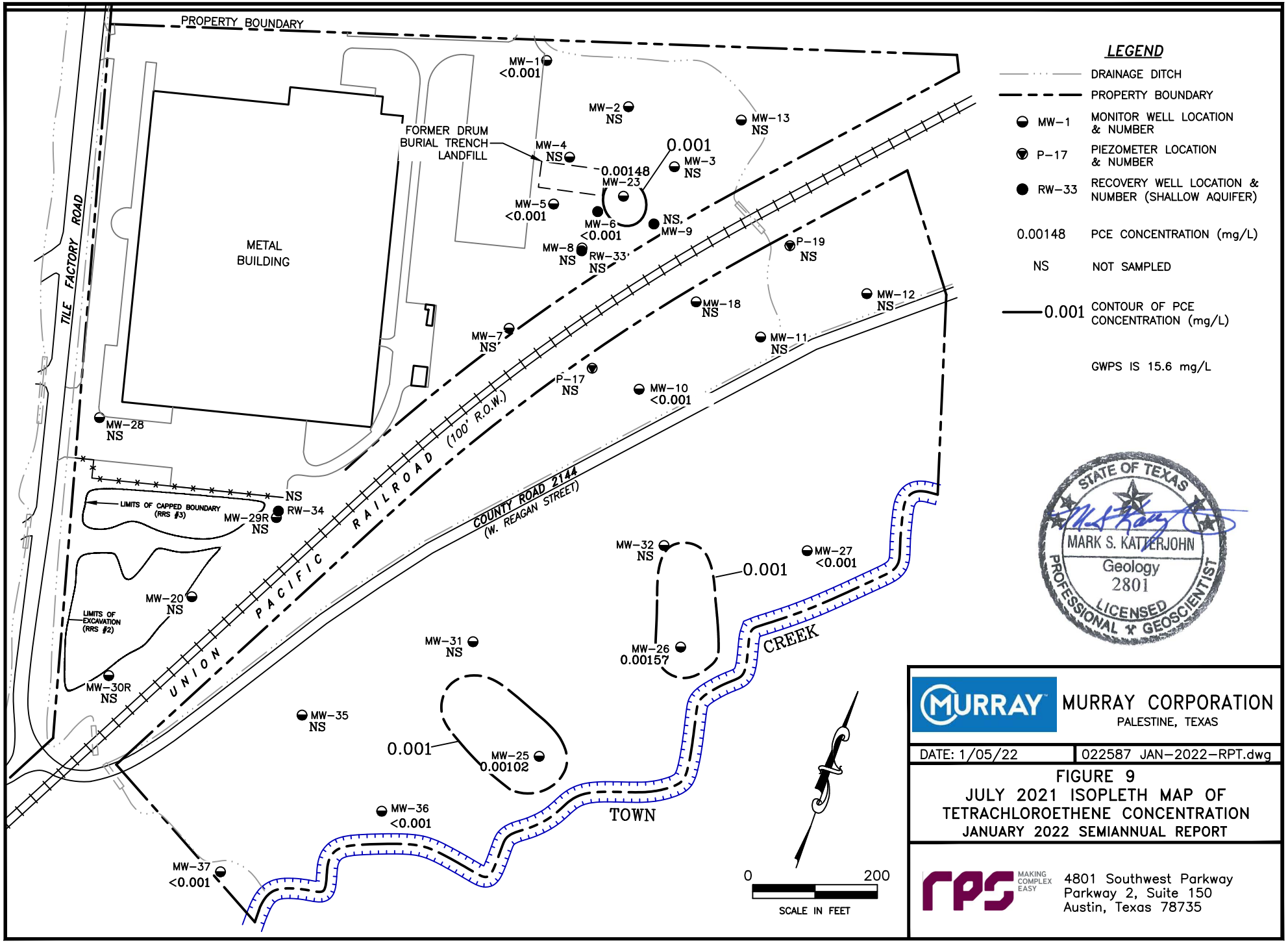

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FIGURE 9
JULY 2021 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
JANUARY 2022 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
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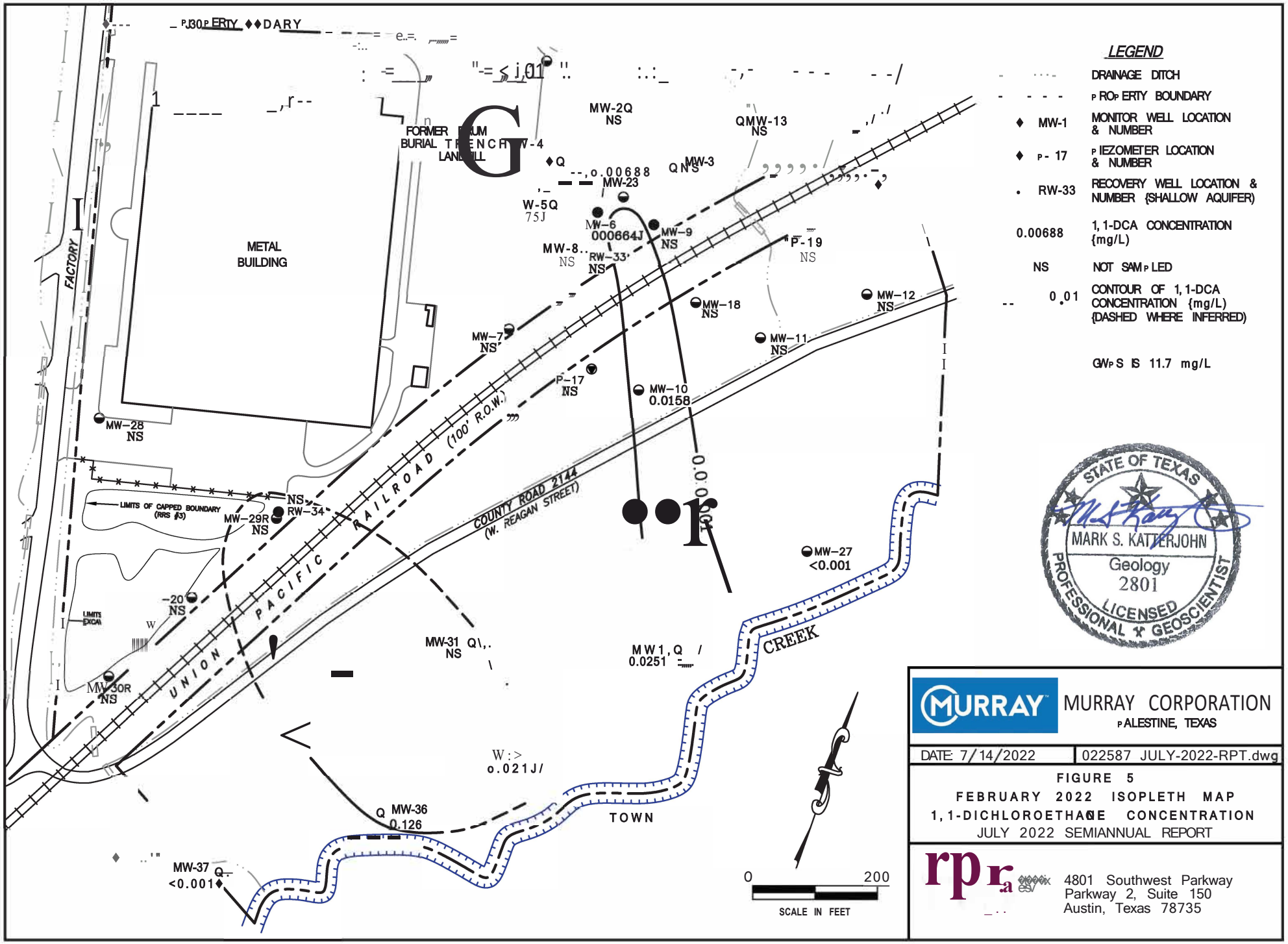

LEGEND

	DRAINAGE DITCH
	PROPERTY BOUNDARY
MW-1	MONITOR WELL LOCATION & NUMBER
P-17	PIEZOMETER LOCATION & NUMBER
RW-33	RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
0.00688	1,1-DCA CONCENTRATION (mg/L)
NS	NOT SAMPLED
0.01	CONTOUR OF 1,1-DCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 11.7 mg/L

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FIGURE 5
FEBRUARY 2022 ISOPLETH MAP
1,1-DICHLOROETHANE CONCENTRATION
JULY 2022 SEMIANNUAL REPORT

rpsa
4801 Southwest Parkway
Parkway 2, Suite 150
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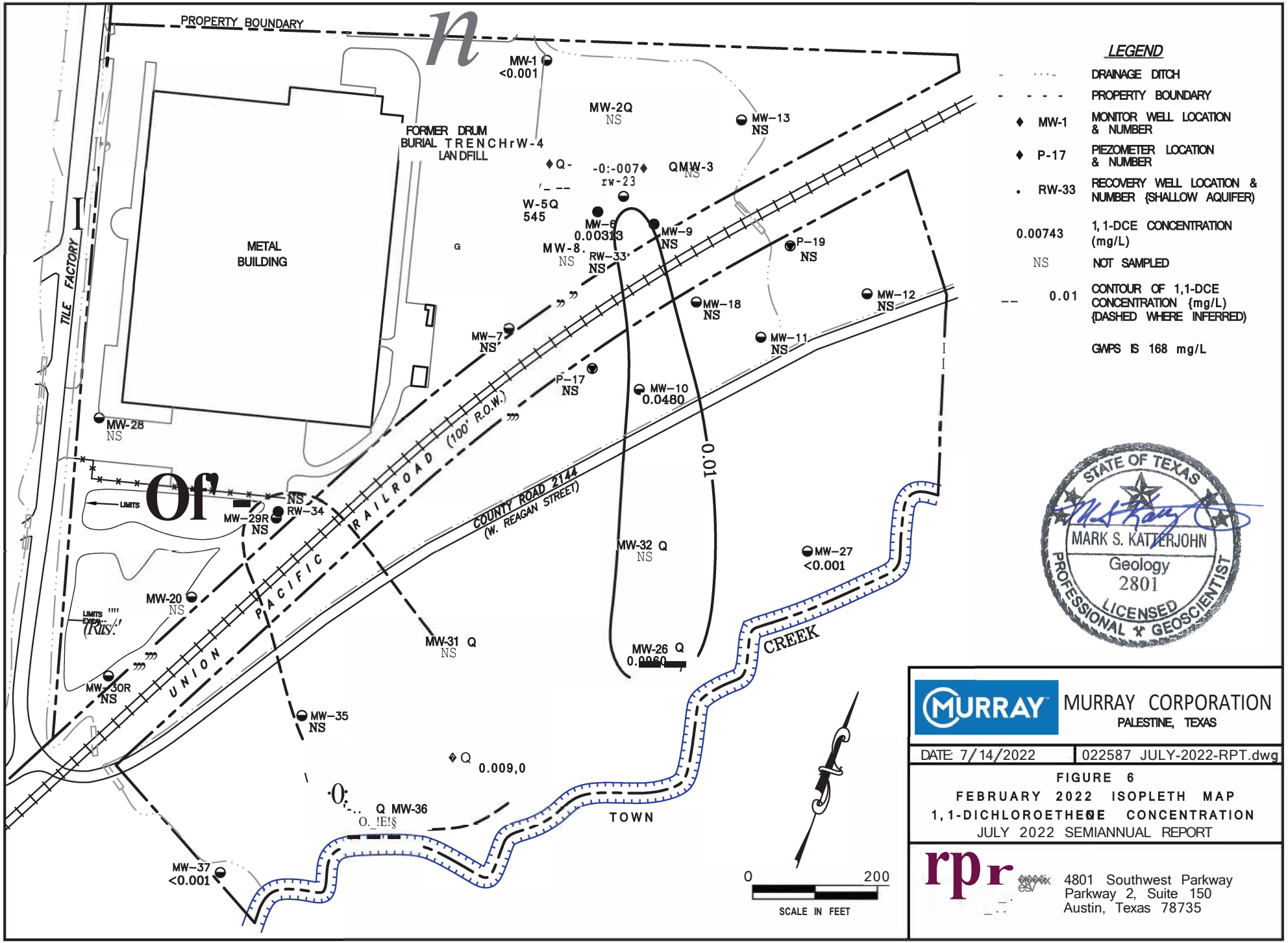

LEGEND

- · · · -	DRAINAGE DITCH
- - - - -	PROPERTY BOUNDARY
♦ MW-1	MONITOR WELL LOCATION & NUMBER
♦ P-17	PIEZOMETER LOCATION & NUMBER
• RW-33	RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
0.00743	1,1-DCE CONCENTRATION (mg/L)
NS	NOT SAMPLED
-- 0.01	CONTOUR OF 1,1-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)
	GWPS IS 168 mg/L

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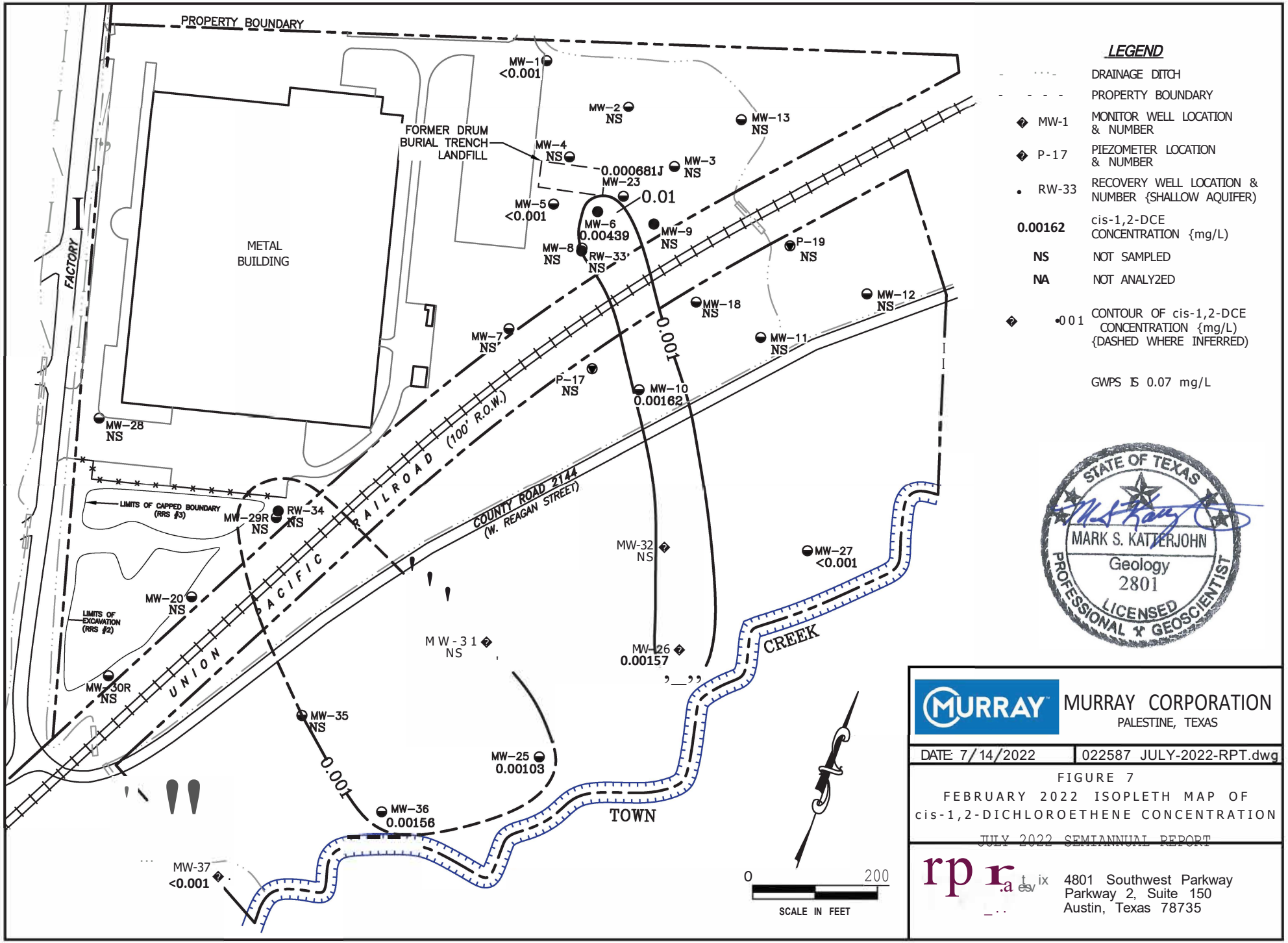
FIGURE 6
FEBRUARY 2022 ISOPLETH MAP
1,1-DICHLOROETHENE CONCENTRATION
JULY 2022 SEMIANNUAL REPORT

rpr
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- · · · -	DRAINAGE DITCH
- - - - -	PROPERTY BOUNDARY
MW-1	MONITOR WELL LOCATION & NUMBER
P-17	PIEZOMETER LOCATION & NUMBER
RW-33	RECOVERY WELL LOCATION & NUMBER {SHALLOW AQUIFER)
0.00162	cis-1,2-DCE CONCENTRATION {mg/L)
NS	NOT SAMPLED
NA	NOT ANALY2ED
•001	CONTOUR OF cis-1,2-DCE CONCENTRATION {mg/L) {DASHED WHERE INFERRED)

GWPS IS 0.07 mg/L

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FIGURE 7
FEBRUARY 2022 ISOPLETH MAP OF
cis-1,2-DICHLOROETHENE CONCENTRATION
JULY 2022 SEMIANNUAL REPORT

rpr.a tesv ix
4801 Southwest Parkway
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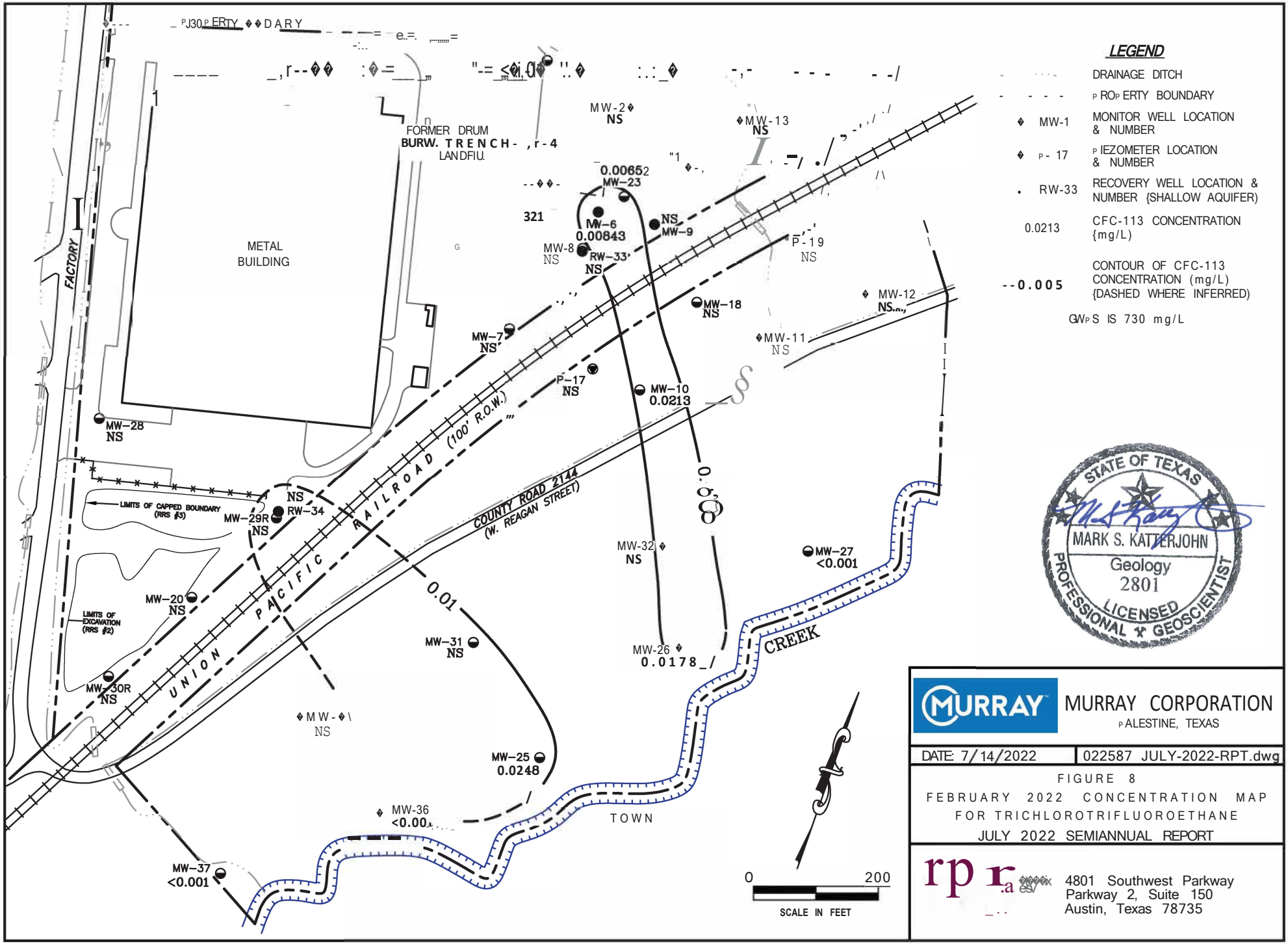

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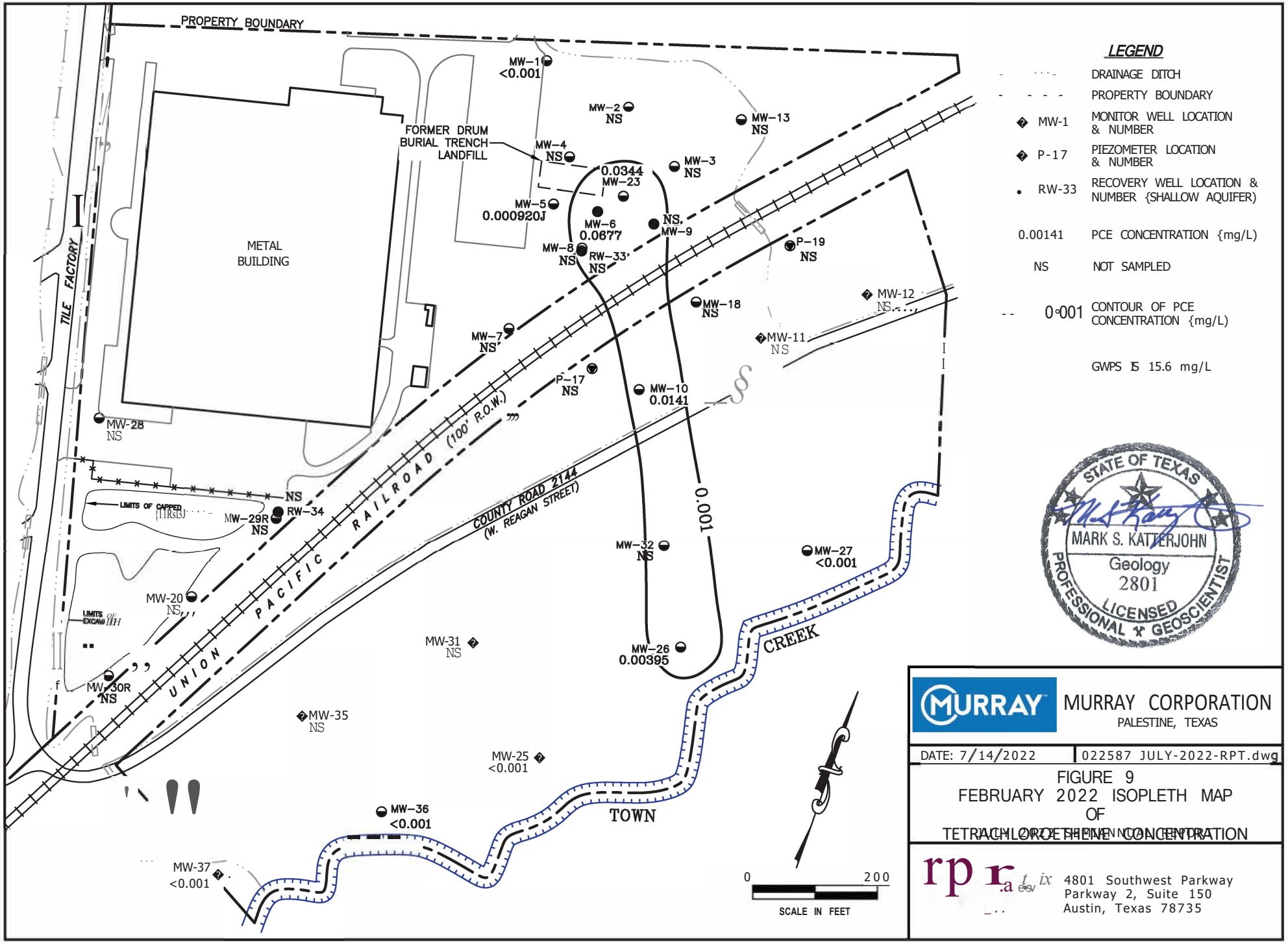
FIGURE 8
FEBRUARY 2022 CONCENTRATION MAP FOR TRICHLOROTRIFLUOROETHANE
JULY 2022 SEMIANNUAL REPORT

rpra
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- · · · -	DRAINAGE DITCH
- - - - -	PROPERTY BOUNDARY
◆ MW-1	MONITOR WELL LOCATION & NUMBER
◆ P-17	PIEZOMETER LOCATION & NUMBER
• RW-33	RECOVERY WELL LOCATION & NUMBER {SHALLOW AQUIFER)
0.00141	PCE CONCENTRATION {mg/L)
NS	NOT SAMPLED
- - 0.001	CONTOUR OF PCE CONCENTRATION {mg/L)
	GWPS IS 15.6 mg/L

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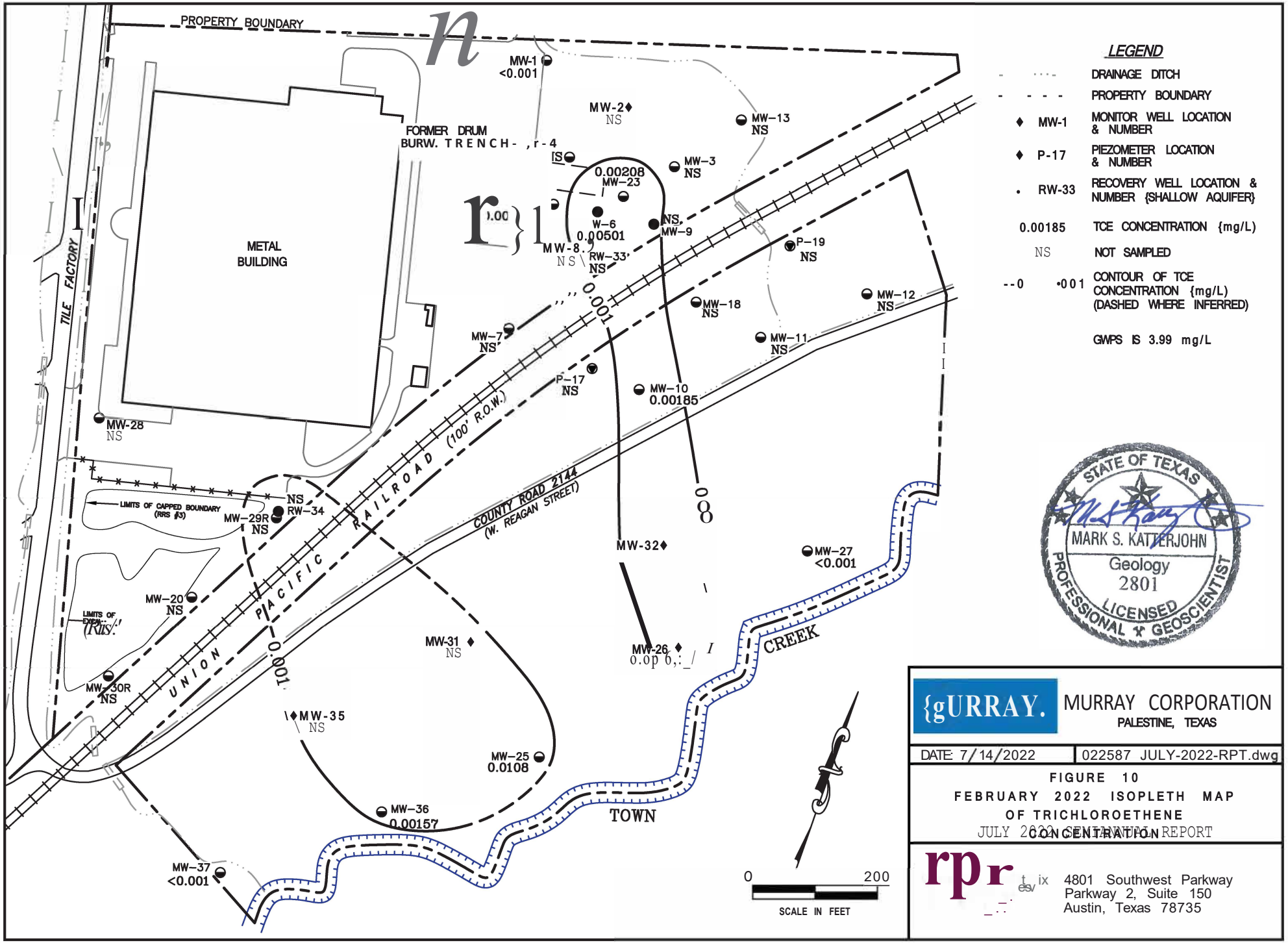
FIGURE 9
FEBRUARY 2022 ISOPLETH MAP OF
TETRACHLOROETHENE CONCENTRATION

4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- · · · -	DRAINAGE DITCH
- - - - -	PROPERTY BOUNDARY
♦ MW-1	MONITOR WELL LOCATION & NUMBER
♦ P-17	PIEZOMETER LOCATION & NUMBER
• RW-33	RECOVERY WELL LOCATION & NUMBER {SHALLOW AQUIFER}
0.00185	TCE CONCENTRATION {mg/L)
NS	NOT SAMPLED
--0 •001	CONTOUR OF TCE CONCENTRATION {mg/L) (DASHED WHERE INFERRED)
	GWPS IS 3.99 mg/L

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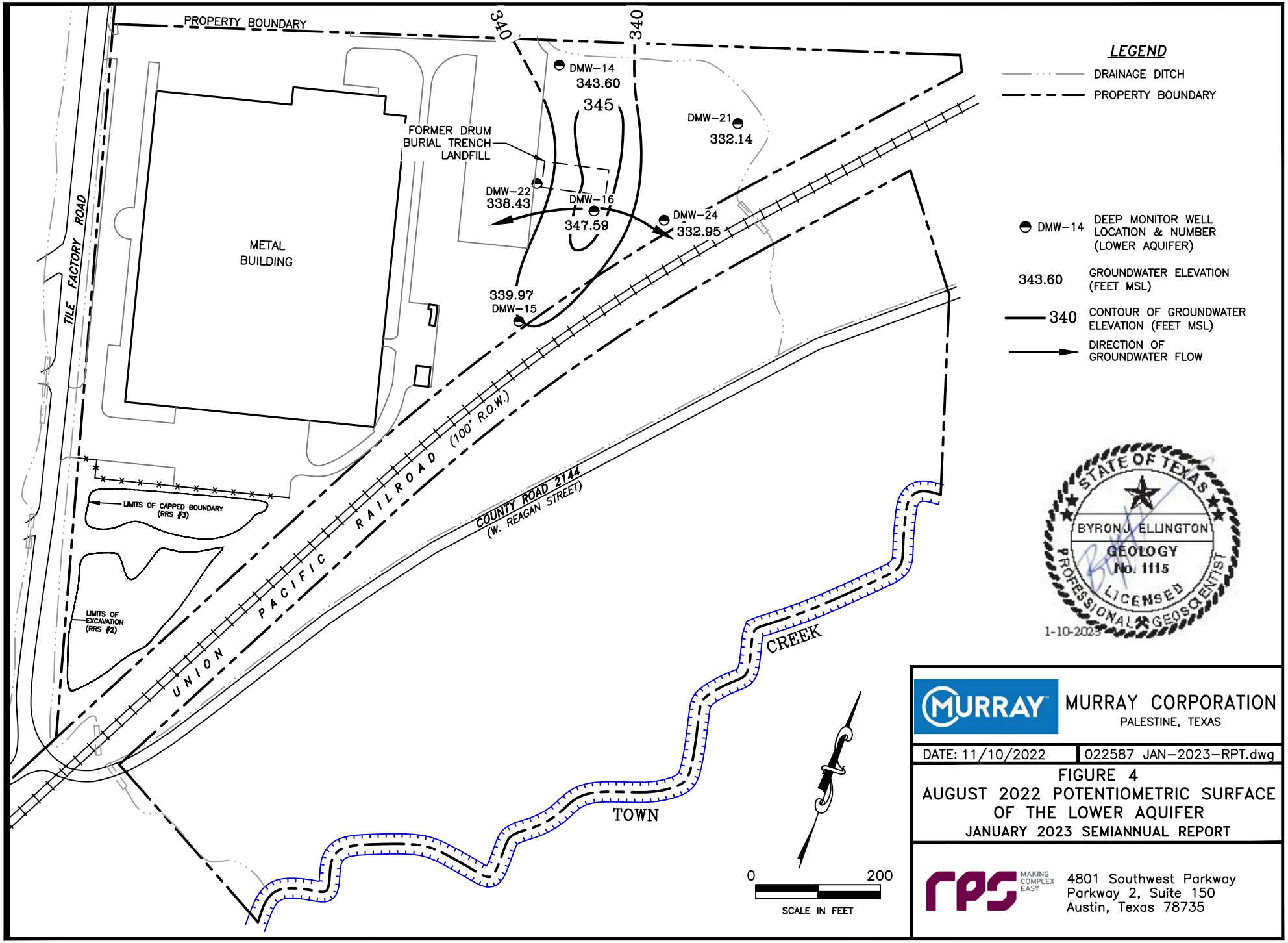
FIGURE 10
FEBRUARY 2022 ISOPLETH MAP
OF TRICHLOROETHENE
CONCENTRATION

JULY 2022 SEMIANNUAL REPORT

rpr tesvix
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

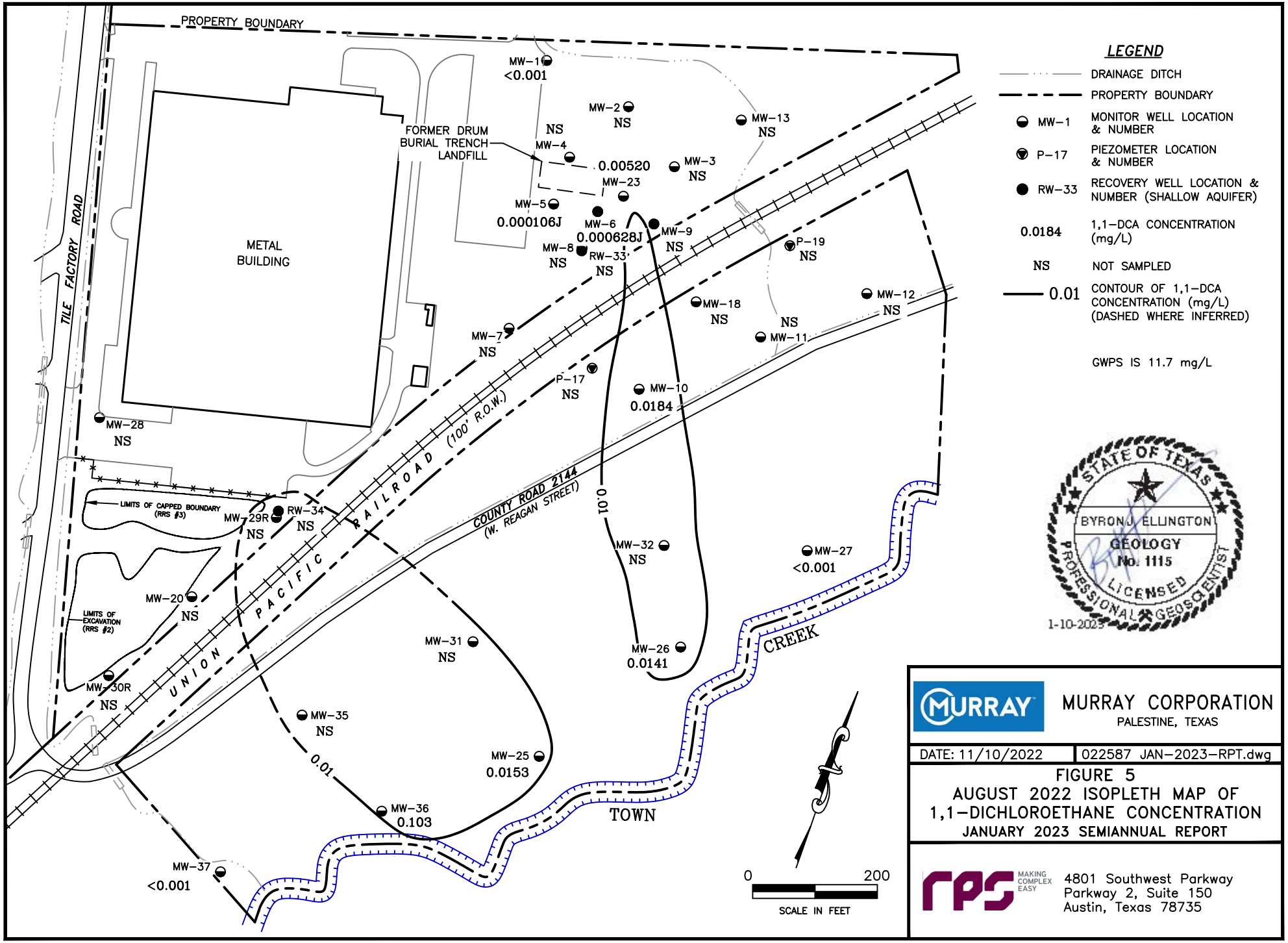


MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 4
AUGUST 2022 POTENTIOMETRIC SURFACE OF THE LOWER AQUIFER
JANUARY 2023 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0184 — 1,1-DCA CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCA CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 11.7 mg/L

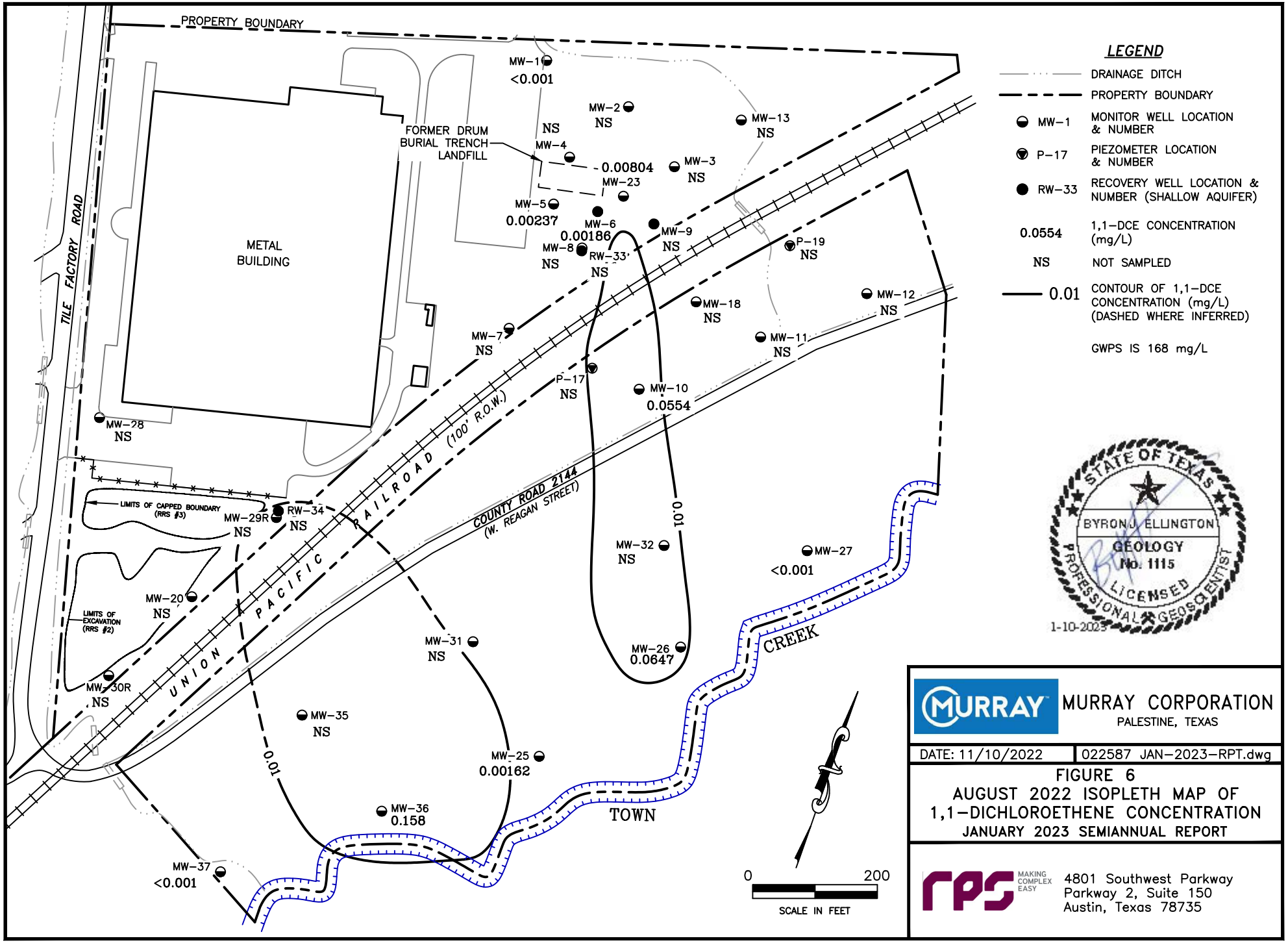
STATE OF TEXAS
BYRON J. ELLINGTON
GEOLOGY
No. 1115
LICENSED PROFESSIONAL GEOSCIENTIST
1-10-2023

MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 5
AUGUST 2022 ISOPLETH MAP OF 1,1-DICHLOROETHANE CONCENTRATION
JANUARY 2023 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0554 — 1,1-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.01 — CONTOUR OF 1,1-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 168 mg/L

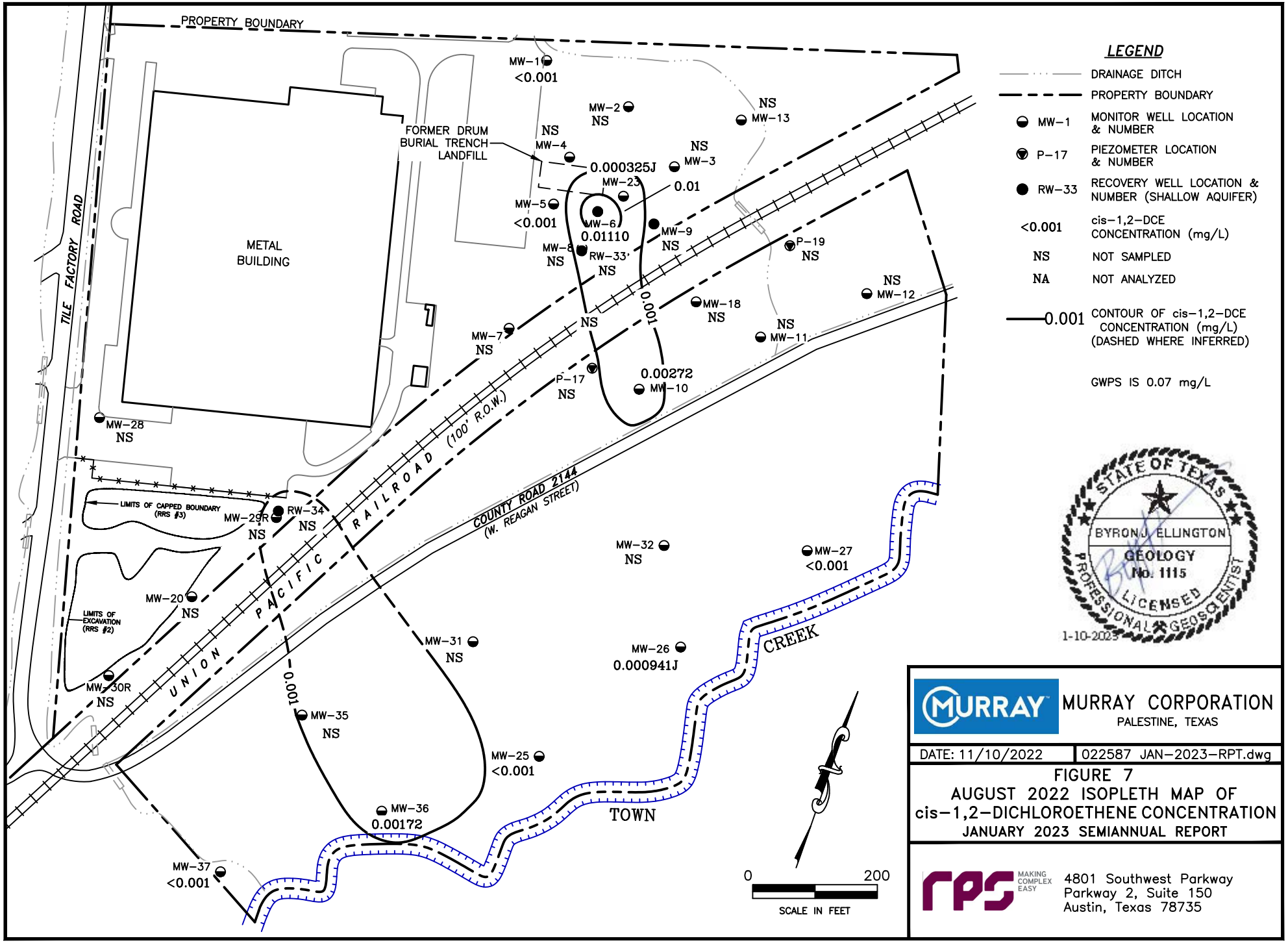
STATE OF TEXAS
BYRON J. ELLINGTON
GEOLOGY
No. 1115
LICENSED PROFESSIONAL GEOSCIENTIST
1-10-2023

MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 6
AUGUST 2022 ISOPLETH MAP OF 1,1-DICHLOROETHENE CONCENTRATION
JANUARY 2023 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- <0.001 — cis-1,2-DCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- NA — NOT ANALYZED
- 0.001 — CONTOUR OF cis-1,2-DCE CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 0.07 mg/L

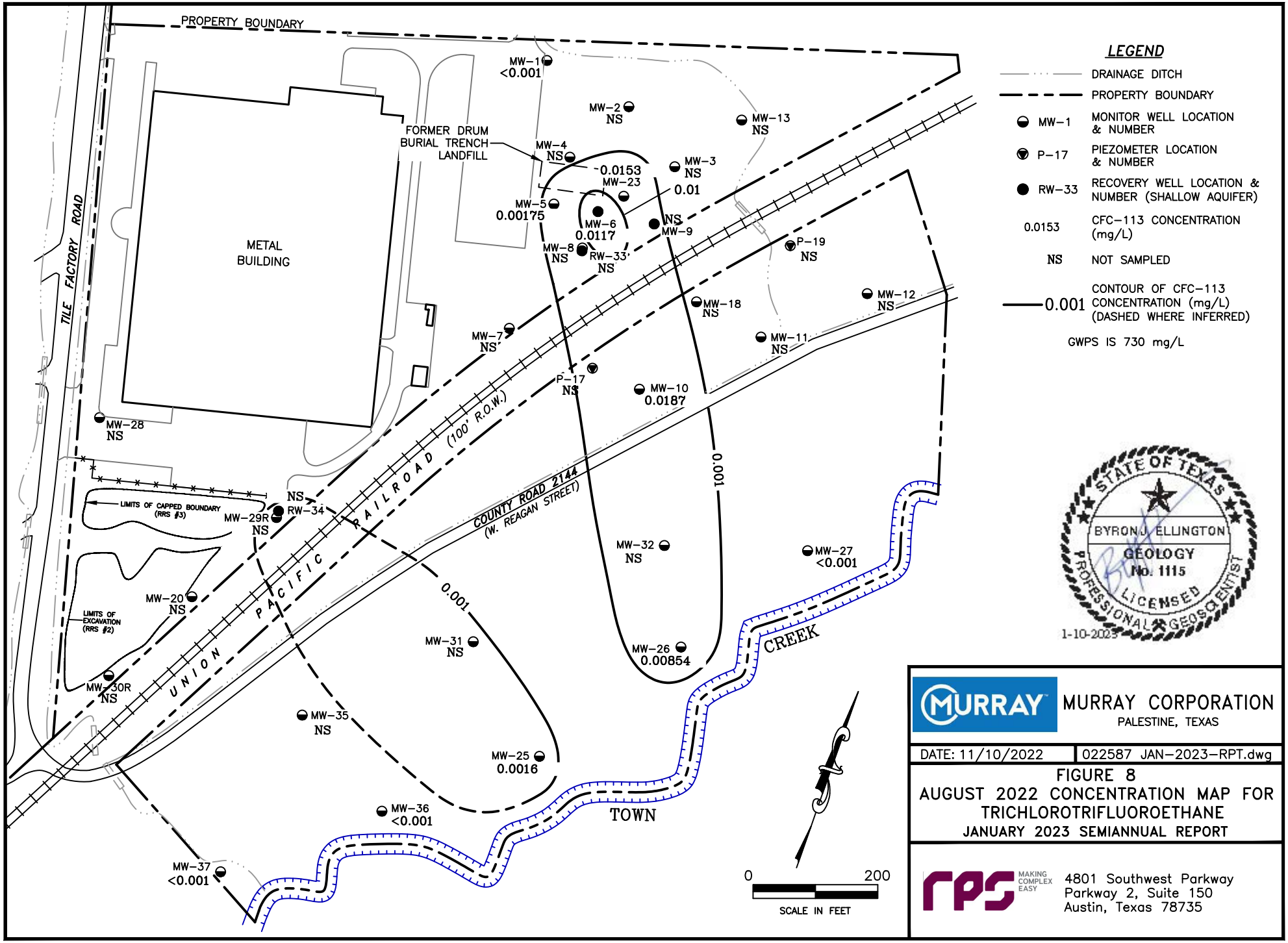
STATE OF TEXAS
BYRON J. ELLINGTON
GEOLOGY
No. 1115
LICENSED PROFESSIONAL GEOSCIENTIST
1-10-2023

MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 7
AUGUST 2022 ISOPLETH MAP OF cis-1,2-DICHLOROETHENE CONCENTRATION
JANUARY 2023 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.0153 — CFC-113 CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF CFC-113 CONCENTRATION (mg/L) (DASHED WHERE INFERRED)

GWPS IS 730 mg/L

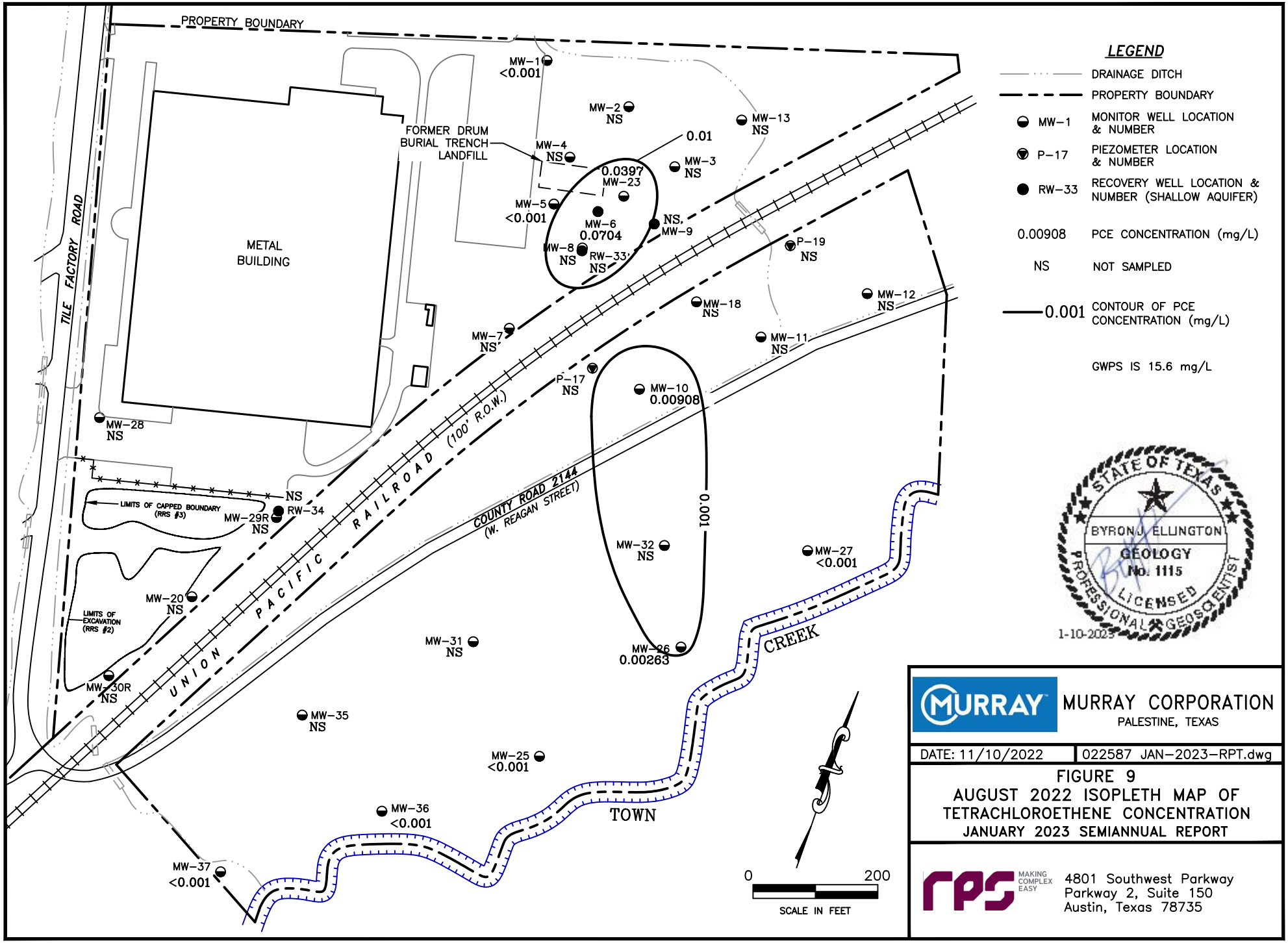
STATE OF TEXAS
BYRON J. ELLINGTON
GEOLOGY
No. 1115
LICENSED PROFESSIONAL GEOSCIENTIST
1-10-2023

MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 8
AUGUST 2022 CONCENTRATION MAP FOR TRICHLOROTRIFLUOROETHANE
JANUARY 2023 SEMIANNUAL REPORT

rps MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



LEGEND

- DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (SHALLOW AQUIFER)
- 0.00908 — PCE CONCENTRATION (mg/L)
- NS — NOT SAMPLED
- 0.001 — CONTOUR OF PCE CONCENTRATION (mg/L)

GWPS IS 15.6 mg/L

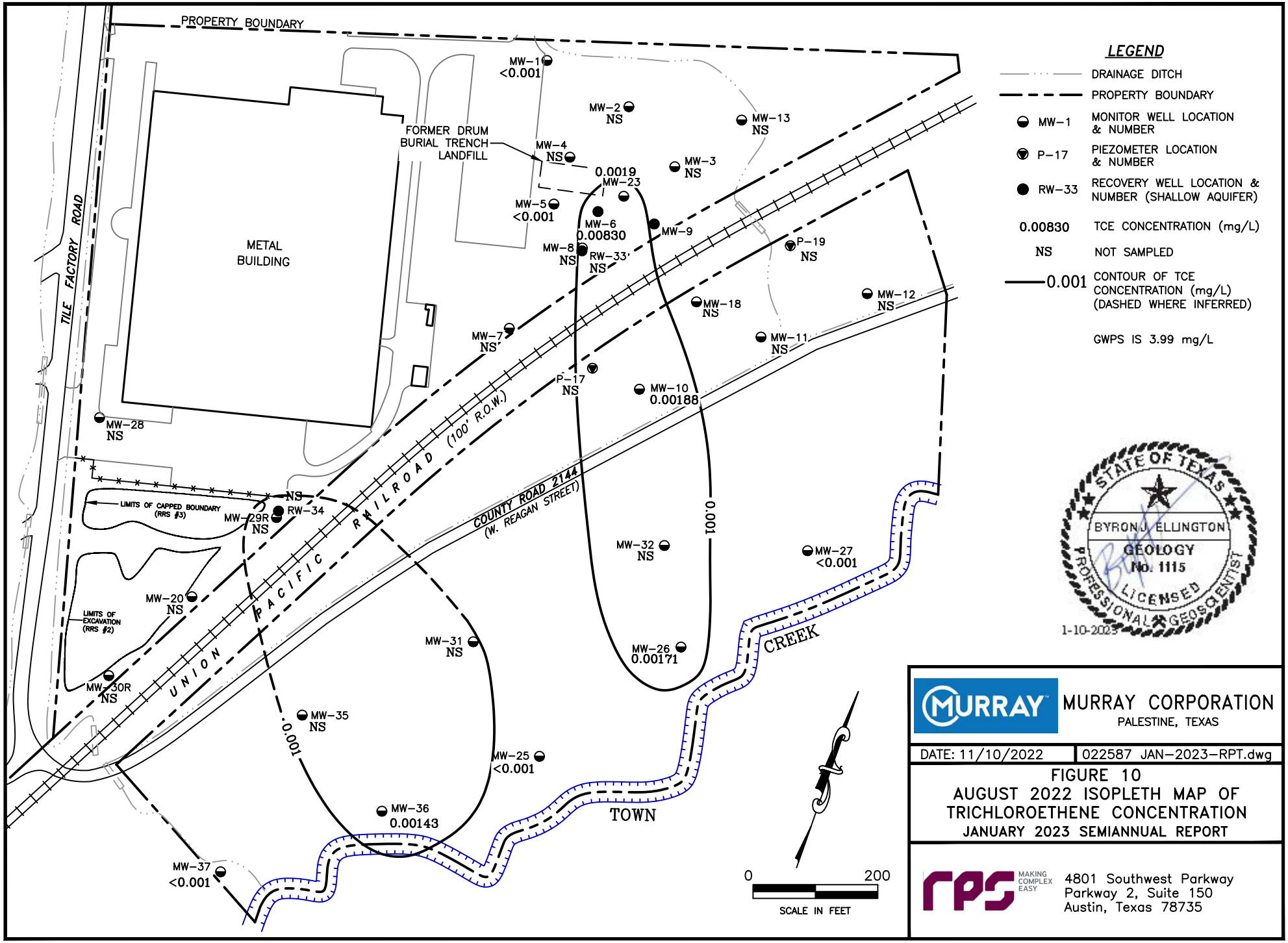
STATE OF TEXAS
BYRON J. ELLINGTON
GEOLOGY
No. 1115
LICENSED PROFESSIONAL GEOSCIENTIST
1-10-2023

MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 9
AUGUST 2022 ISOPLETH MAP OF TETRACHLOROETHENE CONCENTRATION
JANUARY 2023 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735



STATE OF TEXAS
BYRON J. ELLINGTON
GEOLOGY
No. 1115
LICENSED PROFESSIONAL GEOSCIENTIST
1-10-2023

MURRAY CORPORATION
PALESTINE, TEXAS

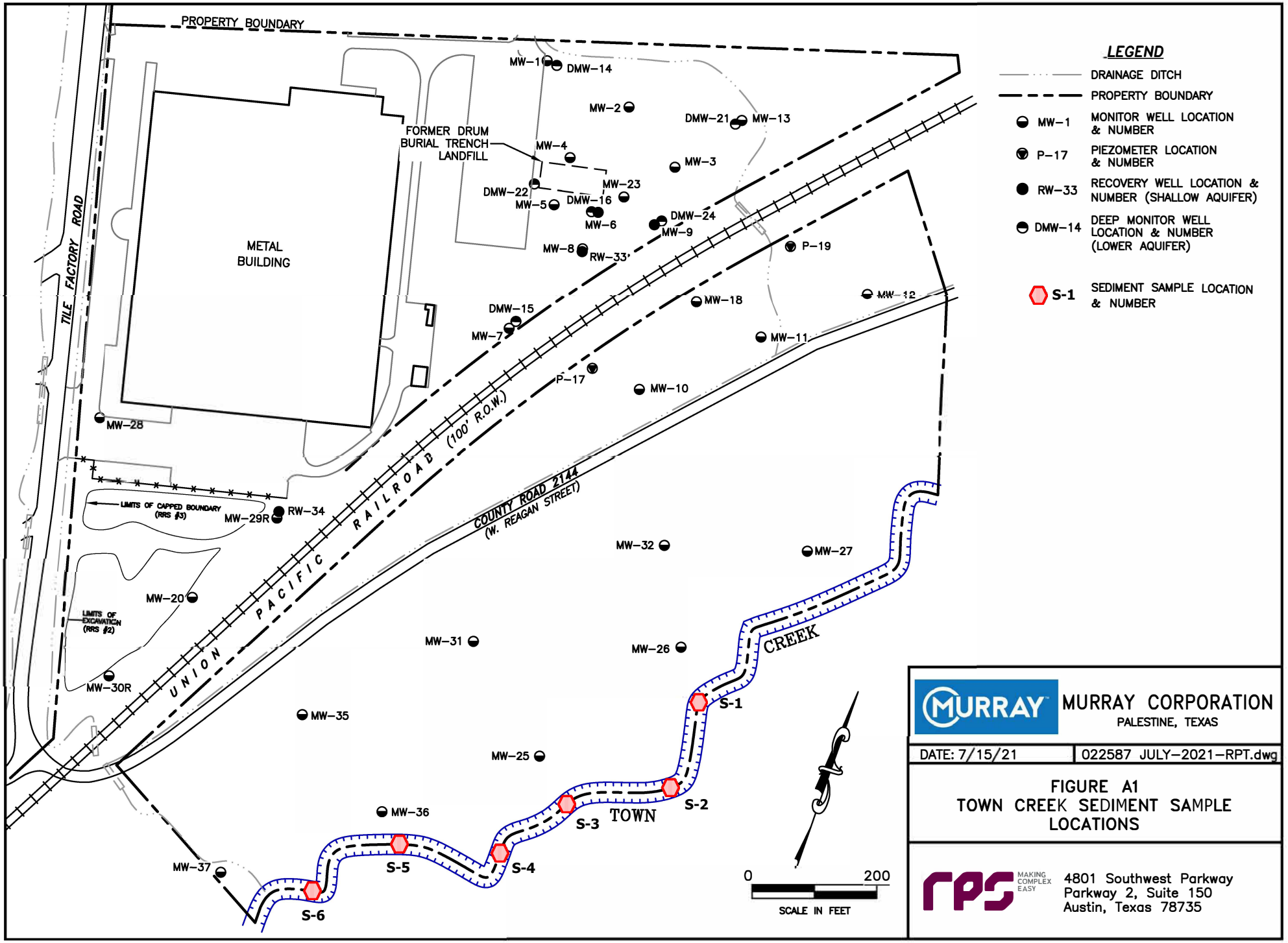
DATE: 11/10/2022 | 022587 JAN-2023-RPT.dwg

FIGURE 10
AUGUST 2022 ISOPLETH MAP OF TRICHLOROETHENE CONCENTRATION
JANUARY 2023 SEMIANNUAL REPORT

RPS MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

FIGURE 4

Sediment Sampling Location Map



MURRAY CORPORATION
PALESTINE, TEXAS

DATE: 7/15/21 | 022587 JULY-2021-RPT.dwg

FIGURE A1
TOWN CREEK SEDIMENT SAMPLE LOCATIONS

MAKING COMPLEX EASY
4801 Southwest Parkway
Parkway 2, Suite 150
Austin, Texas 78735

Appendix A
Deed Notice

EXHIBIT A
to
DEED OF TRUST, SECURITY AGREEMENT, ASSIGNMENT OF RENTS AND FINANCING STATEMENT from Murray Corporation to Cad Williams, as Mortgage Trustee

Real Property Description

TRACT ONE

A L That certain tract or parcel of land, a part of the JOSEPH JORDAN SURVEY ABSTRACT No. 33, Anderson County, Texas, also being a part of that certain called 45.35 acre Second Tract conveyed to Anderson County Chamber of Commerce by Jack B. Bishop et ux, March 31, 1953, and recorded in Volume 434, page 135 of the Deed Records of Anderson County, Texas, also being all of that certain called 7.721 acre tract conveyed to Murray Corporation of Texas by Palestine Industrial Foundation, Inc., June 23, 1982, recorded in Volume 965, page 559 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

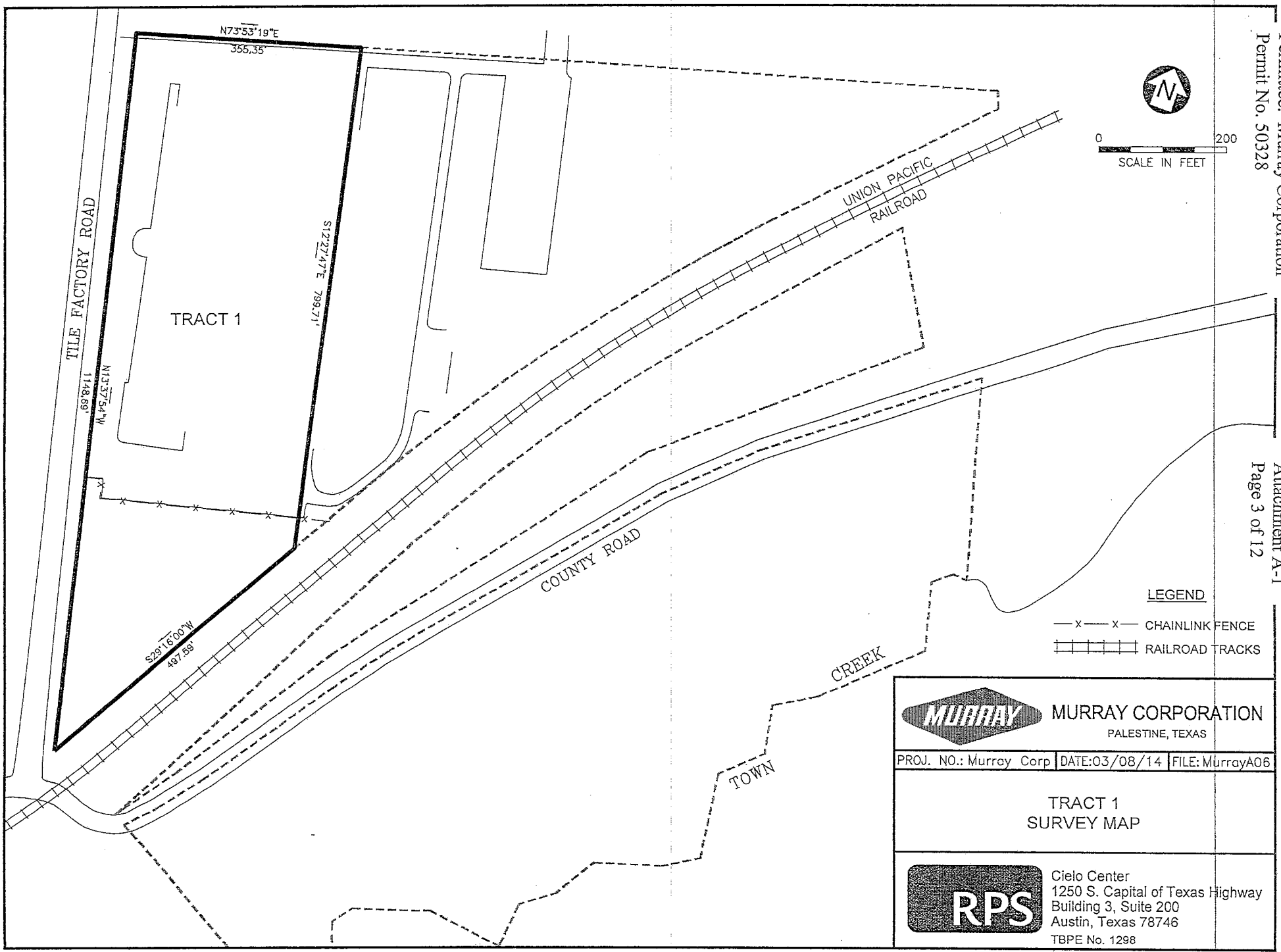
BEGINNING at a 1/2" Iron Rod for corner in the North line of the above mentioned 45.35 acre tract, said corner Brs. S 73° 53' 19" W - 1005.00 feet from the Northeast corner of said tract.

THENCE S 12° 27' 47" E a distance of 799.71 feet to a 1/2" Iron Rod for corner in the Northwest R. O. W. line of the Missouri and Pacific Railroad.

THENCE S29° 16' W with the Northwest R. O. W. line of the Missouri and Pacific Railroad a distance of 497.59 feet to a 1/2" Iron Rod for corner in the East margin of Tile Factory Road.

THENCE N 13° 37' 54" W with the East margin of Tile Factory Road a distance of 1148.69 feet to a 1 1/2" Iron Pipe found for corner in the North line of said Second Tract.

THENCE N 73° 53' 19" E with the North line of said tract a distance of 351.35 feet to the place of beginning, containing 7.721 acres of land.



MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp	DATE:03/08/14	FILE: MurrayA06

TRACT 1
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298

TRACT 2

VOL 236 PAGE 389

EXHIBIT A (Cont.)

TRACT TWO

ALL that certain tract or parcel of land, a part of the JOSEPH JORDAN SURVEY, ABSTRACT No. 33, Anderson County, Texas, also being a part of that certain called 45.35 acre Second Tract conveyed to Anderson County Chamber of Commerce by Jack E. Bishop et ux, March 31, 1935, recorded in Volume 454, page 135 of the Deed Records of Anderson County, Texas, also being all of that certain called 8.523 acre tract conveyed to Murray Corporation by Palestine Industrial Foundation, Inc., January 30, 1979, recorded in Volume 888, page 879 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

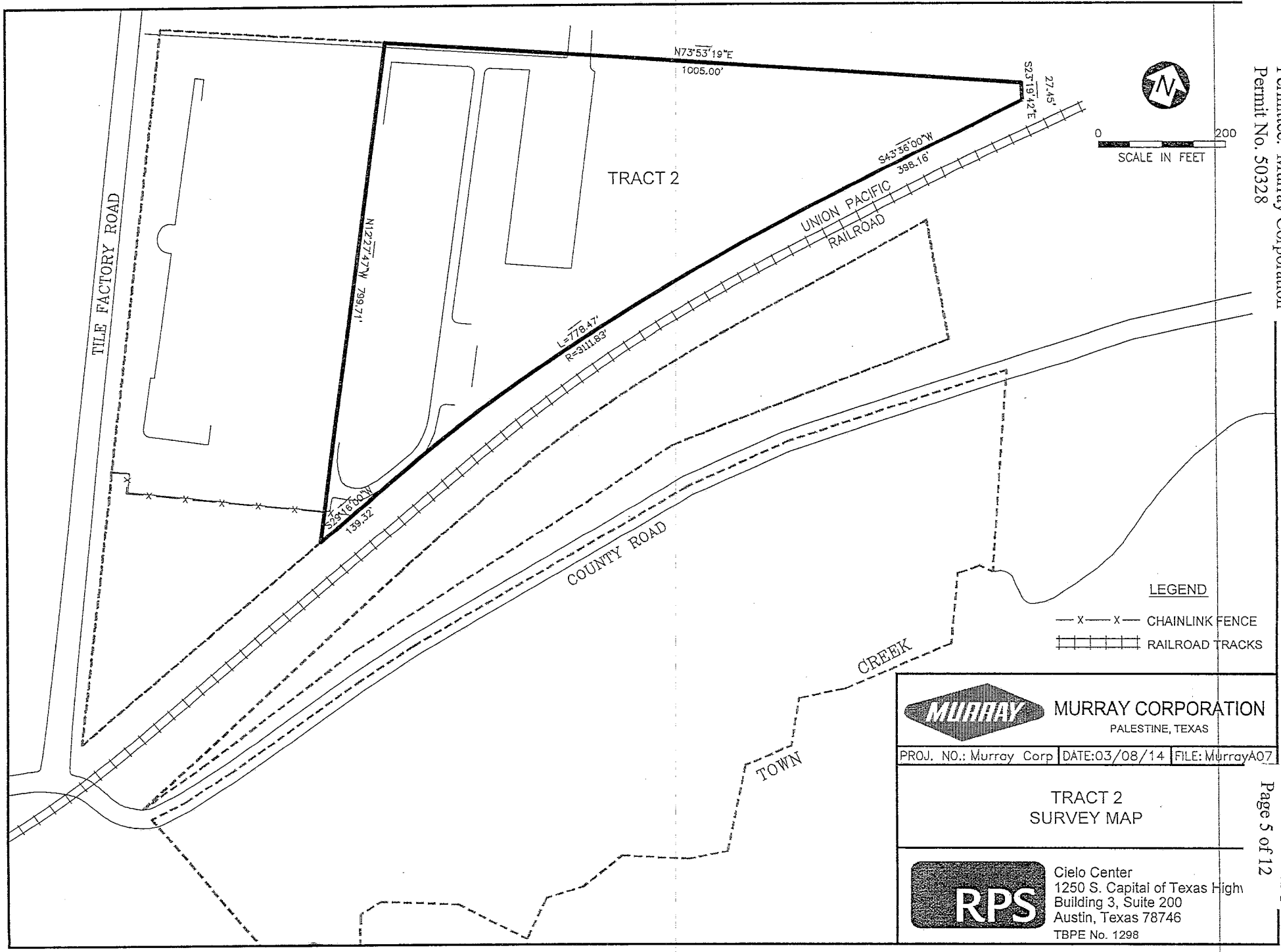
BEGINNING at a 1/2" Iron Rod for corner at the Northeast corner of the above mentioned Second Tract.

THENCE S 23° 19' 42" E with the East line of said tract a distance of 27.45 feet to a 1/2" Iron Rod for corner in the Northwest R. O. W. line of Missouri and Pacific Railroad.

THENCE in a Southwesterly direction with the Northwest R. O. W. line of the Missouri and Pacific Railroad as follows: S 43° 36' W - 398.16 feet to the P. C. of a curve to the left, with said curve which has a delta angle of 14° 20', a R. of 3111.83 feet, a T. of 391.28 feet, a L. of 778.47 feet, and a D. of 1.84122 feet to the P. T. of said curve, and S 29° 16' W - 139.32 feet to a 1/2" Iron Rod for corner.

THENCE N 12° 27' 47" W a distance of 799.71 feet to a 1/2" Iron Rod for corner in the North line of said Second Tract.

THENCE N 73° 53' 19" E with the North line of said tract a distance of 1005.00 feet to the place of beginning, containing 8.523 acres of land.



Permittee: Murray Corporation
Permit No. 50328

Attachment A-1
Page 5 of 12

TRACT 3

Excluded from permitted facility

FIELD NOTE DESCRIPTION

ALL that certain tract of land in Palestine,, Anderson County, Texas in the JOSEPH JORDAN SURVEY, Abstract 33, being a part of that certain tract called 16.244 acres described in two tracts in Volume 965, Page 559 and Volume 888, Page 817 of the Anderson County Deed Records and being more particularly described as follows:

BEGINNING at a 1" iron pipe in the East line of Tile Factory Road at the Northwest corner of said 16.244 acre tract and the Southwest corner of a tract called .993 acre, owned by Southern Heritage, Inc.

THENCE; S 15° 52' 38" E, with the East line of Tile Factory Road, 708.49 feet to corner.

THENCE; N 75° 43' 24" E 145.69 feet to a chain link fence corner.

THENCE; S 16° 16' 04" E 23.56 feet to a chain link fence corner.

THENCE; N 74° 44' 12" E 235.35 feet to corner in the Northwest line of the Union Pacific Railroad.

THENCE; N 26° 54' 00" E, with the Railroad, 94.17 feet to point of curve to the right.

THENCE; With the curve to the right with a central angle of 5° 11' 44", a radius of 2914.79 feet and a length of 264.30 feet to corner.

THENCE; N 14° 40' 30" W 176.28 feet to corner.

THENCE; N 74° 21' 35" E 50.00 feet to corner.

THENCE; N 14° 40' 30" W 338.00 feet to corner in the North line of the 16.244 acre tract.

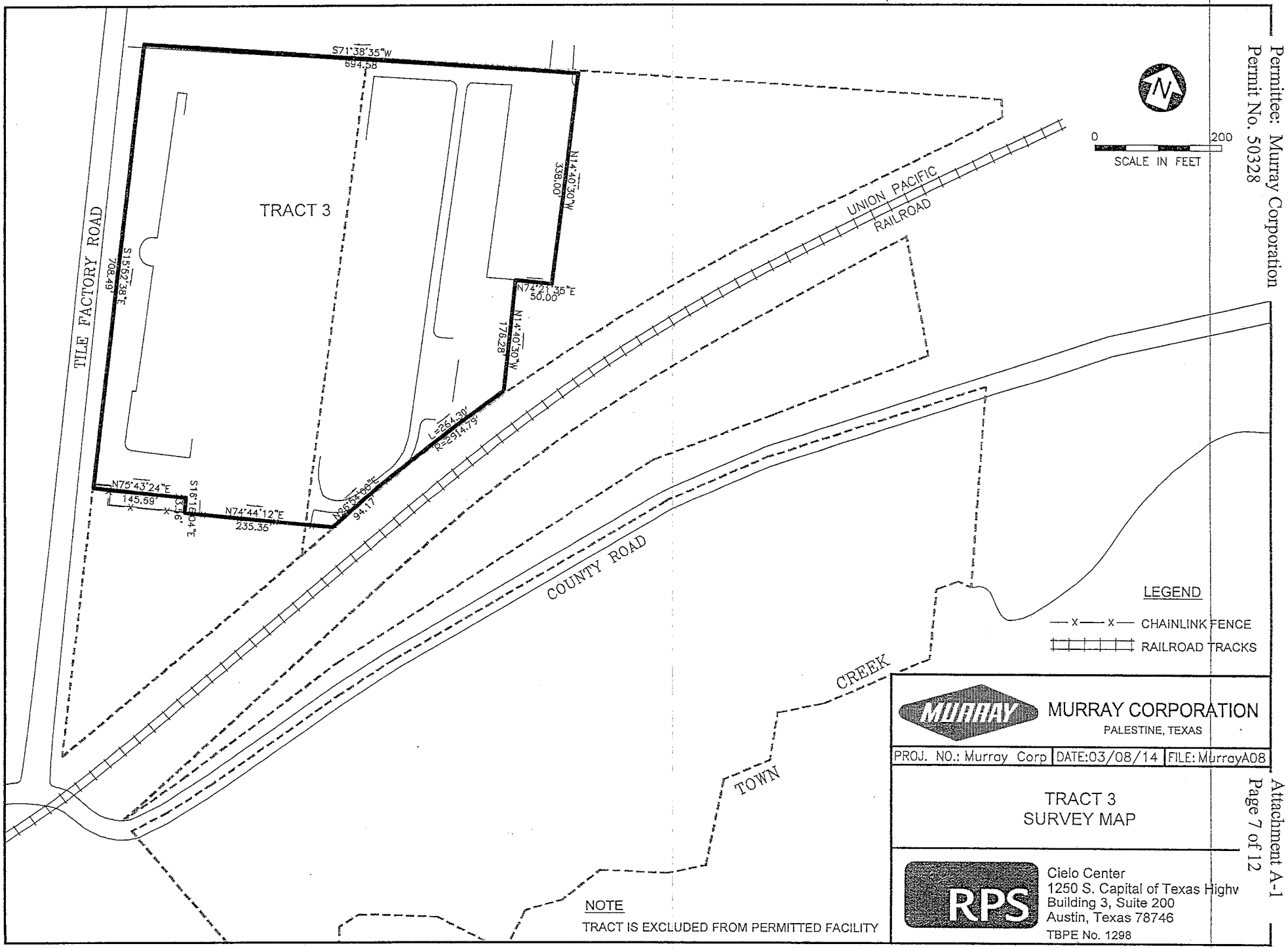
THENCE; S 71° 38' 35" W 694.58 feet to the PLACE OF BEGINNING, containing 10.522 acres.

I hereby certify that these field notes are a true and accurate representation of a survey made on the ground by me in March, 1991.

STATE OF TEXAS
REGISTERED
PAUL W. IVES
1659
PROFESSIONAL
LAND SURVEYOR

Paul W. Ives

PAUL W. IVES
Registered Professional Land Surveyor
State of Texas #1659



MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp | DATE:03/08/14 | FILE: MurrayA08

TRACT 3
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highv
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298

Permittee: Murray Corporation
Permit No. 50328

Attachment A-1
Page 7 of 12

TRACT 4

FIELD NOTE DESCRIPTION

ALL that certain tract or parcel of land in Palestine, Anderson County, Texas, in the JOSEPH JORDAN SURVEY, Abstract 33, being that same tract called 3.23 acres in deed to MURRAY CORPORATION OF MARYLAND, recorded in Volume 1243, Page 736 of the Anderson County Land Records and being more particularly described as follows:

BEGINNING at a 1/2" iron rod in the North margin of an oiled county road (also called West Reagan Street) at the Southwest corner of a tract called 1 acre in Volume 938, Page 781 of the Deed Records and the Southeast corner of said 3.23 acre tract.

THENCE; N 30° 21' 00" W 191.21 feet to a 1/2" iron rod in the Southeast line of the Union Pacific Railroad Right-of-Way at the Northwest corner of said 1 acre tract and the Northeast corner of said 3.23 acre tract.

THENCE; With the Southeast line of said railroad right-of-way, S 41° 24' 00" W 289.06 feet to point of curve to the left.

THENCE; With said curve having a central angle of 14° 30' 00", a radius of 2814.79 feet and a length of 712.35 feet to point of tangency.

THENCE; S 26° 54' 00" W 560.34 feet to a 1/2" iron rod at the intersection of the railroad right-of-way and the North line of said county road.

THENCE; With the North line of said road as follows:

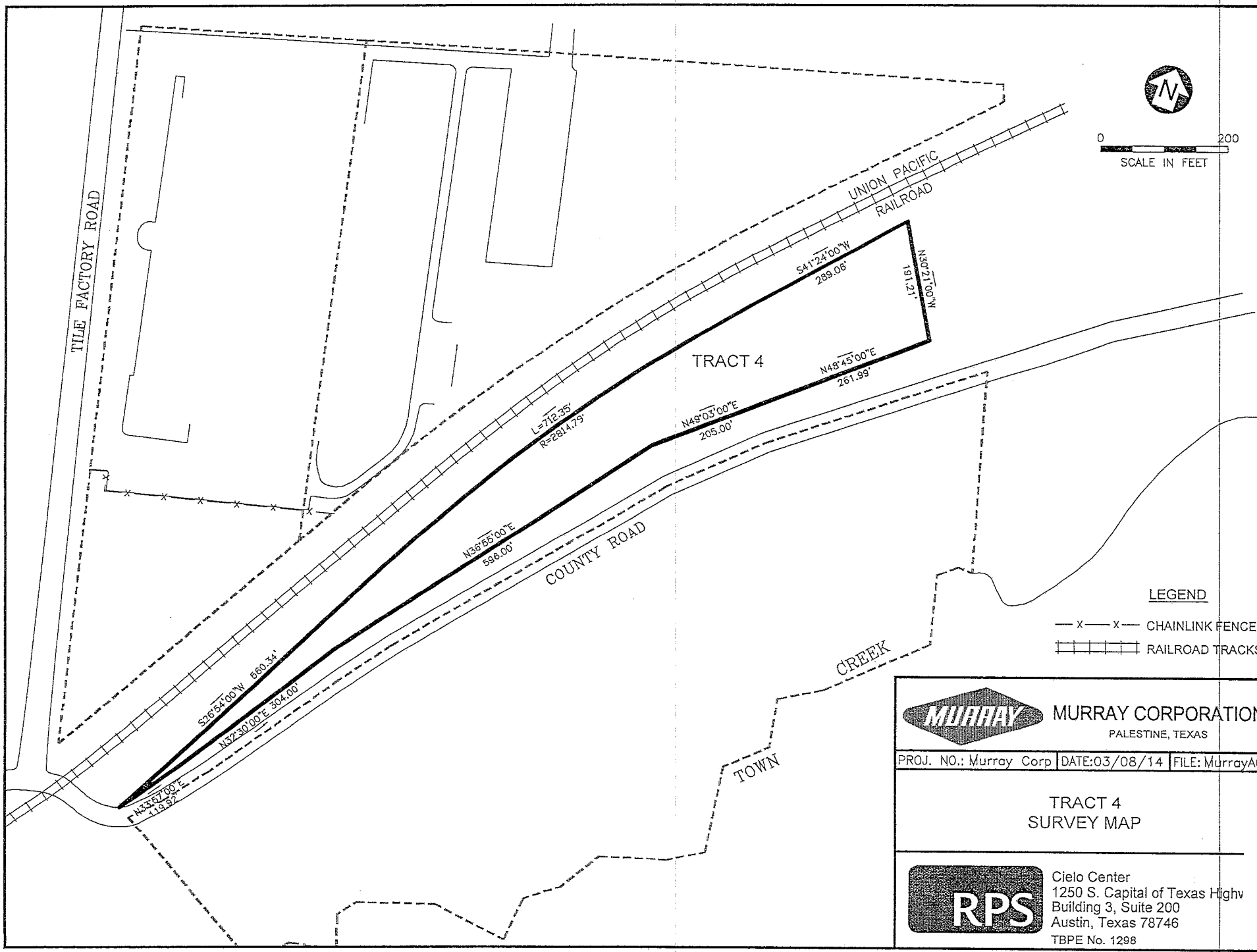
N 33° 57' 00" E	119.92 feet
N 32° 30' 00" E	304.00 feet
N 36° 55' 00" E	596.00 feet
N 49° 03' 00" E	205.00 feet
N 48° 45' 00" E	261.99 feet

to the PLACE OF BEGINNING, containing 3.15 acres.

I hereby certify that these field notes are a true and accurate representation of a survey made on the ground by me in December, 1989.

STATE OF TEXAS
PAUL W. IVES
1659

PAUL W. IVES
Registered Public Surveyor #1659



MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp	DATE:03/08/14	FILE: MurrayA09

TRACT 4
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highv
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298

TRACT 5

SUBDIVISIONS
WELL LOCATIONS
LEASE SURVEYS
PIPE LINES
CONSTRUCTION SURVEYS

605 AVENUE A
PALESTINE, TEXAS 75801
PHONE (903) 723-3116

Description of a 12.962 acre tract
JOSEPH JORDAN SURVEY, ABSTRACT NO. 33
Anderson County, Texas

ALL that certain tract or parcel of land, being a part of the JOSEPH JORDAN SURVEY, ABSTRACT NO. 33, Anderson County, Texas, also being a part of that certain called 20.96 acre tract conveyed to Anderson County Chamber of Commerce by Jack B. Bishop, March 31, 1953, recorded in Volume 454, page 135 of the Deed Records of Anderson County, Texas, and being more completely described as follows, to-wit:

BEGINNING at the Northeast corner of the above mentioned 20.96 acre tract, the Southeast corner of a 3.23 acre tract described in Volume 1243, page 736 of the Deed Records of Anderson County, Texas, in the center line of County Road No. 2144 (Bonner's Ferry Road), from which a 1/2" Iron Rod Brs. S 15° 40' 32" E - 16.63 feet.

THENCE S 15° 40' 32" E with the Northeast line of said 20.96 acre tract a distance of 320.78 feet to the center line of Town Creek, being the Southeast corner of said 20.96 acre tract, from which a 1/2" Iron Rod Brs. N 15° 40' 32" W - 29.20 feet.

THENCE in a Southerly direction with the Southeast line of said 20.96 acre tract and the center line of Town Creek, as follows: N 85° 27' 42" W - 22.30 feet, S 50° 47' 27" W - 36.75 feet, S 14° 30' 09" E - 112.58 feet, S 46° 32' 01" W - 183.15 feet, S 58° 28' 11" W - 73.95 feet, S 10° 48' 13" E - 77.38 feet, S 46° 22' 35" W - 79.11 feet, S 8° 31' 29" E - 143.89 feet, S 58° 20' 00" W - 61.23 feet, S 72° 47' 56" W - 106.84 feet, S 31° 21' 46" W - 77.90 feet, S 53° 17' 38" W - 60.46 feet, S 5° 29' 19" W - 73.29 feet, N 82° 29' 55" W - 121.02 feet, S 71° 53' 08" W - 123.53 feet, S 37° 58' 07" W - 37.67 feet, S 17° 54' 49" E - 55.34 feet, S 77° 58' 02" W - 73.50 feet, S 45° 23' 58" W - 29.82 feet, and S 0° 41' 34" W - 44.41 feet to the Southeast corner of a 7.46 acre tract described in Volume 1144, page 269 of the Deed Records of Anderson County, Texas, from which a 1/2" Iron Rod Brs. N 59° 31' 34" W - 58.46 feet.

THENCE N 59° 31' 34" W with the Northeast line of said 7.46 acre tract a distance of 330.16 feet to the Northeast corner of said 7.46 acre tract, in the center line of County Road No. 2144, the Northwest line of said 20.96 acre tract, and the Southeast line of said 3.23 acre tract, from which a 1/2" Iron Rod Brs. S 59° 31' 34" E - 21.88 feet.

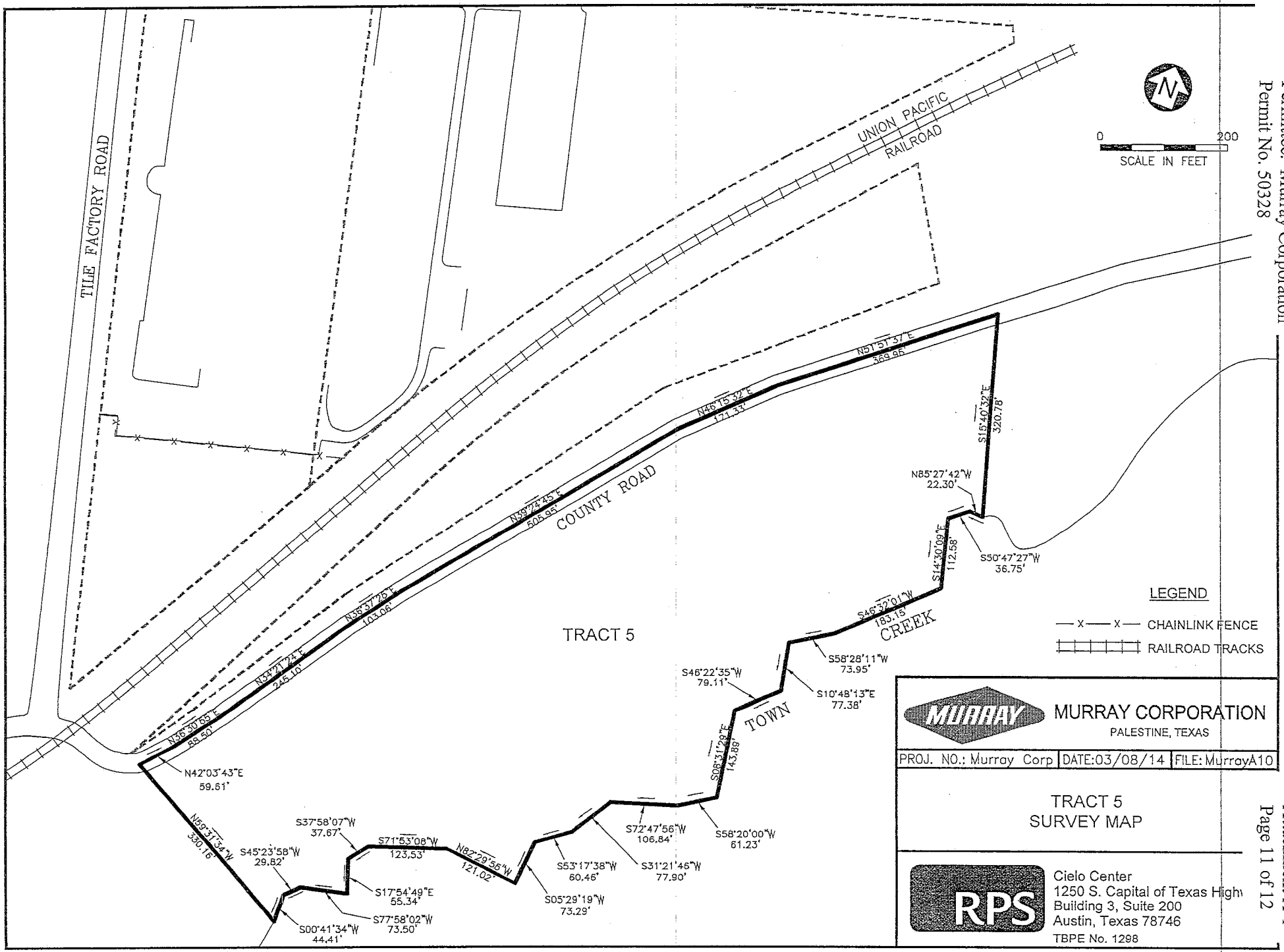
THENCE in a Northeast direction with the Northwest line of said 20.96 acre tract, the Southeast line of said 3.23 acre tract, the center line of County Road No. 2144, as follows: N 42° 03' 43" E - 59.61 feet, N 36° 30' 55" E - 88.50 feet, N 34° 21' 24" E - 245.10 feet, N 36° 37' 25" E - 103.06 feet, N 39° 24' 45" E - 500.95 feet, N 46° 15' 32" E - 171.33 feet, and N 51° 51' 37" E - 369.95 feet to the place of beginning, containing 12.962 acres of land, of which 0.61 of an acre is in the R. O. W. of County Road No. 2144.

I, F. D. McBride, Registered Professional Land Surveyor No. 1548, do hereby declare that the above field notes were prepared from an actual survey made by me on the ground during the month of October, 1991.

GIVEN UNDER MY HAND AND SEAL this the 28th day of October, 1991.

REGISTERED PROFESSIONAL LAND SURVEYOR NO. 1548

STATE OF TEXAS
REGISTERED

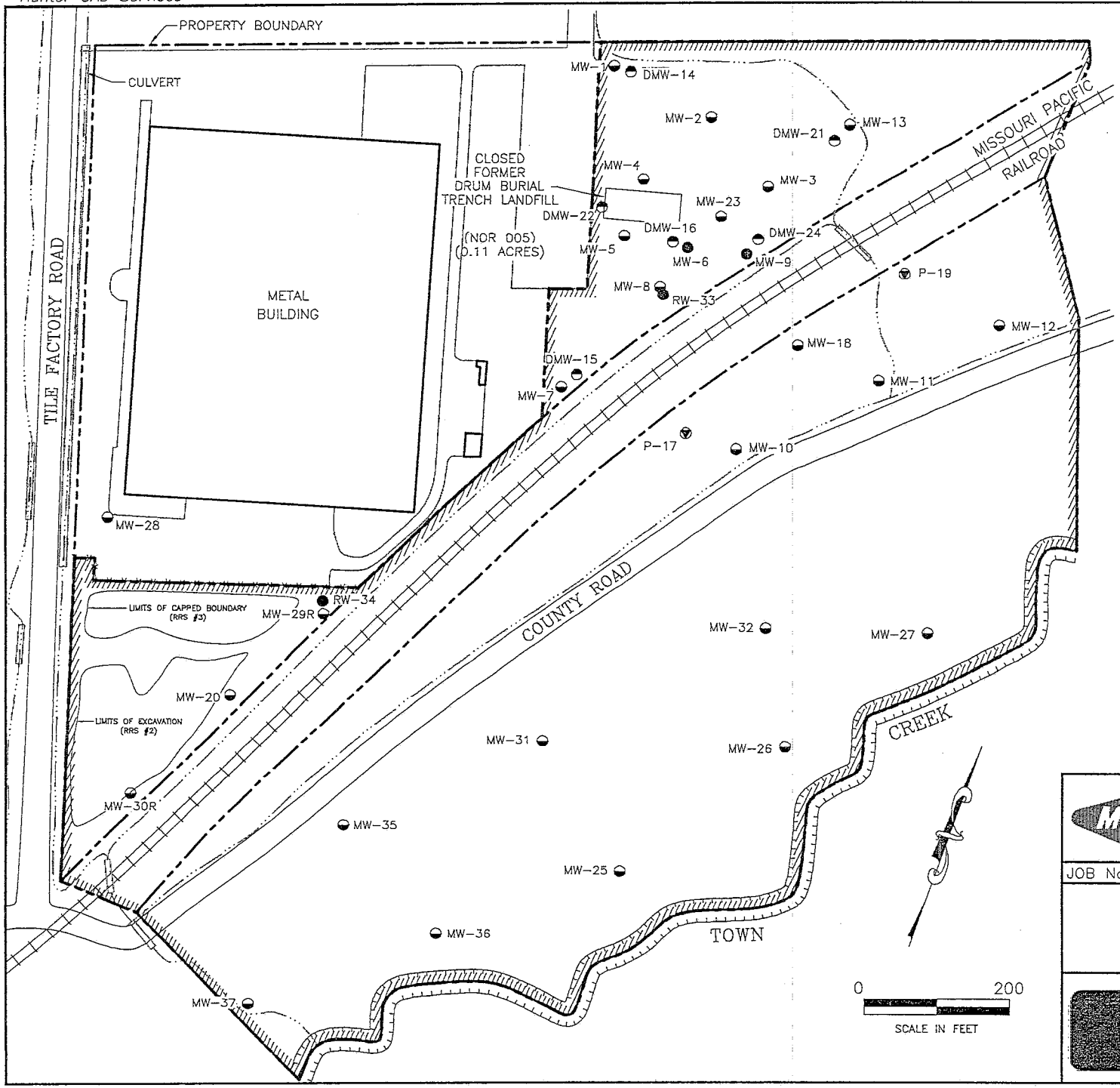


MURRAY CORPORATION
PALESTINE, TEXAS

PROJ. NO.: Murray Corp	DATE:03/08/14	FILE: MurrayA10

TRACT 5
SURVEY MAP

RPS
Cielo Center
1250 S. Capital of Texas Highw
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298



LEGEND

- CREEK OR DRAINAGE DITCH
- PROPERTY BOUNDARY
- MW-1 — MONITOR WELL LOCATION & NUMBER
- P-17 — PIEZOMETER LOCATION & NUMBER
- RW-33 — RECOVERY WELL LOCATION & NUMBER (1st AQUIFER)
- DMW-14 — DEEP MONITOR WELL LOCATION & NUMBER
- PERMITTED FACILITY BOUNDARY

MURRAY CORPORATION
PALESTINE, TEXAS

JOB No. 001-01	DATE: 3/05/14	001010-58F.dwg

PERMITTED FACILITY

RPS
Cielo Center
1250 S. Capital of Texas Highway
Building Three, Suite 200
Austin, Texas 78746

Attachment F

Closure Plan Completion Report and Certification-March 1996

Murray Corporation
SWR No 33063

CLOSURE COMPLETION REPORT AND CERTIFICATION
MURRAY CORPORATION FACILITY
FORMER DRUM BURIAL TRENCH

PALESTINE, TEXAS
TNRCC SOLID WASTE REGISTRATION NO. 33063

MARCH 1996

JONES & NEUSE
GULF COAST REGION OF RMT

RMT/JONES & NEUSE, INC. – AUSTIN, TX
912 CAPITAL OF TEXAS HIGHWAY SOUTH • SUITE 200 • 78746-5210
512/327-9840 • 512/327-6163 FAX

©1996 RMT/Jones and Neuse, Inc.

March 7, 1996

Mr. Paul S. Lewis
Texas Natural Resource Conservation Commission
Corrective Action Section
Industrial and Hazardous Waste Division
P.O. Box 13087
Austin, Texas 78711-3087

Attention: Kirk Coulter, Closure Team

Re: Murray Corporation - SWR #33063
Closure Completion Report and Certification
Former Drum Burial Trench

Dear Mr. Lewis:

Attached please find the Closure Completion Report and Certification for the closure of the Former Drum Burial Trench at the Murray Corporation site in Palestine, Texas. All activities were performed in accordance with the modified closure plan that was approved by the TNRCC on November 8, 1995.

If you have any questions please contact me or Mr. Brad McKenzie, P.E., at (512) 327-9840.

Sincerely,

RMT/JONES AND NEUSE, INC.

Fred C. Dalbey
Project Manager

FCD/ch

Attachments

cc: Thorne Gould - Murray Corporation - Cockeysville, Maryland
Don Mitchell - Arent, Fox, Kintner, Plotkin & Kahn
Bob Moody - Moog Automotive - Palestine, Texas
TNRCC - Region 5 Office - Tyler, Texas

JONES & NEUSE
GULF COAST REGION OF RMT

RMT/JONES & NEUSE, INC. — AUSTIN, TX
912 CAPITAL OF TEXAS HIGHWAY SOUTH ▪ SUITE 200 ▪ 78746-5210
512/327-9840 ▪ 512/327-6163 FAX

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Section 1
INTRODUCTION

This Closure Completion Report and Certification documents closure activities performed at the Former Drum Burial Trench at the Murray Corporation Facility in Palestine, Texas. A site location map is included as Figure 1.

A closure plan for this area was originally submitted to the TNRCC with the Post-Closure Permit Application on March 5, 1990. A revised closure plan was submitted to the TNRCC on April 15, 1994 that incorporated the Risk Reduction Rules. This plan was approved by the TNRCC on May 15, 1995 (copies of TNRCC approval letters included in Appendix A).

The approved closure plan was modified to incorporate a revised cover system design and resubmitted to the TNRCC in July 1995. The revised closure plan was approved by the TNRCC on November 8, 1995 (copy of approval letter included in Appendix A). All closure activities were performed in accordance with this closure plan.

It is noted that the following minor change was made to the approved closure plan: The proposed six inches of topsoil over the geonet drainage layer was replaced with six inches of compacted road base to provide increased structural integrity to the asphalt paving. This resulted in a total of 14 inches of base which replaced the proposed six inches of topsoil and the eight inches of road base.

1.1 Background Information

The Former Drum Burial Trench is located east of the employee parking lot and has dimensions of approximately 120 feet by 40 feet (see Figure 2 for a plan view of the burial trench). An initial soil-boring investigation was completed in January 1988 to characterize the wastes in the trench. In May 1988, a soil-gas investigation was completed to identify locations in the area of the trench containing elevated concentrations of volatile organic constituents.

During June 13-21, 1988, Murray removed wastes from the trench. Approximately 1,040 tons of contaminated soil (containing about 350 crushed drums) were excavated from the landfill and disposed at the Texas Ecologists (TECO) hazardous waste landfill in Robstown, Texas. After the waste-removal activities were completed, soil samples were collected and analyzed from the base and sides of the excavation. Some of these samples were analyzed for selected volatile and acid-

extractable semivolatile organic constituents. After the samples were collected, the excavation was backfilled with clean soils and graded to existing natural contours. The contaminants remaining in the soils are listed and discussed in the approved closure plan.

As detailed in the approved closure plan, the closure activities documented in this report were performed to prevent the exposure of contaminated soils to wind or surface water dispersal and to minimize the infiltration of rainwater through the contaminated media. The final cover system meets the requirements for landfill closure as presented in 40 CFR §264.310. These requirements include:

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion or abrasion of the cover;
- Accommodate settling and subsidence so that the cover's integrity is maintained; and
- Have a permeability less than or equal to any bottom liner system or natural subsoils present.

Section 2
CLOSURE ACTIVITIES

2.1 Notification

On January 24, 1996, RMT/Jones and Neuse, Inc. (RMT/JN) sent a letter to the TNRCC central office in Austin, Texas and the TNRCC regional office in Tyler, Texas providing written notice of the commencement of closure activities at the site. A copy of this letter is included in Appendix B.

2.2 Health and Safety

RMT/JN prepared a hazard assessment for work at this site. A copy of the hazard assessment is included in Appendix C. A copy of the assessment was kept at the site during all closure activities.

2.3 Closure Activities

On January 25, 1996 RMT/JN mobilized personnel and equipment to the site. The location of the former drum burial trench was surveyed and staked out in the field. A benchmark was created to provide for vertical and horizontal control during construction operations. A survey of the existing ground elevations of the trench was conducted. Construction stakes were then placed over the landfill area with the appropriate depth of cut calculated for each stake.

The trench was then excavated to the appropriate subgrade elevations with a trackhoe. The subgrade was then smoothed to the final subgrade elevation with a blade and compacted with a smooth-drum roller. The final subgrade was surveyed to ensure that the proper elevations had been obtained.

On January 29, 1996 the geosynthetic clay liner (GCL) was installed over the landfill area. The GCL was supplied by GSE Gundle Lining Plastics out of Houston, Texas. The GCL was installed directly on the prepared subgrade with the overlapping seams oriented perpendicular to the direction of flow. A nominal six-inch seam was maintained at all locations where there was GCL overlap. All seams were covered with the powdered bentonite that was provided with the GCL to ensure an impermeable bond between the separate rolls of GCL. The edges of the GCL were anchored into the sides of the trench as shown on the as-built drawings (see Figure 3).

The synthetic drainage layer was installed directly over the GCL. The synthetic drainage layer was also supplied by GSE Gundle Lining Plastics. The synthetic drainage layer consisted of an HDPE

geonet surrounded on both sides by polyester filter fabric. Upon completion of the installation of the GCL and synthetic drainage layer, the material was visually inspected for any defects. No defects were observed.

A protective soil layer of compacted road base was installed over the synthetic drainage layer. A total of 14 inches of base were installed and compacted. The road base was installed with a minimum of 0.7% slope in each direction. The slope and finished elevations of the road base were surveyed during its installation and upon its final compaction.

Due to cold and wet weather there was an approximate one week delay in installing the asphalt paving after the road base was installed. On February 7, 1996 the weather was acceptable for installing the asphalt. Two inches of asphalt were installed and compacted over the road base. A final survey was then conducted to ensure the appropriate slopes of the closure cap for drainage. This concluded the field closure activities for the Former Drum Burial Trench.

2.4 Operation, Maintenance and Monitoring Requirements

Maintenance of the closure area will consist of quarterly site inspections. The cover will be inspected for signs of improper drainage, ponding of stormwater, erosion, abrasion or other damage. If any repairs or modification are warranted, such repairs will be made in a timely fashion upon the recommendation of the inspector.

2.5 Photographs

Copies of color photographs taken during closure activities are included in Appendix D.

2.6 Deed Recordation

Within 90 days after acceptance of this closure report by the TNRCC, Murray will deed record the closure area in accordance with 40 CFR §264.116 and 30 TAC §335.566. A draft copy of the deed certification language is provided in Appendix E.

Section 3

CERTIFICATION OF CLOSURE

Pursuant to the closure plan approved by the Texas Natural Resource Conservation Commission, I hereby certify that the Former Drum Burial Trench at the site located at 2002 Tile Factory Road in Palestine, Texas, known as Murray Corporation has been closed in accordance with the closure plan that was approved by the TNRCC on November 8, 1995 (RMT/JN Document D940120A.DOC)

Based upon the methodology described herein (RMT/JN Document No. D960139), and subject to the limitations of that methodology, I certify under penalty of law that this document and all attachments were prepared under my direction and 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 information, the information submitted is to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for intentionally submitting false information, including the possibility of fine and imprisonment for knowing violations.

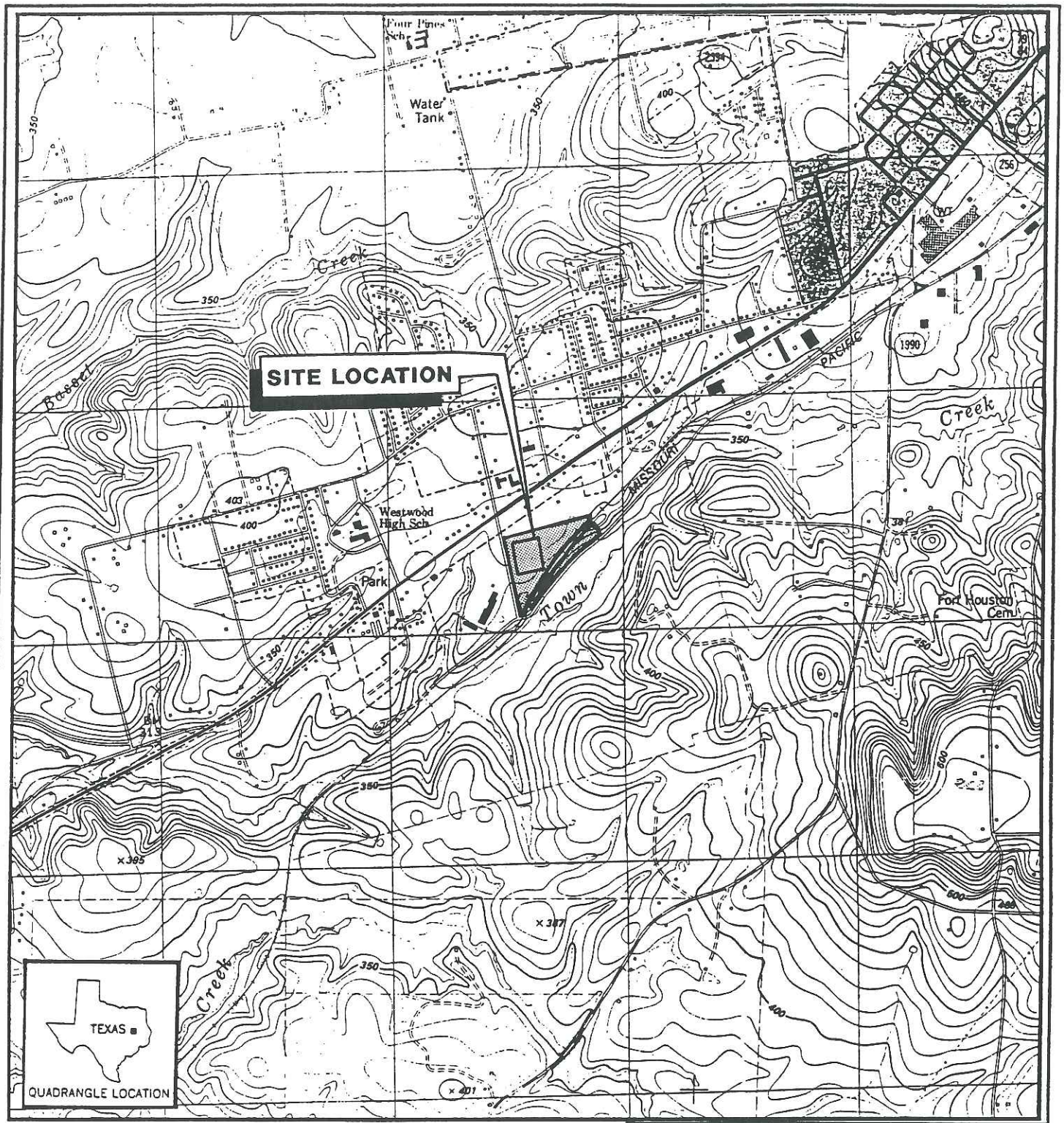
Bradley R. McKenzie, P.E.
State of Texas 80250
RMT/Jones and Neuse, Inc.

3/7/96
Date

Mr. Thorne Gould
Murray Corporation

3/11/96
Date

FIGURES



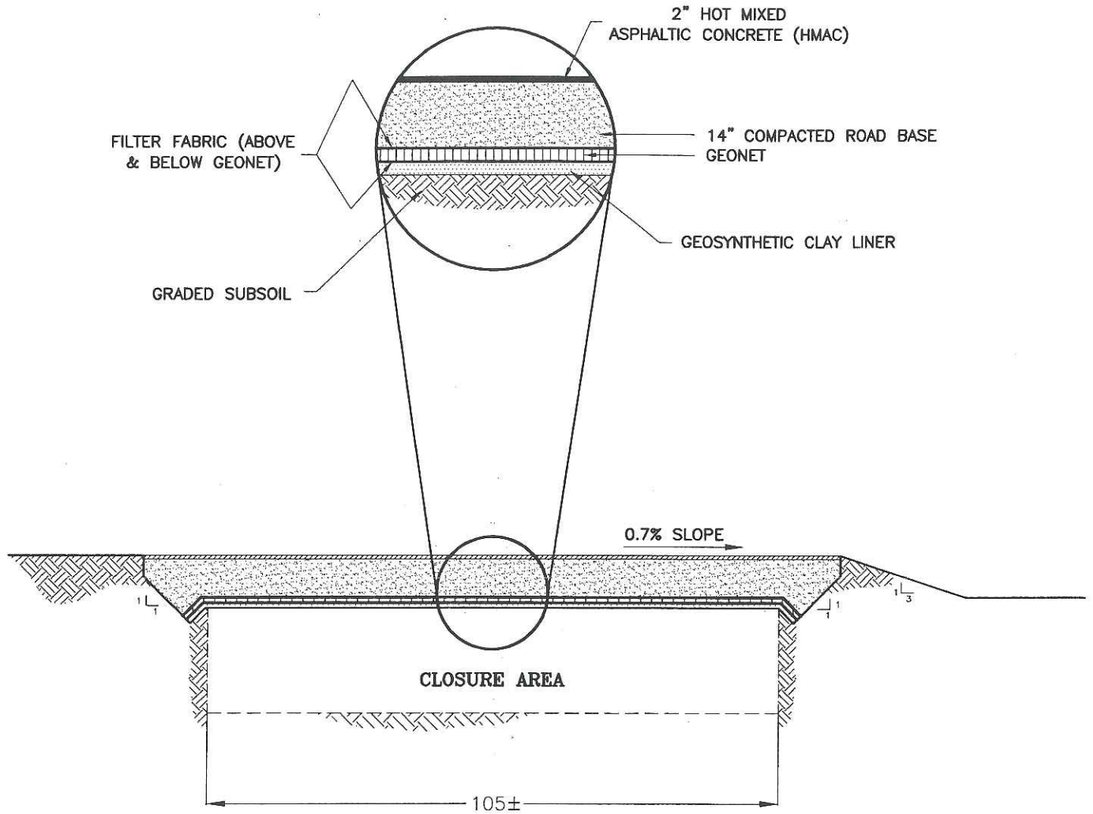
SOURCE: USGS 7.5 MIN. SOUTHWEST PALESTINE, TEXAS QUAD SHEET (1974)

MURRAY CORPORATION
PALESTINE, TEXAS

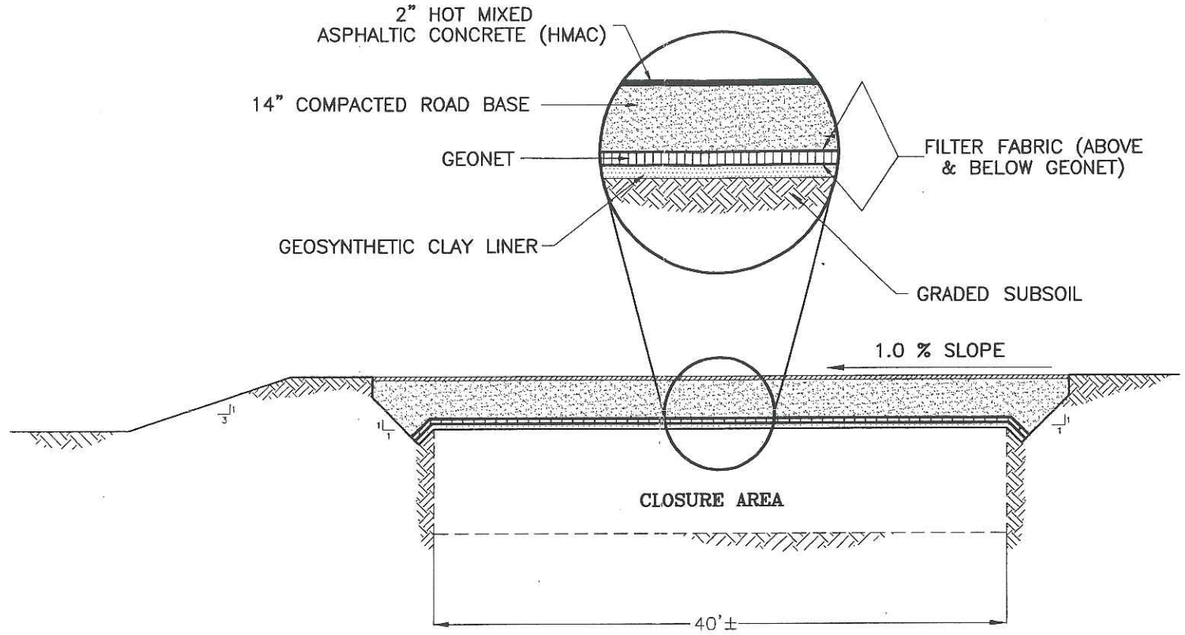
50-00182.06.010 2/20/96

FIGURE 1
SITE LOCATION MAP

JONES AND NEUSE, INC.
Environmental and Engineering Services
A Division of [redacted] INC.
©



SECTION A



SECTION B

AS-BUILT
SCHEMATIC DRAWING
NOT TO SCALE

MURRAY CORPORATION
PALESTINE, TEXAS

50-00182.06.010 2/20/96

FIGURE 3

CROSS SECTIONS OF AS-BUILT
FINAL COVER SYSTEM

JONES & NEUSE
GULF COAST REGION OF RMT

ASPHALT DRIVE

PROPERTY BOUNDARY

MW-1

DMW-14

MW-2

FENCE

MW-13

PROPOSED ASPHALT
PARKING EXPANSION

EXISTING
ASPHALT
PARKING

BUILDING

ASPHALT DRIVE

B

MW-4

MW-3

A

DMW-22

CLOSURE AREA

A

MW-5

MW-6

B

DMW-16

MW-9

N

POWER
POLE

MW-8

POWER
POLE

SCALE IN FEET

0 20 40 80

MURRAY CORPORATION
PALESTINE, TEXAS

50-00182.06.010 2/20/96

FIGURE 2

PLAN VIEW OF AS-BUILT
FINAL COVER SYSTEM

JONES & NEUSE
GULF COAST REGION OF RMT

Appendix A

TNRCC APPROVAL LETTERS

John Hall, *Chairman*
Pam Reed, *Commissioner*
Peggy Garner, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

May 15, 1995

Mr. Thorne Gould
Murray Corporation
Schilling Circle
Greater Baltimore Industrial Park
Cockeysville, MD 21030

Re: Murray Corp./Palestine, Texas
TNRCC Solid Waste Registration No. 33063
Former Drum Burial Trench
Interim-Status Hazardous Waste Unit
Closure Plan Review

Dear Mr. Gould:

A review of the closure plan entitled "Revised Closure Plan For The Former Drum Burial Trench", dated April 15, 1994, for the referenced facility has been completed. According to the plan, Murray Corp. intends to close the Former Drum Burial Trench using Risk Reduction Rules Standard No. 3 (RRS3). Murray removed crushed drums and contaminated soil from the landfill in June 1988. The closure plan contains the Remedial Investigation Report, Baseline Risk Assessment, and the Corrective Measures Study required for the RRS3 closure. The closure of the landfill will be accomplished by constructing a cover system, operating a groundwater recovery system until the constituents of concern are below the groundwater protection standards established in the Compliance Plan of the Permit, and implementing post-closure care in accordance with the Permit.

Our review indicates that the closure plan conforms with the requirements of 30 Texas Administrative Code (TAC) §335.6 and §335.8. Accordingly, the Executive Director approves the closure plan. Our evaluation indicates that your closure plan should, when adequately implemented, provide reasonable assurance of effective industrial solid waste management, subject also to the submittal of closure certification.

Please be aware that it is the continuing obligation of persons associated with a site to assure that industrial solid waste and municipal hazardous waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of such waste

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

50-00182-06

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

November 8, 1995

Mr. Thorne Gould
Murray Corporation
Schilling Circle
Greater Baltimore Industrial Park
Cockeysville, MD 21030

Re: Murray Corp./Palestine, Texas
TNRCC Solid Waste Registration No. 33063
Former Drum Burial Trench
Interim-Status Hazardous Waste Unit
Closure Plan Review

Dear Mr. Gould:

A review of the modified closure plan for the Former Drum Burial Trench, dated July 20, 1994, for the referenced facility has been completed. According to the plan, Murray Corp. intends to substitute an asphalt final cover component for the vegetative cover system, which was originally approved in the closure plan dated April 15, 1995. A public notice was published in the Palestine Herald-Press on October 7, 1995 for the modification of the cover system of the landfill.

Our review indicates that the modified closure plan conforms with the requirements of 30 Texas Administrative Code (TAC) §335.6 and §335.8. Accordingly, the Executive Director approves the closure plan. Our evaluation indicates that your closure plan with its modification should, when adequately implemented, provide reasonable assurance of effective industrial solid waste management, subject also to the submittal of closure certification.

Please be aware that it is the continuing obligation of persons associated with a site to assure that industrial solid waste and municipal hazardous waste is managed in such a way that it does not cause the discharge or imminent threat of discharge of such waste into or adjacent to waters in the state, a nuisance, or the endangerment of the public health and welfare as required by 30 TAC §335.4.

The closure is expected to be completed within 90 days after the date of this letter. Within 60 days after completion of closure, a **Closure Completion Report** shall be submitted by registered mail detailing analytical results, work done, and the final configuration of the subject unit. The Closure Completion Report shall contain **certifications** signed by the owner or operator and by an independent Texas registered professional engineer that the hazardous waste management unit has been closed in accordance with the approved closure plan.

Please submit all original correspondence with one copy to this office and send one copy of all correspondence to the TNRCC Region 5 Office in Tyler, Texas. Upon completion of closure, please submit a revision to your Notice of Registration to the Data Control Team of the Waste Evaluation Section at the letter head address.

If you have any questions regarding this closure, please contact Kirk Coulter in Austin at 512/239-2572, Mail Code MC-127.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial and Hazardous Waste Division

KEC/kec

cc: TNRCC Region 5, Tyler, Texas
Tennie Larson, Corrective Action Section
Bob Moody, Murray Division, 2002 Tile Factory Rd., Palestine, Tx. 75801
Fred Dalby, Jones & Nuese, 912 Loop 360, Suite 300, Austin Tx. 78746-5210

Appendix B

TNRCC NOTIFICATION LETTER

January 24, 1996

Mr. Paul S. Lewis
Corrective Action Section
Industrial and Hazardous Waste Division
TNRCC
P.O. Box 13087
Austin, Texas 78711-3087

RE: Murray Corp./Palstine, Texas
TNRCC SWR No. 33063
Former Drum Burial Trench
50-00182.06.010

Dear Mr. Lewis:

This letter is to provide written notice to the TNRCC of the start of closure activities at the above referenced facility. All work will be completed according to the closure Plan that was submitted on July 20, 1994 and approved by the TNRCC on November 8, 1995.

Upon completion of closure activities, a Closure Completion Report will be submitted to the TNRCC.

Please call me at (512) 327-9840 if you have any questions.

Sincerely,

RMT/JONES AND NEUSE, INC.

Bradley R. McKenzie, P.E.
Project Manager

BRM/sml

cc: TNRCC - Region 5 Office - Tyler, Texas
Thorne Gould - Murray Corporation
Bob Moody - Murray Corporation
Fred Dalbey - RMT/JN - Austin

JONES & NEUSE
GULF COAST REGION OF RMT

RMT/JONES & NEUSE, INC. – AUSTIN, TX
912 CAPITAL OF TEXAS HIGHWAY SOUTH SUITE 300 78746-5210
512/327-9840 512/327-6163 FAX

Appendix C
HAZARD ASSESSMENT

HAZARD ASSESSMENT

1. General Information

PROJECT: Murray Drum Closure

PROJECT NUMBER: 50-00182.06.001

SITE LOCATION: Palestine, Texas

PROJECT MANAGER: Brad McKenzie

PREPARED BY: Brad McKenzie

DATE: 1-18-96

APPROVED BY: _____ (PM) _____ (HSC)

DATE: 1-22-96 1-22-96

PROPOSED SCOPE OF WORK AND SPECIFIC TASKS: Excavation, subgrade preparation and compaction; installation of clay liner and geotextile drainage layer; installation of compacted base and asphalt.

PROPOSED DATES OF ON-SITE WORK: January 24 - February 2, 1996

BACKGROUND INFORMATION REVIEW: Preliminary ☐ Moderate ☐ Substantial ☒

DOCUMENTATION/SUMMARY OVERALL HAZARD: Serious ☐ Moderate ☐ Low ☒ Unknown ☐

2. Site Characterization

FACILITY DESCRIPTION: Murray corporation rebuilds atomotive air conditioning compressors. All work will be performed outside of the plant in a grassy area adjacnt to the parking lot.

Status (active, inactive, unknown): Active

Operations (current and past): Rebuilding automotive air conditioning compressors

Unusual Features (utilities, terrain, etc.): Monitoring wells around work area

History (worker or nonworker injury, complaints from public, previous agency action): Area being closed was used as a drum disposal area

3. Site Classification

SITE TYPE ALLOCATED: ☒ 1 ☐ 2 ☐ 3

COMMENTS: General construction activities. No chemical exposure hazards.

4. Hazard Evaluation

CHEMICAL HAZARDS

SUBSTANCE* NAME	PHYSICAL STATE	KNOWN CONCENTRATION** LEVELS PRESENT	POTENTIAL ROUTES OF EXPOSURE	OSHA PEL
None	N/A	N/A	N/A	N/A

* Attach MSDS if available.
** Attach laboratory results or tables if available.

PHYSICAL SAFETY HAZARDS ON-SITE AND CONTROL MEASURES (e.g., heat or cold stress, confined spaces, explosion hazards, slippery ground, excavations, utilities, etc.):

HAZARD	CONTROL MEASURE
General Work Hazard	Hard Hat, Safety Galsses

Appendix D
PHOTOGRAPHS

Photo 1 - Excavating Down to Subgrade With Trackhoe

Photo 2 - Final Grading of Subgrade With Blade

Photo 3 - Final Subgrade With Anchoring Trench Around the Perimeter of the Area

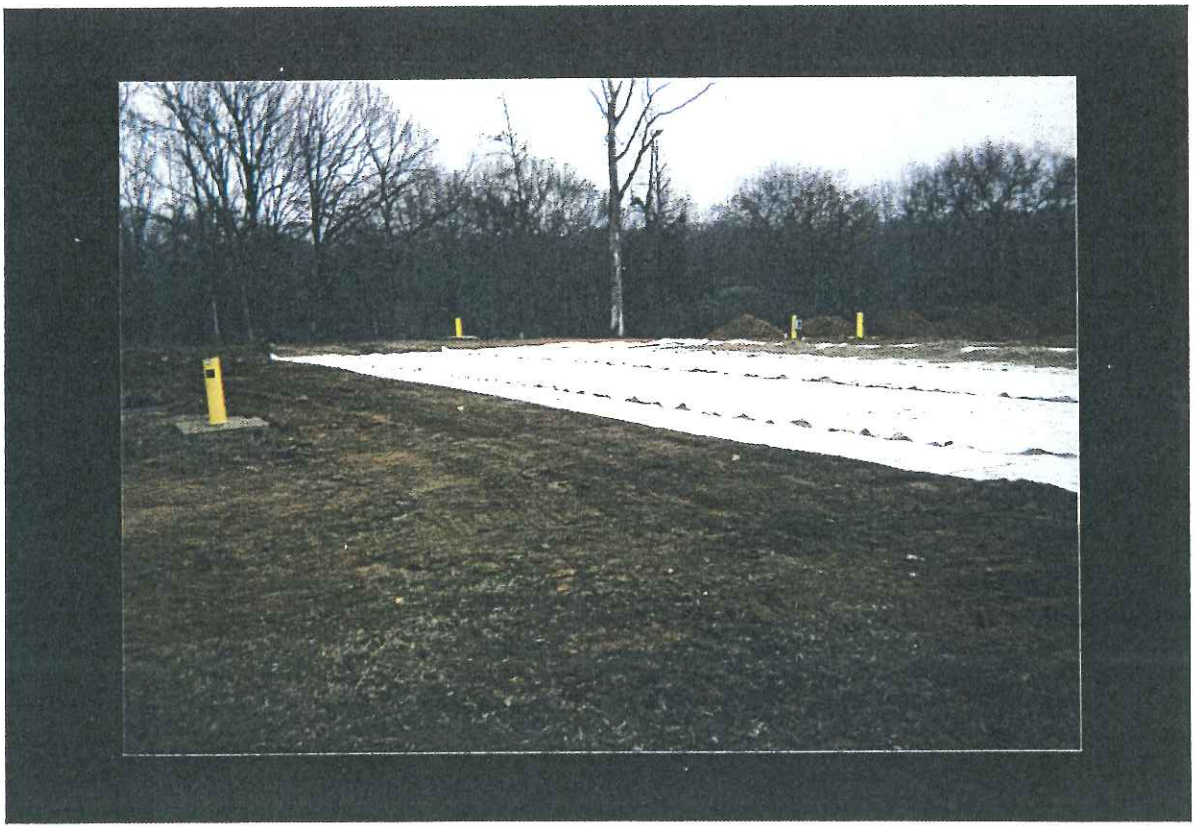


Photo 4 - Synthetic Drainage Layer Placed Over the Geosynthetic Clay Liner

Photo 5 - Compacted Road Base Installed Over the Burial Trench Area

Photo 6 - Installing the Two Inches of Asphalt Pavement

Appendix E

DRAFT DEED CERTIFICATION LANGUAGE

DRAFT DEED CERTIFICATION
STATE OF TEXAS ANDERSON COUNTY

MURRAY CORPORATION, INDUSTRIAL SOLID WASTE NO. 30063
CERTIFICATION OF CLOSURE

KNOW ALL MEN BY THESE PRESENTS THAT: Pursuant to the Rules of the Texas Natural Resource Conservation Commission pertaining to Industrial and Solid Waste Management, this document is hereby filed in the Deed Records of Anderson County, Texas in compliance with the recordation requirements of said rules:

I

Murray Corporation has performed a closure of the land described herein. A copy of the Notice of Registration (No. 33063), including a description of the facility, is attached hereto and is made part of this filing. A list of the known waste constituents, including known concentrations, which remains in the soils is attached hereto and is made part of this filing. The soils are considered contaminated by spent solvents which are listed hazardous wastes (HW Nos. F001 and F002). Further information concerning this matter may be found by an examination of company records or in the Notice of Registration (No. 33063) files, which are available for inspection upon request at the central office of the Texas Natural Resource Conservation Commission in Austin. The Texas Natural Resource Conservation Commission derives its authority to review the remediation of this tract of land from the Texas Solid Waste Disposal Act, §361.002, Texas Health and Safety Code. Chapter 361, which enables the Texas Natural Resource Conservation Commission to promulgate closure and remediation standards to safeguard the health, welfare and physical property of the people of the State and to protect the environment by controlling the management of solid waste. In addition, pursuant to the Texas Water Code, §5,012 and §5.013, Texas Water Code, Annotated, Chapter 5, the Texas Natural Resource Conservation Commission is given primary responsibility for implementing the laws of the State of Texas relating to water and shall adopt any rules necessary to carry out its powers and duties under the Texas Water Code. In accordance with this authority, the Texas Natural Resource Conservation Commission requires certain persons to provide certification and/or recordation in the real property records to notify the public of the conditions of the land and/or the occurrence of remediation. This deed certification is not a representation or warranty by the Texas Water Commission of the suitability of this land for any purpose, nor does it constitute any guarantee by the Texas Natural Resource Conservation Commission that the remediation standards specified in this certification have been met by Murray Corporation.

II

Being a ___ acre tract, more or less, out of the Murray Corporation's ____ acre tract in the _____ League (No. _____), Abstract (No. _____), recorded in Volume (No. _____), Page (No. ____) of the Deed of Records Anderson County, Texas, said _____ acre tract being more particularly described as follows:

Contaminated soils contained herein have been remediated in accordance with a plan designed to meet the requirements of 30 Texas Administrative Code §335.561 (Risk Reduction Standard Number 3), which mandates that the remedy be designed to eliminate or reduce to the maximum extent practicable, substantial present or future risk. The remediation plan requires continued post-closure care measures. **THE CLOSURE AREA DESCRIBED HEREIN IS RESTRICTED FROM DISTURBANCE IN ACCORDANCE WITH THE POST CLOSURE REQUIREMENT IN THE 40 CFR PART 264 SUBPART G REGULATIONS.**

III

The owner of the site is Murray Corporation, and its address is Schilling Circle, Great Baltimore Industrial Park, Cockeysville, Maryland, 21030 where more specific information may be obtained from Mr. Thorne Gould, President of Murray Corporation.

Attachment G

TCEQ Approval of Closure Completion Report-April 29, 1996

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

April 29, 1996

Mr. Thorne Gould
Murray Corporation
Schilling Circle
Greater Baltimore Industrial Park
Cockeysville, MD 21030

Re: **Murray Corporation/Palestine, Texas**
TNRCC Solid Waste Registration No. 33063
Former Drum Burial Trench
Hazardous Waste Management Unit
Acceptance of Closure Certification and
Notice of Post-Closure Care Requirements

Dear Mr. Gould:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed your company's closure certification dated March 7, 1996 and the engineer's certification dated March 7, 1996 submitted by Bradley McKenzie, P.E. of RMT/Jones and Nuese, Inc. After reviewing the certification by the TNRCC staff, it appears that the Former Drum Burial Trench was closed in accordance with the closure plan approved by TNRCC on November 8, 1995.

The Former Drum Burial Trench is now subject to post-closure care. Your post-closure care permit application will be processed by the Permits Section of the Industrial and Hazardous Waste Division.

If you have any questions regarding the closure certification, please contact Kirk Coulter of the Closure Team in Austin at 512/239-25472, Mail Code MC-127. Any questions regarding the permit application should be directed to the Permits Section at 512/239-6595, Mail Code MC-130.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial and Hazardous Waste Division

PSL/KEC/kec

cc: TNRCC Region 5 Office, Tyler
TNRCC RCRA Permits Section
Kelly Beck, RCRA Groundwater Enforcement Team

Attachment H

TCEQ Agreed Order (recognizing waste and soil removal) – March 1989

THE STATE OF T S
COUNTY OF TRAV

I hereby certify that this is a true and correct copy of a Texas Water Commission document, the original of which is filed in the permanent records of the Commission.
Given under my hand and the seal of office on APR 14 1989

Brenda W. Foster, Chief Clerk
Texas Water Commission

TEXAS WATER COMMISSION

AN AGREED ORDER

Resolving alleged violations by Murray Corporation under the Texas Solid Waste Disposal Act, TEX. REV. CIV. STAT. ANN. art. 4477-7 (Vernon Supp. 1988) and the Texas Water Code, TEX. WATER CODE ANN. Chapter 26 (Vernon Supp. 1988); Assessing Administrative Penalties and Requiring Certain Actions of Murray Corporation.

On this 23rd day of March, 1989, came on to be considered the petition and report of the Executive Director, alleging violations of the Texas Solid Waste Disposal Act, TEX. REV. CIV. STAT. ANN. art. 4477-7 (Vernon Supp. 1988) (the "Act"), and the Texas Water Code, TEX. WATER CODE ANN. Chapter 26 (Vernon Supp. 1988) (the "Code") and the Texas Water Commission ("Commission") rules pertaining to industrial solid waste management and requesting appropriate relief, including administrative penalties. The facility made the subject of the Executive Director's petition is Murray Corporation, located at 2002 Tile Factory Road, adjacent to U.S. Highway 79 on the southwest side of the City of Palestine, Anderson County, Texas.

Proper notice was given to Murray Corporation, ("Murray"), in the form of a copy of the Preliminary Report and Petition. Murray has denied the facts alleged in the Petition and the Conclusions of Law there alleged, but both Murray and the Commission desire to settle and resolve their differences regarding the activities described herein. Murray and the Commission agree to the entry of this Order in this form and agree also that Murray's agreement hereto shall not constitute an admission of the facts alleged herein or of liability as alleged herein, but Murray acknowledges the Commission's jurisdiction. In order to avoid further dispute or litigation Murray agrees to the orders contained herein. This Agreed Order shall not be admissible in any court as an admission by Murray of the allegations herein. The Texas Water Commission therefore makes the following findings of fact and conclusions of law:

Findings of Fact

(1) Murray is an automotive air conditioning equipment manufacturing facility.

(2) Murray Corporation utilizes or utilized two solvent bath processes to clean various automotive components. These processes employ mineral spirits (naptha) as the cleaning

agent. Waste naptha is shipped off-site for disposal as an ignitable hazardous waste.

A methylene chloride based paint stripper was used at the site until approximately June of 1988 as a flush solvent to remove residual oily film on compressors and to strip aluminum parts prior to painting them. The use of this methylene chloride based paint solvent (Tradename Ecco) after January 30, 1986 resulted in generation of spent methylene chloride which is a hazardous waste listed in 40 CFR §261.31 (EPA Hazardous Waste Nos. F001 or F002, depending on whether the solvent was used as a degreaser or paint stripper). This process has now been changed to a hot water wash and drying method.

Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) has also been used as a flush solvent at the site. This solvent, when spent, is a hazardous waste listed in 40 CFR §261.31 (EPA Hazardous Waste No. F001). The company is currently minimizing and phasing out use of this solvent.

Two additional cleaning processes are utilized which generate nonhazardous industrial solid waste. Metal and cast iron components are dipped in a caustic solution, while the aluminum components are cleaned by sand blasting.

Current waste management practices at the Murray Corporation site include temporary container and tank storage, and then off-site shipment and disposal of hazardous wastes. Until February 20, 1989, nonhazardous industrial process wastewaters were treated in a series of two surface impoundments and then discharged into a conduit leading to a publicly-owned treatment works (POTW). Since February 20, 1989, non-hazardous wastewaters are discharged directly to the POTW conduit.

Until sometime in 1986, Murray Corporation disposed of spent solvents in a landfill at the site. Since that time, Murray has removed over 200 drums and over 1000 tons of contaminated soils.

(3) Surface drainage from the site flows in a southerly direction toward a ditch along a Union Pacific Railroad right of way on the southern boundary of the property. From the ditch, the runoff then flows into a culvert, then to a more defined channel which flows southward into Town Creek which is Stream Segment No. 0804 of the Trinity River Basin, the designated uses of which are contact recreation and support of a highly diverse aquatic habitat. 31 TAC §§307.1 - 307.10, Appendix A (April 1988).

(4) The facility site is located on the lower portion of the Queen City Sand formation which consists mostly of alternating beds

of very fine to fine grained quartz sand and clay. The major aquifer in the vicinity of the site is the Carrizo-Wilcox Aquifer. Throughout most of its extent in Texas, this aquifer yields fresh to slightly saline water which is acceptable for most irrigation, public water supply, and industrial purposes. There are two domestic water use wells, and a municipal supply well located approximately one mile from the site.

(5) Murray Corporation has disposed of spent solvents in a landfill at the site which was not permitted or authorized by the Texas Water Commission. The spent solvents have been classified as industrial hazardous wastes and include spent chlorinated fluorocarbons and a spent mixture of (70-90%) methylene chloride and (10-19%) cresols or cresylic acid (Ecco). Currently, both of these solvents, when spent, are listed as hazardous wastes in 40 CFR §261.31 as EPA Hazardous Waste Nos. F001 and F002. The Ecco solvent was not regulated as a hazardous waste until January 30, 1986, prior to which date, this solvent mixture was regulated as a Class I nonhazardous waste.

(6) Use of the landfill at the site has resulted in contamination of the ground water with hazardous constituents. In the course of remediating the landfill, Murray has installed nine monitoring wells. On September 23, 1988, Commission personnel sampled several of the monitoring wells and confirmed the presence of hazardous waste constituents in the groundwater at the site.

During an inspection conducted on September 21-23, 1988, and October 5, 1988, Commission personnel discovered several areas in which industrial solid wastes had been discharged to soils which could result in a release of industrial solid wastes to surface water. The company had discharged "Lap Machine" sludges to the ground and had allowed releases of residual oil from a scrap metal roll off bin to the ground.

The surface impoundments at the site are unlined and may cause or continue to cause pollution of surface water or ground water in the State.

(7) During an inspection conducted on June 15, 1988, Commission personnel observed and photographed free liquids discharging from one of the containers which had been buried in the landfill.

(8) During the inspections conducted September 21-23, 1988, Commission personnel documented that Murray Corporation had failed to maintain all of the minimum requirements necessary to qualify for an exclusion from permitting by storing wastes for less than 90 days, as shown by the following facts:

a) Murray Corporation failed to mark containers of hazardous waste with the date upon which each period of accumulation began;

b) Murray Corporation failed to mark containers and tanks storing hazardous wastes with the words "hazardous waste";

c) At the time of inspection, Murray Corporation could not demonstrate that the company had attempted to reach agreements or make arrangements with local response authorities, emergency contractors, equipment suppliers, or local hospitals. Also, the contingency plan provided to the inspector for review failed to describe agreements with local response authorities, to identify and describe emergency response equipment at the site or to identify the location of the equipment. Further, the company had failed to maintain adequate aisle space to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in the container storage area. Also, at the time of inspection, Murray Corporation had not implemented the personnel training program at the site;

d) Murray Corporation failed to maintain documentation that containers and tanks were being inspected; and

e) Murray Corporation did not obtain, and keep on file at the facility, written assessments of the integrity of existing or new tank systems. Also, the company had not obtained, and kept on file at the facility, written statements by qualified design and installation inspectors and/or engineers who were required to supervise the installation of the new tank system installed at the site.

(9) Murray Corporation has been unable to demonstrate that it will be able to achieve a clean closure of the landfill and the company has not established adequate financial assurance for the cost of closing and for post-closure care of the landfill.

(10) Murray Corporation has failed to amend its landfill closure plan to reflect the most recent estimate of the maximum inventory of waste in the landfill and the amount of time necessary to complete the closure activities. Murray has also failed to develop a post-closure plan for the landfill.

(11) Murray Corporation has failed to maintain records of all hazardous waste and industrial solid waste activities regarding the quantities generated, stored, processed or disposed on-site or shipped off-site for the following wastes:

a) wastewater from cleaning machines;

b) caustic solutions used in paint stripping vats and the sludge generated from this process;

c) sludge from the "lap machine" which had been spilled on the ground near the south side of the employee parking area;

d) the contents of a half full container of an unknown waste being stored with empty containers on the south side of the process building adjacent to the security fence; and

e) wastes disposed in the landfill and surface impoundments at the site.

(12) Murray Corporation failed to conduct a hazardous waste determination for the following wastes generated at the site:

a) wastewater from cleaning machines;

b) caustic solutions used in paint stripping vats and the sludge generated from this process;

c) sludge from the "lap machine" which had been spilled on the ground near the south side of the employee parking area; and

d) the contents of a half full container of an unknown waste being stored with empty containers on the south side of the process building adjacent to the security fence.

(13) Murray Corporation failed to notify the Executive Director in writing of the fact that it was generating the four wastes identified in Finding of Fact No. (12), above. Murray Corporation also failed to notify the Executive Director in writing of the installation of a tank and the storage of waste in a drum located in what was apparently an empty container storage area.

(14) The Executive Director has issued a Preliminary Report concerning violations by Murray of the Act, the Code and Commission rules pursuant to 31 TAC §337.36. Timely notice of the issuance of the Preliminary Report was provided to Murray in accordance with 31 TAC §337.37.

Conclusions of Law

(1) Murray has managed industrial solid waste at the facility located at 2002 Tile Factory Road, adjacent to U.S. Highway 79 on the southwest side of the City of Palestine, Anderson County, Texas and is therefore subject to the jurisdiction of the Texas Water Commission pursuant to the Texas Solid Waste Disposal Act, TEX. REV. CIV. STAT. ANN. Art. 4477-7 (Vernon Supp. 1988), the Texas Water Code, TEX. WATER CODE ANN.

Chapter 26 (Vernon Supp. 1988) and the rules of the Commission.

(2) The facts recited in Finding of Fact No. (5) show that Murray Corporation has violated 31 TAC §335.43 which prohibits the disposal of hazardous waste without a Commission permit or other authorization, and 31 TAC §335.2 which prohibits the disposal of industrial solid waste without a permit or other authorization from the Commission.

(3) The facts recited in Findings of Fact No. (6) show that Murray Corporation has violated 31 TAC §335.4 which prohibits the management of industrial solid waste in a manner which causes the discharge or imminent threat of discharge of waste into or adjacent to waters in the State without obtaining Commission authorization. Such facts also show that Murray Corporation has violated §26.121 of the Texas Water Code which prohibits engaging in any activity which causes or continues to cause pollution of any water in the State.

(4) The facts recited in Finding of Fact No. (7) show that Murray Corporation has violated 31 TAC §335.175 which prohibits the placement of containers holding liquid waste in a landfill.

(5) The facts recited in Finding of Fact No. (8) show that Murray Corporation has violated 31 TAC §335.69 which establishes various requirements necessary to qualify for an exclusion from permitting for generators storing wastes for less than 90 days.

(6) The facts recited in Finding of Fact No. (9) show that Murray Corporation has violated 31 TAC §335.7 which requires that the financial assurances for closure and post closure set forth in 31 TAC Subchapter F be established by persons storing, processing or disposing of hazardous waste.

(7) The facts recited in Finding of Fact No. (10) show that Murray Corporation has violated 31 TAC §335.8(b) which requires that the closure and post-closure requirements set forth in 31 TAC Subchapters E and F, as applicable, be met by persons storing, processing, or disposing of hazardous waste.

(8) The facts recited in Finding of Fact No. (11) show that Murray Corporation has violated 31 TAC §335.9 which requires generators of hazardous waste to maintain records of all hazardous and solid waste activities regarding the quantities generated, stored, processed, or disposed on-site or shipped off-site.

(9) The facts recited in Finding of Fact No. (12) show that Murray Corporation has violated 31 TAC 335.62 which requires a

generator of solid waste to determine if the waste is hazardous.

(10) The facts recited in Finding of Fact No. (13) show that Murray Corporation has violated 31 TAC §335.6 which requires an industrial solid waste storage, processing, or disposal facility to notify the Executive Director in writing of all wastes generated and waste management facilities.

(11) The Commission has the authority to assess administrative penalties for violations of the Act, the Code and Commission rules pursuant to §8b of the Act and §26.136 of the Code.

(12) An administrative penalty in the amount of Thirty Four Thousand Six Hundred Eighty Dollars ($34,680) is justified by the facts and Conclusions of Law (2) through (5) recited herein, considered in light of the factors set forth of §8b of the Texas Solid Waste Disposal Act and §26.136 of the Texas Water Code.

(13) The Commission has the authority to issue enforcement orders directing compliance with the Act, the Code and the rules pursuant to §8c of the Act, §26.019 of the Code and 31 TAC §337.1.

NOW, THEREFORE, BE IT ORDERED BY THE TEXAS WATER COMMISSION that Murray Corporation shall be assessed an administrative penalty of Thirty Four Thousand Six Hundred Eighty Dollars, ($34,680) for violations of the Texas Solid Waste Disposal Act, the Texas Water Code and the rules of the Texas Water Commission. The amount of Eleven Thousand Five Hundred Sixty Dollars ($11,560) is deferred and will be waived pending compliance with the technical requirements enumerated below within the schedules set out therein. The disposition of this administrative fine resolves all matters raised by the Executive Director's Preliminary Report, and the Findings of Fact and Conclusions of Law herein and the Commission shall not be constrained in any manner from considering any administrative fines for violations of the Texas Water Code, the Texas Solid Waste Disposal Act or the regulations or orders of the Texas Water Commission occurring after the date this Order is signed or which are not raised in the Executive Director's Preliminary Report. The deferred administrative penalty of Eleven Thousand Five Hundred Sixty Dollars ($11,560) shall be assessed and payable within thirty (30) days of Murray Corporation's receipt of written notice of the Commission's determination of the first noncompliance with the technical requirements enumerated below. If all of the technical requirements are completed in accordance with the terms hereof, this deferred penalty amount shall be waived. All checks rendered to pay penalties imposed by this Order shall be made out to "The State of Texas - General Revenue Fund." This penalty shall be paid within thirty (30) days of the date of this

Order, and mailed to the Chief Fiscal Officer, Texas Water Commission, P. O. Box 13087, Capitol Station, Austin, Texas 78711-3087, with the notation, "Re: Murray Corporation, Enforcement Order".

IT IS FURTHER ORDERED BY THE TEXAS WATER COMMISSION that Murray Corporation shall undertake certain actions as follows:

(1) Within 30 days of the issuance of this Order, Murray Corporation shall submit to the Executive Director a closure plan amendment in the form of an interim closure report regarding closure of the landfill. This interim report shall include copies and/or results of all boring logs, geologic cross-sections, monitor well installation details, analytical results of all samples taken regarding closure and ground-water monitoring, an estimate of the amount of waste disposed off-site, and a detailed discussion of all closure activities conducted at the site and a proposal of activities planned to achieve interim status closure. In the event that any photographs were taken by the company or its representatives during the closure activities, then copies of the photographs shall also be included. The final closure report shall be capable of fully defining the physical extent of the landfill boundaries and any wastes or waste residues remaining in the landfill.

In the event that any hazardous waste or hazardous constituents remain in the landfill area, the interim report shall include a preliminary engineering design and specifications for a final cover for the landfill. This preliminary design shall meet the minimum requirements specified in 40 CFR §265.310 and shall include a schedule for final design and installation of the final cover.

The Executive Director shall review, possibly modify, approve, or disapprove the interim closure report as a closure plan amendment. If the Executive Director does not approve the report, Murray Corporation shall modify the report or submit a new report within thirty days of the Executive Director's written disapproval.

(2) Within 60 days of completion of closure activities, the company shall submit, by registered mail, a certification that the landfill has been closed in accordance with the specifications in the approved closure plan, as amended. The certification shall be signed by the owner or operator and by an independent, Texas registered, professional engineer.

(3) Within 180 days of the effective date of this Order, Murray Corporation shall submit a post-closure care plan to the Executive Director regarding the landfill in accordance with the technical requirements specified in 40 CFR §265.118 and 40 CFR §265.310. The plan shall also include a cost estimate for

the proposed plan and provisions for financial assurance for the cost of post-closure care in accordance with 40 CFR §265.144 and §265.145.

The Executive Director shall review, possibly modify, approve, or disapprove the plan. If the Executive Director does not approve the plan, Murray Corporation shall modify the plan or submit a new plan within thirty days of the Executive Director's written disapproval.

(4) Within 90 days of the issuance of this Order, Murray Corporation shall submit to the Executive Director a Hydrogeologic Investigation and Ground-Water Assessment Plan. This plan shall be capable of accomplishing the following objectives:

A. Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including hydraulic gradient and ground-water flow direction and rate;

B. Classification of the hydrogeologic properties of all of the hydrogeologic units found at the site, including hydraulic conductivity, porosity, texture, thickness, and any topographic or geomorphic features that might influence the ground water flow system;

C. Determination of the rate and extent (both areal and vertical) of migration of hazardous constituents;

D. Delineation of the extent of the landfill boundaries and the plume of ground-water contamination on a topographic map at a scale of 1 inch equal to not more than 200 feet; and

E. Identification of the concentration of each 40 CFR Part 261, Appendix VIII hazardous constituent throughout the plume and identification of the maximum concentrations of each Appendix VIII constituent in the plume; provided however, that such identifications may be limited to Appendix VIII constituents which might reasonably be expected to be in the groundwater if contaminants were to be, or had been, released from the facility.

F. The plan shall specify the following information regarding the Assessment Monitoring Program:

(i) The number, location, and depth of any existing or proposed wells;

(ii) Sampling and analytical methods for the hazardous waste or hazardous constituents in the landfill;

(iii) Evaluation procedures, including any use of previously-gathered ground water quality information; and

(iv) A schedule for implementation of the assessment monitoring program.

The Executive Director shall review, possibly modify, approve, or disapprove the plan. If the Executive Director does not approve the plan, Murray Corporation shall modify the plan or submit a new plan within thirty days of the Executive Director's written disapproval.

(5) Murray Corporation shall initiate the implementation of the investigation and assessment activities described in the Hydrogeologic Investigation and Ground-Water Assessment Plan within 30 days of approval by the Executive Director.

(6) On or before December 31, 1989, Murray Corporation shall submit to the Executive Director a post-closure care application and compliance plan application for the landfill in accordance with 31 TAC §335.8, 31 TAC Chapter 335, Subchapter F, and 31 TAC Chapter 305. These applications and permits shall not be construed to modify the requirements of Order Provisions Nos. 8, 9, or 10 of this Order.

(7) Within 30 days of the effective date of the issuance of this Order, Murray Corporation shall submit to the Executive Director all available engineering designs and specifications detailing the discharge routes from each of the cleaning machines to the collection system (and surface impoundments if the collection system or any of the cleaning machines were connected to the surface impoundments at any time after November 19, 1980).

(8) Within 120 days of the effective date of issuance of this Order, Murray Corporation shall submit to the Executive Director, an Environmental Study (ES) Work Plan to determine the nature and extent of contamination at or around the surface impoundments. The ES Work Plan shall include the following, at a minimum:

A. A Sampling Plan to include:

(i) A description of the method(s) by which Murray Corporation will determine the composition of the liquid phase in the impoundments and the composition of any sludges therein, as well as a determination of whether a release of hazardous constituents has occurred to surface or ground water;

(ii) A description of any existing or proposed monitoring wells (including location and construction details) which will be utilized in the study;

(iii) A description of the sampling equipment and methodology, an estimate of the number and type of samples (including justification for such), and a schedule for implementation; and

(iv) A list of parameters to be sampled and analyzed. At a minimum these shall include, in the first round of sampling, total metals and Extraction Procedure toxicity for Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver. The first round of analyses shall also include Appendix VIII constituents which might reasonably be expected to be in the surface impoundments or groundwater if contaminants were to be, or had been, released from the facility.

B. A Quality Assurance/Quality Control (QA/QC) Plan to include:

(i) The method for use and calibration of any field equipment;

(ii) Laboratory equipment and analytical procedures including detection limits, standards, blanks, and methodology;

(iii) Procedures for chain of custody for all phases of sample management; and

(iv) Sample collection, preservation, and shipment procedures including a discussion of field and trip blanks.

C. A Safety Plan to include all appropriate measures to provide personal safety and protection for Murray Corporation employees and other personnel retained to execute the Work Plan.

D. A schedule outlining the major tasks to be completed during the Environmental Study, including specific time frames for completing the identified tasks.

The Executive Director shall review, possibly modify, approve, or disapprove the plan. If the Executive Director does not approve the plan, Murray Corporation shall modify the plan or submit a new plan within thirty days of the Executive Director's written disapproval. The company shall begin the Environmental Study within 30 days of written approval by the Executive Director. The ES shall be completed in the field

within 180 days of Executive Director approval of the ES Work Plan.

(9) Within 240 days of the Executive Director's approval of the Environmental Study Work Plan, Murray Corporation shall submit a complete report (ES Report) of the study to the Executive Director. The report should be sufficiently detailed to support the design and implementation of appropriate remedial measures. Data shall be clearly presented in tables, figures, or other exhibits with all raw data included in appendices.

(10) Within 90 days of submittal of the ES Report, Murray Corporation shall submit to the Executive Director a plan and schedule for inactivation and closure of the surface impoundments. The closure plan shall include provisions to provide either for the off-site removal of all wastes and waste residues identified in the Environmental Study or for the in-place closure of the units as landfills. In the event that the surface impoundments are closed as landfills, the final cover shall be designed and constructed in accordance with the technical recommendations for landfill final cover materials described in TWC Technical Guideline No. 3 for landfills. The closure plan shall also contain provisions for submittal of a post-closure care plan in the event that any hazardous constituents remain in place at closure, or if ground-water contamination is detected due to use of the surface impoundments. If ground-water contamination is present, the post-closure care plan shall include provisions for corrective action or remediation of the contamination.

The Executive Director shall review, possibly modify, approve, or disapprove the closure plan for the surface impoundments. If the Executive Director does not approve the plan, Murray Corporation shall modify the plan or submit a new plan within thirty days of the Executive Director's written disapproval.

(11) Within 15 days of the issuance of this Order, Murray Corporation shall comply with all aspects of the accumulation time requirements specified in 31 TAC §335.69. In particular, the company shall:

A. Assure that personnel are trained in appropriate handling, labelling, dating, and marking requirements for containers and tanks storing hazardous waste in accordance with 31 TAC §335.69(a), (c), & (d);

B. Assure that employees are trained in proper waste disposal practices and are trained to respond in the event of a spill or other emergency at the site in accordance with 31 TAC §335.69(a)(4);

C. Attempt to make arrangements with local response authorities, equipment suppliers, emergency contractors, and local hospitals in accordance with 31 TAC §335.69(a)(4) which requires compliance with 40 CFR, Part 265, Subpart C. These arrangements or any attempts to make arrangements shall be recorded in the Contingency Plan maintained at the site. The Contingency Plan shall also identify and describe emergency response equipment at the site and identify the location of the equipment in accordance with 31 TAC §335.69(a)(4) which requires compliance with 40 CFR, Part 265, Subpart D;

D. Maintain documentation at the site that containers and tanks are inspected in accordance with 31 TAC §335.69(a)(1) which adopts by reference 40 CFR, Part 265, Subparts I (Use and Management of Containers) & J (Tank Systems); and

E. Obtain and keep on file at the facility written assessments of the integrity of existing or new tank systems, and written statements by qualified design and installation inspectors and/or engineers who were required to supervise the installation of new tank systems installed at the site pursuant to 31 TAC §335.69(a)(1) which adopts by reference 40 CFR, Part 265, Subpart J (Tank Systems).

(12) Within 15 days of the issuance of this Order, Murray Corporation shall maintain records at the Palestine site which provide written evidence that the company has conducted a hazardous waste determination for each solid waste generated at the site in accordance with 31 TAC §335.62.

(13) Within 15 days of the issuance of this Order, Murray Corporation shall maintain written records that notification of all solid wastes generated at the site has been provided to the Executive Director in accordance with 31 TAC §335.6.

(14) Within 15 days of the issuance of this Order, Murray Corporation shall maintain records of all hazardous waste and industrial solid waste activities regarding the quantities generated, stored, processed, and disposed of on-site or shipped off-site for storage, processing, or disposal in accordance with 31 TAC §335.9.

(15) If Murray Corporation fails to comply with any of the technical requirements present in this Agreed Order within the schedules set out herein and such failure is primarily caused by events beyond the reasonable control of Murray Corporation, such failure shall not be construed as a violation of this Agreed Order. The burden of establishing that an event is beyond the reasonable control of Murray Corporation lies with Murray Corporation. When events are occurring or have occurred which may delay the implementation of the technical requirements enumerated herein, Murray Corporation shall

notify the Executive Director within seven (7) days of becoming aware of such a delaying event and shall take all reasonable measures to mitigate and/or minimize the delay. Murray Corporation shall describe the reason for and expected duration of such delay and shall provide a revised timetable which describes the events which Murray Corporation intends to take to minimize the delay. This revised timetable shall be implemented upon its approval by the Executive Director.

(16) All plans, submittals, specifications, certifications, and other documents which relate to activities required by this Order shall be submitted in duplicate to the:

Executive Director
c/o Section Chief
Hazardous and Solid Waste Enforcement Section
Texas Water Commission
P. O. Box 13087, Capitol Station
Austin, Texas 78711-3087

and an additional copy of the materials shall be submitted at the same time to:

District Manager
TWC District 5 Office
2916 Teague Drive
Tyler, Texas 75701-3734

(17) The Chief Clerk shall provide a copy of this Order to each of the parties.

Signed this 14th day of April, 1989.

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman

(Seal)

Brenda W. Foster, Chief Clerk

I, the undersigned, have read and understand the attached Agreed Order. I understand that it is an Agreed Order which does not constitute an admission by either party of the facts alleged in the enforcement action giving rise to this Agreed Order, but does constitute a waiver of the right to appeal the terms of this Agreed Order. I am authorized to agree to the attached Agreed order on behalf of the entity indicated below my signature, and do hereby agree to the terms and conditions specified therein.

Allen Beinke Date: 4/13/89

Allen P. Beinke
Executive Director

Date: 4/89

~~Robert E. Liebendorfer~~ H. THORNE GOULD
President
Murray Corporation

Attachment I

Notice of Registration Unit Status Change to Closed, NOR 005 – Drum Burial Area, February 14, 2024 Include

February 14, 2024

4801 Southwest Parkway,
Parkway 1, Suite 185
Austin TX 78735
T +1 512 347 7588

Executive Director
Registration and Reporting Section (MC-129)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: **Notice of Registration Unit Status Change**
Murray Corporation – 2002 Tile Factory Road, Palestine, Anderson County, Texas
TCEQ Hazardous Waste Permit/Compliance Plan No. 50328
TCEQ Solid Waste Registration No. 33063
EPA ID No. TXD053115978
CN600350359 / RN100639897

Dear Executive Director:

On behalf of Murray Corporation, RPS is submitting a request to change the Notice of Registration Unit Number 005 status from “Post Close Care” to “Closed” under Risk Reduction Standard (RRS) 2 and compliance with 30 TAC 335.6 and 30 TAC 335.8. As per our meeting on December 13, 2023, and follow up communications, the Certified Closure Completion Report submitted March 1996 and was approved on April 29, 1996 (attached).

As you are aware from our Compliance Plan Termination Demonstration Report submitted April 2023, analytical results were directly compared to the Groundwater Protection Standard as defined in the renewed Compliance Plan issued October 3, 2014, as well as the most recent TRRP Tier 1 $^{GW}GW_{Ing}$ Groundwater Ingestion Protective Concentration Levels (PCL) for Class I and Class 2 groundwater (PCL Tables published March 2022). Sediment samples were also collected in six locations along town creek in July of 2021. The sediment samples were analyzed for 1,1-DCE 1-1-DCA. Results of this demonstration show that:

- Of the approximately 234 samples collected since 2014, detections of each analyte were below the relevant GWPS and TRRP $^{GW}GW_{Ing}$ values.
- There is evidence of attenuation or of no migration of COCs in all of the monitoring wells and throughout the PMZ;
- There is no likely potential for a future migration of COCs; and
- There is no likely potential for receptors to be exposed to COCs.

Additionally, the site has been properly deed recorded as restricted to commercial Industrial uses only.

Please note that as per our email correspondence, a Response Action Completion Report (RACR) will be submitted in the coming weeks, demonstrating that Murray Corporation has met the RCRA regulations for procedural and technical closure requirements.

Should you have any questions regarding this request, please contact me at 512.579.3315.

Yours Sincerely,
For RPS Group, Inc.

Byron Ellington, CPG, PG (TX, UT)
Director
[redacted]
+1 512.579.3315

Harrison Coleman
Consultant III
[redacted]
+1 612.772.1659

Enclosures: Email correspondence, April 24, 2023, to January 17, 2024
TNRCC Correspondence, April 29, 1996, Approving of Closure Certification and Engineer's certification.

cc: Mr. Mike Duffin, Ph.D., P.G. - TCEQ (Electronic Copy – [redacted]
Ms. Maureen Hatfield, P.G. - TCEQ (Electronic Copy – [redacted] Copy – [redacted]
Thorne Gould - Murray Corporation (Electronic Copy - [redacted]

From: Ellington, Byron
Sent: Wednesday, January 17, 2024 3:03 PM
To: 'Maureen Hatfield'; Mario Perez; Wyatt Hooks; Michael Duffin; Mohammad Khan
Cc: Thorne Gould; Elliff, Geri
Subject: RE: December 13, 2023 Meeting Follow-up - FW: Request for RCRA Permit/Compliance Plan Termination, Murray Corporation, Hazardous Waste Permit/CP No. 50328

Thank you Maureen.

Byron
D 512.579.3315 **M** 512.771.0863

From: Maureen Hatfield [redacted]
Sent: Wednesday, January 17, 2024 9:42 AM
To: Ellington, Byron [redacted] Mario Perez [redacted] Wyatt Hooks <[redacted]
Cc: Thorne Gould <[redacted] Elliff, Geri [redacted]
Subject: RE: December 13, 2023 Meeting Follow-up - FW: Request for RCRA Permit/Compliance Plan Termination, Murray Corporation, Hazardous Waste Permit/CP No. 50328

Good morning all:

Byron: Thank you for uploading the files to the FTP. I was able to download them. Much appreciated!

Mike: I downloaded the files from the FTP that Byron sent. The files are saved under H:\VCP - CA Section\ADMIN\RCRA Permits\Permit Applications\Current Permit Applications\SWR 330603.Permit 50328 - Murray Corp\Pre-application meeting 12-13-2023. Please review Murray's draft RACR and NFA request when it comes in. If based on your review of the draft RACR, the NFA request is acceptable, then issue an approval conditional letter. The letter should approve the NFA request with the condition that Murray Corp. submit the final RACR with the Class 3 Permit modification application to request termination of corrective action for the site.

Regards,
Maureen

From: Ellington, Byron [redacted]
Sent: Tuesday, January 16, 2024 4:55 PM
To: Mario Perez [redacted] Wyatt Hooks <[redacted] Maureen Hatfield [redacted] Michael Duffin <[redacted] Mohammad Khan [redacted]
Cc: Thorne Gould <[redacted] Elliff, Geri [redacted]
Subject: FW: December 13, 2023 Meeting Follow-up - FW: Request for RCRA Permit/Compliance Plan Termination, Murray Corporation, Hazardous Waste Permit/CP No. 50328

All,

We are still getting use to the TCEQ's new protocol of only uploading documents on the TCEQ system. You should each receive this email (from Geri Elliff) and the documents that go with the email.

Let me or Geri know if you have any questions or needs. Thank you.

Byron
D 512.579.3315 **M** 512.771.0863

From: Ellington, Byron
Sent: Tuesday, January 16, 2024 3:26 PM
To: Mario Perez [redacted] Maureen Hatfield
<[redacted] Mohammad Khan
[redacted]
Cc: Thorne Gould [redacted]
Subject: December 13, 2023 Meeting Follow-up - FW: Request for RCRA Permit/Compliance Plan Termination, Murray Corporation, Hazardous Waste Permit/CP No. 50328

Mario, Wyatt, Maureen, Michael, and Mohammad,

Thank you for meeting with us on December 13, 2024. We hope everyone had a restful holiday. Since the meeting we have located the following documents which are attached:

- The original 1989 agreed order with the TWC.
- November 1995 Closure Plan Review approval letter from the TNRCC
- March 1996 Closure Completion Report and Certification Submitted to the TNRCC
- April 1996 Closure Certification and Notice of Post-Closure Care Requirements, TNRCC

Also attached is our Demonstration Report which contains our requests and other supportive information. After careful review of the documents and the current and past issued IHW permits, we believe that the Murray Corporation has complied with all aspects of the agreed order, closure certification, post-closure monitoring and issued IHW permits. Therefore, we respectfully request again a conditional no further action letter, that the compliance plan obligations be terminated, and that the permit be allowed to expire on October 3, 2024. Toward this last point of allowing the permit to expire, we understand and accept that a Class III permit modification application (including public comment) will be required.

In addition to providing the documents above, we are currently engaged in:

- Completing January 2024 semi-annual groundwater monitoring (sampling conducted last week) as required by the current compliance plan;
- A correction of the TCEQ Notice of Registration (NOR 05, Permit Unit No. 01 Former Drum Burial Trench) to change the status; and
- A drafting of a Response Action Completion Report and request for no further action.

Mario and Mohammad, as discussed on the call, we anticipate requesting an extension to the permit application deadline of April 6, 2024 so that, as we understand, a required no further action letter can be issued.

Please let us know if you feel we are overlooking any required step. As previously stated, we think it is important to keep in mind that the facility has not operated since 1997, there are no on-going RCRA hazardous waste management activities at the location; hence, there are no reason to continue a hazardous waste permit following the closure of groundwater post-response period which has demonstrated that the groundwater has been remediated.

As always, thank you for you help.

From: Byron Ellington
Sent: Wednesday, August 30, 2023 8:45 AM
To: Maureen Hatfield; Michael Duffin; Mario Perez; [redacted]
Cc: Thorne Gould ([redacted]
Subject: Questions on Renewing HWP 50328
Attachments: FW: Request for RCRA Permit/Compliance Plan Termination, Murray Corporation, Hazardous Waste Permit/CP No. 50328; IHW 50328 Murray-Corporation - Call In Letter; Permit Renewal-Pre-Application email _Alon USA, LP_ Permit No. 50140; IHWCA_33063_OUT_20230825_APPROVAL.pdf

Maureen, Mike, Mario, and Mohamad:

This email is on behalf of Murray Corporation. Maureen, thank you so much for your voice mail yesterday and the feedback. The request for CP termination sent on April 24, 2023 achieves the points you pointed out.

- There have not been exceedances since 2014.
- There are no other regulated RCRA units, SWMUs, or AOCs on which to conduct detection or compliance monitoring.

This IHW permit exists for the sole purpose of monitoring the remedy effectiveness of the Former Drum Burial Trench (NOR 005). We have been requesting a group meeting with the TCEQ regarding receiving a conditional no further action designation from Corrective Action regarding our compliance plan and semi-annual monitoring and request from IHW Permits to have the hazardous waste permit expire on its own on October 3rd, 2024. As per the attached call-in letter, a permit renewal application is due April 6, 20204 and we would rather avoid the expense since, we believe, the remediation is complete.

We first sent our request for the CP termination to the IHWPER mailbox, Mr. Duffin, and Mr. Khan on April 24, 2023 and have not received actionable feedback.

Please let us know when a meeting maybe arranged.

Sincerely,

Byron Ellington, CPG, PG
Director
RPS | North America
4801 Southwest Parkway
Parkway 1, Suite 185
Austin TX 78735, USA
T +1 512 347 7588 **F** +1 512 347 8243
D 512.579.3315 **M** 512.771.0863
E [redacted]

A TETRA TECH COMPANY

Follow us on: rpsgroup.com | LinkedIn | Facebook | Instagram | YouTube

Byron Ellington, CPG, PG (TX, UT)
Director
RPS/Tetra Tech | North America
4801 Southwest Parkway, Parkway 2, Suite 150
Austin TX 78735, USA

D 512.579.3315 **M** 512.771.0863
[redacted]

On 24 January 2023, RPS became a Tetra Tech company. This represents an exciting new chapter for our business. Tetra Tech is a leading provider of consulting and engineering services, and our combined offering and technical capability is broad and deep.

The level of service and commitment you have come to expect from RPS will continue seamlessly and assuredly. While we will be changing our name to 'RPS, A Tetra Tech Company', there will be no change to our team or your points of contact within the company.

If you have any questions about this news, please don't hesitate to contact me.

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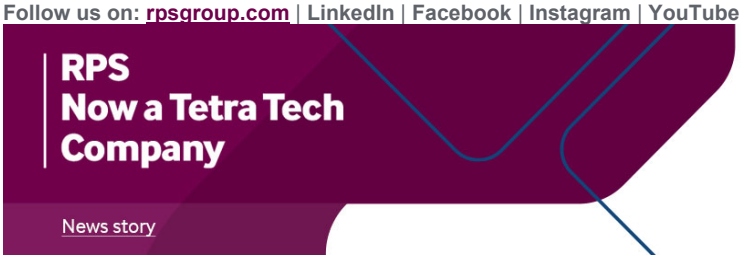

From: Byron Ellington <[redacted]
Sent: Monday, April 24, 2023 1:41 PM
To: IHWPER [redacted]
50328

Dear IHW Permitting Staff, Mike, Mohammad, and team.

On behalf of Murray Corporation (Murray) and as per the attached demonstration report, RPS is requesting that the referenced permit be terminated in accordance with 30 TAC §350.33(i)(3) the Texas Risk Reduction Rule Program (TRRP) and in accordance with Provision XI.D.6 of the Compliance Plan (CP-50328). RPS is also requesting that Murray be released from the remainder of the post-response action care period and associated financial assurance. As such, we request that a meeting be scheduled so that we can discuss the best path forward toward the permit termination and to answer any questions TCEQ staff may have.

As you may be aware, there are no on-going RCRA hazardous waste management activities at the location; hence, there are no reason to continue a hazardous waste permit following the closure of groundwater post-response period.

Please let us know when a meeting can be arranged and if you have any questions.

Sincerely,

Byron Ellington, PG, CPG
Director
RPS | North America

4801 Southwest Parkway, Parkway 2, Suite 150
Austin TX 78735, USA

D 512.579.3315 **M** 512.771.0863
E [redacted]

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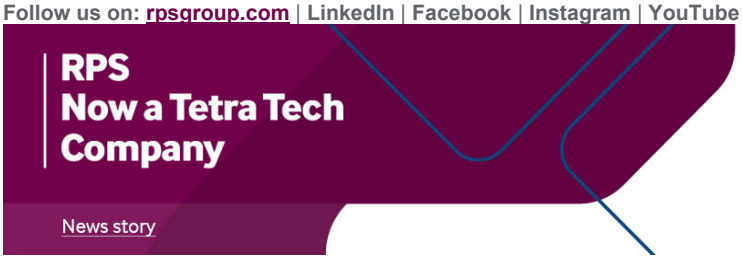

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

April 29, 1996

Mr. Thorne Gould
Murray Corporation
Schilling Circle
Greater Baltimore Industrial Park
Cockeysville, MD 21030

Re: **Murray Corporation/Palestine, Texas**
TNRCC Solid Waste Registration No. 33063
Former Drum Burial Trench
Hazardous Waste Management Unit
Acceptance of Closure Certification and
Notice of Post-Closure Care Requirements

Dear Mr. Gould:

The Texas Natural Resource Conservation Commission (TNRCC) has reviewed your company's closure certification dated March 7, 1996 and the engineer's certification dated March 7, 1996 submitted by Bradley McKenzie, P.E. of RMT/Jones and Nuese, Inc. After reviewing the certification by the TNRCC staff, it appears that the Former Drum Burial Trench was closed in accordance with the closure plan approved by TNRCC on November 8, 1995.

The Former Drum Burial Trench is now subject to post-closure care. Your post-closure care permit application will be processed by the Permits Section of the Industrial and Hazardous Waste Division.

If you have any questions regarding the closure certification, please contact Kirk Coulter of the Closure Team in Austin at 512/239-25472, Mail Code MC-127. Any questions regarding the permit application should be directed to the Permits Section at 512/239-6595, Mail Code MC-130.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Industrial and Hazardous Waste Division

PSL/KEC/kec

cc: TNRCC Region 5 Office, Tyler
TNRCC RCRA Permits Section
Kelly Beck, RCRA Groundwater Enforcement Team

Attachment J

Revised TCEQ NOR Printouts – August 2024

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

33063 MURRY OF MARYLAND

Solid Waste Registration Number: 33063 **EPA Id:** TXD053115978

Company Name: Seedamerica
Site Name: MURRY OF MARYLAND
Site Location: 2002 Tile Factory Rd, Ste A, Palestine, TX
Primary Contact: MITCHELL, DONALD
Mailing Address: 1050 CONNECTICUT AVE NW
WASHINGTON, DC 20036-5303

Region: 5
County: 001 ANDERSON
Land Type: Private
Title: ENVIRONMENTAL MANAGER
Site Street Address: 2002 TILE FACTORY RD STE A
PALESTINE, TX 75801

Initial Registration Date: 12/20/1983
Last Amendment Date: 02/14/2024
Last Date NOR Computer update: 03/01/2024
Phone: 202-857-6172

Registration Status: Inactive
Registration Type: Generator
Generator Type: Industrial
Receiver Type:
Transporter Type:
Transport Wst Class:

Reporting Method: PAPER
Hazardous Waste Generation Status: Large Quantity Generator

Universal Waste Activity:
Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more):
Type(s) Managed:
Destination Facility for Universal Waste:

NAICS Code: 333415 Air-Conditioning and Warm Air Heating Equipment a
Tax Identification #:
Handler Status:

Operator Information

Name: Seedamerica
Phone: 202-857-6172
Address: 1050 CONNECTICUT AVE NW
WASHINGTON, DC 20036-5303

Owner Information:

Name: Seedamerica
Phone: 202-857-6172
Address: 1050 CONNECTICUT AVE NW
WASHINGTON, DC 20036-5303

Billing Contact: GOULD, CHATMAN **Title:** **Phone:**
Billing Address:
260 SCHILLING CIR
HUNT VALLEY, MD 21031-1435

Other Contact: Manager, Environmental **Role:** IHW: Owner Contact **Phone:** 202-857-6172
Mailing Address: 1050 CONNECTICUT AVE NW
WASHINGTON, DC 20036-5303

As of 02/14/2024 - The next unassigned sequence number for WASTES is 0013 and
The next unassigned sequence number for UNITS is 007

33063 MURRY OF MARYLAND

**** WASTE INFORMATION ****

Texas Waste Code	Waste Class	Status	Date of Status	Managed Onsite/ Offsite	Radio-active	TCEQ Audit Complete
** No Longer Generated Wastes **						
00121011	1	Inactive	02/14/2024		No	No

Description from Generator: No Longer generated wastewater-automotive parts reclamation. The manufacturingoperations were transferred to Murray-Moog Automotive, Notice of Registration No. 20140.
Texas Form Code: 101 Aqueous waste with low solvents
Origin Code: 1 Generated on-site from a product process or service activity
Company's Internal Code(s): Wastewater is no longer managed - it was formely managed in two surface imkpound
Current Management Units: None

As of 02/14/2024, The next unassigned sequence number for WASTES is 0013

***** TEXAS COMMISSION ON ENVIRONMENTAL QUALITY *****
Notice of Registration
Industrial and Hazardous Waste

33063 MURRY OF MARYLAND

****** UNITS AT THIS SITE MANAGING WASTE ******

Unit Number	Unit Type	Unit Status	Date of Status	Classes of Waste Managed in Unit Onsite / Offsite	Unit Permit Number	Unit # on Permit	Regulatory Status	Deed Recording Needed/Date
001	Container storage area	INACTIVE	04/17/1997	NA / NA	NA	NA	13 RCRA Pmt Exempt - Accumulation Time	YES /

Description from Company: Container Storage Area
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.

002	Tank (surface)	INACTIVE	11/01/1983	NA / NA	NA	NA	06	YES /

Description from Company: 2 1,000 gallon tanks piped together
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.

003	Container storage area	CLOSED	04/04/1994	NA / NA	NA	NA	06	YES /

Description from Company:
System Types: 141 Storage, bulking, and/or transfer off site - no treatment/recovery, fuel blending or disposal at this site.

004	Waste Treatment Facility	INACTIVE	04/17/1997	NA / NA	NA	NA	06	YES /

Description from Company: Waste Treatment Unit

005	Landfill	CLOSED	02/14/2024	NA / NA	001	NA	01 RCRA permitted unit	YES /

Description from Company: Landfill - Former Drum Burial Trench
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)

006	Surface impoundment	ACTIVE	04/17/1997	1 / NA	NA	NA	05 Non-Hazardous Regulated	YES /

Description from Company: Surface impoundments on southwest section of property, triangular in shape. The manufacturing operations were transferred to Murray - Moog Automotive, Notice of Registration No. 20140
System Types: 132 Landfill or surface impoundment that will be closed as landfill (to include on-site treatment and/or stabilization)
Wastes Previously Managed at Unit: 00121011

As of 02/14/2024, The next unassigned sequence number for UNITS is 007