AIR PRODUCTS FACILITY
HW50134
SWR 30317
AIR PRODUCTS LLC
PASADENA, HARRIS COUNTY, TEXAS

March 23, 2026 Revision 2

Volume 1

HW 50134
AIR PRODUCTS LLC

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WSP USA, Inc.
16414 San Pedro Ave., Ste 425
San Antonio, Texas 78232 USA
T: 210.241.9852
www.wsp.com

August 1, 2025

Mohammad Khan, Environmental Permit Specialist II (MC130)
Industrial & Hazardous Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality (TCEQ)
P.O. Box 13087
Austin, TX 78711-3087

Re: Permit Renewal Application

Air Products LLC	CN602299257
1423 Hwy 225, Pasadena, Harris County, TX	RN100221324
Hazardous Waste Permit/Compliance Plan (HWP/CP) No.	50134
Industrial Solid Waste Number:	30317
EPA Identification No.	TXD990757486

Dear Mr. Kahn:

On behalf of Air Products LLC (APLLC), WSP USA Inc. (WSP) is submitting a Part A and B permit application to renew Hazardous Waste Permit No. 50134 (HW50134) with Compliance Plan to the Texas Commission on Environmental Quality (TCEQ). The application includes updated facility, landowner and elected official contact, and Compliance Plan information as a Class 1 Modification.

The permitted units are two surface impoundments in post-closure care status. i.e.: the Effluent Impoundment (EI) and the Acid Spill Impoundment (ASI). The closure plans and certification report confirm that all waste material was removed from the units leaving only environmental media prior to installation of a cover system. The Compliance Plan is for ongoing Corrective Action of the underlying groundwater system.

Permit application fees have been transmitted through the TCEQ ePay portal. A copy off the payment receipt will be provided with the electronic file submission via the TCEQ FTP server (FTPS).

The following documents are provided as required for this post-closure care renewal permit application.

TCEQ Form	Rev. Date	Description
10400	11/22	Core Date Form
0283	6/3/2022	Part A Application (updated original and one (1) full copy) including electronic third copy.
00376	3/1/2023	Part B Application (original and one (1) full copy including electronic third copy) excluding Sections III.B and F; IV.A, C and D; VII.A and B; VIII.B and C; and X) Compliance Plan 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, (required); and CP Tables IIIA, IIIA, IV and IVA as applicable. 3. Sampling and Analysis Plan (SAP) compliant with "Attachment A" requirements and evaluation of monitoring wells compliant with "Attachment B" well specification requirements.
20591	4/20/2022	Plain Language Summary (English)
20591-esp	4/20/2022	Plain Language Summary (Spanish)
20960		Public Involvement Plan Electronic mailing list via FTPS in MS Word format
00136		Part B Administrative and Technical Evaluation Electronic Checklist provided with the electronic submission via FTPS. Exposure Assessment Bilingual Notice confirmation

If you have any questions or require additional information, please contact me at 210-241-9852 or email [redacted]

Sincerely,



David L. Hartsfield, PG
Assistant Vice President, Geology

Texas Commission on Environmental Quality

Waste Permits Division Correspondence Cover Sheet

Date: August 1, 2025
Facility Name: Air Products LLC
Permit or Registration No.: 50134

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:	

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.

Per the above instructions, "*If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.*", the completion of a Public Involvement Plan was not warranted.

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
Class 1[1] Permit Modification Form for an IHW Facility

Who Should Use This Form

Use this form to submit a Class 1[1] permit modification application to the Industrial & Hazardous Waste (IHW) Permits Section. Determine if you need a Class 1ED permit modification, also known as a Class 1[1] modification, of a solid waste permit by reviewing **Title 30, Texas Administrative Code (TAC) Subsection 305.69(k)**.

Submit one original hard copy along with other required documents listed below to Industrial and Hazardous Waste Permits Section MC 130, TCEQ, P.O. Box 13087, Austin, TX 78711-3087. Submit the electronic copy by emailing at **ihwper@tceq.texas.gov**. Submittal of hard copy is still required.

If you have any questions about this form, or need an accessible version of these documents, contact the IHW Permits Section at (512) 239-2335 or by email at **ihwper@tceq.texas.gov**.

Required Attachments

1.	**Core Data Form (Required)**	Attachment Part A
2.	**Table I - General Information**	Attachment B App I
3.	**Signature Page**	Attachment B App I
4.	Pages, tables or attachments from the **Part B Application** , **Part A Application,**[1] or **Commercial Industrial Nonhazardous Waste Storage or Processing Facility Form (INS-0024)**[1] that change as a result of modification	Attachment B App I-XII
5.	**Description of Proposed Application Changes Table**	
6.	Proof of **Payment** receipt. **TCEQ E Pay**	Attachment B App XII

[1] If Part A Application or Form INS-0024 is revised, signature page of the revised form is required. Please note that the adjacent landowner list & map is not required, however it is the responsibility of the permittee to keep the updated list & map in their records. Permittee shall also provide notice in accordance with **30 TAC § 305.69 (b)(1)(B)**

More details can be found at **Class 1ED Modification Webpage**.

Description of Proposed Application Changes		
Category	**Brief Description of Proposed Revision**	**Regulatory Citation applicable for Class 1[1] Modification***
General Permit Provisions	Expiration Date	30 TAC §305.69(k).A(6)
Groundwater Protection	Update Monitor & Recovery Well information	30 TAC §305.69(k).C(2)

*This form is only for Class 1[1] modifications, however applicants can enter Class 1 modification citations if any modifications fall under those types. Select the "other" category from the drop down and provide the applicable citation.
** Submittal of one original hard copy is still required.

Texas Commission on Environmental Quality
Class 1 Permit Modification Form for an IHW Facility

Who Should Use This Form

Use this form to submit a Class 1 permit modification[1] application to the Industrial & Hazardous Waste (IHW) Permits Section. To determine if you need a Class 1 permit modification, review **Title 30, Texas Administrative Code (TAC) Subsection 305.69(k)**.

Submit an original hard copy of this form along with other required documents listed below to Industrial and Hazardous Waste Permits Section MC 130, TCEQ, P.O. Box 13087, Austin, TX 78711-3087. Submit the electronic copy by emailing at **ihwper@tceq.texas.gov**. Submittal of hard copy is still required.

If you have any questions about this form, or need an accessible version of these documents, contact the IHW Permits Section at (512) 239-2335 or by email at **ihwper@tceq.texas.gov**.

Required Attachments

1.	**Core Data Form (Required)**	Attachment Part A
2.	**Table I - General Information**	Attachment B App I
3.	**Signature Page**	Attachment B App I
4.	Pages, tables or attachments from the **Part B Application** or **Part A Application**[2] or **Commercial Industrial Nonhazardous Waste Storage or Processing Facility Form (INS-0024)**[2] that change as a result of modification	Attachment B App I-XII
5.	**Description of Proposed Application Changes Table**	
6.	Proof of **Payment** receipt. **TCEQ E Pay**	Attachment B App XII

[1]This form can be only used to apply for Class 1 permit modifications.
[2] If Part A Application or Form INS-0024 is revised, signature page of the revised form is required. Please note that the adjacent landowner list & map is not required, however it is the responsibility of the applicant to keep the updated list & map in their records. Permittee shall also provide notice in accordance with **30 TAC § 305.69 (b)(1)(B).**
More details can be found at **Class 1 Modification Webpage**.

Description of Proposed Application Changes		
Category	**Brief Description of Proposed Revision**	**Regulatory Citation applicable for Class 1 Modification***
General Permit Provisions	Update of facility personnel, and state and local contacts. Update of general proposed changes. Update of Attachment I-F (Adjacent Property Owners list and map).	30 TAC §305.69(k).A(1)
General Permit Provisions	Updated Attachment II-F (Flood Insurance Rate Map)	30 TAC §305.69(k).A(1)

* This form is only for Class 1 Modifications and it cannot be used for any other modification type. If the category is not listed, applicants can select the "other" category from the drop down and provide the applicable citation. ** Submittal of one original hard copy is still required.

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:	
Customer Name: Air Products LLC	
Facility Name: Air Products LLC	
CN: 602299257	**RN:** 100221324
Permit Number: 50134	**Solid Waste Registration Number:** 30317
Facility Street Address: 1423 Hwy 225, Pasadena, TX 77506	
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:** Industrial Gas Production
What does the facility produce?	☐Chemicals ☐Fuels / lubricants ☐No products ☒Other **If other, enter description:** Industrial Gases

Waste Management Information *(check all that apply)*

What types of wastes are managed?	☒Nonhazardous industrial ☒Hazardous ☐Other **If other, enter description:**
Where does the waste come from?	☐Off-site source ☒On-site source
How is the waste managed?	☐Storage ☐Process / Treatment ☒Disposal ☐Other **If other, enter description:**
What type of units manage the waste?	☐Active ☒Post-Closure **Type and count:** Two (2) surface impoundments closed as landfills
What happens to waste managed at the facility?	☒Transported off-site ☐Disposed on-site ☐Other **If other, enter description:**

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:** Corrective Action Plan for Groundwater
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:**

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

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

Clear Form

Comisión de Calidad Ambiental de Texas

Resumen en Lenguaje Sencillo

Solicitudes de Permisos de Desechos Industriales y Peligrosos

Instrucciones

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

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

Información de la Solicitud

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

Sometido a TCEQ: Introduzca solo el mes y el año

Nombre del Cliente: Air Products LLC

Nombre de la Instalación: Air Products LLC

CN: 602299257	**RN:**100221324
Número de Permiso:50134	**Número de Registro de Desechos Sólidos:** 30317

Dirección de la Instalación: 1423 Hwy 225, Pasadena, 77506

Enlace Web a la Dirección Postal: Ingrese el enlace que permite al público ver la ubicación física de la instalación

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: producción de gas industrial**
¿Qué produce la instalación?	☐Químicos ☐Combustibles / lubricantes ☐Sin productos ☒Otro**: Si es otro, introduzca la descripción: gas industrial**

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:** Introduzca la descripción
¿De dónde provienen los desechos?	☐Fuente externa ☒Fuente interna
¿Cómo se gestionan los desechos?	☐Almacenar ☐Procesar / Tratar ☒Eliminación ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción

¿Qué tipo de unidades gestionan los desechos?	☐ Activo ☒ Postcierre **Teclee y cuente:** Dos (2) embalses superficiales cerrados como vertederos
¿Qué sucede con los desechos gestionados en la instalación?	☒Transportados fuera del sitio ☐Eliminado en el sitio ☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción

Métodos de Control de la Contaminación *(marque todos los que correspondan)*			
¿Cómo evitará la instalación derrames, fugas y liberaciones?	☒Inspecciones de Rutina	☒Sistemas de revestimiento de ingeniería	☒Contención de derrames
	☒Manejo adecuado de desechos	☐Operaciones en edificios cerrados	☒Monitoreo de aguas subterráneas
	☐Otro **Si es otro, introduzca la descripción:** Introduzca la descripción		
¿Cómo limpiará la instalación los derrames, fugas y liberaciones?	☒Suministros de limpieza de derrames	☐Equipos de descontaminación	
	☒Otro **Si es otro, introduzca la descripción:** plan de acción correctiva para el agua subterránea		
¿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:** Introduzca la descripción		

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**.

Introduzca una descripción concisa

PART A

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

Part A

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

General Instructions

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

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

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

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

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

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

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

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

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

5. Fees and Costs

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

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

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

7. Designation of Material as Confidential

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

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

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

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

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

Part II

Procedural Information

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

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

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

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

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

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

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

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

Requirements of Giving Notice of the Application:

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

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

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

3. Bilingual Notice Instructions:

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

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

Bilingual Notice Application Form:

Bilingual notice confirmation for this application:

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

   ☒YES ☐ NO

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

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

   ☒ YES ☐ NO

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

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

   ☐ YES ☐ NO

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

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

☒ YES ☐ NO

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

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

Consideration of the Permit Application by the Commission:

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

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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: **Air Products Pasadena Plant**

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: **30317** EPA I.D. No.: **TXD990757486**

Street Address (If Available): **1423 Highway 225**

City: **Pasadena** State: **TX** Zip Code: **77506**

County: **Harris**

Telephone Number: **(713) 477-6841** Charter Number: **706562523**

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.

Gabriela Lacayo **Air Products and Chemicals, Inc.** **P.O. Box 3326** **Pasadena, TX 77501**	**David Hartsfield, P.G.** **Assistant Vice President, Geology** **WSP USA Inc.** **16414 San Pedro Ave, Suite 425** **San Antonio, TX 78232**

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.

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

Operator Name: **Air Products LLC**

Address: **P.O. Box 3326**

City: **Pasadena**, State: **Texas** Zip Code: **77501**

Telephone Number: **(713) 447-6841** Charter Number: **706562523**

[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
      (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.

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

E. Type of Application Submittal:

Initial _____ or Revision **X** (Renewal)

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	**30317**	**TCEQ**
2.	Wastewater disposal under the Texas Water Code		
3.	Underground injection under the Texas Water Code	**5X2600874**	**TCEQ**
4.	Texas Clean Air Act	**HG0011L**	**TCEQ** (Appendix F)
5.	Texas Uranium Surface Mining & Reclamation Act		
6.	Texas Surface Coal Mining & Reclamation Act		
7.	Hazardous Waste Management program under the Resource Conservation and Recovery Act	**TXD990757486** **HW-50134**	**EPA** **TCEQ**
8.	UIC program under the Safe Drinking Water Act	**5X2600874**	**TCEQ**
9.	TPDES program under the Clean Water Act	**TXR05GG53**	**TCEQ (stormwater)**
10.	PSD program under the Clean Air Act		
11.	Nonattainment program under the Clean Air Act		
12.	National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act		
13.	Ocean dumping permits under the Marine Protection Research and Sanctuaries Act		
14.	Dredge or fill permits under section 404 of the Clean Water Act		
15.	Other relevant environmental permits (Pollution Prevention Planning)	**P03121**	**TCEQ**

*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.

Production and distribution of natural gasses

H. TCEQ Core Data Form

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

See attached Core Data Form

Signature Page

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

Operator Signature: _____ Date: 11/18/25

Name and Official Title (type or print): Enrique Millan - Vice 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.

_____
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 Enrique Millan on this

18 day of November, 2025.

My commission expires of the May day of 4, 2026

_____

Notary Public in and for Harris County, Texas

ANGELIQUE N VASQUEZ
Notary ID #133744215
My Commission Expires
May 4, 2026

Angelique N. Vasquez 832-433-5661

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 602299257		RN 100221324

SECTION II: Customer Information

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

☐ 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:*

AIR PRODUCTS LLC

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0706562523	32002289901	260261004	

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 ☐ Other:
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:

AIR PRODUCTS LLC
1940 Air Products Blvd.

City	State	ZIP	5500
ALLENTOWN	PA	18106	

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

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(610) 481-4911		( ) -

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.*)

AIR PRODUCTS PASADENA PLANT

23. Street Address of the Regulated Entity: *(No PO Boxes)*	1423 HIGHWAY 225							
	City	PASADENA	**State**	TX	**ZIP**	77506	**ZIP + 4**	
24. County	HARRIS							

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

25. Description to Physical Location:					
26. Nearest City			**State**	**Nearest ZIP Code**	
PASADENA			TX	77506	

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:	29.717658		**28. Longitude (W) In Decimal:**	-95.192456	
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)
2813	2865	325120	325192

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

MANUFACTURE OF INDUSTRIAL GASES

34. Mailing Address:	**1423 HIGHWAY 225**							
	City	**PASADENA**	**State**	**TX**	**ZIP**	**77506**	**ZIP + 4**	

35. E-Mail Address:	**Stackm@airproducts.com**

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(864) 238-6200		( ) -

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
				50134
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☒ Storm Water	☒ Title V Air	☐ Tires	☐ Used Oil
	TXR05GG53	HG0011L		
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	RANDALL ROSENGARTEN, P.E.	**41. Title:**	SENIOR ENGINEER

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512) 658-5045		( ) -	RANDY.ROSENGARTEN@WSP.COM

SECTION V: Authorized Signature

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

Company:	Air Products LLC	**Job Title:**	Vice President
Name *(In Print):*	Enrique Millan	**Phone:**	(281) 478 - 3190
Signature:	Enrique Millan	**Date:**	8/19/25

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. **1423 Hwy 225, Pasadena, TX**

2. Detail the access routes from the nearest U.S. or State Highway to the facility. **North side of Hwy 225**

3. Enter the geographical coordinates of the facility:

   Latitude: ____**29**__ deg __**43**___ min ___**3.57**_ sec

   Longitude: __**-95**__ deg ___**11**__ min ___**32.84**_ sec

4. Is the facility located on Indian lands?

   ☐ Yes ☒ No

B. Legal Description of Facility

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

See Attachment B

SIC Codes

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

4-digit SIC Code	Description
2813	**Industrial Gases**

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.

ATTACHMENT B

SITE LEGAL DESCRIPTION

EXHIBIT: PARCEL B

105.659 acres of land, together with all oil, gas and other minerals therein and thereunder, located partly in the William Vince Survey, Abstract 78, Harris County, Texas, and partly in the James Seymour Survey, Abstract 698, Harris County, Texas and described by metes and bounds as follows:

BEGINNING at a 5/8-inch iron rod set at the intersection of the west line of Jackson Road (60.0 feet in width) and the south line of the 100-foot right-of-way for railroad purposes conveyed to Harris County Houston Ship Channel Navigation District by deed dated August 13, 1957 and recorded in Volume 3548, page 635 of the Deed Records of Harris County, Texas;

THENCE, South 0°26'50" East along the west line of Jackson Road at 702.15 feet a 1-inch iron pipe set in the north line of the 150-foot Houston Lighting & Power Company right-of-way described in deed from Houston Deepwater Land Company to Houston Lighting & Power Company dated April 16, 1946 and recorded in Volume 1417, page 180 of the Deed Records of Harris County, Texas, and in all a distance of 852.15 feet to a 1-inch iron pipe set in the south line of the aforementioned Houston Lighting & Power Company 150-foot right-of-way;

THENCE, West along the south line of the aforementioned Houston Lighting & Power Company right-of-way a distance of 1,245.06 feet to a 5/8-inch iron rod;

THENCE, South 0°26'50" East a distance of 1,300.10 feet to a 5/8-inch iron rod set on the north line of the Texas Highway Department Houston-LaPorte Freeway (also known as State Highway 225) right-of-way;

THENCE, South 84°37' West along the north line of the aforementioned Houston-LaPorte Freeway right-of-way at 351.44 feet a 5/8-inch iron rod set on the common line between the William Vince and the James Seymour Surveys, and in all a distance of 553.66 feet to a 5/8-inch iron rod;

THENCE, South 88°54'21" West along the north line of said Houston-LaPorte Freeway right-of-way a distance of 200.56 feet to a 5/8-inch iron rod;

THENCE South 84°37' West along the north line of said Freeway right-of-way a distance of 500.0 feet to a 5/8-inch iron rod set on the east line of a 20-foot wide strip of land conveyed to Texaco Inc. by deed dated October 29, 1969 and recorded in Volume 7807, page 450 of the Deed Records of Harris County, Texas, said point being the most southerly southwest corner of this tract;

THENCE, North 05°23' West along the east line of the aforementioned 20-foot wide strip so conveyed to Texaco Inc., a distance of 170.0 feet to a 5/8-inch iron rod set for corner;

THENCE, South 84°37' West along the north line of said 20-foot wide strip so conveyed to Texaco Inc., a distance of 228.66 feet to a 5/8-inch iron rod set in the east line of the Washburn Tunnel Approach Road (also sometimes known as Red Bluff Road) on a curve to the left;

THENCE, around said curve to the left, whose radius is 1,280 feet, whose central angle is 0°42'17", and whose long chord bears North 12°23'51" West 15.74 feet, a distance of 15.75 feet to a 5/8-inch iron rod set for corner;

95-259-2-4-95

THENCE, South 77°15' West along the aforementioned Washburn Tunnel Approach Road right-of-way a distance of 20.05 feet to a 5/8-inch iron rod set on a curve to the left;

THENCE, along the north line of the Washburn Tunnel Approach Road around said curve to the left, whose radius is 1,260 feet, whose central angle is 50°29'26", and whose long chord bears North 38°04'28" West 1,074.76 feet, a distance of 1,110.34 feet to a 5/8-inch iron rod set on the east line of the 0.624 acre tract described as TRACT ONE in deed to the Houston Chronicle Publishing Company dated July 31, 1969, recorded in Volume 7707, page 193 of the Deed Records of Harris County, Texas;

THENCE, North 0°00'49" East along the east line of said Houston Chronicle Publishing Company 0.624 acre tract at 397.96 feet a 5/8-inch iron rod set in the south line of the extension to west of the aforementioned Houston Lighting & Power Company 150-foot right-of-way (such extension being described in deed from M. Tilford Jones to Houston Lighting & Power Company dated April 17, 1946 and recorded in Volume 1417, page 179 of the Deed Records of Harris County, Texas), and continuing in the same direction across said 150-foot right-of-way in all a distance of 547.96 feet to a 5/8-inch iron rod set in the south line of the 11.311-acre tract described as TRACT TWO in said deed dated July 31, 1969 to the Houston Chronicle Publishing Company, and also being the north line of the said extension to the west of the aforementioned 150-foot Houston Lighting & Power Company right-of-way;

THENCE, East along the south line of said Houston Chronicle Publishing Company 11.311-acre tract and the north lines of the said adjoining segments of said 150-foot Houston Lighting & Power Company right-of-way a distance of 379.56 feet to a 5/8-inch iron rod set at the southeast corner of the aforementioned Houston Chronicle Publishing Company 11.311-acre tract;

THENCE, North 0°03'08" West along the east line of the Houston Chronicle 11.311-acre tract a distance of 703.77 feet to a 5/8-inch iron rod set in the south line of the aforementioned 100-foot railroad right-of-way conveyed to Harris County Houston Ship Channel Navigation District by said aforementioned deed dated August 13, 1957, and being the northeast corner of the said Houston Chronicle Publishing Company 11.311-acre tract and being also the most northerly northwest corner of this tract;

THENCE, South 89°58'06" East along the south line of the aforementioned 100-foot railroad right-of-way, at 361.40 feet a 5/8-inch iron rod set on the west line of a 35-foot wide pipeline easement described in right-of-way deed to Crown Central Transportation Corporation dated May 7, 1940 and recorded in Volume 1156, page 612 of the Deed Records of Harris County, Texas, at 1,444.81 feet crossing the common line between the William Vince and the James Seymour Surveys, at 2,228.13 feet a 5/8-inch iron rod, a point for reference, and in all a distance of 3,028.06 feet to the place of beginning and containing within such boundaries 117.412 acres of land, from which there is hereby EXCEPTED and not conveyed hereby all of that part of the Houston Lighting & Power Company 150-foot wide right-of-way that lies between the west line of Jackson Road and the most westerly west line of the hereinabove described 117.412 acres of land, which part of said 150-foot wide right-of-way is comprised of the FIRST TRACT described in deed from Houston Deepwater Land Company to Houston Lighting & Power Company dated April 16, 1946 and recorded in Volume 1417, page 180 of the Deed Records of Harris County, Texas, and of an easterly portion of the 2.204 acre tract described in deed from M. Tilford Jones to Houston Lighting & Power Company dated April 17, 1946 and recorded in Volume 1417, page 179 of said records, and which part of said 150-foot wide right-of-way excepted herefrom contains a total of 11.753 acres (and which part of said 150-foot wide right-of-way excepted

herefrom is hereinbelow sometimes called the "Excepted Tract"), leaving a net of 105.659 acres of land conveyed by Grantor to Grantee herein; but there is included herein and conveyed to Grantee hereby with respect to the Excepted Tract (i) all of the rights reserved by the grantors in said two deeds dated April 16, 1946 and April 17, 1946 to extend roads and spur tracts across but not along the Excepted Tract, together with such other rights of use and access as may be held by Grantor as to the Excepted Tract (subject, however, to the non-exclusive use of such rights by Grantor to the extent and to the portions of the Excepted Tract hereinafter identified), and (ii) all of the minerals and mineral rights retained by the grantors in said two deeds dated April 16, 1946 and April 17, 1946 in the north one-half (1/2) of the east 1,245.06 feet of the Excepted Tract and in all of the remainder of the Excepted Tract; and there are also included herein and conveyed hereby any adjoining strips of land that may lie between any of the outside boundaries of said 117.412 acres of land as hereinabove shown to be marked on the ground and those lines of highways, roads, easements and tracts stated in the foregoing description to be coincident with such marked lines, it being the intention hereof that Grantee shall acquire hereby all lands to those lines of such highways, roads, easements and tracts as are stated above to be common lines with such marked boundary lines to the end that the lines of the land hereby conveyed and such lines of said highways, roads, easements and tracts shall in any event be common lines.

There are also included herein and covered hereby all rights of use and access and minerals held by Grantor with respect to those segments of the strips of land previously sold by Grantor or Grantor's predecessors in title for use as rights-of-way for railroad, pipeline, electric power line or other utility purposes and that adjoin one another along the most northerly north line of the 117.412 acres of land hereinabove described and that lie between the projection to the north of the center line of Jackson Road and the projection to the north of the most northerly west line of said 117.412 acres.

The conveyance of Parcel B is subject to the following easements, license and lease to the extent only that the same are valid and subsisting and affect Parcel B:

(a) License from Air Products and Chemicals, Inc. to Enserch Corporation created by instrument acknowledged on 26 April 1977 filed for record under County Clerk's File No. F157036 in the Office of the County Clerk of Harris County, Texas.

(b) Easement granted by Air Products and Chemicals, Inc. to Houston Lighting and Power Company by instrument dated 22 February 1973 filed for record under County Clerk's File No. D831421 in the Office of the County Clerk of Harris County, Texas.

(c) Right-of-Way and Easement granted by Audrey Jones Beck and John A. Beck to Industrial Gas Supply Corporation by instrument dated 22 September 1961 recorded in Volume 4526, Page 439 of the Deed Records of Harris County, Texas.

(d) Right-of-Way and Easement granted by Beck Cattle and Land Company to Shell Pipe Line Corporation by instrument dated 25 April 1952 recorded in Volume 2438, Page 547 of the Deed Records of Harris County, Texas.

(e) Easement granted by Air Products and Chemicals, Inc. to Gulf Coast Waste Disposal Authority by instrument dated 9 November 1972 filed for record under County Clerk's File No. D809043 in the Office of the County Clerk of Harris County, Texas.

5-94-1-352

WM. VINCE SURVEY

JAMES SEYMOUR SURVEY

HOUSTON LIGHTING & POWER CO. R/W

SHELL PIPE LINE R/W

P.T.R.A. R.R. 100' R.O.W.

AUDREY JONES BECK AND JOHN A. BECK TO HARRIS COUNTY HOUSTON SHIP CHANNEL NAVIGATION DISTRICT Vol. 3548, Pg. 635 Aug. 13, 1957

HOUSTON CHRONICLE PUBLISHING CO.
11.311 ACRES
Vol. 7707, Page 193
July 31, 1969

AUDREY JONES BECK AND JOHN A. BECK TO AIR PRODUCTS AND CHEMICALS, INC.
48.903 ACRES

SHELL PIPE LINE R/W
UNITED GAS R/W
SHELL PIPE LINE R/W
SHELL OIL CO.

10" Pipe Line - Crown Central Pipe Lines
10" Pipe Line
14" Pipe Line
16" Pipe Line
12" Pipe Line

INDUSTRIAL GAS SUPPLY CO. PIPELINE Vol. 4526, Pg. 439 Sept. 22, 1961

Easement 10' Wide to Shell Pipe Line Corp. Dated April 25, 1952 Vol. 2348, Pg. 547 - Deed Records

24" Pipe Line

HOUSTON LIGHTING & POWER CO.

ROAD

Houston Lighting and Power Company

Houston Deepwater Land Co. to H.L. & P. Co.
April 17, 1946
Vol. 1417, Pg. 179 - Deed Records

HOUSTON LIGHTING & POWER Co.

HOUSTON CHRONICLE PUBLISHING CO.

0.624 ACRES
Vol. 7707, Pg. 193
July 31, 1969

7.465 ACRES

H.L. AND P. REFERENCE LINE

2.144 ACRES

Houston Deepwater Land Co. to H.L. & P. Co.
April 16, 1946 Vol. 1417
Pg. 180 - Deed Records

WASHBURN TUNNEL (EAST - RED BLUFF ROAD) APPROACH ROAD

TATAR STREET

Union Supply

Tropicana Motel

Right Lane Apartments

CROWN CENTRAL PETROLEUM CORP. TRANSPORTATION CORP. 35' Pipeline Easement Vol. 1156, Pg. 612 May 23, 1940

AUDREY JONES BECK AND JOHN A. BECK TO AIR PRODUCTS AND CHEMICALS, INC.
56.756 ACRES

EAST LINE OF W. VINCE SURVEY
WEST LINE OF JAS. SEYMOUR SURVEY
A-78
A-698

AUDREY JONES BECK AND JOHN A. BECK TO CHAMPLIN PETROLEUM COMPANY = 36.145 Ac.

Rayche P.L.G. Tenants 12

JACKSON

HOUSTON LIGHTING & POWER CO. R.O.W.

30' DRAINAGE EASEMENT

TEXACO, INC.
7,562.7 Sq. Ft.
Vol. 7807, Pg. 450
Oct. 29, 1969

TEXACO, INC.

HOUSTON - LA PORTE FREEWAY

STATE HIGHWAY NO. 225

Shell

Letter Co.

Equipment Co.

on road

Brown Tank Farm

NOTE: MONUMENTS SHOWN ARE TEXAS HIGHWAY DEPT. BRONZE DISC SET IN CONCRETE.

ACREAGE

AIR PRODUCTS & CHEMICALS, INC.	105.659
CHAMPLIN PETROLEUM COMPANY	36.145
HOUSTON LIGHTING & POWER CO., INC. R.O.W.	11.753
TOTAL ACRES =	153.557

AUDREY JONES BECK AND JOHN A. BECK

SURVEY MAP OF 153.557 ACRES OF LAND OUT OF WM. VINCE SURVEY AND JAMES SEYMOUR SURVEY HARRIS COUNTY, TEXAS

SCALE 1" = 200'
DATE MARCH 24, 1972
DRAWN BY R.C.A. & G.A.S.
APPROVED:
FILE NO.
DRAWING NO. 72-1-8
SHEET 1 OF 1 SHEETS

J. I. TURNEY & ASSOCIATES, INC.
CONSULTING ENGINEERS
3637 BELLAIRE BLVD. HOUSTON, TEXAS

FIELD BOOK NO. 72-1

PLAT MAP NO. 307788
HARRIS COUNTY SURVEY

III. Wastes and Waste Management

A. Waste Generation and Management Activities

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

☒ Yes ☐ No

If no, skip to question Number 2 below.

If yes, answer the following question.

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

   ☒ Yes ☐ No ☐ Pending

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

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

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

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

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

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

   See Table III-1 Attached

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."
See Table III-2 Attached

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).
   See Table III-2 Attached
   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. **There is no waste disposed of or stored on site. Two former surface impoundments that contained hazardous waste (HW) are in post-closure care. All HW was removed from units prior to closure.**

C. Location of Waste Management Units

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

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

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

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

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

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

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.

D. Flow Diagram/Description

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

The flow diagrams or descriptions should include the following information:

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

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

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

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

Table III-1 – Hazardous Wastes and Management Activities

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Acid spill pit contam. GW[3]	0030116H	D030				X			5650 tons
Effluent impoundment contam.[3] GW	0250116H	K111 K112				X			9531 tons
Total plant effluent WW	0615105H	D030 K11, K112				X			0 tons
Brinks filter / chromium	0080310H	D007				X			Inactive
Chromium oxide catalyst	0120393H	D001 D007				X			Inactive
Diesel waste	0150219H	D001				X			Inactive
DNT[3] debris	0160319H	D030				X			0 tons
DNT sludge	0165519H	D007 D030				X			Inactive
DNT tank cleanout	0167207H	D030				X			Inactive
DNT contam. soil	0170301H	D030				X			0 tons
DNT contam. solvent	0172211H	D030				X			Inactive
DNT contam. water	0175102H	D030				X			Inactive
DNT filters	0180310H	D030				X			Inactive
DNT WW contam. debris	0200319H	K111				X			Inactive
DNT WW contam. soil	0210301H	K111				X			0 tons
DNT WW spent carbon	0220404H	K111				X			Inactive
DNT WW spent carbon contam. debris	0230404H	K111				X			Inactive
DNT WW tank sludge	0232609H	D030 K111				X			Inactive
Lab Packs	0280001H	D001 D002 D004 D005 D006 D007 D008 D009 D010 D011 D018 D030 F001 F002 F003 F004 F005 U105 U106 U221				X			0 tons
Mercury contam. solids	0350117H	D009				X			Inactive
Nitric acid spillage	0385105H	D002				X			Inactive
Precious metals recovery	0450319H	D007				X			Inactive
Reactive nickel catalyst	0485393H	D001				X			Inactive
TDA[3] byproducts, dist. resid.[3]	0530409H	K113 K114 K115				X			Inactive
TDA byproducts contam. debris	0540319H	K113 K114 K115				X			Inactive
TDA contam. debris	0550319H	U221				X			0 tons
TDA contam. soil	0551301H	U221				X			0 tons
TDA product waste	0570219H	U221				X			Inactive

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	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
TDA, liquid waste	0573219H	K113 K114				X			Inactive
TDA WW	0580102H	K112				X			Inactive
TDA WW contam. debris	0590409H	K112				X			Inactive
TDA WW tank sludge	0595319H	K112				X			Inactive
Toluene contam. debris	0600319H	U220				X			Inactive
Toluene contam. soil	0601301H	U220				X			Inactive
Toluene lab waste	0610409H	D001 D009 D018 D030 F002 F005				X			Inactive
Toluene filters	0613310H	D001 U220				X			Inactive
Toluidines liquid waste	0614219H	K113				X			Inactive
Total plant effluent contam. debris	0620409H	K111 K112				X			Inactive
Plant effluent contam. soil	0630301H	K111 K112				X			Inactive
Spent floor sealer	0677210H	D001				X			Inactive
Citrus solvent floor cleaner	0678203H	D001				X			Inactive
Contam. debris	0680319H	D030 K111 K112 K113 K114 K115 U221				X			0 tons
DNT organics WW	0686219H	D002 D026 D030 K111				X			Inactive
Unused expired gas cylinders	0687701H	D001				X			
Toluene	0689219H	F005				X			Inactive
Soil w/ Hg	0690302H	D009				X			Inactive
Heat Transfer Fluid	0695219H	U221				X			0 tons
Acid, mixed WW w/ DNT	0020105H	D002 D030				X			Inactive
Batteries, used, lead-acid	0071309H	D002 D008				X			Inactive
Boiler ash	0072303H	K113 K114 K115				X			Inactive
Containers, contam.	0130308H	U105 U106 U221				X			Inactive
Pyrophoric catalyst	0148393H	D001				X			Inactive
Effluent settling pond	0260512H	K111 K112				X			Inactive
Fluorescent light bulbs w/Hg[3]	0263319H	D009				X			Inactive
Lab waste, TDA	0290409H	D008				X			Inactive
Lead tetracetate	0300316H	D008				X			Inactive
Methanol contam. soil	0360301H	U154				X			Inactive
Methanol/vinyl acetate	0370219H	D001				X			Inactive
Batteries, used, ni-cad	0382309H	D006				X			Inactive
Orthodichlorobenzene	0390219H	U070				X			Inactive
Paint solvent waste	0400211H	D001 D035 F003				X			Inactive
Paint stripping waste	0402319H	D007 D008 D030				X			Inactive
Paste (methanol/polyvinyl	0410212H	D001				X			Inactive

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	Processing[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
acetate)									
PVOH[3] lab contam. debris	0453319H	D002 D004 D008 D011				X			Inactive
PVOH Lab Waste	0456219H	D002 D004 D008 D011				X			Inactive
Raney nickel catalyst	0480393H	D003				X			Inactive
Activated nickel catalyst	0485393H	D003				X			Inactive
Spent naphtha	0510203H	D001 D018 D039 F005				X			Inactive
Sump bottoms w/ TDA & DNT	0525609H	D030 U221				X			Inactive
TDA lab waste	0560409H	U221				X			Inactive
Varsol	0640203H	D001				X			Inactive
WW basin settled bottoms	0660512H	K111 K112				X			Inactive
DNT WW	0190105H	K111				X			Inactive
Catalyst from outage	0703319H	D003				X			0 tons
Organic liquid–vessel cleaning	0699219H	D001				X			Inactive
Residual material – paint lube	0698203H	D001				X			0 tons
Heat transfer fluid	0696219H	D008				X			Inactive

[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.

[3] Abbreviations: "GW" = groundwater, "WW" = wastewater, "contam." = contaminated, DNT = 2,4-dinitrotoluene, TDA = toluene diamine, Hg = mercury, PVOH = polyvinyl alcohol, dist. Resid. = distillation residue.

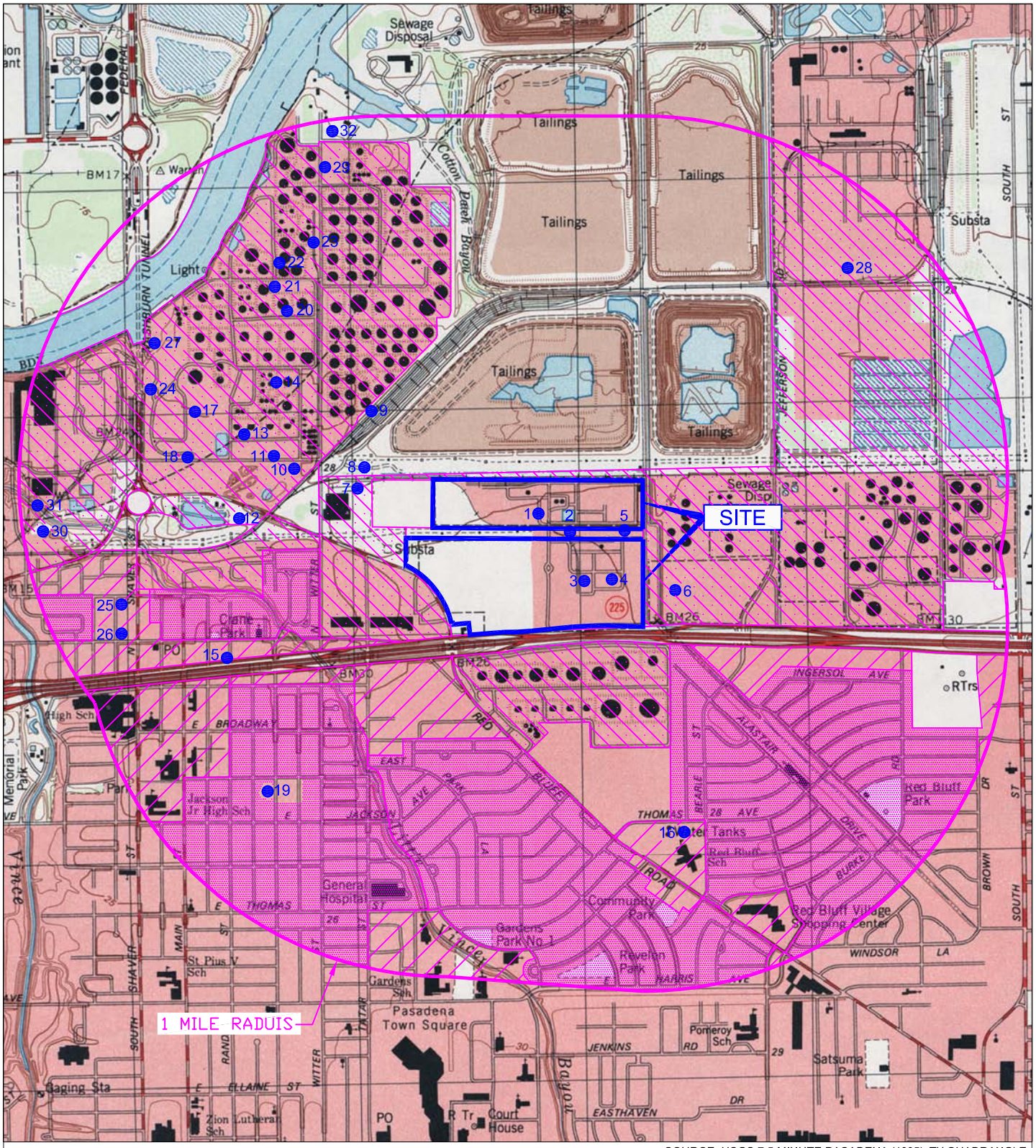
Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
Effluent Treatment Surface Impoundment. Earthen surface impoundment with liner closed in 1988. Plant effluent was routed to pretreatment system.	001	Post-Closure Care	1,000,000 gal.	15	1973
Acid Spill Surface Impoundment. Earthen surface impoundment with a liner used as an emergency holding basin for acid leaks	002	Post-Closure Care	450,000 gal.	15	1973
Container Storage Area. Sloped concrete slab with outside dimensions of 75 feet by 55 feet with a perimeter berm minimum height of 6 inches.	003	Closed	27,500 gal.	32	1980
TDA Byproducts Tank. Vertical storage tank with a closed top constructed of carbon steel with dimensions: 12 feet in diameter and 17 feet in height.	005	Closed	17,500 gal.	37	1975
1520 Boiler. Former Hazardous Waste Incinerator closed on October 29, 1998.	006	Closed	60,000,000 BTUs/hr.	6.5	1992
1560 Boiler. Former Hazardous Waste Incinerator, closed on October 29, 1998.	010	Closed	90,000,000 BTUs/hr.	6.5	1992

[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 C-1

LAND USE AND TOPOGRAPHIC MAP



SOURCE: USGS 7.5 MINUTE PASADENA (1995), TX QUADRANGLE

EXPLANATION

- PROPERTY BOUNDARY
- WATER WELL LOCATION

LAND USE

- INDUSTRIAL
- COMMERCIAL
- RESIDENTIAL
- UNDEVELOPED

TEXAS

QUADRANGLE LOCATION

N

0 1000 2000

FEET

APPROXIMATE SCALE IN FEET

LAND USE AND TOPOGRAPHIC MAP

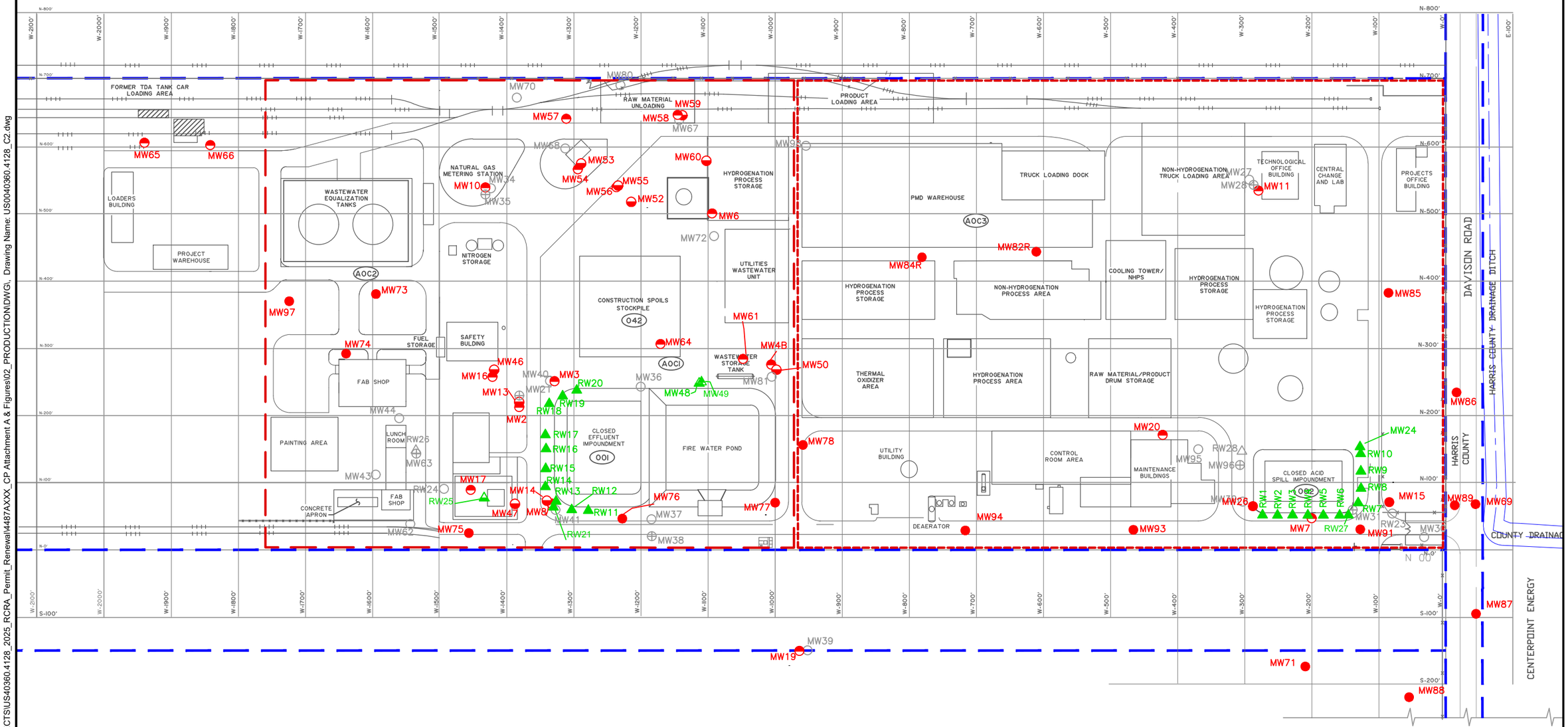
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: BAL	Date: 02/15/12	Project No. 4487
amec		**Attachment C-1**

ATTACHMENT C-2

WASTE MANAGEMENT UNITS, MONITORING WELLS,
RECOVERY WELLS, AND SOIL BORINGS



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL) (NOT CONTOURED)
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL) (NOT CONTOURED)
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER

- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2

0 50 100 150
APPROXIMATE SCALE (FEET)

N

wsp

MONITORING WELLS, RECOVERY WELLS AND SOIL BORINGS

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

Attachment C-2

Plot Date: 06/30/25 - 3:53pm, Plotted by: USAT145973
Drawing Path: Z:\geomatics\Air Products LLC\Pasadena\99_PROJECTS\US40360.4128_2025_RCRA_Permit_Renewal\4487AXXX_CP Attachment A & Figures\02_PRODUCTION\MDWG\, Drawing Name: US0040360.4128_C2.dwg

ATTACHMENT D

PHOTOGRAPHS OF WASTE MANAGEMENT UNITS



Photo 1

NOR UNIT 001
Effluent Impoundment
(Post-Closure Care)



Photo 2

NOR UNIT 002
Acid Spill
Impoundment
(Post-Closure Care)



Photo 3

NOR UNIT 008
Non-haz Storage Bin (Non-Hazardous Regulated) - Active



Photo 4

NOR UNIT 009
Multiple Storage Bins (RCRA Permit Exempt <90 Day Storage) - Active



Photo 4

NOR UNIT 042 Waste Pile - Construction Project Stockpile of Soils (Active)



Photo 5

NOR UNIT 043 Container Storage area; Un-punctured aerosol cans or aerosol can contents (RCRA Permit Exempt <90 Day Storage) - Active

ATTACHMENT E

PROCESS FLOW DIAGRAMS AND DESCRIPTIONS

PROCESS FLOW DESCRIPTIONS

ACID SPILL IMPOUNDMENT CONTAMINATED GROUNDWATER
0030116H

This is contaminated groundwater produced from recovery wells at the closed Acid Spill Impoundment. It is transferred via pipe to Facility 012 prior to off-site transfer via pipeline for treatment and disposal. Small quantities may be collected in metal drums and temporarily stored in Facility 029 prior to off-site treatment.

EFFLUENT IMPOUNDMENT CONTAMINATED GROUNDWATER
0250116H

This is contaminated groundwater produced from recovery wells at the closed Effluent Impoundment. It is transferred via pipe to Facility 012 prior to off-site transfer via pipeline for treatment and disposal. Small quantities may be collected in metal drums and temporarily stored in Facility 029 prior to off-site treatment.

TOTAL PLANT EFFLUENT WASTEWATER
0615105H

This waste stream is wastewater generated as a result of all other facility wastewaters commingling in Facility 012 prior to transfer via pipe for off-site treatment and disposal. Small quantities may be collected in metal drums and temporarily stored in Facility 029 prior to off-site treatment and disposal.

COPPER-ZINC OXIDE CATALYST
0043393H (INACTIVE)

Desulfurizer catalyst used for the removal of sulfur compounds in natural gas supply used in the Steam Methane Reformer unit. The spent catalyst was generated about every 3 to 5 years and was sent off site for metals reclamation. Drums of used catalyst were stored in Facility 029 prior to off-site reclaim/ disposal. No longer generated.

DIESEL WASTE
0150219H (INACTIVE)

This waste diesel fuel was generated whenever a fuel tank becomes contaminated with water and the fuel became unusable. It was collected in metal drums and stored in Facility 029 prior to off-site processing. No longer generated.

DNT CONTAMINATED DEBRIS
0160319H (INACTIVE)

This waste was material that had incidentally come into contact and become contaminated with dinitrotoluene during the processing or handling of DNT. The material was collected in metal drums at satellite accumulation points within the former DNT process area prior to transfer and accumulation in Facility 029, prior to off-site treatment or disposal. No longer generated.

DNT CONTAMINATED SOILS
0170301H (INACTIVE)

This was soil that had been in contact with spilled or released waste dinitrotoluene. It was placed in Facility 029 prior to off-site treatment or disposal. No longer generated.

LAB PACKS
0280001H (INACTIVE)

This waste stream contained discarded commercial chemicals used in the lab for analytical purposes. The materials were packed in fiber or metal containers and transferred off site for treatment and/or disposal. The waste may also have been collected in metal drums and stored in Facility 029 prior to off-site treatment and/or disposal. No longer generated.

MERCURY CONTAMINATED SOLIDS
0350117H (INACTIVE)

This waste stream contained materials contaminated with mercury used in the lab for analytical purposes. The materials were packed in metal containers and transferred off-site for treatment and/or disposal. The waste may also have been collected in metal drums and stored in Facility 029 prior to off-site treatment and/or disposal. No longer generated.

REACTIVE NICKEL CATALYST
0485393H (INACTIVE)

This waste was unused discarded reactive catalyst. It was collected in metal drums and stored in Facility 029 prior to off-site reclaim. No longer generated.

TDA BYPRODUCTS CONTAMINATED DEBRIS
0540319H (INACTIVE)

This waste was material that had incidentally come into contact and became contaminated with TDA byproducts during the handling or loading of TDA byproducts. The material was collected and transferred to Facility 029 prior to off-site treatment or disposal. No longer generated.

TDA CONTAMINATED DEBRIS
0550319H (INACTIVE)

This waste was material that had incidentally come into contact and became contaminated with TDA during the handling or loading of TDA. The material was collected and transferred to Facility 029 prior to off-site treatment or disposal. No longer generated.

TDA CONTAMINATED SOILS
0551301H (INACTIVE)

This was soil that had been in contact with spilled or released waste toluenediamine. The material was collected and transferred to Facility 029 prior to off-site treatment or disposal. No longer generated.

TDA WASTEWATER TANK SLUDGE

0595319H (INACTIVE)

This material was the sludge generated when Facility 011 was cleaned. The sludge was containerized and transferred to Facility 029 prior to off-site treatment or disposal. No longer generated.

TOLUENE LAB WASTE
0610409H (INACTIVE)

This was waste toluene generated by the laboratory for analysis purposes. It was used as a solvent in quality control analysis of dinitrotoluene. It was collected in a poly or metal drum and stored in Facility 029 prior to off-site treatment. No longer generated.

TOTAL PLANT EFFLUENT CONTAMINATED DEBRIS
0620409H (INACTIVE)

This waste was material that had incidentally come into contact and became contaminated with total plant effluent wastewater during the processing or handling of the wastewater. The material was collected in metal drums at satellite accumulation points within the process area for transfer and accumulation in Facility 029, prior to off-site treatment or disposal. No longer generated.

TOTAL PLANT EFFLUENT CONTAMINATED SOILS
0630301H (INACTIVE)

This was total plant effluent wastewater that had been spilled or released and had mixed with soils. It was collected and placed in Facility 029 prior to off-site treatment or disposal. No longer generated.

SPENT FLOOR SEALER
0677210H (INACTIVE)

This waste stream was for disposal of spent material that was used for sealing concrete surfaces throughout the production area of the plant. No longer generated.

CITRUS SOLV FLOOR CLEANER
0678203H (INACTIVE)

This waste stream was a one-time disposal of spent material used for stripping floors in office buildings when cleaning and rewaxing floors for general maintenance. No longer generated.

CONTAMINATED DEBRIS

0680319H (INACTIVE)

This stream was contaminated debris, rock, wood, sand, clothing, PPE, insulation, hoses, tubing, filters, plastic, containers, metal and other materials contaminated with DNT, TDA, oligimers of TDA and Toluidines which could not be easily decontaminated. This spent material could be stored in storage containers in Facility 029 prior to shipment off site for disposal and treatment. No longer generated.

UNUSED EXPIRED GAS CYLINDERS
0687701H (INACTIVE)

This waste stream was for used or expired cylinders of compressed gases that were considered ignitable D001. The cylinders were stored in Facility 029 prior to shipment off-site for disposal/treatment. No longer generated.

ACID, MIXED
0020105H (INACTIVE)

This waste stream was primarily wastewater containing small amounts of nitric and sulfuric acid generated in the DNT and nitric acid production facilities. It was transferred from process equipment via pipe to the carbon adsorption unit for pretreatment, then to Total Plant Tank (Facility 012), prior to off-site transfer via pipeline for treatment and disposal. Some waste may have been collected in metal drums and stored in Container Storage Area (Facility 003) prior to off-site treatment. No longer generated.

USED LEAD-ACID BATTERIES
0071309H (INACTIVE)

This waste stream was produced as a result of the replacement of spent motor vehicle batteries. They were placed on pallets and collected in Collection area for used batteries (Facility 039), prior to off-site recycling. They were also collected in lined metal drums and stored in Facility 003 prior to off-site recycling. No longer generated.

BOILER ASH
0072303H (INACTIVE)

This waste stream was generated in the fire boxes of Facilities 006 and 010, the 15.20 and 15.60 Boilers as a result of burning waste 0530409H as a supplemental fuel. This waste stream is no longer generated as a result of RCRA closure of the two facilities in 1998. When this waste was being generated it was collected in metal drums and stored in Facility 003 prior to off-site disposal.

BRINKS FILTER/CHROMIUM

0080310H (INACTIVE)

This waste stream was filter materials and residues containing precious metals. It was generated in the nitric acid plant and captured platinum from catalysts. It was a dry filter that may have been wrapped in plastic and crated in a wooden box, or residues were placed in metal drums. It was transported to Facility 003 prior to off-site precious metals recovery and reuse of filter. No longer generated.

CHROMIUM OXIDE CATALYST (SCR)
0120393H (INACTIVE)

This waste stream was spent selective nitrogen oxides reducing catalyst used in the abatement of air emissions from the DNT wastewater carbon adsorption unit. Once the catalyst was spent, it was removed from the process unit, collected in metal drums, and stored in Facility 003 prior to off-site reclamation or disposal. No longer generated.

CHEMICALLY CONTAMINATED CONTAINERS
0130308H (INACTIVE)

This inactive waste stream was containers that contained either dinitrotoluene or toluenediamine intended to be discarded without decontamination. The empty containers were transferred and accumulated in Hazardous Waste Bins (Facility 029) prior to off-site treatment or disposal. No longer generated.

PYROPHORIC CATALYST
0148393H (INACTIVE)

This inactive stream was changed to a Class I was due to recharacterization of the waste stream. No longer generated.

DNT CONTAMINATED SLUDGE
0165519H (INACTIVE)

This waste stream was water and associated sludge generated as a result of cleaning a cooling tower in the DNT unit. The material was characteristic for Chromium and DNT, and was generated on an infrequent basis. Spent material was stored in Facility 029 prior to sending off site for disposal. No longer generated.

DNT CONTAMINATED TANK CLEANOUT
0167207H (INACTIVE)

This stream consisted of DNT and water with contaminants from the DNT product tank clean outs. The spent material was stored in Facility 029 prior to shipping off site for disposal. No longer generated.

DNT CONTAMINATED SOLVENT

0172211H (INACTIVE)

This waste stream was spent solvent contaminated with dinitrotoluene and was used in metal parts degreasing during maintenance activities. The spent material was collected in Parts Cleaner (Facility 013) prior to off-site energy recovery, or collected in metal drums and transferred to Facility 003 prior to off-site energy recovery. No longer generated.

DNT CONTAMINATED WATER
0175102H (INACTIVE)

This waste stream was primarily wastewater or rain water containing small amounts of dinitrotoluene generated on the DNT process unit or loading containment pads and collected in, DNT Wastewater "Red Water" Sump (Facility 020), DNT Tank Car Loading Area (Facility 022), DNT Truck Loading Area (Facility 023), or DNT Spill Off Pond (Facility 024). From these area sumps, it was transferred via pipe to the carbon adsorption unit for pretreatment, then to Facility 012 prior to off-site transfer via pipeline for treatment and disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment. No longer generated.

DNT FILTERS
0180310H (INACTIVE)

This waste was used process filter elements from the dinitrotoluene unit. The filters were contaminated with residual dinitrotoluene. The material was collected in metal drums at satellite accumulation points within the DNT process area prior to transfer and accumulation in Facility 029, prior to off-site treatment or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

DNT WASTEWATER
0190105H (INACTIVE)

This waste stream was product wash water from the dinitrotoluene process. It was transported via pipe to a carbon adsorption unit for pretreatment, then to Facility 012, prior to off-site transfer via pipeline for treatment. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment. No longer generated.

DNT WASTEWATER CONTAMINATED DEBRIS
0200319H (INACTIVE)

This waste was material that had incidentally come into contact and contaminated with dinitrotoluene wash water during the washing process or handling of DNT wash water. The material may have been collected in metal drums at satellite accumulation points within the DNT process area prior to transfer and accumulation in Facility 029, prior to off-site treatment or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

DNT WASTEWATER CONTAMINATED SOILS
0210301H (INACTIVE)

This was dinitrotoluene wash water that had been spilled or released and had mixed with soils. It may have been placed in Facility 029 prior to off-site treatment or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

DNT WASTEWATER SPENT CARBON
0220404H (INACTIVE)

This waste was generated when DNT wastewater was pretreated in a carbon adsorption unit. It was stored in Spent Carbon Pulse Tank (Facility 014) and then pulsed into Spent Carbon Storage Tank (Facility 015) prior to being transported off site in tank trucks for off-site regeneration. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site regeneration or treatment. No longer generated.

DNT WASTEWATER SPENT CARBON CONTAMINATED DEBRIS
0230404H (INACTIVE)

This waste was material that had incidentally come into contact and contaminated with dinitrotoluene wastewater carbon during the carbon adsorption process or handling of DNT wastewater spent carbon. Some waste may have been collected in metal drums at satellite accumulation points within the Carbon Adsorption Unit prior to transfer and accumulation in Facility 003, prior to off-site treatment or disposal. No longer generated.

DNT WASTEWATER TANK SLUDGE
0232609H (INACTIVE)

The waste stream consisted of an organic sludge accumulated on the bottom of the DNT area wastewater tank. The waste stream was added to the NOR, but the waste stream has not been generated.

EFFLUENT SETTLING POND
0260512H (INACTIVE)

These were settling basin solids previously generated when Effluent Impoundment (Facility 001) was in service. This waste is no longer generated since Facility 001 is closed.

SPENT FLUORESCENT LIGHT BULBS
0263319H (INACTIVE)

This waste stream was used fluorescent light bulbs which were collected in specially designed cardboard boxes used to transport the bulbs without breakage. If damaged, they were collected in metal drums and stored in Facility 003 prior to off-site disposal. No longer generated.

TDA LAB WASTE
0290409H (INACTIVE)

This waste stream consisted of lab waste/materials contaminated with TDA byproducts. The waste was collected in metal drums and stored in Facility 003 prior to off-site treatment and/or disposal. No longer generated.

LEAD TETRACETATE
0300316H (INACTIVE)

This waste stream contained discarded analytical reagents in the Polyvinyl Alcohol (PVOH) Plant. The materials were packed in fiber or metal containers and transferred off site for treatment and/or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment and/or disposal. No longer generated.

METHANOL CONTAMINATED SOILS
0360301H (INACTIVE)

This was waste methanol that had been spilled or released and had mixed with soils. It was placed in Facility 029 prior to off-site treatment or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

METHANOL/VINYL ACETATE
0370219H (INACTIVE)

This waste was discarded methanol and vinyl acetate from the PVOH process that had been deemed unusable. It was placed in metal drums and stored in Facility 003 prior to off-site treatment. No longer generated.

USED NICKEL-CADMIUM BATTERIES
0382309H (INACTIVE)

This waste was spent nickel cadmium rechargeable batteries. They were placed in metal drums and collected in the Collection area for used batteries (Facility 039) prior to off-site recycling. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site recycling. No longer generated.

NITRIC ACID SPILLAGE
0385105H (INACTIVE)

This waste was generated when methanol was spilled during loading/unloading of tank trucks at the Nitric Unloading Bay (Facility 016). The material was collected in the Nitric Acid Loading Sump (Facility 017) and then transferred via pipe to Facility 012 prior to transfer via pipe for off-site treatment and disposal. Some waste may have been be collected in drums made of compatible materials and stored in Facility 003 prior to off-site treatment and disposal. No longer generated.

ORTHODICHLOROBENZENE
0390219H (INACTIVE)

This waste was stored in Facility 003 prior to off-site disposal. No longer generated.

PAINT SOLVENT WASTE
0400211H (INACTIVE)

This waste was used to thin paints and to clean painting equipment. It was generated wherever painting activities took place. It was collected in metal drums and stored in Facility 003 prior to off-site treatment or recycling. No longer generated.

PAINT STRIPPING WASTE
0402319H (INACTIVE)

This waste stream is inactive due to its new classification as a Universal Waste stream.

PASTE (MeOH/PVA)
0410212H (INACTIVE)

This was a mixture of polyvinyl acetate in a methanol solution. It was generated from the unit as remains of an unused process sample or discarded product. It was collected and stored in Facility 003 prior to off-site treatment. No longer generated.

PRECIOUS METALS RECOVERY MATERIAL
0450319H (INACTIVE)

This material which may have had quantities of precious metals present for reclamation was generated from the nitric acid unit. It also may have contained chromium. It was collected in metal drums and stored in Facility 003 prior to off-site reclamation. No longer generated.

PVOH LAB CONTAMINATED DEBRIS
0453319H (INACTIVE)

This waste stream contained materials contaminated with reagents used in the lab for analytical purposes. The waste was collected in metal drums and stored in Facility 003 prior to off-site treatment and/or disposal. No longer generated.

PVOH LAB WASTE
0456219H (INACTIVE)

This waste stream consisted of discarded chemical reagents used in the PVOH laboratory for analysis purposes. It was collected in metal drums and stored in Facility 003 prior to off-site treatment and/or disposal. No longer generated.

RANEY NICKEL CATALYST
0480393H (INACTIVE)

This waste was unused discarded reactive catalyst. It was collected in metal drums and stored in Facility 003 prior to off-site reclaim. No longer generated.

SPENT NAPHTHA
0510203H (INACTIVE)

This waste stream was spent naphtha with a low flash point used in metal parts cleaners degreasing during maintenance activities. The spent material was collected in Facility 013 and

the PVOH Maintenance Solvent Degreaser (Facility 028). The low flash point material is no longer used and the waste is no longer generated.

TDA & DNT MIXTURE
0525609H (INACTIVE)

This waste was a discarded mixture of toluenediamine and dinitrotoluene which could not be returned to the process for reuse. It was collected in metal drums and stored in Facility 003 prior to off-site treatment. No longer generated.

TDA BYPRODUCTS, TDA DISTILLATION RESIDUES
0530409H (INACTIVE)

This waste stream contained byproducts from the distillation of toluenediamine. The material was transferred via pipe from distillation columns to the TDA Byproducts Tank (Facility 005), then via pipe to the loading area where is was loaded into tank trucks prior to off-site treatment or energy recovery. Some waste may have been collected in metal drums as a result of spills or unused samples and stored in Facility 003 prior to off-site treatment. No longer generated.

TDA LAB WASTE
0560409H (INACTIVE)

This waste stream contained discarded sample containers and lab debris in TDA product analysis. The waste was collected in metal drums and stored in Facility 003 prior to off-site treatment and/or disposal. No longer generated.

TDA PRODUCT WASTE
0570219H (INACTIVE)

This waste stream was discarded commercial toluenediamine product that could not be sold or reused in the process. It was collected in metal drums and stored in Facility 003 prior to off-site treatment. No longer generated.

CRUDE OTD
0573219H (INACTIVE)

This waste was discarded ortho-toluenediamine that had not been distilled to remove impurities. It was collected in metal drums and stored in Facility 003 prior to off-site treatment. No longer generated.

TDA WASTEWATER
0580102H (INACTIVE)

This waste stream was wastewater from the drying column in the TDA process. It was transferred via pipe to TDA Wastewater Tank (Facility 011), then via pipe to Facility 012 prior to transfer via pipe for off-site treatment and disposal. Some waste may have been collected in

metal drums and stored in Facility 003 prior to off-site treatment and disposal. No longer generated.

TDA WASTEWATER CONTAMINATED DEBRIS
0590409H (INACTIVE)

This waste was material that had incidentally come into contact and contaminated with TDA wastewater during the handling or release of the wastewater. The material was collected in metal drums at satellite accumulation points within the TDA process area or TDA wastewater tank area prior to transfer and accumulation in Facility 029, prior to off-site treatment or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

TOLUENE CONTAMINATED DEBRIS
0600319H (INACTIVE)

This waste was material that had incidentally come into contact and became contaminated with toluene during the processing or handling of toluene. The material was collected in metal drums at satellite accumulation points within the DNT process area or toluene tank prior to transfer and accumulation in Facility 029, prior to off-site treatment or disposal. Some waste may have been collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

TOLUENE CONTAMINATED SOILS
0601301H (INACTIVE)

This was soil that had been in contact with dinitrotoluene wash water that had been spilled or released. It was either placed in Facility 029 prior to off-site treatment or disposal, or collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

TOLUENE FILTERS
0613310H (INACTIVE)

This waste was filter elements used in the filtration of toluene in the process. The filters had been contaminated with residual toluene. The waste was collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

TOLUIDINES DRAW
0614219H (INACTIVE)

This waste stream was condensed liquid light ends from the purification of Toluendiamine (TDA) in the production of TDA via the hydrogenation of Dinitrotoluene (DNT). The spent material was stored in drums in Facility 003 prior to off-site treatment and disposal. No longer generated.

VARSOL
0640203H (INACTIVE)

Varsol is a petroleum distillate. It is no longer generated.

WASTEWATER BASIN SETTLED BOTTOMS
0660512H (INACTIVE)

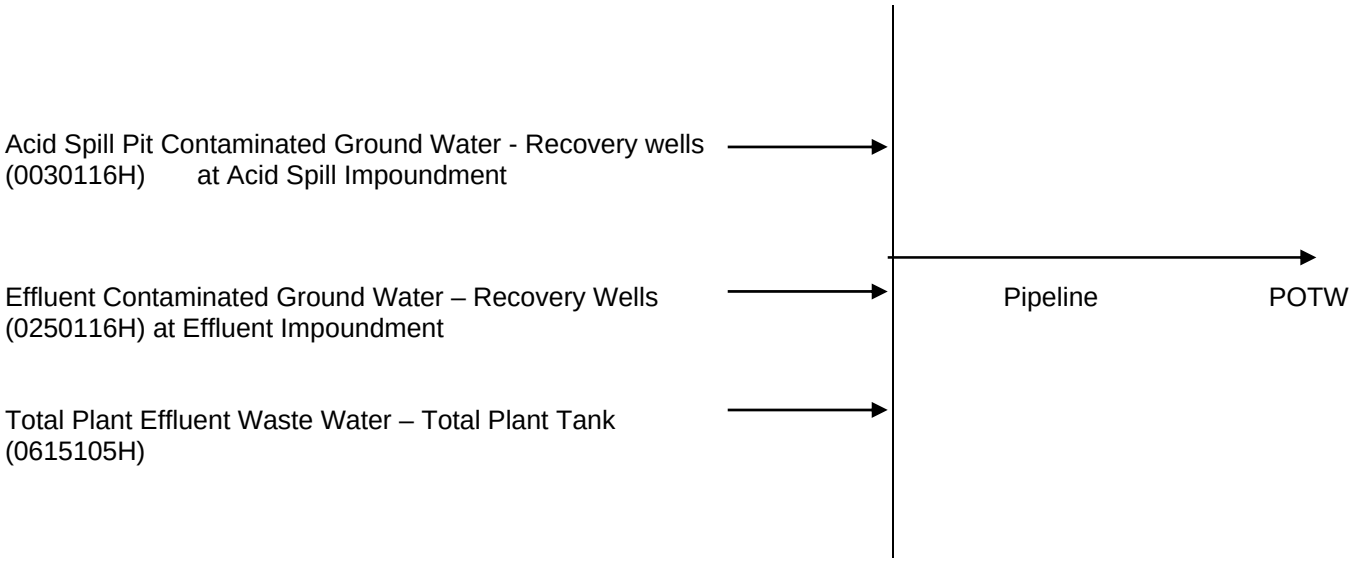
This waste was generated when Facility 012 was cleaned. The sludge was transferred to Facility 029 prior to off-site treatment or disposal, or collected in metal drums and stored in Facility 003 prior to off-site treatment or disposal. No longer generated.

DNT ORGANICS WASTEWATER
0686219H (INACTIVE)

This waste stream was added to the NOR but was not utilized. This stream would have been characteristic for DNT (D030). Spent organics were to be stored in containers in Facility 029 prior to shipment off site for disposal and treatment.

Process Flow Diagrams

(For those wastes presented in Table III-I)
(Processes Described in Detail in Waste Descriptions and Management)



Process Flow Diagrams

(For those wastes presented in Table III-I)
(Processes Described in Detail in Waste Descriptions and Management)

Acid, Mixed - DNT Unit waste water system (0020105H)	No Longer Generated
Copper-Zinc Oxide Catalyst (0043393H)	No Longer Generated
Batteries, Used, Lead-Acid - Vehicles (0071309H)	No Longer Generated
Boiler Ash (0072303H)	No Longer Generated
Brinks Filter/Chromium – Nitric Acid Unit (0080310H)	No Longer Generated
Chromium Oxide Catalyst – DNT Carbon Adsorption Unit (0120393H)	No Longer Generated
Containers, Chemically Contaminated (0130308H)	No Longer Generated
Pyrophoric Catalyst (0148393H)	No Longer Generated
Diesel Waste (0150219H)	No Longer Generated
DNT Contaminated Debris (0160319H)	No Longer Generated
DNT Contaminated Sludge – DNT Unit (0165519H)	No Longer Generated
DNT Contaminated Tank Cleanout – DNT Product Tanks (0167207H)	No Longer Generated

Process Flow Diagrams

(For those wastes presented in Table III-I)
(Processes Described in Detail in Waste Descriptions and Management)

DNT Contaminated Soils (0170301H)	No Longer Generated
DNT Contaminated Solvent – Parts Washer (0172211H)	No Longer Generated
DNT Contaminated Water – DNT Unit Containment Pads (0175102H)	No Longer Generated
DNT Filters – DNT Unit (0180310H)	No Longer Generated
DNT Wastewater – DNT Unit (0190105H)	No Longer Generated
DNT Wastewater Contaminated Debris – DNT Unit (0200319H)	No Longer Generated
DNT Wastewater Contaminated Soils – DNT Unit (0210301H)	No Longer Generated
DNT Wastewater Spent Carbon – DNT Unit (0220404H)	No Longer Generated
DNT Wastewater Spent Carbon Contam. Debris – DNT Unit (0230404H)	No Longer Generated
DNT Wastewater Tank Sludge – DNT Wastewater Tank (0232609H)	No Longer Generated
Effluent Settling Pond (0260512H)	No Longer Generated
Fluorescent Light Bulbs, Spent – Office Buildings (0263319H)	No Longer Generated

Process Flow Diagrams

(For those wastes presented in Table III-I)
(Processes Described in Detail in Waste Descriptions and Management)

Lab Packs (0280001H)	No Longer Generated
Lab Waste, TDA – Laboratory (0290409H)	No Longer Generated
Lead Tetracetate (0300316H)	No Longer Generated
Mercury Contaminated Solids (0350117H)	No Longer Generated
Methanol Contaminated Soils (0360301H)	No Longer Generated
Methanol/Vinyl Acetate (0370219H)	No Longer Generated
Batteries, Used, Nickel-Cadmium – Electronic Devices (0382309H)	No Longer Generated
Nitric Acid Spillage – Nitric Acid Unloading Pad (0385105H)	No Longer Generated
Orthodichlorobenzene – Laboratory (0390219H)	No Longer Generated
Paint Solvent Waste – Painting Clean up (0400211H)	No Longer Generated
Paint Stripping Waste (0402319H)	No Longer Generated
Paste (Methanol/Polyvinyl acetate) (0410212H)	No Longer Generated

Process Flow Diagrams

(For those wastes presented in Table III-I)
(Processes Described in Detail in Waste Descriptions and Management)

Precious Metals Recovery Material – Nitric Unit (0450319H)	No Longer Generated
PVOH Lab Contaminated Debris 0453319H	No Longer Generated
PVOH Lab Waste (0456219H)	No Longer Generated
Raney Nickel Catalyst – TDA Unit (0480393H)	No Longer Generated
Reactive Nickel Catalyst (0485393H)	No Longer Generated
Spent Naphtha (0510203H)	No Longer Generated
TDA & DNT Mixture TDA Unit (0525609H)	No Longer Generated
TDA By-Products, TDA Dist. Residue – TDA Unit – Tank (0530409H)	No Longer Generated
TDA By-Products Contaminated Debris (0540319H)	No Longer Generated
TDA Contaminated Debris (0550319H)	No Longer Generated
TDA Contaminated Soils (0551301H)	No Longer Generated
TDA Lab Waste – Laboratory TDA Unit (0560409H)	No Longer Generated
TDA Product Waste – TDA Unit	No Longer Generated

(0570219H)	
Ortho-toluenediamine, Crude – TDA Unit (0573219H)	No Longer Generated
TDA Wastewater – TDA Unit (0580102H)	No Longer Generated
TDA Wastewater Contaminated Debris - TDA Unit (0590409H)	No Longer Generated
TDA Waste Water Tank Sludge (0595319H)	No Longer Generated
Toluene Contaminated Debris – DNT Unit (0600319H)	No Longer Generated
Toluene Contaminated Soils – Spills DNT Unit (0601301H)	No Longer Generated
Toluene Lab Waste (0610409H)	No Longer Generated
Toluene Filters – DNT Unit (0613310H)	No Longer Generated
Toluidines Draw – TDA Unit (0614219H)	No Longer Generated
Total Plant Effluent Contaminated Debris (0620409H)	No Longer Generated
Total Plant Effluent Contaminated Soils (0630301H)	No Longer Generated
Varsol (0640203H)	No Longer Generated

Process Flow Diagrams

(For those wastes presented in Table III-I)
(Processes Described in Detail in Waste Descriptions and Management)

Wastewater Basin Settled Bottoms – Sludge - Total Plant Effluent (0660512H)	No Longer Generated
Spent Floor Sealer (0677210H)	No Longer Generated
Citrus Solv Floor Cleaner (0678203H)	No Longer Generated
Contaminated Debris (0680319H)	No Longer Generated
DNT Organics Wastewater – DNT Unit (0686219H)	No Longer Generated
Unused Expired Gas Cylinders (0687701H)	No Longer Generated

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	
I.F.	Active Air Permits	F	X	

APPENDIX F

Active Air Permits

Program	ID Type	ID Number	ID Status
Air Emissions Inventory	Account Number	HG0011L	Active
Air New Source Permits	Account Number	HG0011L	Active
Air New Source Permits	AFS Num	4820100176	Active
Air New Source Permits	EPA Permit	PSDTX615	Active
Air New Source Permits	EPA Permit	PSDTX771	Active
Air New Source Permits	Permit	1499B	Active
Air New Source Permits	Permit	27773	Active
Air New Source Permits	Permit	7937	Active
Air New Source Permits	Registration	10780	Active
Air New Source Permits	Registration	110952	Active
Air New Source Permits	Registration	110953	Active
Air New Source Permits	Registration	110954	Active
Air New Source Permits	Registration	110955	Active
Air New Source Permits	Registration	1372	Active
Air New Source Permits	Registration	179359	Active
Air New Source Permits	Registration	24943	Active
Air New Source Permits	Registration	32591	Active
Air New Source Permits	Registration	81486	Active
Air Operating Permits	Account Number	HG0011L	Active
Air Operating Permits	Permit	2309	Active

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.htmlc

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.

Appendix I – General Information

I. General Information Responses

Paragraph	Response
a	Table I included in Appendix I
b	Core Data Form submitted with and attached to Part A
c	Signature page included in Appendix I
d	Interim Status Land Disposal Unit Certification – **Not Applicable**
e	Adjacent Landowner Map and List included in Appendix I

TABLE 1 - General Information

Table I: General Information

A. Applicant: Facility Operator

Name[1]	Air Products LLC
Address[2]	1423 Highway 225
City, State[2]	Pasadena, Texas
Zip Code[2]	77506
Telephone Number	610-481-4911
Alternate Telephone Number	864-238-6200
TCEQ Solid Waste Registration No.	30317
EPA I.D. No.	TXD990757486
Permit No.	HW-50134
County	Harris
Regulated Entity Name	AIR PRODUCTS PASADENA PLANT
Regulated Entity Reference Number (RN)	100221324
Customer Name[2]	AIR PRODUCTS LLC
Customer Reference Number:	602299257
Charter Number[3]	706562523
Previous or Former Names of the Facility (if applicable)	

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

☑ Same as Facility Operator?

Name	
Address	
City, State	
Zip Code	
Telephone Number	
Alternate Telephone Number	

C. Facility Contact

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

Name, Title:	M. V. (Renie) Stack, Environmental Specialist
Address	P.O. Box 3326 Mail Code: US601
City, State:	Pasadena, TX
Zip Code	77501
Telephone Number	864-238-6200
Alternate Telephone Number	
E-mail	[redacted]

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

Name, Title:	Brent Koller, Environmental Engineer
Address	1940 Air Products Blvd.
City, State:	Allentown, PA
Zip Code	18195
Telephone Number	610-481-4605
Alternate Telephone Number	
E-mail	[redacted]

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

Name, Title:	CT Corporation System
Address	1999 Bryan St., Ste. 900
City, State:	Dallas, TX
Zip Code	75201

3. Individual responsible for causing notice to be published:

Name:	David Hartsfield
Address	16414 San Pedro Ave, Suite 425
City, State:	San Antonio, TX
Zip Code	78232
Telephone Number	210-241-9852
Alternate Telephone Number	
E-mail	[redacted]

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

Name	Pasadena Public Library
Address	1201 Jeff Ginn Memorial Drive
City, State	Pasadena, Texas
Zip Code	77506

D. Application Type and Facility Status

1. Application Type

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

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

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

4. Facility Status. Check all that apply

☐ Proposed	☑ On-Site
☑ Existing	☐ Off-site
	☐ Commercial
	☐ Recycle
	☑ Land Disposal
	☐ Areal or capacity expansion
	☑ Compliance plan

5. Is the facility within the Coastal Management Program boundary? Yes

6. Description of Application Changes

Complete Table I.1 - Description of Proposed Application Changes

Note: List all changes requested in Table. Unlisted requests risk remaining unaddressed or possibly denied if brought to the permit application reviewer's attention at a later time. See Appendix I, Table I.1-Description of Proposed Application Changes

7. Total acreage of the facility being permitted: 75.2401

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

River Segment	1007
River Basin	San Jacinto

E. Facility Siting Summary:

Is the facility located or proposed to be located:

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

F. Wastewater and Stormwater Disposition

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

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

☑ Yes

TCEQ Permit No.

TDPES Permit No. 0002382

☐ No

Date TCEQ discharge permit application filed:

Date TPDES discharge application filed:

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator

Name:	Carol Alverado (Senate Dist. 6), Room 1E.9
Address	P.O. Box 12068 Capitol Station ph. (512) 463-0106
City, State:	Austin, Texas [redacted]
Zip Code:	78711

State Representative

Name:	Mary Ann Perez (House Dist. 144), Room 1N.7
Address	P.O. Box 2910 ph. (512) 463-0460
City, State:	Austin, Texas [redacted]
Zip Code	78768

Local Officials List [30 TAC 39]

Mayor

Name:	Thomas Schoenbein ph. 713-475-5545
Address	1149 Ellsworth Dr. [redacted]
City, State:	Pasadena, TX
Zip Code	77506

Local Health Authority

Name:	Kathy Perez-Ashton, Director Health Department
Address	1149 Ellsworth Dr. ph. 713-475-5529
City, State:	Pasadena, TX [redacted]
Zip Code	77506

County Judge

Name:	Honorable Lina Hidalgo ph. 713-274-7000
Address	1001 Preston, Suite 911 [redacted]
City, State:	Houston, TX
Zip Code	77002

County Health Authority

Name:	Leah Barton, MBA, MA, Interim Executive Director
Address	111 Fanin Street ph. 832-927-5000
City, State:	Houston, Texas [redacted]
Zip Code	77002

Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?	Yes
Bilingual Language(s):	Spanish
TCEQ Core Data Form Submitted?(Required)	Yes
Has any information changed on the TCEQ Core Data Form since the last submittal?	No
Signature on Application Submitted? (see Section I Instructions, Item c)	Yes

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

SIGNATURE PAGE

Signature Page

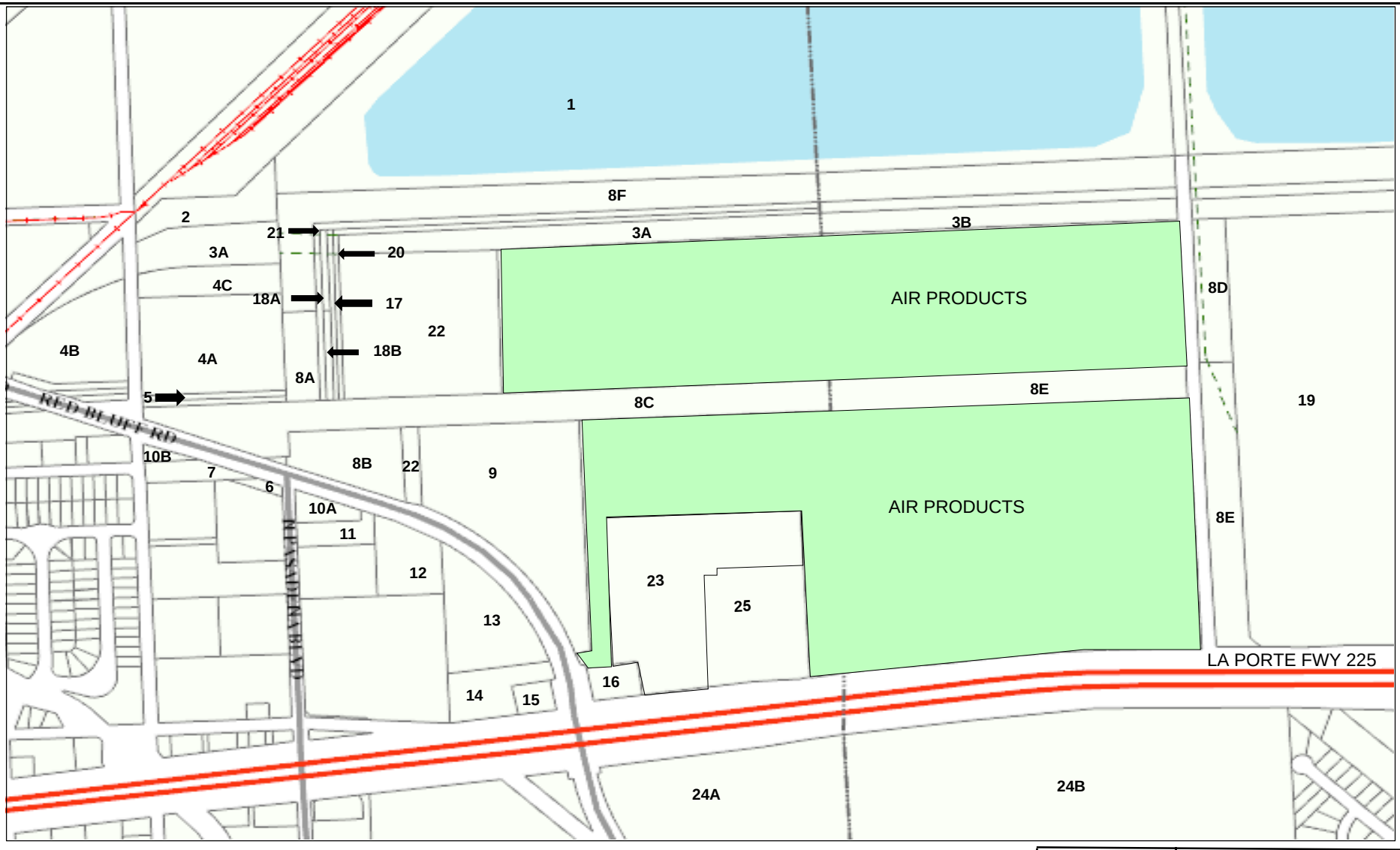
I, Enrique Millan, Vice President,
(Operator) *(Title)*

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: 03/16/2026

- - - -

ADJACENT LANDOWNERS LIST AND MAP



MAP LOCATION

SUBJECT PROPERTY

0 450

APPOXIMATE SCALE IN FEET

BASE MAP MODIFIED FROM: Harris County Appraisal District.

MAP OF ADJACENT LANDOWERS
Air Products LLC
Pasadena, Texas

Attachment I.F

ADJACENT LANDOWNERS LIST

Map ID No.	Contact Name/Address	Account Number	Property Address	Legal description
1	PCI Nitrogen LLC Agrifos Fertilizer, LP P.O. Box 3447 Pasadena, TX 77501-3447	0410340010053	2000 Davison Rd.	TR 3D ABST 78 W Vince
2	Texas Pulp, Inc. 650 West Georgia St., Ste. 2900 P.O. Box 11583 Vancouver, BC V6B 4N8 Canada	0410340030110	0 N. Witter	TRS 9 & 19 ABST 78 W Vince
3A	Port of Houston Authority 111 East Loop N Houston, TX 77029-4326	0410340000005	0 Exempt	TRS 1A, 3D-1, 3J, 9B & 21 (NM) ABST 78 W Vince
3B		0450020010155	0 La Porte Rd.	TRS 25A & 27A ABST 698 J Seymour
4A	Witter Distribution Inc. Suite 2900, P.O. Box 11583 650 West Georgia St. Vancouver, BC V6B 4N8 Canada	0410340030108	414 N Witter St.	TRS 15, 18A, 18B & 20 ABST 78 W Vince
4B		0281690000084	900 Witter St.	TR 17 PT LTS 5&6 Pasadena Outlot 23
4C		0410340030109	0 Red Bluff	TR 18 ABST 78 W Vince
5	Midcon Texas Pipeline Corp. Property Tax Department PO Box 4372 Houston, TX 77210-4372	0410340030115	0 N. Witter	TR 9A ABST 78 W Vince
6	Pasadena ISD Cause No. 2007-59619 PO Box 1318 Pasadena, TX 77501-1318	0410340030155	0 Witter St.	TR 5J ABST 78 W Vince
7	Pasadena Refining System, Inc. PO Box 285 Houston, TX 77001-0285	0410340030095	400 Witter St.	TR 5B ABST 78 W Vince
8A	Centerpoint Energy Houston Electric Property Tax Department 38th Floor P.O. Box 1475 Houston, TX 77251-1475	0410340030065	0 Red Bluff	TR 4A ABST 78 W Vince
8B		0410340030017	0 Red Bluff	TR 4J ABST 78 W Vince
8C		0410340030125	0 Red Bluff	TRS 11, 12 & 13 ABST 78 W Vince
8D		0450020010156	None listed	TR 27C ABST 698 J Seymour
8E		0450020010135	0 South Ave	TRS 5A, 19, 20 &21 ABST 698 J Seymour
8F		0410340030130	0 Red Bluff	TR 14 ABST 78 W Vince
9	CIVF VI TX2M04 M05 LLC 1999 Bryan St Ste 900 Dallas, TX 75201-3140	1418360010001	1033 Red Bluff Rd	RES A BLK 1 P8 Red Bluff Industrial
10A	Coastal Industrial Water Authority 1010 Louisiana Street Houston, TX 77002-5003	0410340030083	0 Red Bluff	TR 4E-2 ABST 78 W Vince
10B		0410340030124	0 Red Bluff	TR 13A ABST 78 W Vince
11	Nexland LLC 413 Hereford Rd Corpus Christi, TX 78408-2305	0410340030081	1006 Red Bluff	TR 4E ABST 78 W Vince
12	Nagar, Inc. 7715 Buffalo Speedway Houston, TX 77025-1916	0410340030080	1012 Red Bluff, #34	TR 4H ABST 78 W Vince
13	Camino Houston GJ LLC 8 Greenway Plaza Ste 800 Houston, TX 77046-1204	0410340030050	1120 Red Bluff, #122	TRS 3G & 3G-1 ABST 78 W Vince
14	Patel Kay 7905 Main St. Houston, TX 77025-2806	0410340030052	0 HWY 225	TR 3G-2 ABST 78 W Vince

Revision No.: _____
Revision Date: _____

Map ID No.	Contact Name/Address	Account Number	Property Address	Legal description
15	Jarshri Gayatri Inc. 1202 Red Bluff Rd Pasadena TX 77506-2514	0410340030035	1202 Red Bluff	TR 3C ABST 78 W Vince
16	Sok Kentola 222 Wood Circle Lane Houston, TX 77015-2058	0410340030014	1201 Pasadena Fwy	TRS 3F-1 & 3L ABST 78 W Vince
17	Tejas Gas Corp. 500 Dallas Street, Ste. 1000 Houston, TX 77002-4718	0410340030055	None listed	TRS 3H & 4D ABST 78 W Vince
18A	Midcon Texas Pipeline Corp. Property Tax Department	0410340030020	0 N. Witter St.	TR17 (021 & 074 PT TR3) ABST 78 W Vince
18B	PO Box 4372 Houston, TX 77210-4372	0410340030060	0 Red Bluff	TRS 16 (021 & 074 PT TR4) ABST 78 W Vince
19	Edgewater Midstream Pasadena LLC 1300 Post Oak Blvd Ste 550 Houston, TX 77056-3027	0450020010027	300 Jefferson Rd.	TRS 10A, 10G, 16, 17, 18A, 18B & 27 ABST 698 J Seymour
20	Chevron Phillips Chemical Co., LP 10001 Six Pines Dr., Rm. 7056 Spring, TX 77380-1498	0410340030045	4010 Red Bluff	TR 3E ABST 78 W Vince
21	Equilon Pipeline Co., LLC Property Tax Department P.O. Box 4369 Houston, TX 77210-4369	0410340030025	0 Red Bluff	TRS 3A, 3B, 4G & 9C ABST 78 W Vince
22	I3 HMD I LP 9320 Katy Freeway, Suite 500 Houston, TX 77055	1419630010003 1419630020001	0 Red Bluff	RES C BLK 1 & D BLK 2 Red Bluff Industrial
23	Ptcaa Texas LP Flying J 1057 PO Box 54470 Lexington, KY 40555-4470	0410340030161	1305 LaPorte Freeway	TR 3F-2 (IMPS ONLY) (LAND*0410340030158) Pollution Control ABST 78 W Vince
24A & B	Pasadena Refining System Inc Chevron Property Tax PO Box 285 Houston, TX 77001-0285	0410340040001 0450020020120	1200 Red Bluff Rd	TR 1 ABST 78 W VINCE PT TR 2 (AG USE) ABST 698 J SEYMOUR
25	Carson Va Industial LP 100 Bayview Cir Ste 3500 Newport Beach, CA 92660-8938	0410340030160	1321 LaPorte Freeway	TR 3F-2A ABST 78 W VINCE

Note: Source = Property Search - Harris Central Appraisal District (https://hcad.org/property-search/property-search)

Revision No.: _____
Revision Date: _____

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	Expiration Date	1[1]	30 TAC §305.69(k)6
I	Update of: • facility personnel, • state and local contacts, • general proposed changes. • Attachment I-F (Adjacent Property Owners list and map).	Class 1	30 TAC §305.69(k)A.1
II	Updated Attachment II-F (Flood Insurance Rate Map)	Class 1	30 TAC §305.69(k)A.1
IX	Updates to status of Solid Waste Management Units to reflect recent closures	Class 1[1]	30 TAC §305.69(k)D.1.b
XI	Update Monitor & Recovery Well map.	Class 1[1]	30 TAC §305.69(k)C.2

I.G. – Lists of State and Local Officials

Mayor	Mayor Thomas Schoenbein City of Pasadena, Pasadena City Hall 1149 Ellsworth Dr. Pasadena, TX 77506 713-475-5545 [redacted]
City Health Authority	Kathy Perez-Ashton, Director Health Department City of Pasadena 1149 Ellsworth Drive Pasadena, TX 77506 713-475-5529 [redacted]
County Judge	Honorable Lina Hidalgo, Harris County Judge 1001 Preston, Suite 911 Houston, TX 77002 713-274-7000 [redacted]
Executive Health Authority	Leah Barton, MBA, MA, Interim Executive Director Harris County Public Health 111 Fanin Street Houston, Texas 77002 832-927-5000 [redacted] Dr. Latrice Babin, Director Harris County Pollution Control Services 101 South Richey, Suite. H Pasadena, Texas 77506 713-920-2831 [redacted]

II.Facility Siting Criteria

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

For all new hazardous waste management facilities or areal expansions of existing hazardous waste management facilities provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 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 Table II, as applicable.

For permit renewals provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. In addition, provide the information in Table II, as applicable. 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.

For capacity expansions of existing facilities, please provide information in Table II, as applicable. Please note however, that additional technical information may be requested to address any facility siting characteristics noted in Table I, under Facility Siting Summary.

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

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

B. Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]
   Complete Table II.B.-Additional Requirements for Land Treatment Facilities [30 TAC335.204(b)

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

D. Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]
   Complete Table II.D.- Additional Requirements for Storage Surface Impoundments [30 TAC335.204(d)]

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

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

F. Flooding

1. Identify whether the facility is located within a 100-year flood plain [40 CFR270.14(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, indicate that the facility is not within the 100-year flood plain, and do not complete the remainder of the Flooding section in Table II. 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.

2. 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 the100-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.

3. 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.

   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)]

4. 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)] 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)]

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

3. For new commercial hazardous waste management facilities, submit the following: [30 TAC 305.50(a)(12)(A)]
   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)]

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)]

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.

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.

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

Appendix II – Siting Information

II. Facility Siting Criteria Responses

Permit HW50134 issued July 2, 2018 to Air Products LLC is for a hazardous waste (HW) closure and post-closure care (PCC) facility. The permitted HW management units (HWMU) are Unit 01 Effluent Surface Impoundment and Unit 02 Acid Spill Impoundment. Both units have been closed by removal of waste and contact liner material and placement of a cover system or lined rainwater impoundment over the areas to prevent infiltration.

Permit Section VII.G. lists the PCC requirements for HWMU “closed as a landfill”. However, since no waste remains in the permitted units, Section V Authorized Units and Operations subsection G. Landfills is shown as “Reserved” as are all other HWMU types save D. Surface Impoundments.

The facility is also subject to a Compliance Plan as detailed in Section XI.

No new or expanded facilities are proposed in this renewal application.

The response to the requirements of Section II the Part B application form are detailed in the summary table below. Part B form tables and supporting documentation follow.

Paragraph			
Requirements for:			**Response**
new or expanded facility			Reserved - Not Applicable since renewal application is for Post-Closure Care, i.e., not for new or expanded facility
Permit renewals			Permit is for Post-Closure Care of two surface impoundments closed with no waste remaining.
	30TAC335.204(d) 1		Sites are not in a 100-yr floodplain,
	30TAC335.204(d) 2		Sites are not in a wetland
	30TAC335.204(d) 3		Sites are not in a recharge zone of sole source aquifer
	30TAC335.204(d) 4		Sites are over a regional aquifer. A Compliance Plan for groundwater corrective action is included in Section XI
	30TAC335.204(d) 5		Sites are not in soil units within 5 feet are not classified as GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec
	30TAC335.204(d) 6		Sites are not within 1-mile of drainage to lake used to supply drinking water
	30TAC335.204(d) 7		See Section VI Geology Report for active geologic processes
	30TAC335.204(d) 8		Sites are not within 1,000 feet of active shoreline erosion
	30TAC335.204(d) 9		Sites are not within a critical endangered species habitat
	30TAC335.204(d) 10		Sites are not on a barrier island or peninsula
	30TAC335.204(d) 11		Sites are not within 30 feet of the up thrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault
Expansions of existing facilities			Reserved - Not Applicable since renewal application is for Post-Closure Care only
	Requirements for		
A	Storage or Processing		Reserved
B	Land Treatment		Reserved
C	Waste Piles		Reserved
D	Storage Surface Impoundments		Reserved
E	Landfills		Reserved – Not applicable since all waste removed prior to surface impoundment closures
F	Flooding		Reserved - See Appendix II.F. Air Products Pasadena Plant is shown in Zone X[1] per FEMA[2] NFIP[3] rate map.
G	Additional Information Requirements		
	1		Reserved
	2		Reserved
	3		Reserved
	4		Reserved
	5		Reserved
	6		County deed recordation is in Appendix II.G.6
	7		Exposure information is in Appendix II.G.7
	8		Reserved

Note: 1 - Zone X is "Area of Minimal Flood Hazard" 2 - Federal Emergency Management Agency 3 - National Flood Insurance Program

Table II

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

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

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

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

In areas of active geologic processes, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes?[6] [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/ or (e)(9)]	Yes, see below
Within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures?[6] [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]	No
If Yes: specify in Section V the design, construction, and operational features that will prevent adverse effects resulting from any fault movement. If a fault is found to be present, the width and location of the actual or inferred surface expression of the fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, must be determined by a qualified geologist or geotechnical engineer and reported in Section VI.	

Notes for Affirmative Answers:

See Section VI.Geology Report
Sub-Section B for regional aquifer discussion
Sub-Section A.1 for active geologic processes

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

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

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?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(6) and 335.205(a).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	
If Yes: submit in Section V.F design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	
If Yes: submit Section V.F design, construction and operational features, which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(11) and 335.205(a)(1).	

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

Is the waste pile located or proposed to be located: RESERVED

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

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

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

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

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

Is the landfill located or proposed to be located: **RESERVED**

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?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(6) and 335.205(a)(1).	
(For commercial hazardous waste landfills) in the 100-year flood plain of a perennial stream that is delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(7) and 335.205(a)(1).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barriers island or peninsula.	
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(12) and 335.205(a)(1).	

Flooding (see Section II Instructions, Item F)

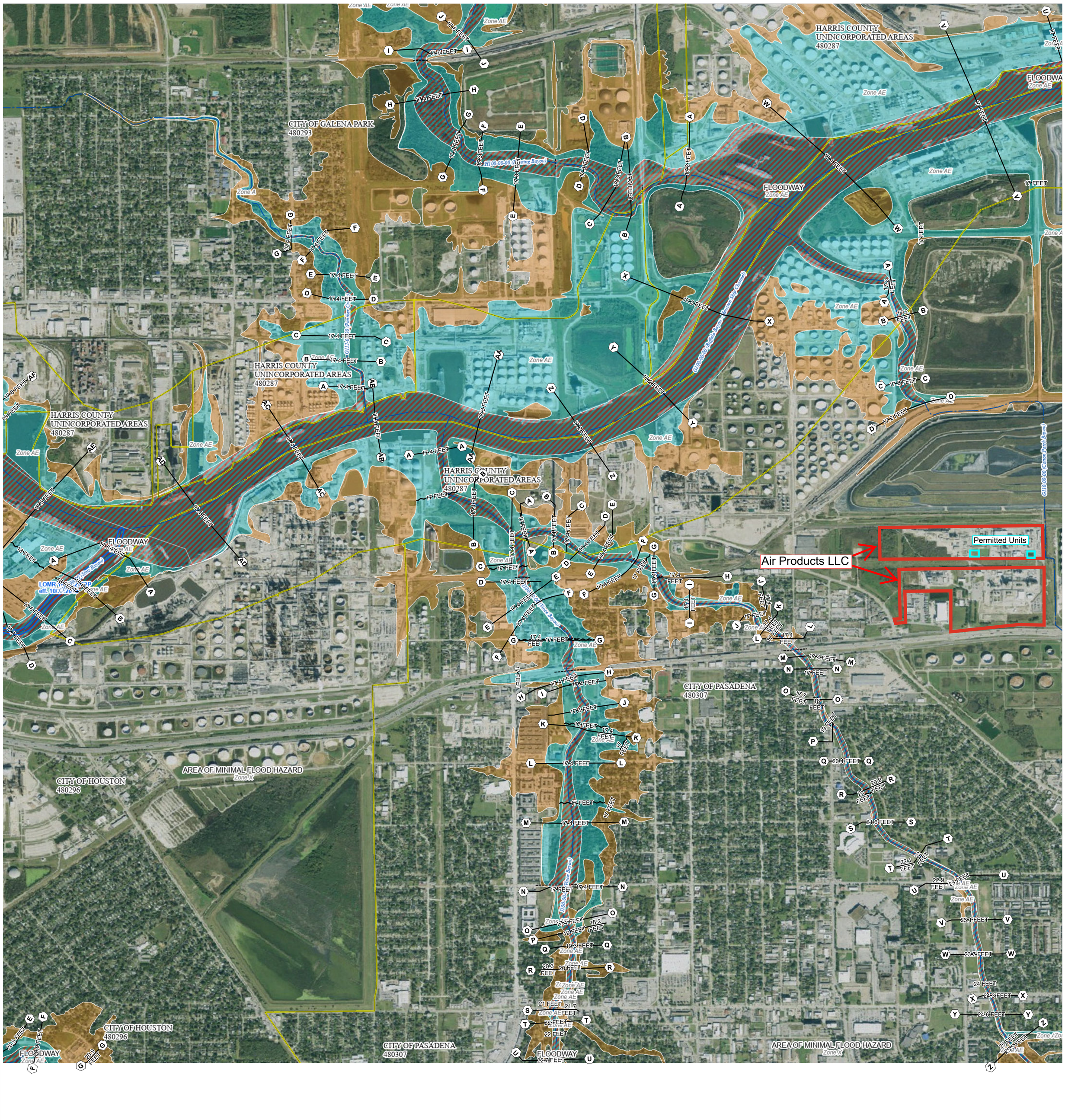
Is the facility within a 100-year flood plain?
Has a flood plain map been provided?
Has information about flooding levels and events, and other special flooding factors, been provided?[3]
Do any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.) designed to prevent washout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

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

II.F. FEMA Floodplain Map

95°15'W 29°45'13.2"N

Permit No. 50134
Permittee: Air Products LLC



95°11'14.17"W 29°41'1.84"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **4/29/2025 1:12 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

PANEL 905 OF 1105

Panel Contains:

COMMUNITY	NUMBER	PANEL
CITY OF PASADENA	480307	0905
CITY OF HOUSTON	480296	0905
HARRIS COUNTY	[illegible]	0905
CITY OF GALENA PARK	480293	0905

MAP NUMBER
48201C0905N
EFFECTIVE DATE
May 02, 2019

ATTACHMENT II.G.6

Documentation of County Deed Recordation

M051044

140-67-0017

STATE OF TEXAS

HARRIS COUNTY

INDUSTRIAL SOLID WASTE
DEED RECORDATION

KNOWN ALL MEN BY THESE PRESENTS THAT:

Pursuant to the Rules of the Texas Water Commission pertaining to Industrial Solid Waste Management, this document is hereby filed in the Deed Records of Harris County, Texas in compliance with the recordation requirements of said rule:

I

AIR PRODUCTS MANUFACTURING CORPORATION has released industrial waste from two storage facilities located on the land described herein which may constitute "disposal" per 31 TAC Section 335.5 (a corrective action program has been instituted for Tract I and is being developed for Tract II). These two facilities have been closed according to closure and post closure care plans approved by the Texas Water Commission. A copy of Notice of Registration Number 30317, including a description of wastes and the waste management facility, is attached hereto and is made a part of this filing.

II

Being two tracts of land out of the lands of Air Products Manufacturing Corporation situated partly in the William Vince Survey Abstract No. 78 and partly in the James Seymour Survey Abstract No. 698, recorded in Film Code No. 142-31-2150 of the Deed Records of Harris County, Texas more particularly described as follows:

TRACT I

Set forth in Exhibit "A" attached hereto and made a part hereof by this reference.

TRACT II

Set forth in Exhibit "B" attached hereto and made a part hereof by this reference.

140-67-0018

Wastes deposited hereon have been classified by the Texas Water Commission as Class I. Class I waste is defined as "Any industrial solid waste or mixture of industrial solid wastes which because of its concentration, or physical or chemical characteristics, is toxic, corrosive, flammable, a strong sensitizer or irritant, a generator of sudden pressure by decomposition, heat, or other means, and may pose a substantial present or potential danger to human health or the environment when improperly treated, stored, transported, or disposed of or otherwise managed, including hazardous industrial waste".

III

The owner of the site is Air Products Manufacturing Corporation, a Delaware corporation, and its address is P. O. Box 3326, Pasadena, Texas 77501.

EXECUTED this the 07 day of FEBRUARY, 1988.

AIR PRODUCTS MANUFACTURING CORPORATION
A Delaware corporation

STATE OF TEXAS)
) $$
COUNTY OF HARRIS)

BEFORE ME, on this the 7 day of February, 1988, personally appeared Burl J. Pershall, Jr., of Air Products Manufacturing Corporation, a Delaware corporation, known to be the person and agent of said corporation whose name is subscribed to the foregoing instrument, and he acknowledged to me that he executed the same for the purposes and capacity therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this the 7 day of February, 1988.

Donnie G Stewart
Notary Public
in and for the State of Texas, County of Harris.

My Commission Expires

B. J. Pershall, Jr.
pervisor
ts-of-Way and Permits

Ket

AIR PRODUCTS

Air Products and Chemicals, Inc.
12600 Northborough Drive, Suite 214
Houston, Texas 77067
Telephone (713) 873-2311
Fax (713) 873-5625

NOTARY PUBLIC
DONNIE G. STEWART
Notary Public
STATE OF TEXAS

EXHIBIT "A"

TRACT 1

140-67-0019

POND DESCRIPTION NO. 1

Description for the location of a pond on the property of Air Products and Chemicals, Inc., said property being that certain 105.659 acre tract out of the William Vince Survey, A-78, and the James Seymour Survey, A-698, Harris County, Texas, as deeded from Audry Jones Beck and husband John A. Beck to Air Products and Chemicals, Inc. recorded in File No. 142-31-2150 of the Deed Records of Harris County, Texas, said property being referred to as the Air Products, Pasadena Plant. Said pond being more particularly described by plant coordinates and bearings as follows:

COMMENCING at a point, said point being at the intersection of the West line of Jackson Road and the North line of a 150 foot Houston Lighting and Power Company right-of-way described in deed from Houston Deepwater Land Company to Houston Lighting and Power Company recorded in Volume 1417, Page 180 of the Deed Records of Harris County, Texas, said point also being the Southeast corner of said Air Products and Chemicals, Inc. 105.659 acre tract having plant coordinates N 0.00, E 0.00;

THENCE N 43° 10' 36" W - 204.91 feet to the POINT OF BEGINNING of this, said point having plant coordinates N 149.43, W 140.21;

THENCE S 4° 29' 31" E - 83.89 feet to a point having coordinates N 65.80, W 133.64;

THENCE S 53° 33' 15" W - 23.25 feet to a point having coordinates N 51.99, W 152.34;

THENCE N 89° 19' 54" W - 117.47 feet to a point having coordinates N 53.36, W 269.80;

THENCE N 55° 55' 31" W - 33.06 feet to a point having coordinates N 71.88, W 297.18;

THENCE N 10° 39' 01" E - 77.32 feet to a point having coordinates N 147.87, W 282.89;

THENCE N 89° 22' 25" E - 142.69 feet to the POINT OF BEGINNING.

I hereby certify that this description is based from a survey made on the ground under my supervision and is true and correct to the best of my knowledge and belief.

R. A. Jordan
R.P.S. No. 2505

STATE OF TEXAS
R. A. JORDAN
2505
REGISTERED PUBLIC SURVEYOR

EXHIBIT "B"

TRACT II

140-67-0020

POND DESCRIPTION NO. 2

Description for the location of a pond on the property of Air Products and Chemicals, Inc., said property being that certain 105.659 acre tract out of the William Vince Survey, A-78, and the James Seymour Survey, A-698, Harris County, Texas, as deeded from Audry Jones Beck and husband John A. Beck to Air Products and Chemicals, Inc. recorded in File No. 142-31-2150 of the Deed Records of Harris County, Texas, said property being referred to as the Air Products, Pasadena Plant. Said pond being more particularly described by plant coordinates and bearings as follows:

COMMENCING at a point, said point being at the intersection of the West line of Jackson Road and the North line of a 150 foot Houston Lighting and Power Company right-of-way described in deed from Houston Deepwater Land Company to Houston Lighting and Power Company recorded in Volume 1417, Page 180 of the Deed Records of Harris County, Texas, said point also being the Southeast corner of said Air Products and Chemicals, Inc. 105.659 acre tract having plant coordinates N 0.00, E 0.00;

THENCE N 78° 37' 27" W - 1225.65 feet to the POINT OF BEGINNING of this, said point having plant coordinates N 241.75, W 1201.57;

THENCE S 0° 56' 44" W - 172.68 feet to a point having coordinates N 69.09, W 1204.42;

THENCE S 76° 27' 31" W - 33.14 feet to a point having coordinates N 61.33, W 1236.64;

THENCE N 88° 16' 13" W - 63.28 feet to a point having coordinates N 63.24, W 1299.89;

THENCE N 60° 01' 52" W - 43.16 feet to a point having coordinates N 84.80, W 1337.28;

THENCE N 4° 14' 08" W - 124.16 feet to a point having coordinates N 208.62, W 1346.45;

THENCE N 48° 36' 03" E - 54.38 feet to a point having coordinates N 244.58, W 1305.66;

THENCE S 88° 26' 33" E - 104.13 feet to the POINT OF BEGINNING.

I hereby certify that this description is based from a survey made on the ground under my supervision and is true and correct to the best of my knowledge and belief.

R. A. Jordan
R.P.S. No. 2505

STATE OF TEXAS
R. A. JORDAN
2505
REGISTERED PUBLIC SURVEYOR

ATTACHMENT II.G.7.

EXPOSURE INFORMATION

Permit No. 50134
Permittee: Air Products LLC

EXPOSURE INFORMATION REPORT

Prepared

for

Air Products LLC

November 2017

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The only potential off-site exposure scenario relates to the potential for affected groundwater to discharge to the nearby municipal drainageway ditch. No such discharge appears to be occurring and, even if such a discharge were to occur sometime in the future, there does not appear to be a reasonable potential for human exposure. There is no beneficial use for the surface water that is conveyed in the drainageway ditch. 10

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1.0 INTRODUCTION

This Exposure Information Report (EIR) was prepared pursuant to Title 40 of the Code of Federal Regulation (CFR) Part 260.10(j) and Title 30 of the Texas Administrative Code (TAC) 305.50(8). The regulations require the owner or operator of a surface impoundment or landfill subject to hazardous waste permitting to evaluate and characterize the potential for the public to be exposed to releases from the landfill(s) and/or surface impoundments(s). Units subject to these regulations at the Air Products LLC (APLLC) Pasadena Facility consist of the two closed surface impoundments [Effluent Impoundment (EI), Acid Spill Impoundment (ASI)] that are included in the permit renewal application submitted with this report.

Information provided in this EIR was prepared utilizing EPA draft guidance published in "*Permit Applicants' Guidance Manual for Exposure Information Requirements under RCRA Section 3019*". Specific elements of the report include:

- A description of the facility and the surrounding location regarding area climate, land use, surface water and groundwater use (Section 2.0);
- Facility operating procedures related to the two surface impoundments including inspections, waste analysis procedures, security, and personnel training (Section 3.0);
- Reasonably foreseeable potential releases due to normal operations, accidents, and/or transportation of hazardous waste, as applicable to APLLC's closed EI and ASI (Section 4.0);
- The potential for human exposure to releases from the surface impoundments (Section 5.0).
- Known releases from the surface impoundments (Section 6.0);

2.0 FACILITY DESCRIPTION AND GENERAL LOCATION INFORMATION

2.1 FACILITY DESCRIPTION

APLLC owns and operates a chemical manufacturing facility located off State Hwy 225 between Red Bluff and Davison roads. The site is located within the Houston Ship Channel industrial complex.

APLLC's site presently consists of two tracts totaling approximately 88 acres in size, divided by a 150-foot wide tract belonging to Centerpoint Energy. The southern tract is occupied with parking areas, office buildings, and a Steam Methane Reformer Plant. The former Polyurethane Intermediates Plant (PUI Plant), was located on northern tract.

The original PUI Plant was constructed in 1972. The Plant produced chemical intermediates used in the manufacturing of polyurethane. Products included dinitrotoluene, toluenediamine, and nitric acid. PUI production was terminated in 2012, and the Plant has undergone extensive infrastructure modification for the production of a new line of chemicals. The chemical production facility now present at the former PUI Plant is owned and operated by Evonik Corporation, who now lease the northern tract from APLLC.

Hazardous waste management units subject to EIR requirements consist of two closed surface impoundments located within the former PUI Plant area: the EI and the ASI. The EI was used from 1972 to 1986 for the storage of plant wastewaters prior to transfer and treatment off-site. The Effluent Impoundment was closed in 1988. The Acid Spill Impoundment was used from 1972 to 1986 to capture pipe leaks, rainfall runoff, and leaks from the acid storage tanks located north of the impoundment. The impoundment was also closed in 1988. As part of closure, liquids, solids, the clay liner and additional underlying soils, were removed from each of the impoundments. Details of the original construction, operation and

closure of the units are provided in Section IX (*Releases From Solid Waste Units and Corrective Action*) of the Part B renewal application.

2.2 GENERAL LOCATION INFORMATION

The climate, land use, surface and groundwater use, at the APLLC facility and surrounding area are described below.

2.2.1 Climate

The predominant wind direction at the APLLC plant is from the southeast, and the area's average annual precipitation is approximately 50.6 inches per year. Average monthly temperatures range from a high of 78.8 degrees Fahrenheit to a low of 60.1 degrees Fahrenheit.

2.2.2 Land Use

All land adjacent to APLLC is used for industrial purposes. There is no residential land use adjacent to the property. Specific land uses adjacent to the APLLC plant include chemical manufacturing, easements for pipelines and electrical transmission lines. A map of area land uses is included as Attachment C-1 to Part A of the renewal application. A map and list of adjacent landowners is included in Attachment I.G. to Part B of the renewal application.

2.2.3 Surface Water Use

A map showing surface water bodies surrounding APLLC is included as Figure VI.A.2 of Section VI of the Part B permit renewal application. No surface water bodies or perennial streams exist on the property. The closest surface water body is an ephemeral municipal drainageway ditch located within 100 feet to the east of the property. This ditch has no surface water use and conveys stormwater to Cotton Patch Bayou which is located approximately 2500 feet north of APLLC's northern property boundary. Waters from Cotton Patch Bayou drain to Buffalo Bayou and thence to the Houston Ship Channel and Galveston Bay. There are no known intakes of surface waters for drinking water within a three-mile radius of the facility. Waters withdrawn from the Channel are used for non-contact industrial use.

2.2.4 Regional Groundwater Use

A detailed discussion of the regional and site hydrogeology is included in Section VI of the Part B renewal application. Regional aquifers include the Lower Chicot and Evangeline Aquifers occurring in the depth interval approximately 300 to 1,800 feet below ground surface at the APLLC facility.

The principal areas of recharge to the Chicot and Evangeline Aquifers are shown on Figure VI.B.1.i of the Part B. The recharge zone for the Chicot is approximately 10 miles northwest of the APLLC Facility. The regional recharge zone of the Evangeline lies about 60 miles to the north-northwest of the plant.

A water well survey was performed by Banks Environmental Data in 2011 using public records of wells maintained by the TCEQ. A map showing locations of the wells within a 1-mile radius of the facility is included as Attachment C-1 of the Part A renewal application. Wells are screened in the Chicot or Evangeline Aquifers. Restrictions on pumping groundwater have been implemented under the authority of the Harris-Galveston Coastal Subsidence District. As a result, the wells shown on Attachment C-1 are no longer active. Historically, the wells were largely used for industrial supply. Six public water supply wells were also identified. A discussion of potential exposure to human health via groundwater pathway is provided in Section 5.2 of this report.

3.0 FACILITY MANAGEMENT PROCEDURES

APLLC implements plant-wide and unit-specific management programs to prevent exposure to the public, facility personnel, and the environment to releases from the closed surface impoundments. These programs include inspections of the closed units, security, personnel training in hazardous waste management, and contingency planning. Each of these programs is summarized below.

3.1 INSPECTIONS

Extensive on-site inspections are routinely conducted by facility personnel to ensure safe operation of the facility and to minimize releases or exposure to potential releases. Each impoundment has engineered features designed to minimize human and environmental exposure (e.g. clay cap and/or liner structure). Post-closure care maintenance and inspection of the units is described in Section VII.C. of Part B of the renewal application.

A clay cap was constructed over the closed Effluent Impoundment. The surface integrity of the cap is inspected weekly for signs of erosion or disturbance. A liner system with a continuous groundwater recovery system was installed over the closed ASI. The ASI is also inspected weekly for indications of problems with the liner system.

In addition to the inspections that are routinely performed by APLLC staff, the closed surface impoundments are inspected on an annual basis by the TCEQ Region 12 Office, Houston, Texas. Inspections are also performed of the plant by the Occupational Safety and Health Administration (OSHA) on an occasional basis. Copies of the inspection reports are maintained by the Agencies and by APLLC as part of the facility's operating record. No violations or alleged violations associated with the units have been observed by the agencies or by APLLC in association with the surface impoundments**.**

3.2 WASTE ANALYSES

Specific hazardous wastes that were managed at the Effluent Impoundment include Mixed Acid (D002, D030), DNT Wastewater (K111), and TDA Wastewater (K112). The Mixed Acid Waste was stored at the Acid Spill Impoundment. The units received hazardous waste from approximately 1976 to 1986. Both impoundments were closed in 1988. Wastes and underlying soils were removed from the impoundment as part of the closure. Hazardous wastes that were previously managed by the impoundments are now recovered in groundwater and routed directly to the facility's RCRA Permit-exempt wastewater treatment system. The Waste Analysis Plan submitted in Section IV. of the Part B renewal application describes the classification and on-going management of the wastes.

3.3 SECURITY PROCEDURES

Security measures are employed by APLLC to prevent the accidental, unknowing, or unauthorized entry of persons or livestock onto the active portion of the facility. Plant entrance is controlled by a 7-foot high chain link fence. Access through the main entrance gate is controlled twenty-four hours per day, seven days per week by a security guard. Access through personnel entrance gates is controlled using an electronic card access system. In addition, three gates are monitored by remote camera. Warning signs are posted on gates and perimeter fences stating that only authorized personnel are allowed entrance.

Further description of the plant security procedures is provided in Attachment III.C. of the Part B renewal application.

3.4 PERSONNEL TRAINING

Personnel involved in hazardous waste management activities are required to complete a program of classroom and on-the-job training to perform their duties in a safe manner considered protective of themselves, fellow employees, and the environment. The training program is designed such that personnel will maintain their preparedness to respond to sudden and non-sudden emergencies. Specific elements of the personnel training program are described in Attachment III.B. to the Part B renewal application.

3.5 WORKER INJURIES, ACCIDENTS OR ILLNESSES RELATED TO THE SURFACE IMPOUNDMENTS

There are no known worker injuries, accidents, or illnesses related to the closed surface impoundments.

4.0 REASONABLY FORESEEABLE POTENTIAL RELEASES

40 CFR 270.10(j) specifically requires that the potential releases associated with normal operation of the unit(s), and from transportation of wastes to the units be addressed in the EIR. Because APLLC's surface impoundments are closed there is no potential for releases resulting from normal operations or from transportation of waste to or from the unit.

Releases resulting from subsurface leaching of wastes to groundwater have been identified. Wastes and underlying soils were removed from the surface impoundments thereby minimizing the potential for continued release from the units. The groundwater as a potential pathway for human exposure is described in Section 5.0 of this report. The known releases to groundwater and soils and associated corrective actions are described in Section 6.0.

5.0 POTENTIAL PATHWAYS FOR HUMAN EXPOSURE/POTENTIAL MAGNITUDE AND NATURE OF HUMAN EXPOSURE

The potential pathways for human exposure and the potential magnitude of exposure to releases from the closed surface impoundments are described below. A description of pollutant dispersal pathways for the plant is included in Appendix IV of Section IX of Part B of the renewal application.

5.1 SOIL

Human exposure via soils is not considered a complete exposure pathway as the ground surface at the perimeter of each of the closed units is covered with an asphalt road material.

5.2 GROUNDWATER

Because the groundwater affected by historic releases from the subject impoundments is not used at the plant or within the region, there is no on-site potential for consumptive-type exposure. The only on-site potential exposure to affected groundwater is related to APLLC site workers and/or consultants who are directly involved in implementing the groundwater recovery and monitoring programs. All individuals involved in these programs are properly trained and authorized pursuant to APLLC's programs described previously.

The only potential off-site exposure scenario relates to the potential for affected groundwater to discharge to the nearby municipal drainageway ditch. No such discharge appears to be occurring and, even if such a discharge were to occur sometime in the future, there does not appear to be a reasonable potential for human exposure. There is no beneficial use for the surface water that is conveyed in the drainageway ditch.

5.3 SURFACE WATERS

The closed surface impoundments are covered with an engineered cap (Effluent Impoundment) or liner system (Acid Spill Impoundment). Therefore, rainfall runoff does not contact the former impoundments, and contamination of surface water via

precipitation runoff from the closed impoundments is not considered a complete exposure pathway.

Under extended periods of high precipitation, the SZ potentiometric surface could potentially rise sufficiently to intersect the drainageway ditch east of Davison Road, east of the facility, however, the potential for such a discharge is considered very low since APLLC maintains hydraulic control of groundwater in the area where such a discharge could occur. As described previously, even if such a discharge were to occur, there is no beneficial use of the water conveyed in the drainageway ditch and, therefore, no unacceptable exposures are considered potential.

5.4 AIR

Both the Effluent Impoundment and the Acid Spill Impoundment are closed hazardous waste management units. Wastes and underlying soils were removed from the impoundments as part of closure thereby removing the source of air emissions from the units. Furthermore, engineered caps and liner systems at the surface of the former impoundments serve to mitigate the potential for air emissions from residual waste constituents at the units. The surface of the area formerly operated as the Effluent Impoundment is covered with a 3-foot thick compacted clay cap. The area formerly occupied by the Acid Spill Impoundment is covered with a 2-foot thick compacted clay liner and 2-high-density polyethylene liners.

5.5 SUBSURFACE GAS

No municipal-type wastes were disposed in the surface impoundments. Industrial wastes and underlying soils were removed as part of closure of each of the surface impoundments. The organic constituents comprising the wastes that were placed in the impoundments have low volatilization factors. Therefore, the potential for subsurface gas associated with any residual waste constituents is considered very low or nonexistent.

6.0 KNOWN RELEASES/CORRECTIVE ACTIONS

Releases to groundwater and surrounding soils from the impoundments were identified during closure and by the post-closure groundwater monitoring system installed at the perimeter of the units in 1988. The known releases and corrective actions at the units are described below.

6.1 EFFLUENT IMPOUNDMENT

Releases to soils were identified in soils collected from the over excavated base of the impoundment during closure of the unit in 1987. Concentrations of 2,4-DNT were measured at 190 to 1,800 mg/kg. Concentrations of 2,6-DNT were detected at 370 to 5,700 mg/kg. Isomers of mononitrotoluene (MNT) ranged from <1.0 to 130 mg/kg.

Monitoring wells were installed at the perimeter of the unit beginning in 1981. The Corrective Action Plan for Effluent Impoundment was approved in December 1987, which led to the installation of a groundwater recovery system, originally a 10-well system completed in the Upper Shallow Zone at the Effluent Impoundment in January 1991. Recovery from the Lower Shallow Zone was begun in October 1993. Recovery from the Intermediate Zone was begun in September 1998.

Following completion of additional assessment activities in the 2000s, the groundwater recovery system was modified to optimize recovery, now using three recovery wells for the SZ, and one recovery well for the IZ. The former 10-well system is maintained on stand-by should future conditions warrant their reactivation. Concentrations in monitoring wells in this area have decreased markedly as a result of these Corrective Actions.

6.2 ACID SPILL IMPOUNDMENT

Releases to soils were identified in soils collected from the over excavated base of the impoundment during closure of the unit in 1988. Concentrations

of 2,4-DNT were measured at 24 mg/kg in one of eight samples collected from the base of the unit. Concentrations of 2,6-DNT ranged from <10 to 71 mg/kg in the eight bottom samples. Concentrations of MNT isomers were measured at <2 to 104 mg/kg.

Monitoring wells were installed at the perimeter of the unit beginning in 1981. The Corrective Action Plan for the Acid Spill Impoundment was approved in December 1987. Groundwater was originally recovered from a 10-well system completed in the Upper Shallow Zone beginning in October 1988. Recovery from the Intermediate Zone was begun in October 1993. Concentrations in monitoring wells in this area have decreased markedly as a result of the Corrective Action.

Following completion of additional assessment activities in the 2000s, the Acid Spill Impoundment groundwater recovery system was modified to optimize recovery, now using one recovery wells for the SZ, and one recovery well for the IZ. An additional recovery well is used to lower the potentiometric surface beneath the Acid Spill Impoundment liner. The former 10-well system is maintained on stand-by should future conditions warrant their reactivation. Concentrations in monitoring wells in this area have also decreased markedly as a result of these Corrective Actions.

III. Facility Management

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

A. Compliance History and Applicant Experience

1. 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).

2. 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).

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.

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.

D. Inspection Schedule

Describe summary of inspection schedule and Table III.D in Appendix III.D in accordance with instructions below.

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).

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

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.

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.)

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.

APPENDIX III

Facility Management

III. Facility Management Response

Air Products LLC has several facilities in Texas with solid waste management registrations which are listed herein. No new or commercial hazardous waste management facilities are proposed.

The subject permitted facility is for two former hazardous waste impoundments which were closed by removal of all waste and contacted liner material and subsequently overlain by a cover system. Personnel training, security measures and inspection schedules for the cover systems of the closed units is provided.

A contingency plan and emergency response plan are not provided for the post-closure care only units.

Paragraph		Response
A	1	See Appendix III.A, Table III.A
	2	Reserved
B		See Appendix III.B
C		See Appendix III.C
D		See Appendix III.D, Table III.D
E		Reserved
F		Reserved

ATTACHMENT III.A

Solid Waste Management Sites in Texas

III.A
Solid Waste Management Sites in Texas owned operated or controlled by Air Products LLC

Air Products LLC (CN602299257) is currently affiliated with the following TX facilities with existing active IHW Solid Waste Registrations:

Facility Name	CN No.	RN No.	IHW SWR No.
Air Products Pasadena Plant	602299257	100221324	30317
Air Products Baytown Plant	602299257	100222215	86186
Air Products Baytown 3 Facility	602299257	108401332	96877
Air Products La Porte Plant	602299257	102041282	30776
Air Products Port Arthur Plant	602299257	101941284	86181
Air Products Corpus Christi Hydrogen Facility	602299257	105863914	99150
Enterprise Mont Belvieu Complex	602299257	102323268	31038
Port Arthur Hydrogen Off Gas Recovery Facility	602299257	111275392	98675
Sekisui Specialty Chemicals America Pasadena Plant	602299257	103012183	86571
Texas City Hydrogen Carbon Monoxide Facility	602299257	111793386	98593
Texas City Terminal 1	602299257	100218767	31060

ATTACHMENT III.B

Personnel Training Program

PERSONNEL TRAINING PROGRAM

Personnel Training

Personnel training is accomplished through use of an online modular program, referred to as the My Learning program, which utilizes slides, presentation materials, and links to videos. Depending on job position, an Air Products LLC (APLLC) employee will be required to review between 20 to over 100 modules. The program is managed directed by the site training council, a group which consists of a cross-section of plant employees representing all functional areas.

The job-specific training program must be completed before an employee may work alone in the APLLC Plant. This is true for all positions in the plant supporting operations and maintenance groups. The vast majority of each employee's training is completed within the first 30 days of their employment or transfer into a new role. Subjects include, but are not limited to, hazard communication, emergency procedures and response, communication systems, alarm systems, firefighting procedures, personal protective equipment, respiratory protection, emergency equipment use, inspection and repair of emergency equipment, spill control and remediation, groundwater contamination response, emergency shutdown procedures (where appropriate), automatic cutoff systems (where appropriate), safety and health work practices, medical surveillance program, industrial hygiene program, and waste handling procedures. Applicable personnel such as I&E personnel are trained and have the appropriate skills for repair of site monitoring equipment. The monitoring equipment is managed by both site operators and laboratory technician personnel.

The annual refresher training program consists of either Web-based and/or classroom training. Subjects include, but are not limited to, emergency alarms, communications, emergency shutdown procedures, emergency procedures and response, spill control and remediation, hazard communication, fire fighting procedures, safety and health work practices, personal protective equipment and waste handling procedures.

All employees in operations, maintenance and laboratory receive the above core of training plus additional training based upon position assignment. See included position description for Lab Technician/ Container Storage Pad Technician that outlines required initial training and subsequent annual refresher training. Operations personnel are trained in key shutdown

procedures for the operating unit to which they are assigned. Laboratory personnel are trained in laboratory hazards and protection.

A record of the employees who require training, the training schedules, and the date each employee has completed their training, are recorded in an electronic training records management system. These training records are kept for each employee for a period of 30 years after an employee leaves the company either by retirement or via a new employer.

ATTACHMENT III.C

SITE SECURITY

SECURITY

Air Products LLC (APLLC) uses several measures to provide the necessary security at the plant. These include:

24-Hour Surveillance System/Barrier and Access Control

Security at APLLC's Pasadena Plant is maintained by a staff of trained security guards, who primarily monitor entry and exit of the plant site.

Except for the company parking lot, the plant site is enclosed within a 7-foot high, chainlink fence topped with barbed wire. The undeveloped property owned by APLLC to the west of the plant site is enclosed by a 6-foot high barbed wire fence.

Visitors must view a safety orientation film and obtain a visitor pass before being allowed to enter. Non-APLLC visitors to the plant site must be escorted into any operating areas by a Pasadena Plant employee or long term contractor. Short term contractors must sign a log sheet prior to entering the plant site.

All plant entrances are secured 24 hours a day, 7 days a week using a combination of guard services, signs, gates, electronic card access personnel turnstiles, and remote cameras.

Warning Signs

Warning signs used at the Pasadena Plant vary depending on the location. Signs are posted on the barbed wire fence surrounding the undeveloped property with the legend "NOTICE – No Trespassing". Warning signs are also posted around the active portions of the facilities that are visible from all angles of approach and are legible from a distance of 25 feet. These signs bear the legend "DANGER – Unauthorized Personnel Keep Out."

ATTACHMENT III.D

INSPECTION SCHEDULE
Table III.D

Table III.D. – Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Facility Fences and Gates		
Fences and gates	Holes, cut or down, lock missing	Daily
Effluent Impoundment		
Cap and cover	Puddling of water, absence of vegetative cover, erosion, settling, subsidence	Monthly
Vegetative Cap	Settling, subsidence, erosion	Monthly
Acid Spill Impoundment		
Rainwater impoundment liner	Slippage, tears	Monthly
Leachate collection/removal system pumps and totalizer	Not operating	Weekly

ATTACHMENT III.E

Emergency Response
Table III.E

Table III.E.1- Arrangements with Local Authorities

Police

Address	Reserved - Facility is under Post-Closure Care-Only status.
Person Contacted	
Phone Number	
Agreed Arrangements	

Fire

Address	Reserved - Facility is under Post-Closure Care-Only status.
Person Contacted	
Phone Number	
Agreed Arrangements	

Hospital

Address	Reserved - Facility is under Post-Closure Care-Only status.
Person Contacted	
Phone Number	
Agreed Arrangements	

Other

Organization Name	Reserved - Facility is under Post-Closure Care-Only status.
Address	
Person Contacted	
Phone Number	
Agreed Arrangements	

Table III.E.2 - Emergency Coordinators (Primary)

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
Reserved -			
Facility is under			
Post-Closure Care-Only status.			

Alternate Emergency Coordinators

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)

Table III.E.3- Emergency Equipment

Equipment	Location	Physical Description	Capability
Reserved			
Facility is under Post-			
Closure Care Only Status			

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

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

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

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

D. Waste Analysis Plan

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

For off-site facilities the waste analysis plan must specify procedures which will be used to inspect and, if necessary, analyze each movement of industrial and hazardous waste or hazardous debris received at the facility to ensure it matches the identity of

the waste designated on the accompanying shipping ticket. The plan must describe methods which will be used to determine the identity of each movement of waste and debris managed at the facility and sampling method used if the identification method includes sampling in order to store, process, or dispose of the wastes and debris in accordance with 40 CFR Parts 264 and 268 and any abnormal characteristics which may upset further treatment or processing operations. Include rejection criteria for shipments of waste and debris received at the facility

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

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

APPENDIX IV

Waste and Waste Analysis

IV. Waste and Waste Analysis Response

All permitted hazardous waste management units (HWMUs) have been closed. No new HWMUs are proposed.

Paragraph		Response
A		Reserved - No new or expanded hazardous waste management activities are proposed
B		Reserved - See Appendix IV, Table IV.B
C		Reserved - APLLC has terminated all waste management activities in permitted units
D		Reserved - APLLC has terminated all waste management activities in permitted units

Table IV.A. - Waste Management Information

Waste Type(s)	Source	Volume (tons/year)
Reserved		

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
1	Mixed acid[1]	D002, D030	0020105H
2	dinitrotoluene (DNT) wastewater[2]	K111	0190105H
3	toluene diamine (TDA) wastewater[2]	K112	0580102H

Note: 1. Mixed acid waste historically managed in the former Acid Spill Impoundment
2. DNT and TDA wastewater historically managed in the former Effluent Impoundment.

Table IV.C. - Sampling and Analytical Methods

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency	Parameter	Test Method[2]	Desired Accuracy Level[3]
Reserved						

[1] from Table IV.B, first column

[2] Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.

3 Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

V. Engineering Reports

Provide all Part B responsive information in Appendix V. 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.

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, and/or EPA/600/R-93/182, Quality Assurance And Quality Control For Waste Containment Facilities, 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.

A. General Engineering Reports

1. General Information

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

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 8 1/2" x 14" 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.

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).

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).

b. For commercial hazardous waste management facilities, permit applications (new, renewal, or interim status applications), major amendments, and Class 3 modifications 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.

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.

B. Container Storage Areas

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 and total maximum capacity of all types wastes stored in the unit), the areal dimensions, containment volume, aisle space requirements, 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.

6. Managing Nonhazardous Wastes and/or Universal Wastes

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

C. Tanks and Tank Systems

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.

1. 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.

2. 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.

3. 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.

4. 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.

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

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

D. Surface Impoundments

For Surface Impoundments 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 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.

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

For Proposed or Active Surface Impoundments

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. Detailed plan view and cross-sectional drawings 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. Show that adequate freeboard will be available to prevent overtopping from a 100-year, 24-hour storm. [40 CFR 264.221(g)]
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, download the dike design and materials of construction engineering certification from the attachments **list** the following certification as part of the engineering report:

   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

We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide 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, such as those found in ASTM publications, and 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:

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

For leachate collection systems:

(1) Pipe Material and Strength
(2) Pipe Network Spacing and Grading
(3) Collection Sump(s) Material and Strength
(4) Drainage Media Specifications and Performance
(5) Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
(6) Compatibility Demonstration
(7) Capacity of System
    (a) rate of leachate removal
    (b) capacity of sumps
    (c) 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.

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

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. The owner or operator of each new surface impoundment unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing surface impoundment unit where construction commences after July 29, 1992, or replacement of an existing surface impoundment unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. 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

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.

For Waste Piles 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 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.
3. Complete Table V.E. 3 - Waste Pile Liner System and specify the type of containment/ liner system.

   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.
   2. 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.
   3. 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.
   4. 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.

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

6. Containment System
We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide 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, such as those found in ASTM publications, and 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.

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

7. 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.

8. 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: flow rates; 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)]

9. 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)]

10. 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.

11. 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.

12. 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.

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

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;

(2) or:

(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

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.

2. 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.

3. 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.

4. 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.

5. Describe the land treatment unit. The report shall include all the information requested in this section including drawings. At a minimum, a plan view and cross-section of the unit should be included with the engineering report.

6. 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.

7. 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)]
Collection holding facilities (e.g., 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)].

8. 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)]

9. 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)]

10. 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.

11. The owner or operator must establish an unsaturated zone monitoring program in accordance with 40 CFR 264.278 and a detailed monitoring program must be included in the application.

12. 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

For Closed Landfills

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 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.

3. Complete Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

4. Complete Table V.G.4. - Landfill Leachate Collection System used for the landfill.

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 applicable requirements of 270.21. 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.

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.

1. 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.

2. 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.

3. 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.

4. 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.

5. Describe the landfill. A plan view and cross-section of the landfill should be included with the engineering report. As appropriate, detailed plan, elevation, cross-section of landfill containment facilities shall be included with the report.

6. Containment System
We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide 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, such as those found in ASTM publications, and 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 and Table V.G.5 - Landfill Soil Specifications 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. Provide 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.

f. Provide a Response Action Plan that proposes actions to be taken in the case of exceedance of the landfill Action Leakage Rate. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.304.

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

8. 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 owner or operator of each new landfill unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing landfill unit where construction commences after July 29, 1992, or replacement of an existing landfill unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. Plans and specifications for both new and existing landfills must demonstrate conformity with 30 TAC 335.173 and 40 CFR 264.301(c).

9. 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.

10. 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 (e.g., tanks or basins) associated with the run-on control system must be emptied or otherwise managed expeditiously. [30 TAC 335.173(i)]

11. 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)]

12. 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.

13. 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.

14. 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.

15. 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.

16. 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]

17. Feasibility Study - Applicable to New Hazardous Waste Landfills or Areal Expansions of Existing Hazardous Waste Landfill

In accordance with the Health and Safety Code Section 361.106 and 30 TAC Section 335.205(a)(2), provide a feasibility study demonstrating that there is no practical, economic, and feasible alternative that is reasonably available to manage the types and classes of hazardous wastes to be disposed of at a proposed new hazardous waste landfill or the areal expansion of an existing hazardous waste landfill.

H. Incinerators

Engineering Report for Combustion Units

For hazardous waste combustion unit which are subject to regulation by 40 CFR Part 63, Subpart EEE, the requirements 30 TAC Chapter 305 and Subchapters I and Q do not apply when the unit becomes subject to Resource Conservation and Recovery Act (RCRA) permit requirements after October 12, 2005 (i.e., new unit), or no longer apply when an owner or operator of an existing hazardous waste management unit demonstrates compliance with the air emission standards and limitations in 40 Code of Federal Regulations (CFR) Part 63, Subpart EEE, except for the following:

1. Those provisions the Executive Director determines are necessary to comply with 40 CFR §264.345(a) and 40 CFR §264.345(c) for Phase I sources or 40 CFR §266.102(e)(1) and (2)(iii) for Phase II sources if the permittee or applicant elects to comply with any of the options listed in 40 CFR §270.235(a) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events;

2. Those standards and associated requirements for particulate matter, hydrogen chloride and chlorine gas, and non-mercury metals that a Phase II area source elects to comply with in 40 CFR §§266.105, 266.106, and 266.107;

3. Those standards for particulate matter in 40 CFR 264.343(c) remain in effect for a Phase I source incinerator that elects to comply with the alternative to the

particulate matter standard under 40 CFR 63.1206(b)(14) and 63.1219(e); and

4. Those provisions that the Executive Director may apply in 30 TAC Chapter 305, Subchapters I and Q, on a case-by-case basis. The Executive Director may require a permittee or an applicant to submit information in order to establish permit conditions under §305.50(a)(15) or (16) and §305.127(1)(B)(iii) or (4)(A) (i.e., risk-based permit conditions).

For hazardous waste combustion units subject to regulation by 40 CFR Part 63, Subpart EEE, some of the information requested in Sections V.H and V.I. will not be applicable for new units or existing units which have submitted a Notification of Compliance in accordance with 40 CFR 63.1207(j) and 63.1210(d), received a Finding of Compliance pursuant to 40 CFR 63.1206(b)(3), and have the associated RCRA permit conditions removed from the permit. Information which is not applicable or no longer applicable should not be included in the Part B application. *[Please note that the TCEQ will require a Finding of Compliance be made prior to modifying the permit by deleting redundant operating parameter limits and standards for the combustion units. Until such time as the permit is modified to delete the redundant RCRA-based operating parameter limits and standards in the permit or the permit is terminated or revoked, the permittee must comply with the RCRA-based conditions specified in the permit. More stringent risk-based permit conditions will remain in the RCRA permit.]*

For the exceptions listed in Items 1.-4., the owner and operator must provide the applicable information requested in the Part B permit application and any additional information required by the Executive Director to establish permit conditions.

As applicable, provide an engineering report which includes all of the information specified in 30 TAC 305.171-305.176, 40 CFR 264.340, 264.342-264.346, 264.347(a), and 270.19. In addition, the Executive Director may require additional information to address the requirements in 30 TAC 305.50(a)(15).

Note: Please review the information provided in the section above entitled "Engineering Report for Combustion Units" and 40 CFR 270.19(e) to determine applicability of standards and associated requirements in 40 CFR Part 264, Subpart O. If the permit contains risk-based permit conditions, please ensure that all applicable supporting information is included in the engineering report.

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

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

3. Complete Table V.H.3 - Maximum Constituents Feed Rate for each Incinerator.

4. Complete Table V.H.4 - Maximum Allowable Emission Rates for each Incinerator.

5. 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 for each new or modified Incinerator.

6. 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.

7. 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%.

8. If a trial burn for a modified unit and Comprehensive Performance Test under 40 CFR Part 63, Subpart EEE (HWC MACT) (for all new and modified units) 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 and HWC MACT. In addition, complete Table V.H.8 - Principal Organic Hazardous Constituents.

9. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities which will occur in conjunction with the trial burn.

10. As applicable, facilities with existing permits may request that the Executive Director to address permit conditions that minimize emissions from startup, shutdown, and malfunction events in accordance with the options under 40 CFR 270.235 when requesting the removal of permit conditions that are no longer applicable according to 30 TAC 305.175. Please provide the relevant information needed to process the requested option to minimize emissions identified in 40 CFR 270.235(1)(a)(i)-(iii). (30 TAC 305.176)

I. Boilers and Industrial Furnaces

Engineering Report for Combustion Units

For hazardous waste combustion unit which are subject to regulation by 40 CFR Part 63, Subpart EEE, the requirements 30 TAC Chapter 305 and Subchapters I and Q do not apply when the unit becomes subject to Resource Conservation and Recovery Act (RCRA) permit requirements after October 12, 2005 (i.e., new unit), or no longer apply when an owner or operator of an existing hazardous waste management unit demonstrates compliance with the air emission standards and limitations in 40 Code of Federal Regulations (CFR) Part 63, Subpart EEE, except for the following:

1. Those provisions the Executive Director determines are necessary to comply with 40 CFR §264.345(a) and 40 CFR §264.345(c) for Phase I sources or 40 CFR §266.102(e)(1) and (2)(iii) for Phase II sources if the permittee or applicant elects to comply with any of the options listed in 40 CFR §270.235(a) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events;

2. Those standards and associated requirements for particulate matter, hydrogen chloride and chlorine gas, and non-mercury metals that a Phase II area source elects to comply with in 40 CFR §§266.105, 266.106, and 266.107;

3. Those standards for particulate matter in 40 CFR 264.343(c) remain in effect for a Phase I source incinerator that elects to comply with the alternative to the particulate matter standard under 40 CFR 63.1206(b)(14) and 63.1219(e); and

4. Those provisions that the Executive Director may apply in 30 TAC Chapter 305, Subchapters I and Q, on a case-by-case basis. The Executive Director may require a permittee or an applicant to submit information in order to establish permit conditions under §305.50(a)(15) or (16) and §305.127(1)(B)(iii) or (4)(A) (i.e., risk-based permit conditions).

For hazardous waste combustion units subject to regulation by 40 CFR Part 63, Subpart EEE, some of the information requested in Sections V.H and V.I. will not be applicable for new units or existing units which have submitted a Notification of Compliance in accordance with 40 CFR 63.1207(j) and 63.1210(d), received a Finding of Compliance pursuant to 40 CFR 63.1206(b)(3), and have the associated RCRA permit conditions removed from the permit. Information which is not applicable or no longer applicable should not be included in the Part B application. *[Please note that the TCEQ will require a Finding of Compliance be made prior to modifying the permit by deleting redundant operating parameter limits and standards for the combustion units. Until such time as the permit is modified to delete the redundant RCRA-based operating parameter limits and standards in the permit or the permit is terminated or revoked, the permittee must comply with the RCRA-based conditions specified in the permit. More stringent risk-based permit conditions will remain in the RCRA permit.]*

For the exceptions listed in Items 1.-4., the owner and operator must provide the applicable information requested in the Part B permit application and any additional information required by the Executive Director to establish permit conditions.

As applicable, provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(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. In addition, the Executive Director may require additional information to address the requirements in 30 TAC 305.50(a)(15).

Note: Please review the information provided in the section above entitled "Engineering Report for Combustion Units" and 40 CFR 270.22 to determine applicability of standards and associated requirements in 40 CFR Part 266, Subpart H. Area sources that elect to comply with the standards and associated requirements of 40 CFR 266.105, 266.106, and 266.107 should address those elected standards and requirements in the engineering report. If the permit contains risk-based permit conditions, please ensure that all applicable supporting information is included in the engineering report.

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.
2. Complete Table V.I.2 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems for each unit.
3. Complete Table V.I.3 - Maximum Constituent Feed Rate for each unit.
4. Complete Table V.I.4 - Maximum Allowable Emission Rates for each unit.
5. 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 for each new or modified unit.
6. 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.
7. 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%.
8. If a trial burn for modified units and Comprehensive Performance Test under 40 CFR Part 63, Subpart EEE (HWC MACT) (for all new and modified units) 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 and HWC MACT. In addition, complete Table V.I.8 - Principal Organic Hazardous Constituents.
9. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities.
10. As applicable, facilities with existing permits may request that the Executive Director to address permit conditions that minimize emissions from startup, shutdown, and malfunction events in accordance with the options under 40 CFR 270.235 when requesting the removal of permit conditions that are no longer applicable according to 30 TAC 305.571(b). Please provide the relevant information needed to process the requested option to minimize emissions identified in 40 CFR 270.235(1)(a)(i)-(iii). [30 TAC 305.572(a)(6)]

J. Drip Pads

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 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
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

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

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.

APPENDIX V

Engineering Report

V. Engineering Report Response

This permit renewal application is for post-closure care only for two former surface impoundments, i.e., Unit 01 Closed Effluent Impoundment, and Unit 02 Closed Acid Spill impoundment. No changes to these units have occurred since the prior permit renewal application The closure plans and TCEQ closure approval letters for these units are included which detail the waste and natural clay liner removal from these units. The current configuration of these units is represented in the closure plans, i.e., environmental media that underlay the original impoundments overlain by a cover system (Unit 01) or a lined rainwater impoundment (Unit 02). Consequently, there is nothing remaining of the permitted former hazardous waste impoundments.

Paragraph			Response
A	1		See Appendix V Table V.A and Figures V.A.1.a and V.A.1.b.
	2		Reserved – no new or expanded facility proposed
	3		Reserved – no proposed construction (post closure care only)
	4		Reserved - post closure care only
B			Reserved – HW[1] container storage area closed (<90 day storage)
C			Reserved – Former TDA byproducts tank was closed
D	1		See Appendix V Closure Plans for Effluent and Acid Spill Impoundments
	2		See Appendix V Tables
	3		See Appendix V Tables
For proposed or active SIs[2]			Reserved – no active or proposed SIs
All SIs	1		See Appendix V Tables
	2		Reserved – No ignitable or reactive waste (post closure care only)
	3		Reserved – No incompatible waste (post closure care only)
	4		Reserved – No F listed waste (post closure care only)
	5		See Appendix V Figures
	6		Reserved – post closure care only
	7		Reserved – post closure care only
	8		Reserved – post closure care only
	9	a	Reserved - all waste removed from impoundments at closure
		b	Reserved - all waste removed from impoundments at closure
	10		Reserved – post closure care only
	11		Reserved – post closure care only
	12		Reserved – post closure care only
	13		Reserved – post closure care only
E			Reserved – No HW waste piles
F			Reserved – No HW Land Treatment Units
G			Reserved - All waste removed from impoundments at closure
H			Reserved
I			Reserved - The former boilers used at the facility are closed.
J			Reserved
K			Reserved
L			Reserved

Notes: 1. HW = hazardous waste; 2. SI = Surface Impoundment

Permit No. 50134
Permittee: Air Products LLC

Engineering Report Certification

The hazardous waste management units subject to this permit, i.e., Unit 001 Effluent Impoundment and Unit 002 Acid Spill Impoundment were closed in accordance with a Closure and Post-Closure Plan approved by the Texas Water Commission (TWC) a predecessor agency to the Texas Commission on Environmental Quality (TCEQ). A closure certification report was presented to the TWC upon completion of closure activities for each impoundment as documented in the TWC letters contained herein. The closure certification for the "Effluent Pond" was July 14, 1988 and for the "Acid Spill Pond" was November 18, 1988. The certifications were made by Alan D. Husak, a registered professional engineer. The certification reports are reportedly not available from either Air Products LLC or TCEQ files. Without opportunity to review the certification reports, the current certification is based solely on the TWC letters statements that the "Ponds" were each closed in accordance with the respective approved closure plans as attested by Samuel B. Pole, Chief Hazardous and Solid Waste Enforcement Section.

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 is, to the best of my knowledge and belief, true, accurate, and. complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



7/23/2025

Randall L. Rosengarten, P.E.

WSP USA Inc.
TX Engineering Firm Registration #: 2263

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]
1	Effluent Impoundment	001	Surface Impoundment	727,000 gallons	Post-Closure
2	Acid Spill Impoundment	002	Surface Impoundment	335,000 gallons	Post-Closure
	Container Storage Area	003	Container Storage (Surface)	27,500 gallons	Closed
	TDA Byproducts Tank	005	Storage Tank (Aboveground)	17,500 gallons	Closed
	1520 Boiler	006	Combustion Unit (Boiler)		Closed
	1560 Boiler	010	Combustion Unit (Boiler)		Closed

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.

Table V.D.1. - Surface Impoundments - RESERVED*

Permit Unit No.	Surface Impoundment	N.O.R No.	Waste Nos.[1]	Rated Capacity	Dimensions	Distance from lowest liner to groundwater	Action Leakage Rate (if required)	Unit will manage Ignitable, Reactive, Incompatible, or F020, F021, F022, F023, F026, and F027 Waste (state all that apply)	Unit Status

1. From Table IV.B, first column
2. Dimensions should be provided as average length, width and depth, also include the surface acreage for the unit.

- Units were closed with complete waste removal and are in post-closure care.

Table V.D.6. - Surface Impoundments Liner System

Surface Impoundment	Primary Liner			Secondary Liner			Clay Liner		
	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness	Material	Permeability (cm/sec)	Thickness
Effluent	NA	NA	NA	NA	NA	NA	In situ Native Sandy Clay	2×10^{-9} [1]	2.5 feet [1]
Acid Spill	HDPE	$\leq 10^{-7}$	0.10 inches	HDPE	$\leq 10^{-7}$	0.06 inches	NA	NA	NA

HDPE = High-Density Polyurethane

[1] Permeability data obtained from geotechnical analysis of soil sample collected at a depth of 10 feet below ground surface during drilling and installation of nearby groundwater monitoring well MW-3 (approximately 50 feet northwest of Effluent Impoundment), conducted by Underground Resource Management (1981). Lithologic log for MW-3 was also used to determine thickness of clayey unit below the former Effluent Impoundment backfill.

FIGURES – V.A.1.a and V.A.1.b

22 ft.

Industrial Use

20 ft.

Industrial Use

22 ft.

24 ft.

HL&P PROPERTY

HL&P PROPERTY

HL&P PROPERTY

STEAM METHANE REFORMER

24 ft.

Sekisui PVOH Facility

Industrial Use

24 ft

20 ft.

22 ft

26 ft.

Industrial Use

28 ft.

28 ft.

STATE HYW 225

Approximate 1000-ft. Perimeter

Industrial Use

Commercial Use

Commercial Use

Residential Use

Drainage Channel

EAST PROPERTY BOUNDARY

IAH Annual 1984 - 92
January 1
December 31
Midnight - 11 PM

NOTE: Frequencies indicate direction from which the wind is blowing.

Calm Winds 9.18%

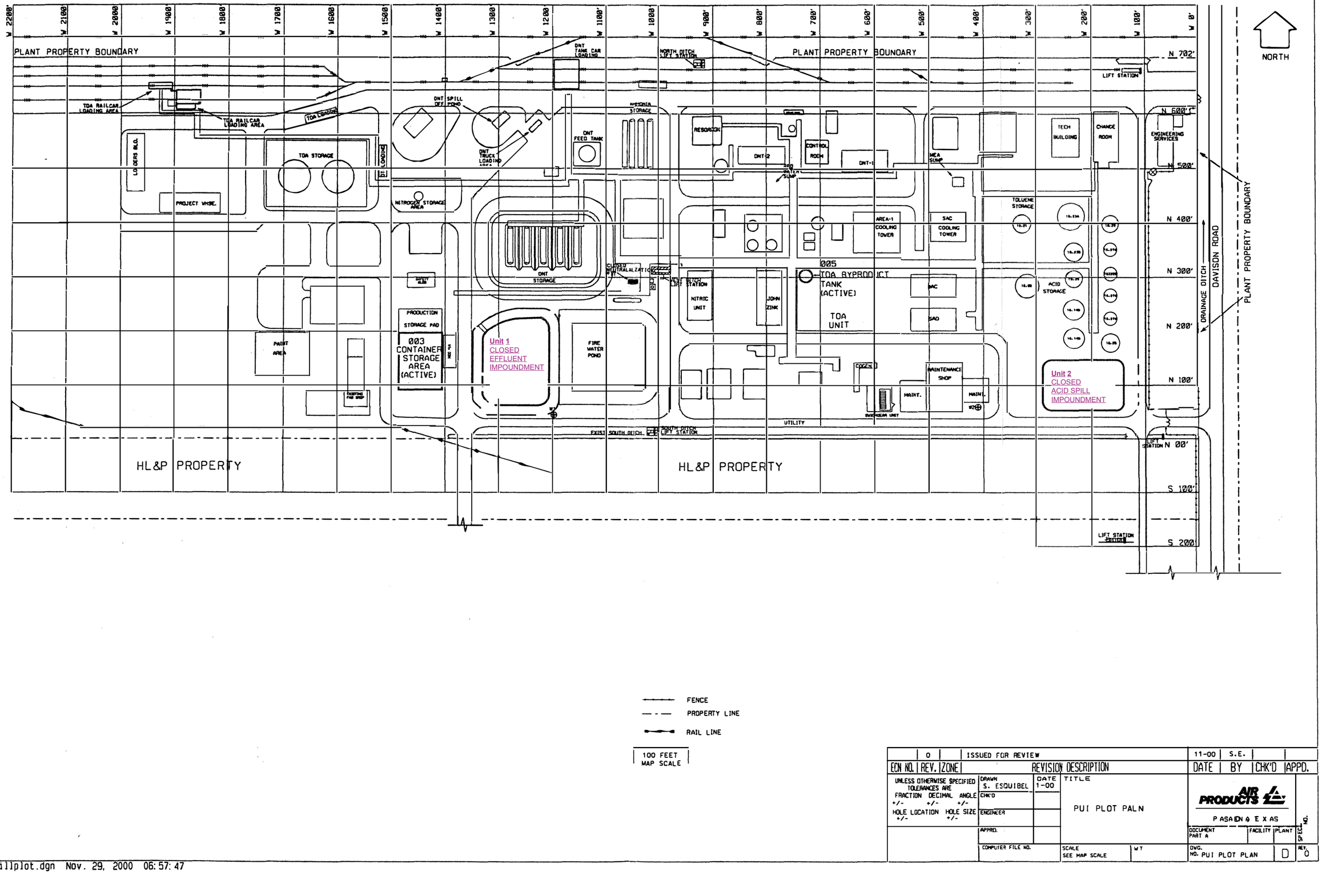
WIND SPEED (KNOTS)
CALMS 1-3 4-6 7-10 11-16 17-21 +21

Fence
Site Boundary
Waste Water Line
Recovery Well
Water Well
RAIL LINE

Revision No. 4
(RCRA Part B Renewal Application)
May 22, 2015

ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APPD.

DRAWN S. ESQUIBEL | DATE 1-00 | TITLE: Land Use and Topographic Map
CHK'D
ENGINEER
APPRD.
COMPUTER FILE NO. FIGVA1A.DGN | SCALE SEE MAP SCALE | WT
AIR PRODUCTS PASADENA, TEXAS
DOCUMENT PART B | FACILITY | PLANT | SPEC. NO.
DWG NO. FIGURE V.A.1.a | D | REV. 2



ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APPD.
	0		ISSUED FOR REVIEW	11-00	S.E.		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
FRACTION +/- DECIMAL +/- ANGLE +/-
HOLE LOCATION +/- HOLE SIZE +/-

DRAWN	S. ESQUIBEL	DATE 1-00
CHK'D		
ENGINEER		
APPRD.		
COMPUTER FILE NO.		

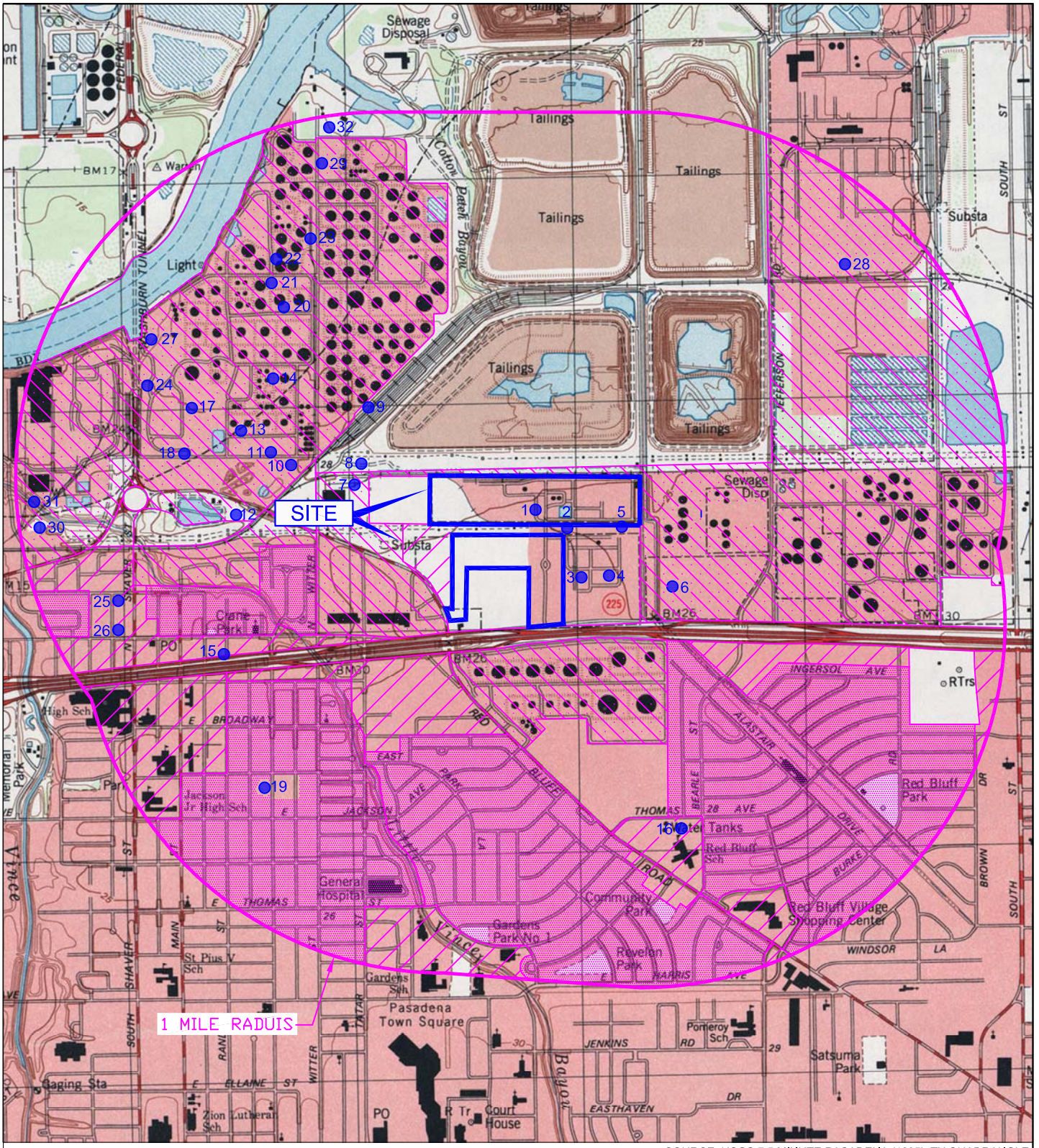
TITLE: PUI PLOT PALN

AIR PRODUCTS
PASADENA TEXAS

DOCUMENT PART A	FACILITY	PLANT	SPEC. NO.
DWG. NO. PUI PLOT PLAN		D	REV. 0

SCALE SEE MAP SCALE | WT

c:\sonny\dgn\billplot.dgn Nov. 29, 2000 06:57:47



SOURCE: USGS 7.5 MINUTE PASADENA (1995), TX QUADRANGLE

EXPLANATION

- SITE BOUNDARY
- WATER WELL LOCATION

LAND USE

- INDUSTRIAL
- COMMERCIAL
- RESIDENTIAL
- UNDEVELOPED

TEXAS

QUADRANGLE LOCATION

N

0 1000 2000

FEET

APPROXIMATE SCALE IN FEET

amec foster wheeler

PLAN VIEW AND TOPOGRAPHIC MAP

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 004487
Date: 03/19/2015
By: BAL

Figure V.A.1.b

CLOSURE PLANS AND CERTIFICATION APPROVAL LETTERS FROM TCEQ FOR:
EFFLUENT IMPOUNDMENT
ACID SPILL IMPOUNDMENT

Table of Contents

VII.C.a. EFFLUENT IMPOUNDMENT CLOSURE AND POST-CLOSURE PLAN.....1

Introduction 1

Post-Closure Care Inspections 1

ATTACHMENTS

Table 1. Effluent Impoundment Post-Closure Inspection and Maintenance Schedule

Attachment A. Texas Water Commission Correspondence Documenting Completion of Closure of the Effluent Impoundment

VII.C.a. EFFLUENT IMPOUNDMENT CLOSURE AND POST-CLOSURE PLAN

Introduction

This plan is submitted in accordance with 30 Texas Administrative Code (TAC) 335.174(b). APLLC 's Effluent Impoundment has been previously closed as a landfill and is presently being maintained under post-closure care (PCC). The closure of the EI consisted of removal of waste, and underlying compacted clay, sampling of the base soils, backfill with clean fill, followed by capping with a clay cap overlain by a sand drainage layer and topsoil with a vegetative cover. The cap is constructed such that run—on and run-off are managed by a vegetated and topographically positive cap, and inspections are conducted to verify the absence of erosion and correct as necessary (also described below).Attached in Attachment A is a letter dated February 2, 1989, from the Texas Water Commission (predecessor agency to the Texas Commission on Environmental Quality) documenting approval of completion and certification of closure of the surface impoundment in accordance with closure plan approved by the TWC on September 1, 1987. Post-closure care of the EI includes regular inspection and maintenance of the vegetative cover and groundwater monitoring. A groundwater Corrective Action (CA) program has been established in APLLC's Compliance Plan to address releases in the area of the former EI pursuant to 30 TAC 335.166. Following is a description of the inspection and maintenance activities carried out as part of post-closure care of the Former EI:

Post-Closure Care Inspections

Post-closure care inspections to address applicable requirements specified in 30 TAC 335.174(b)(1) and (5) include monthly cap inspections and weekly fence/gate inspections for the entire APLLC site. The following is a brief description of each of the above items.

- Monthly Cap Inspections

  The clay cap and vegetative cover will be inspected for evidence of water puddling, cap erosion and absence of vegetation. Monthly frequency is deemed adequate based upon operating experience. Vegetation is well-established. Even after rains of more than eight to ten inches, erosion or puddling has not been detected. If such deficiencies were detected additional top soil would be placed on the cap top and re-vegetated as necessary.

- Weekly Fence/Gate Inspections

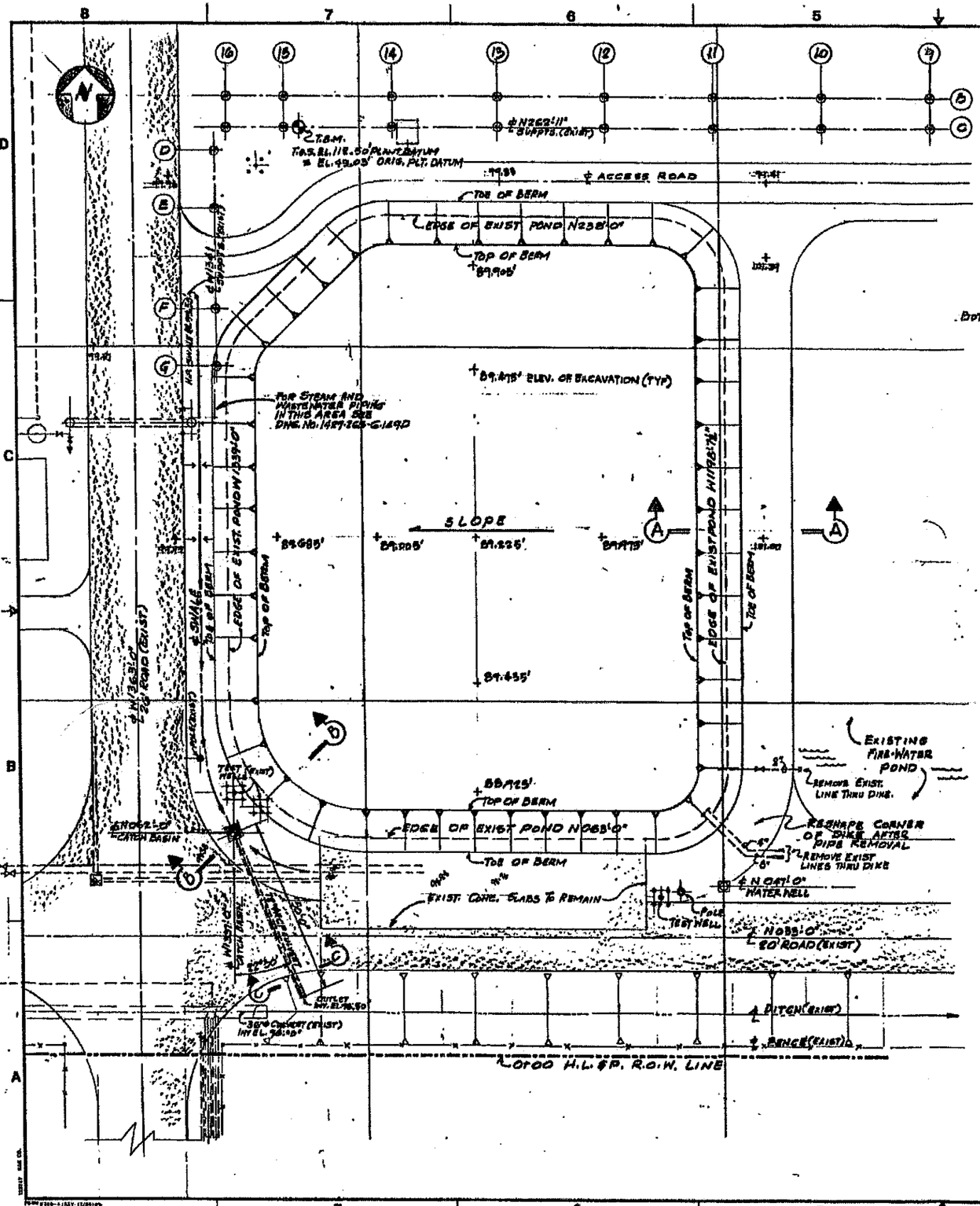
  The present fence/gate system surrounds the developed portion of the APLLC manufacturing site. It is anticipated that the site will not close until after the year 2020. The fencing system should therefore remain during the entire 30-year Post Closure care period. If this is not the case, then fencing would be installed and maintained around the closed impoundment upon closure of the manufacturing facility. Weekly inspections will look for holes in the fencing or portions of the fencing that are down for various reasons.

Gates will also be inspected to verify locks are in place and the gates are locked. If deficiencies are identified, the fencing will be repaired as soon as possible and/or locks will be replaced. A weekly inspection frequency is deemed adequate based on operating experience.

Regarding protection and maintenance of surveyed benchmarks, as specified in 30 TAC 174(b)(6) [40 CFR §264.309], all plant elevations and latitude-longitudes are taken from a fixed U.S.C. & G.D. survey monument (Q-1205) located on the southwest leg of a Houston Power and Lighting Company power line tower. The power line tower is maintained by HL&P and the benchmark is maintained by U.S.C. & G.D.

Table 1. Effluent Impoundment Post Closure Inspection and Maintenance Schedule

System	Item	Inspection Frequency	Potential Defect	Response
1. Cap and Cover	Surface	Monthly	Puddling of water	Re-grade and place new vegetation
			Absence of vegetative cover	Place new vegetation
			Erosional features, rills	Re-grade and place new vegetation
			Puddling of water; absence of vegetative cover; erosion, settling and subsidence	Re-grade if necessary and place new vegetation
2. Security	Fences	Weekly	Holes, cut, or down	Replace defective section
	Gates	Weekly	Lock missing	Replace lock



ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APP'D.
	D		ISSUE FOR CONSTRUCTION	10-8-87	JMM		
	B		ISSUE FOR BIDS	9-8-87	JMM		
	A		ISSUE FOR APPROVAL	7-30-87	JMM		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
FRACTION ± DECIMAL ± ANGLE ±
HOLE LOCATION ± HOLE SIZE ±

DRAWN: J. MOORE — DATE: 7-29-87
CHECKED:
M. NASSRI, ENGINEER
APPD.

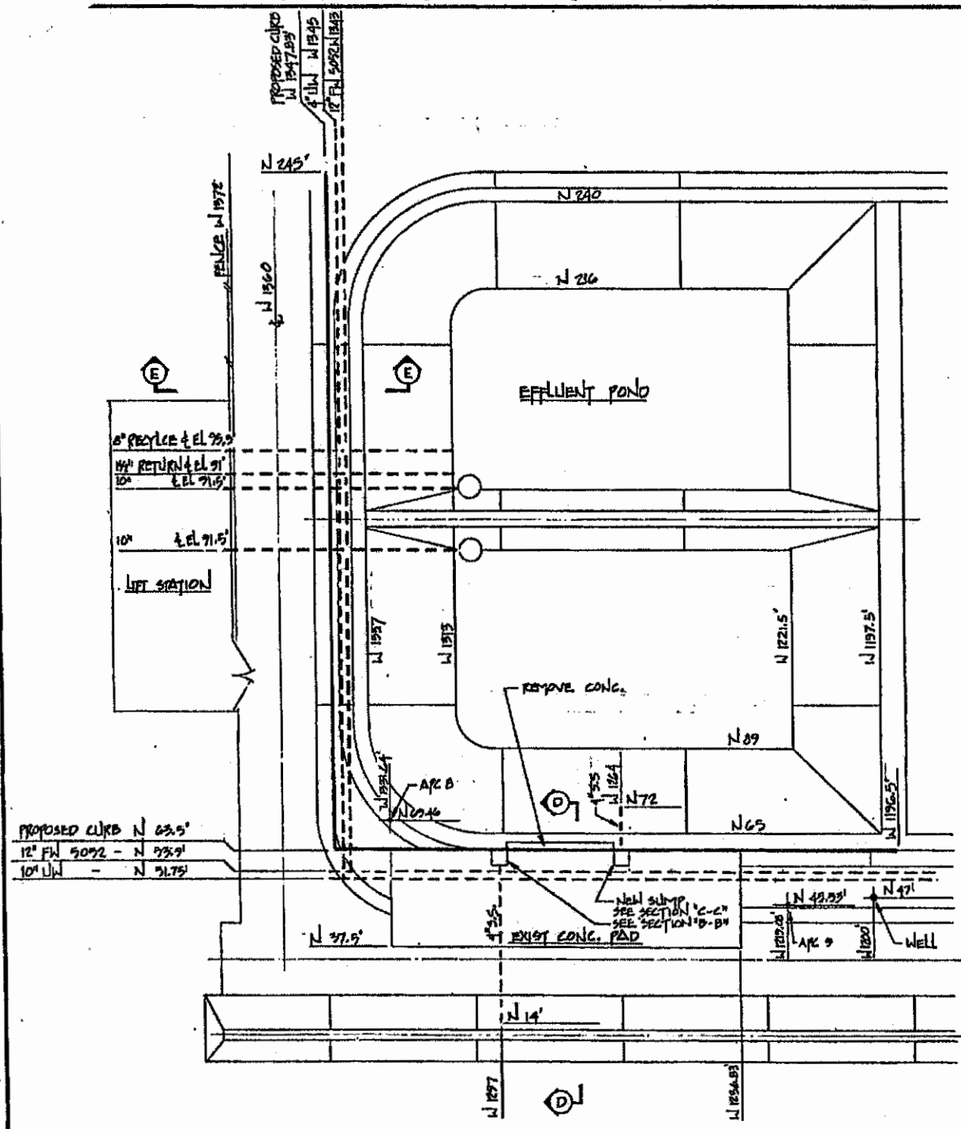
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EFFLUENT POND CLOSURE
PLANS & SECTIONS

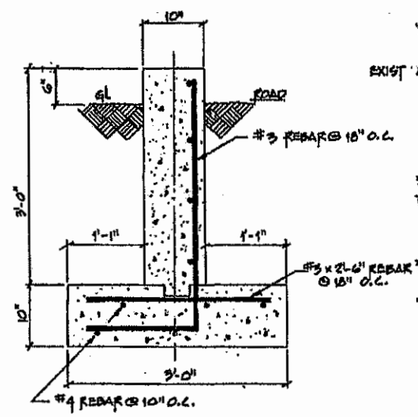
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ALLENTOWN, PENNSYLVANIA

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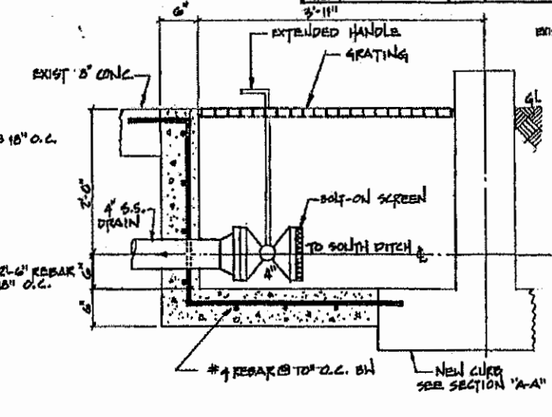
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				MATERIAL	

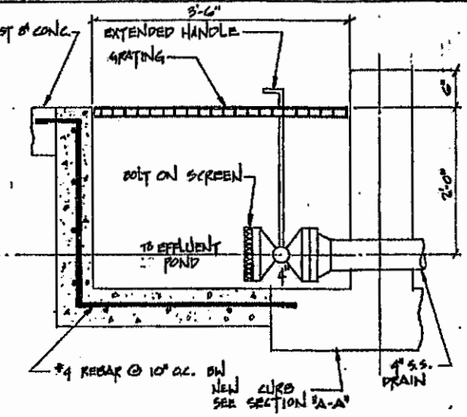




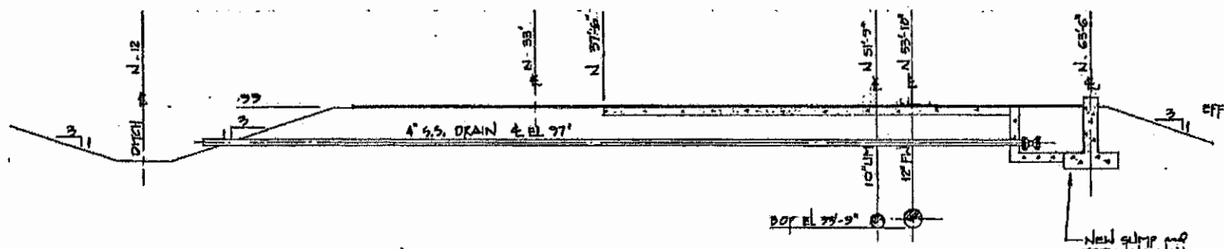
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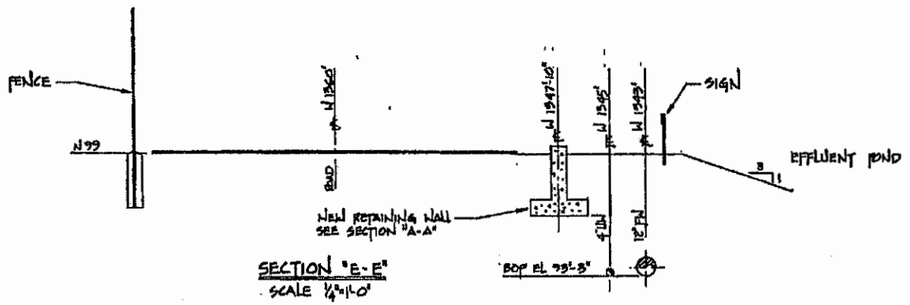
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SECTION "C-C"
SCALE 1"=1'-0"



SECTION "D-D"
SCALE 1/4"=1'-0"



SECTION "E-E"
SCALE 1/4"=1'-0"

ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APP'D

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
FRACTION ± | DECIMAL ± | ANGLES ±
POLE LOCATION ± | HOLE SIZE ±
FIRST USED ON

M'ARTOR DRAFTSMAN — DATE 2-25-92
CHECKED
MALONE ENGINEER
APP'D

TITLE
EFFLUENT POND CURBING and SUMPS

SCALE AS NOTED | WT.

AIR PRODUCTS AND CHEMICALS, INC.
PASADENA, TEXAS

1240-265-6.128 | D

DWG. SIZE D

004127.TIF

ATTACHMENT A

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman
Paul Hopkins, Commissioner
John O. Houchins, Commissioner

Allen Beinke, Executive Director
Michael E. Field, General Counsel
Brenda W. Foster, Chief Clerk

February 2, 1989

RECEIVED
FEB 6 1989

Mr. Bob Martien
Air Products Manufacturing Corp.
P.O. Box 3326
Pasadena, Texas 77501

Re: Partial RCRA Closure
TWC Registration No. 30317
Effluent Pond
TWC Facility No. 01

Dear Mr. Martien:

The Texas Water Commission (TWC) has reviewed your closure certification dated July 14, 1988 by Alan D. Husak, a registered professional engineer.

Our review of this certification indicates that the referenced pond was closed in accordance with the closure plan approved by TWC on September 1, 1987.

The effluent pond is now subject to RCRA post-closure care. Your post-closure care permit application is now being processed by the TWC Hazardous & Solid Waste Division Permits Section.

If you have any questions regarding the closure certification, please contact Luis E. Campos in Austin at 512/475-2163.

Sincerely,

Samuel B. Pole, Chief
Hazardous and Solid Waste Enforcement Section
Hazardous and Solid Waste Division

cc: TWC Deer Park Office
Paul Lewis, TWC Groundwater Enforcement Unit
John Mikus, TWC Permits Section

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VII.C.b. ACID SPILL IMPOUNDMENT CLOSURE AND POST-CLOSURE PLAN 1

Introduction 1

Post-Closure Care Inspections 1

ATTACHMENTS

Table 1. Acid Spill Impoundment Post-Closure Inspection and Maintenance Schedule

Attachment A. Texas Water Commission Correspondence Documenting Completion of Closure of the Acid Spill Impoundment

VII.C.b. ACID SPILL IMPOUNDMENT CLOSURE AND POST-CLOSURE PLAN

Introduction

This plan is submitted in accordance with 30 Texas Administrative Code (TAC) 335.174(b). APLLC's Acid Spill Impoundment (ASI) has been previously closed as a landfill and is presently being maintained under post-closure care (PCC). The closure of the ASI consisted of removal of waste and bottom clay liner, sampling of the base soils, followed by installation of a double liner with a leak detection system. A 2-foot thick layer of compacted clean clay was placed over the bottom and sidewalls of the excavated impoundment. The double liner and leak detection system was placed over the compacted clay liner. Components of the liner system included a 60 mil HDPE secondary liner, a synthetic drainage net, and a 100 mil HDPE primary liner. A liner pump is installed in between the primary and secondary liners. In addition, there is a pump installed in the leachate collection sump located below the bottom primary liner (i.e., RL-1). The former ASI continues to be operated as a catchment for spills at the adjacent tank farm and as a Rainwater Impoundment during post-closure care. Attached in Attachment A is a letter dated February 2, 1989, from the Texas Water Commission (predecessor agency to the Texas Commission on Environmental Quality) documenting approval of completion and certification of closure of the surface impoundment in accordance with closure plan approved by the TWC on September 1, 1987. Post-closure care of the ASI consists of inspection and maintenance of the Rainwater Impoundment upper synthetic liner occurring at ground surface, removal of liquids from and maintenance of the leachate collection/removal system, monitoring and retrieval of groundwater in the immediate vicinity of the impoundment, and maintenance of facility gates and fences. A groundwater Corrective Action (CA) program has been established in APLLC's Compliance Plan to address releases in the area of the former ASI pursuant to 30 TAC 335.166. Following is a description of the inspection and maintenance activities carried out as part of post-closure care of the Former ASI:

Post-Closure Care Inspections

Post-closure care inspections to address applicable requirements specified in 30 TAC 335.174(b) include monthly liner inspections for the Rainwater Impoundment (closed ASI), weekly leachate collection/removal system inspections and weekly fence/gate inspections. The following is a brief description of each of the above items.

- Monthly Synthetic Liner Inspection

  The synthetic liner for the Rainwater Impoundment (closed ASI) is inspected weekly for signs of tears/holes in the top liner and evidence of the liner edge slipping from anchorage in the soil. Weekly frequency is deemed adequate based on operating experience. Past inspection records documented one small tear in a liner seam that formed shortly after the liner was initially installed. The cause was believed to be due to an installation deficiency which was subsequently corrected. There has been no noted evidence of liner slippage or development of new tears or holes in the liner since the

initial correction. If deficiencies are identified (i.e., tears, holes, slippage) a private liner repair contractor would be obtained by APLLC to provide appropriate repairs to the liner.

- Weekly Leachate Collection/Removal and Inspection

  Liquids (primarily comprised of recovered groundwater) were previously detected in the leachate collection sump of the Rainwater Impoundment shortly after initial closure as the "ASI". A permanent pump (i.e. RL-1) has been installed to remove these liquids from the leachate collection sump. The sump is evacuated on a weekly basis. The volume of the liquids removed is measured with a flow totalizer on a weekly basis. The liquids are then transferred, with other wastewaters to a wastewater tank. The waters are then transferred off-site to a POTW for final treatment.

  The collection/removal system for the Rainwater Impoundment leachate system is inspected weekly to verify pump operation, totalizer operation and no leaks from the system. APLLC submits semi-annual status reports of leachate collection, removal and inspection activities associated with the Rainwater Impoundment to the TCEQ on a semi-annual basis as part of the Groundwater Corrective Action program reports submitted in accordance with the requirements established in APLLC's Compliance Plan. The semi-annual CA reports provide the total volume of liquid removed from RL-1, analytical results of the removed liquid and current status of operational/maintenance activities.

- Weekly Fence/Gate Inspections

  The present fence/gate system surrounds the developed portion of the APLLC manufacturing site. It is anticipated that the site will not close until after the year 2020. The fencing system should therefore remain during the entire 30-year Post Closure Care period. If this is not the case, then fencing would be installed and maintained around the closed impoundment upon closure of the manufacturing facility. Weekly inspections will look for holes in the fencing or portions of the fencing that are down for various reasons. Gates will also be inspected to verify locks are in place and the gates are locked. If deficiencies are identified, the fencing will be repaired as soon as possible and/or locks will be replaced. A weekly inspection frequency is deemed adequate based on operating experience.

Table 1. Acid Sludge Impoundment Post Closure Inspection and Maintenance Schedule

System	Item	Inspection Frequency	Potential Defect	Response
1. Rainwater Impoundment	Synthetic Liner	Monthly	Slippage, tears	Re-anchor liner Repair tears
2. Security	Fences	Weekly	Holes, cut, or down	Replace defective section
	Gates	Weekly	Lock missing	Replace lock
3. Leachate Collection/Removal System	Pumps, Totalizer	Weekly	In operation	Repair or replace pumps, totalizer

NOTE:
1) NORTH SIDE OF THE POND MUST BE TEMPORARY DAMMED TO PREVENT RAIN COMING TO THE POND. REMOVE THE DAM AND REPLACE ROCKS, AFTER COMPLETION OF POND.
2) AREA EXCAVATED FOR REMOVAL OF EXISTING SUMP & PIPING TO BE BACKFILLED WITH SELECT FILL WITH A PLASTICITY INDEX LESS THAN 20, COMPACTED TO 90% MODIFIED PROCTOR IN 6" LAYERS.
3) GUNITE PNUEMATICALLY APPLIED ~~CONCRETE~~ 3" THK. 1 PART CEMENT TO 4 PARTS SAND BY VOLUME WATER NOT TO EXCEED 5 GAL PER BAG OF CEMENT AT NOZZLE. REINFORCE WITH 4 x 4-W1.4 x W1.4 WELDED WIRE FABRIC (GALV.).

ACID TANK FARM

EXISTING MAINTENANCE OFFICE BUILDING

REMOVE EXIST. FLAP GATES & HEADWALL REPLACE WITH NEW 24" SLUICE GATES (MATERIAL) ARMCO MODEL 161 C (OR EQ).

EXIST. DITCH

EXIST. BERM

N122.00 E VIG.14B

N 232.00

N179.88' E V16.26

N 117.46

N172.37'

TEMPORARY EARTHEN DAM

TOP CONC. TANK FARM SUMP EL. 98.7"

EXIST. TANK FARM SUMP EL. 97.00'

TEMPORARY EARTHEN DAM

N152.00 FACE EXIST HEADWALL

EMBANKMENT CROWN EL. 98'-0"

N152.00 LINER ANCHOR TRENCH

REPLACE 1" LIMESTONE ROCK AS REQUIRED.

SEE PLAN OF SPILLWAY DWG. 1429-283-4-2210

GUNITE 3:1 SLOPE

TOP OF 12" THK. CLAY EL. 90'-0"

EL. 89'-0"

161'-0"

3:1 SLOPE GUNITE

1" LIMESTONE ROCK

EXIST. FIREHOUSE

EXIST. FENCE

N1+00

REPLACE EXIST. 8" RCP WITH NEW 12" RCP

REPLACE EXIST. CHANNEL WITH NEW

SEE DETAIL DWG. 4,223-D

LEACHATE COLLECTION SUMP

6" ø PVC LEACHATE PIPE

REMOVE PORTION OF EXIST. 2" ø PIPING

EL. 88'-2" BOTT. 5'x5'x 2' SUMP

SLOPE 1/8" PER FOOT

EL. 90'-0"

REMOVE EXISTING SUMP, SUMP & PUMP SEE DWG. 4,223-D

4" ø PUMP SUCT. SEE DWG. 4,223-D

REMOVE PORTION 10" U.W.

EXIST. 8" RCP TO REMAIN

NEW 12" RCP SEE DWG. 6,525-D

SEE DWG. M29-283-E-2250 FOR PIPING PLANS & SECTS.

REROUTE

EXIST. STOR. BLDG

DIESEL TANK

WATER WELL

1" REVERSED UTILITY WATER

REROUTE 2" UTILITY WATER

POLE

EXIST. 18" RCP

EXIST. 24" RCP

EXIST. 30" RCP

EXIST. 36" RCP

EXIST. 42" RCP

EXIST. 48" RCP

EXIST. 54" RCP

EXIST. 60" RCP

EXIST. 66" RCP

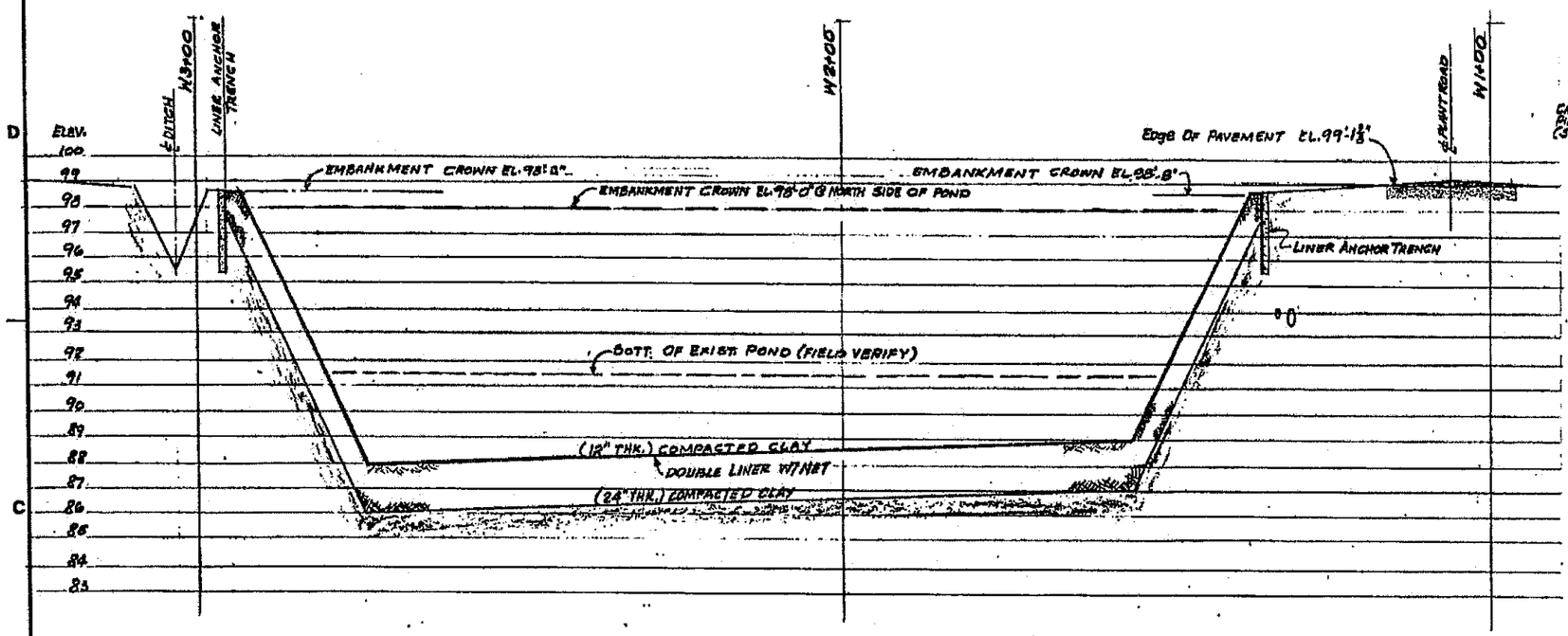
EXIST. 72" RCP

EXIST. 78" RCP

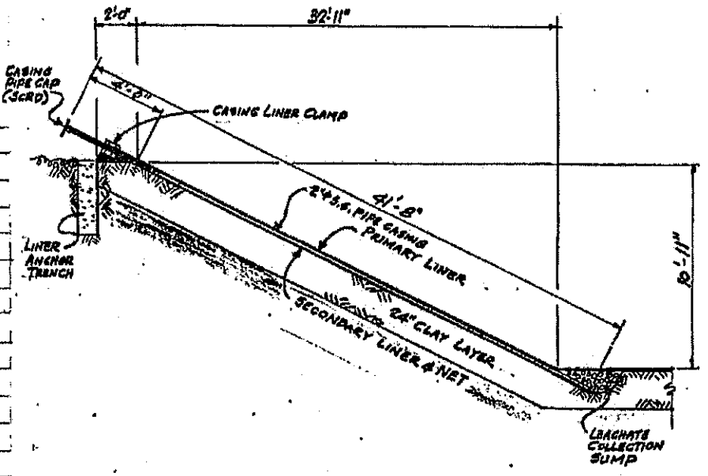
EXIST. 84" RCP

EXIST. 90" RCP

EXIST.

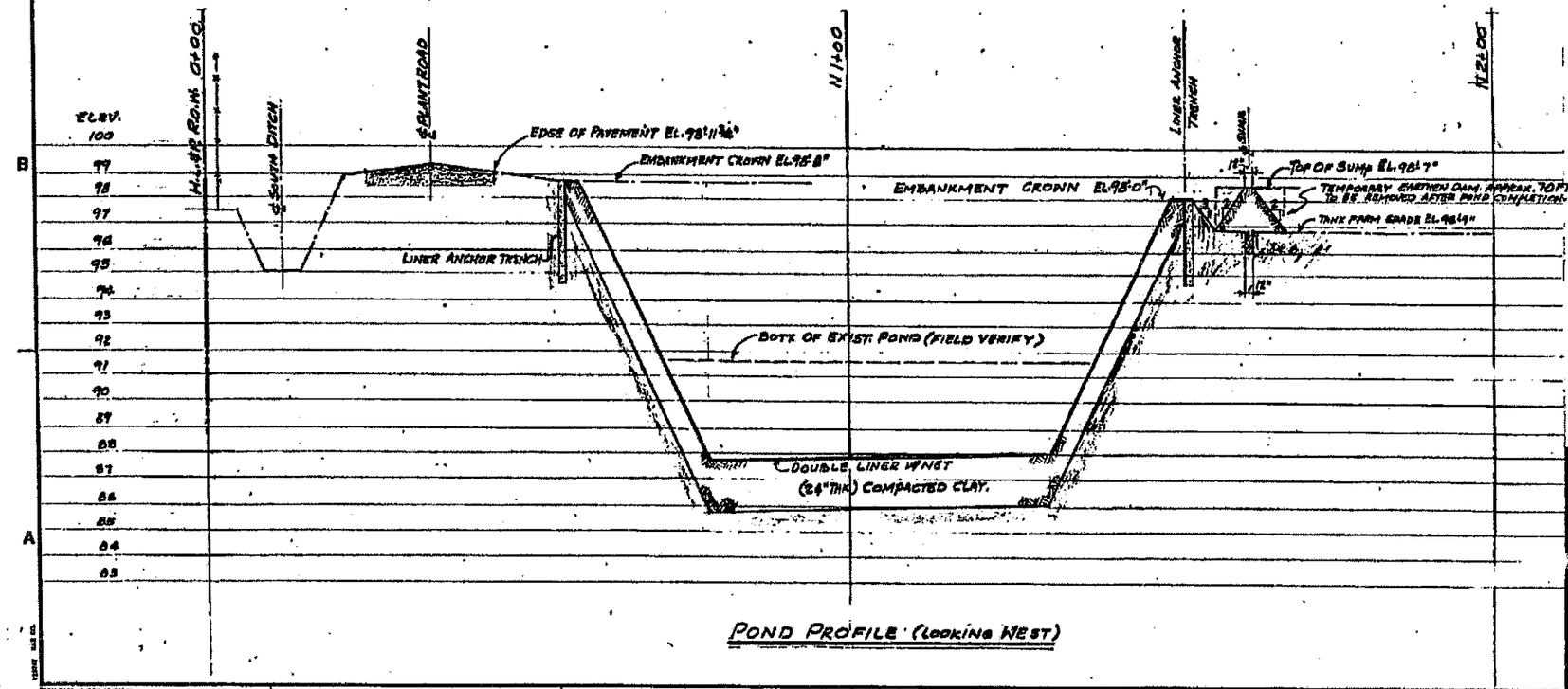


POND PROFILE (LOOKING NORTH)



SECTION AT LEACHATE COLLECTION SUMP

NOTE: 1) CONTRACTOR RESPONSIBLE FOR PROVIDING MATERIAL, EQUIPMENT, AND LABOR TO INSTALL DOUBLE LINER, NET, AND LEACHATE COLLECTION SUMP SHOULD PROVIDE DETAIL DESIGN DRAWING FOR SYSTEM TO BE APPROVED BY APMC.



POND PROFILE (LOOKING WEST)

ECN NO.	REV.	ZONE	DESCRIPTION	DATE	BY	CHK'D	APP'D
	1		REMOVED 12" CLAY COVER	9-9-88	R.Y.		
	0		ISSUED FOR CONSTRUCTION	2/14/88	F.S.		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: FRACTION ± DECIMAL .X ± .XX ± HOLE LOCATION ± HOLE SIZE ±

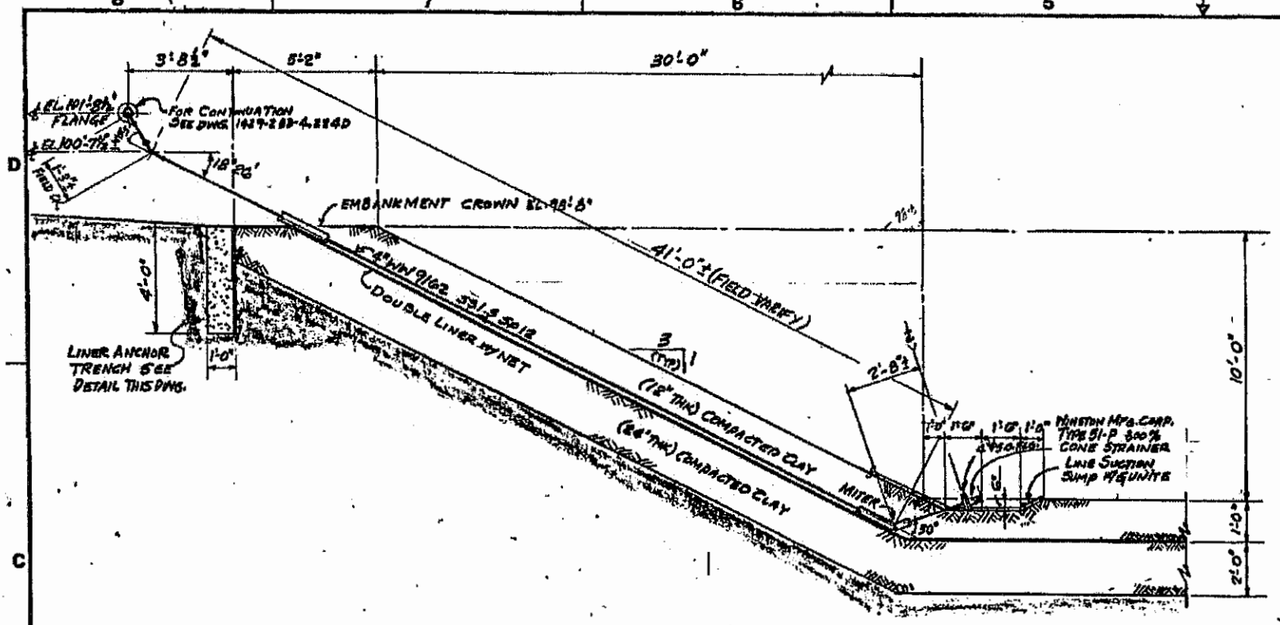
DRAWN [illegible] 5-19-87
CHECKED
MANAGER ENGINEER 2/19/88
APPD.

TITLE: HAZARDOUS WASTE CONTROL PHASE II
RAIN WATER POND PROFILES & GEN. NOTES

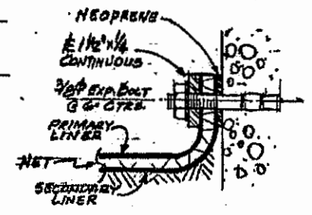
AIR PRODUCTS ALLENTOWN, PENNSYLVANIA

FILE | FACILITY | PLANT | DWG NO. 1429-2834.228 | REV. D 0
SCALE ~ | WT. | SHEET

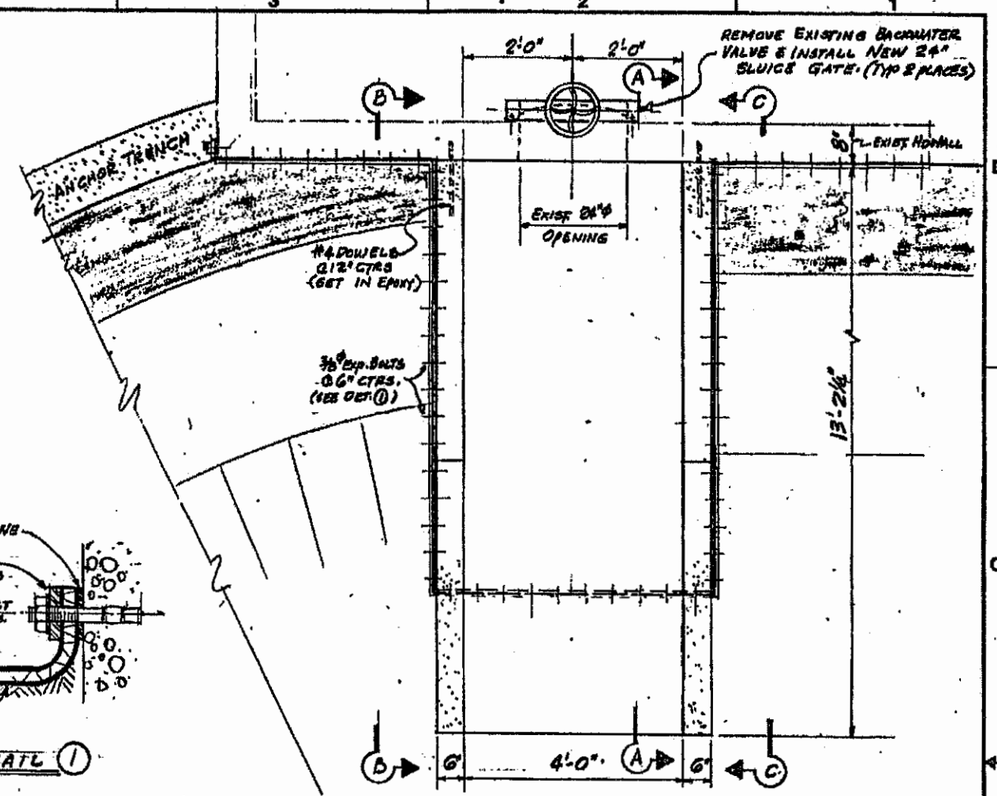
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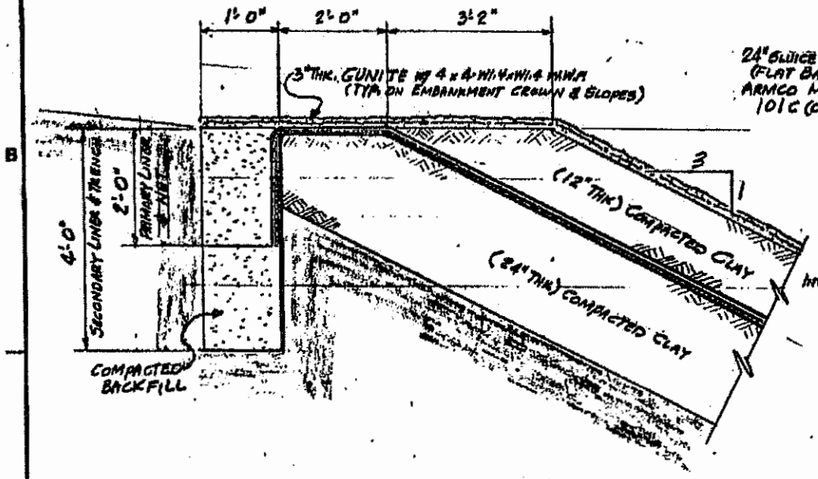
SECTION AT PUMP SUCTION



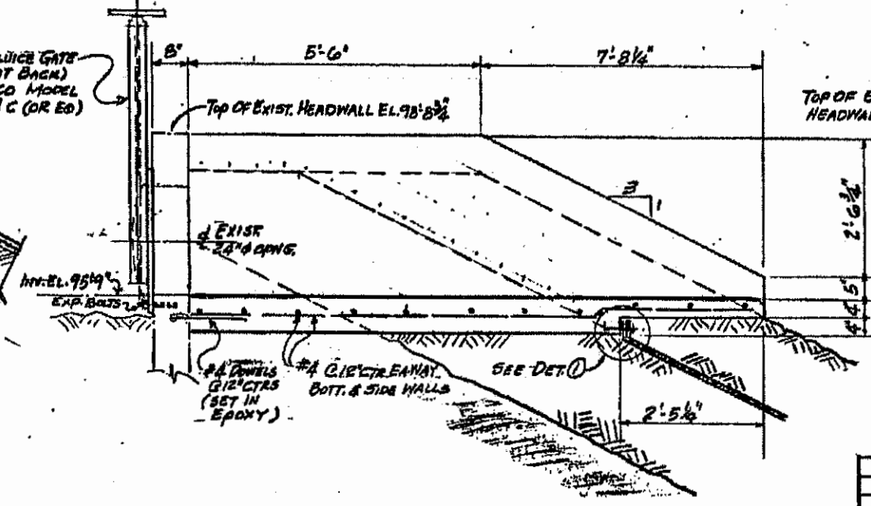
DETAIL (1)



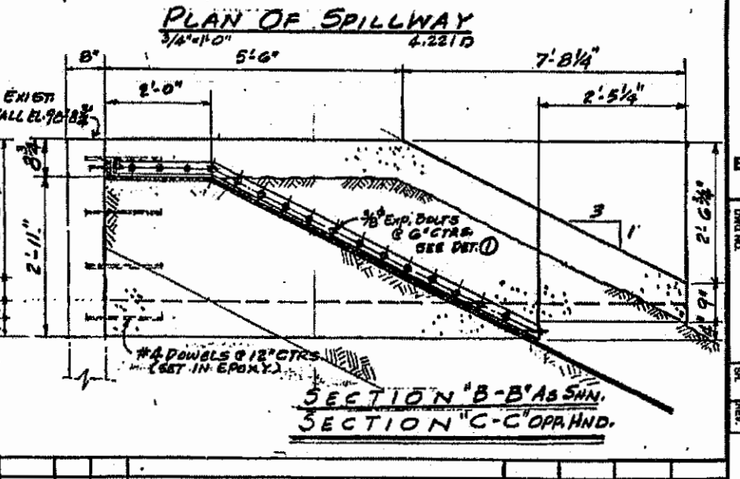
PLAN OF SPILLWAY
3/4"=1'-0" 4.221D



TYPICAL ANCHOR TRENCH DETAIL



SECTION "A-A"



SECTION "B-B" AS SHN.
SECTION "C-C" OPP. HND.

NOTE: ALL LINER INSTALLATION DESIGN MUST BE VERIFIED BY RESPONSIBLE CONTRACTOR.

ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APPD.
	0		ISSUED FOR CONSTRUCTION	5/17/88	F.B.		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
FRACTION ± DECIMAL ± ANGLE ±
HOLE LOCATION ± HOLE SIZE ±

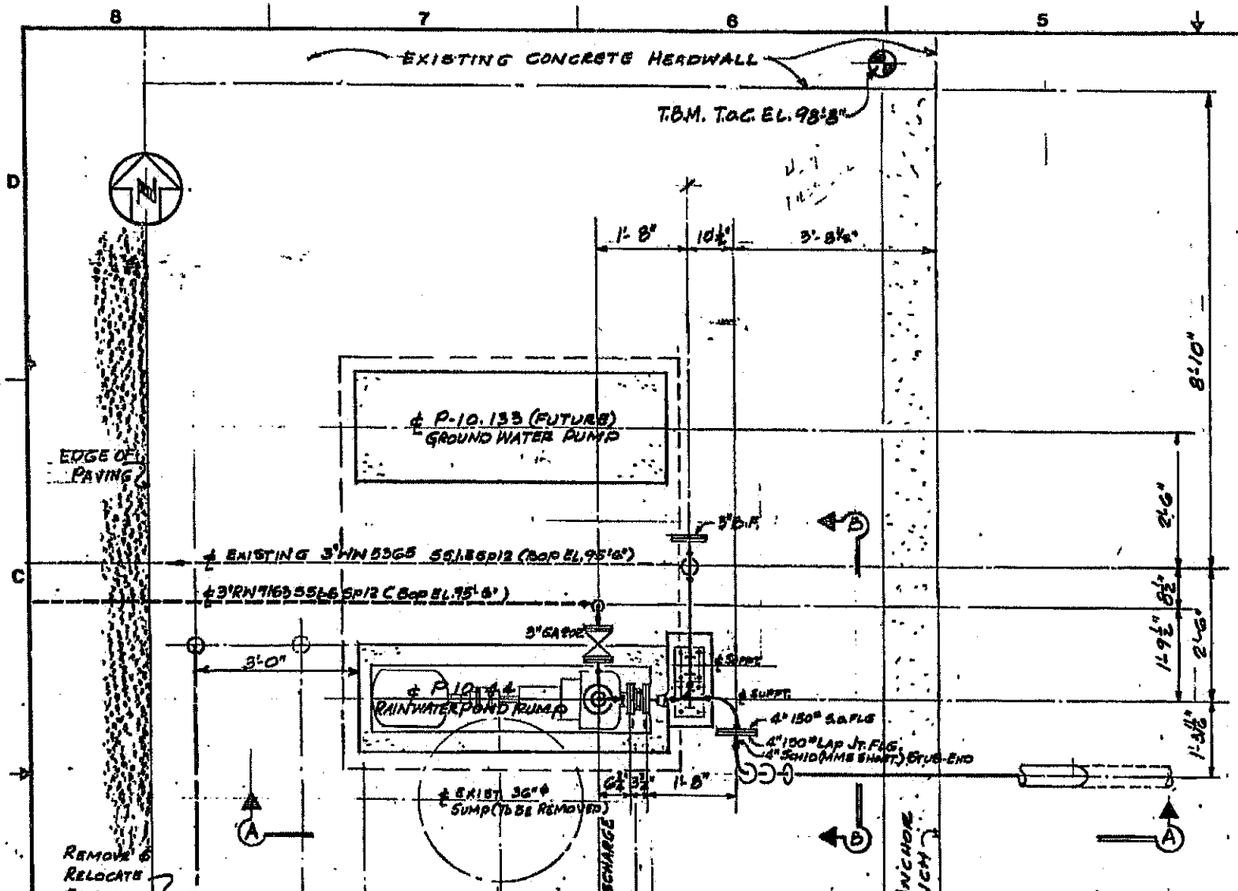
DRAWN	J. MOORE	DATE 6-1-87
CHECKED		
ENGINEER	M. NASERI	2/19/88
APPD.		

TITLE: HAZARDOUS WASTE CONTROL PHASE II
RAINWATER POND SECTIONS & DETAILS

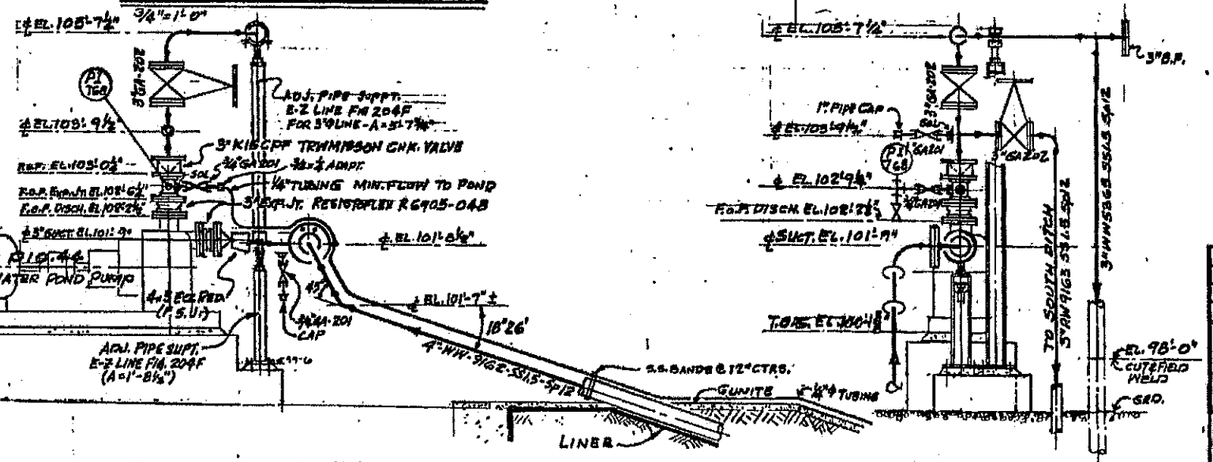
AIR PRODUCTS
ALLENTOWN, PENNSYLVANIA

FILE | FACILITY | PLANT | DWG NO. 1429-285-4.223 | REV. D 0
SCALE AS NOTED | WT. | SHEET

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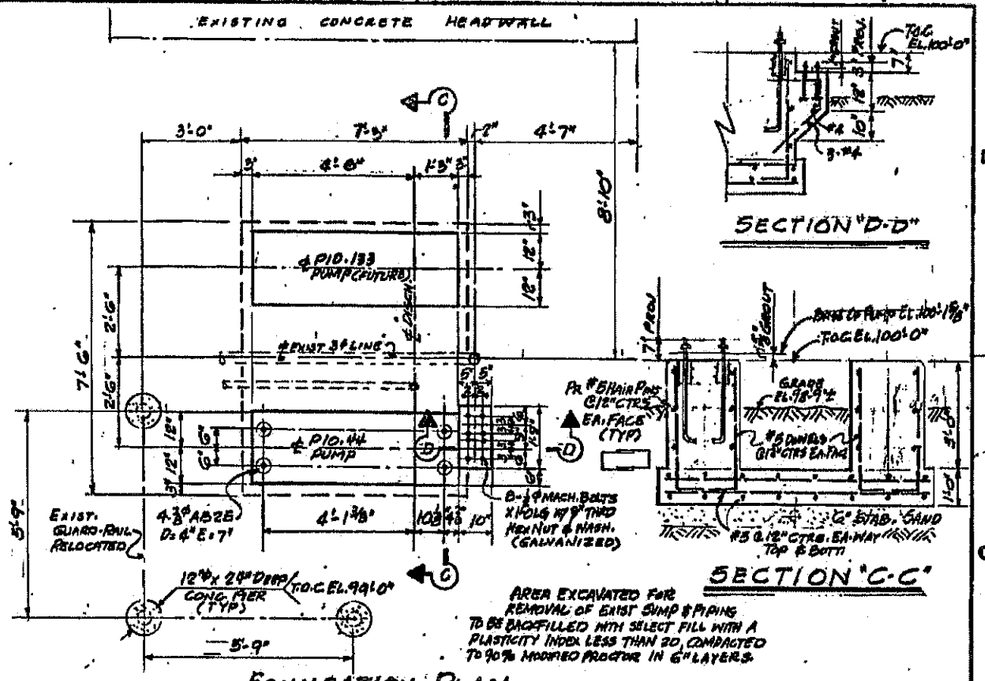


PIPING PLAN AT POND PUMPS



SECTION "A-A"

SECTION "B-B"



FOUNDATION PLAN

1/2" = 1'-0"

AREA EXCAVATED FOR REMOVAL OF EXIST SUMP & PIPING TO BE BACKFILLED WITH SELECT FILL WITH A PLASTICITY INDEX LESS THAN 20, COMPACTED TO 90% MODIFIED PROCTOR IN 6" LAYERS.

GENERAL CONCRETE NOTES:

1. All materials and workmanship shall conform to the Project Procedures Manual, Section 3000, "Concrete and Grouting Specification" and the American Concrete Institute Standard 318-83, "Building Code Requirements for Reinforced Concrete".
2. Minimum compressive strength of concrete at 28 days shall be 3,000 PSI, 5 sacks cement per cubic yard.
3. All materials provided must conform to the following standards:
   a. Concrete Aggregates: ASTM C33
   b. Reinforcing Bars: ASTM A615, Grade 60
   c. Welded Wire Fabric: ASTM A185, Grade 60
4. All anchor bolts, nuts, and washers shall be made of ASTM A-36 steel. All threads shall conform to ANSI B-1.1. Anchor bolts shall conform to APMC Eng'g Std. 541.05.
5. An allowance of at least 1" for grout shall be made on all foundations. All grout shall be U.S. Grouts "Five Star" nonshrink grout unless noted.
6. All concrete shall contain 3-5% entrained air.
7. All exposed edges shall have a 3/4" chamfered edge. All concrete cast against the earth shall be at least 3 inches of clear cover. All other reinforcement shall have at least 2 inches of clear cover, unless noted.
8. Maximum aggregate size shall be 3/4" for self-supported slabs, formed walls and columns; all others 1-1/2".

ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APP'D
	0		ISSUED FOR CONSTRUCTION	2-19-88	F.S.		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE: FRACTION ± , DECIMAL ± , ANGLE ± ; HOLE LOCATION ± , HOLE SIZE ±

DRAWN: J. Moore, DATE: 6-8-87
CHECKED:
MANAGER / ENGINEER: , DATE: 8/19/88
APP'D:

TITLE: HAZARDOUS WASTE CONTROL PHASE II
RAIN WATER POND PIPING PLAN & SECTIONS

AIR PRODUCTS
ALLENTOWN, PENNSYLVANIA

FILE | FACILITY | PLANT | DWG NO 1429-285-6.224 | D | REV .0
SCALE AS NOTED | WT. | SHEET

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MAINTENANCE OFFICE BUILDING

DIESEL STORAGE

STORAGE BUILDING

DIESEL MOTOR

WATER WELL

PUMPING

N053.75' ℄ 8" PW 5092 CS1.6 SP7 BOP EL. 98'7½"

N053.75' ℄ 10" PW 5090 CS1.6 SP7 BOP EL.

N050.5' 2"UW 2196 CS1.6 SP7 BOP EL. 96'0"

2"UW 9/16 CS1.8 SP7 (BOP EL. 99'8")

1"UW 9/16 CS1.8 SP7 (BOP EL. 99'8")

56'-0"

11'-0"

57'-0"

70'-0"

3'-0"

N035.0' ℄ EXIST. ROADWAY

N035.0' EDGE OF PAVING

℄ EXIST. SOUTH DITCH

EXIST. FENCE N002°-0"E

C.H.L. & P. R.O.W. LINE 0+00

M 4+00

M 3+00

N036.0' EXIST. HDWALL

26'-0"

(BOP EL. 95'-6")

EXIST 3" PW LINE (BOP EL. 98'-6")

4P10.44

SEE DWG. 1429-285-6.224.D

EXIST. CULVERT (UNKNOWN CLASS)

CUT & SPLICE

30"

REMOVE PORTION OF ℄ EXIST. 10" LINE AS REQ'D

EXIST. 10"UW 2307 CS1.8 SP7 (BOP EL. 96'9")

NOGGED ℄ 10" PW 5078 CS1.8 SP7

NOGGED

EXIST. 4" VA. NEW VALVE WELL

CAPPED

CUT & SPLICE

REMOVE PORTION OF EXIST. HEADWALL REQ'D.

15°

N038.18' ℄ 10" PW 5092 (BOP EL. 93'9½")

EXIST. 15" RCP CULVERT

℄ N041.0' OUTLETS

11'-6"

GUNITE 4'-0" 4'-0"

TYP 2

TYP 3

PLAN

3/16"=1'-0"

NOTE: 1) ALL C.S. UNDERGROUND PIPE TO BE PRIMED WITH POLYKEN 927 AND WRAPED WITH POLYKEN 930-35.
2) ALL STRUCTURES TO BE PRIMED AND PAINT PER APMC SPEC.

EXIST. 2"ΦUW.

℄ EL. 100'-4½" 2" UNION

GRADE

℄ EL. 98'-5"

2"UW 9/64 CS1.8 SP7

SECTION "A-A"

3/4"=1'-0"

EXIST. 1"Φ U.W.

℄ EL. 101'-5½" 1" UNION

GRADE

℄ EL. 98'-5"

2"UW

1"UW 9/65 CS1.8 SP7

SECTION "B-B"

3/4"=1'-0"

EXIST. 10"Φ

PU-BOLT

2"U-BOLT

BOP EL. 100'-2¼"

TOS/BOP EL. 99'-8"

TOS/BOP EL. 99'-2"

EL. 99'-2½"±

C4x5.4x1'-6"

EXIST. SUPPT.

PS-2 (2 REQ'D)

SECTION "C-C" 3/4"=1'-0"

EXIST. 10"Φ

PU-BOLT

6"U-BOLT

BOP EL. 100-2¼"

TOS/BOP EL. 99'-8"

C4x5.4x1'-6"

2-⅝" MACH. BOLTS x 6" LG.

4"Φ VENT

12"Φ

3-⅝" STUDS

EL. 97'-4"

PS-1 (3 REQ'D)

SECTION "D-D" 3/4"=1'-0"

EL. 100'-0"±

1" LIMESTONE ROCK

3" ASPHALT PAVING (MATCH EXISTING ELEVATIONS)

TOP OF PAVING EL. 99'-0"±

EXIST. ROAD BASE

NEW 18"Φ REINF. CONC. PIPE VALVE WELL (REMOVE EXSTG)

CEMENT STABILIZED SAND BACKFILL BOR EL. 97'-5" (1½ SACK)

10"Φ U.W.

2"Φ

25"Φ CULVERT

INV. EL. 95'-7½"±

REMOVE HEADWALL IF REQ'D.

EXIST. 4"Φ U.W.

EXIST. 4" VALVE

SECTION "E-E"

1/2"=1'-0"

EXIST. FENCE

EL. 97'-1"

10"Φ WELL

OPEN END EL. 93'-11½"

10"Φ WELL

EL. 98'-9"

ROAD

GUNITE W/ GA6C10x10 WWF

B.O.R. EL. 97'-5"

1-8"x30° ELL

1-8"x90° ELL

1-1"x90° ELL

DITCH INV. EL. 94'-0"±

GUNITE TO CONFORM TO EXISTING DITCH PROFILE.

SECTION "F-F"

3/8"=1'-0"

ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APP'D.
	B		ISSUE FOR BIDS	9-7-87	JMM		
	A		ISSUE FOR APPROVAL	7-20-87	JMM		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
FRACTION ± DECIMAL ± ANGLE ±
HOLE LOCATION ± HOLE SIZE ±

J. MOORE DRAWN — DATE 7-17-87

CHECKED

M. NASERI ENGINEER

APP'D.

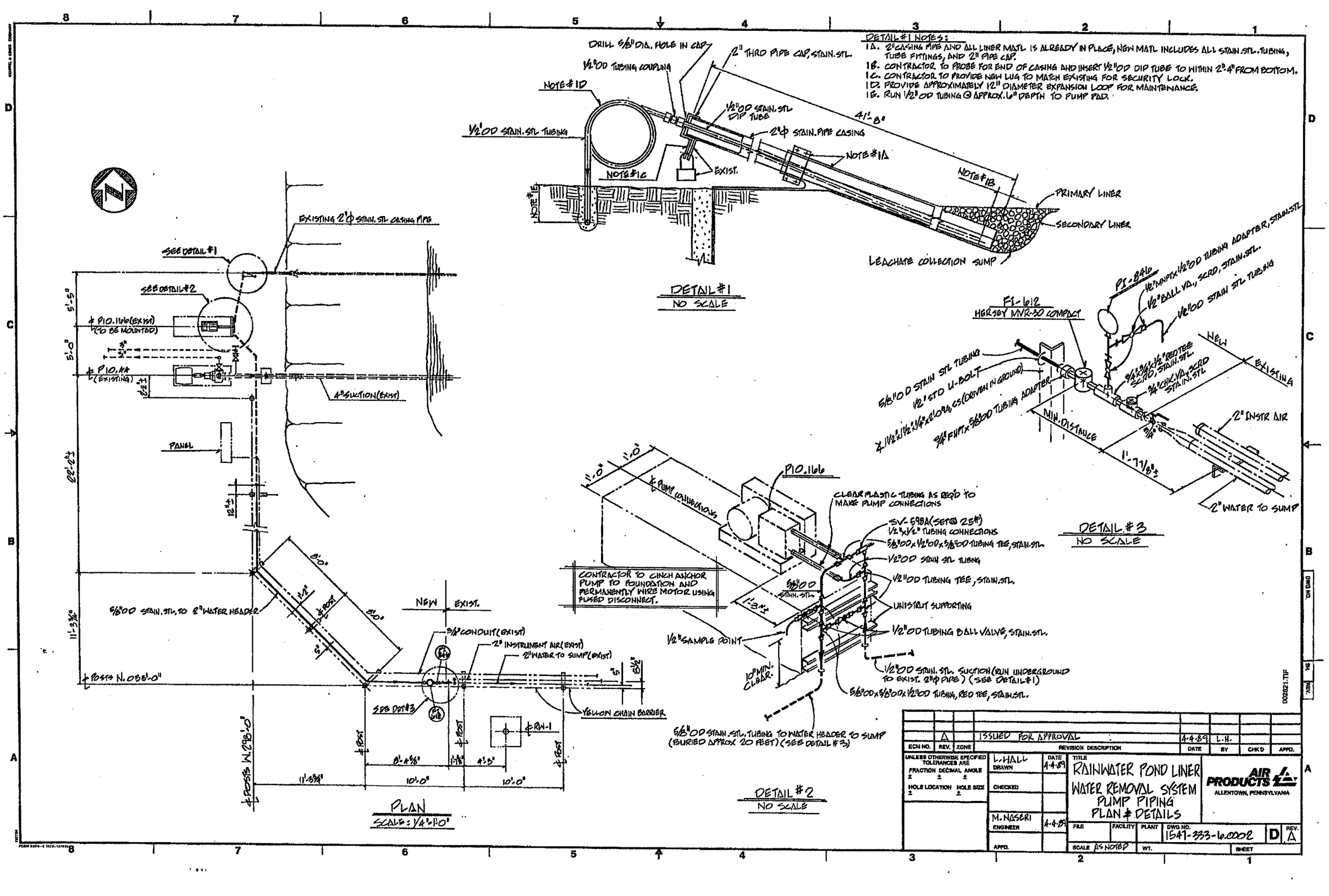
TITLE: HAZARDOUS WASTE CONTROL PHASE II
RAINWATER POND
RIPING PLAN & SECTIONS

AIR PRODUCTS
ALLENTOWN, PENNSYLVANIA

FILE | FACILITY | PLANT | DWG NO. 1429-283-6.225 | D | REV. B

SCALE AS NOTED | WT: | SHEET

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ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APP'D.
	A		ISSUED FOR APPROVAL	4-4-89	L.H.		

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
FRACTION ± DECIMAL ± ANGLE ±
HOLE LOCATION ± HOLE SIZE ±

		DATE
DRAWN	L. HALL	4-4-89
CHECKED		
ENGINEER	M. NASERI	4-4-89
APP'D.		

TITLE: RAINWATER POND LINER WATER REMOVAL SYSTEM PUMP PIPING PLAN & DETAILS

AIR PRODUCTS
ALLENTOWN, PENNSYLVANIA

FILE	FACILITY	PLANT	DWG NO.	REV.
			1547-333-L6-0002	D A

SCALE AS NOTED | WT. | SHEET

ATTACHMENT A

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman
Paul Hopkins, Commissioner
John O. Houchins, Commissioner

Allen Beinke, Executive Director
Michael E. Field, General Counsel
Brenda W. Foster, Chief Clerk

February 2, 1989

RECEIVED
FEB 1989

Mr. Bob Martien
Air Products Manufacturing Corp.
P.O. Box 3326
Pasadena, Texas 77501

Re: Partial RCRA Closure
TWC Registration No. 30317
Acid Spill Pond
TWC Facility No. 02

Dear Mr. Martien:

The Texas Water Commission (TWC) has reviewed your closure certification dated November 18, 1988 by Alan D. Husak, a registered professional engineer.

Our review of this certification indicates that the referenced pond was closed in accordance with the closure plan approved by TWC on September 1, 1987.

The acid spill pond is now subject to RCRA post-closure care. Your post-closure care permit application is now being processed by the TWC Hazardous & Solid Waste Division Permits Section.

If you have any questions regarding the closure certification, please contact Luis E. Campos in Austin at 512/475-2163.

Sincerely,

Samuel Pole

Samuel B. Pole, Chief
Hazardous and Solid Waste Enforcement Section
Hazardous and Solid Waste Division

cc: TWC Deer Park Office
Ken Zarker, TWC Reports & Info. Management Unit
Paul Lewis, TWC Groundwater Enforcement Unit
John Mikus, TWC Permits Section

VI. Geology Report

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

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.

A. Geology and Topography

1. Active Geologic Processes

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)(D) 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. **Applicable to Land Based Units Only.** 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)

    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. **Applicable to Land Based Units Only.** 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)

    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 **(Applicable to land based units or units requiring contingent closure and post-closure).**

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.

b. 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.

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.

1. Regional Aquifers

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

Note: 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, 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. See the publication entitled Water for Texas, Today and Tomorrow (1990) or subsequent revision (Available at http://www.twdb.texas.gov/waterplanning/swp/1990/index.asp) for more information [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.

2. 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. 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 historical 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. Indicate the typical depth at which groundwater is first encountered.

   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.

3. Description of the Detection Monitoring Program

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.

b. 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.

c. (Sampling and Analysis Plan) Describe the proposed sampling and analysis methods, as well as statistical comparison procedures to be utilized in evaluating groundwater monitoring data. Note: Methods listed for use in groundwater programs may provide flexibility allowing for updates of the base method. For methods other than the standard acceptable methods, applicant must provide a demonstration that the proposed methods are appropriate for groundwater analysis per 30 TAC 335.163(5).

d. 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)]

e. 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.

f. 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 laboratory predicted detection limit and predicted Practical Quantification Limit (PQL) 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 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.

g. Submit drawings depicting the monitoring well design, current and proposed.

h. Submit at least one map of the entire facility and additional maps or drawings if necessary on one or more 8.5" 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

i. For the description of site-specific groundwater for inclusion in permit summary documents, please complete the following:

Table VI.A.2. Description of Uppermost Aquifer

C. Exemption from Groundwater Monitoring for an Entire Facility

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

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.

APPENDIX VI

Geology Report

VI. Geology Report Response

A geology report was presented in the renewal application dated May 2012 and is included herein. The report details all subsurface soil investigations conducted at the site. Groundwater assessments have been ongoing with annual monitoring reports submitted to TCEQ. A Compliance Plan is presented in Section XI detailing the groundwater monitoring program.

Paragraph			Response
Geology Report			The Geology Report is included in Appendix VI. Additional site-specific groundwater information obtained from assessment activities is presented in Section XI (Compliance Plan).
	A		
	B	1	
		2	
		3	Reserved
	C		Reserved
	D		Reserved

Notes: 1. HW = hazardous waste; 2. SI = Surface Impoundment

Table VI.A.1. - Major Geologic Formations

Names Of Major Geologic Formation(s) Beneath The Facility	Lithology Of The Major Geologic Formation	Formation Thickness (Feet)	Depth To Top Of Formation	
			Feet/MSL(1)	Feet/BGS(2)
Beaumont	Clay with sand and silt	Approx. 100	26	0

(1) MSL: Mean Sea Level

MLGL: Mean Low-tide Gulf Level

(2) BGS: Below Grade Surface

Table VI.A.4 - Waste Management Area Subsurface Conditions

See Geology Report (Attachment VI)
Geotechnical information is also summarized in the Geologic Report (Attachment VI, Table VI.A.4.d.(1), and Table VI.A.4.d.(2).

Boring Number	Depth Below Grade	Stratum	USC Symbol	Liquid Limit*	Plasticity Index*	Percent Passing#200 Sieve	Permeability*	Percent Porosity*

Maximum depth: _____feet below grade

_____feet above MSL

*For the major soil strata encountered, record the minimum, maximum, and average values of these parameters as applicable.

Table VI.B.3.b. - Unit Groundwater Detection Monitoring Systems

Waste Management Unit/Area Name1	RESERVED			
Well Number(s)				
Hydrogeologic Unit Monitored				
Type (e.g., point of compliance, background, observation, etc.)				
Up or Down Gradient				
Casing Diameter and Material				
Screen Diameter and Material				
Screen Slot Size (in.)				
Top of Casing Elevation (Ft, MLGL or MSL)				
Grade or Surface Elevation (Ft, MLGL or MSL)				
Well Depth (Ft, Below Grade Surface *[BGS]*)				
Well Depth (Ft, Below Top of Casing *[BTOC]*)				
Screen Interval				
From(Ft, BGS)				
To(Ft, BGS)				
Screen Interval				
From(Ft, bTOC)				
To(Ft, bTOC)				
Facility Coordinates (e.g., lat./long. or company coordinates) (ex. 99° 99' 99"}				

[1]From Tables in Section V.
MSL: Mean Sea Level; *MLGL*: Mean Low-tide Gulf Level; *BGS*: Below Grade Surface; *BTOC*: Below Top of Casing

Permit No. 50134

Permittee:

Table VI.B.3.c. - Groundwater Detection Monitoring Parameters

RESERVED

Unit/Waste Management Area _____

Well No(s): _____

Parameter	Sampling Frequency	Analytical Method	Method Detection Limit (MDL) or Method Quantification Limit (MQL) Value, (units), MDL or MQL[2]	Concentration Limit[1]

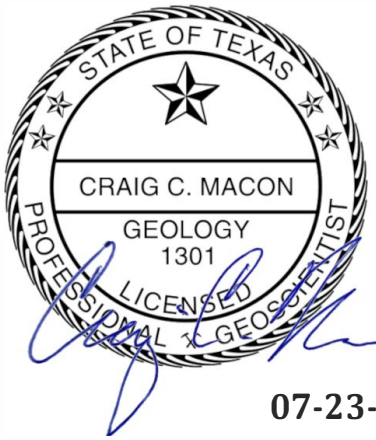
1. The concentration limit is the basis for determining whether a release has occurred from the waste management unit/area.
2. a. Enter the laboratory expected *Method Detection Limit* if determination of *Statistically Significant Increase* (SSI) occurrence is based on detection of the presence of the constituent of concern in the sample.
3. b. Enter the laboratory expected Method Quantification Limit if determination of SSI is based on statistical analysis of detection monitoring data or direct comparison to a limit value.

This should be based on the laboratory's minimum expected level of performance. Please designate which type of limit has been entered for each constituent, with its value and units.

PART B - SECTION VI

Revision No.
Revision Date

GEOLOGY REPORT



07-23-2025

TX Geoscience Firm Registration: 50127

The affixed seal covers the entire content of this section.

Revision No. 1
Revision Date Oct 24, 2025

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AIR PRODUCTS LLC
PASADENA, TEXAS

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APPENDIX

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VI. GEOLOGY REPORT

This Geology Report has been prepared for the Air Products LLC (APLLC) facility located in Pasadena, Texas as part of a Part B Permit renewal application required by the Texas Commission on Environmental Quality (TCEQ). The report has been prepared in accordance with TCEQ guidelines and includes the pertinent information required to address two closed surface impoundments (Effluent Impoundment and Acid Spill Impoundment).

VI.A GEOLOGY AND TOPOGRAPHY

VI.A.1 Active Geological Processes

Faulting

The contemporary vertical movement of active surface faults in the Houston area is a consequence of groundwater withdrawal. The withdrawals cause a decline of the potentiometric surface that leads to dewatering of clay beds, causing land subsidence.

Growth faults are associated with the very thick mass of Cenozoic sediments that have been deposited in the Gulf Coastal Basin. The processes responsible for the development of these faults include differential compaction of the sediment mass, upward movement of salt masses (salt domes), gulfward creep of the coastal landmass, and bending of the landmass due to regional tectonics. Typically, faulting in the Pasadena area trends between the Clinton and Goose Creek Salt Dome, 6 miles northwest and 10 miles southeast, respectively of the plant site. The faults are both active and inactive. At one time the active faults had rates of vertical surface displacement of 0.2 to 1.1 inches per year (Holzer and others, 1983). Movement was continual and gentle, unlike the sudden movements associated with destructive faults. However, movement of growth faults can cause structural failures such as damage to buried utilities and roads.

In the Houston area, more than 86 historically active faults with a combined length of 150 miles have been identified. The historical fault activity resulted from renewed movement along pre-existing faults, and appears to be related to groundwater withdrawal during the period from 1900 to the mid-1970's and the subsequent land surface subsidence.

Starting in 1976, reductions in groundwater pumpage from the Evangeline and Chicot Aquifers in the Pasadena area have allowed recovery of the potentiometric surface of both aquifers, which slowed faulting growth rates and subsidence (Strause, 1984). The APLLC facility is near the center of subsidence and recovery. Since 1977, the Chicot Aquifer and the Evangeline Aquifer have experienced water level recoveries of approximately 100 feet and 200 feet, respectively (Coplin and others, 1999).

In 1978, the U.S. Geological Survey began to monitor scarp growth of 12 selected faults in the subsidence area. Their measurements revealed that all seven of the monitored faults in the water-level recovery area southeast of Houston had either completely stopped growing or slowed to rates of less than 0.05 inches per year. However, in northwestern Harris County, where pumping rates remained high and the water table continued to decline, faulting growth rates have correspondingly increased. The fault monitoring system maintained by the U.S. Geological Survey covers about 14 percent of the recognized active faults in the area. Despite the limited coverage, the areal correlation between stable or slow moving (less than 0.05 in./year) faults and the recovery of groundwater levels strongly suggest that continuing effort to halt subsidence will also halt the growth of faults that have been active in historical times (Holzer and others, 1983).

The Bureau of Economic Geology (BEG) has mapped surface lineations in the Houston area based on the interpretation of aerial photographs. Such surface lineations may imply physical properties such as faults, or may in fact reflect man-made lineations. Figure VI.A.1.a.(2) shows a lineation mapped by the BEG near the northern boundary of the APLLC facility. Field reconnaissance by the BEG has not

revealed any surface expression of such a fault. However, a BEG map shows the same lineation as a pipeline, and plant personnel have verified the existence of a pipeline north of the APLLC facility.

A more detailed study of faulting in the project area has been performed by Dr. D.C. Van Siclen (1984), a professor of Geology at the University of Houston. In summary, Dr. Siclen's findings indicated that there was a possibility of a fault crossing the APLLC Tract. To the northeast of the Houston Ship Channel, he noted linear features that appeared to be the continuation of the Wooster Fault could be observed on a USDA aerial photograph. Field evidence was seen in pavement offset of the Old Penn City Road and in sag ponds. A lineament is traceable to the southwest of Buffalo Bayou, although the exact location of the lineament was not well established since dredge material and tailings covered much of the area. A site reconnaissance did not reveal evidence of the fault on the APLLC property.

R.H. Talmage of Bechtel conducted a study of this fault (Talmage, 1989). He observed “a subtle topographic change across the interval coincident with the photolinear” in the area of the power lines south of the Polyurethane Intermediates Plant. He found no distress of pavement on Red Bluff Road, but southwest of the road he observed a slight change in a fence line elevation and distress in the wall of a shopping center building along the projection of the fault. He concluded by agreeing with the Van Siclen report.

In 1999, Fugro South Inc. conducted a study of this fault through a review of literature, a study of several aerial photographs, performance of a site reconnaissance, and a review of cone penetrometer logs. The study is provided in Appendix VI.A.1. It was concluded that the fault is the southwesternmost of a series of at least seven known and suspected faults or fault segments that extend northwestward from the western side of the Goose Creek Salt Dome. The fault extends through the junction of the San Jacinto River with Buffalo Bayou, and then southwestward through the APLLC facility. Fugro called this feature the Red Bluff Fault. A field reconnaissance of the plant area

revealed no surface evidence of the fault. Since the photolinear appears to have the identical characteristics of other area photolinears where correlation with a known fault exits, it must be assumed that the fault is present. The location of the photolinear is shown on a figure included with the study in Appendix VI.A.1, along with a plat of the plant. Fugro estimated the error in aligning the plat with the 1953 photo to be approximately 50 feet. Based on this information, it appears that the closest permitted hazardous waste unit at the facility (Container Storage Area) is at least 400 feet from this fault.

An examination of the Cambe Geological Service regional structure contour map of the Frio Sands (Figure VI.A.1.a.(5)) shows two stratigraphic offsets. The south trend that extends east of Buffalo Bayou trends parallel to the aerial photographs lineament. Insufficient drillhole data prevents the projection of this offset to the west of Buffalo Bayou. Most down-to-the-coast faults are normal faults. Therefore, the surface trace of the north fault indicated on the Cambe Map would be several thousand feet to the northwest of the plant.

APLLC has two deep production wells on-site that are designated as Well 1 and Well 2. Electric logs were run in each of the wells at the time of installation. Examination of the electric logs down to a depth of 1,300 feet shows no sediment offset. Calculation of the minimal horizontal offset based on a 1,300-foot depth in an estimated 65 degrees angle of dip indicates that faulting should not occur within a 600-foot radius of Well 1, which is outside the waste management area.

Based on all data evaluated, none of the treatment or storage facilities is within 200 feet of an active fault.

Subsidence

Large withdrawals of groundwater from the Evangeline and Chicot Aquifers have caused large declines in the potentiometric surface. Between 1906 and 1978, the potentiometric surface of the Evangeline and Chicot Aquifers in the vicinity of the site

dropped 350 feet and 230 feet, respectively. The declining water levels have resulted in land surface subsidence. This subsidence has been caused by dewatering and consolidation (compaction) of the interbedded clays as a result of decreases in the artesian pressures of the sandy aquifers. The pattern of the areas of greatest subsidence roughly coincides with the area of high groundwater withdrawal. The Pasadena area has historically experienced greater subsidence rates than any other area in Houston (Figure VI.A.1.b.1). The land surface at APLLC subsided approximately 9 feet from 1906 to 1978.

During 1968, the year of maximum pumping, 113 mgd (million gallons per day), or 90 percent of the total of 126 mgd, was used by industries in the area (Gabrysch, 1981). In 1977 and 1978, however, pumping decreased rapidly because industries in southern Harris County began using surface water from Lake Livingston. Groundwater withdrawal for all uses during 1978 was about 6.3 mgd. In 1982, total pumpage was 3.9 mgd.

The Harris-Galveston Coastal Subsidence District predicted subsidence rates for the Pasadena area in 1979 under three different head conditions (Figure VI.A.1.b.2). Since the industrial change to surface water in 1976, Case I head recovery has occurred.

The U.S. Geological Survey has been collecting data on subsidence in the Houston area since 1972. Measurements taken from borehole extensometers at 11 locations in the Houston area have been used to monitor the rate of compaction. The nearest extensometer to the study site is located in Well LJ-65-23-322 (Pasadena), about 3 miles southeast of the site. During 1976, compaction was occurring in the reference well at a rate of 3.1 inches per year. During the period of 1978 to 1988 there were alternating cycles of subsidence and rebound that resulted in a net subsidence of 1.2 inches. From 1988 to 1991 subsidence in the area of the APLLC facility was negligible. Since 1991, there has been a gradual rebound of approximately 1.2 inches. The rebound is most likely in response to the reduction of groundwater withdrawal.

The potentiometric surface of both the Evangeline and Chicot Aquifers has recovered in the last few years due to reduction of pumping rates. In 1978, the potentiometric surface in the Evangeline and Chicot Aquifers in the vicinity of the APLLC facility were at elevations of approximately -310 feet at approximately 335 feet below surface and -200 feet or approximately 225 feet below surface (Espey-Huston, 1978). The potentiometric surfaces in the Evangeline and Chicot have recovered about 200 feet and 100 feet, respectively in the area between 1977 and 1999 (Coplin and others, 1999).

Erosion Potential

APLLC has taken steps to limit any potential effects of erosion or catastrophic climatic events at the facility. The site was built up an average of 1.5 feet above the existing surface and graded to direct site drainage to handle high rainfall events and minimize erosion. These measures were taken to provide protection for, and prevent flooding from:

- Heavy rainfall runoff from flat terrain,
- The possibility of hurricane tides, and
- The potential effect of any land subsidence.

Hurricane "Carla" (September 11, 1961) has been selected to represent the maximum probable hurricane that may reasonably be expected to hit anywhere along the Texas Coast. It has been simulated to compute the maximum probable hurricane tide that may be expected at the Pasadena site. The sustained winds that produced the highest tide at the gulf shore line were 120 to 130 mph (statute miles per hour), with gusts of about 180 mph. This was a very large, slow moving hurricane giving ample time to fill the bays and flood the lowlands. The maximum probable hurricane tide at the APLLC Pasadena site is computed to be approximately 20 feet above mean sea level (Murillo Eng., 1971).

The summation of heights in feet is as follows:

Wind Tide in Gulf	**=14.0**
Low Barometer Effect	**=2.3**
Wind Tide in Bay and Channel	**=3.7**
Total Tide =	**20.0 feet**

The flood insurance rate map of The Federal Emergency Management Agency National Flood Insurance Program, June 18, 2007, classifies the APLLC plant site as Zone X (areas determined to be outside the 0.2% annual chance floodplain). Therefore, the plant site is not situated within a 100 or 500-year floodplain.

In order to reduce the potential effect of stormwater runoff and erosion, APLLC has protected its facility by constructing dikes and artificial drainage ditches running parallel to the plant process areas that are located parallel to the north and south boundaries of the plant. These drainage ditches direct rainwater to the east. The ditches are unlined and have been built with 2:1 side slopes to a depth of 4 feet below the plant road grade.

Wetlands

Based on a study by the Bureau of Economic Geology (1975), there are no wetlands within the facility property boundary or surrounding area.

VI.A.2 Regional Physiography and Topography

The APLLC facility is located in the northern section of Pasadena, Texas, as shown on the United States Geological Survey (USGS) topographic map, Figure VI.A.2. The site is situated along the north side of Texas Highway 225, between Red Bluff and Davison roads. APLLC property consists of two separate tracts, Tracts I and II, totaling approximately 141.8 acres. The two tracts are divided by a 150-foot wide tract belonging to Houston Lighting and Power Company. Tract II to the south is occupied with parking areas, and office buildings, the Sekisui Polyvinyl Alcohol Plant, and a

Steam Methane Reformer (SMR) Plant (owned by APLLC). The Polyurethane Intermediates Plant (PUI Plant) site overlies the entire eastern half of the northern Tract I, occupying approximately 32 acres. For the purpose of the Geologic Report, only the part of the PUI Plant relevant to the former waste treatment impoundments will be discussed in detail.

The topography of the area is flat and characteristic of the Gulf Coastal Plain. The nearest surface water body is Buffalo Bayou, which is located approximately 1-1/8 miles to the northwest. Its tributaries, Cotton Patch and Little Vince Bayou, are located 1/3 mile north and 3/4 mile southwest, respectively, of the plant site.

Natural surface drainage flows to the northwest toward Buffalo Bayou, with a slope of less than 1 percent. Industrial development has severely altered the course of natural drainage. The plant site is bounded on three sides by highways and railroads that are built up 2 or 3 feet above the surrounding grade. Additionally, to the north, channel dredging spoil piles and gypsum tailings piles have also modified the drainage pattern significantly. Artificial drainage systems are present which have been designed to drain the relatively flat area in the vicinity of the plant. A municipal drainage that parallels Davison Road flows north into Cotton Patch Bayou. Two drainage ditches run parallel to the north and south plant process area boundary and empty into the municipal drainageway along Davison road.

Surface elevations in the plant area range from approximately 22 to 26 feet. Prior to plant construction, the organic soil layer was stripped off and approximately 2 to 3 feet of crushed rock-shell sub-base material was brought in to level off and build up the site. This was accomplished to provide a load-bearing base on the site and help provide protection from flooding and erosion.

VI.A.3 Regional Geology

The APLLC facility lies within the area known as the Gulf Coastal Basin. The surface sediments in Harris County consist of fluvial silts and muds, including relatively thin crevasse splay deposits and coarser, thicker channel deposits. Tens of thousands of feet of Cenozoic sediments underlie these surficial deposits.

Figure VI.A.3.a is a generalized map of the surficial geology of the region. The APLLC facility is located within the outcrop of the Beaumont Formation. In the vicinity of the plant, two major depositional units are present: (1) Beaumont alluvium flood basin sand, silt, and clay including levee and crevasse splay deposits; and (2) younger alluvial sand, silt, and clay associated with the modern streams such as Cotton Patch Bayou, Vince Bayou, and Buffalo Bayou.

Site Specific Geologic Setting

The shallow deposits that underlie the subject area are of the Beaumont Formation of Pleistocene Age. The upper part of the Beaumont Formation in most of Harris County was deposited by fluvial processes during the last interglacial period. In the plant area, the Beaumont is primarily the result of deposition during overbank flooding events. The flood plain environment is characterized by periods of nondeposition and subaerial exposure interrupted by large storm events that result in floodwaters breaching natural levees and carrying crevasse-splay sediments onto the floodplain. These overbank events tend to deposit sand and silt in the higher-energy environments near the levees and deposit clay material further from the channel on the broader floodplain. Consequently, the formation consists predominantly of clays, but it also contains relatively thin, discontinuous silty and sandy seams. The clays are characterized by their relatively high shear strength and low compressibility. The sediments are oxidized and desiccated, resulting in low water content, high strength, presence of carbonate nodules (“caliche”) and light, mottled color.

The last period of glacial lowering of sea level caused downcutting and deepening of river valleys near the coast. In the study area, Buffalo Bayou has cut a valley into the Beaumont Clay. The recovery of sea level to its present position resulted in filling of these valleys with younger sediment. As a result, the present floodplains of many coastal rivers, including Buffalo Bayou, are bordered by low scarps 15 to 30 feet high, which mark the edge of the Beaumont Formation outcrop.

The Beaumont and underlying formations form a relatively clay-rich interval to a depth of about 300 feet. The zone from 300 to 1,500 feet, however, contains more sand and comprises the regional Lower Chicot and Evangeline Aquifers, as described in the next section.

Stratigraphy

The Pleistocene series has been divided into three units: the Beaumont, Montgomery, and Lissie Formations (Figure VI.A.3.b.1). The Beaumont and Montgomery Formations are indistinguishable from each other and consist of fluvial-deltaic silty clay, sandy beds, organic materials, and shell fragments. The Lissie Formation has been subdivided into the younger Bentley Formation, which is a fine-grained fluvial clay and sandy silt, and the older Willis Formation, which is a coarser-grained, braided stream environment consisting of silty sand and sand with occasional gravel. The underlying Pliocene Goliad Formation is characterized by a preponderance of quartz sands. The uppermost unit of Miocene Age is the Fleming Formation, which underlies the Goliad and is predominately composed of clays and silts interbedded with discontinuous sands and silty sands. The Burkeville Confining System is an aquitard within the Fleming and is composed of many discrete sandy silt and clay layers between the Evangeline and Jasper Aquifers, which are described later in the text.

Figure VI.A.3.b.4 illustrates the correlation of the E-logs of the plant's deep-water wells to the stratigraphic units and their lithologies. The contact between predominately silty clay and sand is at approximately 300 feet beneath the surface. This is thought to represent the top of the Willis Sand. The contact between the Goliad and Fleming

Formation is marked by a change in the character of the E-logs, representing a shift to finer-grained silty clay materials and thinner sands below 720 feet. The Burkeville confining system is well defined by a clay zone, at approximately 2,010 feet (Figure VI.A.3.b.1).

VI.A.4 Local Geology and Subsurface Soils Investigations

VI.A.4.1 Surface Soil Types and Properties

According to the United States Department of Agriculture Soil Survey of Harris County (Wheeler, 1976), the surface soil in the vicinity of the APLLC facility is comprised of nearly level clayey and loamy soil of the Lake Charles-Bernard association. Near the APLLC facility the surface layer of the Lake Charles soil is approximately 36 inches thick. The upper 22 inches is comprised of a firm, neutral, black clay and the lower approximately 14 inches, the soil is comprised of very firm, mildly alkaline, very dark gray clay. Below the surface layer is a layer approximately 16 inches thick comprised of a very firm, mildly alkaline, dark gray clay that has intersecting slickensides. Beneath that layer to a depth of approximately 6 feet is a layer of very firm mildly alkaline, gray clay that is mottled olive brown and yellowish brown.

The surface layer of the Bernard soil is comprised of a friable, neutral, very dark gray clay loam about 6 inches thick. The surface layer is underlain by a firm, neutral, very dark gray clay that grades into a very firm, moderately alkaline dark gray clay to a depth of approximately 4 feet.

The soils that comprise the Lake Charles-Bernard association are somewhat poorly drained with low permeability and a high water capacity. When the soils are dry, cracks form on the surface that allows for water to infiltrate at a high rate until the soils become wet and the cracks are sealed.

VI.A.4.2 Subsurface Soils

The subsurface soils have been characterized based on the results of numerous environmental investigations completed at the site since 1971. Approximately 98 monitoring wells, 28 recovery wells, and numerous soil borings have been installed at the site using traditional drilling methods such as hollow stem auger or mud rotary methods. A number of additional soil samples were collected using geoprobe techniques, and one monitoring well was installed using a hand auger. Approximately 50 cone penetrometer tests (CPT) have been conducted. The boring logs, monitoring well completion logs, and CPT logs located in the vicinity of the former surface impoundments are included in Appendix VI.A.4.a.

The APLLC facility is located on the outcrop of the Pleistocene Age Beaumont Formation, as mentioned previously. Prior to the construction of the plant, approximately one to two feet of crushed shell and fill material were placed upon the surface. Beneath the fill material, the Beaumont Formation consists of unconsolidated, interbedded sands, silts, and clay of terrestrial origin. The beds contain carbonate nodules and in places, varying amounts of natural plant materials. The water-transmissive zones consist of sandy or silty beds separated by clay-rich units. Based on an evaluation of the boring logs from wells and borings completed at the site, the Beaumont Formation may be subdivided into three distinct hydrogeologic zones at the APLLC facility. The shallowest zone can be further divided into two hydrogeologically similar zones.

The following is a description of the subsurface soil units beneath the site. Geotechnical properties of the shallow subsurface soils are shown on Tables VI.A.4.d.(1) and VI.A.4.d.(2).

Section X1.A.4 of this RCRA Part B Application presents a more thorough description of site-specific geology. Geologic cross-sections illustrate the site stratigraphy of the

upper Beaumont Formation (Figures XI.A.4.1 through XI.A.4.9 in Section XI of this Part B Application).

Shallow Zone

The Shallow Zone (SZ) comprises the upper 50 feet of sediments and generally consists of clay with sandy silt and silty sand lenses. This unit is the uppermost water-bearing unit throughout the site. In previous investigations of the site, the relatively thick (50 ft) SZ has been, for convenience, divided into an Upper Shallow Zone (USZ) and a Lower Shallow Zone (LSZ), though the two units are hydraulically and lithologically similar. The USZ consists of the upper 30 to 35 feet of sediments. The upper 20 feet is made up of a yellowish red or dark gray, highly plastic, firm to hard clay. One or more discontinuous silty or clayey sands are present in the interval from 20 to 35 feet below ground level (bgl) and this zone has been considered to be the transmissive “unit” of the USZ. Between the transmissive beds of the USZ and the LSZ is a plastic, firm to hard, reddish brown clay. In the interval from 35 to 45 feet, a variable number of relatively transmissive, thin clayey and silty sands form the transmissive unit of the LSZ. Beneath these transmissive beds is a very firm to hard reddish brown clay of variable thickness (generally 5 to 15 feet thick) that separates the SZ from the Intermediate Zone (IZ).

Intermediate Zone

The IZ begins at a depth of about 50 feet below grade and consists of a laterally continuous fine grained, well graded, silty sand and sandy silt zone approximately 5 to 15 feet thick. Beneath the transmissive zone is an approximately 10 feet thick highly plastic, firm clay that separates IZ from DZ.

Deep Zone

The Deep Zone (DZ) consists of a laterally continuous, approximately 15 feet-thick silty sand that is interbedded with a few finer-grained clayey lenses. Beneath the Deep Zone is a clay layer that is approximately 40 to 50 feet thick based on of the electric logs of the onsite water wells.

VI.B FACILITY GROUNDWATER

VI.B.1 Regional Aquifers

Most of the early groundwater studies in the Harris-Galveston County area were made by the United States Geological Survey (USGS). The majority of this work has been done in cooperation with the Texas Department of Water Resources (TDWR), and the cities of Houston and Galveston. In recent years, the USGS has worked with the Harris-Galveston Coastal Subsidence District (HGCSD) on groundwater matters. The data presented in this report has been compiled from published reports and unpublished data from all three agencies.

The geologic units which supply fresh water to wells in the area are from oldest to the youngest: the Fleming Formation, the Goliad Formation, the Willis Formation, the Bentley Formation, the Montgomery Formation, the Beaumont Clay, and Recent Alluvium. All these units consist of interbedded sands and clays.

The USGS has divided the stratigraphic units in to four hydrologic groups in the Harris County area. They include the Jasper Aquifer, the Burkeville Confining Layer, the Evangeline Aquifer, and the Chicot Aquifer. The relationship between geologic units and hydrogeologic units is on Figure VI.A.3.b.1. A regional dip-oriented hydrogeologic cross section is shown on Figure VI.A.3.b.2. Figure VI.A.3.b.4 contains a general site-specific lithologic description of the deeper stratigraphic and hydrologic units at APLLC Pasadena.

The Evangeline Aquifer provides the majority of water used in the Houston area, while the Chicot Aquifer provides most of the water used in southeastern Harris County and in Galveston County. The two aquifers are hydraulically connected. In the Pasadena area, the boundary between the two aquifers is thought to be located between the Willis and Goliad Formations. This demarcation is not sharply defined, as seen in the E-logs from the APLLC water wells (Figure VI.A.3.b.4). The major zone of production is referred to as the Lower Chicot-Upper Evangeline, or simply as the “heavily pumped

zone". HGCSD identifies the base of the Chicot at 570 feet, and the base of the Evangeline at the top of the Burkeville Confining system. The lower section of the Evangeline Aquifer, below 1,820 feet, is saline with greater than 10,000 mg/L Total Dissolved Solids (TDS).

The shallow Upper Chicot Aquifer provides small quantities of usable quality water to private domestic wells in the Houston area from subsurface depths of 70 to 300 feet. Any water that occurs below 300 feet is considered to be part of the regional drinking water aquifer. There are no water supply wells completed above 300 feet in the vicinity of the facility.

Recharge Zone

Figure VI.B.1.i shows the principal areas of recharge to the Chicot and Evangeline Aquifers. The recharge zone of the Chicot is approximately 10 miles northwest of the APLLC facility, and the recharge zone of the Evangeline lies about 60 miles to the north-northwest (Gabrysch, 1977). The source of the water in both aquifers is rainfall on the outcrop areas of the sand units.

Artesian Aquifers

Prior to major groundwater withdrawal in the area, wells tapping the deep aquifers flowed at the land surface. The general increase in hydraulic head with depth caused upward leakage across confining beds. The groundwater was released naturally to streams and marshes, by evapotranspiration, or by discharge to the Gulf of Mexico. Large withdrawals of groundwater from the deeper aquifers over the years have reduced the hydraulic heads.

Groundwater Movement, Permeability, and Gradient

The general dip of the aquifers is from the recharge zones southeastward toward the coast. The regional dip of the base of the Evangeline averages 45 feet per mile, and the dip of the Chicot averages 15 feet per mile. Prior to the large-scale development of the aquifers, water moved down the regional dip toward the coast. Because water

enters the Evangeline at a higher altitude above sea level, water in the Evangeline originally would rise to higher levels in wells than would water in the Chicot. As a result, water also tends to move up from the Evangeline into the Chicot. Because of heavy pumping of the Evangeline, the hydrostatic pressure in the Evangeline has been lowered. Where Evangeline water levels are lower than those in the Chicot, water may move down into the Evangeline from the Chicot.

The elevations of the potentiometric surfaces of both aquifers were originally above sea level in the Houston area. The surface of the Lower Chicot Aquifer, in the late 1970s, after years of heavy pumpage (Figure VI.B.1.f) was approximately 100 feet below sea level. The original potentiometric surfaces of the aquifers were so altered by heavy pumping that water moved radially into the Houston area from all directions. Recently, pumpage rates have been reduced in the eastern and southeastern parts of Harris and Galveston Counties. The reduction has caused the potentiometric surface in most of the wells completed in the Chicot Aquifer and the Evangeline Aquifer to rise in wells in the Pasadena, La Porte, and NASA areas.

The hydraulic conductivity of the sands in the Evangeline Aquifer ranges from 150 to 400 gallons per day per square foot (gpd/ft^2), and the hydraulic conductivity in the Chicot is slightly higher. The Chicot has an average hydraulic conductivity of 600 gpd/ft^2. Assuming an average porosity of 30 percent for the sands, and a gradient of <20 ft/mile gives an average rate of movement of water at approximately 1 foot per day or 365 feet per year. Pump tests were performed on the two plant water wells W-1 and W-2 by Layne Texas Company (LTC) in December, 1972 and February 1983. Both wells were completed in the Evangeline Aquifer with screened intervals across sand layers between 890 and 1,300 feet. Calculated transmissivity and hydraulic conductivity values are T ~ 54,000 gpd/ft, k - 524 gpd/ft^2, and T - 55,000 gpd/ft; k ~ 355 gpd/ft^2 for well W-1 and W-2, respectively. Assuming an average porosity of 30 percent for the sands and a gradient of approximately 20 ft/mile, the estimated rate of groundwater movement in the Evangeline is 0.74 ft/day or 270 ft/year.

Regional Ground-Water Quality

The TDS concentration in most of the water withdrawn from the two aquifers in the area for public, industrial, and agricultural purposes ranges from 200 to 800 milligrams per liter (mg/L). The water from both of the aquifers meets State standards for municipal water supplies. The regional cross-section in Figure VI.A.3.b.2 demonstrates that the base of potentially usable quality water (less than 10,000 mg/L) lies at approximately 1,800 feet below the surface of the ground at the APLLC facility.

The shallow sands and silts of the Upper Chicot-Beaumont Formation contain fresh to brackish water with a TDS concentration of 500 to 1,100 mg/L. This water is usually found from 70 to 110 feet deep and is used for domestic purposes in individual residences or businesses in some areas.

Water Well Inventory

Locations of wells located within a 1-mile radius of APLLC are shown on Figure V.A.1.b. These wells are generally used for industrial supply, though some are now inactive. The wells all produce from productive zones located hundreds of feet below the shallow units discussed in the following sections.

VI.B.2 Site Groundwater Conditions

The APLLC facility is located on the Gulf Coastal Plain, a relatively low-relief surface underlain, in this area, by Pleistocene alluvial sediments. The plant is approximately 25 feet above sea level.

There are three separate near-surface water-bearing zones at the site. These have been called the Shallow Zone (SZ), Intermediate Zone (IZ), and the Deep Zone (DZ). These zones are formed beneath the entire plant site, including the area around the four current and former permitted units. The general lithology of these zones is described in Section VI.A.4.2.

The shallow (<100 ft. bgs) water-bearing zones of concern are part of the Pleistocene Beaumont Formation/Upper Chicot Aquifier and consist of interbedded sand, silt, and clay of terrestrial origin. The more water-transmissive zones consist of sandy or silty beds ("sand bodies") separated by clay-rich units.

These shallow transmissive zones are contained within the uppermost part of the Chicot Aquifer system. As mentioned previously, the shallow Upper Chicot aquifer furnishes relatively small supplies of groundwater for multiple uses in Harris County; however, this Aquifer zone is not used in the vicinity of the APLLC plant.

The SZ comprises the sediments from the ground surface to a depth of approximately 50 feet and consists mostly of clay. These conditions are similar beneath all current and former permitted waste units at the site. Within this interval, the USZ and LSZ have been defined in previous investigations as groups of discontinuous, interbedded sandy and silty beds that are generally found within the approximate depth intervals of 20 to 35 feet and 35 to 45 feet bgl, respectively (Refer to cross sections in Section VI.A.4). The water table occurs approximately 3 to l0 feet bgl. Hydraulic head in both the USZ and LSZ is the same; levels in all wells in the SZ rise to approximately the level of the water table. All sediments below the water table are saturated with groundwater; no perched groundwater has been detected at the site.

The lowest part of the SZ is a clay unit of variable thickness which overlies a laterally continuous silty sand unit at the top of the IZ at a depth of approximately 50 feet. The silty sand units that comprise the IZ and DZ are generally traceable throughout the plant area, including the areas of all current and former permitted waste units.

A 5- to 15- foot thick clay or silty clay layer separates the silty sand units of the IZ from the DZ. The top of the DZ is at a depth of approximately 75 to 80 feet bgl. The DZ consists of silty sand interbedded with clayey lenses. Clay that forms the lower boundary of the DZ is encountered at a depth of approximately 90 feet bgl.

The three water-bearing zones of concern at APLLC have been interpreted as belonging to at least two different hydrologic regimes, since the potentiometric level of the SZ (both USZ and LSZ) is significantly above the potentiometric level of the two deeper zones (IZ and DZ). Historical depth to water measurements for each of the water bearing zones are included on Table VI.B.2a. Figures XI.A.4.10, XI.A.4.12, and XI.A.4.13 are potentiometric surface maps based on October 2007 water levels with existing groundwater recovery systems in operation.

It should be noted that the groundwater treatment systems that operate in the vicinity of the closed Effluent Impoundment (EI) and the closed Acid Spill Impoundment (ASI) were temporarily shut down to more accurately assess the “static” potentiometric surfaces of the water bearing zones. Figures XI.A.4.15 through 17 are potentiometric maps constructed using water levels measured when groundwater recovery operations were temporarily shut down.

The water levels in the SZ have historically varied from about 3 to 10 feet bgl. The water levels in both the Intermediate and Deep Zones are generally about 8 to 10 feet deeper than those in the SZ. The water levels indicate a potential for downward flow from the SZ into the IZ.

Previous hydrogeologic investigations at the site indicate that certain processes have probably increased the permeability of the clay sediments in some areas since their deposition. The investigations have noted visual characteristics of the clay as well as their apparent behavior as confining beds. The effectiveness of the clay as confining beds appears to be good in some areas but less effective in other areas, where affected groundwater has moved downward through them into underlying sands. Clay permeability has been increased by fracturing due to cyclic desiccation and rewetting in the ancient fluvial flood basin environment and by the development of burrows and root holes due to biological activity by former animal and plant life.

The direction of' horizontal groundwater flow in the SZ is different from that in the underlying IZ and DZ. Flow in the both the USZ and LSZ is generally southward, while the flow in the IZ and DZ is northward. The southward flow in the SZ at APLLC is likely an artifact produced by the large earthen spoils pile located immediately north of the facility, on neighboring property. The spoils pile is exposed to rainfall and has become partially saturated with water, resulting in an apparently significant increase in the altitude of the water table in that area. The result is a shallow water table that slopes generally southward, away from the spoil pile, in the vicinity of the APLLC Plant. In the areas near the two former hazardous waste management units (ASI and EI), there are significant cones of depression in the potentiometric surface of the SZ during operation of active groundwater recovery systems. During operation of the groundwater recovery systems, groundwater flow in the SZ converges radially toward the pumping centers.

The northward flow of the deeper IZ and DZ is away from the Gulf coastline. Although the typical natural flow direction of the deeper Gulf Coast aquifers is southward, it has been recognized that local topographic lows may locally influence flow direction in shallower units. In this case, it is likely that the northward flow is caused by the topographic low at Buffalo Bayou, located to the north of the APLLC facility.

Hydraulic Properties of Water-Bearing Units

The water-bearing units at the APLLC facility generally have hydraulic conductivity on the order of to 2 ft/day. Analysis of data collected at observation wells during the pumping test of MW-42 indicates that the storativity of the IZ in the area of the former ASI is about 5×10^{-4}.

Groundwater velocity calculated for the SZ is on the order of 0.05 feet per day southward. Groundwater velocity calculated for the Intermediate and Deep Zones is on the order of 0.015 feet per day northward.

REFERENCES

Baker, Jr., E. T., 1979, Stratigraphic and Hydrologic Framework of Part of the Coastal Plain of Texas: Texas Department of Water Resources Report 236, 43 p.

Bureau of Economic Geology Land Resource Laboratory Map Series, Houston - Galveston Area Council Sheet #4, 1975.

Coplin, L.H., and Others, 1999, Water-Level Altitudes 1999, Water-Level Changes 1977-99 and
1998-99, and Compaction 1073-98 in the Chicot and Evangeline Aquifers, Houston-Galveston Region, Texas United States Geological Survey Open-File Report 99-178.

Espey, Huston & Associates, Inc. 1978, Harris - Galveston Coastal Subsidence District Water Resource Management Program, Phase I.

Fisher, W. L., McGowen, J. H., Brown, Jr., L. F., and Grout, C. G., 1972, Environmental Geologic Atlas of the Texas Coastal Zone -Galveston - Houston area, 91 p., 9 plates.

Fugro South, Inc., 1999. Reconnaissance Study of Geologic Faulting, Letter Report to L. Self, Air Products, May 17, 1999.

Gabrysch, R. K., 1977, Approximate Areas of Recharge to the Chicot and Evangeline Aquifer System in the Houston - Galveston Area, Texas: USGS open file report 77-754, 1 plate.

Gabrysch, R.K., 1974, Groundwater Data for Harris County, Texas, Volume II, Records of Wells, 1892-1973: Texas Water Development Board Report 178, 181 p.

Gabrysch, R. K., 1981, Ground-water Withdrawals and Land-Surface Subsidence in the Houston-Galveston Region, Texas 1906-80, U. S. Geological Survey Open-File Report 82-571.

Harris-Galveston Coastal Subsidence District, 1979, Ground Water Report Year Ending December 31, 1979, 7 p., 6 plates.

Holzer, T., Gabrysch, R. K., Verbeek, E. R., 1983, U. S. Geological Survey, Earthquake Information Bulletin, Nov-Dec, 1983, V. 15, No. 6.

Houston Testing Services, Inc., 1980, Report of Subsurface Soil Study, Existing & Proposed Pond Sites, at Air Products and Chemicals, Inc. Pasadena Plant, Pasadena, Texas.

Layne Texas Company, 1972-1973, Well Completion and Drillers' Logs, Electric Logs of AP&C Production Well Numbers 1 and 2.

Murillo Engineering and Testing Services, Inc. 1971, Preliminary Foundation Investigation, Pasadena Plant Site, Pasadena, Texas, 52 p.

Murillo Engineering and Testing Services, Inc., 1972, Foundation Investigation DNT and TDH Complex, Pasadena, Texas.

Strause, J. L., 1984, Approximate Water-Level Changes in Wells in the Chicot and Evangeline Aquifers 1977-1984 and 1983-1984, and Measured Compaction 1973-84, in the Houston-Galveston Region, Texas, U. S. Geological Survey Open-File Report 84-140.

Talmage, R.H., 1989, Surface faulting at Pasadena Plant Site, Memorandum to W. Deifallah, Air Products, August 9, 1989.

Van Siclen, D., 1984, Surface Evidence of Geologic Fault on Jacintoport Site at East Beltway 8 on North Side of Houston Ship Channel. Unpublished report to Underground Resource Management, Inc.

Van Siclen, D., 1989, Follow-up on November 1985 Surface Fault Investigation, Unpublished letter report to J. Joseph, Air Products Manufacturing Corp., July 24, 1989.

Wheeler, F.R., 1976, Soil Survey of Harris County, Texas, United States Department of Agriculture, Soil Conservation Service, 140 p.

TABLES – VI

TABLE VI. A.4.d.(1)
AIR PRODUCTS, L.P.
SUMMARY OF SOILS TESTING DATA

BORING NO.	STRATUM (ft)	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE	PERMEABILITY (CM/SEC)	% POROSITY	% MOISTURE CONTENT	SOIL CLASSI-FICATION	DRY DENSITY PCF	COMPRES-SION	STRAIN %
HTS C-1	2 - 4	54	31	--	3.56 X 10-8		--	--			
	8 - 10	66	44	--	1.25 X 10-8		--	--			
	13 - 15	75	46	--	--		--	--			
	18 - 20	44	28	--	--		--	--			
	28 - 30	66	43	--	--		--	--			
HTS C-2	4 - 6	33	32	--	--		--	--			
	8 - 10	30	46	--	2.83 X 10-8		--	--			
	18 - 20	22	31	--	--		--	--			
	33 - 35	24	37	--	--		--	--			
HTS D-1	8 - 10	30	42	--	1.00 X 10-8		--	--			
	23 - 25	24	31	--	--		--	--			
	38 - 41	21	--	88.4	--		--	--			
HTS D-2	8 - 10	74	45	--	7.26 X 10-9		--	--			
	28 - 20	67	36	--	2.03 X 10-8		--	--			
HTS E-1	2 - 4	75	46	--	2.71 X 10-8		--	--			
	4 - 6	68	41	--	9.05 X 10-9		--	--			
	8 - 10	83	55	--	4.8 X 10-9		--	--			
	18 - 20	32	17	--	--		--	--			
	23 - 25	51	29	--	--		--	--			
	33 - 35	--	--	53.9	8.28 X 10-9		--	--			
	38 - 40	54	34	--	--		--	--			
HTS E-2	6 - 8	65	41	--	--		37	--			
	13 - 15	74	47	--	--		31	--			
	33 - 35	42	18	--	4.97 X 10-5		22	--			
METS B-1	3 - 5	94	67	97	6.4 X 10-7	--	43	--	82	--	--
	8 - 10	--	--	--	--	--	35	--	84	0.66	1.3
	18 - 20	47	31	97	4.8 X 10-6	--	22	--	--	--	--
	28 - 30	61	42	99	--	--	21	--	106	2.2	2
	43 - 45	60	36	99	--	--	24	--	99	2.64	3
	58 - 60	28	12	78	--	--	22	--	106	1.62	6.7
METS B-2	0 - 2	66	39	--	--	--	39	--	--	--	--
	8 - 10	--	--	--	1.2 X 10-7	--	23	--	101	0.68	3
	13 - 15	35	17	76	--	--	17	--	105	--	--
	18 - 20	--	--	--	--	--	23	--	103	1.71	6.7
	33 - 35	63	36	--	--	--	27	--	97	1.63	1.3
	48 - 50	--	--	--	--	--	18	--	112	2.1	6.7
	63 - 65	--	--	--	--	--	18	--	109	1.35	4.7
METS B-6	0 - 2	81	50	--	--	--	47	--	--	--	--
	2 - 4	--	--	--	--	--	38	--	81	0.61	--
	6 - 8	74	49	--	--	--	34	--	86	0.55	--

TABLE VI. A.4.d.(1)
AIR PRODUCTS, L.P.
SUMMARY OF SOILS TESTING DATA

BORING NO.	STRATUM (ft)	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE	PERMEABILITY (CM/SEC)	% POROSITY	% MOISTURE CONTENT	SOIL CLASSI-FICATION	DRY DENSITY PCF	COMPRES-SION	STRAIN %
METS B-6	13 - 15	--	--	--	--	--	28	--	96	1.08	--
METS B-7	0 - 2	78	51	--	--	--	36	--	--	--	--
	4 - 6	--	--	--	--	--	37	--	83	0.69	--
	8 - 10	75	51	--	--	--	35	--	85	0.61	--
	18 - 20	--	--	--	--	--	20	--	108	1.23	--
	23 - 25	28	0	67	--	--	18	--	--	--	--
METS B-8	4 - 6	83	55	--	--	--	33	--	--	--	--
	6 - 8	--	--	--	--	--	36	--	86	0.72	--
	13 - 15	--	--	--	--	--	30	--	93	1.38	--
	18 - 20	50	31	--	--	--	16	--	112	3.2	--
	28 - 30	--	--	--	--	--	25	--	102	0.82	--
	43 - 45	--	--	--	--	--	25	--	99	1.52	--
METS B-9	0 - 2	73	40	--	--	--	39	--	--	--	--
	2 - 4	--	--	--	--	--	45	--	76	0.36	--
	8 - 10	--	--	--	--	--	36	--	85	0.51	--
	13 - 15	--	--	--	--	--	27	--	97	1.52	--
	23 - 25	--	--	--	--	--	16	--	117	3.2	--
	38 - 40	56	31	--	--	--	26	--	101	2.62	--
	48.5 - 50	--	--	34	--	--	19	--	--	--	--
METS B-10	4 - 6	95	70	--	7.7 x 10-7	--	--	--	--	--	--
	8 - 10	--	--	--	--	--	--	--	--	--	--
	13 - 15	60	39	--	2.6 x 10-7	--	--	--	--	--	--
METS B-11	2 - 4	91	61	--	--	--	40	--	97	0.68	--
	6 - 8	79	52	--	--	--	34	--	87	0.62	--
	18 - 20	--	--	--	--	--	20	--	108	2.21	--
	23 - 25	--	--	--	--	--	24	--	103	2.32	--
	28 - 30	64	39	--	--	--	26	--	99	1.9	--
	38 - 40	--	--	--	--	--	25	--	101	2.72	--
	48.5 - 50	--	38	--	--	--	19	--	--	--	--
METS B-12	2 - 4	78	54	--	--	--	35	--	82	0.58	--
	8 - 10	--	--	--	--	--	32	--	89	0.88	--
	18 - 20	--	--	--	--	--	19	--	108	1.53	--
	28 - 30	--	--	--	--	--	23	--	101	1.61	--
	33.5 - 35	--	--	30	--	--	22	--	--	--	--
METS B-13	2 - 4	--	--	--	--	--	36	--	74	0.46	--
	6 - 8	--	--	--	--	--	49	--	76	0.79	--
	13 - 15	60	36	--	--	--	28	--	96	1.49	--
	23 - 25	--	--	--	--	--	19	--	111	2.08	--
METS B-14	0 - 2	71	40	--	--	--	36	--	82	0.46	--
	4 - 6	--	--	--	--	--	35	--	86	0.64	--
	8 - 10	--	--	--	--	--	35	--	86	0.78	--

TABLE VI. A.4.d.(1)
AIR PRODUCTS, L.P.
SUMMARY OF SOILS TESTING DATA

BORING NO.	STRATUM (ft)	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE	PERMEABILITY (CM/SEC)	% POROSITY	% MOISTURE CONTENT	SOIL CLASSIFICATION	DRY DENSITY PCF	COMPRESSION	STRAIN %
	23 - 25	--	--	--	--	--	25	--	109	2.02	--
METS B-15	2 - 4	96	61	--	--	--	49	--	70	0.35	--
	6 - 8	--	--	--	--	--	36	--	85	0.78	--
	13 - 15	--	--	--	--	--	20	--	108	1.04	--
	23 - 25	--	--	--	--	--	22	--	103	0.47	--
METS B-16	4 - 6	--	--	--	--	--	28	--	91	0.49	--
	8 - 10	--	--	--	--	--	33	--	87	0.68	--
	18 - 20	--	--	--	--	--	18	--	113	1.2	--
	28 - 30	70	46	--	--	--	22	--	104	0.88	--
METS B-17	0 - 2	74	50	--	--	--	38	--	81	0.63	--
	2 - 4	--	--	--	--	--	41	--	77	0.53	--
	8 - 10	--	--	--	--	--	32	--	90	0.99	--
	13 - 15	38	22	--	--	--	19	--	108	1.29	--
	28 - 30	--	--	--	--	--	25	--	98	1.54	--
METS B-18	2 - 4	84	52	--	--	--	37	--	81	0.38	--
	6 - 8	--	--	--	--	--	33	--	87	0.37	--
	18 - 20	29	10	--	--	--	19	--	110	0.88	--
	28 - 30	--	--	--	--	--	26	--	99	2.05	--
METS B-19	2 - 4	79	54	--	--	--	35	--	81	0.61	--
	6 - 8	68	46	--	--	--	31	--	91	1.08	--
	13 - 15	36	18	--	--	--	17	--	111	1.35	--
	23 - 25	--	--	--	--	--	23	--	107	0.51	--
	28 - 30	33	18	--	--	--	20	--	107	0.5	--
METS B-20	0 - 2	--	--	--	--	--	37	--	73	0.66	--
	4 - 6	--	--	--	--	--	36	--	86	0.48	--
	8 - 10	77	53	--	--	--	31	--	97	0.8	--
	13 - 15	--	--	--	--	--	19	--	108	1	--
	23 - 25	--	--	--	--	--	21	--	103	0.37	--
METS B-21	2 - 4	--	--	--	--	--	38	--	82	0.5	--
	6 - 8	--	--	--	--	--	30	--	92	0.82	--
	13 - 15	--	--	--	--	--	19	--	109	1.09	--
METS B-22	2 - 4	--	--	--	--	--	50	--	78	0.17	--
	6 - 8	--	--	--	--	--	35	--	83	0.57	--
	13 - 15	41	24	--	--	--	19	--	109	1.96	--
	28 - 30	59	36	--	--	--	24	--	102	2.28	--
METS B-23	2 - 4	--	--	--	--	--	40	--	77	0.47	--
	6 - 8	--	--	--	--	--	33	--	87	0.63	--
	13 - 15	--	--	--	--	--	20	--	108	1.66	--
	18 - 20	--	--	--	--	--	20	--	108	1.78	--
METS B-24	6 - 8	--	--	--	--	--	33	--	86	0.8	--
	8 - 10	83	54	--	3.3 X 10-7	--	43	--	--	--	--

3LE VI. A.4.d.(1)
AIR PRODUCTS, L.P.
SUMMARY OF SOILS TESTING DATA

BORING NO.	STRATUM (ft)	LIQUID LIMIT	PLASTICITY INDEX	% PASSING #200 SIEVE	PERMEABILITY (CM/SEC)	% POROSITY	% MOISTURE CONTENT	SOIL CLASSI-FICATION	DRY DENSITY PCF	COMPRES-SION	STRAIN %
	13 - 15	32	16	–	8.6 X 10-7	–	17	–	113	1.39	–
	23 - 25	–	–	–	–	–	20	–	110	1.28	–
METS B-25	0 - 2	83	54	–	–	–	43	–	–	–	–
	4 - 6	–	–	–	–	–	24	–	92	0.53	–
	8 - 10	–	–	–	3.4 x 10-7	–	32	–	–	–	–
	13 - 15	–	–	–	–	–	19	–	109	0.48	–
	18 - 20	–	–	–	–	–	17	–	111	0.77	–
URM MW-1	10	–	–	79.5	–	–	–	–	–	–	–
	15	38.5	18.5	77.8	1.00 X 10-5	–	16.7	ML	–	–	–
	25	–	–	98.3	–	–	–	–	–	–	–
URM MW-2	17	–	–	70.9	–	–	19.5	ML	–	–	–
	20	–	–	6.2	–	–	–	SP	–	–	–
	31.5	–	–	99.6	–	–	26	CH	–	–	–
	36	55.8	17.3	94.2	5.00 X 10-10	–	23	CH	–	–	–
URM MW-3	10	73.8	23.5	78.7	2.00 X 10-9	–	32.4	CH	–	–	–
	15	31.4	13.1	71.6	1.00 X 10-8	–	17.9	–	–	–	–
	20	–	–	12.2	–	–	–	SP	–	–	–
	25	–	–	94.7	–	–	19.4	CH	–	–	–
URM MW-4	11.5	69.4	22.3	95	1.00 X 10-9	–	33.3	CH	–	–	–
	15	–	–	81	–	–	17.9	–	–	–	–
	25	–	–	92.8	–	–	19.4	CH	–	–	–
URM MW-5	10	–	–	97.6	–	–	33.9	CH	–	–	–
	15	47.3	13.6	80.5	6.00 X 10-10	–	20.6	CL-CH	–	–	–
	20	–	–	90.5	–	–	18.5	CH	–	–	–
	35	–	–	29.8	–	–	33.2	SP	–	–	–

HTS – Houston Testing Services, Inc.

M ETS – Murillo Engineering Testing Services, Inc.

URM – Underground Resource Management

TABLE VI A.4.d.(2)

AIR PRODUCTS, L.P.
MAXIMUM, MINIMUM, AVERAGE
OF
SOILS TESTING DATA

STRATUM	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	% PASSING # 200	PERMEABILITY cm/sec	MOISTURE CONTENT %	DRY DENSITY pcf	COMPRESSION	% STRAIN
					MAXIMUM				
Stratum I	0-30	95	67.0	98.3	1.00×10^{-5}	47.0	113	2.62	3
Stratum II	30-80	55.8	38.0	99.6	4.97×10^{-5}	36	112	2.72	6.7
					MINIMUM				
Stratum I	0-30	22	10.0	6.2	6×10^{-10}	16.7	70	0.17	1.3
Stratum II	30-80	21	17.3	29.8	5×10^{-10}	18	97	1.35	1.3
					AVERAGE				
Stratum I	0-30	60.9	39.2	75.15	8.31×10^{-7}	28.7	95	1.04	3.25
Stratum II	30-80	44.8	28.8	68.9	1.26×10^{-5}	23.1	103	2.03	4.85

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
APZ1	3/28/2002	16.4
APZ1	4/19/2002	15.45
APZ1	10/3/2002	14.66
APZ1	4/1/2003	12.96
APZ1	10/3/2003	14.66
APZ1	4/16/2004	15.39
APZ1	10/26/2004	12.53
APZ1	4/1/2005	14.48
APZ1	10/11/2005	14.17
APZ1	4/10/2006	12.57
APZ1	10/6/2006	13.51
APZ1	4/5/2007	14.52
APZ1	10/1/2007	14.19
APZ1	4/28/2008	14.30
APZ1	10/7/2008	15.87
APZ1	4/13/2009	14.56
APZ2	3/28/2002	16.0
APZ2	4/19/2002	15.45
APZ2	4/1/2003	13.00
APZ2	10/3/2003	14.59
APZ2	10/3/2003	14.59
APZ2	4/16/2004	15.48
APZ2	10/26/2004	12.57
APZ2	4/1/2005	14.43
APZ2	10/11/2005	14.19
APZ2	4/10/2006	12.56
APZ2	10/6/2006	13.48
APZ2	4/5/2007	14.58
APZ2	10/1/2007	14.26
APZ2	4/28/2008	14.25
APZ2	10/7/2008	15.83
APZ2	4/13/2009	14.52
APZ2	10/28/2009	13.82
APZ2	4/5/2010	15.04
APZ2	10/6/2010	14.53
APZ3	3/28/2002	18.33
APZ3	4/19/2002	16.39
APZ4	3/28/2002	17.74
APZ4	4/19/2002	14.69
MW-01	1/29/1985	18.62
MW-01	2/20/1985	18.85
MW-01	7/23/1985	16.37
MW-01	12/19/1985	17.61
MW-01	3/24/1986	17.56
MW-01	6/18/1986	19.12
MW-01	8/19/1986	17.77
MW-01	10/21/1986	20.06
MW-01	1/29/1987	20.37
MW-01	3/31/1987	19.37
MW-01	7/27/1987	20.46

Well Number	Date	Water Elevation (ft)
MW-01	10/29/1987	16.73
MW-01	1/27/1988	17.37
MW-01	4/29/1988	18.21
MW-01	7/29/1988	16.54
MW-01	10/3/1988	15.12
MW-01	2/9/1989	11.98
MW-01	5/8/1989	17.71
MW-01	8/3/1989	19.64
MW-01	10/18/1989	16.37
MW-02	1/29/1985	18.92
MW-02	2/20/1985	19.07
MW-02	7/23/1985	17.80
MW-02	12/19/1985	17.91
MW-02	3/25/1986	18.03
MW-02	7/12/1986	18.68
MW-02	8/19/1986	18.08
MW-02	10/21/1986	20.18
MW-02	1/29/1987	20.33
MW-02	4/2/1987	19.68
MW-02	7/24/1987	20.89
MW-02	10/29/1987	16.91
MW-02	1/27/1988	17.41
MW-02	4/29/1988	18.39
MW-02	7/27/1988	16.78
MW-02	10/3/1988	15.39
MW-02	2/9/1989	16.95
MW-02	5/8/1989	19.53
MW-02	7/31/1989	20.22
MW-02	10/17/1989	16.68
MW-02	1/26/1990	17.81
MW-02	4/19/1990	19.09
MW-02	7/9/1990	17.61
MW-02	10/5/1990	16.11
MW-02	5/1/1991	13.17
MW-02	8/15/1991	13.07
MW-02	10/3/1991	12.14
MW-02	10/31/1991	11.74
MW-02	5/5/1992	12.82
MW-02	6/18/1992	13.41
MW-02	7/24/1992	13.14
MW-02	11/9/1993	13.14
MW-02	4/15/1994	13.24
MW-02	10/25/1994	12.64
MW-02	4/22/1995	16.99
MW-02	11/10/1995	11.35
MW-02	5/4/1996	13.41
MW-02	1/2/1997	16.39
MW-02	4/20/1997	13.27
MW-02	8/24/1997	16.52
MW-02	10/5/1997	16.05

Well Number	Date	Water Elevation (ft)
MW-02	4/1/1998	19.97
MW-02	10/14/1998	17.43
MW-02	4/1/1999	17.82
MW-02	6/2/1999	19.89
MW-02	6/10/1999	16.18
MW-02	4/11/2000	13.32
MW-02	10/3/2000	11.47
MW-02	10/3/2000	11.47
MW-02	4/2/2001	14.19
MW-02	10/16/2001	16.42
MW-02	3/28/2002	20.42
MW-02	4/19/2002	16.50
MW-02	4/1/2003	15.41
MW-02	10/2/2003	14.68
MW-02	10/2/2003	14.68
MW-02	4/16/2004	15.14
MW-02	10/26/2004	10.53
MW-02	4/1/2005	13.80
MW-02	10/11/2005	11.58
MW-02	4/10/2006	13.45
MW-02	10/6/2006	9.91
MW-02	4/5/2007	11.98
MW-02	10/1/2007	12.34
MW-02	4/28/2008	19.54
MW-02	10/7/2008	20.23
MW-02	4/13/2009	18.52
MW-02	10/28/2009	17.74
MW-02	4/5/2010	17.69
MW-02	10/6/2010	18.77
MW-02	4/28/2011	16.33
MW-02	10/12/2011	14.05
MW-03	1/29/1985	18.94
MW-03	2/20/1985	19.15
MW-03	7/23/1985	17.78
MW-03	12/19/1985	17.91
MW-03	3/25/1986	17.90
MW-03	6/12/1986	18.80
MW-03	8/19/1986	18.24
MW-03	10/24/1986	20.36
MW-03	1/29/1987	20.34
MW-03	4/2/1987	19.82
MW-03	7/24/1987	20.91
MW-03	10/29/1987	17.16
MW-03	1/27/1988	17.45
MW-03	4/29/1988	18.49
MW-03	7/29/1988	16.99
MW-03	10/3/1988	15.53
MW-03	2/14/1989	17.48
MW-03	5/10/1989	17.69
MW-03	7/31/1989	19.19

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-03	10/19/1989	16.45
MW-03	1/22/1990	17.88
MW-03	4/19/1990	19.19
MW-03	7/12/1990	17.65
MW-03	10/3/1990	16.36
MW-03	1/22/1991	12.80
MW-03	5/1/1991	13.86
MW-03	7/24/1991	11.49
MW-03	10/3/1991	12.32
MW-03	2/9/1992	13.07
MW-03	5/5/1992	12.57
MW-03	8/28/1992	13.11
MW-03	10/28/1992	12.16
MW-03	1/28/1993	13.07
MW-03	4/18/1993	13.56
MW-03	7/20/1993	13.57
MW-03	11/5/1993	12.77
MW-03	4/15/1994	12.91
MW-03	10/25/1994	12.91
MW-03	4/26/1995	12.27
MW-03	11/12/1995	12.42
MW-03	5/4/1996	14.75
MW-03	1/2/1997	16.19
MW-03	4/20/1997	17.87
MW-03	8/24/1997	16.19
MW-03	10/5/1997	15.84
MW-03	4/1/1998	19.99
MW-03	10/14/1998	16.80
MW-03	4/1/1999	17.58
MW-03	6/2/1999	19.91
MW-03	6/10/1999	15.52
MW-03	4/11/2000	12.88
MW-03	10/3/2000	11.46
MW-03	10/3/2000	11.46
MW-03	4/2/2001	13.79
MW-03	10/16/2001	15.59
MW-03	3/28/2002	20.41
MW-03	4/19/2002	16.01
MW-03	4/1/2003	14.64
MW-03	10/2/2003	14.27
MW-03	10/2/2003	14.27
MW-03	4/16/2004	14.80
MW-03	10/26/2004	10.19
MW-03	4/1/2005	13.47
MW-03	10/11/2005	11.17
MW-03	4/10/2006	12.85
MW-03	10/6/2006	9.58
MW-03	4/5/2007	11.29
MW-03	10/1/2007	11.81
MW-03	4/28/2008	19.45
MW-03	10/7/2008	20.18
MW-03	4/13/2009	18.54
MW-03	10/28/2009	17.27
MW-03	4/5/2010	17.26
MW-03	10/6/2010	16.62
MW-03	4/28/2011	16.04
MW-03	10/12/2011	14.45
MW-04	1/29/1985	19.11
MW-04	2/20/1985	19.36
MW-04	7/23/1985	18.11
MW-04	12/19/1985	18.61
MW-04	3/25/1986	17.99
MW-04	1/29/1987	20.25
MW-04	4/2/1987	19.71
MW-04	7/23/1987	20.81
MW-04	10/28/1987	17.32
MW-04	1/27/1988	17.55
MW-04	4/27/1988	18.69
MW-04	7/28/1988	15.12
MW-04	10/3/1988	15.92
MW-04	2/9/1989	17.16
MW-04	5/5/1989	17.81
MW-04	7/31/1989	19.37
MW-04	10/17/1989	16.83
MW-04	1/24/1990	18.08
MW-04	4/24/1990	18.92
MW-04	7/10/1990	17.41
MW-04	10/2/1990	16.16
MW-04	6/8/1992	16.70
MW-04	6/18/1992	17.45
MW-04	4/1/1998	19.84
MW-4B	10/17/1989	16.83
MW-4B	1/24/1990	18.08
MW-4B	4/24/1990	18.92
MW-4B	6/2/1999	19.91
MW-4B	6/10/1999	18.74
MW-4B	10/3/2000	14.95
MW-4B	10/3/2000	14.95
MW-4B	10/16/2001	18.49
MW-4B	3/28/2002	20.3
MW-4B	4/19/2002	19.11
MW-4B	4/1/2003	16.76
MW-4B	10/2/2003	17.94
MW-4B	10/2/2003	17.94
MW-4B	4/16/2004	17.88
MW-4B	10/26/2004	12.46
MW-4B	4/1/2005	16.62
MW-4B	10/11/2005	14.45
MW-4B	4/10/2006	15.06
MW-4B	10/6/2006	12.41
MW-4B	4/5/2007	14.19
MW-4B	10/1/2007	14.12
MW-4B	4/28/2008	19.22
MW-4B	10/7/2008	19.96
MW-4B	4/13/2009	18.61
MW-4B	10/28/2009	16.17
MW-4B	4/5/2010	16.42
MW-4B	10/6/2010	15.88
MW-4B	4/28/2011	15.54
MW-4B	10/12/2011	13.87
MW-05	2/20/1985	18.54
MW-05	7/23/1985	17.71
MW-05	12/18/1985	17.83
MW-05	3/24/1986	17.85
MW-05	6/11/1986	18.81
MW-05	8/11/1986	18.04
MW-05	10/20/1986	19.30
MW-05	1/28/1987	19.21
MW-05	3/31/1987	18.55
MW-05	7/23/1987	19.45
MW-05	10/28/1987	16.70
MW-05	1/27/1988	15.11
MW-05	4/28/1988	16.47
MW-05	7/29/1988	16.97
MW-05	10/3/1988	16.07
MW-05	2/10/1989	15.83
MW-05	5/5/1989	16.46
MW-05	8/9/1989	16.50
MW-05	10/17/1989	12.45
MW-05	1/25/1990	13.93
MW-05	4/26/1990	13.83
MW-05	7/11/1990	12.88
MW-05	10/3/1990	11.88
MW-05	1/22/1991	13.00
MW-05	5/1/1991	14.60
MW-05	7/24/1991	14.18
MW-05	10/3/1991	14.95
MW-05	2/9/1992	15.30
MW-05	5/4/1992	15.60
MW-05	8/28/1992	16.03
MW-05	10/28/1992	14.40
MW-05	1/28/1993	14.85
MW-05	4/8/1993	14.40
MW-05	7/20/1993	14.27
MW-05	11/5/1993	13.20
MW-05	4/14/1994	13.68
MW-05	10/11/1994	12.60
MW-05	4/22/1995	14.10
MW-05	11/12/1995	12.63
MW-05	5/11/1996	12.30

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-05	1/2/1997	17.58
MW-05	4/20/1997	17.13
MW-05	8/24/1997	17.58
MW-05	10/5/1997	17.18
MW-05	4/1/1998	17.73
MW-05	10/14/1998	17.11
MW-05	4/1/1999	17.90
MW-05	6/10/1999	15.98
MW-05	4/11/2000	12.70
MW-05	10/3/2000	15.23
MW-05	10/3/2000	15.23
MW-05	4/2/2001	15.63
MW-05	10/16/2001	16.88
MW-05	3/28/2002	18.73
MW-05	4/19/2002	16.48
MW-05	4/1/2003	13.71
MW-05	10/2/2003	15.29
MW-05	10/2/2003	15.29
MW-06	1/29/1985	19.09
MW-06	2/20/1985	19.40
MW-06	7/23/1985	18.13
MW-06	12/18/1985	17.96
MW-06	3/24/1986	18.45
MW-06	6/12/1986	19.28
MW-06	8/19/1986	18.38
MW-06	10/20/1986	20.05
MW-06	1/28/1987	20.17
MW-06	4/1/1987	19.67
MW-06	7/23/1987	20.67
MW-06	10/28/1987	17.22
MW-06	1/26/1988	17.55
MW-06	4/27/1988	18.67
MW-06	7/27/1988	17.34
MW-06	10/5/1988	15.51
MW-06	2/16/1989	17.34
MW-06	5/8/1989	17.84
MW-06	7/27/1989	19.24
MW-06	10/19/1989	16.56
MW-06	1/24/1990	18.71
MW-06	4/24/1990	19.27
MW-06	7/10/1990	17.80
MW-06	10/2/1990	16.01
MW-06	6/18/1992	18.43
MW-06	6/25/1992	18.50
MW-06	4/1/1998	20.32
MW-06	6/2/1999	20.26
MW-06	6/10/1999	19.70
MW-06	10/3/2000	15.67
MW-06	10/3/2000	15.67
MW-06	10/16/2001	19.14

Well Number	Date	Water Elevation (ft)
MW-06	3/28/2002	20.47
MW-06	4/19/2002	20.03
MW-06	4/1/2003	17.76
MW-06	10/2/2003	18.67
MW-06	10/2/2003	18.67
MW-06	4/16/2004	18.62
MW-06	10/26/2004	14.35
MW-06	4/1/2005	17.75
MW-06	10/11/2005	15.73
MW-06	4/10/2006	16.18
MW-06	10/6/2006	14.44
MW-06	4/5/2007	16.42
MW-06	10/1/2007	16.45
MW-06	4/28/2008	19.49
MW-06	10/7/2008	20.12
MW-06	4/13/2009	18.99
MW-06	10/28/2009	17.50
MW-06	4/5/2010	17.79
MW-06	10/6/2010	17.16
MW-06	4/28/2011	16.75
MW-06	10/12/2011	14.71
MW-07	1/29/1985	18.32
MW-07	2/20/1985	18.45
MW-07	7/23/1985	17.03
MW-07	12/18/1985	17.69
MW-07	3/24/1986	17.72
MW-07	6/11/1986	18.72
MW-07	8/11/1986	17.64
MW-07	10/20/1986	19.16
MW-07	1/28/1987	19.20
MW-07	3/31/1987	18.29
MW-07	7/23/1987	19.02
MW-07	10/28/1987	16.49
MW-07	1/26/1988	14.66
MW-07	4/28/1988	16.16
MW-07	7/27/1988	16.49
MW-07	10/5/1988	15.68
MW-07	2/10/1989	13.91
MW-07	5/5/1989	12.52
MW-07	8/3/1989	16.76
MW-07	10/17/1989	7.24
MW-07	1/25/1990	8.24
MW-07	4/23/1990	9.24
MW-07	7/11/1990	7.51
MW-07	10/2/1990	7.07
MW-07	1/22/1991	8.34
MW-07	5/1/1991	9.46
MW-07	7/24/1991	10.06
MW-07	10/3/1991	11.46
MW-07	2/9/1992	11.54

Well Number	Date	Water Elevation (ft)
MW-07	5/4/1992	11.46
MW-07	7/24/1992	12.96
MW-07	10/28/1992	11.36
MW-07	1/28/1993	12.66
MW-07	4/7/1993	8.61
MW-07	7/20/1993	8.71
MW-07	11/5/1993	8.30
MW-07	4/14/1994	8.54
MW-07	10/11/1994	7.51
MW-07	4/22/1995	9.09
MW-07	11/12/1995	8.97
MW-07	5/11/1996	7.42
MW-07	1/2/1997	16.89
MW-07	4/20/1997	17.37
MW-07	8/24/1997	17.07
MW-07	10/5/1997	16.67
MW-07	4/1/1998	16.17
MW-07	10/14/1998	14.92
MW-07	4/1/1999	16.36
MW-07	6/2/1999	16.68
MW-07	6/10/1999	13.04
MW-07	4/11/2000	7.62
MW-07	10/3/2000	9.87
MW-07	10/3/2000	9.87
MW-07	4/2/2001	10.77
MW-07	10/16/2001	15.34
MW-07	3/28/2002	18.01
MW-07	4/19/2002	12.59
MW-07	4/1/2003	8.82
MW-07	10/2/2003	9.95
MW-07	10/2/2003	9.95
MW-07	4/16/2004	10.88
MW-07	10/26/2004	7.93
MW-07	4/1/2005	10.53
MW-07	10/11/2005	10.22
MW-07	4/10/2006	8.45
MW-07	10/6/2006	8.87
MW-07	4/5/2007	11.19
MW-07	10/1/2007	9.58
MW-07	4/28/2008	10.81
MW-07	10/7/2008	15.92
MW-07	4/13/2009	10.66
MW-07	10/28/2009	9.83
MW-07	4/5/2010	14.43
MW-07	10/6/2010	14.03
MW-07	4/28/2011	14.15
MW-07	10/12/2011	12.72
MW-08	1/29/1985	18.94
MW-08	2/20/1985	19.11
MW-08	7/23/1985	17.44

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-08	12/19/1985	17.84
MW-08	3/25/1986	18.00
MW-08	6/12/1986	18.90
MW-08	8/19/1986	18.11
MW-08	10/21/1986	20.24
MW-08	1/29/1987	20.53
MW-08	4/2/1987	19.69
MW-08	7/24/1987	20.94
MW-08	10/29/1987	17.01
MW-08	1/28/1988	17.61
MW-08	4/29/1988	18.47
MW-08	7/28/1988	16.92
MW-08	10/5/1988	15.40
MW-08	2/10/1989	17.36
MW-08	5/10/1989	17.52
MW-08	8/3/1989	19.67
MW-08	10/24/1989	16.44
MW-08	1/26/1990	18.14
MW-08	4/19/1990	19.02
MW-08	7/10/1990	17.77
MW-08	10/11/1990	16.15
MW-08	1/22/1991	8.63
MW-08	5/1/1991	13.88
MW-08	7/24/1991	8.96
MW-08	10/3/1991	7.98
MW-08	2/9/1992	8.38
MW-08	5/5/1992	12.19
MW-08	7/23/1992	9.32
MW-08	10/29/1992	8.98
MW-08	1/28/1993	9.55
MW-08	4/8/1993	10.08
MW-08	7/20/1993	10.22
MW-08	11/7/1993	9.38
MW-08	4/15/1994	9.38
MW-08	10/25/1994	9.53
MW-08	4/22/1995	13.38
MW-08	11/10/1995	10.43
MW-08	5/4/1996	10.84
MW-08	1/2/1997	15.33
MW-08	4/20/1997	17.38
MW-08	8/24/1997	15.58
MW-08	10/5/1997	16.18
MW-08	4/1/1998	19.03
MW-08	10/14/1998	15.88
MW-08	4/1/1999	15.47
MW-08	6/2/1999	18.92
MW-08	6/10/1999	14.76
MW-08	4/11/2000	11.64
MW-08	10/3/2000	9.34
MW-08	10/3/2000	9.34
MW-08	4/2/2001	12.76
MW-08	10/16/2001	16.85
MW-08	3/28/2002	20.39
MW-08	4/19/2002	12.10
MW-08	4/1/2003	14.66
MW-08	10/2/2003	14.38
MW-08	10/2/2003	14.38
MW-08	4/16/2004	11.55
MW-08	10/26/2004	6.83
MW-08	4/1/2005	9.85
MW-08	10/11/2005	8.43
MW-08	4/10/2006	13.05
MW-08	10/6/2006	6.06
MW-08	4/5/2007	7.52
MW-08	10/1/2007	9.23
MW-08	4/28/2008	19.54
MW-08	10/7/2008	20.17
MW-08	4/13/2009	12.61
MW-08	10/28/2009	17.88
MW-08	4/5/2010	17.19
MW-08	10/6/2010	16.74
MW-08	4/28/2011	16.12
MW-08	10/12/2011	15.15
MW-09	1/29/1985	18.94
MW-09	2/20/1985	19.23
MW-09	7/23/1985	17.86
MW-09	12/19/1985	17.99
MW-09	3/25/1986	18.11
MW-09	6/18/1986	19.59
MW-09	8/12/1986	18.53
MW-09	10/20/1986	20.30
MW-09	1/29/1987	20.57
MW-09	4/2/1987	19.61
MW-09	7/27/1987	20.74
MW-09	10/30/1987	17.19
MW-09	1/28/1988	17.69
MW-09	4/29/1988	18.57
MW-09	7/28/1988	17.15
MW-09	10/5/1988	15.69
MW-09	2/14/1989	17.64
MW-09	5/10/1989	17.77
MW-09	7/31/1989	19.41
MW-09	10/20/1989	16.77
MW-09	1/30/1990	18.52
MW-09	4/19/1990	19.19
MW-09	7/12/1990	17.86
MW-09	10/3/1990	16.59
MW-09	1/22/1991	13.39
MW-09	5/1/1991	14.48
MW-09	7/24/1991	14.23
MW-09	10/4/1991	13.34
MW-09	2/9/1992	13.79
MW-09	5/6/1992	14.48
MW-09	7/23/1992	14.47
MW-09	1/28/1993	14.64
MW-09	4/8/1993	15.04
MW-09	7/20/1993	15.02
MW-09	11/5/1993	13.48
MW-09	4/14/1994	14.06
MW-09	10/27/1994	13.14
MW-09	4/22/1995	16.75
MW-09	11/14/1995	13.98
MW-09	5/11/1996	14.39
MW-09	1/2/1997	17.52
MW-09	4/20/1997	19.12
MW-09	8/24/1997	17.62
MW-09	10/5/1997	17.22
MW-09	4/1/1998	19.42
MW-09	10/14/1998	17.45
MW-09	4/1/1999	17.94
MW-09	6/2/1999	14.99
MW-09	6/10/1999	-1.92
MW-09	6/10/1999	17.77
MW-09	4/11/2000	15.12
MW-09	10/3/2000	13.41
MW-09	10/3/2000	13.41
MW-09	4/2/2001	16.74
MW-09	10/16/2001	18.36
MW-09	3/28/2002	20.43
MW-09	4/19/2002	16.77
MW-09	4/1/2003	16.62
MW-09	10/2/2003	17.65
MW-09	10/2/2003	17.65
MW-09	4/16/2004	15.91
MW-10	1/29/1985	19.18
MW-10	2/20/1985	19.25
MW-10	7/23/1985	17.81
MW-10	12/18/1985	18.12
MW-10	3/24/1986	18.52
MW-10	6/12/1986	18.96
MW-10	8/12/1986	18.33
MW-10	10/20/1986	20.02
MW-10	1/28/1987	20.21
MW-10	4/1/1987	19.73
MW-10	7/23/1987	20.82
MW-10	10/28/1987	16.94
MW-10	1/26/1988	17.61
MW-10	4/27/1988	18.65
MW-10	7/27/1988	16.69
MW-10	10/5/1988	15.27

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-10	2/9/1989	11.94
MW-10	5/8/1989	17.73
MW-10	8/3/1989	19.14
MW-10	10/16/1989	16.82
MW-10	1/24/1990	18.32
MW-10	4/19/1990	19.44
MW-10	7/24/1990	17.23
MW-10	10/4/1990	16.10
MW-10	5/2/1991	13.77
MW-10	6/15/1992	18.77
MW-10	6/18/1992	18.69
MW-10	4/1/1998	20.51
MW-10	6/2/1999	20.22
MW-10	6/10/1999	19.85
MW-10	10/3/2000	15.35
MW-10	10/3/2000	15.35
MW-10	10/16/2001	19.32
MW-10	3/28/2002	20.53
MW-10	4/19/2002	20.39
MW-10	4/1/2003	18.21
MW-10	10/2/2003	19.21
MW-10	10/2/2003	19.21
MW-10	4/16/2004	19.08
MW-10	10/26/2004	15.27
MW-10	4/1/2005	18.56
MW-10	10/11/2005	16.05
MW-10	4/10/2006	16.61
MW-10	10/6/2006	15.23
MW-10	4/5/2007	17.89
MW-10	10/1/2007	17.92
MW-10	4/28/2008	19.77
MW-10	10/7/2008	20.28
MW-10	4/13/2009	19.19
MW-10	10/28/2009	8.35
MW-10	4/5/2010	18.79
MW-10	10/6/2010	17.98
MW-10	4/28/2011	17.47
MW-10	10/12/2011	14.94
MW-11	1/29/1985	18.42
MW-11	2/20/1985	18.59
MW-11	7/23/1985	17.36
MW-11	12/18/1985	17.74
MW-11	3/24/1986	17.86
MW-11	6/12/1986	18.89
MW-11	8/12/1986	17.88
MW-11	10/20/1986	19.34
MW-11	1/28/1987	19.18
MW-11	4/1/1987	18.51
MW-11	7/23/1987	19.61
MW-11	10/30/1987	16.53

Well Number	Date	Water Elevation (ft)
MW-11	1/26/1988	16.93
MW-11	4/27/1988	17.97
MW-11	7/28/1988	16.59
MW-11	10/11/1988	15.18
MW-11	2/9/1989	16.80
MW-11	5/8/1989	16.92
MW-11	7/27/1989	17.97
MW-11	10/19/1989	17.30
MW-11	1/26/1990	16.92
MW-11	4/19/1990	17.34
MW-11	7/24/1990	15.84
MW-11	10/4/1990	14.47
MW-11	6/18/1992	18.39
MW-11	6/3/1999	19.18
MW-11	6/10/1999	18.23
MW-11	10/3/2000	15.11
MW-11	10/3/2000	15.11
MW-11	10/16/2001	18.41
MW-11	3/28/2002	18.96
MW-11	4/19/2002	18.92
MW-11	4/1/2003	16.43
MW-11	10/2/2003	17.91
MW-11	10/2/2003	17.91
MW-11	4/16/2004	18.01
MW-11	10/26/2004	14.96
MW-11	4/1/2005	17.64
MW-11	10/11/2005	16.26
MW-11	4/10/2006	15.68
MW-11	10/6/2006	15.43
MW-11	4/5/2007	17.41
MW-11	10/1/2007	17.19
MW-11	4/28/2008	17.55
MW-11	10/7/2008	18.43
MW-11	4/13/2009	17.41
MW-11	10/28/2009	16.46
MW-11	4/5/2010	17.44
MW-11	10/6/2010	16.96
MW-11	4/28/2011	16.35
MW-11	10/12/2011	14.74
MW-12	5/18/1985	11.70
MW-12	7/23/1985	10.50
MW-12	12/18/1985	11.25
MW-12	3/25/1986	10.11
MW-12	6/20/1986	9.96
MW-12	8/22/1986	9.75
MW-12	10/20/1986	8.63
MW-12	1/29/1987	11.21
MW-12	4/29/1988	9.25
MW-12B	9/13/1988	8.73
MW-12B	10/11/1988	7.04

Well Number	Date	Water Elevation (ft)
MW-12B	2/16/1989	12.16
MW-12B	5/12/1989	7.08
MW-12B	8/9/1989	8.52
MW-12B	10/25/1989	7.37
MW-12B	1/23/1990	7.75
MW-12B	4/18/1990	9.00
MW-12B	7/25/1990	8.59
MW-12B	10/8/1990	7.38
MW-12B	1/4/1991	8.65
MW-12B	5/10/1991	10.11
MW-12B	10/1/1991	10.11
MW-13	5/18/1985	19.21
MW-13	7/23/1985	16.20
MW-13	12/18/1985	17.76
MW-13	3/25/1986	17.70
MW-13	6/20/1986	18.83
MW-13	8/22/1986	17.54
MW-13	10/22/1986	19.50
MW-13	1/29/1987	19.70
MW-13	4/1/1987	19.08
MW-13	7/27/1987	20.04
MW-13	10/30/1987	16.75
MW-13	1/28/1988	16.91
MW-13	4/27/1988	17.98
MW-13	7/29/1988	16.16
MW-13	10/11/1988	14.91
MW-13	2/16/1989	16.53
MW-13	5/12/1989	16.83
MW-13	8/7/1989	18.78
MW-13	10/25/1989	15.74
MW-13	1/23/1990	17.00
MW-13	4/18/1990	18.04
MW-13	7/9/1990	16.86
MW-13	10/8/1990	15.41
MW-13	1/4/1991	15.98
MW-13	5/7/1991	14.34
MW-13	10/2/1991	12.74
MW-13	5/1/1992	14.14
MW-13	6/18/1992	14.16
MW-13	10/26/1992	13.24
MW-13	4/9/1993	14.89
MW-13	11/4/1993	12.24
MW-13	4/13/1994	12.48
MW-13	10/26/1994	11.52
MW-13	4/19/1995	15.56
MW-13	11/5/1995	12.50
MW-13	5/1/1996	12.74
MW-13	1/2/1997	15.52
MW-13	4/20/1997	16.12
MW-13	8/24/1997	14.52

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-13	10/5/1997	14.10
MW-13	4/1/1998	17.42
MW-13	10/14/1998	16.52
MW-13	4/1/1999	14.62
MW-13	6/2/1999	19.20
MW-13	6/10/1999	15.29
MW-13	4/11/2000	10.06
MW-13	10/3/2000	11.62
MW-13	10/3/2000	11.62
MW-13	4/2/2001	13.96
MW-13	10/17/2001	15.20
MW-13	3/28/2002	19.72
MW-13	4/1/2003	12.04
MW-13	10/2/2003	14.36
MW-13	10/2/2003	14.36
MW-13	4/16/2004	13.51
MW-13	4/1/2005	11.47
MW-13	10/11/2005	9.05
MW-13	4/10/2006	11.63
MW-13	10/6/2006	7.61
MW-13	4/5/2007	9.19
MW-13	10/1/2007	12.08
MW-13	4/28/2008	18.89
MW-13	10/7/2008	19.65
MW-13	4/13/2009	14.99
MW-13	10/28/2009	12.92
MW-13	4/5/2010	9.55
MW-13	10/6/2010	10.82
MW-13	4/28/2011	11.77
MW-13	10/12/2011	14.62
MW-14	5/18/1985	18.66
MW-14	7/23/1985	16.82
MW-14	12/18/1985	17.53
MW-14	3/25/1986	16.90
MW-14	6/20/1986	15.78
MW-14	8/22/1986	16.85
MW-14	10/20/1986	18.66
MW-14	1/29/1987	18.99
MW-14	4/2/1987	18.49
MW-14	7/27/1987	19.33
MW-14	10/30/1987	16.53
MW-14	1/28/1988	16.37
MW-14	4/29/1988	17.20
MW-14	8/1/1988	15.64
MW-14	10/3/1988	14.37
MW-14	2/16/1989	16.07
MW-14	5/12/1989	5.70
MW-14	8/7/1989	17.90
MW-14	10/25/1989	15.03
MW-14	1/29/1990	16.63

Well Number	Date	Water Elevation (ft)
MW-14	4/18/1990	17.49
MW-14	7/9/1990	16.37
MW-14	10/8/1990	14.78
MW-14	1/4/1991	15.15
MW-14	5/8/1991	15.86
MW-14	9/30/1991	15.40
MW-14	10/2/1991	15.40
MW-14	5/1/1992	16.73
MW-14	6/18/1992	14.98
MW-14	10/23/1992	10.11
MW-14	4/9/1993	15.53
MW-14	11/3/1993	8.65
MW-14	4/13/1994	8.44
MW-14	10/10/1994	7.94
MW-14	4/19/1995	13.23
MW-14	11/16/1995	10.01
MW-14	4/30/1996	10.28
MW-14	1/2/1997	8.37
MW-14	4/20/1997	13.17
MW-14	8/24/1997	11.67
MW-14	10/5/1997	11.47
MW-14	4/1/1998	14.97
MW-14	10/14/1998	15.04
MW-14	4/1/1999	11.08
MW-14	6/2/1999	18.76
MW-14	6/10/1999	13.28
MW-14	4/11/2000	4.70
MW-14	10/3/2000	9.64
MW-14	10/3/2000	9.64
MW-14	4/2/2001	10.51
MW-14	10/17/2001	15.93
MW-14	3/28/2002	19.48
MW-14	4/19/2002	13.16
MW-14	4/1/2003	7.67
MW-14	10/2/2003	11.18
MW-14	10/2/2003	11.18
MW-14	4/16/2004	10.40
MW-14	10/26/2004	4.49
MW-14	4/1/2005	7.19
MW-14	10/11/2005	4.78
MW-14	4/10/2006	9.15
MW-14	10/6/2006	4.13
MW-14	4/5/2007	4.82
MW-14	10/1/2007	9.10
MW-14	4/28/2008	18.57
MW-14	10/7/2008	19.05
MW-14	4/13/2009	11.64
MW-14	10/28/2009	9.47
MW-14	4/5/2010	2.72
MW-14	10/6/2010	4.64

Well Number	Date	Water Elevation (ft)
MW-14	4/28/2011	7.79
MW-14	10/12/2011	4.35
MW-15	5/18/1985	17.06
MW-15	7/23/1985	16.71
MW-15	12/18/1985	17.51
MW-15	3/25/1986	17.50
MW-15	6/19/1986	18.90
MW-15	8/12/1986	17.46
MW-15	10/21/1986	18.92
MW-15	1/28/1987	18.90
MW-15	3/31/1987	18.01
MW-15	7/24/1987	18.90
MW-15	10/28/1987	17.11
MW-15	1/27/1988	15.88
MW-15	4/28/1988	16.92
MW-15	7/27/1988	16.48
MW-15	10/3/1988	15.70
MW-15	2/14/1989	15.46
MW-15	5/5/1989	14.12
MW-15	8/9/1989	14.52
MW-15	10/20/1989	9.83
MW-15	1/26/1990	11.42
MW-15	4/25/1990	11.29
MW-15	7/24/1990	12.21
MW-15	10/5/1990	9.55
MW-15	1/4/1991	11.05
MW-15	5/8/1991	12.18
MW-15	9/30/1991	13.38
MW-15	10/3/1991	13.38
MW-15	5/3/1992	13.28
MW-15	6/18/1992	15.41
MW-15	10/29/1992	12.28
MW-15	4/8/1993	11.38
MW-15	11/9/1993	11.25
MW-15	4/14/1994	11.68
MW-15	10/10/1994	10.38
MW-15	4/26/1995	11.93
MW-15	11/12/1995	10.34
MW-15	5/11/1996	10.18
MW-15	1/2/1997	16.86
MW-15	4/20/1997	16.89
MW-15	8/24/1997	16.64
MW-15	10/5/1997	16.27
MW-15	4/1/1998	16.59
MW-15	10/14/1998	15.58
MW-15	4/1/1999	11.23
MW-15	6/2/1999	17.36
MW-15	6/10/1999	13.37
MW-15	4/11/2000	9.15
MW-15	10/3/2000	10.49

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-15	10/3/2000	10.49
MW-15	4/2/2001	13.03
MW-15	10/17/2001	13.61
MW-15	3/28/2002	17.53
MW-15	4/19/2002	14.46
MW-15	4/1/2003	10.99
MW-15	10/3/2003	13.87
MW-15	10/3/2003	13.87
MW-15	4/16/2004	13.79
MW-15	10/26/2004	10.22
MW-15	4/1/2005	12.27
MW-15	10/11/2005	12.63
MW-15	4/10/2006	10.66
MW-15	10/6/2006	12.29
MW-15	4/5/2007	12.08
MW-15	10/1/2007	11.92
MW-15	4/28/2008	12.79
MW-15	10/7/2008	16.31
MW-15	4/13/2009	12.87
MW-15	10/28/2009	10.30
MW-15	4/5/2010	14.13
MW-15	10/6/2010	13.78
MW-15	4/28/2011	13.86
MW-15	10/12/2011	12.35
MW-16	5/18/1985	18.41
MW-16	7/23/1985	17.51
MW-16	12/19/1985	17.93
MW-16	3/24/1986	17.97
MW-16	6/12/1986	18.64
MW-16	8/19/1986	18.00
MW-16	10/20/1986	20.08
MW-16	1/28/1987	20.33
MW-16	4/1/1987	19.68
MW-16	7/23/1987	20.89
MW-16	10/29/1987	16.87
MW-16	1/26/1988	17.56
MW-16	4/27/1988	18.43
MW-16	7/28/1988	16.91
MW-16	10/3/1988	15.35
MW-16	2/13/1989	17.43
MW-16	5/10/1989	18.47
MW-16	8/7/1989	19.55
MW-16	10/19/1989	15.21
MW-16	1/29/1990	18.14
MW-16	4/24/1990	19.10
MW-16	7/25/1990	16.68
MW-16	10/4/1990	16.01
MW-16	1/4/1991	16.67
MW-16	5/1/1991	14.50
MW-16	9/30/1991	12.84

Well Number	Date	Water Elevation (ft)
MW-16	10/3/1991	12.84
MW-16	5/3/1992	13.76
MW-16	6/18/1992	14.23
MW-16	10/29/1992	12.92
MW-16	7/21/1993	14.46
MW-16	11/7/1993	9.38
MW-16	4/15/1994	13.64
MW-16	10/25/1994	13.17
MW-16	4/26/1995	17.22
MW-16	11/12/1995	12.24
MW-16	5/11/1996	10.18
MW-16	1/2/1997	11.70
MW-16	4/20/1997	18.45
MW-16	8/24/1997	11.70
MW-16	10/5/1997	16.40
MW-16	4/1/1998	20.07
MW-16	10/14/1998	17.83
MW-16	4/1/1999	18.07
MW-16	6/2/1999	19.92
MW-16	6/10/1999	16.74
MW-16	4/11/2000	13.84
MW-16	10/3/2000	12.00
MW-16	10/3/2000	12.00
MW-16	4/2/2001	15.02
MW-16	10/16/2001	16.90
MW-16	3/28/2002	20.38
MW-16	4/19/2002	17.18
MW-16	4/1/2003	15.84
MW-16	10/2/2003	15.46
MW-16	10/2/2003	15.46
MW-16	4/16/2004	15.76
MW-16	10/26/2004	11.20
MW-16	4/1/2005	14.54
MW-16	10/11/2005	12.22
MW-16	4/10/2006	13.89
MW-16	10/6/2006	10.61
MW-16	4/5/2007	12.91
MW-16	10/1/2007	13.22
MW-16	4/28/2008	19.55
MW-16	10/7/2008	20.23
MW-16	4/13/2009	18.61
MW-16	10/28/2009	17.80
MW-16	4/5/2010	17.80
MW-16	10/6/2010	17.19
MW-16	4/28/2011	16.39
MW-16	10/12/2011	14.77
MW-17	5/18/1985	18.21
MW-17	7/23/1985	17.27
MW-17	12/19/1985	17.93
MW-17	3/24/1986	17.79

Well Number	Date	Water Elevation (ft)
MW-17	6/12/1986	18.80
MW-17	8/12/1986	18.12
MW-17	10/20/1986	20.15
MW-17	1/29/1987	20.46
MW-17	3/31/1987	19.65
MW-17	7/24/1987	20.90
MW-17	10/29/1987	16.38
MW-17	1/27/1988	17.42
MW-17	4/28/1988	18.32
MW-17	7/29/1988	16.69
MW-17	10/6/1988	15.11
MW-17	2/9/1989	17.11
MW-17	5/5/1989	17.98
MW-17	8/9/1989	19.81
MW-17	10/18/1989	16.43
MW-17	1/24/1990	17.32
MW-17	4/26/1990	19.13
MW-17	7/25/1990	17.23
MW-17	10/11/1990	15.98
MW-17	1/4/1991	16.80
MW-17	5/1/1991	13.32
MW-17	9/30/1991	12.17
MW-17	10/3/1991	12.17
MW-17	5/3/1992	14.01
MW-17	6/18/1992	14.14
MW-17	10/29/1992	12.87
MW-17	7/21/1993	27.17
MW-17	11/7/1993	13.32
MW-17	4/15/1994	13.65
MW-17	10/25/1994	12.84
MW-17	4/26/1995	16.77
MW-17	11/10/1995	13.38
MW-17	5/11/1996	13.51
MW-17	1/2/1997	17.08
MW-17	4/20/1997	18.78
MW-17	8/24/1997	16.98
MW-17	10/5/1997	16.58
MW-17	4/1/1998	19.98
MW-17	10/14/1998	18.18
MW-17	4/1/1999	18.16
MW-17	6/2/1999	20.04
MW-17	6/10/1999	17.26
MW-17	4/11/2000	13.60
MW-17	10/3/2000	12.33
MW-17	10/3/2000	12.33
MW-17	4/2/2001	15.72
MW-17	10/16/2001	18.08
MW-17	3/28/2002	20.48
MW-17	4/19/2002	17.10
MW-17	4/1/2003	16.50

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-17	10/2/2003	16.37
MW-17	10/2/2003	16.37
MW-17	4/16/2004	16.11
MW-17	10/26/2004	11.56
MW-17	4/1/2005	14.67
MW-17	10/11/2005	12.63
MW-17	4/10/2006	13.95
MW-17	10/6/2006	10.89
MW-17	4/5/2007	13.65
MW-17	10/1/2007	13.76
MW-17	4/28/2008	19.60
MW-17	10/7/2008	20.17
MW-17	4/13/2009	18.35
MW-17	10/28/2009	18.57
MW-17	4/5/2010	18.18
MW-17	10/6/2010	17.42
MW-17	4/28/2011	16.61
MW-17	10/12/2011	15.75
MW-18	5/18/1985	17.21
MW-18	7/23/1985	16.87
MW-18	12/18/1985	17.74
MW-18	3/24/1986	17.54
MW-18	6/19/1986	19.42
MW-18	8/22/1986	17.25
MW-18	10/21/1986	19.61
MW-18	1/29/1987	19.75
MW-18	3/31/1987	18.46
MW-18	7/24/1987	19.40
MW-18	10/28/1987	16.86
MW-18	1/26/1988	16.46
MW-18	4/28/1988	17.34
MW-18	7/29/1988	16.50
MW-18	10/6/1988	15.29
MW-18	2/14/1989	16.33
MW-18	5/9/1989	15.54
MW-18	8/9/1989	16.85
MW-18	10/18/1989	12.46
MW-18	1/31/1990	14.70
MW-18	4/19/1990	19.01
MW-18	7/24/1990	13.49
MW-18	10/11/1990	11.88
MW-18	6/18/1992	17.33
MW-18	6/2/1999	17.76
MW-18	6/10/1999	15.85
MW-18	10/3/2000	13.01
MW-18	10/3/2000	13.01
MW-18	10/16/2001	16.72
MW-18	3/28/2002	17.96
MW-18	4/19/2002	16.17
MW-18	4/1/2003	13.53

Well Number	Date	Water Elevation (ft)
MW-18	10/2/2003	15.15
MW-18	10/2/2003	15.15
MW-19	5/18/1985	18.42
MW-19	7/23/1985	17.73
MW-19	12/18/1985	18.03
MW-19	3/26/1986	17.98
MW-19	6/19/1986	19.78
MW-19	8/22/1986	17.97
MW-19	10/21/1986	20.13
MW-19	1/29/1987	20.69
MW-19	3/31/1987	19.57
MW-19	7/24/1987	20.53
MW-19	10/28/1987	16.77
MW-19	1/26/1988	17.72
MW-19	4/28/1988	18.51
MW-19	7/29/1988	16.80
MW-19	10/6/1988	15.13
MW-19	2/14/1989	17.44
MW-19	5/9/1989	17.50
MW-19	8/9/1989	19.94
MW-19	10/18/1989	15.33
MW-19	1/31/1990	16.17
MW-19	4/19/1990	14.54
MW-19	7/10/1990	17.63
MW-19	10/11/1990	15.80
MW-19	6/18/1992	18.07
MW-19	6/2/1999	19.89
MW-19	6/10/1999	19.45
MW-19	10/3/2000	15.60
MW-19	10/3/2000	15.60
MW-19	10/16/2001	19.68
MW-19	3/28/2002	20.34
MW-19	4/19/2002	19.79
MW-19	4/1/2003	17.89
MW-19	10/2/2003	19.29
MW-19	10/2/2003	19.29
MW-19	4/16/2004	19.31
MW-19	10/26/2004	15.54
MW-19	4/1/2005	18.37
MW-19	10/11/2005	16.85
MW-19	4/10/2006	16.90
MW-19	10/6/2006	15.50
MW-19	4/5/2007	18.03
MW-19	10/1/2007	17.63
MW-19	4/28/2008	19.54
MW-19	10/7/2008	19.91
MW-19	4/13/2009	19.02
MW-19	10/28/2009	18.58
MW-19	4/5/2010	18.84
MW-19	10/6/2010	18.00

Well Number	Date	Water Elevation (ft)
MW-19	4/28/2011	17.07
MW-19	10/12/2011	16.22
MW-20	5/18/1985	18.23
MW-20	7/23/1985	16.52
MW-20	12/19/1985	17.97
MW-20	3/25/1986	18.17
MW-20	6/18/1986	19.36
MW-20	8/12/1986	18.27
MW-20	10/21/1986	19.11
MW-20	1/28/1987	19.06
MW-20	4/2/1987	18.73
MW-20	7/23/1987	19.52
MW-20	10/28/1987	9.08
MW-20	1/26/1988	16.40
MW-20	4/28/1988	17.69
MW-20	7/27/1988	16.90
MW-20	10/3/1988	13.95
MW-20	2/10/1989	16.47
MW-20	5/8/1989	16.48
MW-20	8/10/1989	17.83
MW-20	10/20/1989	14.21
MW-20	1/26/1990	15.52
MW-20	4/24/1990	16.11
MW-20	7/11/1990	14.94
MW-20	10/3/1990	13.60
MW-20	1/4/1991	14.51
MW-20	5/1/1991	16.77
MW-20	9/30/1991	16.42
MW-20	10/4/1991	16.42
MW-20	5/6/1992	16.84
MW-20	6/18/1992	17.98
MW-20	10/29/1992	16.07
MW-20	4/8/1993	15.57
MW-20	11/9/1993	15.01
MW-20	4/17/1994	15.92
MW-20	10/11/1994	14.90
MW-20	4/22/1995	16.37
MW-20	11/14/1995	14.23
MW-20	5/4/1996	14.12
MW-20	1/2/1997	17.85
MW-20	4/20/1997	18.77
MW-20	8/24/1997	17.02
MW-20	10/5/1997	17.47
MW-20	4/1/1998	18.57
MW-20	10/14/1998	18.04
MW-20	4/1/1999	18.56
MW-20	6/2/1999	18.77
MW-20	6/10/1999	17.53
MW-20	4/11/2000	14.64
MW-20	10/3/2000	14.73

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-20	10/3/2000	14.73
MW-20	4/2/2001	17.17
MW-20	10/17/2001	17.57
MW-20	3/28/2002	19.02
MW-20	4/19/2002	18.09
MW-20	4/1/2003	15.49
MW-20	10/3/2003	17.05
MW-20	10/3/2003	17.05
MW-20	4/16/2004	17.39
MW-20	10/26/2004	13.85
MW-20	4/1/2005	16.62
MW-20	10/11/2005	15.76
MW-20	4/10/2006	14.78
MW-20	10/6/2006	14.28
MW-20	4/5/2007	16.37
MW-20	10/1/2007	15.84
MW-20	4/28/2008	16.91
MW-20	10/7/2008	18.43
MW-20	4/13/2009	16.80
MW-20	10/28/2009	15.69
MW-20	10/6/2010	16.74
MW-20	4/28/2011	16.37
MW-20	10/12/2011	14.57
MW-21	6/12/1985	10.29
MW-21	7/23/1985	7.66
MW-21	12/19/1985	9.69
MW-21	3/25/1986	9.40
MW-21	6/20/1986	9.66
MW-21	8/22/1986	9.24
MW-21	10/21/1986	9.89
MW-21	1/29/1987	10.62
MW-21	4/1/1987	9.68
MW-21	7/27/1987	10.74
MW-21	10/30/1987	16.30
MW-21	1/28/1988	8.74
MW-21	4/27/1988	8.74
MW-21	7/29/1988	8.16
MW-21	10/11/1988	7.58
MW-21	2/16/1989	7.70
MW-21	5/12/1989	7.99
MW-21	8/7/1989	9.03
MW-21	10/25/1989	7.91
MW-21	1/23/1990	8.36
MW-21	4/18/1990	9.41
MW-21	7/9/1990	9.07
MW-21	10/8/1990	7.82
MW-21	1/4/1991	8.31
MW-21	5/7/1991	10.02
MW-21	9/30/1991	11.48
MW-21	10/4/1991	11.48

Well Number	Date	Water Elevation (ft)
MW-21	1/31/1992	11.73
MW-21	5/7/1992	11.66
MW-21	6/18/1992	12.48
MW-21	10/26/1992	13.16
MW-21	7/21/1993	12.06
MW-21	11/4/1993	9.76
MW-21	4/13/1994	10.60
MW-21	10/10/1994	9.36
MW-21	4/19/1995	11.81
MW-21	11/5/1995	9.30
MW-21	5/1/1996	9.90
MW-21	1/2/1997	9.60
MW-21	4/20/1997	10.75
MW-21	8/24/1997	9.85
MW-21	10/5/1997	10.55
MW-21	4/1/1998	11.20
MW-21	10/14/1998	8.14
MW-21	4/1/1999	10.28
MW-21	6/2/1999	10.57
MW-21	6/10/1999	10.28
MW-21	4/11/2000	8.91
MW-21	10/3/2000	8.47
MW-21	10/3/2000	8.47
MW-21	4/2/2001	8.85
MW-21	10/17/2001	9.22
MW-21	3/28/2002	11.07
MW-21	4/19/2002	9.95
MW-21	4/1/2003	11.10
MW-21	10/2/2003	9.97
MW-21	10/2/2003	9.97
MW-21	4/16/2004	10.21
MW-21	10/26/2004	10.37
MW-21	4/1/2005	7.97
MW-21	10/11/2005	6.78
MW-21	4/10/2006	5.84
MW-21	10/6/2006	6.42
MW-21	4/5/2007	7.79
MW-21	10/1/2007	12.05
MW-21	4/28/2008	11.81
MW-21	10/7/2008	11.54
MW-21	4/13/2009	10.46
MW-21	10/28/2009	9.63
MW-21	4/5/2010	11.10
MW-21	10/6/2010	10.61
MW-21	4/28/2011	9.97
MW-21	10/12/2011	8.14
MW-22	6/12/1985	17.07
MW-22	7/23/1985	16.67
MW-22	12/18/1985	17.45
MW-22	3/25/1986	17.33

Well Number	Date	Water Elevation (ft)
MW-22	6/19/1986	18.40
MW-22	8/22/1986	17.05
MW-22	10/21/1986	18.40
MW-22	1/28/1987	18.29
MW-22	4/2/1987	17.77
MW-22	7/24/1987	18.50
MW-22	1/27/1988	16.34
MW-22	4/28/1988	17.03
MW-22	7/28/1988	16.54
MW-22	10/5/1988	15.65
MW-22	2/14/1989	16.27
MW-22	5/12/1989	15.21
MW-22	8/9/1989	16.92
MW-22	10/20/1989	12.04
MW-22	1/26/1990	14.42
MW-22	4/25/1990	13.92
MW-22	7/11/1990	12.25
MW-22	10/5/1990	11.50
MW-22	1/4/1991	13.32
MW-22	5/8/1991	13.32
MW-22	9/30/1991	14.92
MW-22	10/3/1991	14.92
MW-23	9/13/1988	7.8
MW-23	10/5/1988	7.54
MW-23	2/16/1989	8.17
MW-23	5/12/1989	9.61
MW-23	8/10/1989	9.48
MW-23	10/25/1989	8.48
MW-23	1/23/1990	8.82
MW-23	4/18/1990	10.07
MW-23	7/25/1990	9.53
MW-23	10/8/1990	8.45
MW-23	1/4/1991	8.98
MW-23	5/10/1991	10.71
MW-23	9/30/1991	10.65
MW-23	10/1/1991	10.65
MW-24	10/21/1988	10.23
MW-24	2/13/1989	15.05
MW-24	5/5/1989	13.74
MW-24	8/3/1989	15.51
MW-24	10/16/1989	9.72
MW-24	1/22/1990	10.74
MW-24	4/23/1990	10.89
MW-24	10/1/1990	8.97
MW-24	1/23/1991	10.54
MW-24	5/10/1991	12.30
MW-24	7/12/1991	12.49
MW-24	10/1/1991	12.32
MW-24	2/1/1992	13.04
MW-24	4/28/1992	13.13

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-24	7/22/1992	15.08
MW-24	10/19/1992	12.70
MW-24	1/26/1993	12.89
MW-24	4/6/1993	12.34
MW-24	7/22/1993	11.82
MW-24	11/2/1993	11.04
MW-24	4/12/1994	10.74
MW-24	10/24/1994	9.44
MW-24	4/11/1995	11.74
MW-24	11/16/1995	9.80
MW-24	5/31/1996	9.82
MW-24	1/2/1997	15.97
MW-24	4/20/1997	17.02
MW-24	8/24/1997	16.82
MW-24	10/5/1997	16.72
MW-24	4/1/1998	16.72
MW-24	10/14/1998	15.60
MW-24	4/1/1999	16.23
MW-24	6/2/1999	17.41
MW-24	6/10/1999	13.54
MW-24	4/11/2000	8.50
MW-24	10/3/2000	9.95
MW-24	10/3/2000	9.95
MW-24	4/2/2001	11.16
MW-24	10/16/2001	14.16
MW-24	3/28/2002	17.7
MW-24	4/19/2002	14.51
MW-24	4/1/2003	11.13
MW-24	10/2/2003	12.65
MW-24	10/2/2003	12.65
MW-24	4/16/2004	13.89
MW-24	10/26/2004	10.11
MW-24	4/1/2005	12.24
MW-24	10/11/2005	12.47
MW-24	4/10/2006	10.58
MW-24	10/6/2006	12.67
MW-24	4/5/2007	11.75
MW-24	10/1/2007	14.62
MW-24	4/28/2008	13.29
MW-24	10/7/2008	16.66
MW-24	4/13/2009	13.41
MW-24	10/28/2009	11.76
MW-24	4/5/2010	14.86
MW-24	10/6/2010	14.53
MW-24	4/28/2011	14.37
MW-24	10/12/2011	12.98
MW-25	10/21/1988	9.38
MW-25	2/13/1989	14.45
MW-25	5/8/1989	12.79
MW-25	8/3/1989	15.87

Well Number	Date	Water Elevation (ft)
MW-25	10/16/1989	8.28
MW-25	1/22/1990	9.12
MW-25	4/23/1990	9.37
MW-25	10/1/1990	7.62
MW-25	1/23/1991	8.82
MW-25	5/10/1991	10.87
MW-25	7/12/1991	11.37
MW-25	10/1/1991	12.74
MW-25	2/1/1992	11.92
MW-25	4/29/1992	11.53
MW-25	7/22/1992	14.04
MW-25	10/19/1992	11.82
MW-25	1/26/1993	12.42
MW-25	4/6/1993	10.22
MW-25	7/22/1993	10.04
MW-25	11/2/1993	9.62
MW-25	4/12/1994	11.12
MW-25	10/10/1994	8.17
MW-25	4/11/1995	10.32
MW-25	11/1/1995	9.27
MW-25	4/25/1996	8.70
MW-25	1/2/1997	16.60
MW-25	4/20/1997	17.02
MW-25	8/24/1997	16.80
MW-25	10/5/1997	16.50
MW-25	4/1/1998	16.30
MW-25	10/14/1998	14.94
MW-25	4/1/1999	15.77
MW-25	6/2/1999	17.42
MW-25	6/10/1999	13.22
MW-25	4/11/2000	7.43
MW-25	10/3/2000	9.85
MW-25	10/3/2000	9.85
MW-25	4/2/2001	11.02
MW-25	10/16/2001	14.20
MW-25	3/28/2002	17.72
MW-25	4/19/2002	13.60
MW-25	4/1/2003	9.34
MW-25	10/2/2003	10.98
MW-25	10/2/2003	10.98
MW-25	4/16/2004	12.12
MW-25	10/26/2004	8.89
MW-25	4/1/2005	10.96
MW-25	10/11/2005	11.28
MW-25	4/10/2006	9.13
MW-25	10/6/2006	10.59
MW-25	4/5/2007	10.83
MW-25	10/7/2008	16.05
MW26	3/28/2002	18.46
MW-26	10/21/1988	11.15

Well Number	Date	Water Elevation (ft)
MW-26	2/13/1989	15.08
MW-26	5/8/1989	14.17
MW-26	8/9/1989	15.67
MW-26	10/24/1989	9.25
MW-26	1/22/1990	10.50
MW-26	4/23/1990	11.91
MW-26	10/1/1990	9.17
MW-26	1/23/1991	10.27
MW-26	5/10/1991	11.52
MW-26	7/16/1991	11.77
MW-26	10/1/1991	13.96
MW-26	2/1/1992	13.32
MW-26	4/29/1992	13.27
MW-26	7/22/1992	13.77
MW-26	10/20/1992	12.32
MW-26	1/26/1993	12.80
MW-26	4/7/1993	11.77
MW-26	7/22/1993	11.82
MW-26	11/2/1993	10.96
MW-26	4/12/1994	11.12
MW-26	10/10/1994	10.22
MW-26	4/11/1995	11.65
MW-26	11/16/1995	10.27
MW-26	4/27/1996	9.77
MW-26	1/2/1997	17.42
MW-26	4/20/1997	18.06
MW-26	8/24/1997	17.50
MW-26	10/5/1997	16.95
MW-26	4/1/1998	16.85
MW-26	10/14/1998	16.79
MW-26	4/1/1999	17.61
MW-26	6/2/1999	16.82
MW-26	6/10/1999	13.91
MW-26	4/11/2000	9.25
MW-26	10/3/2000	11.65
MW-26	10/3/2000	11.65
MW-26	4/2/2001	14.84
MW-26	10/16/2001	16.84
MW-26	4/19/2002	13.97
MW-26	4/1/2003	11.85
MW-26	10/2/2003	13.52
MW-26	10/2/2003	13.52
MW-26	4/16/2004	14.74
MW-26	10/26/2004	10.89
MW-26	4/1/2005	13.99
MW-26	10/11/2005	13.49
MW-26	4/10/2006	11.56
MW-26	10/6/2006	11.09
MW-26	4/5/2007	14.59
MW-26	10/1/2007	12.18

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-26	4/28/2008	13.25
MW-26	10/7/2008	17.15
MW-26	4/13/2009	13.43
MW-26	10/28/2009	9.91
MW-26	4/5/2010	16.05
MW-26	10/6/2010	15.45
MW-26	4/28/2011	15.27
MW-26	10/12/2011	14.33
MW-27	1/31/1991	8.99
MW-27	5/8/1991	9.99
MW-27	7/25/1991	10.49
MW-27	10/2/1991	10.29
MW-27	1/31/1992	10.41
MW-27	6/18/1992	10.29
MW-27	6/3/1999	10.89
MW-27	6/10/1999	9.81
MW-27	10/4/2000	8.69
MW-27	10/4/2000	8.69
MW-27	10/16/2001	9.07
MW-27	3/28/2002	11.48
MW-27	4/19/2002	10.61
MW-27	4/1/2003	11.67
MW-27	10/2/2003	11.03
MW-27	10/2/2003	11.03
MW-27	4/16/2004	11.34
MW-27	10/26/2004	11.46
MW-27	4/1/2005	10.40
MW-27	10/11/2005	9.06
MW-27	4/10/2006	7.96
MW-27	10/6/2006	8.87
MW-27	4/5/2007	10.29
MW-27	10/1/2007	12.73
MW-27	4/28/2008	12.87
MW-27	10/7/2008	12.23
MW-27	4/13/2009	11.30
MW-27	10/28/2009	10.51
MW-27	4/5/2010	11.98
MW-27	10/6/2010	11.08
MW-27	4/28/2011	10.77
MW-27	10/12/2011	8.60
MW-28	1/31/1991	8.86
MW-28	5/8/1991	9.51
MW-28	7/24/1991	10.26
MW-28	10/2/1991	9.56
MW-28	1/31/1992	11.36
MW-28	6/18/1992	10.36
MW-28	6/10/1999	10.39
MW-28	10/3/2000	8.51
MW-28	10/3/2000	8.51
MW-28	10/16/2001	9.44

Well Number	Date	Water Elevation (ft)
MW-28	3/28/2002	11.28
MW-28	4/19/2002	10.85
MW-28	4/1/2003	11.59
MW-28	10/2/2003	11.00
MW-28	10/2/2003	11.00
MW-28	4/16/2004	11.22
MW-28	10/26/2004	11.23
MW-28	4/1/2005	10.25
MW-28	10/11/2005	8.99
MW-28	4/10/2006	7.88
MW-28	10/6/2006	8.71
MW-28	4/5/2007	10.08
MW-28	10/1/2007	12.77
MW-28	4/28/2008	12.65
MW-28	10/7/2008	12.11
MW-28	4/13/2009	11.14
MW-28	10/28/2009	10.34
MW-28	4/5/2010	11.86
MW-28	10/6/2010	11.18
MW-28	4/28/2011	10.62
MW-28	10/12/2011	8.55
MW-29	1/24/1991	8.21
MW-29	5/10/1991	10.29
MW-29	7/12/1991	10.89
MW-29	10/1/1991	10.19
MW-29	2/1/1992	10.59
MW-29	4/28/1992	12.64
MW-29	6/18/1992	11.16
MW-29	10/19/1992	10.09
MW-29	4/6/1993	11.39
MW-29	11/2/1993	7.69
MW-29	4/12/1994	8.47
MW-29	10/24/1994	8.34
MW-29	4/11/1995	9.39
MW-29	11/1/1995	8.39
MW-29	4/25/1996	9.97
MW-29	1/2/1997	8.97
MW-29	4/20/1997	9.94
MW-29	8/24/1997	9.64
MW-29	10/5/1997	9.04
MW-29	4/1/1998	10.14
MW-29	10/14/1998	7.72
MW-29	4/1/1999	9.16
MW-29	6/2/1999	10.93
MW-29	6/10/1999	8.23
MW-29	4/11/2000	7.91
MW-29	10/3/2000	7.64
MW-29	10/3/2000	7.64
MW-29	4/2/2001	9.29
MW-29	10/16/2001	9.33

Well Number	Date	Water Elevation (ft)
MW-29	3/28/2002	11.72
MW-29	4/19/2002	9.55
MW-29	4/1/2003	11.33
MW-29	10/2/2003	11.02
MW-29	10/2/2003	11.02
MW-29	4/16/2004	11.51
MW-29	10/26/2004	11.54
MW-29	4/1/2005	10.92
MW-29	10/11/2005	9.23
MW-29	4/10/2006	7.83
MW-29	10/6/2006	8.64
MW-29	4/5/2007	10.40
MW-29	10/1/2007	12.17
MW-29	4/28/2008	19.54
MW-30	1/24/1991	8.68
MW-30	5/10/1991	11.03
MW-30	7/12/1991	11.73
MW-30	10/1/1991	10.53
MW-30	2/1/1992	10.93
MW-30	4/29/1992	11.27
MW-30	6/18/1992	11.50
MW-30	10/19/1992	10.43
MW-30	6/2/1999	11.39
MW-30	6/10/1999	7.37
MW-30	10/3/2000	7.35
MW-30	10/3/2000	7.35
MW-30	10/16/2001	9.73
MW-30	3/28/2002	12.03
MW-30	4/19/2002	9.83
MW-30	4/1/2003	11.17
MW-30	10/2/2003	11.62
MW-30	10/2/2003	11.62
MW-30	4/16/2004	12.18
MW-30	10/26/2004	11.88
MW-30	4/1/2005	10.98
MW-30	10/11/2005	9.90
MW-30	4/10/2006	8.44
MW-30	10/6/2006	9.31
MW-30	4/5/2007	11.35
MW-30	10/1/2007	12.99
MW-30	4/28/2008	13.38
MW-30	10/7/2008	12.75
MW-30	4/13/2009	11.87
MW-30	10/28/2009	10.99
MW-30	4/5/2010	12.77
MW-30	10/6/2010	11.50
MW-30	4/28/2011	11.44
MW-30	10/12/2011	9.17
MW-31	1/24/1991	9.88
MW-31	5/10/1991	10.68

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-31	7/12/1991	12.13
MW-31	10/1/1991	10.22
MW-31	2/1/1992	9.98
MW-31	4/28/1992	11.04
MW-31	6/18/1992	11.05
MW-31	10/19/1992	10.48
MW-31	4/6/1993	11.68
MW-31	11/2/1993	9.68
MW-31	4/11/1994	10.30
MW-31	10/24/1994	9.58
MW-31	4/11/1995	10.96
MW-31	11/1/1995	9.78
MW-31	4/25/1996	9.92
MW-31	1/2/1997	10.08
MW-31	4/20/1997	11.18
MW-31	8/24/1997	10.46
MW-31	10/5/1997	10.00
MW-31	4/1/1998	11.55
MW-31	10/14/1998	9.07
MW-31	4/1/1999	11.07
MW-31	6/2/1999	11.09
MW-31	6/10/1999	10.72
MW-31	4/11/2000	8.32
MW-31	10/3/2000	8.75
MW-31	10/3/2000	8.75
MW-31	4/2/2001	10.05
MW-31	10/16/2001	9.63
MW-31	3/28/2002	11.64
MW-31	4/19/2002	11.24
MW-31	4/1/2003	11.80
MW-31	10/2/2003	11.43
MW-31	10/2/2003	11.43
MW-31	4/16/2004	11.73
MW-31	10/26/2004	11.54
MW-31	4/1/2005	10.72
MW-31	10/11/2005	9.36
MW-31	4/10/2006	8.15
MW-31	10/6/2006	9.07
MW-31	4/5/2007	10.56
MW-31	10/1/2007	13.07
MW-31	4/28/2008	13.45
MW-31	10/7/2008	12.36
MW-31	4/13/2009	NA
MW-31	10/28/2009	NA
MW-31	4/5/2010	12.37
MW-31	10/6/2010	11.47
MW-31	4/28/2011	10.97
MW-31	10/12/2011	8.90
MW-32	1/25/1991	8.04
MW-32	5/10/1991	10.17

Well Number	Date	Water Elevation (ft)
MW-32	7/16/1991	11.12
MW-32	10/1/1991	9.79
MW-32	2/1/1992	11.57
MW-32	4/30/1992	11.78
MW-32	6/18/1992	11.79
MW-32	6/2/1999	10.96
MW-32	6/10/1999	8.30
MW-32	10/3/2000	7.98
MW-32	10/3/2000	7.98
MW-32	10/16/2001	8.08
MW-32	3/28/2002	11.63
MW-32	4/19/2002	9.43
MW-32	4/1/2003	11.35
MW-32	10/2/2003	11.14
MW-32	10/2/2003	11.14
MW-32	4/16/2004	11.51
MW-32	10/26/2004	11.35
MW-32	4/1/2005	10.29
MW-32	10/11/2005	9.06
MW-32	4/10/2006	7.65
MW-32	10/6/2006	8.33
MW-32	4/5/2007	10.06
MW-32	10/1/2007	13.35
MW-32	4/28/2008	15.67
MW-32	10/7/2008	13.77
MW-32	4/13/2009	11.46
MW-32	10/28/2009	11.28
MW-32	4/5/2010	12.35
MW-32	10/6/2010	10.56
MW-32	4/28/2011	11.03
MW-32	10/12/2011	7.82
MW-33	1/25/1991	8.5
MW-33	5/8/1991	10.27
MW-33	7/12/1991	10.77
MW-33	10/1/1991	10.02
MW-33	2/1/1992	10.52
MW-33	4/29/1992	11.08
MW-33	6/18/1992	10.85
MW-33	10/20/1992	10.13
MW-33	4/7/1993	11.23
MW-33	11/3/1993	9.36
MW-33	4/12/1994	10.06
MW-33	10/24/1994	9.22
MW-33	4/11/1995	10.77
MW-33	11/1/1995	9.61
MW-33	5/31/1996	9.67
MW-33	1/2/1997	9.82
MW-33	4/20/1997	11.07
MW-33	8/24/1997	10.27
MW-33	10/5/1997	9.87

Well Number	Date	Water Elevation (ft)
MW-33	4/1/1998	11.37
MW-33	4/1/1999	10.88
MW-33	6/2/1999	10.97
MW-33	6/10/1999	10.57
MW-33	4/11/2000	8.19
MW-33	10/3/2000	8.65
MW-33	10/3/2000	8.65
MW-33	4/2/2001	9.89
MW-33	10/16/2001	14.45
MW-33	3/28/2002	11.52
MW-33	4/19/2002	11.02
MW-33	4/1/2003	11.71
MW-33	10/2/2003	11.21
MW-33	10/2/2003	11.21
MW-33	4/16/2004	11.58
MW-33	10/26/2004	11.42
MW-33	4/1/2005	10.44
MW-33	10/11/2005	9.13
MW-33	4/10/2006	8.11
MW-33	10/6/2006	8.86
MW-33	4/5/2007	10.25
MW-33	10/1/2007	12.92
MW-33	4/28/2008	12.90
MW-34	1/29/1991	8.70
MW-34	5/2/1991	10.08
MW-34	7/23/1991	10.30
MW-34	10/2/1991	9.60
MW-34	1/31/1992	10.10
MW-34	6/18/1992	10.83
MW-34	4/1/1998	10.87
MW-34	6/2/1999	10.33
MW-34	6/10/1999	10.97
MW-34	10/3/2000	8.19
MW-34	10/3/2000	8.19
MW-34	10/16/2001	7.74
MW-34	3/28/2002	10.83
MW-34	4/19/2002	8.68
MW-34	4/1/2003	10.88
MW-34	10/2/2003	8.68
MW-34	10/2/2003	8.68
MW-34	4/16/2004	8.85
MW-34	10/26/2004	9.52
MW-34	4/1/2005	7.68
MW-34	10/11/2005	6.70
MW-34	4/10/2006	5.58
MW-34	10/6/2006	6.22
MW-34	4/5/2007	7.62
MW-34	10/1/2007	11.29
MW-34	4/28/2008	11.04
MW-34	10/7/2008	10.64

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-34	4/13/2009	9.73
MW-34	10/28/2009	9.12
MW-34	4/5/2010	10.36
MW-34	10/6/2010	9.91
MW-34	4/28/2011	9.25
MW-34	10/12/2011	7.48
MW-35	1/29/1991	8.73
MW-35	5/2/1991	9.86
MW-35	7/23/1991	10.28
MW-35	10/2/1991	9.63
MW-35	1/31/1992	10.43
MW-35	6/18/1992	12.89
MW-35	4/1/1998	15.78
MW-35	6/2/1999	10.40
MW-35	6/10/1999	10.06
MW-35	10/3/2000	10.90
MW-35	10/3/2000	10.90
MW-35	10/16/2001	8.94
MW-35	3/28/2002	10.92
MW-35	4/19/2002	9.83
MW-35	4/1/2003	10.85
MW-35	10/2/2003	9.93
MW-35	10/2/2003	9.93
MW-35	4/16/2004	10.25
MW-35	10/26/2004	10.29
MW-35	4/1/2005	8.46
MW-35	10/11/2005	7.26
MW-35	4/10/2006	6.29
MW-35	10/6/2006	6.86
MW-35	4/5/2007	8.35
MW-35	10/1/2007	11.97
MW-35	4/28/2008	11.73
MW-35	10/7/2008	11.34
MW-35	4/13/2009	10.32
MW-35	10/28/2009	9.55
MW-35	4/5/2010	10.99
MW-35	10/6/2010	10.57
MW-35	4/28/2011	9.84
MW-35	10/12/2011	8.07
MW-36	1/25/1991	8.87
MW-36	5/2/1991	11.30
MW-36	7/16/1991	10.70
MW-36	10/2/1991	10.45
MW-36	1/31/1992	10.10
MW-36	4/30/1992	11.00
MW-36	6/18/1992	11.20
MW-36	6/2/1999	10.53
MW-36	6/10/1999	10.13
MW-36	10/3/2000	8.15
MW-36	10/3/2000	8.15

Well Number	Date	Water Elevation (ft)
MW-36	10/16/2001	7.25
MW-36	3/28/2002	11.08
MW-36	4/19/2002	8.09
MW-36	4/1/2003	11.08
MW-36	10/2/2003	8.12
MW-36	10/2/2003	8.12
MW-36	4/16/2004	8.81
MW-36	10/26/2004	9.22
MW-36	4/1/2005	7.21
MW-36	10/11/2005	6.21
MW-36	4/10/2006	5.13
MW-36	10/6/2006	5.68
MW-36	4/5/2007	7.29
MW-36	10/1/2007	10.89
MW-36	4/28/2008	10.74
MW-36	10/7/2008	10.51
MW-36	4/13/2009	9.51
MW-36	10/28/2009	8.84
MW-36	4/5/2010	10.10
MW-36	10/6/2010	9.56
MW-36	4/28/2011	9.11
MW-36	10/12/2011	7.22
MW-37	1/28/1991	8.18
MW-37	5/2/1991	9.28
MW-37	7/16/1991	9.78
MW-37	10/1/1991	8.98
MW-37	1/31/1992	9.38
MW-37	6/18/1992	10.41
MW-37	6/2/1999	10.71
MW-37	6/10/1999	10.19
MW-37	10/3/2000	8.32
MW-37	10/3/2000	8.32
MW-37	10/16/2001	7.71
MW-37	3/28/2002	11.26
MW-37	4/19/2002	8.88
MW-37	4/1/2003	11.17
MW-37	10/2/2003	8.70
MW-37	10/2/2003	8.70
MW-37	4/16/2004	9.23
MW-37	10/26/2004	9.86
MW-37	4/1/2005	7.84
MW-37	10/11/2005	6.82
MW-37	4/10/2006	5.66
MW-37	10/6/2006	6.24
MW-37	4/5/2007	7.72
MW-37	10/1/2007	11.46
MW-37	4/28/2008	21.21
MW-37	10/7/2008	10.97
MW-37	4/13/2009	9.94
MW-37	10/28/2009	9.06

Well Number	Date	Water Elevation (ft)
MW-37	4/5/2010	10.59
MW-37	10/6/2010	10.08
MW-37	4/28/2011	9.46
MW-37	10/12/2011	7.67
MW-38	1/28/1991	9.61
MW-38	5/2/1991	10.11
MW-38	7/16/1991	10.51
MW-38	10/1/1991	10.11
MW-38	1/31/1992	10.11
MW-38	6/18/1992	11.32
MW-38	6/2/1999	9.75
MW-38	6/10/1999	9.50
MW-38	10/3/2000	8.52
MW-38	10/3/2000	8.52
MW-38	10/16/2001	8.90
MW-38	3/28/2002	11.24
MW-38	4/19/2002	10.26
MW-38	4/1/2003	11.29
MW-38	10/2/2003	10.17
MW-38	10/2/2003	10.17
MW-38	4/16/2004	10.61
MW-38	10/26/2004	10.62
MW-38	4/1/2005	8.62
MW-38	10/11/2005	7.41
MW-38	4/10/2006	6.34
MW-38	10/6/2006	7.06
MW-38	4/5/2007	8.48
MW-38	10/1/2007	12.23
MW-38	4/28/2008	11.95
MW-38	10/7/2008	11.48
MW-38	4/13/2009	10.87
MW-38	10/28/2009	9.89
MW-38	4/5/2010	11.35
MW-38	10/6/2010	10.76
MW-38	4/28/2011	10.13
MW-38	10/12/2011	8.33
MW-39	1/28/1991	8.57
MW-39	5/7/1991	10.36
MW-39	7/16/1991	10.92
MW-39	10/1/1991	10.32
MW-39	1/31/1992	10.32
MW-39	6/18/1992	11.59
MW-39	6/2/1999	10.84
MW-39	6/10/1999	10.73
MW-39	10/3/2000	8.51
MW-39	10/3/2000	8.51
MW-39	10/16/2001	8.84
MW-39	3/28/2002	11.5
MW-39	4/19/2002	10.21
MW-39	4/1/2003	12.06

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-39	10/2/2003	10.13
MW-39	10/2/2003	10.13
MW-39	4/16/2004	10.58
MW-39	10/26/2004	10.85
MW-39	4/1/2005	9.25
MW-39	10/11/2005	7.97
MW-39	4/10/2006	6.92
MW-39	10/6/2006	7.48
MW-39	4/5/2007	9.04
MW-39	10/1/2007	12.32
MW-39	4/28/2008	12.24
MW-39	10/7/2008	11.69
MW-39	4/13/2009	10.68
MW-39	10/28/2009	10.74
MW-39	4/5/2010	11.52
MW-39	10/6/2010	10.75
MW-39	4/28/2011	10.22
MW-39	10/12/2011	8.61
MW-40	10/4/1991	16.58
MW-40	1/31/1992	9.63
MW-40	4/29/1992	11.30
MW-40	6/18/1992	11.15
MW-40	10/26/1992	9.48
MW-40	4/9/1993	11.28
MW-40	11/5/1993	9.88
MW-40	4/11/1994	9.80
MW-40	10/26/1994	9.13
MW-40	4/19/1995	10.43
MW-40	11/5/1995	9.08
MW-40	5/1/1996	8.68
MW-40	1/2/1997	9.41
MW-40	4/20/1997	10.79
MW-40	8/24/1997	9.23
MW-40	10/5/1997	9.43
MW-40	4/1/1998	11.53
MW-40	10/14/1998	4.90
MW-40	4/1/1999	9.57
MW-40	6/2/1999	10.52
MW-40	6/10/1999	9.60
MW-40	4/11/2000	7.39
MW-40	10/3/2000	8.08
MW-40	10/3/2000	8.08
MW-40	4/2/2001	6.33
MW-40	10/16/2001	6.17
MW-40	3/28/2002	11.02
MW-40	4/19/2002	1.90
MW-40	4/1/2003	11.00
MW-40	10/2/2003	6.32
MW-40	10/2/2003	6.32
MW-40	4/16/2004	6.85

Well Number	Date	Water Elevation (ft)
MW-40	10/26/2004	8.14
MW-40	4/1/2005	6.03
MW-40	10/11/2005	5.16
MW-40	4/10/2006	3.97
MW-40	10/6/2006	4.55
MW-40	4/5/2007	6.01
MW-40	10/1/2007	9.94
MW-40	4/28/2008	9.91
MW-40	10/7/2008	9.64
MW-40	4/13/2009	8.64
MW-40	10/28/2009	7.77
MW-40	4/5/2010	9.30
MW-40	10/6/2010	8.90
MW-40	4/28/2011	8.32
MW-40	10/12/2011	6.60
MW-41	9/30/1991	10.03
MW-41	10/4/1991	15.40
MW-41	1/31/1992	10.13
MW-41	5/1/1992	10.93
MW-41	6/18/1992	11.35
MW-41	11/3/1993	9.59
MW-41	4/11/1994	9.97
MW-41	10/26/1994	9.05
MW-41	4/19/1995	10.63
MW-41	11/5/1995	9.37
MW-41	4/30/1996	9.39
MW-41	1/2/1997	8.91
MW-41	4/20/1997	10.87
MW-41	8/24/1997	15.01
MW-41	10/5/1997	9.53
MW-41	4/1/1998	12.61
MW-41	10/14/1998	5.63
MW-41	4/1/1999	10.21
MW-41	6/2/1999	10.74
MW-41	6/10/1999	9.97
MW-41	4/11/2000	7.52
MW-41	10/3/2000	8.81
MW-41	10/3/2000	8.81
MW-41	4/2/2001	6.66
MW-41	10/16/2001	6.51
MW-41	3/28/2002	11.29
MW-41	4/19/2002	7.21
MW-41	4/1/2003	11.13
MW-41	10/2/2003	7.37
MW-41	10/2/2003	7.37
MW-41	4/16/2004	7.94
MW-41	4/1/2005	6.65
MW-41	10/11/2005	5.78
MW-41	4/10/2006	5.15
MW-41	10/6/2006	5.15

Well Number	Date	Water Elevation (ft)
MW-41	4/5/2007	6.48
MW-41	10/1/2007	10.59
MW-41	4/28/2008	10.76
MW-41	10/7/2008	10.28
MW-41	4/13/2009	9.31
MW-41	10/28/2009	8.33
MW-41	4/5/2010	9.99
MW-41	10/6/2010	9.44
MW-41	4/28/2011	8.96
MW-41	10/12/2011	7.09
MW-41*	10/26/2004	9.14
MW-42	9/30/1991	10.26
MW-42	10/4/1991	14.10
MW-42	1/31/1992	10.86
MW-42/RW-22	6/18/1992	11.61
MW-43	5/22/1992	16.70
MW-43	6/18/1992	11.36
MW-43	7/22/1992	10.96
MW-43	10/27/1992	10.16
MW-43	4/15/1993	11.26
MW-43	11/4/1993	9.92
MW-43	4/13/1994	10.04
MW-43	10/28/1994	9.32
MW-43	4/12/1995	10.76
MW-43	11/9/1995	9.27
MW-43	5/3/1996	10.84
MW-43	1/2/1997	9.73
MW-43	4/20/1997	10.69
MW-43	8/24/1997	9.92
MW-43	10/5/1997	9.57
MW-43	4/1/1998	12.77
MW-43	10/14/1998	1.90
MW-43	4/1/1999	9.37
MW-43	6/2/1999	10.61
MW-43	6/10/1999	9.25
MW-43	4/11/2000	8.25
MW-43	10/3/2000	7.82
MW-43	10/3/2000	7.82
MW-43	4/2/2001	3.47
MW-43	10/16/2001	2.89
MW-43	3/28/2002	11.13
MW-43	4/19/2002	3.10
MW-43	4/1/2003	10.99
MW-43	10/2/2003	3.46
MW-43	10/2/2003	3.46
MW-43	4/16/2004	3.57
MW-43	10/26/2004	5.89
MW-43	4/1/2005	3.27
MW-43	10/11/2005	2.88
MW-43	4/10/2006	1.51

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-43	10/6/2006	2.04
MW-43	4/5/2007	3.48
MW-43	10/1/2007	7.62
MW-43	4/28/2008	8.10
MW-43	10/7/2008	7.75
MW-43	4/13/2009	6.80
MW-43	10/28/2009	6.17
MW-43	4/5/2010	7.44
MW-43	10/6/2010	7.25
MW-43	4/28/2011	6.66
MW-43	10/12/2011	5.26
MW-44	5/22/1992	15.96
MW-44	6/18/1992	11.37
MW-44	7/22/1992	11.96
MW-44	10/27/1992	10.11
MW-44	4/15/1993	11.21
MW-44	11/4/1993	9.96
MW-44	4/14/1994	15.00
MW-44	10/28/1994	9.34
MW-44	4/12/1995	10.66
MW-44	11/9/1995	9.25
MW-44	5/3/1996	10.84
MW-44	1/2/1997	9.54
MW-44	4/20/1997	10.60
MW-44	8/24/1997	9.80
MW-44	10/5/1997	9.45
MW-44	4/1/1998	11.70
MW-44	10/14/1998	-0.16
MW-44	4/1/1999	8.79
MW-44	6/2/1999	10.53
MW-44	6/10/1999	8.93
MW-44	4/11/2000	8.08
MW-44	10/3/2000	7.75
MW-44	10/3/2000	7.75
MW-44	4/2/2001	2.48
MW-44	10/16/2001	2.80
MW-44	3/28/2002	11.05
MW-44	4/19/2002	2.07
MW-44	4/1/2003	10.97
MW-44	10/2/2003	2.26
MW-44	10/2/2003	2.26
MW-44	4/16/2004	2.32
MW-44	10/26/2004	5.12
MW-44	4/1/2005	2.62
MW-44	10/11/2005	2.25
MW-44	4/10/2006	0.68
MW-44	10/6/2006	1.36
MW-44	4/5/2007	2.85
MW-44	10/1/2007	6.93
MW-44	4/28/2008	7.46

Well Number	Date	Water Elevation (ft)
MW-44	10/7/2008	7.79
MW-44	4/13/2009	6.31
MW-44	10/28/2009	5.65
MW-44	4/5/2010	6.98
MW-44	10/6/2010	6.75
MW-44	4/28/2011	6.31
MW-44	10/12/2011	4.91
MW-45	6/9/1992	11.62
MW-45	6/18/1992	11.91
MW-45	7/22/1992	11.54
MW-45	10/20/1992	10.32
MW-45	4/7/1993	11.72
MW-45	11/3/1993	12.27
MW-45	4/13/1994	8.20
MW-45	10/24/1994	8.20
MW-45	4/11/1995	9.46
MW-45	11/1/1995	8.01
MW-45	4/27/1996	10.16
MW-45	1/2/1997	9.42
MW-45	4/20/1997	9.66
MW-45	8/24/1997	9.06
MW-45	10/5/1997	8.71
MW-45	4/1/1998	10.86
MW-45	10/14/1998	7.61
MW-45	4/1/1999	10.53
MW-45	6/2/1999	10.86
MW-45	6/10/1999	7.20
MW-45	4/11/2000	6.78
MW-45	10/3/2000	7.31
MW-45	10/3/2000	7.31
MW-45	4/2/2001	9.44
MW-45	10/16/2001	7.56
MW-45	3/28/2002	11.62
MW-45	4/19/2002	8.67
MW-45	4/1/2003	11.03
MW-45	10/2/2003	10.48
MW-45	10/2/2003	10.48
MW-45	4/16/2004	11.02
MW-45	10/26/2004	11.09
MW-45	4/1/2005	10.05
MW-45	10/11/2005	8.50
MW-45	4/10/2006	6.89
MW-45	10/6/2006	7.91
MW-45	4/5/2007	9.92
MW-45	10/1/2007	10.56
MW-45	4/28/2008	12.78
MW-46	6/18/1992	16.05
MW-46	6/26/1992	15.60
MW-46	7/23/1992	15.60
MW-46	10/26/1992	15.60

Well Number	Date	Water Elevation (ft)
MW-46	4/9/1993	16.24
MW-46	11/4/1993	13.10
MW-46	4/11/1994	17.10
MW-46	10/27/1994	12.72
MW-46	4/13/1995	16.25
MW-46	11/5/1995	13.34
MW-46	5/1/1996	14.44
MW-46	1/2/1997	16.19
MW-46	4/20/1997	16.94
MW-46	8/24/1997	15.44
MW-46	10/5/1997	15.04
MW-46	4/1/1998	18.44
MW-46	10/14/1998	17.23
MW-46	4/1/1999	15.87
MW-46	6/2/1999	19.52
MW-46	6/10/1999	16.42
MW-46	4/11/2000	11.76
MW-46	10/3/2000	12.42
MW-46	10/3/2000	12.42
MW-46	4/2/2001	15.09
MW-46	10/16/2001	16.15
MW-46	3/28/2002	19.84
MW-46	4/19/2002	17.12
MW-46	4/1/2003	15.52
MW-46	10/2/2003	15.44
MW-46	10/2/2003	15.44
MW-46	4/16/2004	14.69
MW-46	4/1/2005	13.10
MW-46	10/11/2005	10.67
MW-46	4/10/2006	12.70
MW-46	10/6/2006	9.24
MW-46	4/5/2007	11.17
MW-46	10/1/2007	13.06
MW-46	4/28/2008	19.02
MW-46	10/7/2008	19.64
MW-46	4/13/2009	16.16
MW-46	10/28/2009	14.25
MW-46	4/5/2010	12.09
MW-46	10/6/2010	12.72
MW-46	4/28/2011	13.04
MW-46	10/12/2011	10.39
MW-46*	10/26/2004	9.83
MW-47	5/21/1992	13.59
MW-47	6/18/1992	13.80
MW-47	7/22/1992	13.76
MW-47	10/23/1992	9.31
MW-47	4/9/1993	14.34
MW-47	11/3/1993	10.79
MW-47	4/11/1994	10.51
MW-47	10/26/1994	9.97

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-47	4/13/1995	14.39
MW-47	11/5/1995	11.78
MW-47	4/30/1996	11.69
MW-47	1/2/1997	15.01
MW-47	8/24/1997	13.98
MW-47	4/1/1998	16.93
MW-47	10/14/1998	14.55
MW-47	4/1/1999	12.62
MW-47	6/2/1999	18.93
MW-47	6/10/1999	13.40
MW-47	4/11/2000	9.19
MW-47	10/3/2000	9.47
MW-47	10/3/2000	9.47
MW-47	4/2/2001	12.93
MW-47	10/16/2001	14.20
MW-47	3/28/2002	19.53
MW-47	4/19/2002	14.17
MW-47	4/1/2003	10.49
MW-47	10/2/2003	12.75
MW-47	10/2/2003	12.75
MW-47	4/16/2004	10.89
MW-47	10/26/2004	5.94
MW-47	4/1/2005	8.51
MW-47	10/11/2005	6.39
MW-47	4/10/2006	9.71
MW-47	10/6/2006	5.02
MW-47	4/5/2007	6.36
MW-47	10/1/2007	10.49
MW-47	4/28/2008	18.59
MW-47	10/7/2008	19.18
MW-47	4/13/2009	13.64
MW-47	10/28/2009	11.55
MW-47	4/5/2010	6.86
MW-47	10/6/2010	8.17
MW-47	4/28/2011	9.76
MW-47	10/12/2011	7.07
MW-48	6/9/1992	16.62
MW-48	6/18/1992	16.98
MW-48	7/23/1992	16.70
MW-48	10/27/1992	15.32
MW-48	4/12/1993	16.82
MW-48	1/9/1994	16.87
MW-48	2/13/1995	16.29
MW-48	4/1/1998	19.90
MW-48	6/2/1999	19.92
MW-48	6/10/1999	18.22
MW-48	3/28/2002	20.3
MW-48	4/1/2003	16.56
MW-48	10/2/2003	17.51
MW-48	10/2/2003	17.51

Well Number	Date	Water Elevation (ft)
MW-48	4/16/2004	17.31
MW-48	10/26/2004	-3.71
MW-48	4/1/2005	-6.38
MW-48	10/11/2005	-0.20
MW-48	4/10/2006	13.47
MW-48	10/6/2006	5.00
MW-48	4/5/2007	-4.74
MW-48	10/1/2007	-9.21
MW-48	4/28/2008	19.38
MW-48	10/7/2008	20.02
MW-48	4/13/2009	18.50
MW-48	10/28/2009	14.59
MW-48	4/5/2010	14.46
MW-48	10/6/2010	14.14
MW-48	4/28/2011	14.01
MW-48	10/12/2011	12.46
MW-49	6/8/1992	16.79
MW-49	6/18/1992	17.21
MW-49	7/23/1992	7.09
MW-49	10/27/1992	16.49
MW-49	4/12/1993	17.35
MW-49	1/9/1994	16.13
MW-49	2/13/1995	16.46
MW-49	4/1/1998	19.70
MW-49	6/2/1999	19.85
MW-49	6/10/1999	18.27
MW-49	3/28/2002	20.28
MW-49	4/1/2003	16.59
MW-49	10/2/2003	17.40
MW-49	10/2/2003	17.40
MW-49	4/16/2004	17.29
MW-49	10/26/2004	0.17
MW-49	4/1/2005	15.70
MW-49	10/11/2005	12.96
MW-49	4/10/2006	12.81
MW-49	10/6/2006	7.17
MW-49	4/5/2007	6.97
MW-49	10/1/2007	7.10
MW-49	4/28/2008	19.35
MW-49	10/7/2008	20.12
MW-49	4/13/2009	18.64
MW-49	10/28/2009	12.12
MW-49	4/5/2010	11.68
MW-49	10/6/2010	11.21
MW-49	4/28/2011	11.42
MW-49	10/12/2011	10.13
MW-50	6/5/1992	16.80
MW-50	6/18/1992	17.86
MW-50	7/23/1992	17.47
MW-50	10/27/1992	16.40

Well Number	Date	Water Elevation (ft)
MW-50	4/12/1993	17.51
MW-50	1/9/1994	16.64
MW-50	2/13/1995	16.84
MW-50	4/1/1998	19.93
MW-50	6/2/1999	19.82
MW-50	6/10/1999	18.86
MW-50	10/3/2000	15.05
MW-50	10/3/2000	15.05
MW-50	10/16/2001	18.56
MW-50	3/28/2002	20.2
MW-50	4/19/2002	19.25
MW-50	4/1/2003	16.93
MW-50	10/2/2003	18.12
MW-50	10/2/2003	18.12
MW-50	4/16/2004	18.00
MW-50	10/26/2004	12.89
MW-50	4/1/2005	16.49
MW-50	10/11/2005	14.51
MW-50	4/10/2006	15.32
MW-50	10/6/2006	12.93
MW-50	4/5/2007	14.84
MW-50	10/1/2007	14.83
MW-50	4/28/2008	19.13
MW-50	10/7/2008	19.90
MW-50	4/13/2009	18.50
MW-50	10/28/2009	16.42
MW-50	4/5/2010	16.74
MW-50	10/6/2010	16.25
MW-50	4/28/2011	15.98
MW-50	10/12/2011	14.07
MW-51	5/21/1992	16.56
MW-51	6/18/1992	18.49
MW-51	7/20/1992	8.75
MW-51	10/31/1992	17.36
MW-51	4/13/1993	18.51
MW-51	1/10/1994	17.66
MW-51	2/11/1995	17.96
MW-51	4/1/1998	20.99
MW-51	6/2/1999	20.19
MW-51	6/10/1999	19.71
MW-51	10/17/2001	19.29
MW-51	3/28/2002	20.49
MW-51	4/19/2002	20.26
MW-51	4/1/2003	17.90
MW-51	10/2/2003	18.98
MW-51	10/2/2003	18.98
MW-51	4/16/2004	18.97
MW-51	10/26/2004	14.85
MW-51	4/1/2005	18.25
MW-51	10/11/2005	15.78

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-51	4/10/2006	16.52
MW-51	10/6/2006	14.89
MW-51	4/5/2007	17.43
MW-51	10/1/2007	17.29
MW-51	4/28/2008	19.66
MW-51	10/7/2008	20.26
MW-51	4/13/2009	19.16
MW-51	10/28/2009	18.00
MW-51	4/5/2010	18.40
MW-51	10/6/2010	17.60
MW-51	4/28/2011	17.22
MW-51	10/12/2011	14.75
MW-52	5/24/1992	18.55
MW-52	6/18/1992	18.13
MW-52	7/22/1992	17.93
MW-52	10/30/1992	16.95
MW-52	4/18/1993	17.93
MW-52	1/11/1994	17.05
MW-52	2/11/1995	17.45
MW-52	4/1/1998	20.11
MW-52	6/2/1999	19.67
MW-52	6/10/1999	19.60
MW-52	3/28/2002	20.26
MW-52	4/1/2003	17.68
MW-52	10/2/2003	18.64
MW-52	10/2/2003	18.64
MW-52	4/16/2004	18.26
MW-52	10/26/2004	13.85
MW-52	4/1/2005	17.54
MW-52	10/11/2005	15.36
MW-52	4/10/2006	12.72
MW-52	10/6/2006	14.03
MW-52	4/5/2007	16.09
MW-52	10/1/2007	16.35
MW-52	4/28/2008	19.28
MW-52	10/7/2008	20.10
MW-52	4/13/2009	18.70
MW-52	10/28/2009	16.93
MW-52	4/5/2010	17.64
MW-52	10/6/2010	17.08
MW-52	4/28/2011	16.65
MW-52	10/12/2011	13.93
MW-53	5/21/1992	19.21
MW-53	6/18/1992	18.71
MW-53	10/30/1992	16.94
MW-53	4/13/1993	17.76
MW-53	1/10/1994	17.69
MW-53	2/11/1995	18.21
MW-53	4/1/1998	20.45
MW-53	6/2/1999	19.98

Well Number	Date	Water Elevation (ft)
MW-53	6/10/1999	19.77
MW-53	10/3/2000	15.54
MW-53	10/3/2000	15.54
MW-53	3/28/2002	20.46
MW-53	4/1/2003	17.97
MW-53	10/2/2003	19.11
MW-53	10/2/2003	19.11
MW-53	4/16/2004	18.76
MW-53	10/26/2004	14.50
MW-53	4/1/2005	17.93
MW-53	10/11/2005	15.50
MW-53	4/10/2006	16.12
MW-53	10/6/2006	14.50
MW-53	4/5/2007	17.02
MW-53	10/1/2007	16.90
MW-53	4/28/2008	19.45
MW-53	10/7/2008	20.18
MW-53	4/13/2009	18.74
MW-53	10/28/2009	17.65
MW-53	4/5/2010	17.90
MW-53	10/6/2010	17.20
MW-53	4/28/2011	16.79
MW-53	10/12/2011	14.38
MW-54	5/21/1992	18.56
MW-54	6/18/1992	18.40
MW-54	10/30/1992	16.89
MW-54	4/13/1993	18.49
MW-54	1/10/1994	17.49
MW-54	2/11/1995	17.64
MW-54	4/1/1998	20.21
MW-54	6/10/1999	19.53
MW-54	10/3/2000	15.19
MW-54	10/3/2000	15.19
MW-54	3/28/2002	20.36
MW-54	4/1/2003	17.69
MW-54	10/2/2003	18.81
MW-54	10/2/2003	18.81
MW-54	4/16/2004	18.96
MW-54	10/26/2004	14.94
MW-54	4/1/2005	18.33
MW-54	10/11/2005	15.87
MW-54	4/10/2006	16.51
MW-54	10/6/2006	15.04
MW-54	4/5/2007	17.61
MW-54	10/1/2007	17.42
MW-54	4/28/2008	19.52
MW-54	10/7/2008	20.18
MW-54	4/13/2009	19.03
MW-54	10/28/2009	17.90
MW-54	4/5/2010	18.30

Well Number	Date	Water Elevation (ft)
MW-54	10/6/2010	17.55
MW-54	4/28/2011	17.23
MW-54	10/12/2011	14.77
MW-55	6/3/1992	18.79
MW-55	6/18/1992	18.75
MW-55	7/22/1992	18.64
MW-55	10/30/1992	17.59
MW-55	4/14/1993	18.74
MW-55	1/10/1994	17.69
MW-55	2/11/1995	17.95
MW-55	4/1/1998	18.99
MW-55	6/2/1999	20.09
MW-55	6/10/1999	19.46
MW-55	10/3/2000	15.19
MW-55	10/3/2000	15.19
MW-55	3/28/2002	20.34
MW-55	4/1/2003	17.52
MW-55	10/2/2003	18.61
MW-55	10/2/2003	18.61
MW-55	4/16/2004	18.98
MW-55	10/26/2004	14.15
MW-55	4/1/2005	17.63
MW-55	10/11/2005	15.33
MW-55	4/10/2006	16.70
MW-55	10/6/2006	15.57
MW-55	4/5/2007	16.61
MW-55	10/1/2007	16.56
MW-55	4/28/2008	19.35
MW-55	10/7/2008	20.08
MW-55	4/13/2009	18.80
MW-55	10/28/2009	17.35
MW-55	4/5/2010	17.66
MW-55	10/6/2010	17.04
MW-55	4/28/2011	16.79
MW-55	10/12/2011	14.45
MW-56	6/4/1992	16.71
MW-56	6/18/1992	18.38
MW-56	7/22/1992	18.30
MW-56	10/30/1992	17.11
MW-56	4/14/1993	18.51
MW-56	1/10/1994	17.51
MW-56	2/11/1995	17.91
MW-56	4/1/1998	20.47
MW-56	6/2/1999	19.97
MW-56	6/10/1999	20.04
MW-56	10/3/2000	15.85
MW-56	10/3/2000	15.85
MW-56	3/28/2002	20.39
MW-56	4/1/2003	18.13
MW-56	10/2/2003	19.17

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-56	10/2/2003	19.17
MW-56	4/16/2004	18.86
MW-56	10/26/2004	13.98
MW-56	4/1/2005	18.36
MW-56	10/11/2005	16.28
MW-56	4/10/2006	15.49
MW-56	10/6/2006	13.89
MW-56	4/5/2007	17.23
MW-56	10/1/2007	17.44
MW-56	4/28/2008	17.98
MW-56	10/7/2008	20.23
MW-56	4/13/2009	19.05
MW-56	10/28/2009	16.38
MW-56	4/5/2010	18.46
MW-56	10/6/2010	17.72
MW-56	4/28/2011	14.75
MW-56	10/12/2011	14.54
MW-57	5/22/1992	19.70
MW-57	6/18/1992	19.28
MW-57	10/30/1992	17.50
MW-57	4/13/1993	19.35
MW-57	1/11/1994	16.60
MW-57	2/11/1995	18.95
MW-57	4/1/1998	20.46
MW-57	6/2/1999	20.46
MW-57	6/10/1999	20.41
MW-57	3/28/2002	20.56
MW-57	4/1/2003	18.56
MW-57	10/2/2003	19.76
MW-57	10/2/2003	19.76
MW-57	4/16/2004	19.72
MW-57	10/26/2004	16.15
MW-57	4/1/2005	19.09
MW-57	10/11/2005	16.97
MW-57	4/10/2006	17.13
MW-57	10/6/2006	16.15
MW-57	4/5/2007	19.20
MW-57	10/1/2007	18.58
MW-57	4/28/2008	19.60
MW-57	10/7/2008	20.14
MW-57	4/13/2009	19.29
MW-57	10/28/2009	18.81
MW-57	4/5/2010	18.89
MW-57	10/6/2010	18.12
MW-57	4/28/2011	17.41
MW-57	10/12/2011	15.38
MW-58	6/3/1992	13.27
MW-58	6/18/1992	18.68
MW-58	10/31/1992	17.22
MW-58	4/14/1993	18.27

Well Number	Date	Water Elevation (ft)
MW-58	1/9/1994	17.82
MW-58	2/11/1995	17.94
MW-58	4/1/1998	20.32
MW-58	6/2/1999	20.37
MW-58	6/10/1999	20.10
MW-58	10/3/2000	15.69
MW-58	10/3/2000	15.69
MW-58	3/28/2002	20.46
MW-58	4/1/2003	18.08
MW-58	10/2/2003	19.17
MW-58	10/2/2003	19.17
MW-58	4/16/2004	19.10
MW-58	10/26/2004	15.09
MW-58	4/1/2005	18.41
MW-58	10/11/2005	16.16
MW-58	4/10/2006	16.45
MW-58	10/6/2006	15.32
MW-58	4/5/2007	17.86
MW-58	10/1/2007	17.61
MW-58	4/28/2008	19.22
MW-58	10/7/2008	19.97
MW-58	4/13/2009	18.84
MW-58	10/28/2009	17.73
MW-58	4/5/2010	18.18
MW-58	10/6/2010	17.56
MW-58	4/28/2011	17.01
MW-58	10/12/2011	14.68
MW-59	6/3/1992	19.36
MW-59	6/18/1992	19.32
MW-59	10/31/1992	17.66
MW-59	4/14/1993	26.10
MW-59	1/9/1994	18.26
MW-59	2/11/1995	18.76
MW-59	6/2/1999	20.35
MW-59	6/10/1999	20.36
MW-59	10/3/2000	11.20
MW-59	10/3/2000	11.20
MW-59	3/28/2002	20.6
MW-59	4/1/2003	18.38
MW-59	10/2/2003	19.52
MW-59	10/2/2003	19.52
MW-59	4/16/2004	19.39
MW-59	10/26/2004	15.56
MW-59	4/1/2005	18.82
MW-59	10/11/2005	16.58
MW-59	4/10/2006	16.87
MW-59	10/6/2006	15.76
MW-59	4/5/2007	18.43
MW-59	10/1/2007	18.01
MW-59	4/28/2008	19.61

Well Number	Date	Water Elevation (ft)
MW-59	10/7/2008	20.10
MW-59	4/13/2009	19.24
MW-59	10/28/2009	18.19
MW-59	4/5/2010	18.63
MW-59	10/6/2010	17.86
MW-59	4/28/2011	17.41
MW-59	10/12/2011	15.05
MW-60	5/24/1992	18.36
MW-60	6/18/1992	18.44
MW-60	10/31/1992	17.06
MW-60	4/12/1993	18.40
MW-60	1/11/1994	18.26
MW-60	2/11/1995	17.61
MW-60	4/1/1998	20.35
MW-60	6/2/1999	20.35
MW-60	6/10/1999	19.75
MW-60	3/28/2002	20.35
MW-60	4/1/2003	17.79
MW-60	10/2/2003	18.86
MW-60	10/2/2003	18.86
MW-60	4/16/2004	18.77
MW-60	10/26/2004	14.52
MW-60	4/1/2005	17.92
MW-60	10/11/2005	15.74
MW-60	4/10/2006	16.13
MW-60	10/6/2006	14.64
MW-60	4/5/2007	17.12
MW-60	10/1/2007	16.87
MW-60	4/28/2008	19.26
MW-60	10/7/2008	20.07
MW-60	4/13/2009	18.78
MW-60	10/28/2009	17.42
MW-60	4/5/2010	17.87
MW-60	10/6/2010	17.25
MW-60	4/28/2011	16.77
MW-60	10/12/2011	14.43
MW-61	6/5/1992	19.02
MW-61	6/18/1992	17.23
MW-61	7/28/1992	17.40
MW-61	10/29/1992	14.97
MW-61	4/18/1993	17.60
MW-61	1/11/1994	16.65
MW-61	2/14/1995	16.73
MW-61	4/1/1998	19.79
MW-61	6/2/1999	19.91
MW-61	6/10/1999	18.59
MW-61	10/3/2000	15.22
MW-61	10/3/2000	15.22
MW-61	3/28/2002	20.36
MW-61	4/1/2003	16.95

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-61	10/2/2003	17.79
MW-61	10/2/2003	17.79
MW-61	4/16/2004	17.70
MW-61	10/26/2004	11.87
MW-61	4/1/2005	16.30
MW-61	10/11/2005	13.99
MW-61	4/10/2006	14.75
MW-61	10/6/2006	11.73
MW-61	4/5/2007	13.58
MW-61	10/1/2007	13.49
MW-61	4/28/2008	19.17
MW-61	10/7/2008	20.15
MW-61	4/13/2009	18.59
MW-61	10/28/2009	16.18
MW-61	4/5/2010	15.95
MW-61	10/6/2010	15.44
MW-61	4/28/2011	15.13
MW-61	10/12/2011	14.47
MW-62	8/30/1995	10.14
MW-62	10/14/1998	4.37
MW-62	4/1/1999	9.64
MW-62	6/2/1999	10.87
MW-62	6/10/1999	9.70
MW-62	4/11/2000	8.37
MW-62	10/3/2000	8.08
MW-62	10/3/2000	8.08
MW-62	4/2/2001	5.56
MW-62	10/17/2001	5.62
MW-62	3/28/2002	11.36
MW-62	4/19/2002	5.79
MW-62	4/1/2003	11.03
MW-62	10/2/2003	5.75
MW-62	10/2/2003	5.75
MW-62	4/16/2004	6.22
MW-62	10/26/2004	7.58
MW-62	4/1/2005	5.05
MW-62	10/11/2005	4.32
MW-62	4/10/2006	3.07
MW-62	10/6/2006	3.52
MW-62	4/5/2007	5.11
MW-62	10/1/2007	9.22
MW-62	4/28/2008	9.55
MW-62	10/7/2008	9.17
MW-62	4/13/2009	8.41
MW-62	10/28/2009	7.28
MW-62	4/5/2010	8.58
MW-62	10/6/2010	8.28
MW-62	4/28/2011	7.71
MW-62	10/12/2011	6.20
MW-63	8/30/1995	10.06

Well Number	Date	Water Elevation (ft)
MW-63	10/14/1998	7.74
MW-63	4/1/1999	10.19
MW-63	6/2/1999	10.52
MW-63	6/10/1999	10.24
MW-63	4/11/2000	8.82
MW-63	10/3/2000	8.32
MW-63	10/3/2000	8.32
MW-63	4/2/2001	8.62
MW-63	10/17/2001	8.49
MW-63	3/28/2002	11.04
MW-63	4/19/2002	9.72
MW-63	4/1/2003	11.02
MW-63	10/2/2003	9.72
MW-63	10/2/2003	9.72
MW-63	4/16/2004	9.93
MW-63	10/26/2004	10.20
MW-63	4/1/2005	-1.48
MW-63	10/11/2005	-3.02
MW-63	4/10/2006	-4.40
MW-63	10/6/2006	-3.80
MW-63	4/5/2007	-2.92
MW-63	10/1/2007	11.84
MW-63	4/28/2008	11.68
MW-63	10/7/2008	11.24
MW-63	4/13/2009	10.24
MW-63	10/28/2009	9.56
MW-63	4/5/2010	10.98
MW-63	10/6/2010	10.48
MW-63	4/28/2011	9.78
MW-63	10/12/2011	8.03
MW-64	4/1/2003	17.04
MW-64	10/2/2003	17.80
MW-64	10/2/2003	17.80
MW-64	4/16/2004	17.08
MW-64	10/26/2004	13.22
MW-64	4/1/2005	15.91
MW-64	10/11/2005	14.13
MW-64	4/10/2006	14.20
MW-64	10/6/2006	13.02
MW-64	4/5/2007	13.47
MW-64	10/1/2007	13.12
MW-64	4/28/2008	19.46
MW-64	10/7/2008	20.99
MW-64	4/13/2009	18.82
MW-64	10/28/2009	15.74
MW-64	4/5/2010	16.03
MW-64	10/6/2010	15.52
MW-64	4/28/2011	15.22
MW-64	10/12/2011	13.78
MW-65	10/16/2001	19.89

Well Number	Date	Water Elevation (ft)
MW-65	3/28/2002	19.77
MW-65	4/19/2002	20.15
MW-65	4/1/2003	18.44
MW-65	10/2/2003	20.05
MW-65	10/2/2003	20.05
MW-65	4/16/2004	19.88
MW-65	10/26/2004	15.96
MW-65	4/1/2005	19.51
MW-65	10/11/2005	16.17
MW-65	4/10/2006	16.98
MW-65	10/6/2006	16.27
MW-65	4/5/2007	19.74
MW-65	10/1/2007	19.79
MW-65	4/28/2008	19.36
MW-65	10/7/2008	19.91
MW-65	4/13/2009	18.90
MW-65	10/28/2009	18.86
MW-65	4/5/2010	19.43
MW-65	10/6/2010	18.40
MW-65	4/28/2011	17.50
MW-65	10/12/2011	14.77
MW-66	3/28/2002	19.98
MW-66	4/1/2003	18.53
MW-66	10/2/2003	20.21
MW-66	10/2/2003	20.21
MW-66	4/16/2004	20.16
MW-66	10/26/2004	15.75
MW-66	4/1/2005	19.48
MW-66	10/11/2005	16.20
MW-66	4/10/2006	17.17
MW-66	10/6/2006	16.26
MW-66	4/5/2007	19.69
MW-66	10/1/2007	19.59
MW-66	4/28/2008	19.42
MW-66	10/7/2008	19.97
MW-66	4/13/2009	18.91
MW-66	10/28/2009	18.91
MW-66	4/5/2010	19.38
MW-66	10/6/2010	18.37
MW-66	4/28/2011	17.61
MW-66	10/12/2011	14.70
MW-67	10/16/2001	8.96
MW-67	3/28/2002	11.26
MW-67	4/19/2002	10.03
MW-67	4/1/2003	11.28
MW-67	10/2/2003	9.73
MW-67	10/2/2003	9.73
MW-67	4/16/2004	9.78
MW-67	10/26/2004	10.20
MW-67	4/1/2005	8.51

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-67	10/11/2005	7.52
MW-67	4/10/2006	6.37
MW-67	10/6/2006	6.96
MW-67	4/5/2007	8.51
MW-67	10/1/2007	11.80
MW-67	4/28/2008	11.64
MW-67	10/7/2008	11.23
MW-67	4/13/2009	10.11
MW-67	10/28/2009	9.37
MW-67	4/5/2010	10.83
MW-67	10/6/2010	10.44
MW-67	4/28/2011	9.79
MW-67	10/12/2011	7.83
MW-68	10/16/2001	7.89
MW-68	3/28/2002	11.19
MW-68	4/19/2002	9.35
MW-68	4/1/2003	11.23
MW-68	10/2/2003	9.31
MW-68	10/2/2003	9.31
MW-68	4/16/2004	9.25
MW-68	10/26/2004	9.82
MW-68	4/1/2005	8.05
MW-68	10/11/2005	6.92
MW-68	4/10/2006	6.01
MW-68	10/6/2006	6.42
MW-68	4/5/2007	8.02
MW-68	10/1/2007	11.49
MW-68	4/28/2008	11.24
MW-68	10/7/2008	10.85
MW-68	4/13/2009	9.84
MW-68	10/28/2009	9.09
MW-68	4/5/2010	10.51
MW-68	10/6/2010	10.10
MW-68	4/28/2011	9.50
MW-68	10/12/2011	7.72
MW-69	4/16/2004	15.29
MW-69	10/26/2004	12.41
MW-69	4/1/2005	14.37
MW-69	10/11/2005	14.19
MW-69	4/10/2006	12.52
MW-69	10/6/2006	13.64
MW-69	4/5/2007	14.05
MW-69	10/1/2007	14.11
MW-69	4/28/2008	14.44
MW-69	10/7/2008	16.23
MW-69	4/13/2009	14.59
MW-69	10/28/2009	13.83
MW-69	4/5/2010	15.31
MW-69	10/6/2010	14.60
MW-69	4/28/2011	14.30
MW-69	10/12/2011	13.30
MW-70	10/16/2001	7.22
MW-70	3/28/2002	11.03
MW-70	4/19/2002	9.44
MW-70	4/1/2003	11.20
MW-70	10/2/2003	9.37
MW-70	10/2/2003	9.37
MW-70	4/16/2004	9.44
MW-70	10/26/2004	9.91
MW-70	4/1/2005	8.18
MW-70	10/11/2005	7.07
MW-70	4/10/2006	6.18
MW-70	10/6/2006	6.68
MW-70	4/5/2007	8.16
MW-70	10/1/2007	11.85
MW-70	4/28/2008	11.34
MW-70	10/7/2008	10.99
MW-70	4/13/2009	9.87
MW-70	10/28/2009	8.84
MW-70	4/5/2010	10.63
MW-70	10/6/2010	10.21
MW-70	4/28/2011	9.63
MW-70	10/12/2011	7.83
MW-71	4/16/2004	16.14
MW-71	10/26/2004	12.86
MW-71	4/1/2005	15.30
MW-71	10/11/2005	14.99
MW-71	4/10/2006	13.22
MW-71	10/6/2006	13.40
MW-71	4/5/2007	15.57
MW-71	10/1/2007	14.88
MW-71	4/28/2008	15.07
MW-71	10/7/2008	16.83
MW-71	4/13/2009	14.96
MW-71	10/28/2009	14.40
MW-71	4/5/2010	15.94
MW-71	10/6/2010	15.27
MW-71	4/28/2011	15.03
MW-71	10/12/2011	13.91
MW-72	10/16/2001	8.51
MW-72	3/28/2002	11.22
MW-72	4/19/2002	9.59
MW-72	4/1/2003	11.38
MW-72	10/2/2003	9.54
MW-72	10/2/2003	9.54
MW-72	4/16/2004	9.54
MW-72	10/26/2004	10.06
MW-72	4/1/2005	8.37
MW-72	10/11/2005	7.27
MW-72	4/10/2006	6.17
MW-72	10/6/2006	6.78
MW-72	4/5/2007	8.26
MW-72	10/1/2007	11.64
MW-72	4/28/2008	11.49
MW-72	10/7/2008	11.17
MW-72	4/13/2009	10.03
MW-72	10/28/2009	9.25
MW-72	4/5/2010	10.77
MW-72	10/6/2010	10.22
MW-72	4/28/2011	9.67
MW-72	10/12/2011	7.82
MW-73	4/16/2004	18.64
MW-73	10/26/2004	14.36
MW-73	4/1/2005	17.97
MW-73	10/11/2005	15.17
MW-73	4/10/2006	15.96
MW-73	10/6/2006	14.29
MW-73	4/5/2007	17.52
MW-73	10/1/2007	17.57
MW-73	4/28/2008	19.50
MW-73	10/7/2008	20.04
MW-73	4/13/2009	18.94
MW-73	10/28/2009	18.60
MW-73	4/5/2010	18.99
MW-73	10/6/2010	18.01
MW-73	4/28/2011	17.21
MW-73	10/12/2011	14.85
MW-74	4/16/2004	18.72
MW-74	10/26/2004	14.26
MW-74	4/1/2005	17.97
MW-74	10/11/2005	15.04
MW-74	4/10/2006	15.93
MW-74	10/6/2006	14.09
MW-74	4/5/2007	17.48
MW-74	10/1/2007	17.52
MW-74	4/28/2008	19.54
MW-74	10/7/2008	20.18
MW-74	4/13/2009	18.92
MW-74	10/28/2009	18.78
MW-74	4/5/2010	19.13
MW-74	10/6/2010	18.04
MW-74	4/28/2011	17.18
MW-74	10/12/2011	15.01
MW-75	4/16/2004	16.97
MW-75	10/26/2004	12.27
MW-75	4/1/2005	15.46
MW-75	10/11/2005	13.46
MW-75	4/10/2006	14.70
MW-75	10/6/2006	11.90
MW-75	4/5/2007	14.76

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-75	10/1/2007	14.87
MW-75	4/28/2008	19.60
MW-75	10/7/2008	20.16
MW-75	4/13/2009	18.40
MW-75	10/28/2009	19.00
MW-75	4/5/2010	18.14
MW-75	10/6/2010	17.38
MW-75	4/28/2011	16.49
MW-75	10/12/2011	16.18
MW-76	4/16/2004	15.58
MW-76	10/26/2004	11.19
MW-76	4/1/2005	14.41
MW-76	10/11/2005	12.68
MW-76	4/10/2006	14.52
MW-76	10/6/2006	10.78
MW-76	4/5/2007	12.72
MW-76	10/1/2007	13.39
MW-76	4/28/2008	19.55
MW-76	10/7/2008	20.13
MW-76	4/13/2009	18.15
MW-76	10/28/2009	17.39
MW-76	4/5/2010	17.00
MW-76	10/6/2010	17.04
MW-76	4/28/2011	16.33
MW-76	10/12/2011	15.26
MW-77	4/16/2004	18.15
MW-77	10/26/2004	13.66
MW-77	4/1/2005	17.05
MW-77	10/11/2005	12.29
MW-77	4/10/2006	15.73
MW-77	10/6/2006	13.70
MW-77	4/5/2007	15.71
MW-77	10/1/2007	15.59
MW-77	4/28/2008	19.25
MW-77	10/7/2008	19.90
MW-77	4/13/2009	18.67
MW-77	10/28/2009	17.09
MW-77	4/5/2010	17.40
MW-77	10/6/2010	16.88
MW-77	4/28/2011	16.28
MW-77	10/12/2011	15.07
MW-78	4/16/2004	18.10
MW-78	10/26/2004	13.53
MW-78	4/1/2005	16.86
MW-78	10/11/2005	15.02
MW-78	4/10/2006	15.49
MW-78	10/6/2006	13.49
MW-78	4/5/2007	15.51
MW-78	10/1/2007	15.59
MW-78	4/28/2008	19.03

Well Number	Date	Water Elevation (ft)
MW-78	10/7/2008	19.90
MW-78	4/13/2009	18.33
MW-78	10/28/2009	16.60
MW-78	4/5/2010	16.89
MW-78	10/6/2010	16.35
MW-78	4/28/2011	16.08
MW-78	10/12/2011	14.26
MW-79	4/10/2006	14.00
MW-79	10/6/2006	14.60
MW-79	4/5/2007	15.30
MW-79	10/1/2007	15.13
MW-79	4/28/2008	14.77
MW-79	10/7/2008	15.45
MW-79	4/13/2009	15.51
MW-79	10/28/2009	15.15
MW-79	10/6/2010	15.11
MW-79	4/28/2011	14.51
MW-79	10/12/2011	12.96
MW-80	10/26/2004	11.27
MW-80	4/1/2005	8.42
MW-80	10/11/2005	7.32
MW-80	4/10/2006	6.27
MW-80	10/6/2006	6.91
MW-80	4/5/2007	8.43
MW-80	10/1/2007	11.51
MW-80	4/28/2008	11.47
MW-80	10/7/2008	11.17
MW-80	4/13/2009	10.13
MW-80	10/28/2009	9.07
MW-80	4/5/2010	10.77
MW-80	10/6/2010	10.41
MW-80	4/28/2011	9.81
MW-80	10/12/2011	7.76
MW-81	4/16/2004	9.68
MW-81	10/26/2004	10.23
MW-81	4/1/2005	8.42
MW-81	10/11/2005	7.33
MW-81	4/10/2006	6.27
MW-81	10/6/2006	6.82
MW-81	4/5/2007	8.39
MW-81	10/1/2007	11.73
MW-81	4/28/2008	11.58
MW-81	10/7/2008	11.18
MW-81	4/13/2009	9.60
MW-81	10/28/2009	9.33
MW-81	4/5/2010	10.92
MW-81	10/6/2010	10.39
MW-81	4/28/2011	9.75
MW-81	10/12/2011	7.82
MW-82	4/10/2006	16.57

Well Number	Date	Water Elevation (ft)
MW-82	10/6/2006	16.06
MW-82	4/5/2007	18.20
MW-82	10/1/2007	18.07
MW-82	4/28/2008	19.25
MW-82	10/7/2008	20.08
MW-82	4/13/2009	18.94
MW-82	10/28/2009	17.75
MW-82	10/12/2011	14.76
MW-83	4/10/2006	17.28
MW-83	10/6/2006	15.83
MW-83	4/5/2007	18.02
MW-83	10/1/2007	17.80
MW-83	4/28/2008	19.64
MW-84	4/5/2010	17.90
MW-84	10/6/2010	17.20
MW-84	4/28/2011	16.96
MW-84	10/12/2011	14.80
MW-85	4/5/2010	16.95
MW-85	10/6/2010	16.02
MW-85	4/28/2011	15.48
MW-85	10/12/2011	13.37
MW-86	4/5/2010	15.58
MW-86	10/6/2010	15.15
MW-86	4/28/2011	14.75
MW-86	10/12/2011	13.74
MW-87	4/5/2010	15.05
MW-87	10/6/2010	14.55
MW-87	4/28/2011	14.12
MW-87	10/12/2011	12.96
MW-88	4/5/2010	15.61
MW-88	10/6/2010	14.92
MW-88	4/28/2011	14.53
MW-88	10/12/2011	13.48
MW-89	4/5/2010	15.00
MW-89	10/6/2010	14.51
MW-89	4/28/2011	14.31
MW-89	10/12/2011	13.15
MW-91	4/5/2010	17.50
MW-91	10/6/2010	13.13
MW-91	4/28/2011	13.39
MW-91	10/12/2011	12.20
MW-93	4/5/2010	17.59
MW-93	10/6/2010	16.89
MW-93	4/28/2011	16.30
MW-93	10/12/2011	15.11
MW-94	4/5/2010	18.03
MW-94	10/6/2010	17.28
MW-94	4/28/2011	16.70
MW-94	10/12/2011	15.44
MW-95	4/5/2010	12.13

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
MW-95	10/6/2010	11.87
MW-95	4/28/2011	10.99
MW-95	10/12/2011	9.94
MW-96	4/5/2010	12.17
MW-96	10/6/2010	11.38
MW-96	4/28/2011	10.86
MW-96	10/12/2011	8.90
MW-97	4/5/2010	19.28
MW-97	10/6/2010	18.12
MW-97	4/28/2011	18.35
MW-97	10/12/2011	14.91
MW-98	4/5/2010	11.12
MW-98	10/6/2010	10.60
MW-98	4/28/2011	9.94
MW-98	10/12/2011	8.08
RW-01	10/14/1998	15.76
RW-01	4/1/1999	17.24
RW-01	6/2/1999	17.96
RW-01	6/10/1999	12.73
RW-01	4/11/2000	7.65
RW-01	10/3/2000	10.82
RW-01	10/3/2000	10.82
RW-01	4/2/2001	14.36
RW-01	10/16/2001	15.86
RW-01	3/28/2002	18.36
RW-01	4/19/2002	-
RW-01	4/1/2003	9.90
RW-01	10/2/2003	10.76
RW-01	10/2/2003	10.76
RW-01	4/16/2004	12.65
RW-01	10/26/2004	8.14
RW-01	4/1/2005	11.58
RW-01	10/11/2005	11.72
RW-01	4/10/2006	5.01
RW-01	10/6/2006	3.10
RW-01	4/5/2007	14.14
RW-01	10/1/2007	3.70
RW-01	4/28/2008	5.76
RW-01	10/7/2008	16.42
RW-01	4/13/2009	12.35
RW-01	10/28/2009	8.48
RW-01	4/5/2010	15.47
RW-01	10/6/2010	15.13
RW-01	4/28/2011	15.01
RW-01	10/12/2011	13.57
RW-02	10/14/1998	15.71
RW-02	4/1/1999	16.94
RW-02	6/2/1999	17.87
RW-02	6/10/1999	13.13
RW-02	4/11/2000	7.98

Well Number	Date	Water Elevation (ft)
RW-02	10/3/2000	11.31
RW-02	10/3/2000	11.31
RW-02	4/2/2001	13.91
RW-02	10/16/2001	15.71
RW-02	3/28/2002	18.22
RW-02	4/19/2002	11.40
RW-02	4/1/2003	9.69
RW-02	10/2/2003	12.09
RW-02	10/2/2003	12.09
RW-02	4/16/2004	12.73
RW-02	10/26/2004	8.35
RW-02	4/1/2005	11.83
RW-02	10/11/2005	11.97
RW-02	4/10/2006	9.09
RW-02	10/6/2006	2.06
RW-02	4/5/2007	13.60
RW-02	10/1/2007	8.53
RW-02	4/28/2008	9.95
RW-02	10/7/2008	16.14
RW-02	4/13/2009	10.08
RW-02	10/28/2009	7.05
RW-02	4/5/2010	14.86
RW-02	10/6/2010	14.85
RW-02	4/28/2011	14.63
RW-02	10/12/2011	13.17
RW-03	10/14/1998	15.54
RW-03	4/1/1999	16.66
RW-03	6/2/1999	17.81
RW-03	6/10/1999	12.29
RW-03	4/11/2000	7.23
RW-03	10/3/2000	9.79
RW-03	10/3/2000	9.79
RW-03	4/2/2001	13.29
RW-03	10/16/2001	14.74
RW-03	3/28/2002	18.14
RW-03	4/19/2002	-
RW-03	4/1/2003	5.84
RW-03	10/2/2003	11.34
RW-03	10/2/2003	11.34
RW-03	4/16/2004	8.37
RW-03	10/26/2004	2.16
RW-03	4/1/2005	9.38
RW-03	10/11/2005	11.70
RW-03	4/10/2006	4.68
RW-03	10/6/2006	2.74
RW-03	4/5/2007	12.83
RW-03	10/1/2007	4.94
RW-03	4/28/2008	5.63
RW-03	10/7/2008	13.64
RW-03	4/13/2009	12.49

Well Number	Date	Water Elevation (ft)
RW-03	10/28/2009	5.22
RW-03	4/5/2010	14.56
RW-03	10/6/2010	14.57
RW-03	4/28/2011	14.49
RW-03	10/12/2011	13.06
RW-04	10/14/1998	15.54
RW-04	4/1/1999	16.56
RW-04	6/2/1999	17.72
RW-04	6/10/1999	13.18
RW-04	4/11/2000	6.44
RW-04	10/3/2000	10.14
RW-04	10/3/2000	10.14
RW-04	4/2/2001	13.16
RW-04	10/16/2001	14.71
RW-04	3/28/2002	18.02
RW-04	4/19/2002	12.41
RW-04	4/1/2003	9.20
RW-04	10/2/2003	4.72
RW-04	10/2/2003	4.72
RW-04	4/16/2004	6.23
RW-04	10/26/2004	3.04
RW-04	4/1/2005	4.57
RW-04	10/11/2005	3.00
RW-04	4/10/2006	3.42
RW-04	10/6/2006	1.82
RW-04	4/5/2007	3.47
RW-04	10/1/2007	3.63
RW-04	4/28/2008	5.40
RW-04	10/7/2008	14.80
RW-04	4/13/2009	5.06
RW-04	10/28/2009	4.12
RW-04	4/5/2010	13.63
RW-04	10/6/2010	14.18
RW-04	4/28/2011	14.21
RW-04	10/12/2011	12.85
RW-05	10/14/1998	15.61
RW-05	4/1/1999	17.24
RW-05	6/2/1999	17.58
RW-05	6/10/1999	13.40
RW-05	4/11/2000	7.41
RW-05	10/3/2000	10.20
RW-05	10/3/2000	10.20
RW-05	4/2/2001	12.18
RW-05	10/16/2001	14.76
RW-05	3/28/2002	17.99
RW-05	4/19/2002	10.42
RW-05	4/1/2003	2.64
RW-05	10/2/2003	4.33
RW-05	10/2/2003	4.33
RW-05	4/16/2004	3.91

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
RW-05	10/26/2004	2.95
RW-05	4/1/2005	5.80
RW-05	10/11/2005	2.56
RW-05	4/10/2006	2.83
RW-05	10/6/2006	2.61
RW-05	4/5/2007	4.16
RW-05	10/1/2007	3.66
RW-05	4/28/2008	4.49
RW-05	10/7/2008	14.45
RW-05	4/13/2009	2.31
RW-05	10/28/2009	2.00
RW-05	4/5/2010	12.20
RW-05	10/6/2010	13.39
RW-05	4/28/2011	13.52
RW-05	10/12/2011	12.02
RW-06	10/14/1998	15.26
RW-06	4/1/1999	16.23
RW-06	6/2/1999	17.48
RW-06	6/10/1999	13.72
RW-06	4/11/2000	7.83
RW-06	10/3/2000	10.13
RW-06	10/3/2000	10.13
RW-06	4/2/2001	12.39
RW-06	10/16/2001	14.59
RW-06	3/28/2002	17.75
RW-06	4/19/2002	13.33
RW-06	4/1/2003	8.24
RW-06	10/2/2003	10.72
RW-06	10/2/2003	10.72
RW-06	4/16/2004	10.41
RW-06	10/26/2004	7.69
RW-06	4/1/2005	9.39
RW-06	10/11/2005	9.51
RW-06	4/10/2006	6.15
RW-06	10/6/2006	8.96
RW-06	4/5/2007	9.15
RW-06	10/1/2007	9.33
RW-06	4/28/2008	10.40
RW-06	10/7/2008	15.73
RW-06	4/13/2009	2.58
RW-06	10/28/2009	2.36
RW-06	4/5/2010	12.78
RW-06	10/6/2010	12.95
RW-06	4/28/2011	12.62
RW-06	10/12/2011	10.85
RW-07	10/14/1998	14.49
RW-07	4/1/1999	16.32
RW-07	6/2/1999	17.43
RW-07	6/10/1999	13.80
RW-07	4/11/2000	7.59

Well Number	Date	Water Elevation (ft)
RW-07	10/3/2000	9.86
RW-07	10/3/2000	9.86
RW-07	4/2/2001	12.22
RW-07	10/16/2001	15.29
RW-07	3/28/2002	17.64
RW-07	4/19/2002	13.47
RW-07	4/1/2003	9.10
RW-07	10/2/2003	12.94
RW-07	10/2/2003	12.94
RW-07	4/16/2004	11.29
RW-07	10/26/2004	6.22
RW-07	4/1/2005	8.22
RW-07	10/11/2005	2.37
RW-07	4/10/2006	8.45
RW-07	10/6/2006	11.27
RW-07	4/5/2007	5.62
RW-07	10/1/2007	9.46
RW-07	4/28/2008	9.28
RW-07	10/7/2008	16.24
RW-07	4/13/2009	9.20
RW-07	10/28/2009	5.67
RW-07	4/5/2010	12.72
RW-07	10/6/2010	12.53
RW-07	4/28/2011	13.04
RW-07	10/12/2011	11.26
RW-08	10/1/1998	14.72
RW-08	4/1/1999	16.32
RW-08	6/2/1999	17.42
RW-08	6/10/1999	14.94
RW-08	4/11/2000	7.93
RW-08	10/3/2000	9.80
RW-08	10/3/2000	9.80
RW-08	4/2/2001	12.48
RW-08	10/16/2001	15.20
RW-08	3/28/2002	17.7
RW-08	4/19/2002	12.52
RW-08	4/1/2003	8.47
RW-08	10/2/2003	13.14
RW-08	10/2/2003	13.14
RW-08	4/16/2004	11.78
RW-08	10/26/2004	7.37
RW-08	4/1/2005	9.41
RW-08	10/11/2005	5.56
RW-08	4/10/2006	7.96
RW-08	10/6/2006	11.35
RW-08	4/5/2007	6.13
RW-08	10/1/2007	8.62
RW-08	4/28/2008	11.14
RW-08	10/7/2008	16.33
RW-08	4/13/2009	10.86

Well Number	Date	Water Elevation (ft)
RW-08	10/28/2009	5.30
RW-08	4/5/2010	13.67
RW-08	10/6/2010	13.35
RW-08	4/28/2011	13.73
RW-08	10/12/2011	11.98
RW-09	10/14/1998	14.88
RW-09	4/1/1999	15.79
RW-09	6/2/1999	17.48
RW-09	6/10/1999	13.98
RW-09	4/11/2000	8.44
RW-09	10/3/2000	10.15
RW-09	10/3/2000	10.15
RW-09	4/2/2001	12.72
RW-09	10/16/2001	15.22
RW-09	3/28/2002	17.72
RW-09	4/19/2002	13.20
RW-09	4/1/2003	8.00
RW-09	10/2/2003	12.12
RW-09	10/2/2003	12.12
RW-09	4/16/2004	11.75
RW-09	10/26/2004	7.27
RW-09	4/1/2005	8.58
RW-09	10/11/2005	10.53
RW-09	4/10/2006	7.91
RW-09	10/6/2006	11.63
RW-09	4/5/2007	6.17
RW-09	10/1/2007	8.96
RW-09	4/28/2008	11.31
RW-09	10/7/2008	16.69
RW-09	4/13/2009	13.20
RW-09	10/28/2009	10.24
RW-09	4/5/2010	13.99
RW-09	10/6/2010	13.79
RW-09	4/28/2011	13.88
RW-09	10/12/2011	12.43
RW-10	10/14/1998	14.90
RW-10	4/1/1999	16.58
RW-10	6/2/1999	17.46
RW-10	6/10/1999	14.27
RW-10	4/11/2000	9.20
RW-10	10/3/2000	10.81
RW-10	10/3/2000	10.81
RW-10	4/2/2001	13.06
RW-10	10/16/2001	14.47
RW-10	3/28/2002	17.71
RW-10	4/19/2002	13.05
RW-10	4/1/2003	8.82
RW-10	10/2/2003	11.61
RW-10	10/2/2003	11.61
RW-10	4/16/2004	12.99

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
RW-10	10/26/2004	9.15
RW-10	4/1/2005	8.06
RW-10	10/11/2005	10.46
RW-10	4/10/2006	8.00
RW-10	10/6/2006	11.97
RW-10	4/5/2007	7.71
RW-10	10/1/2007	8.87
RW-10	4/28/2008	12.44
RW-10	10/7/2008	16.58
RW-10	4/13/2009	12.76
RW-10	10/28/2009	6.94
RW-10	4/5/2010	14.04
RW-10	10/6/2010	14.20
RW-10	4/28/2011	14.26
RW-10	10/12/2011	12.75
RW-11	4/1/1999	16.91
RW-11	6/2/1999	19.87
RW-11	6/10/1999	16.91
RW-11	4/11/2000	13.78
RW-11	10/3/2000	11.22
RW-11	10/3/2000	11.22
RW-11	4/2/2001	15.78
RW-11	10/16/2001	17.55
RW-11	3/28/2002	20.42
RW-11	4/19/2002	9.72
RW-11	4/1/2003	14.54
RW-11	10/2/2003	16.74
RW-11	10/2/2003	16.74
RW-11	4/16/2004	9.16
RW-11	10/26/2004	5.04
RW-11	4/1/2005	9.22
RW-11	10/11/2005	7.47
RW-11	4/10/2006	13.67
RW-11	10/6/2006	2.83
RW-11	4/5/2007	0.44
RW-11	10/1/2007	8.48
RW-11	4/28/2008	19.56
RW-11	10/7/2008	20.11
RW-11	4/13/2009	17.73
RW-11	10/28/2009	17.95
RW-11	4/5/2010	17.65
RW-11	10/6/2010	16.94
RW-11	4/28/2011	16.32
RW-11	10/12/2011	15.31
RW-12	10/14/1998	16.23
RW-12	4/1/1999	16.50
RW-12	6/2/1999	18.84
RW-12	6/10/1999	16.50
RW-12	4/11/2000	13.05
RW-12	10/3/2000	10.17

Well Number	Date	Water Elevation (ft)
RW-12	10/3/2000	10.17
RW-12	4/2/2001	15.04
RW-12	10/16/2001	17.24
RW-12	3/28/2002	20.41
RW-12	4/19/2002	8.14
RW-12	4/1/2003	13.85
RW-12	10/2/2003	16.02
RW-12	10/2/2003	16.02
RW-12	4/16/2004	7.35
RW-12	10/26/2004	1.68
RW-12	4/1/2005	5.50
RW-12	10/11/2005	3.77
RW-12	4/10/2006	12.10
RW-12	10/6/2006	1.58
RW-12	4/5/2007	1.53
RW-12	10/1/2007	4.91
RW-12	4/28/2008	19.34
RW-12	10/7/2008	20.21
RW-12	4/13/2009	16.91
RW-12	10/28/2009	18.02
RW-12	4/5/2010	17.58
RW-12	10/6/2010	16.89
RW-12	4/28/2011	16.23
RW-12	10/12/2011	15.29
RW-13	10/14/1998	16.40
RW-13	4/1/1999	16.40
RW-13	6/2/1999	18.86
RW-13	6/10/1999	15.98
RW-13	4/11/2000	12.46
RW-13	10/3/2000	9.38
RW-13	10/3/2000	9.38
RW-13	4/2/2001	14.24
RW-13	10/16/2001	16.96
RW-13	3/28/2002	20.4
RW-13	4/19/2002	9.99
RW-13	4/1/2003	14.14
RW-13	10/2/2003	14.50
RW-13	10/2/2003	14.50
RW-13	4/16/2004	9.66
RW-13	10/26/2004	4.42
RW-13	4/1/2005	8.18
RW-13	10/11/2005	6.48
RW-13	4/10/2006	12.41
RW-13	10/6/2006	2.85
RW-13	4/5/2007	0.01
RW-13	10/1/2007	7.27
RW-13	4/28/2008	19.50
RW-13	10/7/2008	20.15
RW-13	4/13/2009	13.13
RW-13	10/28/2009	17.85

Well Number	Date	Water Elevation (ft)
RW-13	4/5/2010	17.25
RW-13	10/6/2010	16.39
RW-13	4/28/2011	16.11
RW-13	10/12/2011	15.16
RW-14	10/14/1998	16.78
RW-14	4/1/1999	16.68
RW-14	6/2/1999	19.87
RW-14	6/10/1999	15.89
RW-14	4/11/2000	13.39
RW-14	10/3/2000	9.23
RW-14	10/3/2000	9.23
RW-14	4/2/2001	13.93
RW-14	10/16/2001	16.95
RW-14	3/28/2002	20.39
RW-14	4/19/2002	12.05
RW-14	4/1/2003	14.96
RW-14	10/2/2003	11.44
RW-14	10/2/2003	11.44
RW-14	4/16/2004	11.45
RW-14	10/26/2004	5.50
RW-14	4/1/2005	8.44
RW-14	10/11/2005	6.68
RW-14	4/10/2006	12.22
RW-14	10/6/2006	3.15
RW-14	4/5/2007	2.37
RW-14	10/1/2007	5.45
RW-14	4/28/2008	19.00
RW-14	10/7/2008	20.16
RW-14	4/13/2009	16.84
RW-14	10/28/2009	17.97
RW-14	4/5/2010	17.42
RW-14	10/6/2010	16.69
RW-14	4/28/2011	16.17
RW-14	10/12/2011	15.11
RW-15	10/14/1998	16.76
RW-15	10/14/1998	16.76
RW-15	4/1/1999	16.91
RW-15	6/2/1999	19.89
RW-15	6/10/1999	15.91
RW-15	4/11/2000	12.33
RW-15	10/3/2000	7.56
RW-15	10/3/2000	7.56
RW-15	4/2/2001	13.39
RW-15	10/16/2001	16.68
RW-15	3/28/2002	20.41
RW-15	4/19/2002	11.06
RW-15	4/1/2003	15.20
RW-15	10/2/2003	13.85
RW-15	10/2/2003	13.85
RW-15	4/16/2004	10.47

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
RW-15	10/26/2004	2.80
RW-15	4/1/2005	5.81
RW-15	10/11/2005	4.01
RW-15	4/10/2006	10.95
RW-15	10/6/2006	2.16
RW-15	4/5/2007	6.88
RW-15	10/1/2007	6.40
RW-15	4/28/2008	19.45
RW-15	10/7/2008	20.19
RW-15	4/13/2009	17.43
RW-15	10/28/2009	17.88
RW-15	4/5/2010	17.48
RW-15	10/6/2010	16.74
RW-15	4/28/2011	16.13
RW-15	10/12/2011	15.07
RW-16	10/14/1998	17.11
RW-16	4/1/1999	17.32
RW-16	6/2/1999	19.87
RW-16	6/10/1999	16.01
RW-16	4/11/2000	12.53
RW-16	10/3/2000	9.59
RW-16	10/3/2000	9.59
RW-16	4/2/2001	13.82
RW-16	10/16/2001	16.53
RW-16	3/28/2002	20.41
RW-16	4/19/2002	15.33
RW-16	4/1/2003	15.27
RW-16	10/2/2003	10.70
RW-16	10/2/2003	10.70
RW-16	4/16/2004	12.64
RW-16	10/26/2004	6.28
RW-16	4/1/2005	8.99
RW-16	10/11/2005	7.93
RW-16	4/10/2006	12.43
RW-16	10/6/2006	6.43
RW-16	4/5/2007	1.91
RW-16	10/1/2007	5.80
RW-16	4/28/2008	18.28
RW-16	10/7/2008	20.13
RW-16	4/13/2009	17.99
RW-16	10/28/2009	17.64
RW-16	4/5/2010	17.51
RW-16	10/6/2010	16.72
RW-16	4/28/2011	16.10
RW-16	10/12/2011	14.87
RW-17	10/14/1998	17.26
RW-17	4/1/1999	17.57
RW-17	6/2/1999	19.87
RW-17	6/10/1999	16.06
RW-17	4/11/2000	12.66

Well Number	Date	Water Elevation (ft)
RW-17	10/3/2000	8.23
RW-17	10/3/2000	8.23
RW-17	4/2/2001	13.87
RW-17	10/16/2001	16.15
RW-17	3/28/2002	20.43
RW-17	4/19/2002	13.39
RW-17	4/1/2003	14.90
RW-17	10/2/2003	9.94
RW-17	10/2/2003	9.94
RW-17	4/16/2004	13.19
RW-17	10/26/2004	6.76
RW-17	4/1/2005	8.52
RW-17	10/11/2005	8.04
RW-17	4/10/2006	12.07
RW-17	10/6/2006	4.91
RW-17	4/5/2007	2.09
RW-17	10/1/2007	4.69
RW-17	4/28/2008	18.75
RW-17	10/7/2008	20.16
RW-17	4/13/2009	18.27
RW-17	10/28/2009	17.58
RW-17	4/5/2010	17.44
RW-17	10/6/2010	16.68
RW-17	4/28/2011	16.12
RW-17	10/12/2011	14.75
RW-18	10/14/1998	17.02
RW-18	4/1/1999	17.75
RW-18	6/2/1999	19.80
RW-18	6/10/1999	16.18
RW-18	4/11/2000	12.67
RW-18	10/3/2000	5.96
RW-18	10/3/2000	5.96
RW-18	4/2/2001	14.25
RW-18	10/16/2001	15.29
RW-18	3/28/2002	20.4
RW-18	4/19/2002	12.81
RW-18	4/1/2003	6.50
RW-18	10/2/2003	6.07
RW-18	10/2/2003	6.07
RW-18	4/16/2004	6.47
RW-18	10/26/2004	0.56
RW-18	4/1/2005	4.85
RW-18	10/11/2005	1.32
RW-18	4/10/2006	4.92
RW-18	10/6/2006	2.75
RW-18	4/5/2007	4.03
RW-18	10/1/2007	6.94
RW-18	4/28/2008	18.91
RW-18	10/7/2008	20.18
RW-18	4/13/2009	18.50

Well Number	Date	Water Elevation (ft)
RW-18	10/28/2009	17.38
RW-18	4/5/2010	17.35
RW-18	10/6/2010	16.51
RW-18	4/28/2011	16.03
RW-18	10/12/2011	14.56
RW-19	10/14/1998	16.15
RW-19	4/1/1999	17.49
RW-19	6/2/1999	19.83
RW-19	6/10/1999	15.67
RW-19	4/11/2000	12.80
RW-19	10/3/2000	8.15
RW-19	10/3/2000	8.15
RW-19	4/2/2001	14.27
RW-19	10/16/2001	13.05
RW-19	3/28/2002	20.38
RW-19	4/19/2002	2.24
RW-19	4/1/2003	0.01
RW-19	10/2/2003	1.67
RW-19	10/2/2003	1.67
RW-19	4/16/2004	3.56
RW-19	10/26/2004	0.56
RW-19	4/1/2005	0.41
RW-19	10/11/2005	0.56
RW-19	4/10/2006	2.01
RW-19	10/6/2006	0.79
RW-19	4/5/2007	0.95
RW-19	10/1/2007	0.74
RW-19	4/28/2008	19.38
RW-19	10/7/2008	20.97
RW-19	4/13/2009	18.48
RW-19	10/28/2009	17.19
RW-19	4/5/2010	17.19
RW-19	10/6/2010	16.48
RW-19	4/28/2011	15.84
RW-19	10/12/2011	14.41
RW-20	10/14/1998	15.94
RW-20	4/1/1999	17.24
RW-20	6/2/1999	19.83
RW-20	6/10/1999	15.77
RW-20	4/11/2000	12.88
RW-20	10/3/2000	5.37
RW-20	10/3/2000	5.37
RW-20	4/2/2001	14.29
RW-20	10/16/2001	12.54
RW-20	3/28/2002	20.36
RW-20	4/19/2002	4.95
RW-20	4/1/2003	1.41
RW-20	10/2/2003	2.95
RW-20	10/2/2003	2.95
RW-20	4/16/2004	7.90

Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
RW-20	10/26/2004	1.24
RW-20	4/1/2005	2.90
RW-20	10/11/2005	2.23
RW-20	4/10/2006	5.68
RW-20	10/6/2006	4.10
RW-20	4/5/2007	3.49
RW-20	10/1/2007	4.78
RW-20	4/28/2008	19.29
RW-20	10/7/2008	20.10
RW-20	4/13/2009	18.49
RW-20	10/28/2009	16.81
RW-20	4/5/2010	16.81
RW-20	10/6/2010	16.04
RW-20	4/28/2011	15.69
RW-20	10/12/2011	14.18
RW-21	6/18/1992	14.86
RW-21	6/20/1994	12.33
RW-21	10/10/1994	11.03
RW-21	11/21/1995	11.41
RW-21	4/27/1996	11.73
RW-21	8/24/1997	12.76
RW-21	10/5/1997	12.16
RW-21	4/1/1998	15.26
RW-21	10/14/1998	15.16
RW-21	10/14/1998	15.16
RW-21	4/1/1999	12.15
RW-21	6/2/1999	18.81
RW-21	6/10/1999	16.01
RW-21	4/11/2000	8.24
RW-21	10/3/2000	10.01
RW-21	10/3/2000	10.01
RW-21	4/2/2001	11.68
RW-21	10/16/2001	14.41
RW-21	3/28/2002	19.53
RW-21	4/19/2002	12.46
RW-21	4/1/2003	6.81
RW-21	10/2/2003	10.06
RW-21	10/2/2003	10.06
RW-21	4/16/2004	10.10
RW-21	10/26/2004	3.44
RW-21	4/1/2005	6.49
RW-21	10/11/2005	3.26
RW-21	4/10/2006	8.88
RW-21	10/6/2006	2.77
RW-21	4/5/2007	3.14
RW-21	10/1/2007	7.13
RW-21	4/28/2008	18.60
RW-21	10/7/2008	19.22
RW-21	4/13/2009	9.74
RW-21	10/28/2009	8.50
RW-21	4/5/2010	-1.67
RW-21	10/6/2010	0.04
RW-21	4/28/2011	5.30
RW-21	10/12/2011	2.44
RW-22	6/20/1994	7.56
RW-22	10/30/1994	7.94
RW-22	11/21/1995	7.03
RW-22	4/22/1996	9.90
RW-22	8/24/1997	8.46
RW-22	10/5/1997	7.76
RW-22	4/1/1998	9.36
RW-22	10/14/1998	7.74
RW-22	10/14/1998	7.74
RW-22	4/1/1999	11.33
RW-22	6/2/1999	10.89
RW-22	6/10/1999	5.96
RW-22	4/11/2000	5.38
RW-22	10/3/2000	8.05
RW-22	10/3/2000	8.05
RW-22	4/2/2001	9.50
RW-22	10/16/2001	6.74
RW-22	3/28/2002	11.61
RW-22	4/1/2003	7.10
RW-22	10/2/2003	9.43
RW-22	10/2/2003	9.43
RW-22	4/16/2004	10.03
RW-22	10/26/2004	10.14
RW-22	4/1/2005	9.51
RW-22	10/11/2005	6.73
RW-22	4/10/2006	4.06
RW-22	10/6/2006	5.73
RW-22	4/5/2007	9.18
RW-22	10/1/2007	5.82
RW-22	4/28/2008	12.73
RW-22B	4/29/1996	9.90
RW-22C	5/2/1996	9.90
RW-23	6/18/1992	12.08
RW-23	6/20/1994	8.75
RW-23	10/30/1994	8.11
RW-23	11/21/1995	7.24
RW-23	5/31/1996	10.25
RW-23	8/24/1997	12.94
RW-23	10/5/1997	14.67
RW-23	4/1/1998	14.39
RW-23	10/14/1998	7.21
RW-23	4/1/1999	9.32
RW-23	6/2/1999	16.15
RW-23	6/10/1999	7.49
RW-23	4/11/2000	6.71
RW-23	10/3/2000	12.65
RW-23	10/3/2000	12.65
RW-23	4/2/2001	11.09
RW-23	10/16/2001	8.24
RW-23	3/28/2002	11.96
RW-23	4/19/2002	7.20
RW-23	4/1/2003	16.51
RW-23	10/2/2003	11.44
RW-23	10/2/2003	11.44
RW-23	4/16/2004	11.94
RW-23	10/26/2004	11.77
RW-23	4/1/2005	10.82
RW-23	10/11/2005	9.63
RW-23	4/10/2006	8.28
RW-23	10/6/2006	9.08
RW-23	4/5/2007	10.70
RW-23	10/1/2007	12.76
RW-23	4/28/2008	13.37
RW-23	10/7/2008	12.64
RW-23	4/13/2009	11.83
RW-23	10/28/2009	10.95
RW-23	4/5/2010	12.66
RW-23	10/6/2010	11.27
RW-23	4/28/2011	11.34
RW-23	10/12/2011	8.87
RW-24	9/2/1992	10.84
RW-24	6/20/1994	10.44
RW-24	10/30/1994	9.32
RW-24	4/12/1995	10.74
RW-24	11/9/1995	9.33
RW-24	5/3/1996	9.44
RW-24	10/5/1997	9.93
RW-24	10/14/1998	2.58
RW-24	10/14/1998	2.58
RW-24	4/1/1999	9.22
RW-24	6/2/1999	10.79
RW-24	6/10/1999	9.43
RW-24	4/11/2000	7.18
RW-24	10/3/2000	7.71
RW-24	10/3/2000	7.71
RW-24	4/2/2001	4.03
RW-24	10/16/2001	4.17
RW-24	3/28/2002	11.32
RW-24	4/19/2002	4.00
RW-24	4/1/2003	11.00
RW-24	10/2/2003	4.01
RW-24	10/2/2003	4.01
RW-24	4/16/2004	4.50
RW-24	10/26/2004	6.43
RW-24	4/1/2005	3.84
RW-24	10/11/2005	3.27

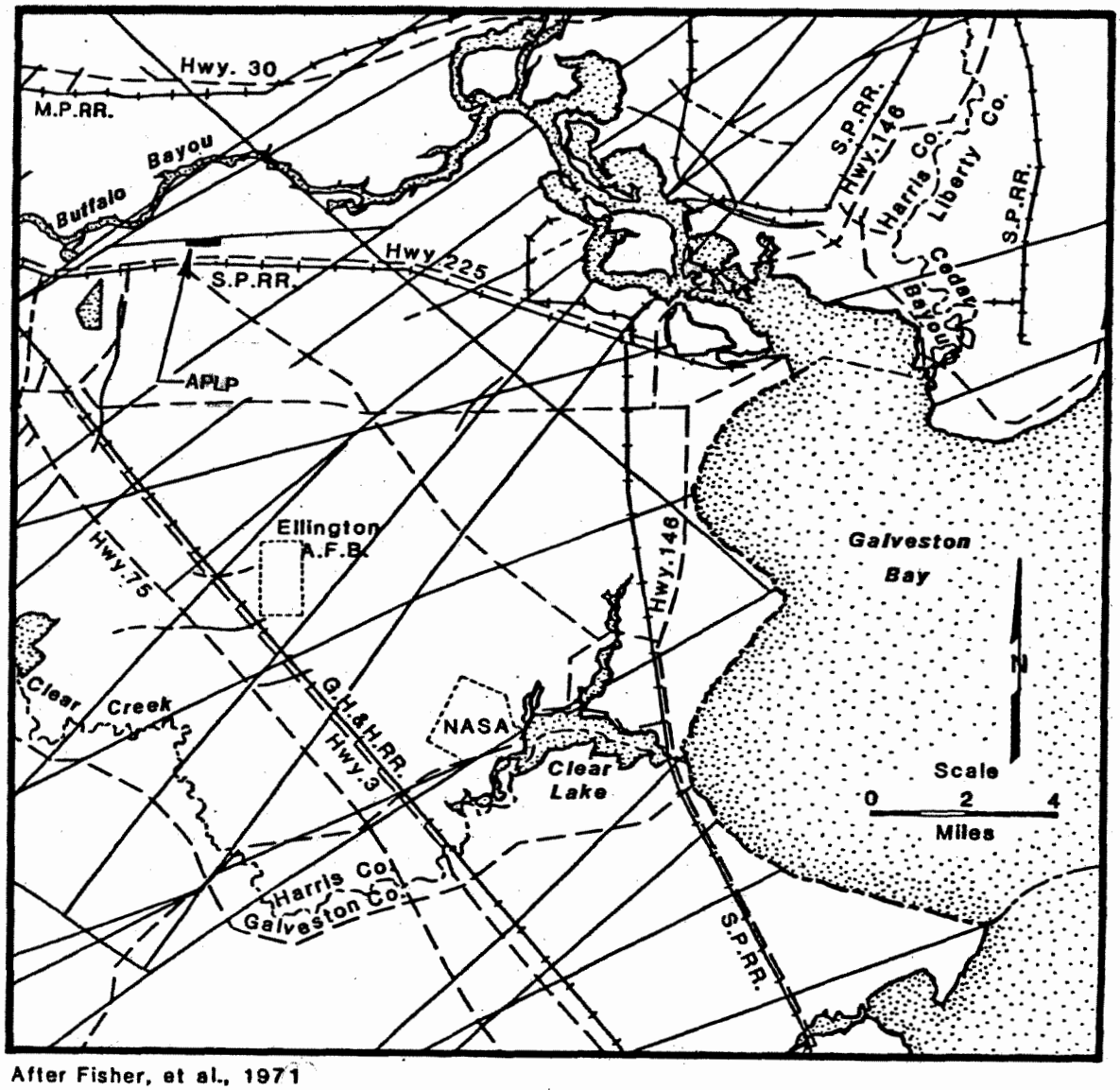
Table VI.B.2.a
Water Levels in Monitoring Wells
Part B Permit Renewal Application
Air Products LLC
Pasadena, Texas

Well Number	Date	Water Elevation (ft)
RW-24	4/10/2006	1.96
RW-24	10/6/2006	2.37
RW-24	4/5/2007	3.93
RW-24	10/1/2007	8.20
RW-24	4/28/2008	8.65
RW-24	10/7/2008	8.27
RW-24	4/13/2009	8.06
RW-24	10/28/2009	6.49
RW-24	4/5/2010	7.81
RW-24	10/6/2010	7.53
RW-24	4/28/2011	7.12
RW-24	10/12/2011	5.55
RW-25	8/30/1995	11.62
RW-25	10/14/1998	-0.01
RW-25	10/14/1998	-0.01
RW-25	4/1/1999	-1.64
RW-25	6/2/1999	10.09
RW-25	6/10/1999	-2.03
RW-25	4/11/2000	8.43
RW-25	10/3/2000	-5.15
RW-25	10/3/2000	-5.15
RW-25	4/2/2001	1.93
RW-25	4/1/2003	-3.00
RW-25	10/2/2003	11.68
RW-25	10/2/2003	11.68
RW-25	4/16/2004	-11.57
RW-25	10/26/2004	-6.18
RW-25	4/1/2005	-16.20
RW-25	10/11/2005	-9.05
RW-25	4/10/2006	-4.13
RW-25	10/6/2006	-18.56
RW-25	4/5/2007	-18.80
RW-25	10/1/2007	8.60
RW-25	4/28/2008	17.99
RW-25	10/7/2008	18.46
RW-25	4/13/2009	12.76
RW-25	10/28/2009	1.30
RW-25	4/5/2010	-15.61
RW-25	10/6/2010	-15.24
RW-25	4/28/2011	-14.23
RW-25	10/12/2011	-14.96
RW-26	8/30/1995	10.18
RW-26	10/14/1998	0.81
RW-26	10/14/1998	0.80
RW-26	4/1/1999	7.76
RW-26	6/2/1999	10.53
RW-26	6/10/1999	7.66
RW-26	4/11/2000	5.66
RW-26	10/3/2000	6.87
RW-26	10/3/2000	6.87

Well Number	Date	Water Elevation (ft)
RW-26	4/2/2001	3.52
RW-26	3/28/2002	11.12
RW-26	4/19/2002	-31.00
RW-26	4/1/2003	10.50
RW-26	10/2/2003	-23.51
RW-26	10/2/2003	-23.51
RW-26	4/16/2004	-24.98
RW-26	10/26/2004	-11.08
RW-26	4/1/2005	-16.06
RW-26	10/11/2005	-13.24
RW-26	4/10/2006	-16.99
RW-26	10/6/2006	-16.02
RW-26	4/5/2007	-14.84
RW-26	10/1/2007	-9.97
RW-26	4/28/2008	-6.60
RW-26	10/7/2008	-6.82
RW-26	4/13/2009	-7.39
RW-26	10/28/2009	-7.95
RW-26	4/5/2010	-6.82
RW-26	10/6/2010	-6.34
RW-26	4/28/2011	-7.69
RW-26	10/12/2011	-6.46
RW-27	4/5/2010	-2.45
RW-27	10/6/2010	-6.09
RW-27	4/28/2011	4.28
RW-27	10/12/2011	-10.90
RW-28	4/5/2010	12.16
RW-28	10/6/2010	8.31
RW-28	4/28/2011	10.82
RW-28	10/12/2011	8.41

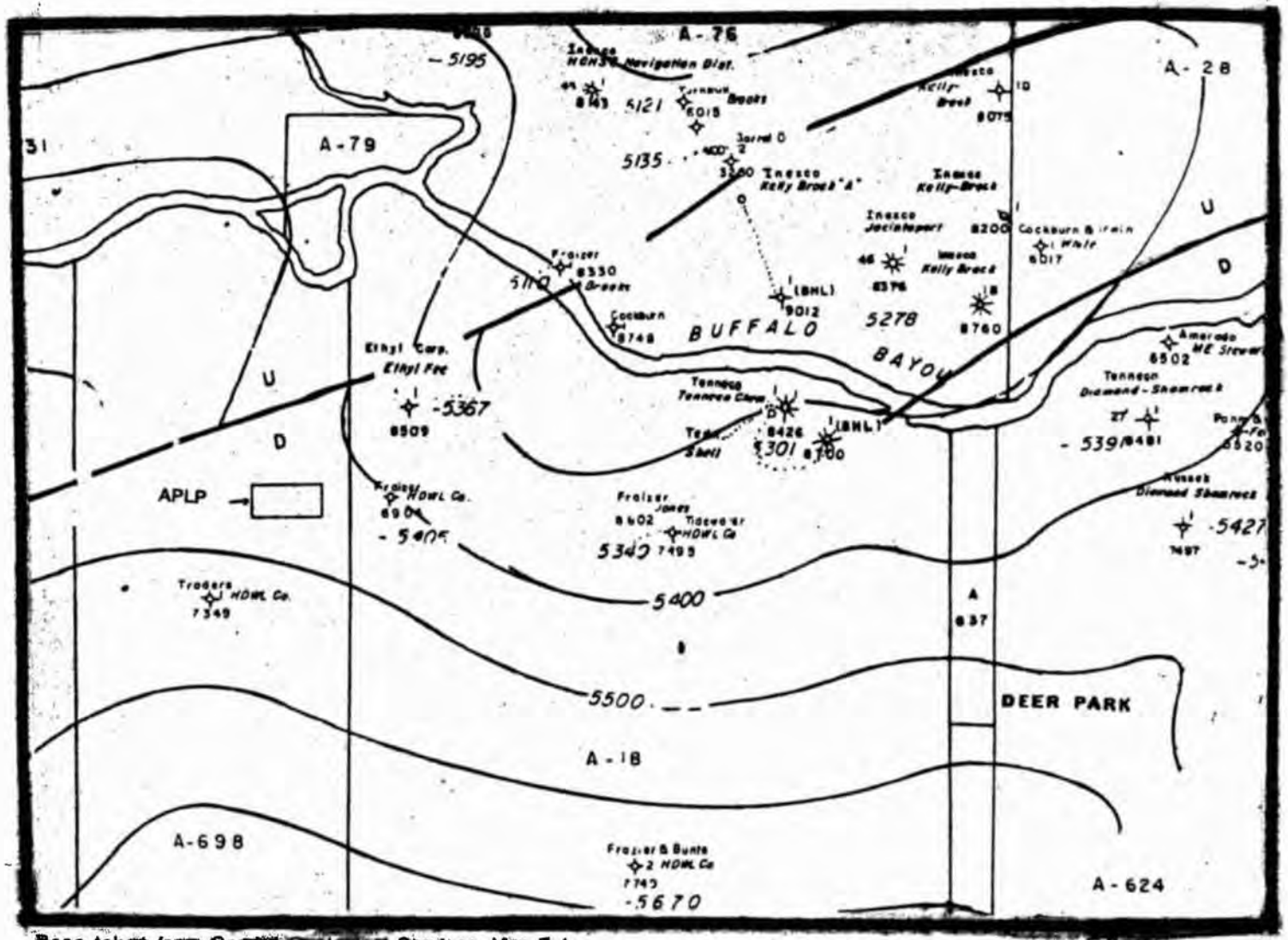
Well Number	Date	Water Elevation (ft)

FIGURES – VI



After Fisher, et al., 1971

Figure VI.A.1.a.(2) Surface Lineations Interpreted From Aerial Photographs



Base taken from Cambe Geological Services, Map T-4.

Figure VI.A.1.a.(5) Top of Frio Sand Isostructural Map

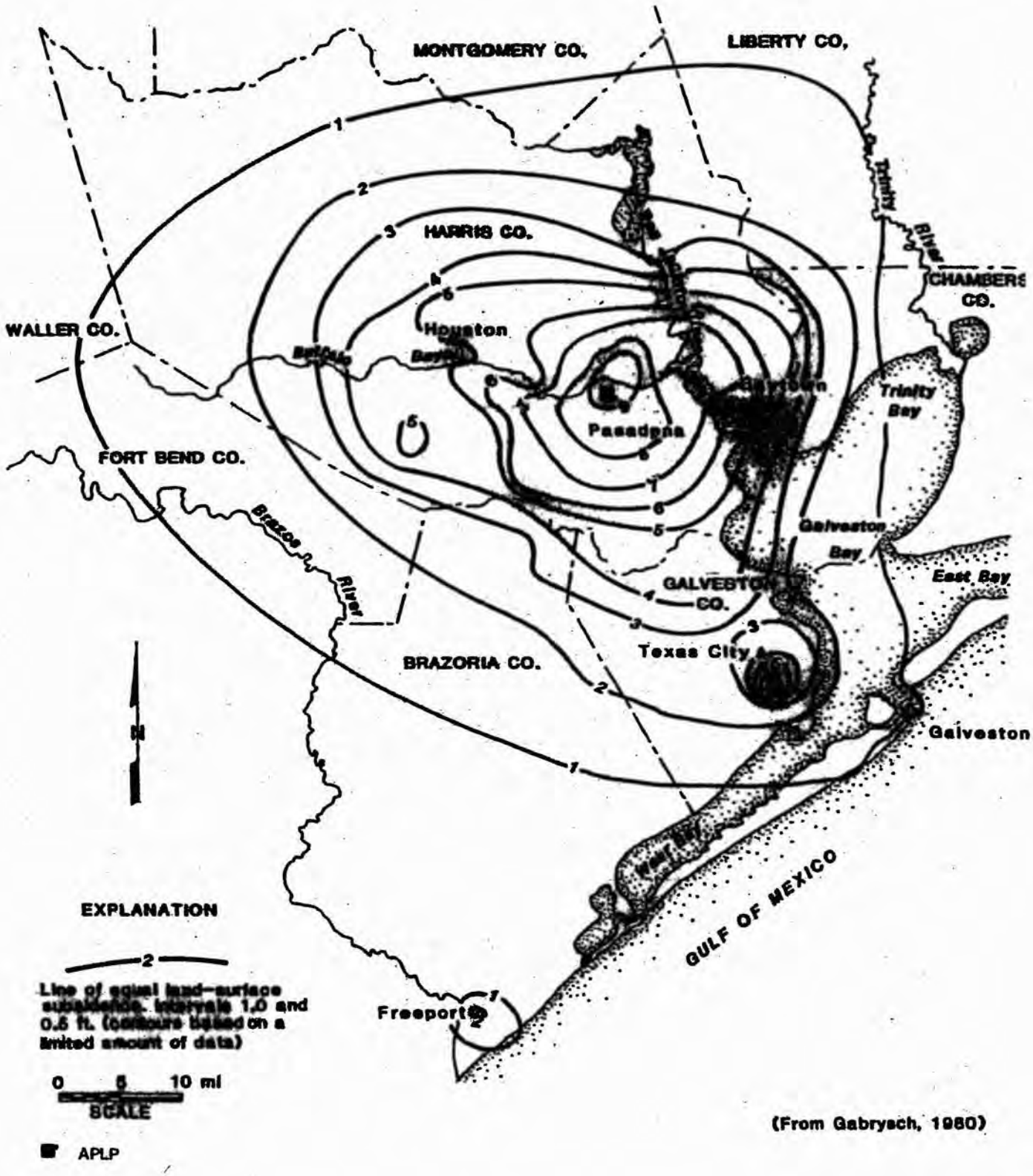


Figure VI.A.1.b.(1) Land Surface Subsidence, 1906-78

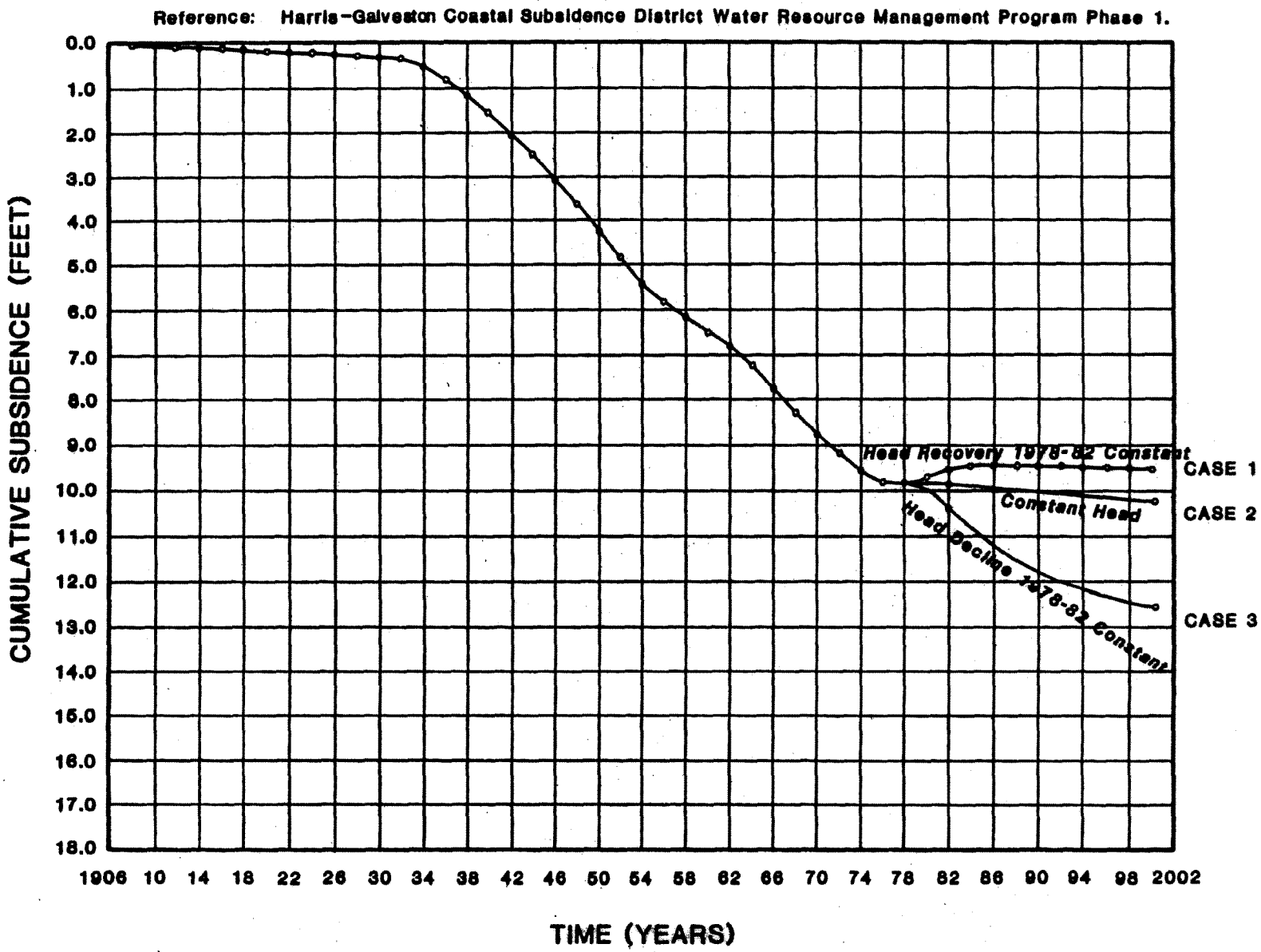
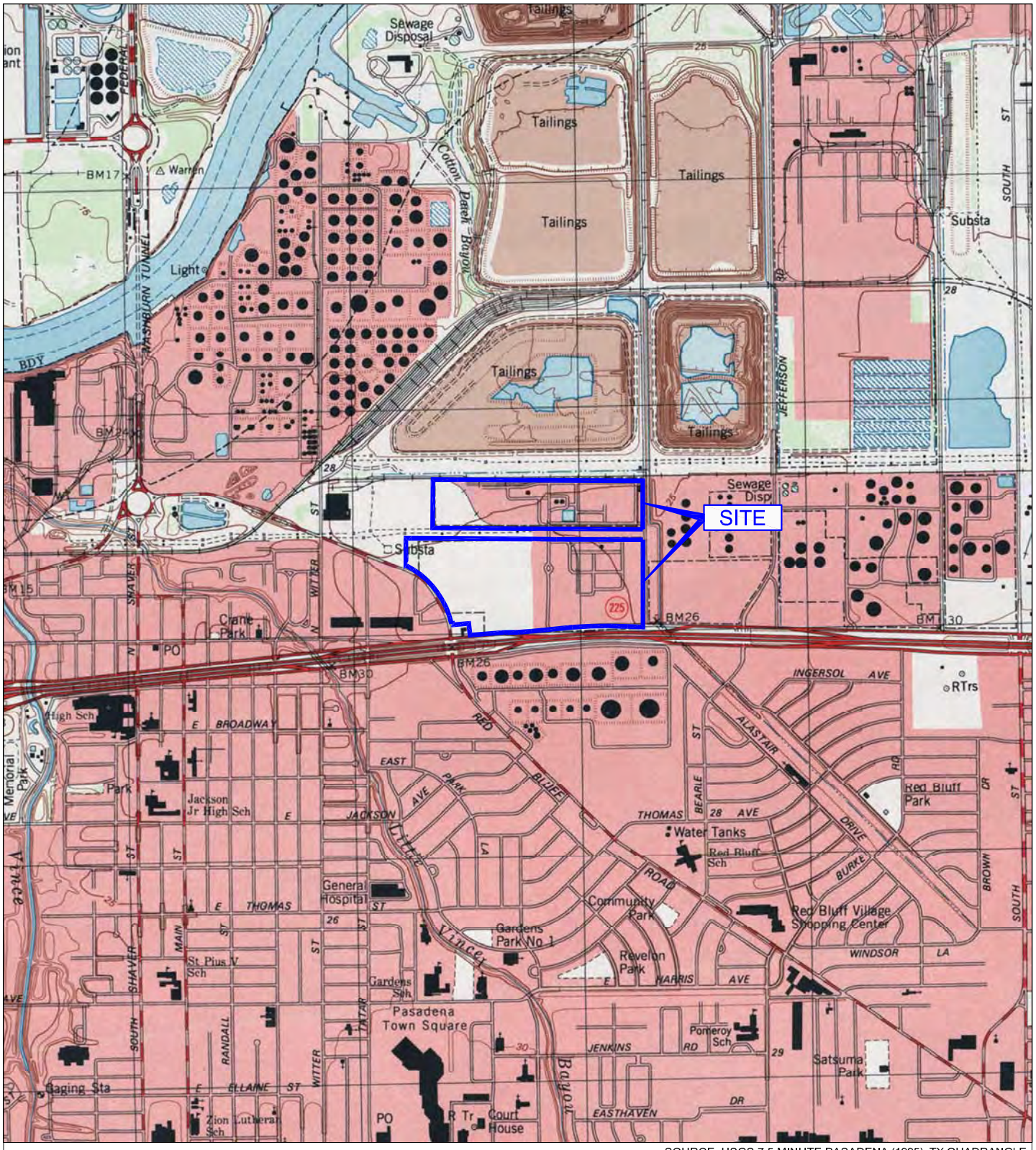


Figure VI.A.1.b.(2) Predicted Subsidence Pasadena Zone Potentiometric Head Recovery 1978-1982 Constant 1982-2000.



SOURCE: USGS 7.5 MINUTE PASADENA (1995), TX QUADRANGLE

EXPLANATION

PROPERTY BOUNDARY



N

0 1000 2000

FEET

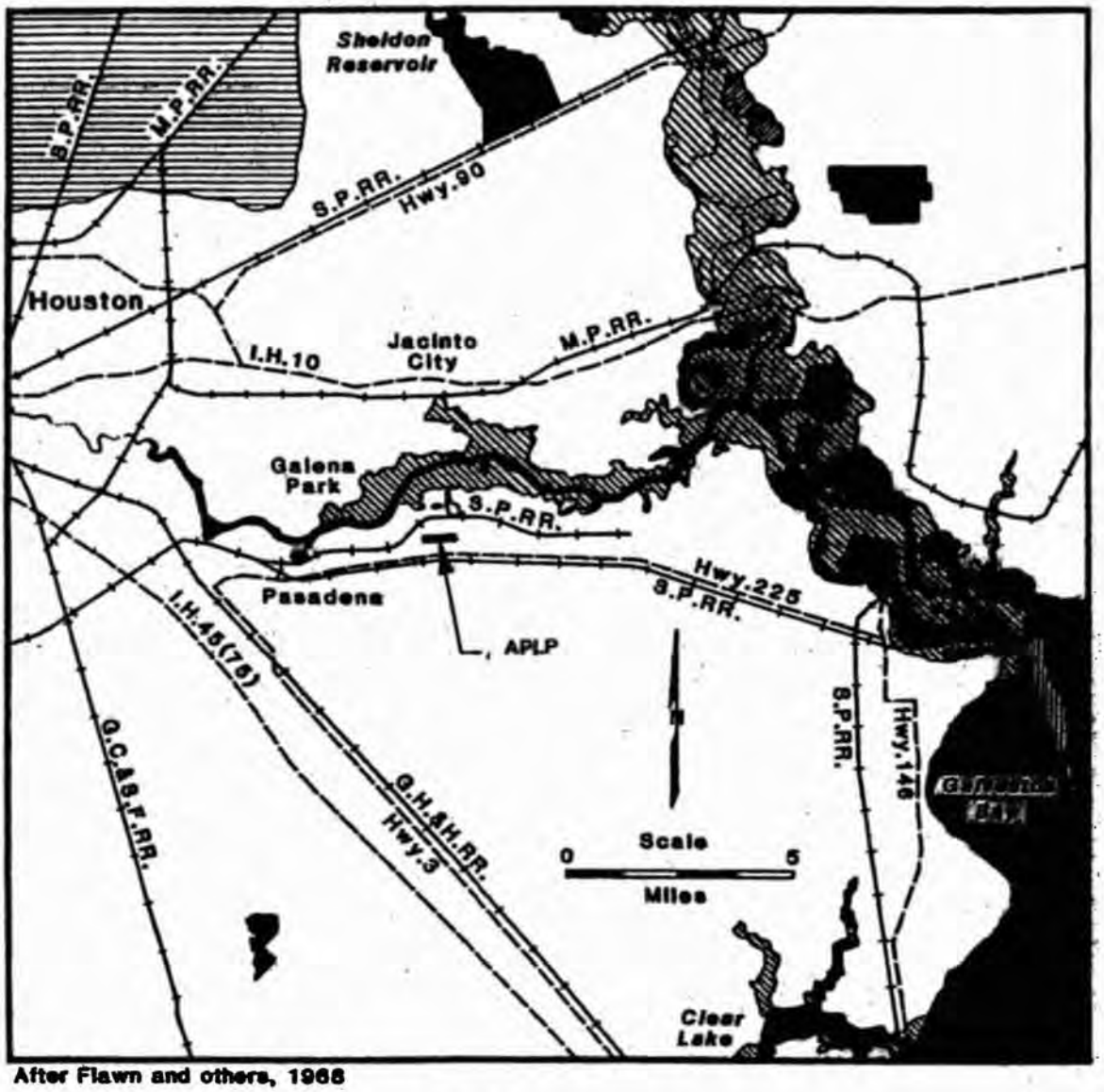
APPROXIMATE SCALE IN FEET

TOPOGRAPHIC MAP

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: BAL	Date: 04/27/12	Project No. 4487
amec		**Figure VI.A.2**

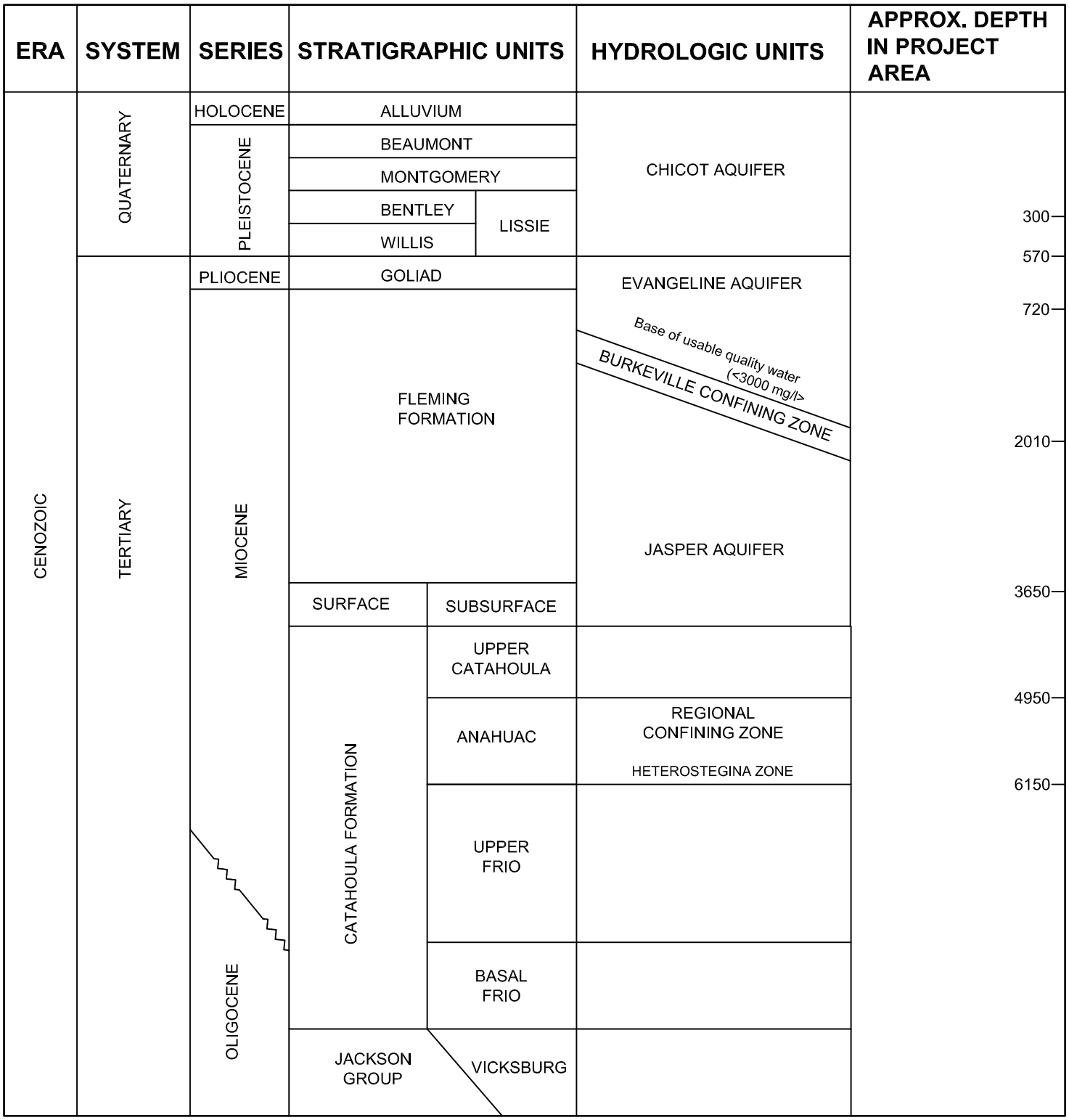


After Flawn and others, 1966

Explanation

- Fill and Spoil
- Alluvium
- Deweyville Formation
- Beaumont Formation
- Montgomery Formation

Figure VI.A.3.a Generalized Regional Geologic Map



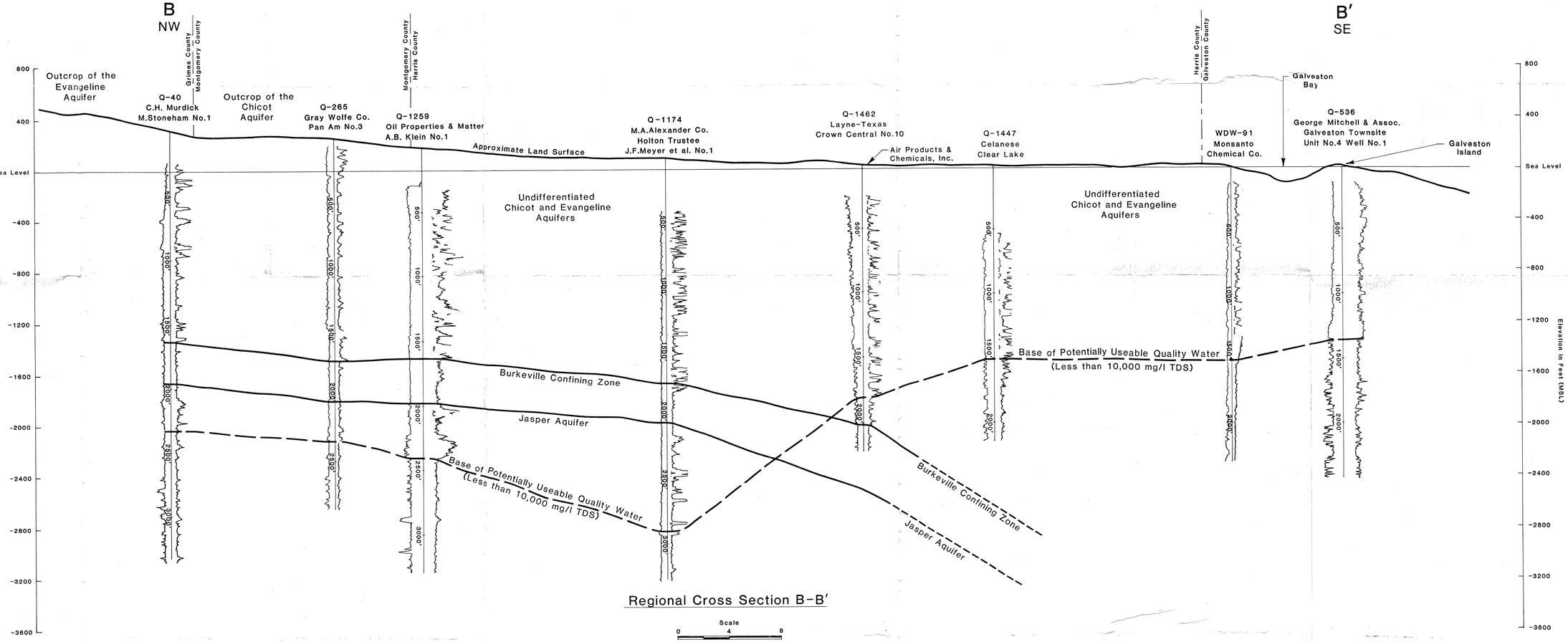
After Baker (1978)

HYDROSTRATIGRAPHIC COLUMN

AIR PRODUCTS LLC
PASADENA, TEXAS

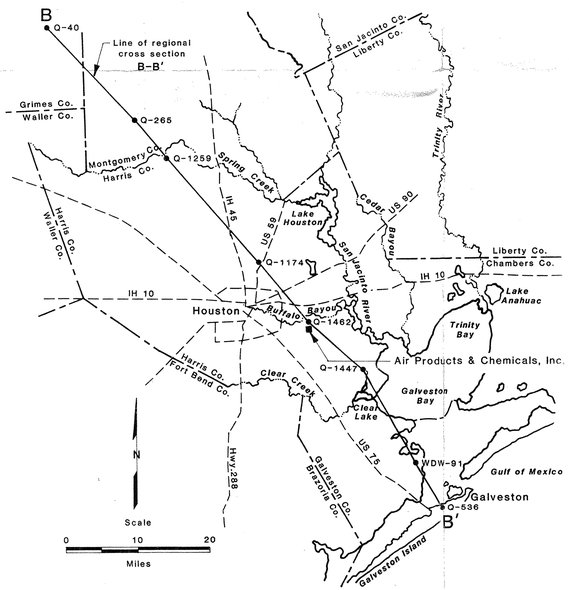
By: JLH	Date: 08/26/08	Project No. 4487
amec		Figure VI.A.3.b.1

I:\4487\COMPLIANCE PLAN 2008\CP-XI.A\Figures\X1.A.4.C.dwg



Regional Cross Section B-B′

Scale
0 4 8
Miles



Data Location Map

Air Products & Chemicals, Inc.
Pasadena, Texas

Figure VI.A.3.b.2

REGIONAL HYDROGEOLOGIC CROSS SECTION

Prepared by
Underground Resource Management, Inc.
Austin, Texas

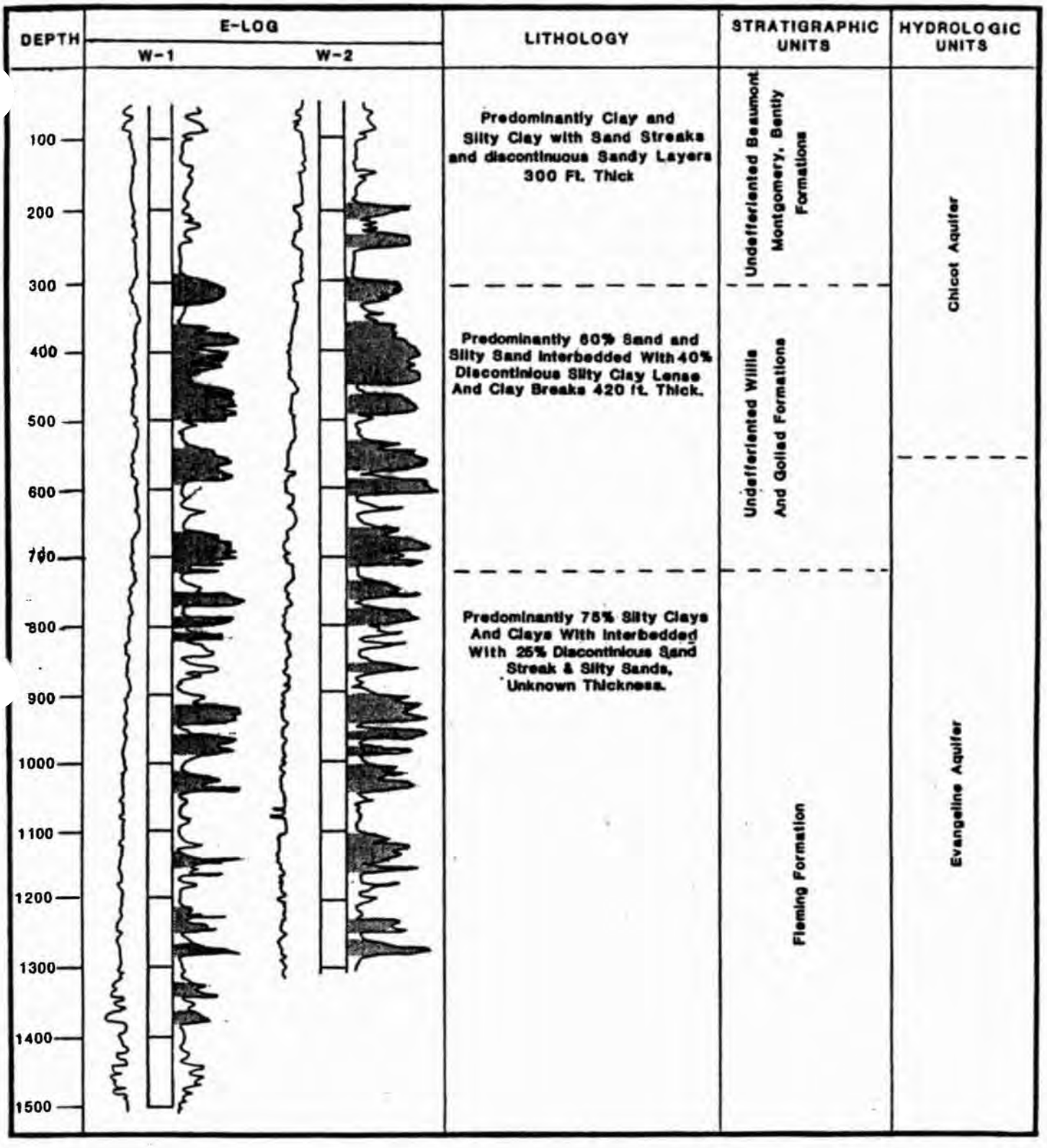
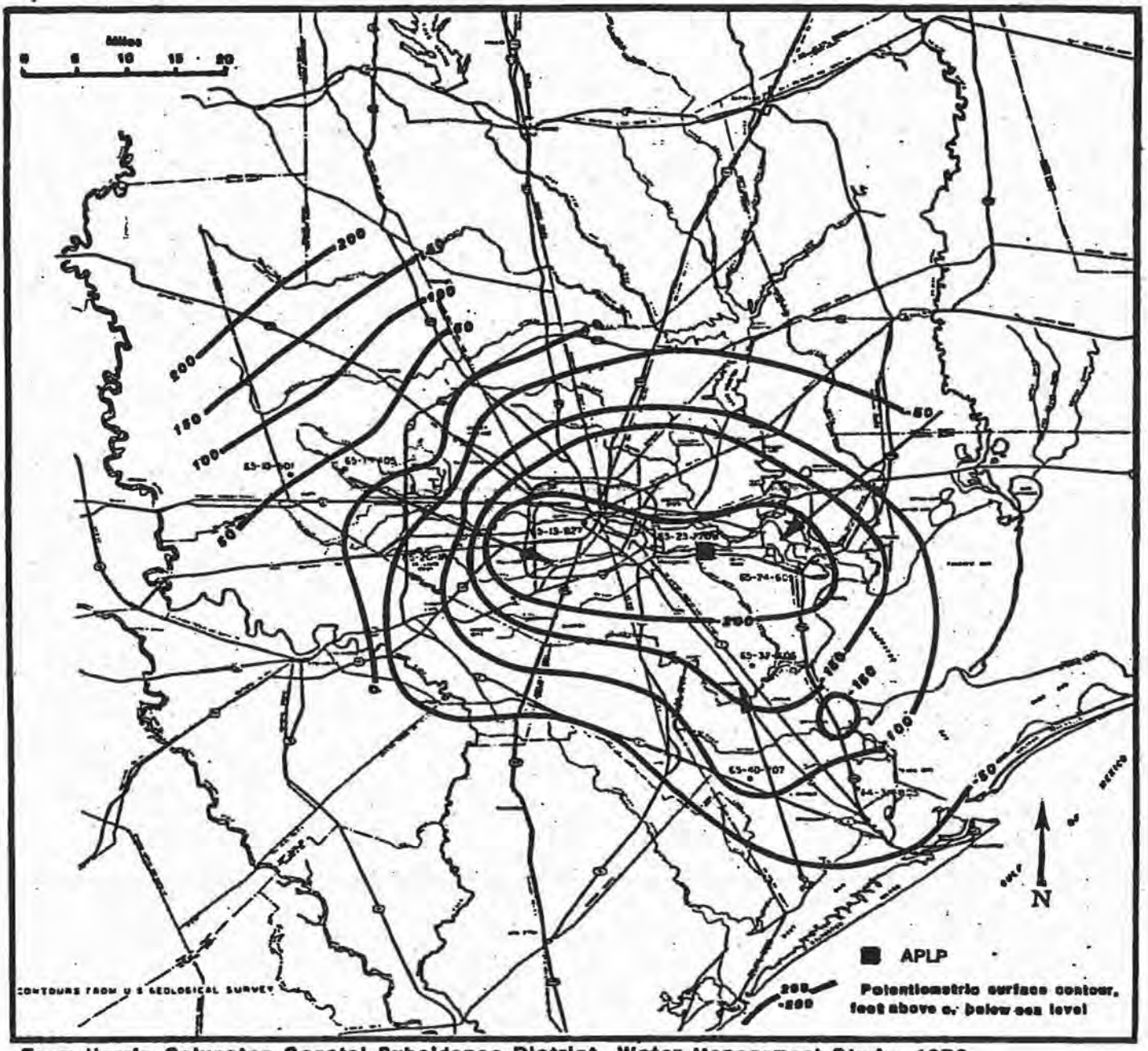


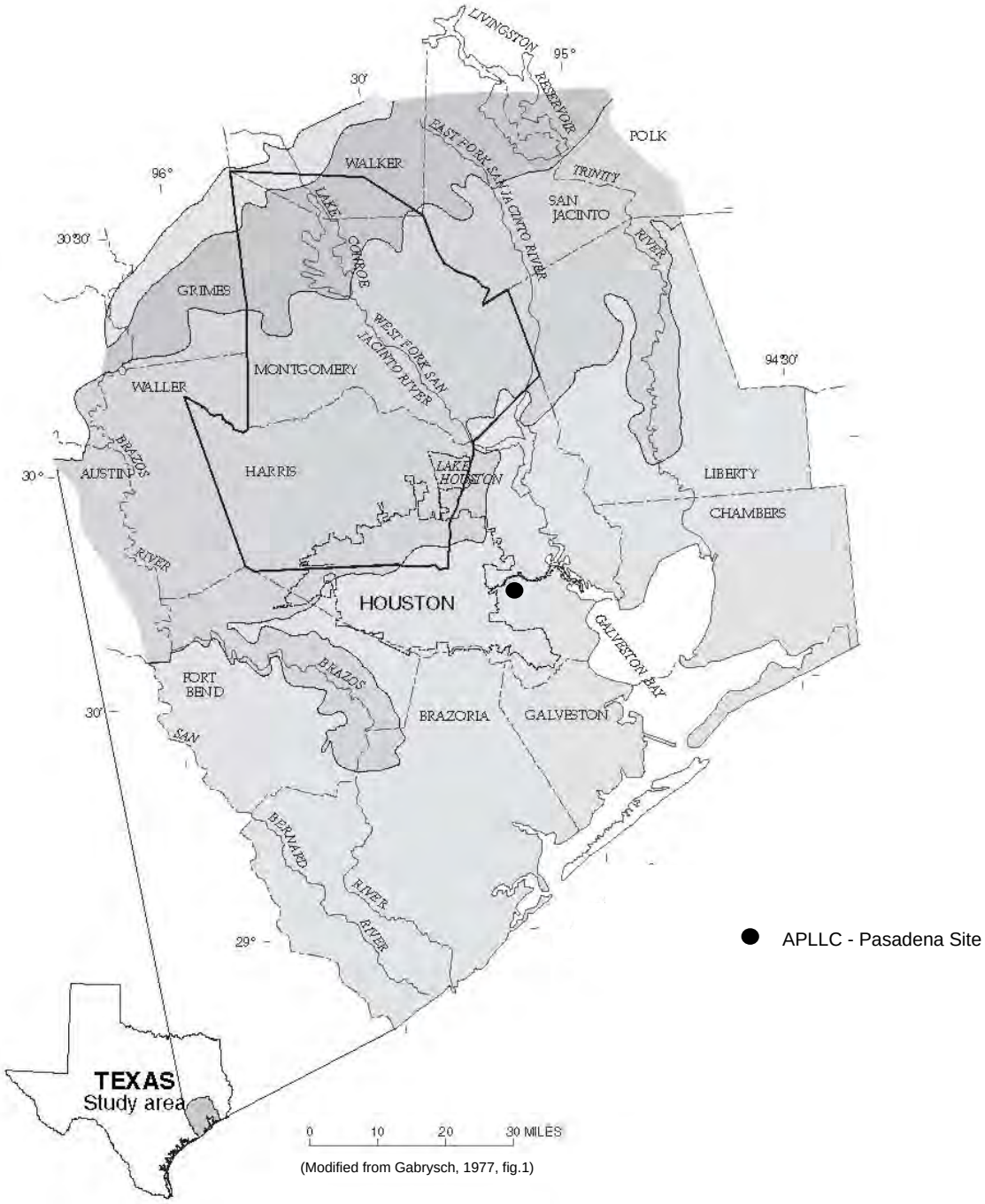
Figure VI.A.3.b.4 Site Stratigraphy



From Harris-Galveston Coastal Subsidence District, Water Management Study, 1979

Approximate direction of ground-water movement

Figure VI.B.1.f Potentiometric Surface of the Lower Chicot Aquifer



(Modified from Gabrysch, 1977, fig.1)

EXPLANATION

Outcrop (recharge area) of the Evangeline aquifer—Fleming Formation and remnants of Willis Sand

Outcrop (recharge area) of the Chicot aquifer—Willis Sand and Lissie Formation

Area of little or no recharge—Burkeville confining unit northwest of outcrops, Beaumont Clay southeast of outcrops

Boundary of study area

Figure VI.B.1.i Chicot and Evangeline Aquifers Recharge Area

APPENDIX – VI.A.1

Fault Study By Fugro South, Inc.

FUGRO SOUTH, INC.

6100 Hillcroft (77081)
P.O. Box 740010
Houston, Texas 77274
Tel : (713) 778-5533
Fax: (713) 778-5544

Report No. 0401-4288-2
May 17, 1999

Air Products Incorporated
1423 State Highway 225
Pasadena, Texas 77506

Attention: Mr. Edward L. Self, P. E.

Reconnaissance Study of Geologic Faulting
Proposed TDA 2 Unit
Pasadena, Texas

Introduction

Fugro South, Inc. is pleased to present the results of our reconnaissance study of geologic faulting performed for the proposed TDA 2 Unit at the Air Products Pasadena Plant. This project was conducted in accordance with our letter Proposal No. 0401-2000-685, dated February 22, 1999, and was authorized by Air Products Order No. DP-N8384, dated March 18, 1999.

Site Description. The site will occupy an area of about 200 ft by 150 ft between about W 1800 and W 2000 and about N 410 and N 560, as shown on Plate 1.

Background. Air Products has supplied us with copies of two previous reconnaissance-level studies of a fault in the plant. Selected points from those studies are outlined below.

In November 1985, Dr. DeWitt Van Siclen (consulting geologist and recognized authority on the subject) conducted a reconnaissance study of the fault and presented an oral report of his findings. He later prepared a written report, his July 24, 1989 letter report, "Follow-up on November 1985 Surface Fault Investigation of Pasadena Site for Air Products Mfg. Corp." In that study, he noted the presence of a fault that is downthrown to the southeast and runs northeastward through the plant, as indicated by a linear feature on a USDA aerial photo (BQY-18M-20, dated May 29, 1953. His 1985 field work "did not find any credible evidence of this fault in the plant area or in the open field between it and Red Bluff Road."

A short time later, Mr. R. H. Talmage (Manager of Geotechnical Services at Bechtel) conducted a study of the fault with respect to a plant expansion that was planned about 900 ft southeast of the fault. In that study, he reviewed Dr. Van Siclen's report, the 1953 aerial photo, and some other documents. He also made a site visit. He concurred with Dr. Van Siclen's conclusions on the

presence of the fault and made the following observations. *First*, below the power line that runs through the plant, he noted "a subtle topographic change across the interval coincident with the photolinear." *Second*, he found "no evidence of distress ··· on Red Bluff Rd. which appears of relative recent construction. Southwest of this street a slight change in a fence line elevation and distress in the wall of an older shopping center building occur along the projection of the feature."

Both of those studies concluded that the fault has experienced only a modest amount of historical movement and that future movements are likely to be small. However, they considered the potential for future movements to be sufficient for the presence of the fault to be considered in the siting and design of plant facilities to be located on or very near the fault. Such consideration would require a more detailed study to accurately map the fault and to develop siting and design recommendations.

Purpose and Scope. The purposes of this study were to assess the risk of geologic faulting at the TDA 2 site and to develop a recommended program for a detailed study to locate the fault and develop recommendations for siting and designing structures close to and over it. To accomplish these purposes, we performed a reconnaissance study, that included the following tasks:

- review geologic literature and our files pertaining to documented surface fault activity within the site vicinity;
- review aerial photographs to check for photo linears that may be related to surface faults;
- conduct a site and general area reconnaissance to look for physical evidence of distress resulting from surface fault activity and to assess surface access for a more detailed study;
- consult with Air Products on various issues related to a detailed study;
- review records of cone penetrometer tests in our files; and
- develop the needed recommendations.

These tasks were conducted in general accordance with the *Recommended Standards of Practice for Investigating Geologic Faults in the Texas Gulf Coast Region*, published in the Houston Geological Society Bulletin in March, 1985.

Literature on Surface Faulting

Our surface faulting literature review was divided into two parts: faulting in the Houston area and faulting in the vicinity of the site.

Surface Faulting in the Houston Area. In the Houston area, several hundred faults are known or suspected to be active. Over 80 percent of these faults are located within the Houston-Galveston area subsidence bowl. Evidence of modern activity of these faults includes abrupt

changes in elevation of the ground surface, sharp linears on aerial photographs, offsets in pavements, and damage to buildings and other structures.

These faults are manifestations of subsurface movements that began several miles below the ground surface. They were formed by extremely slow movement of the very thick sediments under the Gulf Coastal Plain towards the Gulf of Mexico, and also by the rise of very deep salt into domes at lesser depths.

Although these faults are all ancient, natural features, most of the modern fault activity is induced by man's actions. Nearly all of the faults that have moved in the past 70 years are located in areas where declines in pressures of groundwater, oil, or gas have been sufficient to cause subsidence of the ground surface. The percentage of faults now moving in subsidence areas is far greater than elsewhere in the coastal plain, and the fault movements greatly exceed average rates over geologic time. In Galveston County and southeastern Harris County, major reductions in groundwater pumpage began in the mid 1970's. Those reductions have caused groundwater levels in the principal aquifers to rebound substantially, and a number of faults in the affected area are known to have responded by slowing or stopping their current movements. In the northern and western parts of Harris County and in parts of adjacent counties, pumpage is continuing, and the faults are continuing to move. In addition, newly activated or previously undetected faults are occasionally discovered.

Movements of faults in the coastal plain tend to be small and frequent and do not cause earthquakes. The faulted sediments beneath the coastal plain, unlike hard rock, are not able to store significant amounts of strain energy. There is evidence to suggest that some faults may move slightly in response to surface waves from large, distant earthquakes. In the case of the so-called Mexico City earthquake of September 19, 1985, some faults that had not moved appreciably for several years appeared to move one-quarter inch or so in response to the earthquake[1]. Some faults that were moving may have slipped more, and other faults clearly remained stable during the event.

According to the traditional definition used in the Houston area, a fault that has broken or displaced man-made structures or has a clear, well-defined scarp is considered to be active. The vertical movement of typical active faults averaged over a number of years ranges from less than 0.1 in. to slightly more than 1.0 in. per year. Horizontal movements are extensional and depend upon the dip of the fault, generally being about one-fourth to one-half the vertical movement. These surface movements generally occur in a band of significant width, which is likely to be different for each fault and to vary along the length of a particular fault. Band widths of 30 ft to 50 ft are common, but wider or narrower bands are also found.

[1] Mastroiani, J. J. (1991), "A Study of Active Fault Movement, Houston, Texas and Vicinity," unpublished Master of Science Thesis, University of Houston, pp. 53 – 55.

Surface Faulting near the Site. Our review of the literature on surface faulting, unpublished information from our files, and the two reports provided by Air Products reveals that an aerial photo linear crosses the Air Products plant. This linear is so characteristic of those caused by faulting that both of the previous investigations commissioned by Air Products have concluded without discussion that it is caused by modern fault activity.

This feature is the southwesternmost of a series of at least seven known and suspected faults (or fault segments, the surface connections of which have not been established) that are part of a group of faults that extend northwestward from the western side of the Goose Creek Salt Dome, through the Exxon Refinery in Baytown, through the junction of the San Jacinto River with Buffalo Bayou, and then southwestward through Jacintoport and the Air Products Pasadena Plant. This feature, which we call the Red Bluff Fault, is shown by its aerial photo linear to be about two-thirds mile long, extending from Jackson Road (also called Davisson Road on some maps) to Red Bluff Road.

We first identified this feature in the early to mid 1980s. In April 1985, one of our staff members observed the pavement of Red Bluff Road at the southwest end of the photo linear and noted no suggestion of the fault. At that time, he noted that the pavement was constructed in the early 1950s (we do not know the basis for this date). I have driven along Jackson Road more than once, beginning in 1975, and have not observed a suggestion of a fault related offset.

Aerial Photograph Review

Aerial photographs frequently show linear tonal differences along the trace of a surface fault, because moisture contents and vegetation are often different on each side of the fault scarp. Generally, the downthrown side of a fault appears to be darker on the photographs, but other patterns have been observed. The location of aerial photo linears associated with faults can vary slightly (within 100 ft) from year to year because of seasonal variations in moisture conditions. Therefore, a fault-related linear may not represent the actual location of the fault, and the absence of a linear on one or more photos may not be significant.

Seven aerial photographs from seven flights were reviewed to check for evidence of surface faulting at the tract. Photographic coverage was obtained from our files of black-and-white (B/W) and false color infrared (FCIR) photos that were taken by the U.S. Department of Agriculture (USDA); the National High Altitude Program (NHAP); the National Aerial Photography Program (NAPP); the U S Geological Survey (USGS); the National Aeronautics and Space Administration (NASA); and various private photographers (includes Phil Wilson, Landis Aerial Surveys, and Tobin Aerial Surveys). The following aerial photos were used in our review.

Photo No.	Agency	Type	Date	Approximate Scale
BQY-9C-104	USDA	B/W	Jul. 8, 1944	1" = 1,667'
BQY-18M-20	USDA	B/W	Apr. 26, 1953	1" = 1,800'
BQY-3T-104	USDA	B/W	Mar. 26, 1957	1" = 1,667'
33	Landis	B/W	Apr. 6, 1966	1" = 1,000'
1215	Wilson	B/W	1972	1" = 1,000'
48201-173-244	USDA	B/W	Jan. 22, 1973	1" = 3,334'
48201-281-230	USDA	B/W	Nov. 4, 1981	1" = 3,334'
1497-145	NAPP	B/W	Mar. 23, 1989	1" = 3,334'

Prior to this assignment, we were familiar with the photo linear on the 1953 photo (and a companion photo, BQY-14M-70, on the next line of flight to the east), so our review was mainly oriented toward finding other photos that would add to the information already available. We found that none of the other photos show the feature at all, which is unusual, particularly since the linear on the 1953 images is so characteristic.

A 360 percent enlargement (to about 1 in. = 500 ft) of part of the 1953 image is given on Plate 1, along with an overlay we prepared from a plant master plan drawing provided by Air Products. We have marked the fault linear on the photo by means of a series of arrows on the upthrown side of the linear.

We positioned the overlay over the photo as follows. First, we set it as far north as possible without moving the southern transmission line out of what appears to us to be its right of way. This may not be far enough, because some of the photos suggest that the present SH 225 access road is as much as 100 ft north of the 1953 pavement, more than twice as far as shown on Plate 1. Second, we positioned the overlay between Red Bluff Road and Jackson Road, leaving approximately equal space east of plant coordinates West 0 along Jackson Road, and west of the property line along Red Bluff. We were not able to effectively use the electrical transmission towers that clearly show in the 1953 photo, because subsequent photos suggest that both lines have been replaced since 1953.

We recommend caution in relying on the fault location as represented by the images on Plate 1, particularly in the north-south direction. We recommend that the location of the fault be verified by detailed subsurface investigation before siting facilities, including those for the TDA 2 project, near the fault.

Topographic Maps

Topographic maps can reveal evidence of surface faulting, such as abrupt steepening of the regional slope or fault-controlled drainage patterns. For this study, we did not review topographic maps, because of our prior knowledge of the linear on the 1953 photos.

Subsurface Structure Maps

Since the surface faults in this area originate deep in the subsurface, maps of deep geologic structure prepared for the petroleum industry are frequently helpful in assessing the risk of faulting at sites where faults are not known to exist. For this study, we did not review subsurface maps, because of our prior knowledge of the linear on the 1953 photos.

Site Reconnaissance

Mr. Bill Elsbury, P.E. of our staff conducted a site reconnaissance on March 24, 1999, to check for evidence of surface faulting. His visit was oriented toward two priorities. First, he observed surface conditions within the plant, both in the planned TDA 2 area and along and near the power line that passes through the middle of the property. He saw no suggestion of topographic offsets suggestive of a fault scarp. In the TDA 2 area, the ground has been graded and most has been paved, obliterating any pre-construction evidence. He also saw no suggestion of post-construction movement of the fault. Along the power line, he found that the ground surface has been disturbed by construction of the power lines and pipelines. North of the power line, the area is too overgrown with tallow trees and undergrowth to permit effective observation. South of the power line, the area of the linear has been either graded and paved or covered with fill. Second, he drove along Red Bluff in the area southwest of the plant. He found the street to be composed of an old, thick layer of asphalt over older concrete. He noted no pavement breaks that appeared to him to be the result of active surface faulting. Jackson Road is now closed and covered by gypsum in the area of the extension of the photo linear.

Potential Methods for Subsurface Exploration

To locate faults that cannot be reliably detected from the surface, we routinely use electrically logged borings. The borings are drilled with wet rotary procedures, without sampling, and logged for such parameters as single point electrical resistance, short normal (16 in.) resistivity, spontaneous potential, and natural gamma radiation. The initial borings in a program are normally drilled to a nominal depth of 300 ft; the depths of subsequent borings are adjusted as dictated by conditions. After logging, we grout the holes to keep them from becoming conduits for **future** vertical migration of fluids. But, our normal methods do not include the costly procedures to protect personnel and the environment that are standard in environmental drilling. So, our **standard** procedures are suitable only for sites where there is no subsurface contamination. If

any of the shallow sands are (or might be) contaminated, significant modifications to our standard procedures or selection of an alternate procedure would be needed.

If there is a possibility of shallow contamination, we would prefer to try cone penetrometer testing, a procedure that is routinely used for geotechnical and environmental exploration in areas that are contaminated. To date, I have not used cone penetrometer testing for locating a fault, because it is more costly in the absence of environmental considerations, and penetration depths are inadequate at some locations. We reviewed the cone records for an assignment in the plant by our sister company, Fugro Geosciences. That series of tests encountered several potential marker beds in the 45- to 55-ft depth range explored, which makes us optimistic that we would be able to reliably detect and accurately locate the fault with this method, particularly since the depths were limited by the client, not by refusal of the cone.

Evaluation and Recommendations

In the study described above, we found that an aerial photo linear crosses both the plant and the proposed project site. Although the linear appears only on the 1953 photos, it is highly characteristic of those caused by active faults. We consider it highly likely that the linear is caused by a fault, which we call the Red Bluff Fault.

The approximate location of the fault is shown on Plate 1. Please note that the correlation of the fault linear with the plant coordinate grid is not precise. Although we hope the inevitable errors are less than about 50 ft, we cannot be certain they are not larger.

Although the possibility of substantial movements of the fault is fairly low, we consider it to be too high for sensitive structures that cannot be allowed to fail. We also do not consider the location of the fault from the aerial photo to be sufficiently precise to locate the fault for designing or siting the TDA 2 unit or for master planning the remainder of the plant property.

We recommend two detailed studies of the fault.

- First, we recommend a detailed study to locate the fault in the vicinity of the TDA 2 Unit and to develop recommendations for siting and designing unit facilities across and near the fault. We expect such a study to result in a recommended band along the fault (a fault hazard band) within which the presence of the fault should be considered in siting and design of facilities. This band may be about 100 ft wide, depending on how well the fault is located and detailed characteristics of the fault as disclosed by the study.
- Second, we recommend a similar study to locate the fault across the remainder of the plant property, so master planning for future plant expansions can consider the presence of the fault from the concept stage.

We recommend that the results of both studies be entered on master drawings of the plant, so future plant planners will be aware of the fault and the clearances needed from it. Depending on your needs, these two studies can be done as a single assignment or in two or more stages.

We found no surface evidence suitable for accurately locating the fault, so the detailed studies recommended above will require subsurface explorations. Although electrically logged borings are most commonly used for such studies, they are less suited for sites where shallow groundwater may be presently contaminated. If that is a possibility, we suggest you consider cone penetrometer tests.

Closing

We appreciate the opportunity to be of service to Air Products on this project. Please call when we may be of further assistance.

Sincerely,

FUGRO SOUTH, INC.

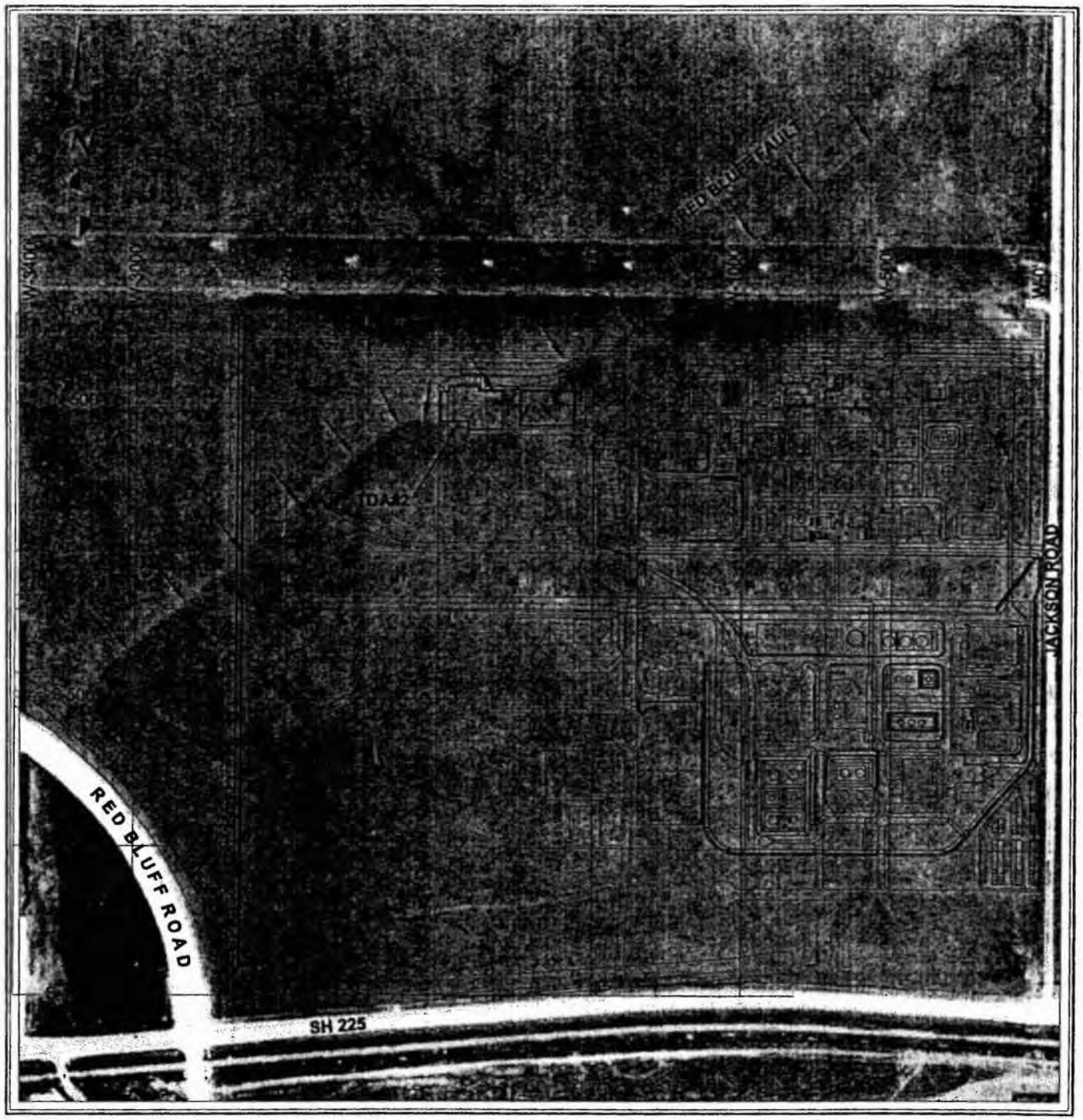
Bill R. Elsbury, P.E.
Senior Geotechnical Consultant

17 M

STATE OF TEXAS
BILL R. ELSBURY
37013
REGISTERED
PROFESSIONAL ENGINEER

BRE(faults, 1999)
Copies Submitted: (6)

FUGRO



REFERENCE:

1. AERIAL PHOTO BY USDA, BQY-18M-2D, MAY 29, 1953, FROM OUR COLLECTION.
2. PLANT LAYOUT FROM "PASADENA AIR PRODUCTS MASTER KEY PLAN," PROVIDED BY AIR PRODUCTS.

NOTE:

THE FAULT IS LOCATED ALONG OR VERY NEAR THE LINE OF MAXIMUM TONAL CONTRAST. PLACEMENT OF THE PLANT OVERLAY IS UNCERTAIN, SEE TEXT.

FAULT LOCATION PLAN

0 500 1000 FEET

PLATE 1

APPENDIX – VI.A.4.a

Boring Logs
Monitor Wells
Recovery Wells
CPT Logs

Boring Logs

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

SOIL BORING SB-1

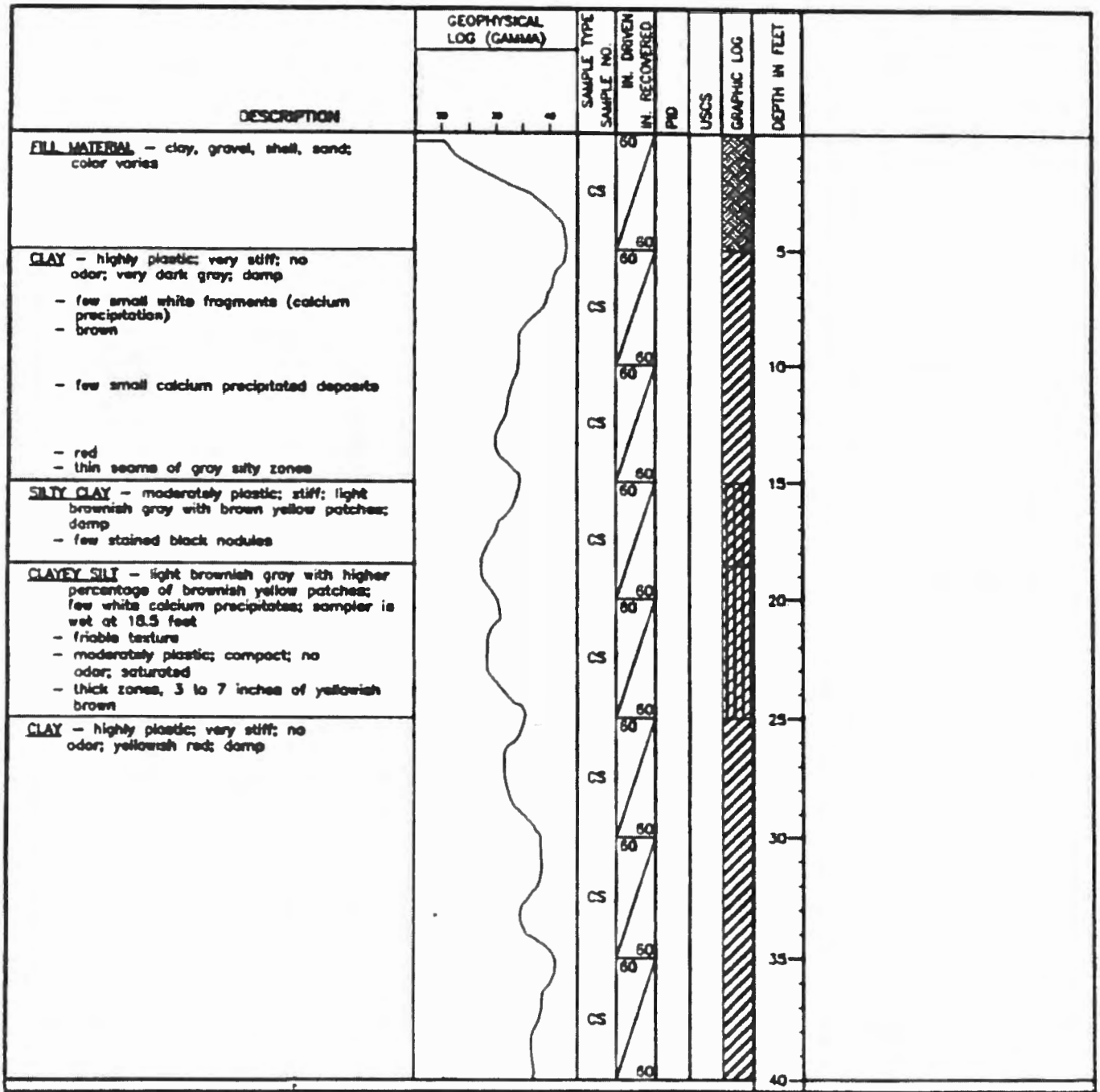
DRILLING AND SAMPLING INFORMATION

Boring Location: 18' SOUTH OF DRUM STORAGE AREA
SURFACE ELEV.(FT): -
TOTAL DEPTH(FT.): 60
Logged By: S. PULLEN
Date Started: 9/16/91
Drilled By: J. LANDEROS
Date Completed: 9/16/91

Drill Rig Type: MOBIL B-57
Drilling Method: 3 3/8 INCH HOLLOW STEM AUGERS

Sampling Method: 5' CONTINUOUS CORE BARREL

Notes: SAMPLER DECONNED BETWEEN SAMPLE RUNS



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A6 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

SOIL BORING SB-1

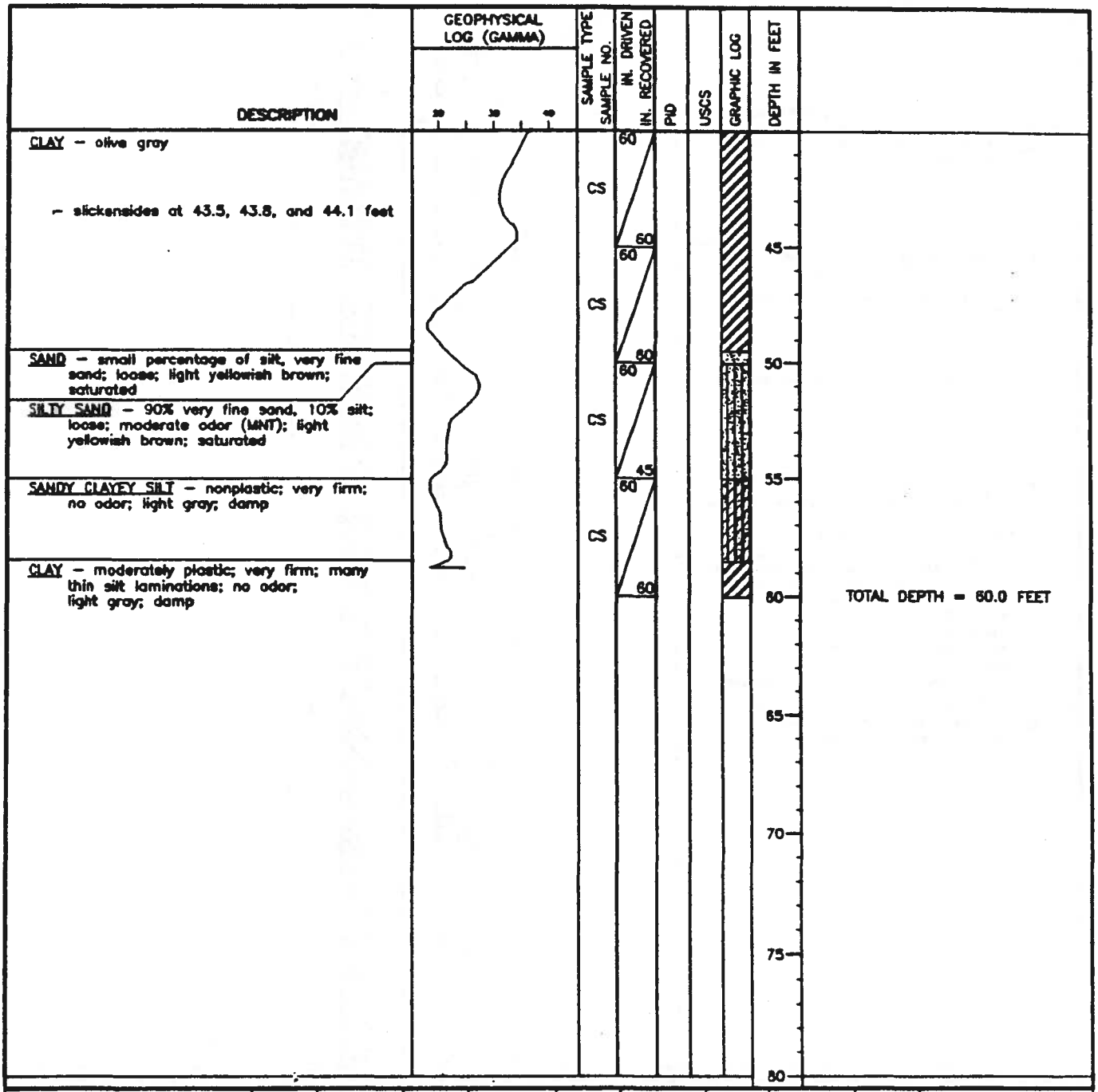
DRILLING AND SAMPLING INFORMATION

Boring Location: 18' SOUTH OF DRUM STORAGE AREA
SURFACE ELEV.(FT): -
TOTAL DEPTH(FT.): 60
Logged By: S. PULLEN
Date Started: 9/16/91
Drilled By: J. LANDEROS
Date Completed: 9/16/91

Drill Rig Type: MOBIL B-57
Drilling Method: 3 3/8 INCH HOLLOW STEM AUGERS

Sampling Method: 5' CONTINUOUS CORE BARREL

Notes: SAMPLER DECONNED BETWEEN SAMPLE RUNS



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A6 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

SOIL BORING SB-2

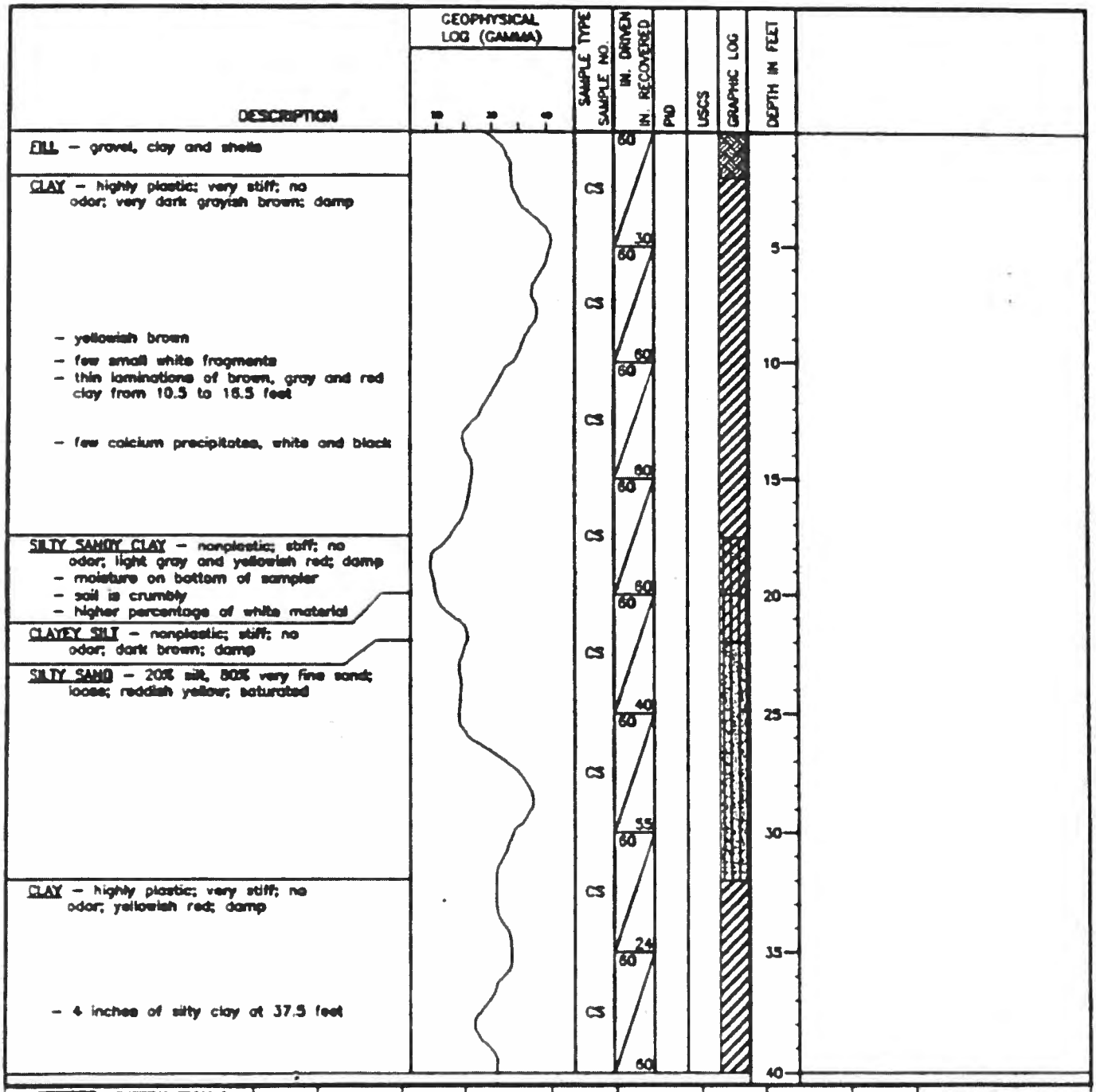
DRILLING AND SAMPLING INFORMATION

Boring Location: 8' WEST OF DRUM STORAGE AREA
SURFACE ELEV.(FT): -
TOTAL DEPTH(FT.): 60
Logged By: S. PULLEN
Date Started: 9/17/91
Drilled By: J. LANDEROS
Date Completed: 9/17/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS

Sampling Method: 5' CONTINUOUS CORE BARREL

Notes: SAMPLER DECONNED BETWEEN SAMPLE RUNS



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A7 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

SOIL BORING SB-2

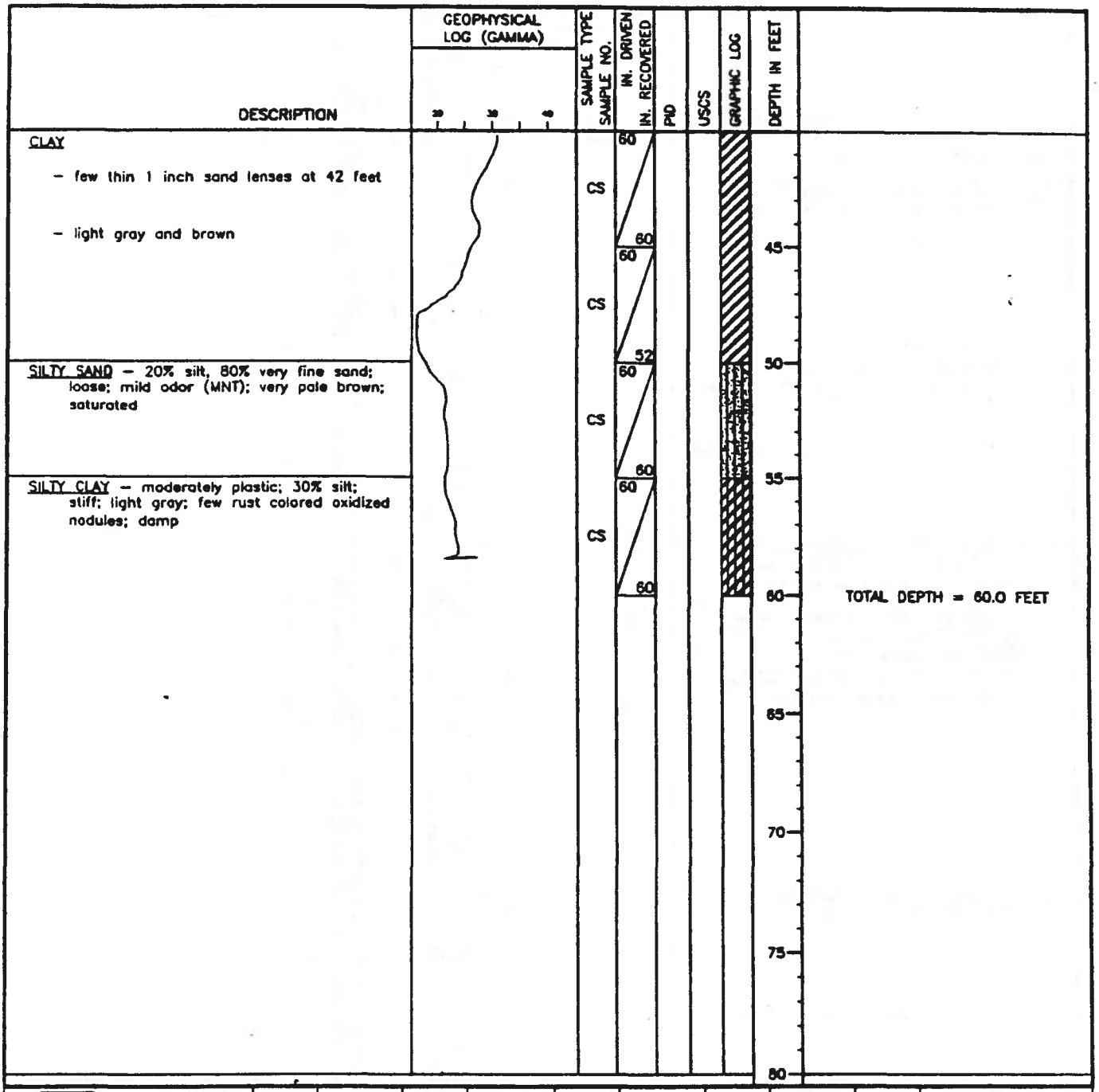
DRILLING AND SAMPLING INFORMATION

Boring Location: 8' WEST OF DRUM STORAGE AREA
SURFACE ELEV.(FT): -
TOTAL DEPTH(FT.): 60
Logged By: S. PULLEN
Date Started: 9/17/91
Drilled By: J. LANDEROS
Date Completed: 9/17/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS

Sampling Method: 5' CONTINUOUS CORE BARREL

Notes: SAMPLER DECONNED BETWEEN SAMPLE RUNS



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A7 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

SOIL BORING SB-3

DRILLING AND SAMPLING INFORMATION

Boring Location: 32' SW OF SAFETY HOUSE
SURFACE ELEV.(FT): -
TOTAL DEPTH(FT.): 60
Logged By: S. PULLEN
Date Started: 9/18/91
Drilled By: J. LANDEROS
Date Completed: 9/18/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY

Sampling Method: 5' CONTINUOUS CORE BARREL

Notes: SAMPLER DECONNED BETWEEN SAMPLE RUNS

DESCRIPTION	GEOPHYSICAL LOG (GAMMA)	SAMPLE TYPE / SAMPLE NO	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel, clay and shell material			60				0
CLAY - highly plastic; very stiff; no odor; very dark grayish brown; few small white fragments; damp			48/60				
- some small white fragments oxidized to a rust color			55/60				5
- brown			60/60				
- thin lamination of gray			60/60				10
- dark brown from 10.5 to 12 feet			60/60				
SILTY CLAY - moderately plastic; stiff; no odor; light gray with brown; few white nodules oxidized to a rust color or black; damp			60/60				15
- high percentage of white precipitate deposits (calcium)			60/60				
SILTY SAND - 20% silt, 80% very fine sand; loose; no odor; dark brown; saturated			50/60				20
CLAY - highly plastic, stiff; no odor; reddish brown; few white fragments; 5% mottling; damp			60/60				25
			60/60				30
			60/60				35
			60/60				40

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV BY		DWG. NO.	448053-A8 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

SOIL BORING SB-3

DRILLING AND SAMPLING INFORMATION

Boring Location: 32' SW OF SAFETY HOUSE
Logged By: S. PULLEN
Drilled By: J. LANDEROS
SURFACE ELEV.(FT): -
TOTAL DEPTH(FT.): 60
Date Started: 9/18/91
Date Completed: 9/18/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY

Sampling Method: 5' CONTINUOUS CORE BARREL

Notes: SAMPLER DECONNED BETWEEN SAMPLE RUNS

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 20 30 40	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - highly mottled - light gray		CS CS	60/60 60/60				45
SILTY SAND - 20% silt, 80% very fine sand; loose; no odor; very pale light brown; saturated - poor recovery		CS	60/60				50
SILTY CLAY - moderately plastic; stiff; no odor; light gray; damp		CS	60/60 60/60				55 60
							65 70 75 80

TOTAL DEPTH = 60.0 FEET

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A8 Sheet 2 of 2

Monitoring Wells

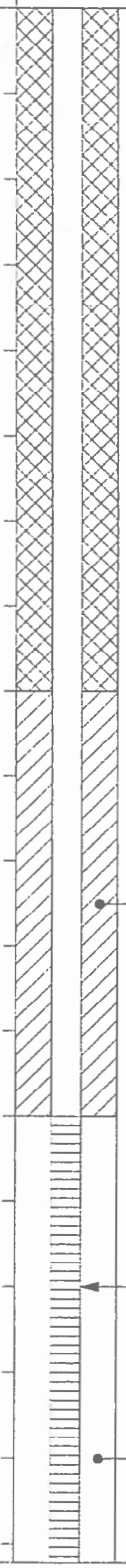
PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. APZ-1**
BORING LOCATION: Reliant Energy Property East of Davison Rd.	TOP OF CASING ELEVATION AND DATUM: 26.28 ft. MSL
DRILLING CONTRACTOR: Fugro, Inc.	DATE STARTED: 1/17/02 / DATE FINISHED: 1/17/02
DRILLING METHOD: Hydraulic Push - Cone Penetrometer	TOTAL DEPTH (ft.): 38.0 / SCREEN INTERVAL (ft.): 28' - 38'
DRILLING EQUIPMENT: Cone Penetrometer Test Rig	DEPTH TO WATER ATD: / CASING: 3/4" dia. PVC
SAMPLING METHOD: Hydraulic Push - Cone Penetrometer Test	LOGGED BY: C. Young
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION (NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.)	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: 22.7'	
					Clay and Silty Clay	2'x2'x6" Concrete Pad
5						3/4" diameter Sch. 40 PVC well riser
						2" diameter hole by hydraulic push
10						Bentonite Slurry and natural formation collapse material
15						

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. APZ-1 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
20					Silty Sand	
25					Clay and Silty Clay	Seal - Bentonite pellets in nylon mesh sock
30					Silty Sand with Clay interbeds	10' of 0.010" slotted PVC well screen
						Natural formation collapse material
					Clay and Silty Clay	



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

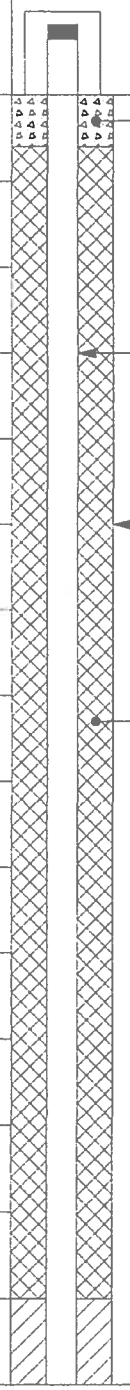
Log of Well No. APZ-1 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Clay and Silty Clay	
35					w/Silty Sand layer at 37 ft.	End cap
					Total Depth: 38 feet below ground surface	
40						
45						
50						

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. APZ-2**
BORING LOCATION: Reliant Energy Property East of Davison Rd.	TOP OF CASING ELEVATION AND DATUM: 26.18 ft. MSL
DRILLING CONTRACTOR: Fugro, Inc.	DATE STARTED: 1/18/02 / DATE FINISHED: 1/18/02
DRILLING METHOD: Hydraulic Push - Cone Penetrometer	TOTAL DEPTH (ft.): 24.0 / SCREEN INTERVAL (ft.): 19' - 24'
DRILLING EQUIPMENT: Cone Penetrometer Test Rig	DEPTH TO WATER ATD: / CASING: 3/4" dia. PVC
SAMPLING METHOD: Hydraulic Push - Cone Penetrometer Test	LOGGED BY: C. Young
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: 22.7'	
					Clay and Silty Clay	2'x2'x6" Concrete Pad
						3/4" diameter Sch. 40 PVC well riser
5						2" diameter hole by hydraulic push
						Bentonite Slurry and natural formation collapse material
10						
15						



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. APZ-2 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
						Seal - Bentonite pellets in nylon mesh sock
20					Silty Sand	5' of 0.010" slotted PVC well screen
					Clay and Silty Clay	Natural formation collapse material
					Total Depth: 24 feet below ground surface	End cap
25						
30						

WELL3

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 34.39 ft. **Well Head** 36.89 ft.

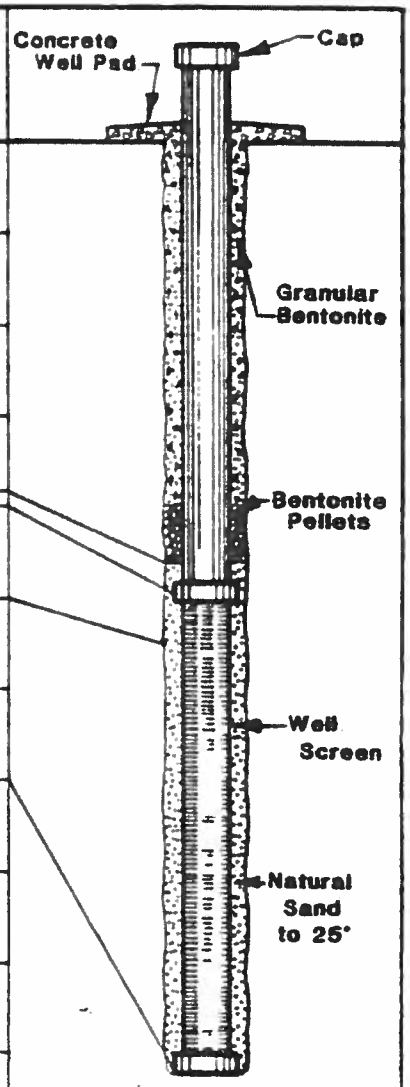
Well No.: MW 1

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. PVC, 0.008 gauge slotted screen x 15' (filter cloth)

Date Drilled: 4/8/81

Depth	Symbol	Description of Stratum	Material Setting
5		CLAY, moderately plastic, 5-15% fine to very fine sand, firm, moist to very moist, mottled bluish grey and tan with black streaks, calcareous fragments, slickensided (CH).	1
10		SILTY CLAY, moderately plastic, 15-30% silt to very fine sand, stiff, moist to very moist, mottled green and orange with black streaks, many calcareous fragments (CL).	5
15		SANDY CLAY, highly plastic, 20-30% fine to very fine sand, 10-20% silt, firm, very moist, greenish grey with orange mottling, calcareous fragments (CH).	10
20		SANDY CLAY, similar to above, except 25-40% fine to very fine sand, moist to saturated, green with red mottling, black pockets, calcareous fragments (CH).	15
25		SANDY SILT, slightly plastic, 10-20% very fine sand, 5-10% clay fines, loose, saturated (free water), orange (rust-brown) (ML).	19
30		SILTY SAND, poorly graded, fine to very fine, 15-25% silt, 5-15% plastic fines, very compact, saturated, orange, clay pockets (red) to 1.5" diameter (SP).	20
35		CLAY, highly plastic, 0-10% very fine sand, very stiff, moist, rust brown with green pockets and black streaks (SP).	25
40		SILTY SAND, similar to above, silty sand (30'-31') except free water (SP).	30
		CLAY, highly plastic, 5-15% very fine sand, stiff, moist, mottled tan to orange and green. Pockets and layers of fine to very fine sand (about 30% of sample) (CH/SP).	35
		Boring Terminated at 40 ft.	40



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.99 ft. **Well Head** 38.80 ft.

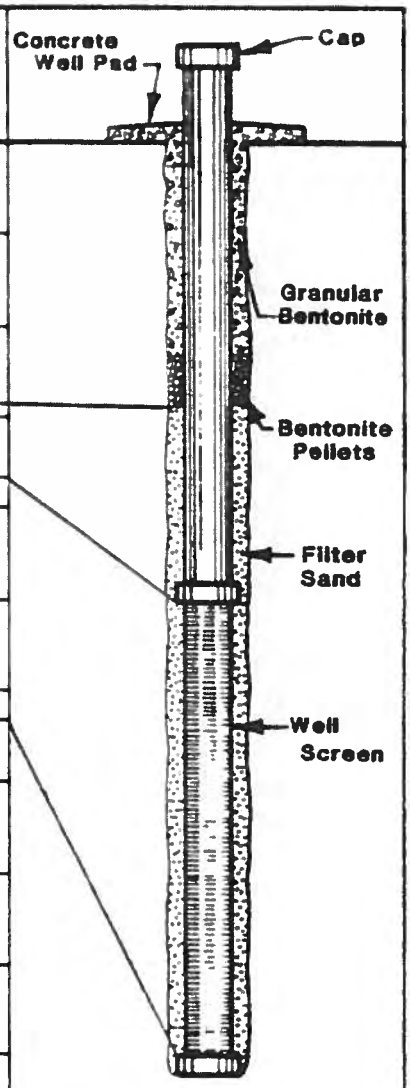
Well No.: MW 2

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. PVC, 0.008 gauge slotted x 15' (filter cloth)

Date Drilled: 4/8/81

Depth	Symbol	Description of Stratum
5		CLAY, highly plastic, 5-15% very fine sand, firm, moist, dark greenish grey with black mottling (CH).
10		CLAY, similar to above, except stiff, mottled orange and green with black streaks, calcareous fragments many slickensides (CH).
15		CLAYEY SILT, low plasticity, 20-30% very fine sand, very compact saturated (some free water), greenish grey with orange mottling, with pockets red and black (ML).
20		SAND, poorly graded, fine to very fine, 5-10% clay fines, loose, saturated (free water), rust brown (SP).
25		Top 8" SAND, similar to above, except grading into CLAYEY SAND, highly plastic, 5-10% very fine sand, very stiff, moist.
30		Bottom 12" CLAY, highly plastic, 5-10% very fine sand very stiff, moist, dark rust orange mottled with green and white (calcareous) and black (SP/CH).
35		CLAY, similar to above, except rust brown (CH).
40		SILTY CLAY, highly plastic, 0-10% very fine sand, 10-25% silt, firm, very moist, rust brown (CH).
		Boring Terminated at 35 ft.



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 36.79 ft. **Well Head** 39.86 ft.

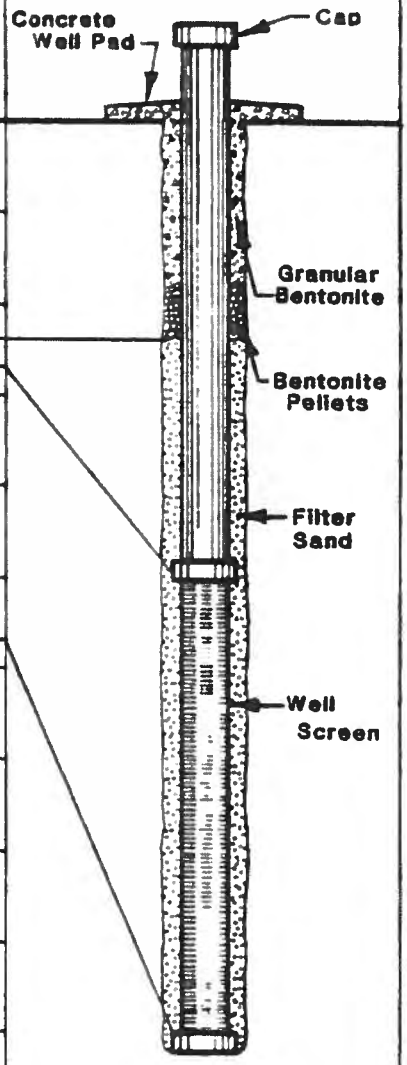
Well No.: MW 3

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. PVC, 0.008 gauge slotted x 15'

Date Drilled: 4/9/81

Depth	Symbol	Description of Stratum	Material Setting
5		CLAY FILL, with shells.	1
10		SANDY CLAY, highly plastic, 20-30% fine to very fine sand, stiff, very moist to saturated, orange to tan mottled with green , and with black and white (calcareous) pockets (CH).	10
15		CLAYEY SAND, poorly graded, fine to very fine, 30-45% plastic fines, very compact, very moist, mottled grey green and tan with pockets and streaks of orange and black (SP).	12
20		CLAYEY SAND, similar to above, except very hard, moist, with many nodules of hard black, rock-like precipitate to 1/4", calcareous nodules, and some pockets sandy clay (SP).	13
25		SANDY CLAY, highly plastic, 15-25% very fine sand, stiff, moist, rust to brown with green mottling. Large pockets (up to 35% of sample) of CLAYEY SAND, poorly graded, fine to very fine, 25-40% plastic fines, hard, moist, green.(CH/SP).	15
30		Bottom 2" CLAYEY SILT, moderately plastic, 10-25% clay fines, firm, damp, rust-orange (ML).	20
35		CLAY, highly plastic, 0-15% very fine sand, very stiff, moist, dark rust brown with some green and black (CH).	25
40		Boring Terminated at 30 ft.	28
			30



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.19 ft. **Well Head** 38.37 ft.

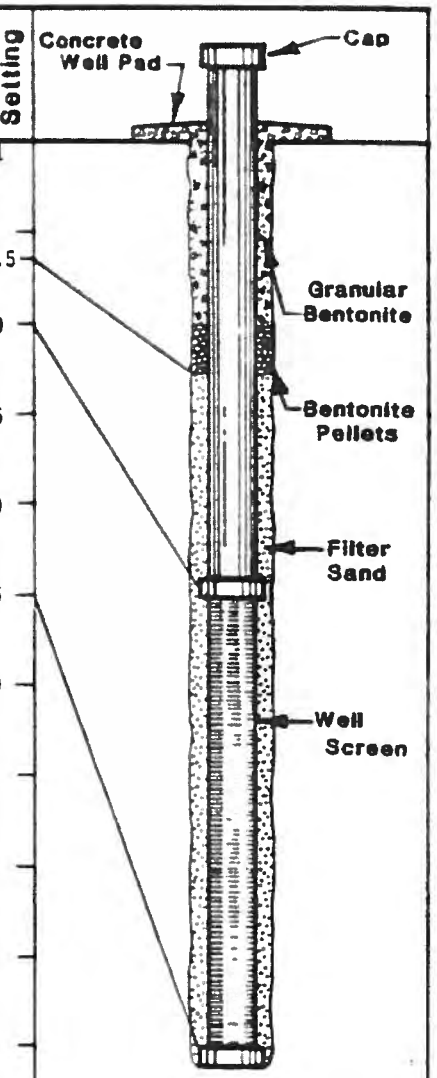
Well No.: MW 4

Casing Size & Type: 2" I.D. PVC

Screen Type: .008 gauge 2" I.D. PVC x

Date Drilled: 4/10/81

Depth	Symbol	Description of Stratum
5		CLAY FILL with shells (CH).
10		SILTY CLAY, highly plastic, 10-20% fine to very fine sand, stiff, very moist, rust to orange with green and black mottling, calcareous pockets (to 1") (CH)
15		CLAYEY SILT, poorly graded, fine to very fine, 30-45% highly plastic fines, very compact, very moist (to saturated), mottled green to grey and rust to orange, calcareous fragments (MH).
20		CLAYEY SILT, similar to above, except mostly rust to orange with some green and black mottling, calcareous fragments in layers abundant (MH).
25		Top 1' SILT, slightly plastic, 5-15% very fine sand, 5-15% clay fines, fairly compact, saturated, rust to orange (ML).
30		Bottom 6" CLAY, highly plastic, 0-10% very fine sand, very stiff, moist, rust to red with green and black streaks, calcareous pockets (CH).
		CLAY, similar to above (CH).
		Boring terminated at 29 ft.



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation

Client: Air Products and Chemicals, Inc. Job No.: 146080 Date Drilled: 11/12/86 Well No.: MW-4B

Site: Pasadena, Texas Elevation: GL _____ Top of PVC Casing _____

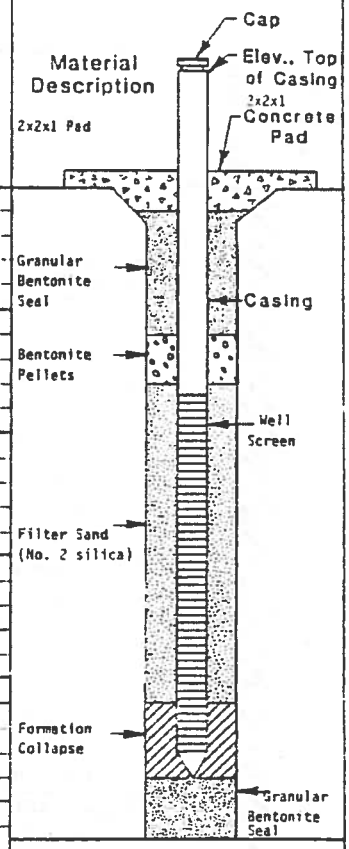
Total Depth: 24' Casing Size & Type: 2" I.D. PVC Screen Size: .010 Gauge 2" I.D. PVC

Comments: Replacement Monitor Well for MW-4

Depth	Symbol	Stratigraphy	Sample Description
0	CH		SILTY CLAY FILL, high plasticity, 20 to 25% fine silt, wet, dark brown, shell hash.
5	CH		CLAY, high plasticity, very stiff (pocket penetrometer, 1.0, 1.2, 1.3), wet, dark gray to brown and mottled, small rust nodules throughout.
10	CH		CLAY, high plasticity, very stiff (pocket penetrometer, 2.0, 2.1, 2.5), moist, red brown with gray green veins and black specks, calcareous nodules.
15	MH		CLAYEY SILT, moderately plastic, 10 to 20% clay, very stiff, (pocket penetrometer, 2.5, 2.0, 2.2), gray with rust mottles and spots.
	MH		SILT, nonplastic, hard (pocket penetrometer 4.5+), dry to damp, beige, pink and orange, large calcareous nodules to 1".
20	CH		SILTY CLAY, moderately plastic, very hard (pocket penetrometer, 4.5+), red brown, scattered silt laminae with black, gray, green and pink splotches.
	CH		SILTY CLAY, similar to above, .5 to 15% silt, areas of no silt, moist.
25	ML		SANDY SILT, stiff, 40 to 50% very fine sand, coarse silt, wet, orange pink and gray.
			BORING TERMINATED AT 26.5 FEET.
30			
35			
40			
45			
50			

Completion Data

Material Setting	Material Description
0	2x2x1 Pad
1	Granular Bentonite Seal
5	
6	Bentonite Pellets
10	
15	Filter Sand (No. 2 silica)
20	Formation Collapse
25	Granular Bentonite Seal
30	
35	
40	
45	
50	



INTERNATIONAL TECHNOLOGY CORPORATION

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 34.19 ft. **Well Head** 37.40 ft.

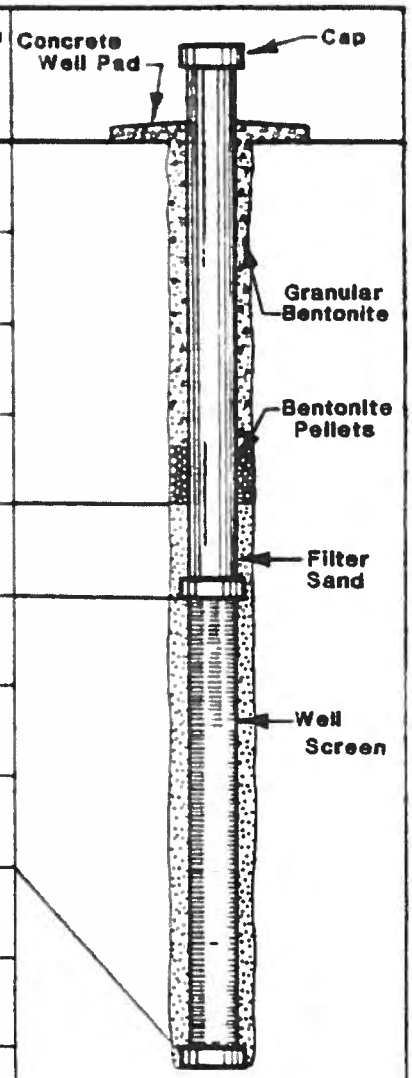
Well No.: MW 5

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. .008 gauge PVC slotted x 15'

Date Drilled: 4/9/81

Depth	Symbol	Description of Stratum	Material Setting
5		SANDY CLAY, moderate to highly plastic, 10-20% very fine sand, firm, very moist, dark grey (CH).	1
10		SANDY CLAY, moderately plastic, 15-25% fine to very fine sand, stiff, very moist, mottled green and orange with black stains, some slickensides (CL-CH)	
15		SANDY CLAY, similar to above except moist, rust to orange, calcareous (CL-CH).	
20		SANDY CLAY, highly plastic, 25-40% fine to very fine sand, very stiff, moist, green with orange mottling, some black staining, abundant calcareous fragments, nodules (up to 40% of sample in lower 7") (CH).	20
25		SANDY CLAY, similar to above except 30-45% very fine sand and silt, mottled green and orange rust, less calcareous with layers to 1 cm. clayey-sand (CH).	25
30		CLAY, highly plastic, 5-15% very fine sand and silt, very stiff, moist, mottled orange to rust and light greeen, layers to 2 mm sandy and silty clay (CH).	
35		CLAY, similar to above (CH).	
40		SAND, poorly graded, fine to very fine, 15-30% clay fines, loose, saturated (free water), rust to orange (SP).	40
		CLAY, highly plastic, 5-15% very fine sand, stiff, moist, mottled rust to brown and green (CH).	
		Boring Terminated at 40 ft.	



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 34.59 ft. **Well Head** 37.47 ft.

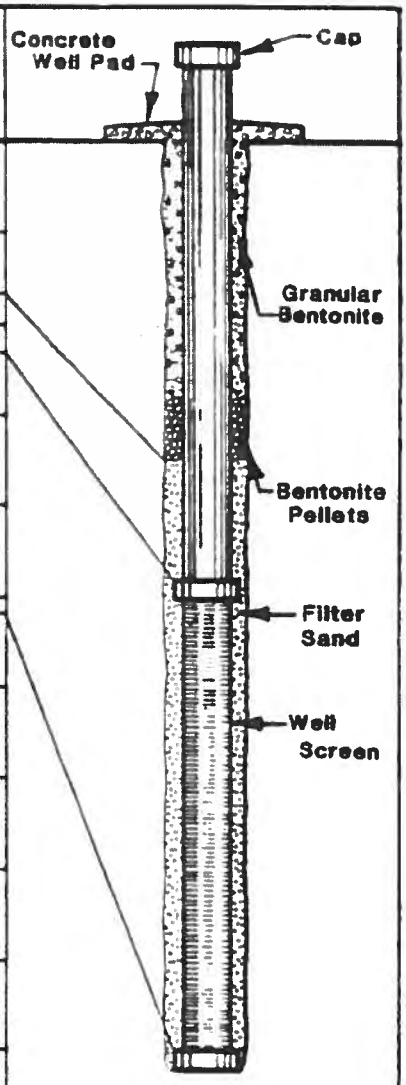
Well No.: MW 6

Casing Size & Type: 2" I.D. PVC

Screen Type: .010 gauge 2" I.D. PVC x 10' (filter cloth bottom 5") + .008 gauge x 5 2" I.D.

Date Drilled: 6/3/81

Depth	Symbol	Description of Stratum	Material Setting
		FILL (shells)	1
		SILTY CLAY, orange.	
5		SANDY CLAY, moderate to highly plastic, 15-25% very fine sand, firm, very moist, blue-greenish grey with gold staining (CL-CH).	8
10		CLAYEY SILT/SILTY CLAY, moderately plastic, 30-40% plastic fines to 25-35% silt, firm, very moist, mottled orange (silt) and light green (clay), abundant calcareous fragments, black stains (MH/CH-CL).	10
15		SILTY SAND, poorly graded, very fine sand, 20-35% silt, 10-20% clay fines, saturated, (free water), orange (CH-CL).	11
20		SANDY CLAY, moderately plastic, 35-50% very fine sand, very firm, moist, light green with orange mottling calcareous fragments, black stains.	
25		SANDY CLAY, similar to above, except stiff, pockets of CLAYEY SAND, 1 mm layers of sand (CH).	26
30		CLAY, highly plastic, 5-15% very fine sand, stiff, moist, mottled rust to red and light green with black streaks, many slickensides (CH).	
35		Boring terminated at 26 ft.	



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.29 ft. **Well Head** 38.24 ft.

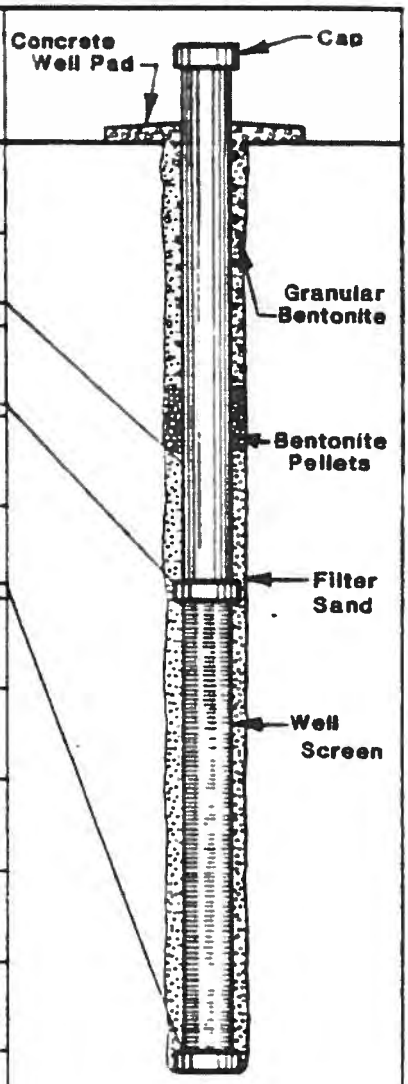
Well No.: MW 7

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. .008 gauge screen

Date Drilled: 6/3/81

Depth	Symbol	Description of Stratum	Material Setting
		FILL, with shells.	
5		SANDY CLAY, moderate to highly plastic, 5-20% very fine sand, firm, very moist, bluish grey with gold stains, calcareous nodules to 1/8" (CH).	5
10		SANDY CLAY, moderate to highly plastic, 5-20% very fine sand, firm, very moist, mottled tan to orange and light green, calcareous nodules, slickensides (CL-CH).	8 10
15		CLAY, highly plastic, 0-15% very fine sand, stiff, moist, rust to red with black and green splotches, calcareous nodules to 1/2", slickensides (CH).	14 15
20		SANDY CLAY, moderate to highly plastic, 30-45% very fine sand, stiff, moist, mottled green and orange, calcareous fragments, slickensides (CH).	20
25		SANDY CLAY, similar to above, except with calcareous pockets (CH).	24 25
30		CLAY, highly plastic, 5-15% very fine sand, stiff, moist, rust orange mottled with green and black, slickensides, calcareous fragments (CH).	30
		Boring terminated at 24 ft.	



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 36.19 ft. **Well Head** 39.41 ft.

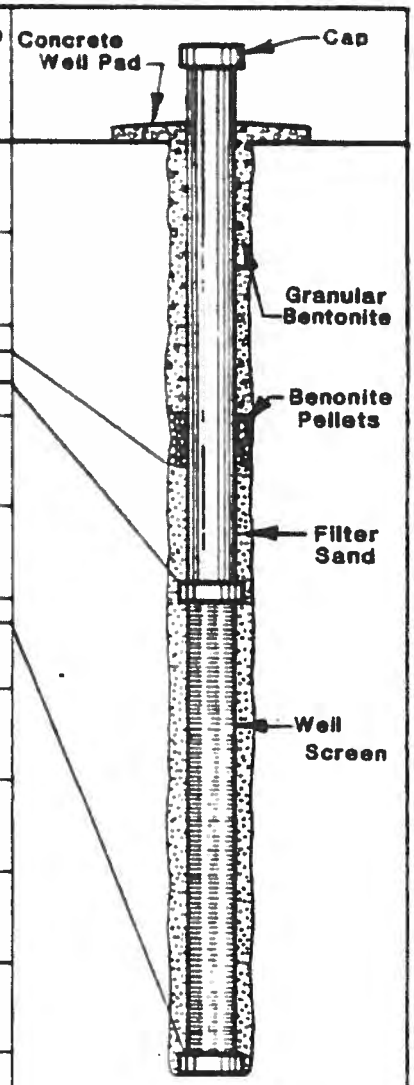
Well No.: MW 8

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. .010 gauge PVC x 15'

Date Drilled: 6/4/81

Depth	Symbol	Description of Stratum
		CLAY FILL, with shells.
5		CLAY, moderate to highly plastic, 5-15% very fine sand, firm, very moist to saturated, bluish greenish grey with gold spots, calcareous fragments (CH)
10		SANDY CLAY, highly plastic, 15-25% very fine sand, firm, very moist to saturated, orange with green and grey mottling, calcareous fragments and nodules to 1" (CH).
15		SANDY CLAY, moderately plastic, 30-45% very fine sand, stiff, very moist to saturated, greenish tan with orange and black stains, calcareous (CH-CL).
20		SANDY CLAY, similar to above, except moist to very moist (CH-CL).
25		Top 6" SANDY CLAY, similar to above.
30		Bottom 6" CLAYEY SILT, low to moderately plastic, 25-40% plastic fines, 5-15% very fine sand, dense, very moist, rust to orange with black and light green, calcareous fragments and nodules to 1/2" (ML).
35		CLAYEY SAND, poorly graded, very fine, 5-15% clay fines, dense, very moist, light green with tan and orange stains, calcareous (SP).
		CLAY, highly plastic, 5-10% very fine sand, stiff, moist, rust red with light green mottling, black stains, calcareous pockets.
		Boring terminated at 27 ft.



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.99 ft. **Well Head** 38.69 ft.

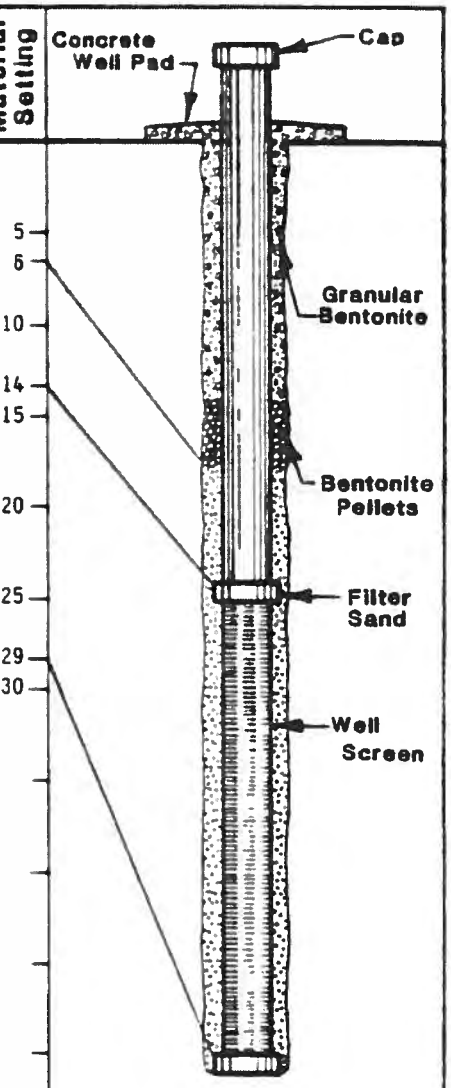
Well No.: MW 9

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D., .010 gauge slott PVC x 15'

Date Drilled: 6/4/81

Depth	Symbol	Description of Stratum
		CLAY FILL, with shells.
5		CLAY, moderate to highly plastic, 5-15% very fine sand, firm, very moist, dark grey with gold stains (CL-CH).
10		CLAY, moderate to highly plastic, 5-20% very fine sand, stiff, very moist, mottled orange and green with large black stains, calcareous fragments (CL-CH).
15		SANDY CLAY, moderately plastic, 25-40% very fine sand to silt, stiff, very moist, mottled light green and orange with black stains, calcareous (CL).
20		Top 2" CLAY.
		SANDY CLAY, similar to above (CL).
25		Top 1' SANDY (SILTY) CLAY, similar to above, mostly orange (CL).
30		Middle 11" SILT, low plastic, 5-15% fines, 5-15% very fine sand, loose, saturated (free water), orange with some light green (ML-CH).
35		Bottom 1" CLAY, highly plastic, 5-15% very fine sand, stiff to very stiff, moist, orange (rust), with mottled light green and black, calcareous.
		CLAY, similar to above (CH).
		Boring terminated at 30 ft.



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (83)

Client: Air Products and Chemicals, Inc. Job No.: J83-817 Date Drilled: 3-3-83 Well No.: 10

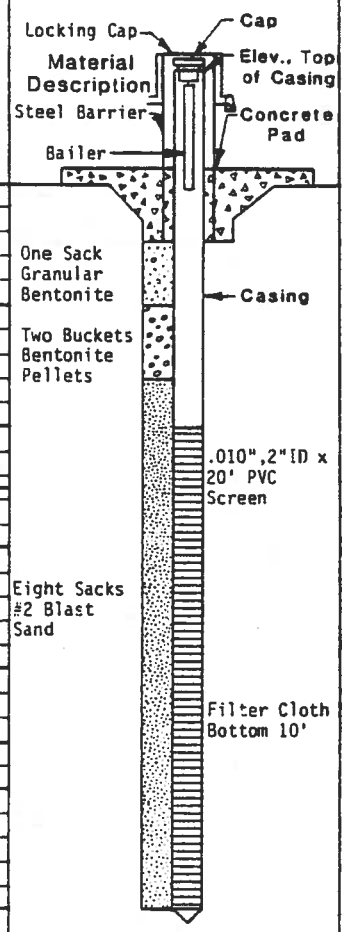
Site: Northwest Corner, Pasadena Plant Elevation: Pad 35.64' Top of PVC Casing 38.27'

Total Depth: 30' Casing Size & Type: 2" I.D. Sch. 80 PVC Screen Size: 0.010" x 20'

Comments:

Depth	Symbol	Stratigraphy	Sample Description
	CH		CLAY, highly plastic, 5-15% very fine sand, firm, moist to very moist, orange.
	CH		CLAY, similar to above except dark grey, very moist.
5	CH		CLAY, similar to above except blue-grey with lighter streaks, calcareous fragments.
10	CH		CLAY, highly plastic, 5-15% very fine sand, stiff, moist to very moist, orange with extensive yellow and red mottling and black streaks.
15	CH		SANDY CLAY, highly plastic, 20-35% fine sand, stiff, very moist, orange with black steaks and pockets of green, calcareous fragments. Increasing sand content to 25-40%, mottled green, orange and black with black nodules in lower half of sample.
20	CH		SANDY CLAY, similar to above except 20-30% fine sand, 15-25% silt, more extensively calcified, primarily light green with orange and black pockets and streaking.
25	CH		CLAY, highly plastic, 0-10% very fine sand, stiff, very moist (free water in shelby tube taken in this interval), orange with black streaks, and green mottling.
30	CH		CLAY, similar to above.
			Total Depth 30 ft.

Completion Data



Underground Resource Management, Inc.
Austin, Texas

Monitor Well Installation and Log of Boring URM (83)

Client: Air Products and Chemicals, Inc. Job No.: J83-817 Date Drilled: 3-3-83 Well No.: 11

Site: Northeast Corner of Pasadena Plant Elevation: Pad 35.92' Top of PVC Casing 38.63'

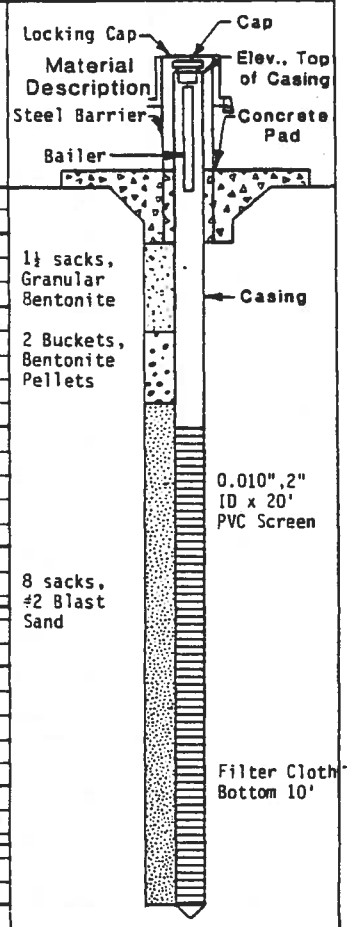
Total Depth: 30' Casing Size & Type: 2" I.D. Sch. 80 PVC Screen Size: 0.010" x 20'

Comments:

Depth	Symbol	Stratigraphy	Sample Description
			SHELL FILL
5	CH		CLAY, highly plastic, 0-10% very fine sand, soft, very moist to saturated, dark grey.
10	CH		CLAY, similar to above except 10-20% very fine sand, firm to stiff, orange with green and black mottling and streaks.
15	CH		CLAY, similar to above except dark orange.
20	CH		SANDY CLAY, highly plastic, 30-45% fine to very fine sand, stiff, very moist, light green with orange pockets and veins, black streaks, and red clay nodules to 0.5 cm, calcareous nodules to 2.0 cm.
25	CH		SANDY CLAY, similar to above except very moist to saturated (free water in shelby tube taken in this interval), green and orange, calcareous pockets, interbedded silty layers.
30	CH		CLAY, highly plastic, 0-10% very fine sand, stiff, moist to very moist, dark orange with green and black mottling and streaking.
			Total Depth 30 ft.

Completion Data

Material Setting



Underground Resource Management, Inc.
Austin, Texas

Monitor Well Installation and Log of Boring

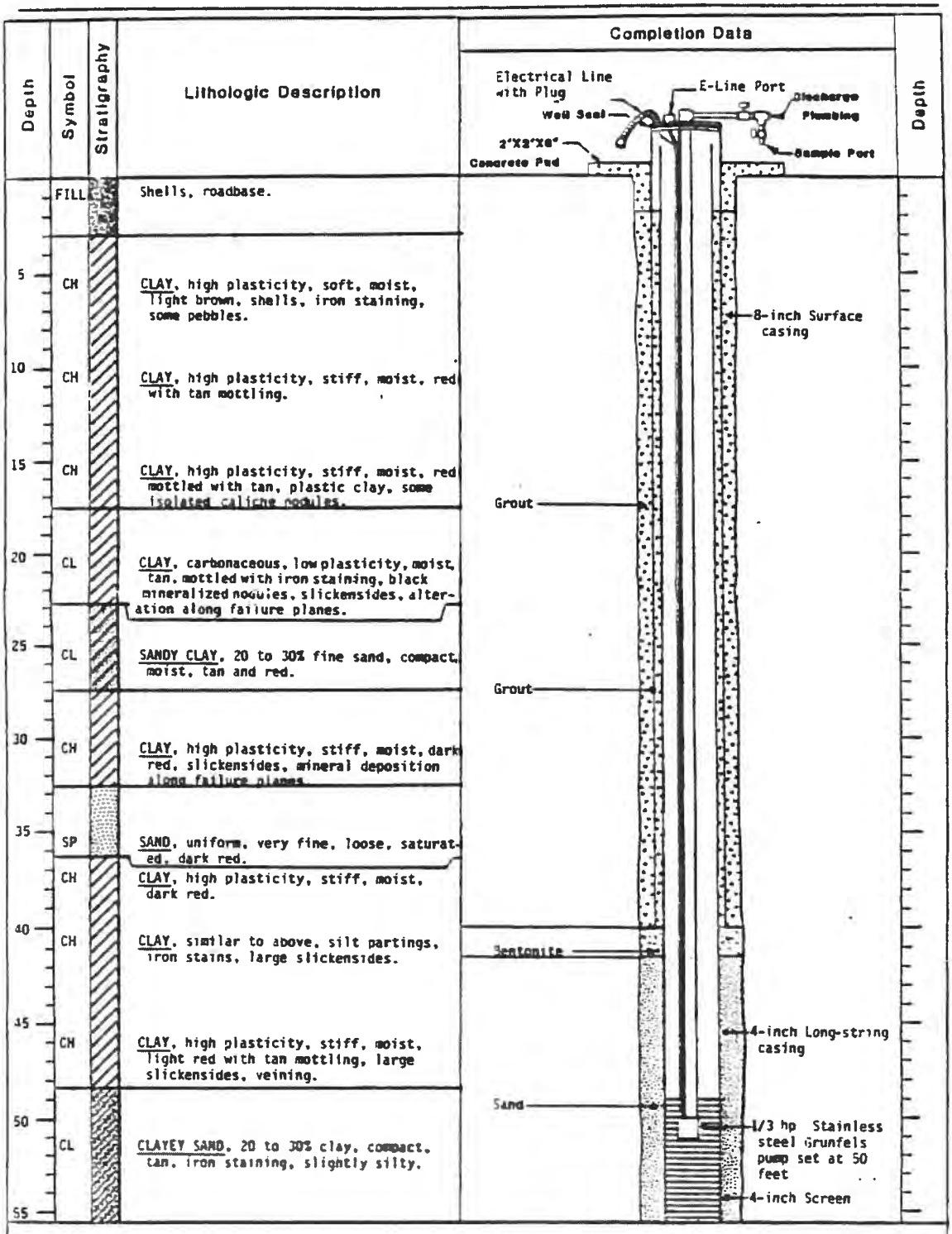
URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 3/26/85 Well No.: MW-12

Site: Pasadena, Texas Elevation: GL _____ Top of Casing: _____

Total Depth: 58.0 feet Casing Size & Type: Long-string: 4 in. Flush-joint Threaded Sch. 40 PVC Surface: 8 in. Bell-end Sch. 40 PVC Screen Size: Flush-joint Threaded Sched. 40 PVC 010 inch Mill Slot

Comments: _____



Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM-R3e

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 3/26/85 Well No.: MW-12

Site: Pasadena, Texas Elevation: GL _____ Top of Casing: _____

Total Depth: 58.0 Feet Casing Size & Type: Surface: 8 in. Bell-end Sch. 40 PVC; Long-string: 4 in. Flush-joint Threaded Sch. 40 PVC Screen Size: .010 inch Mill Slot Flush-joint Threaded Sched. 40 PVC

Comments: _____

Depth	Symbol	Stratigraphy	Lithologic Description	Completion Data (con't)	Depth
	CL		CLAYEY SAND, 20 to 30% clay, 70 to 80% very fine sand, compact, tan, some inter-bedding of well sorted sands, slightly silty. TOTAL DEPTH = 56.5 Feet		
60					
65					
70					
75					
80					
85					
90					
95					
100					
105					
110					

Well was replaced by MW-12B

Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM-R3e

LOG OF BORING NO. MW-12-B

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - gravel						
			Dark gray and tan clay w/sand and calcareous nodules						
5									
10									
15			- tan and light gray w/calcareous nodules						
20									
25									
30			Brown clayey silt w/sand						
35			Brown clay						
40									
45			- dark gray						
50			Light gray clayey sand						

COMPLETION DEPTH: DEPTH TO WATER:
DATE: (Continued) DATE:

PLATE 12

LOG OF BORING NO. MW-12B (Continued)

TYPE BORING: LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Light gray clayey sand						
55									
60									
65									
70									
75									
80									
85									
90									
95									
100									

Well Replaced By RW-22

COMPLETION DEPTH: 61' DEPTH TO WATER: 14.8'
DATE: July 11, 1988 DATE: 7/14/88

PLATE 13

(A) Borehole depth, feet : 61.0

(B) Total casing length, feet : 63.0

(C) Casing stickup above ground surface, feet : 2.2

(D) Depth to top of screen, feet : 45.8

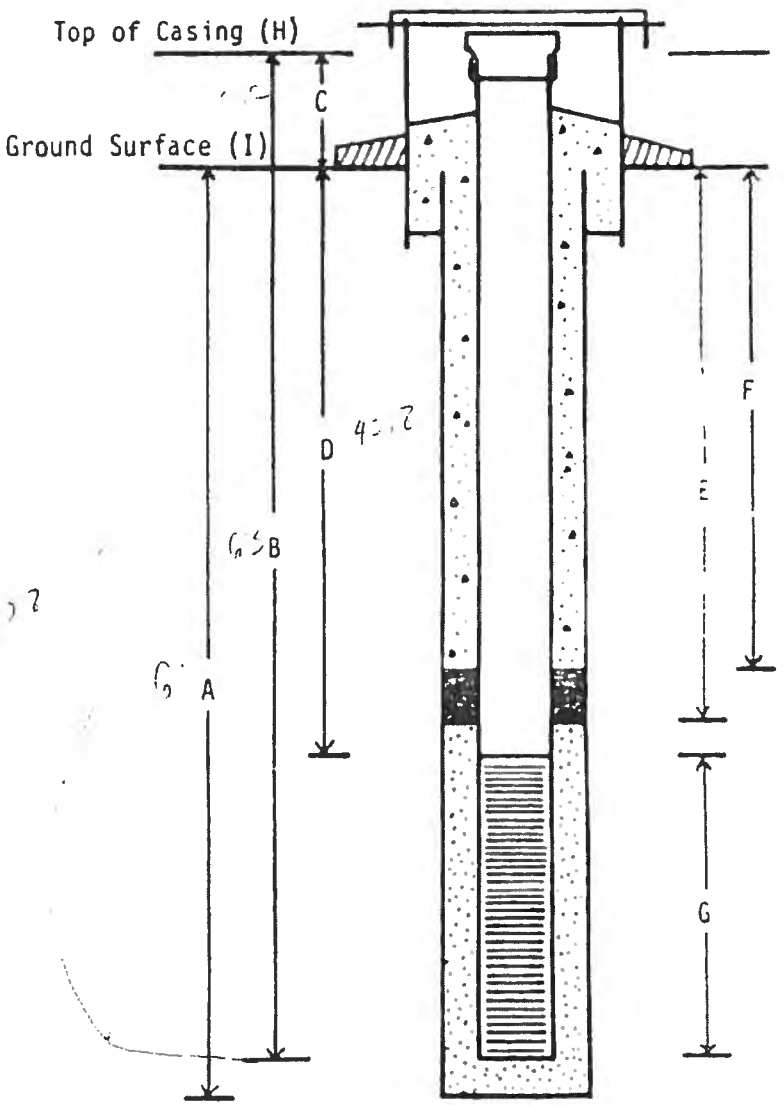
(E) Depth to top of sand pack, feet : 43.8

(F) Depth to top of bentonite seal, feet : 41.8

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN MW-12B

PLATE 32

Monitor Well Installation and Log of Boring

URM (85)

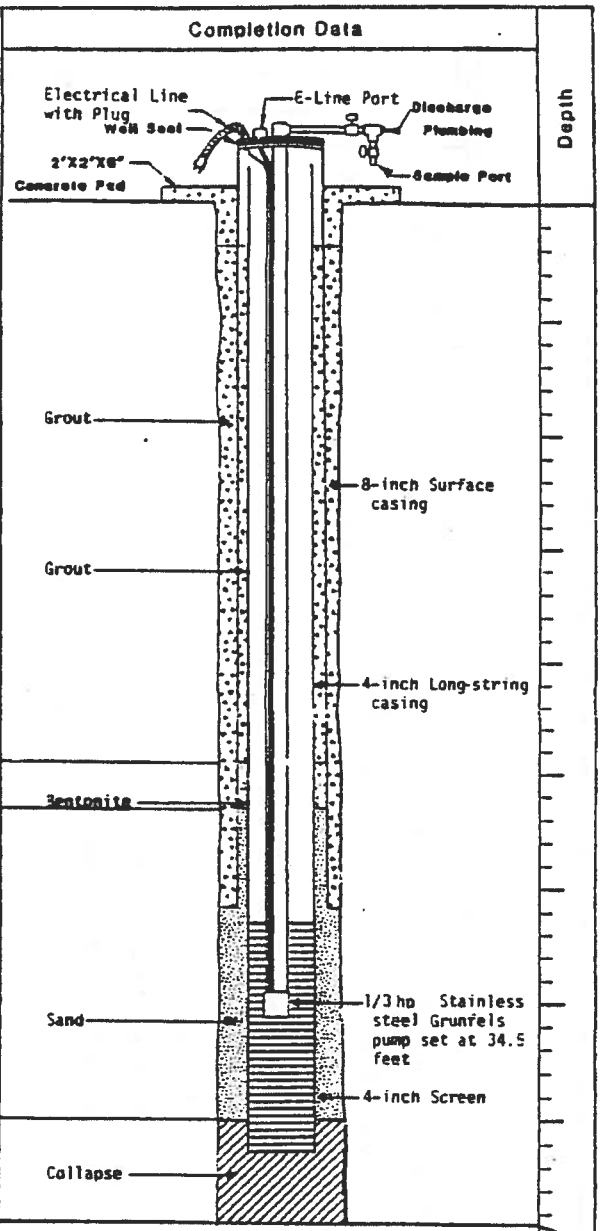
Client: Air Products Job No.: 35-624 Date Drilled: 4/1/85 Well No.: MW-13

Site: Pasadena, Texas Elevation: GL Top of Casing:

Total Depth: 43.5 Feet Casing Size & Type: Surface: 8 in. Bell-end Sch. 40 PVC; Long-string: 4 in. Flush-joint Threaded Sch. 40 PVC Screen Size: .010 inch Mill Slot Flush-joint Threaded Sched. 40 PVC

Comments: Water encountered at 26.5 feet.

Depth	Symbol	Stratigraphy	Lithologic Description
0	CH		CLAY, disturbed, gravel, roots, moist.
5	CH		CLAY, high plasticity, stiff, moist, black, roots, iron stains.
10	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining.
15	CL		SANDY CLAY, low plasticity, stiff, wet, tan and red mottled, 30 to 40% very fine sand, iron stains in pockets, iron nodules, black mineral deposition (dendritic).
20	CL		SANDY CLAY, similar to above.
25	CL		SANDY CLAY/CLAYEY SAND, saturated, tan and red mottled.
30	CH		CLAY, high plasticity, stiff, moist, dark red, caliche nodules, black mineral deposition (dendritic), minor slickensides.
	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining, slightly sandy.
35	SM		CLAYEY SAND, 70 to 80% very fine sand, compact, light red to brown, wet.
40	CH		CLAY, high plasticity, stiff, moist, dark red, some minor black staining.
	CH		CLAY, high plasticity, stiff, moist, green iron staining.
45			TOTAL DEPTH = 43.5 Feet
50			
55			



Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM-A3e

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/4/85 Well No.: MW-14

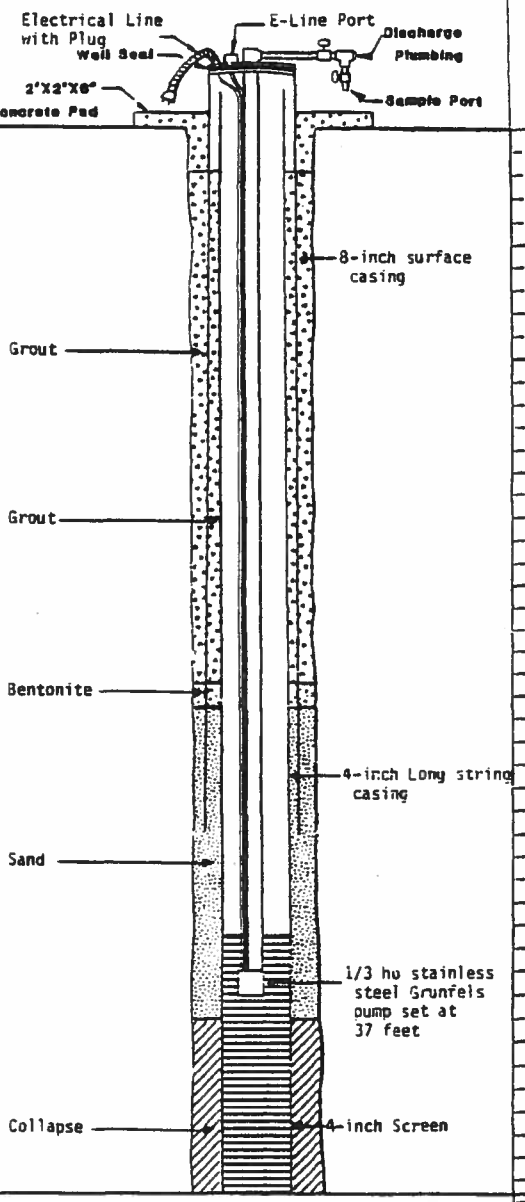
Site: Pasadena, Texas Elevation: GL Top of Casing:

Total Depth: 46.5 feet Casing Size & Type: Surface: 8 in. Bell-end Sch. 40 PVC; Long-string: 4 in. Flush-joint Threaded Sch. 40 PVC Screen Size: .010 inch Mill Slot Flush-joint Threaded Sch. 40 PVC

Comments:

Depth	Symbol	Stratigraphy	Lithologic Description
5	CH		CLAY, high plasticity, pp = 1.5, stiff, moist, black.
10			
15			
20	CL		SANDY CLAY, low plasticity, stiff, wet, sand in partings, red and white mottled, caliche nodules.
25	CL		SANDY CLAY, similar to above.
30	CH		CLAY, high plasticity, pp = 3 to 4, stiff, moist, dark red, mottled with tan plastic clay, black mineral deposition (dendritic), large slickensides, alteration along failure planes.
35	CH		CLAY, similar to above.
40	CH		CLAY, low plasticity, stiff, slightly moist, sand partings with iron staining, slickensides, slightly mottled with tan plastic clay.
45	CH		CLAY, high plasticity, stiff, moist, green and red mottled, large slickensides, caliche nodules.
50			TOTAL DEPTH = 46.5 Feet
55			

Completion Data



Depth

Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM-A3e

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 3/29/85 Well No.: MW-15

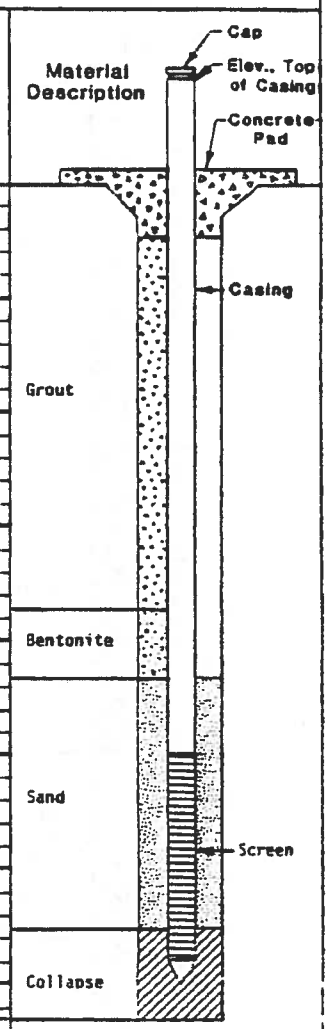
Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 36.5 Feet Casing Size & Type: 2-in. Flush-joint Threaded, Sch. 80 PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
0	FILL		Shells, roadbase.
5	CH		CLAY, highly plastic, soft, tan, saturated.
	CH		CLAY, highly plastic, soft, dark green, roots, minor slickensides.
10	CH		CLAY, highly plastic, stiff, moist, light red, some mottling with tan plastic clay, slickensides, some black mineral staining.
15	CH		CLAY, highly plastic, stiff, moist, tan and red mottled, burrows, iron staining, very fine sand in pockets.
20	GC		GRAVELLY CLAY, low plasticity, non-cohesive; dry, tan and red mottled, black staining, carbonate in composition.
25	CH		CLAY, highly plastic, stiff, moist, dark red, veining of tan plastic clay along percolation routes, large slickensides, alteration along failure planes.
30	SM		CLAYEY SAND, 80 to 90% very fine sand, compact, saturated, dark red, grades to a sand at 31.5 feet.
35	SM		CLAYEY SAND, similar to above, contains interlayering of pure clay seams (1 to 2 inches).
40			
45			
50			

Completion Data



Underground Resource Management, Inc.
Austin, Texas

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/4/85 Well No.: MW-16

Site: _____ Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 25 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

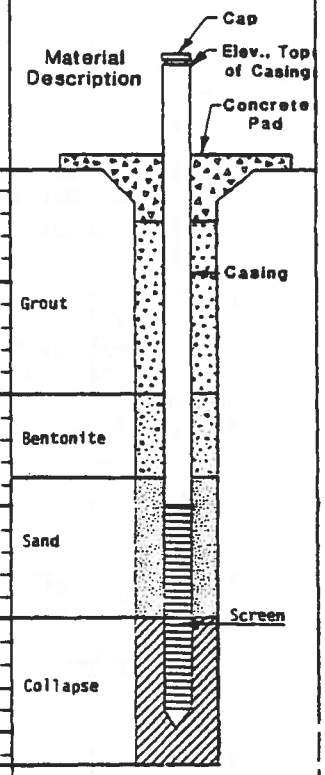
Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
0	FILL		Shells, roadbase.
	CH		CLAY, highly plastic, soft, black, moist, iron staining, iron nodules.
5			
	CH		CLAY, highly plastic, soft, moist, red and tan mottled, dendritic black mineral deposition.
10			
	CH		CLAY, highly plastic, stiff, moist, dark red, grades to a sandy clay at 16.5 feet.
15			
	CL		SANDY CLAY, low plasticity, stiff, 40 to 50% very fine sand, wet, tan and brown, iron stains, black mineral clasts.
20			
25	CL		SANDY CLAY, similar to above except mottled red and tan, sand in pockets.
30			
35			
40			
45			
50			

Completion Data

Material Setting

Material Description



Underground Resource Management, Inc.
Austin, Texas

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/9/85 Well No.: MW-17

Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

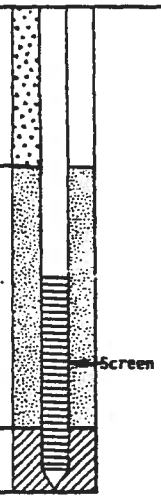
Total Depth: 21.5 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
			Shells, roadbase.
5	CH		CLAY, highly plastic, soft, moist, black, iron stains.
10	CH		CLAY, highly plastic, stiff, moist, red and tan mottled, dendritic black mineral deposition, slickensides, alteration along failure planes, isolated caliche nodules.
15	CL		SANDY CLAY, 20 to 30% very fine sand in pockets, low plasticity, soft, tan, wet, iron staining, some caliche nodules.
20	CL		GRAVELLY CLAY, 20 to 30% caliche nodules, low plasticity, stiff, moist, red, some clayey sand in pockets.

Completion Data

Material Setting	Material Description
5	Grout
10	Sand
15	Screen
20	Collapse



Underground Resource Management, Inc.
Austin, Texas

Casing reported to be Stainless Steel

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/9/85 Well No.: MW-18

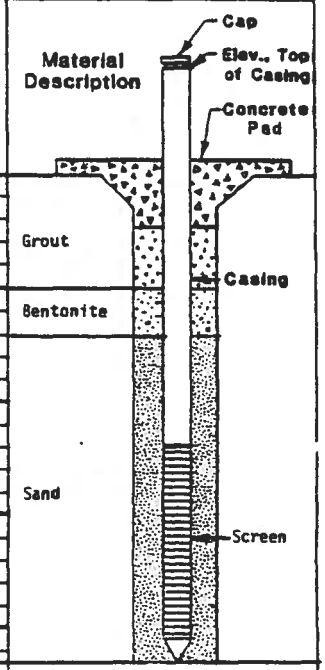
Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 21.5 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
5	CH		CLAY, highly plastic, soft, moist, black, roots, iron stains, minor slickensides.
10	CH		CLAY, highly plastic, stiff, moist, red and tan mottled, dendritic black mineral deposition, slickensides.
15	CL		SANDY CLAY, 20 to 30% very fine sand, low plasticity, stiff, saturated, tan and red mottled, black dendritic mineral deposition, iron staining, sand in pockets and seams.
20	CL		SANDY CLAY, similar to above except red, contains caliche nodules, black "birdseye" mineralization.

Completion Data



Underground Resource Management, Inc.
Austin, Texas

URM-R3d

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/9/85 Well No.: MW-19

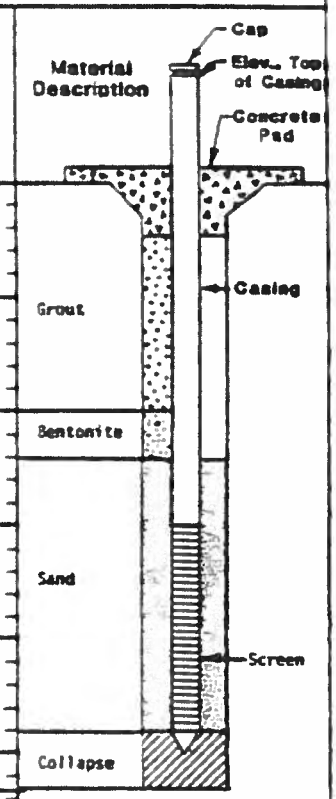
Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 26.5 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
0	CH		CLAY, highly plastic, soft, moist, black, iron staining.
5	CH		CLAY, highly plastic, stiff, moist, red and gray mottled, large slickensides, alteration along failure planes, black dendritic mineral deposition.
10			
15	CL		SANDY CLAY, 20 to 30% very fine sand in pockets and seams, stiff, saturated, red and gray mottled, iron staining, black mineral deposition in "birdseyes".
20	CL		SANDY CLAY, similar to above except wet.
25	SC		CLAYEY SAND, 70 to 80% very fine sand, compact, saturated, dark red.
30			
35			
40			
45			
50			

Completion Data



Underground Resource Management, Inc.
Austin, Texas

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/10/85 Well No.: MW-20

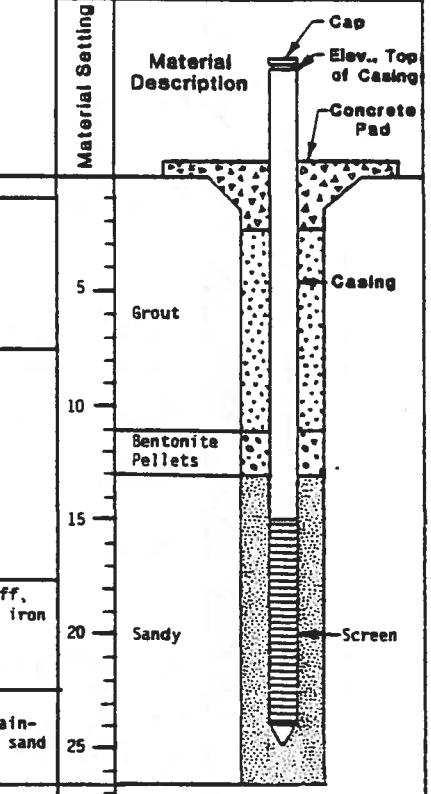
Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 26.5 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
			Asphalt cover
5	CH		CLAY, highly plastic, soft, moist, black, iron staining.
10	CH		CLAY, highly plastic, stiff, moist, red and tan mottled, slickensides, slightly sandy.
15			
20	CH		GRAVELLY CLAY, 20 to 30% gravel-sized caliche nodules, stiff, wet, tan and pink mottled, some dendritic black staining, iron "birdseyes".
25	CH		CLAY, high to moderate plasticity, stiff, moist, dark red mottled with tan plastic clay, black dendritic mineral staining, large slickensides, alteration along failure planes, sand in pockets.
30			
35			
40			
45			
50			

Completion Data



Underground Resource Management, Inc.
Austin, Texas

URM-43d

Recovery Well Installation

Client: Air Products Job No.: 85-624 Date Drilled: 5/20/85 Well No.: MW-21

Site: Pasadena, Texas Elevation: GL 24.57' Top of Casing: 26.99'

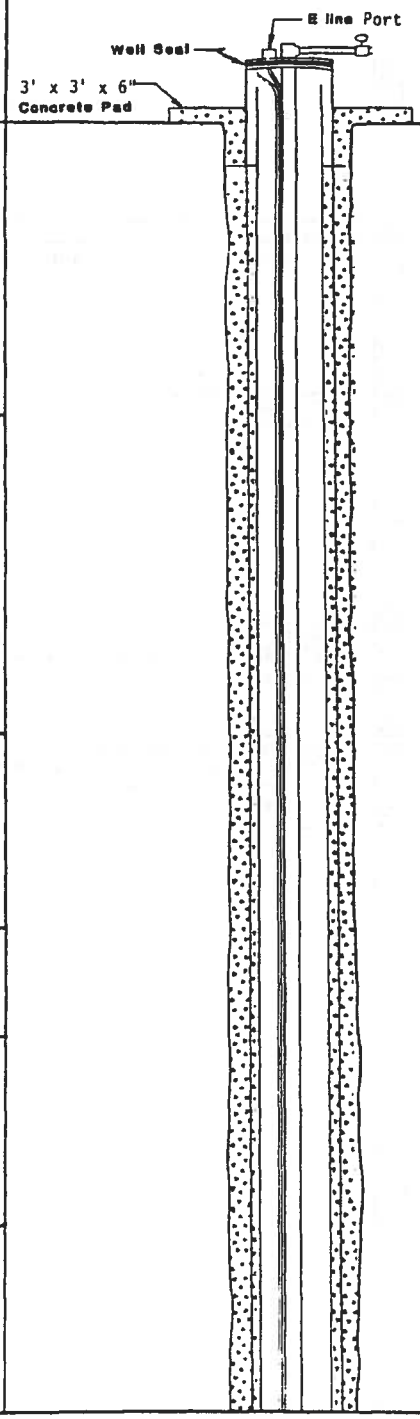
Surface: 8-inch Bell-end Sch. 40 PVC

Total Depth: 91.5 feet Casing Size & Type: Longstring: 4-inch Flush-joint Threaded Sch. 40 PVC Screen Size: .010 Mill Slot

Comments:

Depth	Symbol	Stratigraphy	Lithologic Description
0	CH		CLAY, disturbed, gravel, roots, moist.
5	CH		CLAY, high plasticity, stiff, moist, black roots, iron stains.
10	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining.
15	CL		SANDY CLAY, low plasticity, stiff, wet, tan and red mottled, 30 to 40% very fine sand, iron stains in pockets, iron nodules, black mineral deposition (dendritic).
20	CL		SANDY CLAY, similar to above.
25	CL		SANDY CLAY/CLAYEY SAND, saturated, tan and red mottled.
30	CH		CLAY, high plasticity, stiff, moist, dark red, carbonate inclusions, black mineral deposition (dendritic) minor, slickensides.
35	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining, slightly sandy.
40	SM		CLAYEY SAND, 70 to 80% very fine sand, compact, light red to brown, wet.
45	CH		CLAY, high plasticity, stiff, moist, dark red, some minor black staining.
	CH		CLAY, high plasticity, stiff, moist, green, iron staining.
	CH		CLAY, high plasticity, stiff, moist, green with red mottling, large slickensides, some calcareous nodules, gravel sized materials.
50	SM		SILTY SAND, uniform very fine, compact, saturated, tan, some iron staining, locally slightly clayey.

Completion Data



Depth

Prepared by
Underground Resource Management, Inc.
Austin, Texas

Recovery Well Installation

Client: Air Products Job No.: 85-624 Date Drilled: 5/20/85 Well No.: MW-21

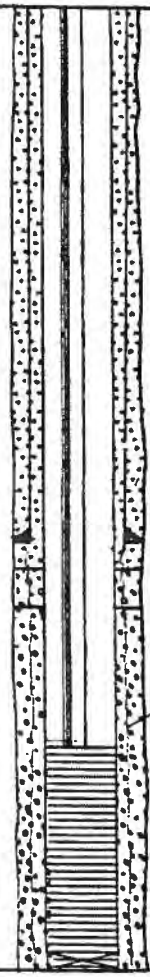
Site: Pasadena, Texas Elevation: GL 24.57' Top of Casing: 26.99'

Surface: 8-inch Bell-end Sch. 40 PVC

Total Depth: 91.5 feet Casing Size & Type: Longstring: 4-inch Flush-joint Threaded Sch. 40 PVC Screen Size: .010 Mill Slot

Comments:

Depth	Symbol	Stratigraphy	Lithologic Description
55	SM		SILTY SANDY, 70 to 80% very fine sand, compact, saturated, iron staining, cohesive.
60	SM		SILTY SAND, 80 to 90% very fine sand, compact, saturated, decreased iron staining.
65	SM		SILTY SAND, similar to above.
70	SC		SANDY CLAY, 20 to 30% very fine sand, low plasticity, compact, moist, green, contains organic matter.
75	CL		CLAY, moderate plasticity, stiff, slightly moist, red, some green silty sand in pockets, minor slickensides.
80	SP		SAND, uniform fine to very fine, compact, saturated, gray, some isolated cemented zones.
85	SP		SAND, uniform fine to very fine, compact, saturated, red, slightly silty.
90	SM		SILTY SAND, 80 to 85% very fine, compact, saturated, red.
95			
100			
110			



Completion Data (con't)

Dcpth

Prepared by
Underground Resource Management, Inc.
Austin, Texas

Monitor Well Installation

Client: Air Products Job No.: 85-624 Date Drilled: 5/17/85 Well No.: MW-22

Site: Pasadena, Texas Elevation: Pad 23.35' Top of PVC Casing 23.25'

Total Depth: 26.5 Casing Size & Type: 2" Flush Joint Threaded PVC Screen Size: .010

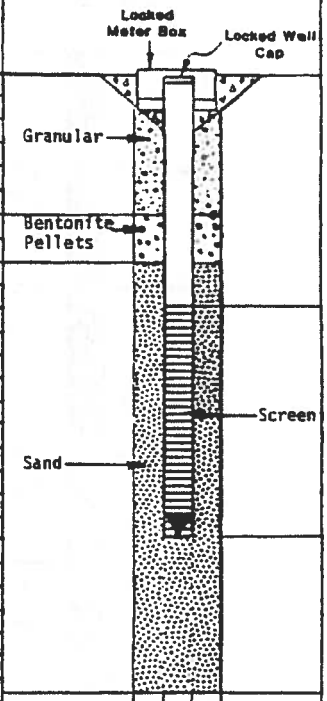
Comments:

Depth	Symbol	Stratigraphy	Sample Description
			Asphalt
	Fill		FILL, Caliche
	CH		CLAY, Highly plastic, stiff, moist, black, roots.
5	CH		CLAY, Highly plastic, stiff, moist, blue-green, iron staining, roots.
10	CH		CLAY, Highly plastic, stiff, moist, orange-red with tan mottling, minor black mineral staining.
15	SC		SANDY-CLAY, Low plasticity, compact, tan to grey, saturated, iron staining, pure clay in clasts, 20-30% fine to very fine sand.
	GL		GRAVELLY CLAY, Low plasticity, stiff, moist to wet, 20-25% carbonate gravels, black mineral "birdseyes". Gravels appear concretionary.
20	CH		CLAY, Highly plastic, stiff, moist, dark red, mottled with tan plastic clay, slickensides, alteration and mineral deposition along failure planes.
25			

Completion Data

Material Setting

Material Description



Underground Resource Management, Inc.
Austin, Texas

LOG OF BORING NO. MW-23

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:							
			Fill - tan and gray sandy clay w/ gravel							
			Dark gray clay w/sand seams							
5										
10			- tan and light gray							
15										
20			Tan and gray sandy clay w/cal-careous nodules							
			Brown clay w/calcareous nodules							
25										
30										
35			Brown clayey sand							
			Brown clay w/sand pockets							
40										
45			- gray							
50			- tan and light gray w/calcareous nodules							

COMPLETION DEPTH: DEPTH TO WATER:

DATE: (Continued) DATE:

PLATE 14

LOG OF BORING NO. MW-23 (Continued)

TYPE BORING: LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ.FT. 0.5 1.0 1.5
			SURF. ELEV.:					
			Light gray clayey sand					
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								

COMPLETION DEPTH: 60.1'
DATE: June 24, 1988

DEPTH TO WATER: 9.5'
DATE: 7/11/88

PLATE 15

(A) Borehole depth, feet : 60.1

(B) Total casing length, feet : 62.3

(C) Casing stickup above ground surface, feet : 2.2

(D) Depth to top of screen, feet : 45.1

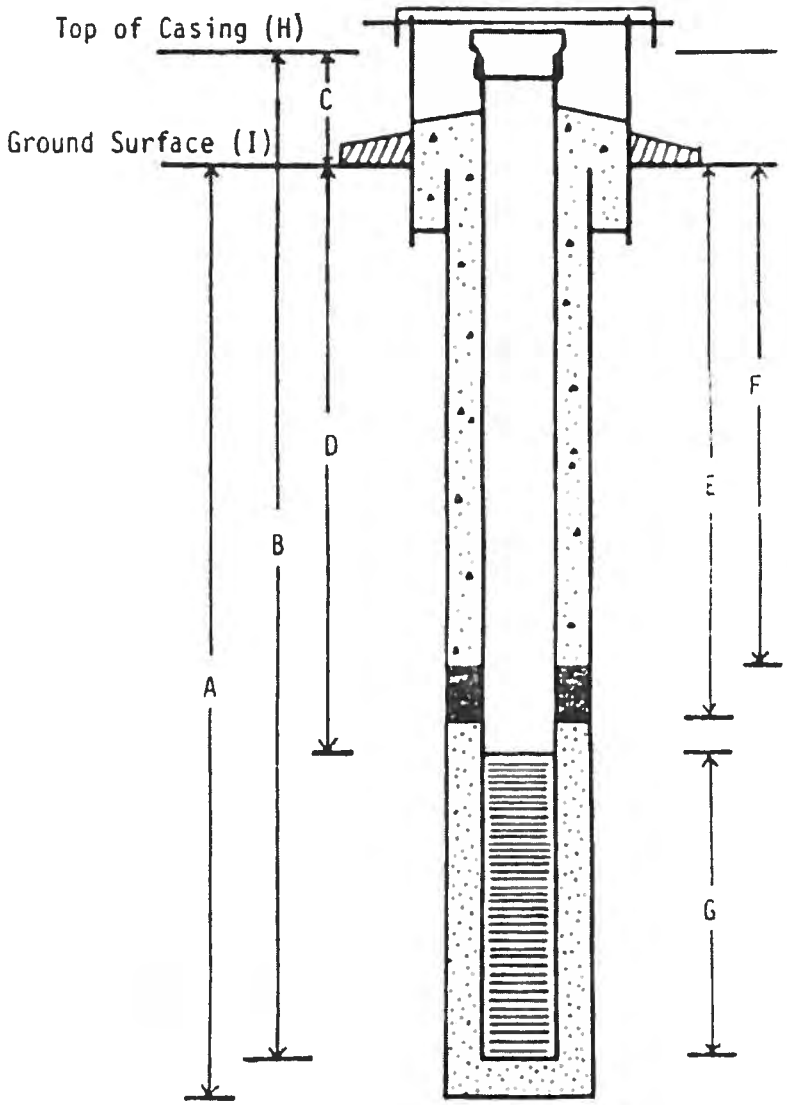
(E) Depth to top of sand pack, feet : 43.1

(F) Depth to top of bentonite seal, feet: 41.1

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN MW-23

PLATE 33

LOG OF BORING NO. MW-24

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

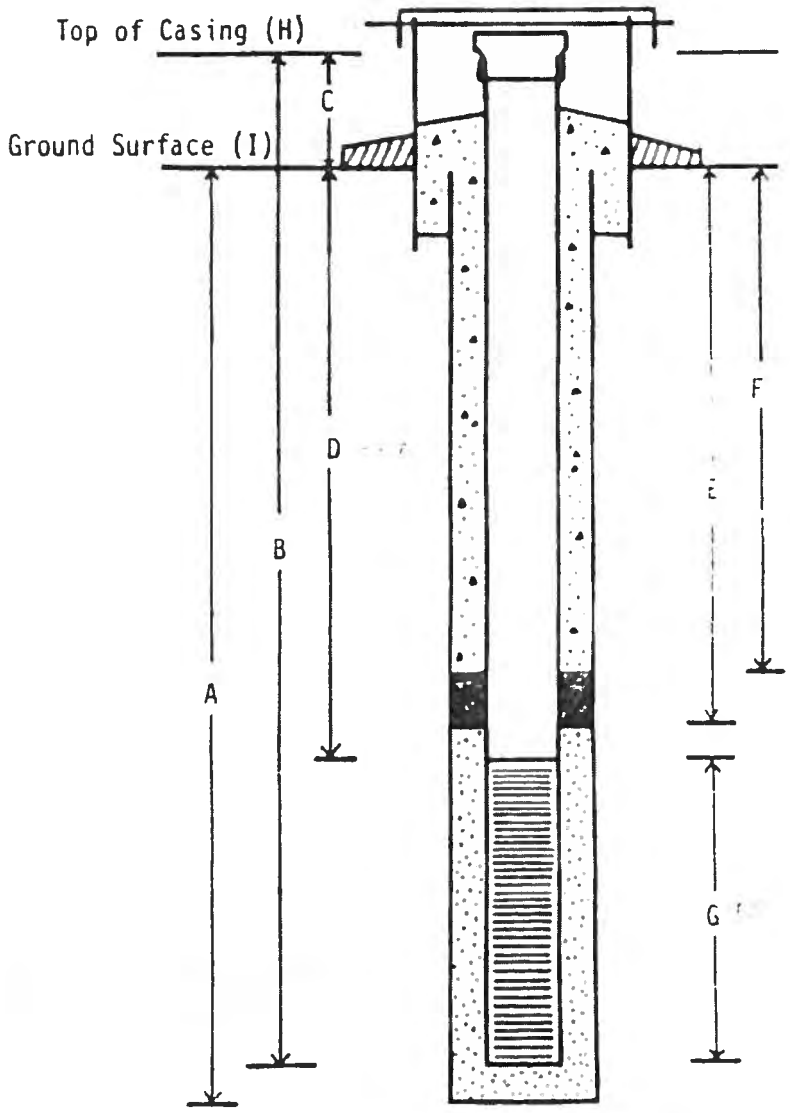
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:							
			Fill - brown and gray clay w/gravel							
5			Dark gray clay w/ferrous stains							
10			- brown w/sand and calcareous nodules							
15			- tan w/calcareous nodules							
20			- brown and light gray w/sand seams							
25			- tan and gray w/calcareous nodules and ferrous stains							
30			Brown and light gray clayey sand w/silt seams							
35			Brown clay							
40										
45										
50										

COMPLETION DEPTH: 35.8'
DATE: July 5 & 6, 1988

DEPTH TO WATER: 8.7'
DATE: 7/14/88

PLATE 16

(A)	Borehole depth, feet	: 35.8
(B)	Total casing length, feet	: 38.5
(C)	Casing stickup above ground surface, feet	: 2.7
(D)	Depth to top of screen, feet	: 20.8
(E)	Depth to top of sand pack, feet	: 18.8
(F)	Depth to top of bentonite seal, feet	: 16.8
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN MW-24

PLATE 34

LOG OF BORING NO. MW-25

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed sample LOCATION

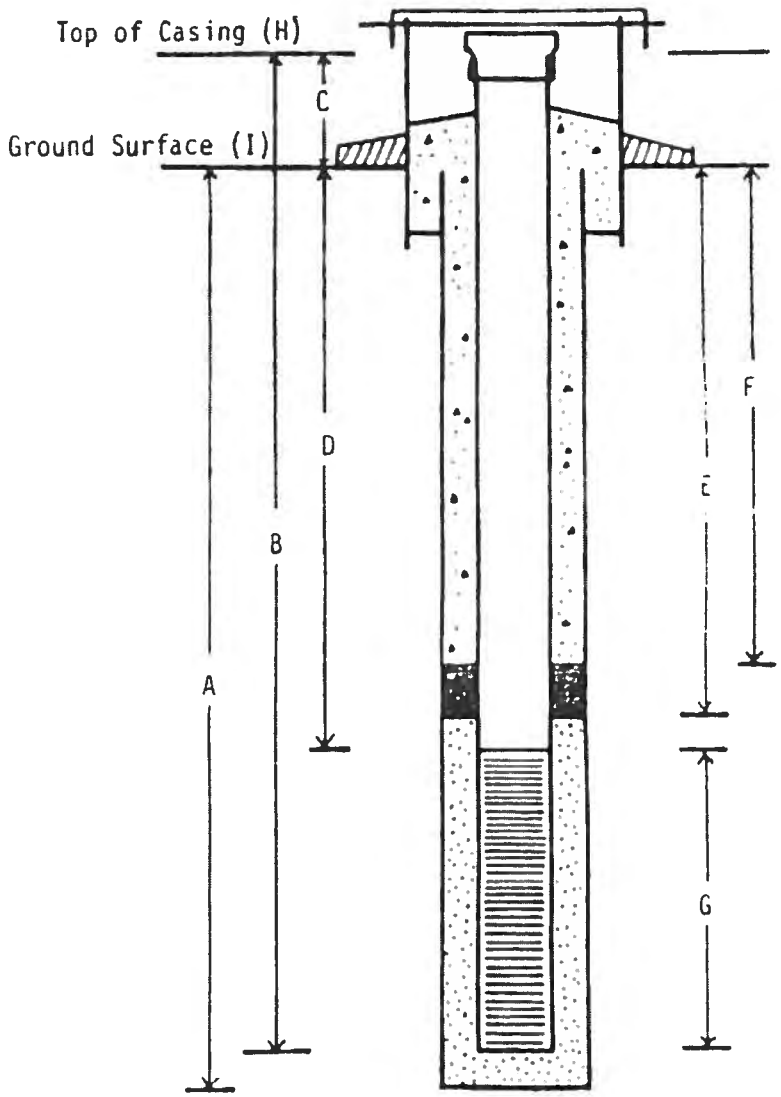
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown clay w/gravel						
			Dark gray clay w/sand seams						
5									
10			- tan						
			- brown						
15									
20			- tan and light gray						
25			- brown & light gray w/silt seams						
30			Brown and light gray clayey sand w/silt pockets						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: July 12, 1988

DEPTH TO WATER: 8.3'
DATE: 7/14/88

PLATE 17

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 38.0
(C)	Casing stickup above ground surface, feet	: 3.0
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN MW-25

PLATE 35

LOG OF BORING NO. MW-26

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed sample LOCATION

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - gray w/clay						
5			Dark gray clay w/ferrous stains						
10			- tan and light gray						
15			- brown						
20			Tan and gray sandy clay w/calcareous nodules						
25									
30			Brown clayey sand						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 24, 1988

DEPTH TO WATER: 7.6'
DATE: 7/14/88

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 37.6

(C) Casing stickup above ground surface, feet : 2.6

(D) Depth to top of screen, feet : 20.0

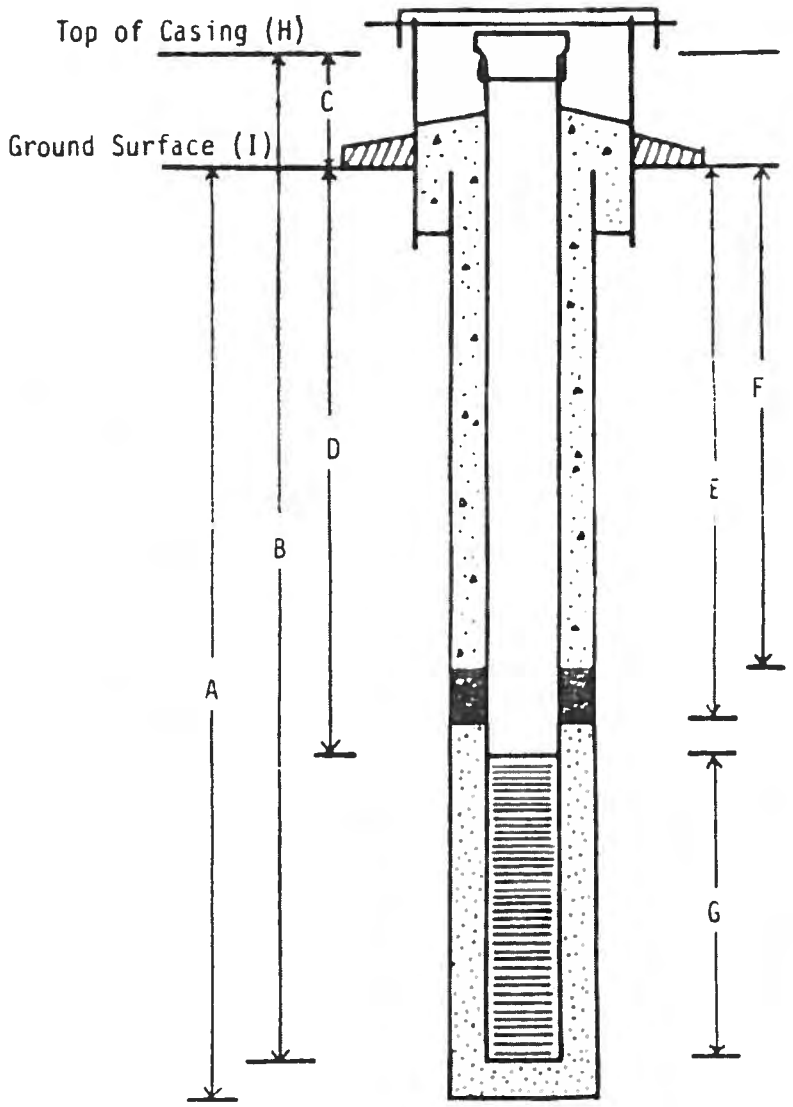
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet : 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN MW-26

PLATE 36

Monitor Well MW-27

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG

Date drilled Sept. 11, 1990 Completed Oct. 19, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 51 ft. to 72 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	16	Dark Gray and Reddish Brown Silty Clay
16 -	28	Reddish Stiff Clay
28 -	30	Reddish Silt
30 -	38	Reddish and Gray Silty Clay
38 -	50	Reddish Stiff Clay
50 -	62	Brownish Gray Clayey Silt
62 -	69	Grayish Green Silty Sand
69 -	72	Gray Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	PVC Blank Pipe	0	61.5	Sch40
4	N	PVC Slotted Screen w/cap (Western Well)	61.5	71.5	Sch40

CEMENTING DATA
Cemented from 0 ft. to 48 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 17 ft. below land surface Date 10/19/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 67.75 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-28

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Sept. 12, 1990
Completed Oct. 19, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	97

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 73 ft. to 97 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Reddish Brown Stiff Clay
20 -	26	Reddish-Gray Silty Clay
26 -	28	Reddish Silty Sand
28 -	36	Reddish Silty, Clay
36 -	38	Reddish Silty Sand
38 -	50	Reddish Stiff Clay w/ Gray Mottling
50 -	52	Gray-Brown Silty Sand
52 -	64	Gray Brown Silty Clay
64 -	68	Gray Silty Sand
68 -	74	Gray Clayey Silt to Silty Clay
74 -	80	Gray-Brown Silty Clay
80 -	94	Brown Silty Sand
94 -	98	Brown-Reddish Clay and Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	PVC Blank Pipe	0	80	Sch40
4	N	PVC Slotted Screen w/cap	80	95	Sch40
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 70 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 16.8 ft. below land surface Date 10/19/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP: ☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 87.75 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Read & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

For TDWR use only
Well No. _____
Located on map _____

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR 0392 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-29

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N E S W etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	70

Date drilled Sept. 18, 1990 Completed Oct. 22, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 53 ft. to 70 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	7	Dark Gray Silty Clay
7 -	32	Reddish Brown Stiff Clay to Silty Clay
32 -	49	Red Brown Clay with Interspersed Gray Silty Sand
49 -	57	Light Gray Silty Clay to Clayey Silt
57 -	72	Light Gray Silty Sand to Sandy Silt
72 -	74	Red Brown Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	SS Blank Pipe	0	58	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	58	68	Sch40

CEMENTING DATA
Cemented from 0 ft. to 51 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc. 62.75 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-30

Please use black ink. Send original copy by certified mail to the Texas Water Commission P.O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P.O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ Other _____

5) DRILLING METHOD (Check): ☐ Driven ☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started Sept. 20 1990 Completed Oct. 22 1990

DIAMETER OF HOLE	Dia. (in.)	From (ft.)	To (ft.)
	12	Surface	35
	8	35	69

From (ft.)	To (ft.)	Description and color of formation material
0	5	Fill Material, Concrete
5	16	Reddish Brown Clay
		w/ Gray Mottling
16	26	Light Gray and Reddish
		Brown Silty Clay
26	30	Light Gray and Reddish
		Brown Sandy Clay
30	32	Brown Silty Sand
32	52	Brown to Reddish Brown
		Silty Clay
52	59	Light Gray Silty Clay
		to Clayey Silt, with
		Some Sand
59	68	Gray Silty Sand
68	69	Reddish Brown Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 48 ft. to 69 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	35	Sch40
4	N	SS Blank Pipe	0	58	Sch40
4	N	SS Wire Wrapped Screen	58	68	Sch40
		w/cap			
		(Western Well)			

9) CEMENTING DATA (Rule 318.44(b))
Cemented from 0 ft. to 45 ft. No. of Sacks Used 6
_____ ft. to _____ ft. No. of Sacks Used _____
Method used Tremie
Cemented by Driller

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed (Rule 318.44(c))
☐ Pitless Adapter Used (Rule 318.44(d))
☒ Approved Alternative Procedure Used (Rule 318.71)

11) WATER LEVEL:
Static level 15.8 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

12) PACKERS: Type: None Depth:

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 64 ft.

14) WELL TESTS: None
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☒ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 12 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller)

(Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only
Well No. _____
Located on map _____

WWD-012 (Rev.01-28-87) TEXAS WATER COMMISSION COPY

Monitor Well MW-31

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N E, S W, etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☐ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Sept. 21, 1990 Completed Oct. 22, 1990

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	100

From (ft.)	To (ft.)	Description and color of formation material
0	29	Dark Gray and Reddish Brown Silty Clay
29	31	Brown and Light Gray Silty Sand
31	48	Reddish Brown Stiff Clay
48	65	Light Gray Silty-Sand Silty Clay
65	77	Brownish Orange Sandy Silty Clay
77	94	Reddish Silty Sand
94	100	Stiff Reddish Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 77 ft. to 100 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	SS Blank Pipe	0	80	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	80	95	Sch40

CEMENTING DATA
Cemented from 0 ft. to 74 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15.5 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 91 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS PO 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☑ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

Date drilled Sept. 28, 1990 Completed Oct. 22, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 55 ft. to 72 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	9	Dark Gray Silty Clay
9	20	Brown-Orange Silty Clay
20	21	Red Sand
21	36	Brown-Orange Silty Clay
36	49	Reddish Brown Stiff Clay
49	50	Light Gray Sand
50	60	Gray Clayey Silt to Silty Clay
60	68	Fine Grained Silty Sand
68	74	Reddish Brown Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	SS Blank Pipe	0	58	Sch40
4	N	SS-Wire Wrapped Screen	58	68	Sch40
		w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 51.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15.2 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 63.5 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS Po 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 8-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-33

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E.,S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Spet. 20, 1990
Completed Oct. 22, 1990

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	98

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☐ Other Sand Pack
If Gravel Packed give interval ... from 75 ft. to 98 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	22	Dark Gray Stiff Clay with Some Silt
22	35	Gray-Brown Reddish Clay with Some Silt
35	37	Reddish Silty Sand
37	47	Reddish Clay
47	53	Brown Silty Clay
53	59	Gray-Green Silty Clay
59	72	Gray Green Clayey Silt
72	80	Gray-Brown Silty Clay
80	94	Brown Silty Sand
94	100	Reddish Clay & Silty Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	SS Blank Pipe	0	79	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	79	94	Sch40

CEMENTING DATA
Cemented from 0 ft. to 71.5 ft.
Method used Treie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15.2 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 91.25 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0292 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-34

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Sept. 11, 1990
Completed Oct. 16, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	60

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 44 ft. to 60 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	12	Dark Gray Clay
12	17	Reddish Brown Stiff Clay
17	27	Reddish Brown w/ Gray Silty Clay
27	32	Reddish Brown and Green Gray Stiff Clay
32	42	Reddish Brown Silty Clay
42	52	Gray Reddish Brown Sandy Clay and Silty Sand
52	60	Gray Silty Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	PVC Blank Pipe	0	46	Sch40
4	N	PVC Slotted Screen w/cap (Western Well)	46	56	Sch40

CEMENTING DATA
Cemented from 0 ft. to 42 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 18 ft. below land surface Date 10/16/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 52.75 ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-35

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drivers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N E, S W, etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Sept. 12, 1990
Completed Oct. 19, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	97

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack

If Gravel Packed give interval . . . from 75 ft. to 97 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	24	Dark Gray to Reddish Brown Silty Clay
24	35	Reddish Brown Stiff Clay
35	40	Dark Brown Clayey Silt
40	48	Reddish Brown Stiff Clay
48	52	Light Brown Silty Sand
52	65	Light Gray Clayey Silt
65	74	Light Gray and Reddish Silty Sand
74	80	Reddish Stiff Clay
80	94	Reddish Sand
94	97	Stiff Reddish Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	PVC Blank Pipe	0	80	Sch40
4	N	PVC Slotted Screen w/cap (Western Well)	80	95	Sch40

CEMENTING DATA
Cemented from 0 ft. to 72.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 17.4 ft. below land surface Date 10/19/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 90 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-36

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N E, S W, etc.) direction from Pasadena Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:

Date drilled Sept. 28, 1990
Completed Oct. 10, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	73

From (ft.)	To (ft.)	Description and color of formation material
0	8	Dark Gray Silty Clay
8	19	Reddish Brown and Light Gray Stiff Clay
19	28	Brown and Light Gray Clayey Sand
28	40	Reddish Brown Stiff Clay
40	55	Reddish Brown Silty Clay
55	64	Light Gray Sandy to Clayey Silt
64	74	Light Gray Silty Sand
74	76	Light Gray and Red Silty Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 60 ft. to 73 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	SS Blank Pipe	0	62	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	62	72	Sch40

CEMENTING DATA
Cemented from 0 ft. to 55 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 21 ft. below land surface Date 10/19/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet, etc. 66.5 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-37

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E.S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. ____ Block No. ____ Township ____
Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other ____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

Date drilled Oct. 1, 1990 Completed Oct. 22, 1990

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy Silty Clay
30	41	Reddish Stiff Clay
41	42	Light Brown Sand
42	50	Gray-Brown Stiff Clay
50	64	Light Gray Silty-Clayey Sand
64	69	Greenish Gray Sand
69	72	Light Gray Silty Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 53.5 ft. to 72 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing	Gage Screen
8	N	PVC Casing	0	30	Sch40	
4	N	SS Blank Pipe	0	58	Sch40	
4	N	SS Wire Wrapped Screen	58	68		Sch40
		w/cap (Western Well)				

CEMENTING DATA
Cemented from 0 ft. to 50.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 16 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other ____
Depth to pump bowls, cylinder, jet, etc., 63.75 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) ____ (Licensed Water Well Driller) (Signed) ____ (Registered Driller Trainee)

For TDWR use only
Well No ____
Located on map ____

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR 0382 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-38

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N E, S W, etc.) direction from Pasadena (Town) Texas

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to the form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 5, 1990
Completed Oct. 11, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	94

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 75 ft. to 94 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	12	Dark Gray Silty Clay
12	17	Reddish BRown Stiff Clay
17	22	Brown Sandy Clay
22	26	Red Brown Silty Clay
26	40	Reddish Brown Stiff Clay with Some Sand
40	48	Brown and Gray Stiff Clay
48	62	Gray Sandy Silt
62	68	Gray Silty Sand
68	75	Brown Gray Silty Clay
75	92	Reddish Brown Silty Sand
92	100	Reddish Brown Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	SS Blank Pipe	0	78	
4	N	SS Wire Wrapped Screen w/cap (western Well)	79	93	

CEMENTING DATA
Cemented from 0 ft. to 71 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 14.9 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 87 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

For TDWR use only
Well No. _____
Located on map _____

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-39

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL County Harris 0 miles in - (N E, S W, etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG.

Date drilled Oct. 4, 1990
Completed Oct. 10, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 55.5 ft. to 72 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	13	Reddish Brown Silty Clay
13	25	Reddish Brown Stiff Clay
25	26	Orange Brown Silty Sand
26	36	Reddish Brown Stiff Clay
36	47	Reddish Brown Silty Clay
47	59	Gray Sandy Silt
59	69	Fine Gray Sand
69	72	Brown-Gray Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	PVC Blank Pipe	0	59	Sch40
4	N	PVC Slotted Screen	59	69	Sch40
		w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 53.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15.9 ft. below land surface Date 10/23/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 65 ft.

12) WELL TESTS. None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

For TDWR use only
Well No. _____
Located on map _____

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR 0392 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-40

DRILLING AND SAMPLING INFORMATION

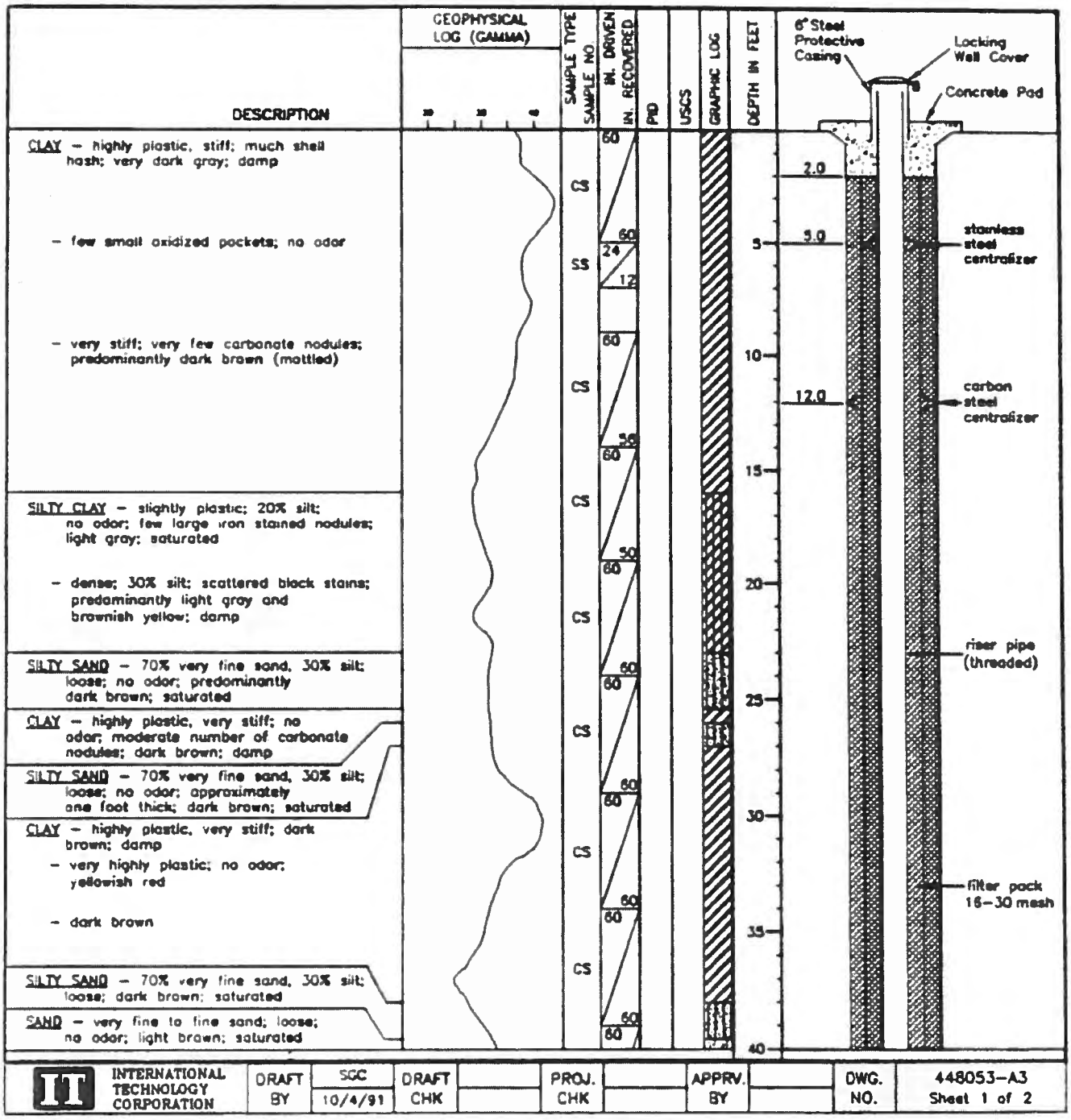
Boring Location: 8' NW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN
Date Started: 8/29/91
Drilled By: J. LANDEROS
Date Completed: 9/10/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY
Sampling Method: 5' CONTINUOUS CORE BARREL AND 2' SPLIT SPOON

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 26.38 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8 5/8 Depth(ft.): 47.5 Type: Sch 40 PVC
   Centralizers–Type: Carbon Stl Depths(ft.): 12, 44
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers–Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50–70 Slot Size(in.): .010
   Centralizers–Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6–71
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A3 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-40

DRILLING AND SAMPLING INFORMATION

Boring Location: 8' NW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN
Date Started: 8/29/91
Drilled By: J. LANDEROS
Date Completed: 9/10/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY
Sampling Method: 5' CONTINUOUS CORE BARREL AND 2' SPLIT SPOON

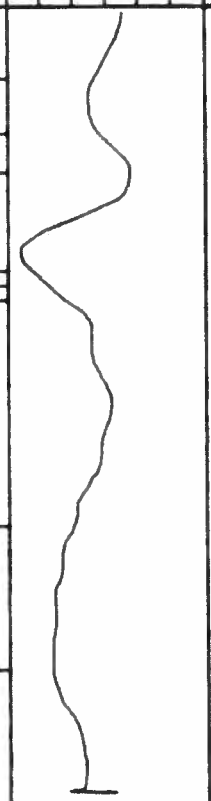
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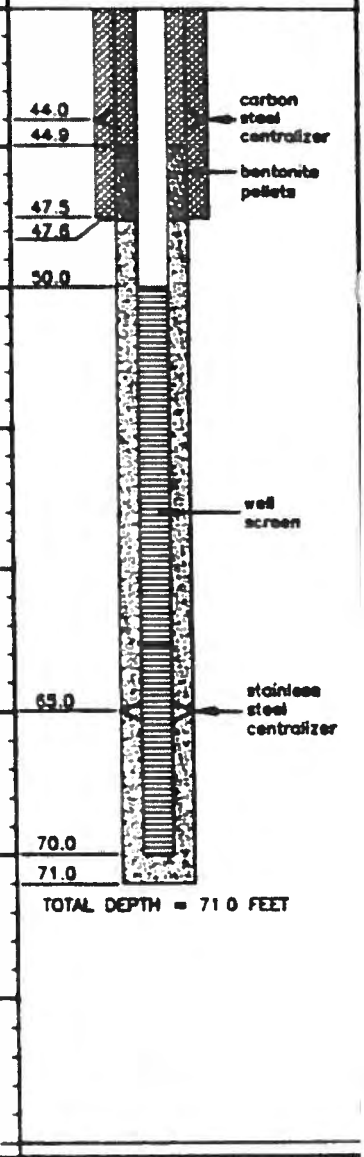
WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.38 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 5/8 Depth(ft.): 47.5 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 44
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6-71
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND – very fine to fine sand; loose; no odor; light brown; saturated	CS		60				
CLAY – very highly plastic, very stiff; yellowish red; damp	SS		50				
SILTY CLAY – light gray, mottled	SS		24/24				
CLAY – very highly plastic; hard; no odor; yellowish brown, mottled with thin light gray; damp	SS		24/16				
– plastic; very stiff; damp	SS		24/16				
CLAYEY SILT – nonplastic; stiff; yellowish brown; saturated	SS		24/24				
CLAY – yellowish brown	SS		24/12				
CLAYEY SILT – yellowish brown	SS		24/24				
– moderately plastic; stiff; no odor; very few iron stains in micro fractures; saturated	SS		24/24				
SILTY CLAY – moderately plastic; 30% silt, 70% clay; very stiff; light gray, few brown stained "spots" at 59.0 to 59.5; damp							
CLAYEY SILT – moderately plastic; 40% clay, 60% silt; very stiff; no odor; light gray, few brown stains; damp							
SILTY SANDY CLAY – 40% clay, 40% silt, 20% fine sand; laminations vary from 1 to 6 inches; light brownish gray; thin black organic deposits at 70.0							

GEOPHYSICAL LOG (GAMMA)





INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A3 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-41

DRILLING AND SAMPLING INFORMATION

Boring Location: SW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 23.9
TOTAL DEPTH(FT.): 72
Logged By: S. PULLEN
Date Started: 8/30/91
Drilled By: J. LANDEROS
Date Completed: 9/11/91

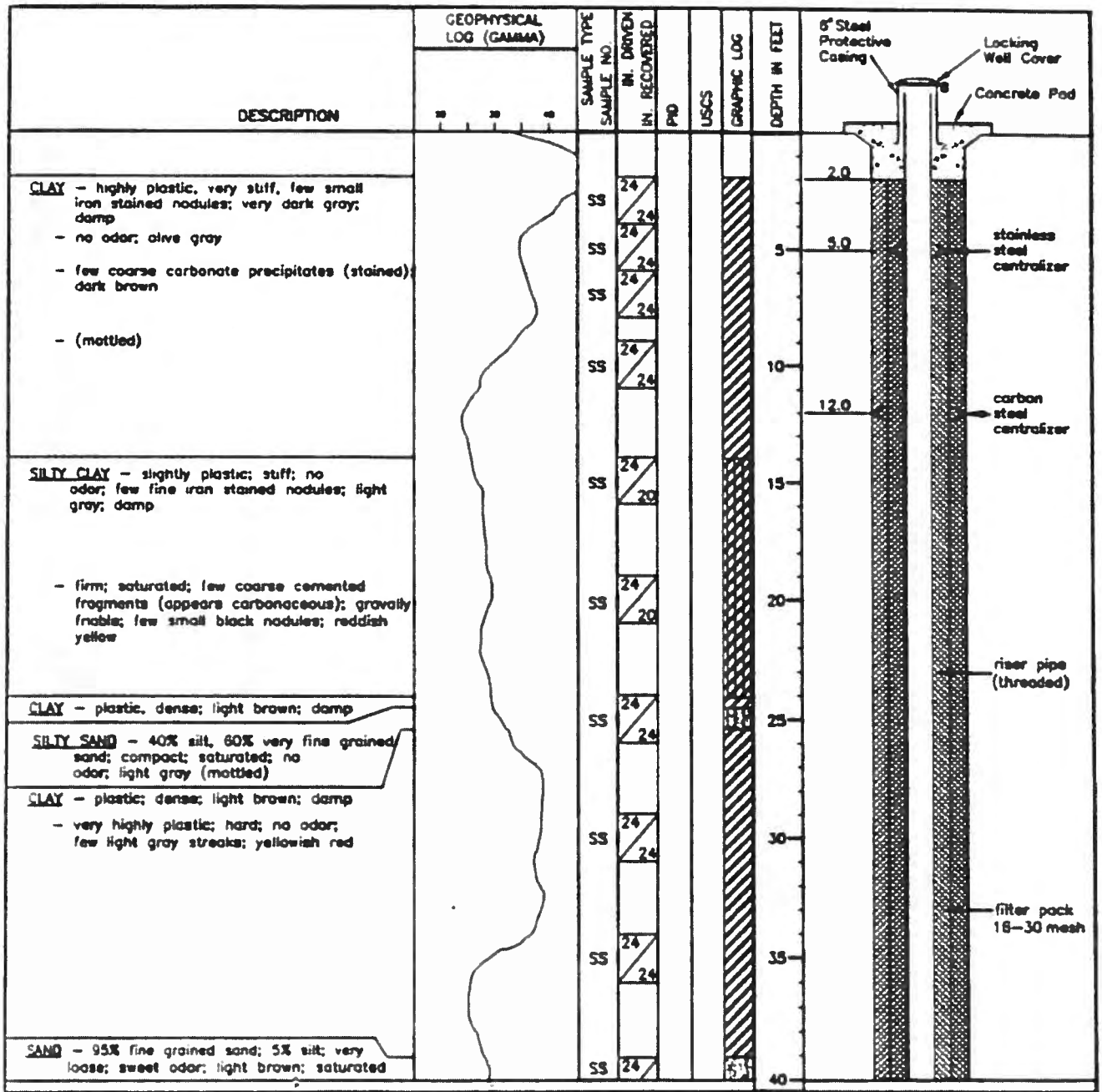
Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY

Sampling Method: 2' SPLIT SPOON

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.43 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 41.5
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.2-72
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A4 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-41

DRILLING AND SAMPLING INFORMATION

Boring Location: SW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 23.9
TOTAL DEPTH(FT.): 72
Logged By: S. PULLEN
Date Started: 8/30/91
Drilled By: J. LANDEROS
Date Completed: 9/11/91

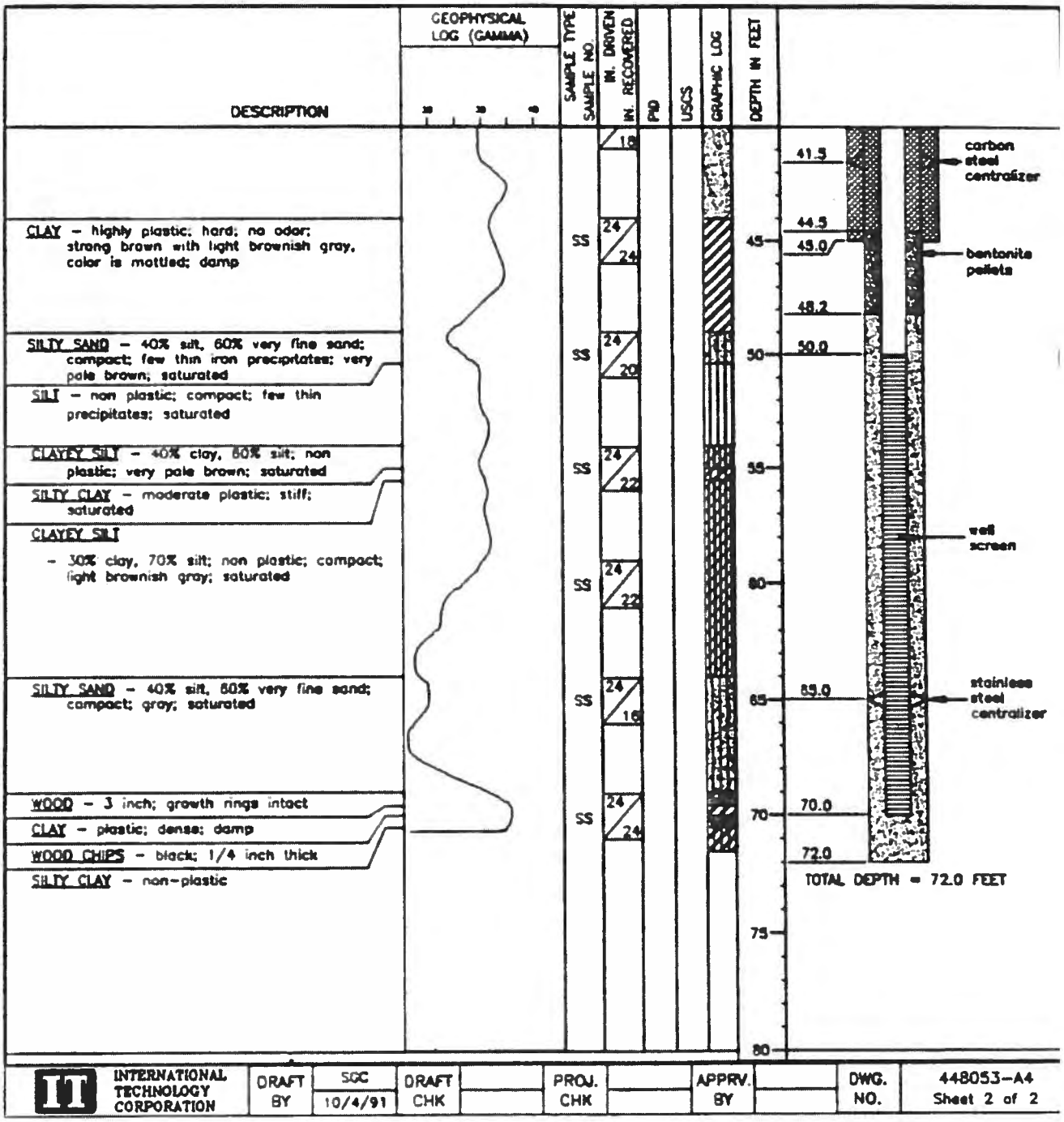
Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS

Sampling Method: 2" SPLIT SPOON

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.43 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 44.5
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.2-72
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A4 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-42

DRILLING AND SAMPLING INFORMATION

Boring Location: NW OF ACID POND
W OF TANK V18.148
SURFACE ELEV.(FT): 22.9
TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN
Drilled By: J. LANDEROS
Date Started: 9/3/91
Date Completed: 9/11/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY

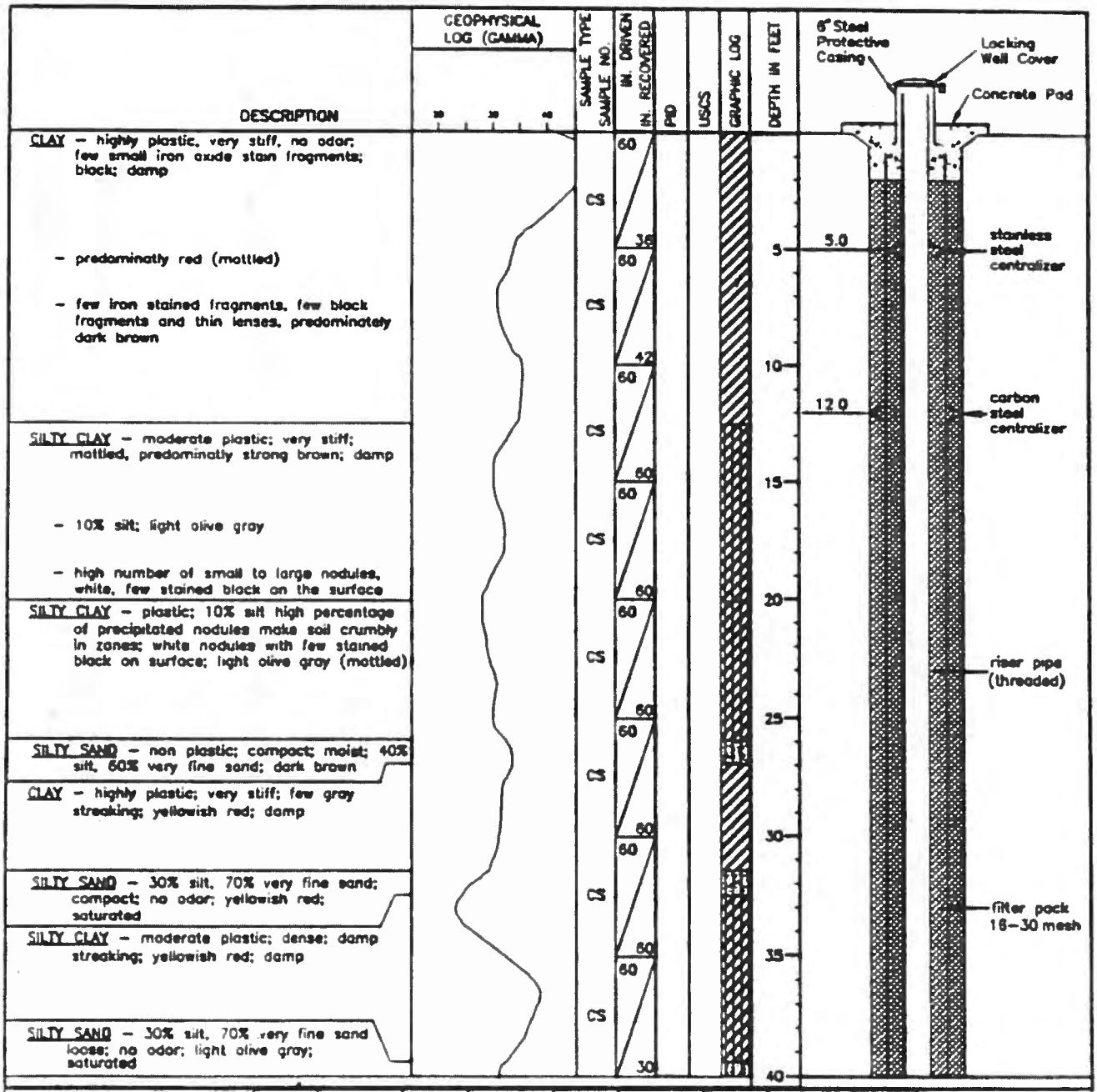
Sampling Method: 2' SPLIT SPOON AND 5' CONTINUOUS CORE BARREL

Notes: CHEMICAL ANALYSIS SAMPLE EVERY 5 FEET

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 24.36 Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45.5 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 42
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.8-71
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	J.V. 10/9/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A5 Sheet 1 of 2

renamed MW

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-42

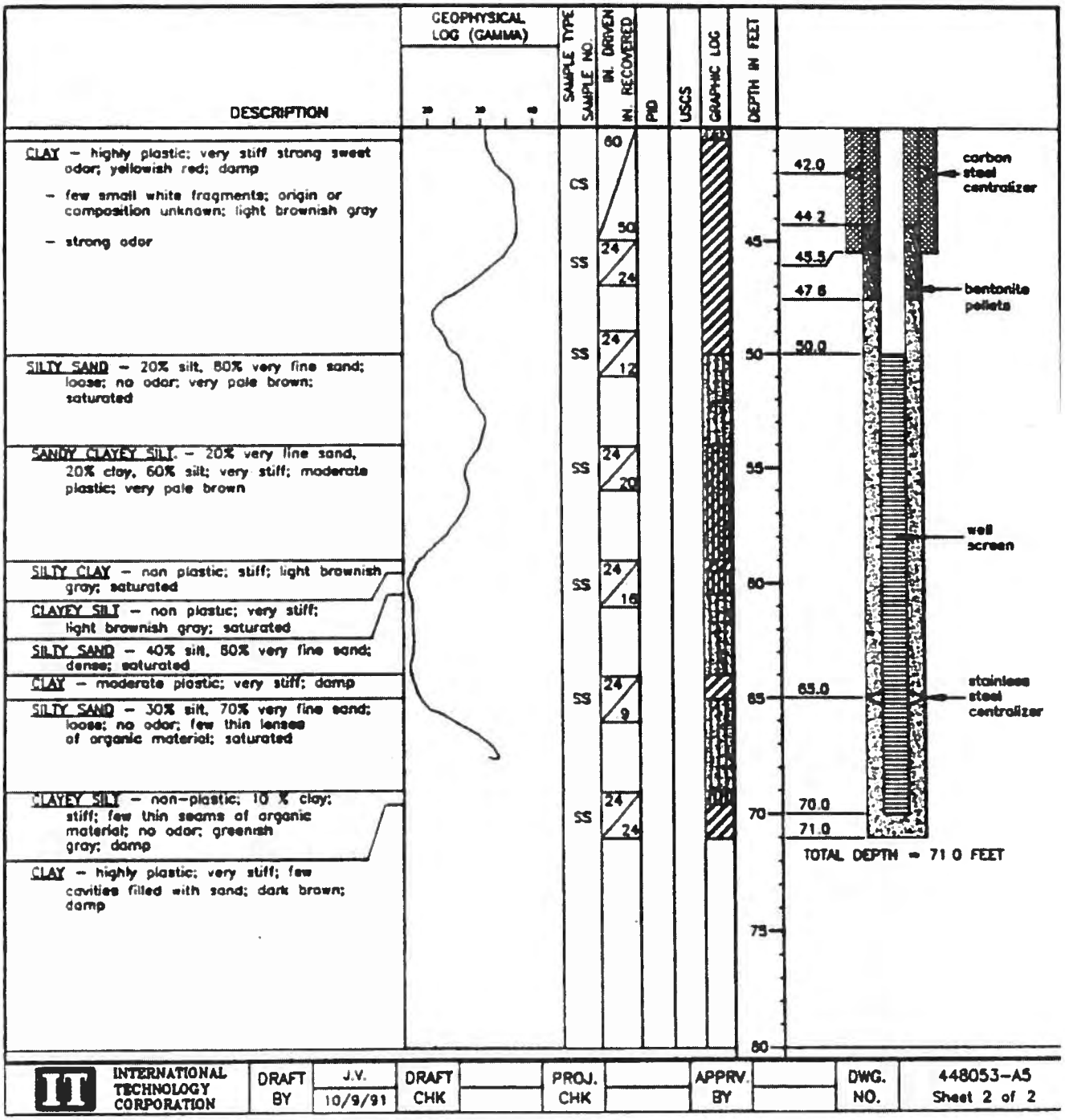
DRILLING AND SAMPLING INFORMATION

Boring Location: NW OF ACID POND W OF TANK V16.148
SURFACE ELEV.(FT): 22.9
TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN
Date Started: 9/3/91
Drilled By: J. LANDEROS
Date Completed: 9/11/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY
Sampling Method: 2' SPLIT SPOON AND 5' CONTINUOUS CORE BARREL
Notes: CHEMICAL ANALYSIS SAMPLE EVERY 5 FEET

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 24.36 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45.5 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 42
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6-71
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	J.V. 10/9/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A5 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-43

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF LUNCH ROOM
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:

SURFACE ELEV.(FT): 26.2
TOTAL DEPTH(FT.): 71.0
Date Started: 4/15/92
Date Completed: 4/23/92

Sampling Method: SHELBY TUBE

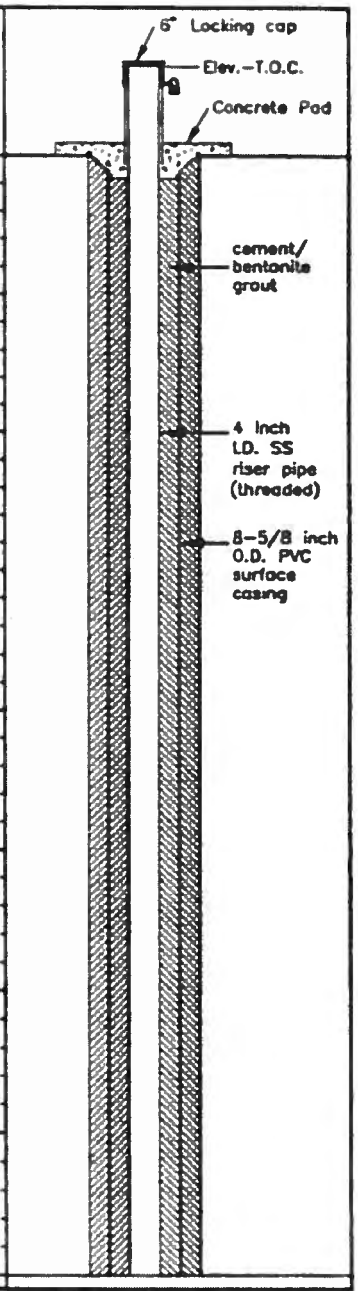
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.96 Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 46.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 30.0 Type: S.Stl.
   Centralizers-Type: - Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 50.0-69.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5-71.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - limestone gravel; granule to pebble sized; light gray - silty clay with occasional oyster shell fragments; high plasticity; medium to dark gray; moist; no odor		12/24 12/24				
SILTY CLAY - very plastic; moderately stiff; possible high organic content; red coated concretions (possibly iron); dark gray; moist; sour odor - occasional reddish brown concretions; medium gray; mottled yellowish brown; slightly moist; no odor - plastic; iron concretions; black concretions; yellowish brown; mottled reddish brown and light gray; moist		12/24 12/24 18/24 12/24		cl		5
SILTY SANDY CLAY - very plastic; moderately stiff; approximately 30 degree fractures with slickensides; black concretions; reddish brown; mottled light gray; moist; no odor		24/24		ch		10
SILTY SAND - well sorted; reddish brown; slightly moist; no odor		24/24		sm		
SILTY SANDY CLAY - low plasticity; approximately 60% clay, 30% silt; light gray; mottled orangish to yellowish brown and tan; slightly moist; no odor		24/24		cl		15
SILTY CLAY - moderate plasticity; light gray; occasionally mottled yellowish, reddish brown and tan; slightly moist; no odor		24/24		cl-ch		
SILTY SANDY CLAY - low plasticity; approximately 60% clay, 30% silt; light gray; occasionally mottled yellowish to orangish brown and tan; occasionally mottled black; slightly moist; no odor		24/24 20/24		cl		20
SILTY CLAYEY SAND - very fine grained sand; compact; moderately well sorted; occasional white concretions; light gray; mottled orange and occasionally black; moist; no odor		24/24		ml		
SILTY SAND - very fine to fine grained sand; thin layered; occasionally micaceous; orangish brown; moist; no odor		24/24		sm		25
SILTY SANDY CLAY - moderate plasticity; very fine grained sand (fining downward); reddish brown to light gray; moist; no odor		24/24		ml		
SILTY SAND - very fine grained sand; well sorted; occasional clay laminates; slightly micaceous; reddish brown; mottled tan clay fractures; moist to wet; no odor		19/24 11/24		sm		30
SILTY CLAY - plastic; stiff; slickensides; reddish brown; occasionally mottled light gray along approximately 70 degree fractures; occasional black mottling; moist; no odor		12/24		ch		
- occasional yellowish orange mottling		15/24				35
- slightly moist; no odor		24/24				
- moist; no odor - generally mottled yellowish brown		22/24 14				40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A21 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-43

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF LUNCH ROOM
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT, REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:

SURFACE ELEV.(FT): 26.2
TOTAL DEPTH(FT.): 71.0
Date Started: 4/15/92
Date Completed: 4/23/92

Sampling Method: SHELBY TUBE

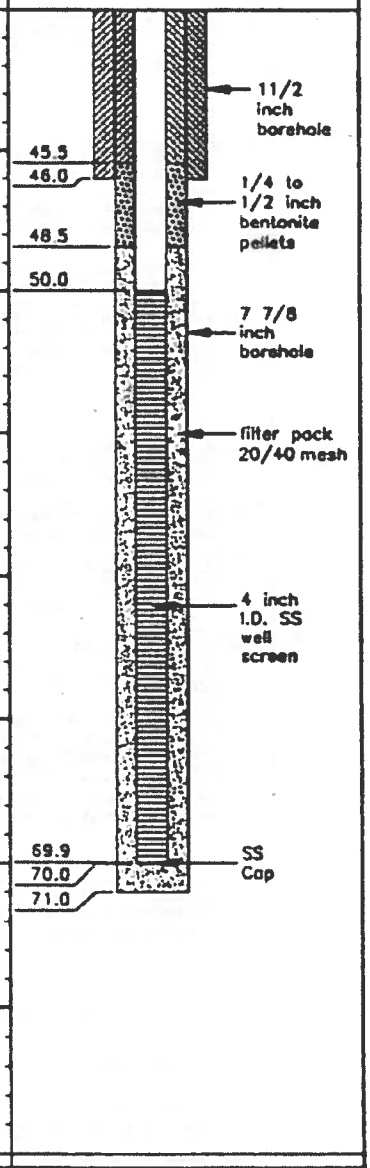
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.96 Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 46.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 30.0 Type: S.Stl.
   Centralizers-Type: - Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 50.0-69.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5-71.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- high plasticity; snail fossil		24				
CLAY - very plastic; stiff; approximately 45 degree slickensides along fractures; light bluish gray; occasional reddish brown mottling; moist; no odor - moist to slightly moist		24, 24, 24, 24, 24, 24, 20		ch		45
SILTY SAND - very fine grained sand; well sorted; light gray; moist to wet; no odor; (abrupt contact) - very fine to fine grained sand; compact; thinly, horizontally bedded; light gray to off-white; yellow discolorization along possible burrows; wet; sweet odor		24, 24, 24		sm		50
SANDY CLAYEY SILT - nonplastic; very fine grained sand; light gray; yellowish brown mottling; wet; no odor		24		ml		
SILTY CLAY - slight plasticity; occasional moderate plasticity; light gray; yellowish brown mottling; moist; no odor		24		cl		
CLAYEY SILT - nonplastic; compact; massive or bioturbated; light gray; yellowish to orangish mottling; moist to wet; no odor - black and white pebble sized concretions - very coarse, granule size, white concretions (calcareous?)		24, 24, 24, 24, 24, 24, 24, 24		ml		55
CLAYEY SANDY SILT - nonplastic; very fine grained sand; massive or bioturbated; no concretions; light gray; yellowish to orangish mottling; moist; no odor - abrupt contact and color change		24, 24, 24, 24, 24, 24, 24		ml		60
SILTY SAND - very fine grained sand; well sorted; very compact; massive or bioturbated; light greenish/yellowish gray; orangish brown mottling; moist; no odor - massive (gradational upper contact); light gray; moist to wet; no odor		24, 24, 22, 24		sm sp		65
SILTY CLAY - high plasticity; stiff; bioturbated; approximately 2 inch diameter burrows filled with silty clay and iron stained around circumference; yellowish and reddish brown; moist to dry; no odor - occasional burrows filled with clay; bluish gray; reddish brown mottling; occasionally mottled yellowish brown		24, 24, 24, 24		ch		70
TOTAL DEPTH = 71.0 FEET						75 80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A21 Sheet 2 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-44

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF LUNCH ROOM
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT, REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:

SURFACE ELEV.(FT): 25.9
TOTAL DEPTH(FT.): 74.0
Date Started: 4/21/92
Date Completed: 4/27/92

Sampling Method: SHELBY TUBE

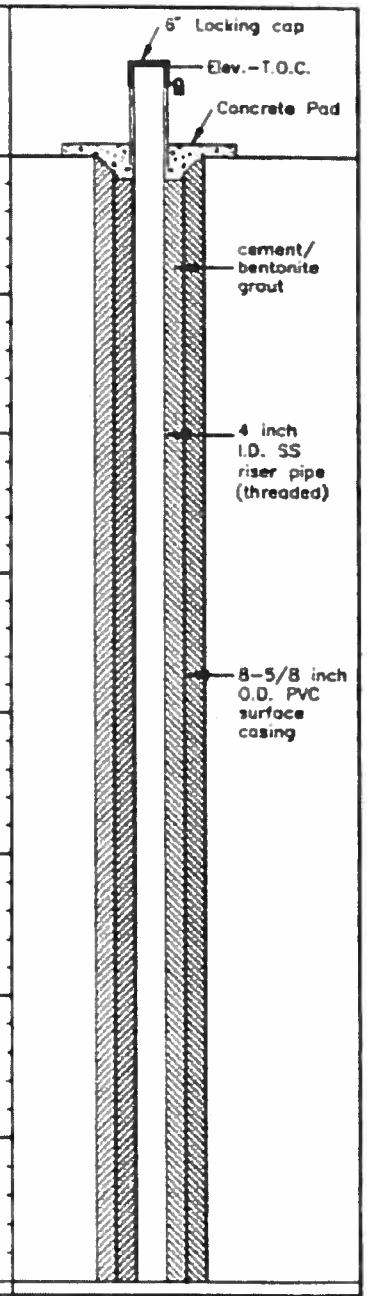
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.96 Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 48.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 53.5 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 53.5-73.5 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 51.4-74.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - granule to pebble size limestone; subangular with very fine to coarse grained silty sand; light gray		12/9				
CLAY - very plastic; stiff; occasional iron concretions; approximately 1 to 2% partially decayed organic material from 1 to 9.5 feet; occasional shell fragments to 4 feet; dark gray; moist; no odor		24/6		ch		
		24/6				
		24/12				
		24/12				
- occasional white concretions from 9.5 to 13 feet; reddish brown; light gray mottling; occasionally black along fracture fillings		24/15				
		24/24				
SANDY SILTY CLAY - slight plasticity; very fine grained sand; micaceous; reddish brown; light gray mottling; moist to slightly moist; (gradational upper and lower contact)		24/24		cl		
- moderate plasticity; becoming very plastic at 17.8 feet; occasional white concretions (calcareous?); slightly micaceous; light bluish gray; occasional orangish brown mottling		24/24				
		24/23				
- slight plasticity; moist; light gray		24/20				
CLAYEY SANDY SILT - nonplastic; very fine grained sand; compact; frequent white concretions; light gray; occasionally orangish brown; occasionally black along fractures; wet; no odor		24/20		ml		
SANDY SILTY CLAY - slight plasticity; very fine grained sand; occasional white concretions; light gray; orangish brown mottling; occasionally black along fractures		24/12		cl		
CLAYEY SILTY SAND - very fine grained sand; compact; well sorted; light gray; orangish to reddish brown mottling; moist; no odor		24/20		sp		
SILTY SAND - very fine to fine grained sand; compact; well sorted; orangish to reddish brown; moist; no odor		24/18		sp		
SILTY CLAY - high plasticity; occasional very fine grained sand laminae from 27.5 to 28 feet; reddish brown; occasional light gray mottling; moist to dry; no odor		24/12		ch		
- occasional white concretions; occasional slickensides along approximately 45 degree fractures; occasionally black along fillings		24/18				
		24/15				
- occasional light gray and black mottling; occasional yellowish brown mottling		24/15				
- frequent slickensides along approximately 45 degree fractures		24/24				
- abrupt contact		24/24				
SILTY SAND - very fine grained sand; well sorted; occasionally slightly micaceous subhorizontal laminations; reddish brown; moist; no odor		24/24		sp		
- abrupt contact		24/22		ch		
SILTY CLAY - high plasticity; occasional very fine grained sand laminations; reddish brown; yellowish brown mottling; occasionally black and light gray; moist; no odor						



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A22 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-44

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF LUNCH ROOM
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:

SURFACE ELEV.(FT): 25.9
TOTAL DEPTH(FT.): 74.0
Date Started: 4/21/92
Date Completed: 4/27/92

Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.96 Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 48.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 53.5 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(In.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 53.5-73.5 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 51.4-74.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	USCS	GRAPHIC LOG
- light gray mottling - moderate to high plasticity; occasional white concretions; occasional slickensides along approximately 30 degree fractures; light gray; reddish brown mottling		
SILTY CLAY TO CLAY - high plasticity; 30 to 45 degree slickensided fractures; reddish brown; light gray mottling; moist; no odor - stiff; light gray; orange mottling	ch	
SAND - fine to very fine grained; well sorted; light beige with some orange	sp	
SILTY CLAY - high plasticity; organic material; light gray; orange and rust mottling; becomes sandier at 53.5 feet - more silty and friable - some worm burrows and other organic matter - calcareous matter; some small white concretions	ch	
CLAYEY SILT TO SILTY SAND - very friable; organic and calcareous matter; small white concretions; light gray; orange mottling	ml	
SILT - sharp contact; very uniform color and grain size; no organics; light gray to white	ml	
SILTY SAND TO SAND - fine to very fine grained sand; some lenses of coarser grained sand and organics; light to medium gray; becomes orange tinged at base	cl	
SILTY SAND - fine to very fine grained sand; some lenses of coarse grained sand and organics; light to medium gray; becomes orange tinged at base - very consistent color and texture	sm	
SAND - fine grained; lots of organic matter (wood fragments) at base; medium gray; much coarser than other sands in well	sm	
CLAY - nonplastic; stiff; hard; white calcareous concretions; greenish blue and brown	cl	
TOTAL DEPTH = 74.0 FEET		

SAMPLE TYPE / SAMPLE NO. / IN. DRIVEN / IN. RECOVERED: 24 / 24 / 24 / 12 / 24 / 24 / 21 / 24 / 18 / 24 / 20 / 24 / 24 / 24 / 24 / 24 / 24 / 24 / 20 / 24 / 12 / 24 / 24 / 24 / 24 / 24 / 24 / 24

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-45

DRILLING AND SAMPLING INFORMATION

Boring Location: NW OF ACID SPILL POND
SURFACE ELEV.(FT): 23.7
TOTAL DEPTH(FT.): 71.0
Logged By: G. ROBERTSON
Date Started: 4/14/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 4/24/92
Drill Rig Type: MUD ROTARY
Drilling Method:

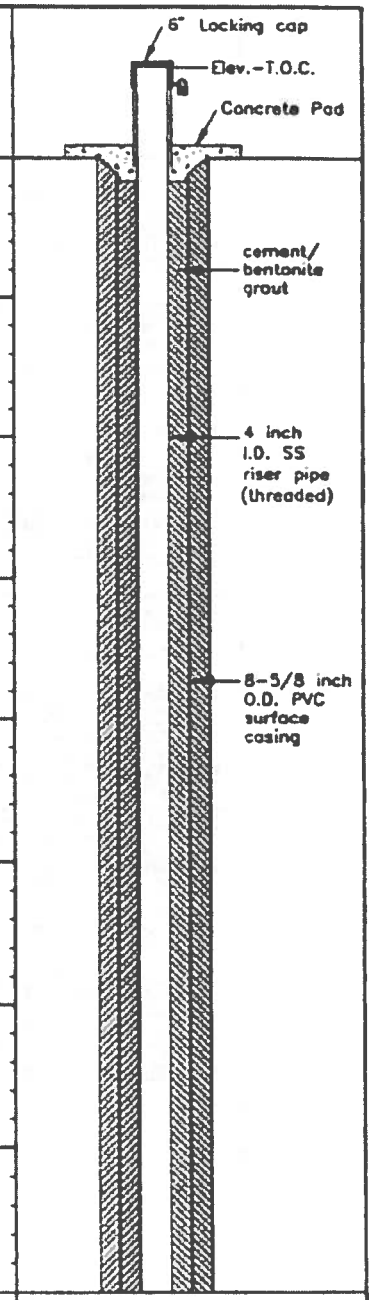
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.12 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 46.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50.0 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 50.0-69.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5-71.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - limestone gravel; light gray - sandy silty clay; fine grained sand; shell fragments; reddish brown - silty clay; very plastic; medium gray; dry to moist; no odor - gravel and shell		12/12, 24				
SILTY CLAY - organic material; medium to dark greenish gray; dry to moist; no odor		24		ch		
CLAY - medium gray; yellowish brown mottling; moist; no odor		24		ch		
CLAY AND GRAVEL - shell fragments; medium gray; wet; no odor		24		ch		
CLAY - iron concretions; medium gray; medium brown mottling; moist; no odor		24		ch		
SILTY CLAY TO CLAY - very plastic grading to less plastic; becoming more stiff with depth; medium gray to reddish brown; wet; no odor		24		ch		
CLAY - stiff; reddish brown; medium gray along fractures; occasional dark gray fillings (organic, magnesium or other?) - magnesium/iron concretions; slickensides along approximately 40 degree fractures; gray mottling along fractures - black to dark gray fillings along fractures; occasional yellowish brown mottling		24		ch		5
SILTY CLAY - nonplastic; stiff; iron concretions; light yellowish gray; occasionally reddish brown along fractures - occasional white to off-white concretion (calcareous) nodules; light gray; occasionally reddish brown; moist; no odor - occasional black concretions (magnesium, organic or other?)		24		ch		10
CLAYEY SILTY SAND - very fine grained sand; well sorted; light brown to light gray; moist; no odor		24		sm		15
SILTY CLAY - stiff; orange to red to brown; occasionally light gray; moist; no odor - reddish brown		24		ch		20
SILTY CLAYEY SAND - very fine grained sand; slightly micaceous; well compacted; poorly graded; light reddish brown to light gray; moist; no odor		24		sc		25
SILTY CLAY - stiff; reddish brown; moist; no odor occasional medium gray mottling along fractures		24		ch		30
SILTY SAND - very fine grained sand; well sorted; light yellowish to orangish brown; occasional greenish gray fillings along fractures; sharp contact above and below		24		sc		35
CLAY - very stiff; reddish brown; occasional light gray and dark greenish gray along fractures; dry; strong sweet odor - occasional yellowish brown fillings along fractures		24		ch		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A23 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-4

DRILLING AND SAMPLING INFORMATION

Boring Location: NW OF ACID SPILL POND
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT, REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:
SURFACE ELEV.(FT): 23.7
TOTAL DEPTH(FT.): 71.0
Date Started: 4/14/92
Date Completed: 4/24/92

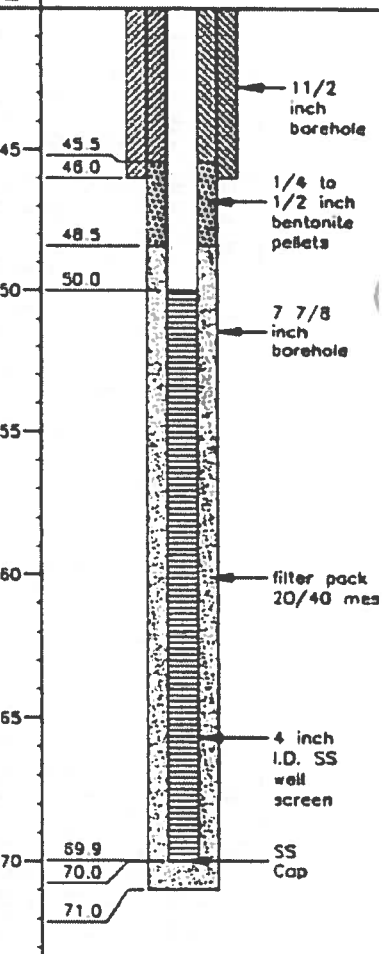
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.12 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 46.0 Type: Sch 40 PV
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50.0 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 50.0-69.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5-71.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- minor, thin, silty, very fine grained sand lamination surrounded by a yellowish brown color		24				
SILTY CLAY - sharp contact; stiff; light bluish gray; occasional yellowish brown mottling; moist; no odor		24		ch		
- occasinal white concretions (nodules)		24				
- high plasticity; occasional slickensided fractures at approximately 30 to 40 degrees; orangish brown mottling; moist to dry		24				
- very fine grained, well sorted, silty sand lense approximately 1 inch thick		24				45
SILTY SAND - abrupt contact; very fine grained sand; well sorted; light gray; slight orangish brown mottling; wet; no odor		22				
- very fine to fine grained sand; appears to coarsen slightly downward; graded vertically; compact		24		sp		
SILTY SANDY CLAY TO CLAYEY SILT - slight plasticity; poorly graded; fining upward; bioturbated; iron stains along burrows; light gray; occasional orangish brown mottling; moist; no odor		24				
		13		cl-ml		
SILTY CLAY - slight plasticity; light gray; occasional orangish brown mottling; moist; no odor		24				
- no mottling		24				50
		24				
		18		cl-ml		
SILTY SAND - well sorted; compact; homogenous; light gray; wet slight fruity smell		24				
		24		sp		
SILTY CLAYEY SAND - very fine grained sand; compact; light gray; moist; no odor		24		sp		
SILTY SAND - well sorted; compact; gradational change in grain size; light brownish gray; wet; no odor; POORLY GRADED		24		sp		55
SILTY CLAY - moderate to high plasticity; stiff; reddish brown; light gray mottling; dry; no odor		24				
		24		ch		
SILTY SAND - very fine grained sand; well sorted; massive; light gray; wet; no odor		24		sp		
- very fine to fine grained sand; coarsening downward; bioturbated; possible organic material; occasional medium to dark gray mottling along burrows		24				
		24				60
- gradational progressive change		24				
SILTY CLAY - moderate to slight plasticity; light gray to medium gray; moist to wet; no odor		24				
- black wood fragments from 70 to 72 feet; occasional burrows; light gray granule to pebble size concretions at 71 feet		22		cl		
		24				65
		21				
TOTAL DEPTH = 71.0 FEET						70
						75
						80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A23 Sheet 2 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-46

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF DRUM STORAGE
SURFACE ELEV.(FT): 26.1
TOTAL DEPTH(FT.): 47.5
Logged By: K. HENKE
Date Started: 6/2/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 6/3/92
Drill Rig Type: MOBILE DRILL B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER

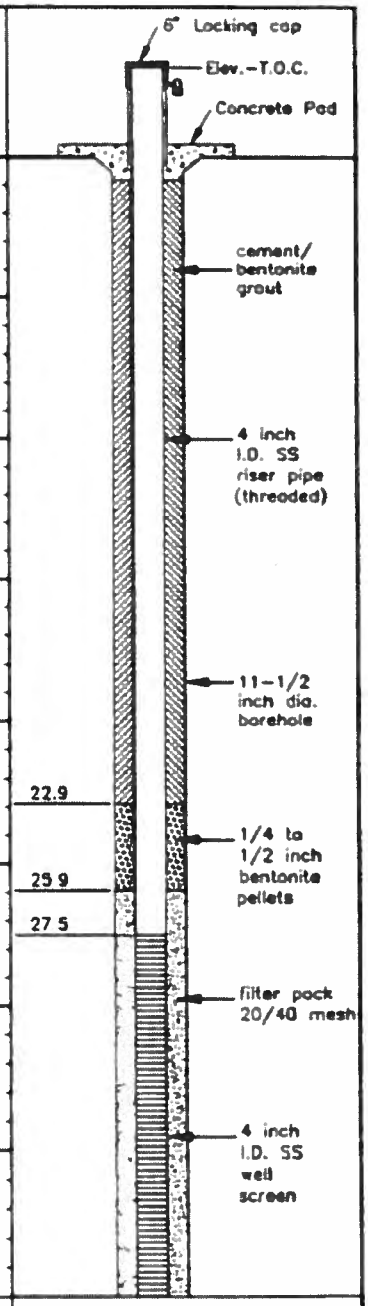
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 28.10 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): - Depth(ft.): - Type: -
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 27.5 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 27.5-47.4 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 25.9-47.5
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - white rocks mixed with reddish brown clay and silt						
CLAY - stiff; large pieces of shell; dark gray (5YR 3/1)		24/18		ch		
SAND - some black clay and reddish silt stringers; 10YR 5/2		24/18		sc		
CLAY - very stiff; some organic matter; some silty orange lenses; 5YR 3/1		24/18		ch		5
- 10YR 3/1; wet; no odor		24/18				
- plastic; moderately stiff; very little silt; calcareous nodules; 7.5YR 5/2 and 7.5YR 5/4		24/18				10
- fewer nodules; 5YR 5/4, 5YR 5/6 and 5Y 6/2, gray and reddish brown mottling		24/18				
- more red than above		24/18				
SILTY CLAY - 50% clay, 50% gray silty stringers; 5YR 5/4 and 5YR 5/6		24/18		ch		15
SILT AND CLAYEY SILT - very fine grained; some calcareous nodules; 10YR 6/2 and 10YR 7/2		24/24		cl-ml		
CLAYEY SILT TO CLAYEY SAND - very fine grained sand; organics; some iron staining; 10YR 7/2		24/24		sc		20
SILTY CLAYEY SAND - very fine grained sand; organics; some iron staining; 10YR 7/2		24/24		sc		
CLAYEY SILT AND SAND - very fine grained sand; very friable; organics; some iron staining; 10YR 7/2		24/24		sc-sm		22.9
- 50% red clay		24/24				25
CLAY - very stiff; some calcareous nodules; some gray silty lenses; 2.5YR 4/8		24/18		ch		25.9
- some organic matter and gray clay nodules; 2.5YR 4/8 and 2.5YR 5/6		24/18				27.5
- red and gray mottling		24/24				30
- less gray areas		24/24				
		24/18				35
CLAYEY SILT - friable; some gray veins of siltier material; no odor		24/20		cl		
CLAY - very stiff; reddish brown		24/24		ch		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A27 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-4(

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF DRUM STORAGE
SURFACE ELEV.(FT): 26.1
TOTAL DEPTH(FT.): 47.5
Logged By: K. HENKE
Date Started: 6/2/92
Drilled By: M. WILSON, REED AND MORRIS
Date Completed: 6/3/92
Drill Rig Type: MOBILE DRILL B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER

Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 28.10 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): - Depth(ft.): - Type: -
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 27.5 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 27.5-47.4 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 25.9-47.5
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- reddish gray from 40 to 40.5 feet - minor yellowish gray silty layers		18/24 24/24 24/24		ch		45
CLAYEY SILT - very stiff; 5Y 5/2 and 5Y 6/1; olive and gray mottling		24/24		cl		
CLAY - very stiff; mottled with gray silty lenses; 10YR 6/3 and 7.5YR 5/4		?/24		ch		
TOTAL DEPTH = 47.5 FEET						50 55 60 65 70 75 80

47.4
47.5
SS
Cap

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A27 Sheet 2 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-47

DRILLING AND SAMPLING INFORMATION

Boring Location: SE OF DRUM STORAGE PAD
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 47.0
Logged By: V. CRNICH
Date Started: 4/16/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/20/92
Drill Rig Type: MOBILE B-61
Drilling Method: HOLLOW STEM AUGER

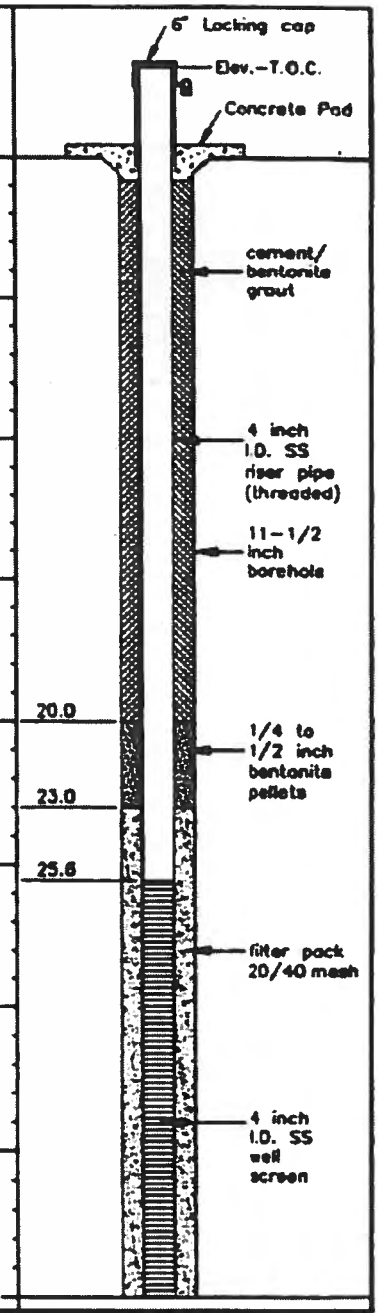
Sampling Method: 5' CONTINUOUS SAMPLER

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.09 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.6 Type: Sch 40 S.St
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.St WIRE WRAPPED
   Depth Interval(ft.): 25.6-45.6 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.0-47.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell; brown, white and gray						
SILTY CLAY - very plastic; moderately stiff; approximately 5% silt; trace of fill material; grayish black; iron staining; no odor		60		ch		
- dark green and gray; yellowish brown mottling		60		cl		
- moderate plasticity; occasional dark brown and black nodules		60				
- sandy; friable; dark red; greenish yellow mottling; occasional black staining; damp		60				
- occasional white nodules (carbonate?)		60				
- very stiff; reddish brown; medium green along fractured planes; moist		30				
- carbonate nodules and stringers; iron staining; approximately 3 inches of silt from 16.7 to 17 feet		36				
- slight plasticity; black nodules and staining; green; approximately 4 inches of silt from 17 to 17.4 feet; damp						
SAND - very fine grained; green				lml		
SILTY CLAY - occasional carbonate nodules; green		36		cl		
SILTY SAND - 85% fine to medium grained sand, 15% silt; green with brownish yellow mottling; some black staining; wet		60		sm		
- increase in percentage of silt (25 to 20%), 70% fine grained sand; dark brownish red						
- green with brownish yellow mottling; iron staining						
- carbonate nodules		60				
CLAY - approximately 1 foot of clay; dark reddish brown with green mottling; black staining				cl		
SILTY SAND - approximately 75% very fine grained sand, 25% silt; small carbonate nodules; iron staining; wet; no odor				sm		
CLAY - small zone (approximately 6 inches) of very plastic clay; very stiff; crumbly; dark reddish brown; green mottling; rare black stains; weak odor				cl		
- moderate plasticity; stiff; 2.5YR 5/4 with 5.6Y 7/1 mottling; minor black staining		60				
- iron staining; mild odor		60				
SILTY SAND - very fine grained sand, approximately 30% silt; 5YR 6/3; wet				sm		
CLAY - stiff; minor carbonate nodules; 2.5YR 5/4; weak odor		60		cl		



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A24 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-47

DRILLING AND SAMPLING INFORMATION

Boring Location: SE OF DRUM STORAGE PAD
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 47.0
Logged By: V. CRNICH
Date Started: 4/16/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/20/92
Drill Rig Type: MOBILE B-61
Drilling Method: HOLLOW STEM AUGER

Sampling Method: 5' CONTINUOUS SAMPLER

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.09 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.6 Type: Sch 40 S.St
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.St WIRE WRAPPED
   Depth Interval(ft.): 25.6-45.6 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.0-45.6
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine to fine grained sand; occasional clay lens; 5YR 6/3; wet; mild odor		60		sm		
CLAY - stiff; 2.5YR 5/4; minor black stains; mild odor				cl		
SILTY SAND - 5YR 6/3				sm		
CLAY - nonplastic; stiff; fine grained sand lens (5.6Y 7/1); 2.5YR 5/4; faint odor		60 / 24		cl		45
- moderate plasticity; firm; occasional carbonate nodules; 5.6Y 7/1; 5YR 5/4 mottling; no odor		20				
TOTAL DEPTH = 47 FEET						50
						55
						60
						65
						70
						75
						80

45.6 — SS
45.6 — Cap
47.0

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A24 Sheet 2 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-48

DRILLING AND SAMPLING INFORMATION

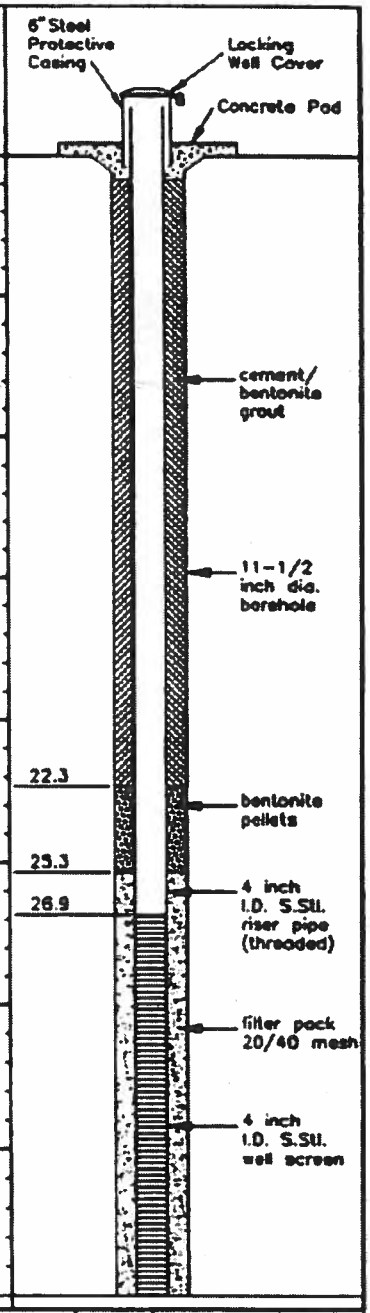
Boring Location: NORTH OF FIRE WATER POND
SURFACE ELEV.(FT): 25.0
TOTAL DEPTH(FT.): 48.0
Logged By: V. CRNICH
Date Started: 5/14/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 5/18/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.62
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Centralizers-Type: -
   Depth(ft.): 26.8 Type: Sch 40 S.Stl.
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Depth Interval(ft.): 26.9-46.8
   Centralizers-Type: -
   Type: Sch 40 S.Stl. Millslotted
   Slot Size(in.): .010
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Conc. Pad Size: 2'x2'x6"
   Depth Interval(ft.): 25.3-48.0

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell						
CLAY - high plasticity; soft; chunks of gravel and shell; roots; 2.5Y 3/0 to 2.5Y 3/2; no odor; (backfill?)	MW-48-3.5	24 9		ch		
- plastic; crumbly; carbonate nodules; 5Y 4/2; blue and gray mottling	MW-48-7.0	60				5
- slightly sandy; 5YR 5/6	MW-48-8.5			ch-cl		
SANDY CLAY - low plasticity; soft; approximately 5% fine grained sand; 5YR 5/6; no odor		52				
SILTY CLAY - low plasticity; soft; crumbly; carbonate nodules; green clay seams; 7.5YR 5/8; no odor	MW-48-11.0	60		ch-cl		10
- black stained nodules		60				
- 2.5YR 4/8; yellow and brown mottling; moist		60				15
SANDY CLAY - low plasticity; soft; fine grained sand; poorly graded; carbonate nodules 5Y 7/1 to 5G 7/1				ch-cl		
CLAYEY SILT - high plasticity; green clay lenses; soft; carbonate nodules; 10YR 8/6; green and red mottling; moist; no odor		50		ml-cl		
SANDY CLAY - fine grained fragments; 5YR 5/6		60		ml		20
CLAYEY SILT - 5YR 5/8; green mottling; moist; no odor						
SILTY SAND - very fine to fine grained sand; poorly graded; 5YR 5/6; wet to saturated; no odor		30 60		sm		25
CLAY - low plasticity; firm; blocky texture; 5YR 5/6; green and black mottling				cl		
SILTY SAND - very fine to fine grained; 7.5YR 6/4; saturated				sm-cl		
SILTY CLAY - low plasticity; firm; 5YR 5/6; green and yellowish brown mottling; no odor		35		cl		
CLAY - low plasticity; firm; blocky texture; black coating on microfractures; 5YR 5/6		60				30
- firm to stiff; 2.5YR 4/6; (at 30 feet)						
- thin, silty bands; (at 31.5 feet)						
- very firm to stiff; blocky texture; green mottling; no odor		60 24 0 24 12 24				35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A50 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-48

DRILLING AND SAMPLING INFORMATION

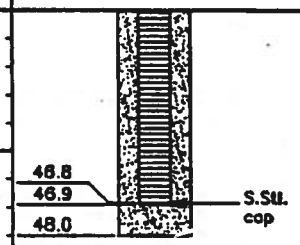
Boring Location: NORTH OF FIRE WATER POND
SURFACE ELEV.(FT): 25.0
TOTAL DEPTH(FT.): 48.0
Logged By: V. CRNICH
Date Started: 5/14/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 5/18/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.62
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 26.8 Type: Sch 40 S.Su.
   Centralizers-Type: -
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Type: Sch 40 S.Su. Millslotted
   Depth Interval(ft.): 26.9-46.8
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 25.3-48.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND - very fine to fine grained; poorly graded (less than 6 inches); slightly silty; 5YR 6/4; moist; no odor		24 / 9		sp		
CLAY - low plasticity; very firm to stiff; thin sandy stringers; 2.5YR 4/6		24 / 10		cl		
SAND - approximately 6 inches of very fine to fine grained sand; slightly silty; 5YR 6/4; green mottling; wet		12 / 9		sm		
CLAY - low plasticity; very firm to stiff; blocky text; sandy stringers; 2.5YR 4/6; green mottling		24 / 12		cl		
TOTAL DEPTH = 48.0 FEET		24 / 17				



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A50 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-49

DRILLING AND SAMPLING INFORMATION

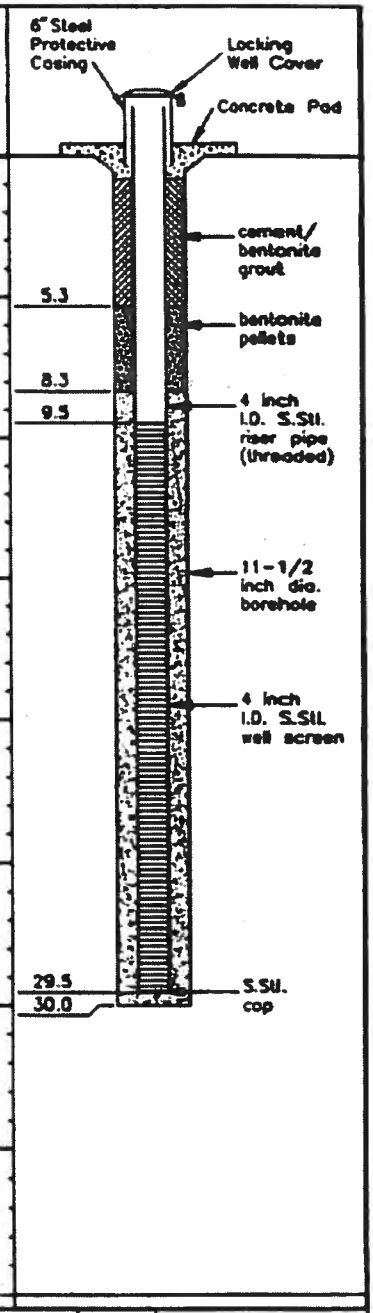
Boring Location: NORTH OF FIRE WATER POND
SURFACE ELEV.(FT): 25.0
TOTAL DEPTH(FT.): 30.0
Logged By: V. CRNICH
Date Started: 5/20/92
Drilled By: R. REED REED AND MORRIS
Date Completed: 5/20/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER WITH 11 1/2 INCH BIT
Sampling Method: NO SAMPLES COLLECTED

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.79
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 9.5 Type: Sch 40 S.Stl.
   Centralizers-Type: -
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Type: Sch 40 S.Stl.Millslotted
   Depth Interval(ft.): 9.5-29.5
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 8.3-30.0
   Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell			
CLAY - high plasticity; soft; chunks of gravel and shell; roots; 2.5Y 3/0 to 2.5Y 3/2; no odor; (backfill?)	ch		
- plastic; crumbly; carbonate nodules; 5Y 4/2; blue and gray mottling			
- slightly sandy; 5YR 5/6			
SANDY CLAY - low plasticity; soft; approximately 5% fine grained sand; 5YR 5/6; no odor	ch-cl		
SILTY CLAY - low plasticity; soft; crumbly; carbonate nodules; green clay seams; 7.5YR 5/6; no odor	ch-cl		
- black stained nodules			
- 2.5YR 4/6; yellow and brown mottling; moist			
SANDY CLAY - low plasticity; soft; fine grained sand; poorly graded; carbonate nodules; 5Y 7/1 to 5G 7/1	ch-cl		
CLAYEY SILT - high plasticity; green clay lenses; soft; carbonate nodules; 10YR 8/6; green and red mottling; moist; no odor	ml		
SANDY CLAY - fine grained fragments; 5YR 5/6	cl		
CLAYEY SILT - 5YR 5/6; green mottling; moist; no odor	ml		
SILTY SAND - very fine to fine grained sand; poorly graded; 5YR 5/8; wet to saturated; no odor	sm		
CLAY - low plasticity; firm; blocky texture; 5YR 5/6; green and black mottling	cl		
SILTY SAND - very fine to fine grained; 7.5YR 8/4; saturated	sm		
SILTY CLAY - low plasticity; firm; 5YR 5/6; green and yellowish brown mottling; no odor	cl		
CLAY - low plasticity; firm; blocky texture; black coating on microfractures; 5YR 5/8	cl		
TOTAL DEPTH = 30.0 FEET			



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A51 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-50

DRILLING AND SAMPLING INFORMATION

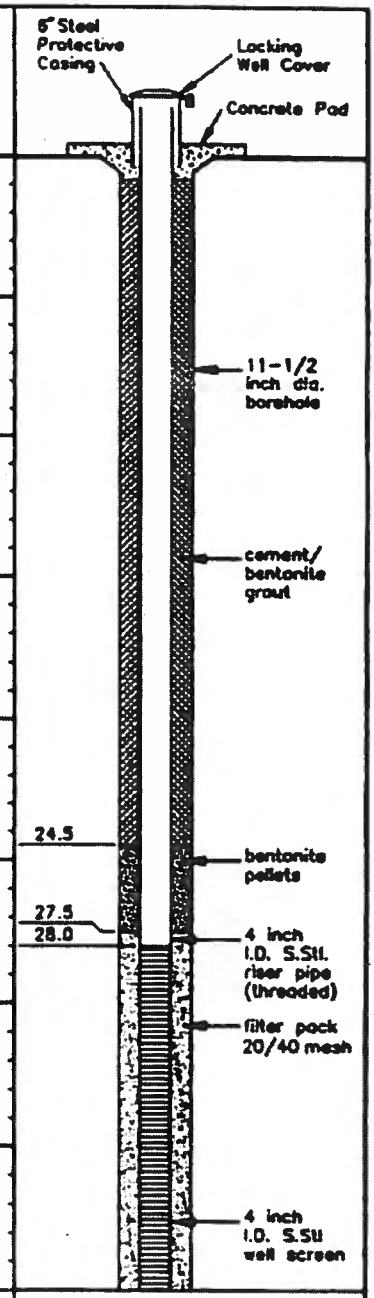
Boring Location: NE CORNER OF FIRE WATER POND
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 48.0
Logged By: G. KRATOCHVIL
Date Started: 5/26/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 5/26/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBES

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.80
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
Depth(ft.): 28.0 Type: Sch 40 S.Stl.
Centralizers-Type: -
Depths(ft.): -
2. Screen Dia.(in.): 4
Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 28.0-47.9
Slot Size(in.): .010
Centralizers-Type: -
Depths(ft.): -
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 27.5-48.0
Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE	SAMPLE NO	IN. DRIVEN	IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
ASPHALT								
FILL - gravel and shell								
SILTY CLAY - high plasticity; firm; 5Y 3/1; slightly moist; no odor			24	16		cl		
CLAY - high plasticity; firm; 5Y 3/1; slightly moist; no odor			24	12		ch		5
- 5Y 3/1 and 10YR 4/6; some mottled dark gray and dark yellowish brown			24	24				
- 10YR 4/6; slight odor			24	15				10
SILTY CLAY - high plasticity; firm; 7.5YR 4/6; mottled 5Y 8/1; slightly moist; no odor			24	13		cl		
- sparse calcium carbonate nodules			24	19				
SANDY CLAY - plastic; firm; 2.5Y 8/4; mottled 2.5Y 8/6; slightly moist			24	15		cl		15
CLAYEY GRAVELLY SAND - plastic; soft; 2.5Y 8/4; saturated; no odor			24	16		sc		
SANDY CLAY - slight plasticity; firm; 10YR 6/6; slightly moist; no odor			24	19		cl		
CLAYEY SANDY SILT - slight plasticity; firm; 7.5YR 6/6; moist; slight odor			24	17		ml		20
CLAYEY SILT - plastic; firm; 10YR 8/4 and 7.5YR 4/6 (mottled); slightly moist; no odor			24	18		ml		
SAND - nonplastic; fine grained; well sorted; soft; 7.5YR 5/4; moist; no odor			24	19		sp		
GRAVELLY CLAY - plastic; 3 inches firm; 5YR 5/6; slightly moist; no odor			24	19		cl		25
SAND - nonplastic; fine grained; well sorted; soft; 7.5YR 5/6; moist; no odor			24	18		sp		
CLAYEY SAND - plastic; firm; 7.5YR 5/6; slightly moist; no odor			24	19		sc		
CLAY - plastic; very firm; 7.5YR 5/6; slightly moist; no odor			24	19		cl-ch		
- high plasticity; firm; blocky structure; mottled 10YR 8/2			24	19				30
- slickensides; 5YR 4/6 with 10YR 8/2			24	20				
CLAYEY SILT - plastic; firm; 7.5YR 5/6; slightly moist; no odor			24	17		ml		35
SILTY CLAY - moderate plasticity; firm; 7.5YR 5/6; slightly moist; no odor			24	0		cl		
SILTY SAND - saturated; no recovery			24			sp		
SILTY CLAY - plastic; very firm; 7.5YR 5/4; slightly moist; no odor						cl		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A56 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-50

DRILLING AND SAMPLING INFORMATION

Boring Location: NE CORNER OF FIRE WATER POND
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 48.0
Logged By: G. KRATOCHVIL
Date Started: 5/26/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 5/26/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBES

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.80 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 28.0 Type: Sch 40 S.Stl.
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 28.0-47.9 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 27.5-48.0
Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- 5YR 5/4; mottled 5Y 7/1			19/24				
CLAY - high plasticity; soft; 5YR 5/4; moist; no odor			18/30		cl-ch		
- very firm; 5Y 6/1; slightly moist			22/30				
TOTAL DEPTH = 48.0 FEET			25				

47.9
48.0
S.Stl. cap

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A56 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-51

DRILLING AND SAMPLING INFORMATION

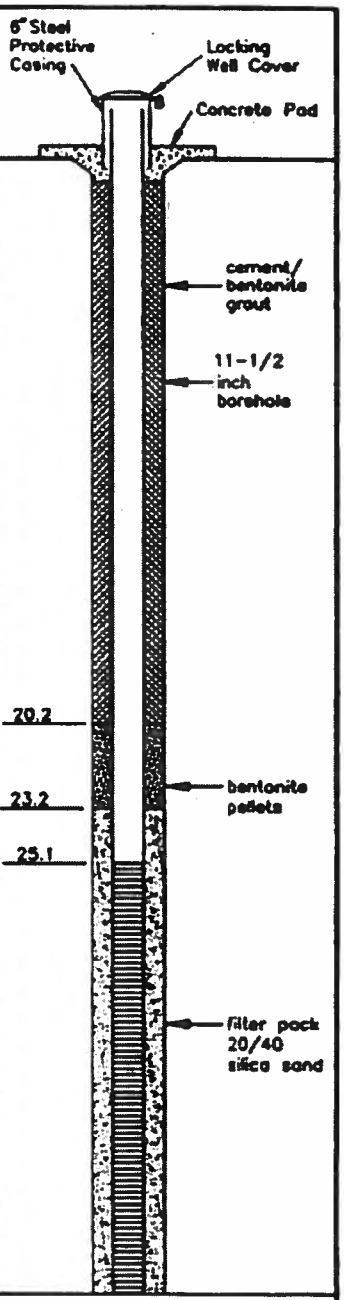
Boring Location: SOUTHWEST OF SPILL OFF PIT
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 49.0
Logged By: V. CRNICH
Date Started: 4/22/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/23/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: SHELBY TUBE; 5-FOOT CONTINUOUS SAMPLER

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.76
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 — Depth(ft.): 25.1 Type: Sch 40 SS
   Centralizers-Type: - — Depths(ft.): -
2. Screen Dia.(in.): 4 — Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 25.1-45.0 — Slot Size(in.): .010
   Centralizers-Type: - — Depths(ft.): -
3. Filter Pack Type: Silica Sand — Depth Interval(ft.): 23.2-47.0
   Conc. Pad Size: 2'x2'x6"

Notes: SS=STAINLESS STEEL

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell						
CLAY - moderate plasticity; firm; fragments of fill material; green mottling; no odor; 5YR 5/4		24 / 16				
- slightly silty; soft; iron stained nodules; minor root material; 5Y 3/1		24 / 24				
SILTY SANDY CLAY - firm; occasional carbonate nodules; minor iron staining; no odor; 5Y 3/1		60				5
- increase in sand; crumbly (loose)		60				
- plastic; firm; iron stained nodules; minor small carbonate nodules; 5YR 5/4		60				10
- soft; easy to crumble		60				
- moderate plasticity; firm to stiff; decrease in sand; mottled green; iron staining; slightly damp		30				
- stiff; increase in carbonate nodules; 5YR 4/6		60				15
- slightly plastic; green clay coating on fracture faces		60				
SILTY CLAYEY SAND - fine grained sand; well graded; iron stained nodules; 5YR 4/6		60				20
SILTY SANDY CLAY - moderate plasticity; stiff; iron stained fragments; green mottling		60				
- plastic; increase in iron staining; 5Y 7/2		60				
SILTY CLAYEY SAND - fine grained; well graded; loose; clay lenses; yellowish brown mottling; 5Y 7/2		60				
SILTY SANDY CLAY - low plasticity; firm; abundant carbonate nodules		60				25
SILTY CLAYEY SAND - fine grained; iron staining; mottled orangish brown		60				
SILTY SANDY CLAY - low plasticity; stiff		60				
SILTY CLAYEY SAND - fine grained sand; slightly loose; well graded; carbonate nodules; green mottling; no odor; 7.5YR 5/6		60				30
SANDY CLAY - fine grained sand; firm; blocky; green clay coating on fracture faces; black staining; wet; 2.5YR 4/4		60				
SILTY SAND - very fine to fine grained; green and yellowish brown mottling; wet; no odor		60				
SILTY CLAYEY SAND - fine grained; loose; some carb. nodules		60				35
SILTY SANDY CLAY - plastic; stiff; black staining		60				
SILTY CLAYEY SAND - fine grained; green clay fracture fillings		60				
SILTY CLAY - low plasticity; less than 5% silt; stiff; green fracture faces; black fracture fillings; Mg stain.; blocky; sandy at 32.5 ft		60				
CLAY - high plasticity; firm; minor green mottling; wet; 2.5YR 4/4		60				
SANDY CLAY - fine grained; trace of carb. nodules; no odor						
CLAYEY SILT - green clay coating on fractured faces; moist		17				40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A33 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-51

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHWEST OF SPILL OFF PIT
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 49.0
Logged By: V. CRNICH
Date Started: 4/22/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/23/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: SHELBY TUBE; 5-FOOT CONTINUOUS SAMPLER

Notes: SS=STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.76
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 25.1 Type: Sch 40 SS
   Centralizers-Type: -
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Type: Sch 40 SS Milsslotted
   Depth Interval(ft.): 25.1-45.0
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 23.2-47.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine grained; wet; no odor; 7.5YR 6/4 - minor amounts of clay; moist		60		SM		45
CLAY - plastic; very stiff; very fine grained sand lenses (7.5YR 6/4); orangish yellow mottling; black staining; 5YR 4/4 - nonplastic; blocky - very fine grained sand along fractured faces; orangish brown mottling; no odor - very fine grained silty sand in lower three inches		36 24 24 18 0		CL SM		
TOTAL DEPTH = 49.0 FEET						50 55 60 65 70 75 80

45.0
45.1
47.0
49.0

0.010 milsslotted well screen
SS casing
bentonite pellets

IT INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A33 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-52

DRILLING AND SAMPLING INFORMATION

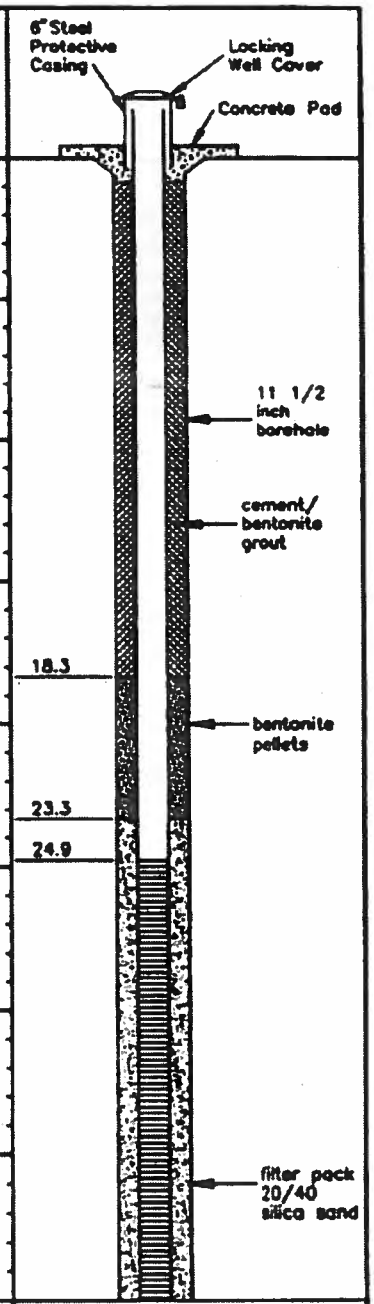
Boring Location: NORTHWEST OF ONT SCRUBBER
Surface Elev.(ft): 24.8
Total Depth(ft.): 46.0
Logged By: V. CRNICH
Date Started: 4/28/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/28/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH SHELBY TUBE; 5-FOOT CONTINUOUS SAMPLER

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.05 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.9 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 24.9-44.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.3-46.0
   Conc. Pad Size: 2'x2'x6"

Notes: SS=STAINLESS STEEL

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell	MW-52 -1.5	24 / 15		fl		
CLAY -high plasticity; soft; green mottling; 5YR 5/4 - slightly firm; iron stains; slight odor; (backfill?); 2.5Y 3/0 - roots	MW-52 -3.5	18 / 10		ch		
SANDY CLAY - very soft; crumbly; 2.5Y 3/0 - 10YR 5/8	MW-52 -5.0 / MW-52 -7.0	60 / 32		ch		5
SILTY CLAY - high plasticity; stiff; 8 -10% silt; occasional carbonate nodules; green mottling; no odor		60 / 45		ch/ cl		10
SANDY CLAY - low plasticity; soft; fine grained sand; well sorted; crumbly; 5YR 4/4		60 / 60		sc		
SILTY CLAY - low plasticity; firm; trace amounts of sand; small sandy, crumbly zones; green mottling; no odor - stiff; trace of carbonate nodules; black (Mg) staining		60 / 60		cl		15
CLAYEY SAND - fine grained sand; well sorted; orange/brown mottling; no odor; 5Y 7/2		60 / 60		sc		
SILTY CLAY - low plasticity; firm; 35-40% silt; carbonate nodules; orange/brown mottling; red mottling at 23 feet		60 / 60		cl		20
CLAYEY SILT - abundant large carbonate nodules; 5Y 7/2		60 / 60		ml		
SILTY CLAY - low plasticity; firm; 20(?)% silt; crumbly zones; mottled orange/brown		60 / 60		cl		
CLAY - slight plasticity; firm; slightly silty; blocky texture; green mottling and coating on fracture faces; 5YR 4/4 - crumbly, softer than above - low plasticity; stiff; blocky; heavily fractured; fractures coated with green clay		60 / 60		cl		25
CLAYEY SILT - moist; no odor; 5YR 4/4		60 / 60		ml		
CLAY - stiff; fractured, blocky texture; crumbly, soft, silter toward bottom; highly plastic and soft at 35 feet		60 / 60		cl		30
CLAYEY SILT - mottled green; moist; no odor; 5YR 5/4		60 / 60		ml		
SILTY SAND - wet; no odor		60 / 60		sm		35
CLAYEY SILT- 15% clay in places; saturated; no odor; 10YR 8/8		60 / 60		ml		
SILTY CLAYEY SAND - clay increases with depth; moist; 5YR 5/4		60 / 60		sm		
CLAY - low plast; stiff; grn. coat. on fract. faces, 5YR 4/4		60 / 60		cl		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A34 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-52

DRILLING AND SAMPLING INFORMATION

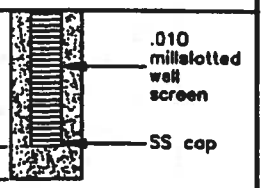
Boring Location: NORTHWEST OF DNT SCRUBBER
SURFACE ELEV.(FT): 24.8
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 4/28/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/28/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH SHELBY TUBE; 5-FOOT CONTINUOUS SAMPLER

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.05 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.9 Type: Sch 40 SS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
Depth Interval(ft.): 24.9-44.9 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.3-46.0
Conc. Pad Size: 2'x2'x6"

Notes: SS=STAINLESS STEEL

DESCRIPTION	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- occasional silty sand coatings on fracture faces; blocky texture - magnesium coating on fracture faces		60 14		a		45
T.D. = 46.0 feet						50 55 60 65 70 75 80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A34 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-53

DRILLING AND SAMPLING INFORMATION

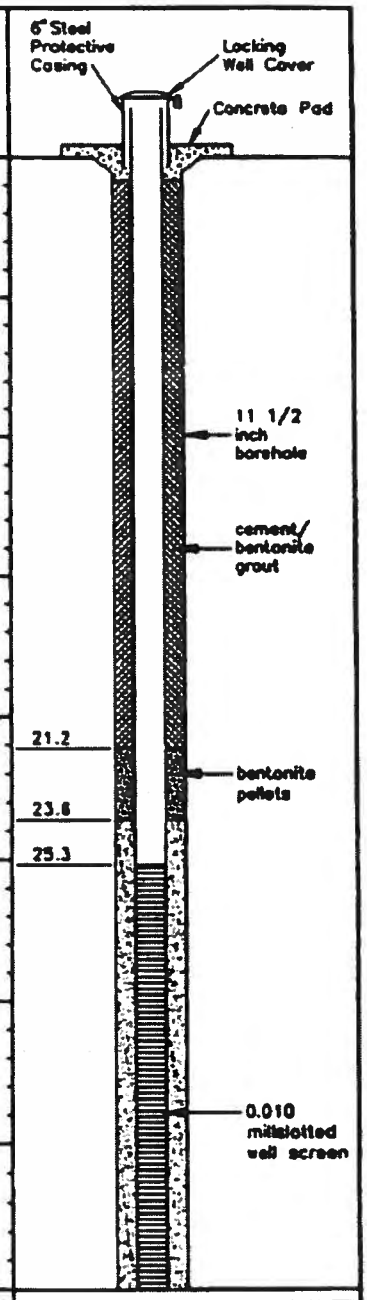
Boring Location: SOUTHEAST OF SPILL OFF PIT
Logged By: V. CRNICH
Drilled By: R. REED, REED AND MORRIS
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH SHELBY TUBE; 5-FOOT CONTINUOUS SAMPLER AND SPLIT SPOON
SURFACE ELEV.(FT): 24.2
TOTAL DEPTH(FT.): 46.0
Date Started: 4/24/92
Date Completed: 4/24/92

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.54 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.3 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 25.3-45.3 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.6-46.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell		12 / 0				
- fill material(?) falls out of samplers; wet		24 / 0				
CLAY - high plasticity; soft; brown mottling; no odor						
- shell and gravel; fill fragments; 7.5YR 5/0		24 / 0				
SILTY CLAY - high plasticity; soft; slightly silty; carbonate nodules; iron-stained nodules; green mottling; green clay on fracture faces; - at 9 feet low plasticity; firm; yellow-brown mottling; 5YR 4/4 at 8'; 5Y 7/1 at 9.5'; iron staining		24 / 10		cl		
- low plasticity; firm; black staining; green mottling and clay coating on fracture faces; carb. nodules; 7.5YR 5/4		24 / 12				5
- slightly silty; no odor		24 / 12		cl/sl		
- iron staining						
- very firm; traces of carbonate nodules, slightly silty		24 / 12		cl		
- 2.5YR 4/6 at 14'		24 / 15				10
- increase in silt; stiff; slightly sandy						
SILTY SANDY CLAY - low plasticity; stiff; 20% silt, 10% very fine grained sand; mottled orange-brown; green clay coating on fractures; 2.5YR 4/6; 5Y 7/1 at 18'		24 / 15				
- 15% silt; 30% fine to very fine-gr. sand; occasional iron stain.; mottled yellow-brown; rare black stains; no odor		24 / 17				
SANDY CLAY - low plast.; stiff; 40% fine-vfg sand; orange/brown mottling; black stained nodules; carbonate nodules; no odor; 5Y 7/1		24 / 16		cl		15
SILTY SANDY CLAY - low plast.; stiff; 40% silt and sand; mott. orange-brn; iron stain.; carb. nods.; no odor; 5Y 7/1		24 / 15				
SILTY SAND - 30% silt; 70% vfg sand; grn clay stringers and lenses; slightly moist; no odor; 7.5YR 5/6		24 / 17		cl		
CLAY - low plast.; stiff; blocky text.; grn mottling; occasional Fe stains; 2.5YR 5/4		24 / 12		cl		20
- sm sand lenses; lr carb nod; rd/brn mottling; slt moist; no odor; 5Y 7/1		24 / 18		cl		
- slightly silty; green mottling; 5YR 4/6						
SILTY CLAY - low plast.; stiff; 15% silt; grn. mottling and coat. on frc. faces; blk. staining (Mg?); no odor; 5YR 4/6		24 / 15		cl		
- at 30 ft 15-20% silt; blk. stained stringers; grn clay coat.		24 / 17		cl		
- at 32 feet slightly sandy						25
SILTY SAND-vfg-fg sand; 35% silt; moist; no odor; 5YR 4/6		24 / 18				
SILTY CLAY - low plasticity; stiff; 5YR 4/6						
CLAYEY SAND - plastic; fn. grnd. sand; green mottling slightly moist; 5YR 4/6		24 / 18		MH		
				cl		
SILTY SAND -vfn to fn. grnd. sand; moist; no odor; rare green mottling; 5YR 5/4		24 / 19		sm		
- at 36', 16 in. vfg-fg sand; 35% silt; saturated; well graded		24 / 23				30
- at 37', low plasticity; stiff; slightly silty; fg sand along fractures; iron stains				cl		
CLAY - low plast.; stiff; vfn to fn. grnd. sand along larger frcs; occasional small sand lenses; 5YR 4/6;		24 / 16				
						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A35 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-53

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHEAST OF SPILL OFF PIT
SURFACE ELEV.(FT): 24.2
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 4/24/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/24/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH SHELBY TUBE; 5-FOOT CONTINUOUS SAMPLER AND SPLIT SPOON

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.54 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.3 Type: Sch 40 SS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
Depth Interval(ft.): 25.3-45.3 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.6-46.0
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- more prevalent sandy stringer and lenses with depth; sand coating on fracture faces; no odor; 5YR 4/6		24/20		CL		
SANDY CLAY - high plast.; soft; fine grained sand (20%); 5Y 7/1		24/19		CL		
CLAY - low plasticity; stiff; mottled yellow/brown; no odor; green clay coating on fracture faces; 5YR 7/1		24/19		CL		
SILTY CLAY - low plasticity; firm; 40% silt; occasional small sand lenses; no odor; 5YR 7/1						
TOTAL DEPTH = 46.0 FEET						

45.3 — filter pack 20-40 mesh silica sand
SS cap
46.0

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A35 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-54

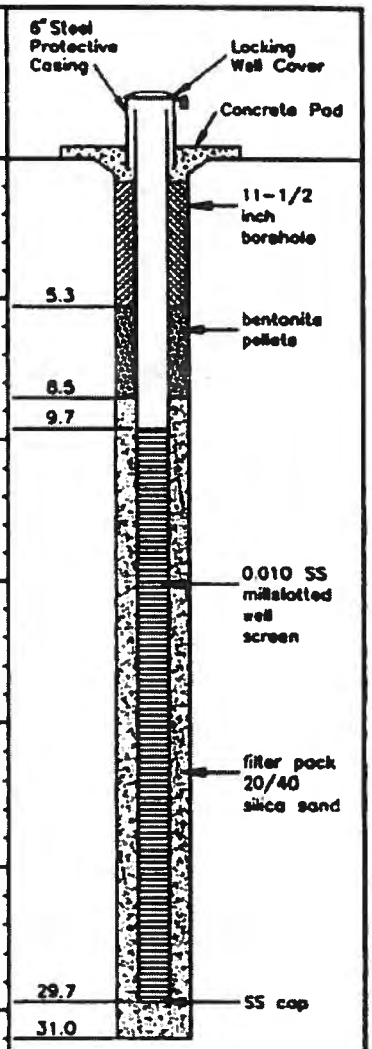
DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHEAST OF SPILL OFF PIT
SURFACE ELEV.(FT): 24.2
TOTAL DEPTH(FT.): 31.0
Logged By: V. CRNICH
Date Started: 4/28/92
Drilled By: R. REED REED AND MORRIS
Date Completed: 4/28/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 INCH DIA. X 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.89 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 9.7 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 9.7-29.7 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 8.5-31.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell - fill material(?) falls out of samplers; wet		12 0 24 0 24 0				0
CLAY- high plasticity; soft; brown mottling; no odor; 7.5YR 5/0 - shell and gravel; fill fragments		24 10 24 12		sh		5
SILTY CLAY - high plasticity; soft; slightly silty; carbonate nodules; iron-stained nodules; green mottling; green clay on fracture faces - low plasticity at 9 feet; firm; yellow/brown mottling; iron staining; 5YR 4/4 - low plasticity; firm; black staining; green mottling and clay coating on fracture faces; carb. nodules; 7.5YR 5/4 - slightly silty; no odor - very firm; traces of carbonate nodules; 2.5YR 4/6 - increase in silt; stiff; slightly sandy		24 12 24 12 24 15 24 15 24 17		gCL cl		10
SILTY SANDY CLAY - low plasticity; stiff; 20% silt, 10% very fine grained sand; mottled orange-brown, green clay coating on fractures; 2.5YR 4/6 - 15% silt; 30% fine to very fine-gr. sand; occasional iron stain.; mottled yellow-brown; rare black stains; no odor; 5Y 7/1		24 16 24 15		cl		15
SANDY CLAY -low plast.; stiff; 40% fine-vfg sand; orange/brown mottling; black stained nod.; carb. nodules; no odor; 5Y 7/1		24 17		cl		20
SILTY SANDY CLAY - low plast.; stiff; 40% silt and sand; mottled orange-bn; iron stain.; carb. nods.; no odor; 5Y 7/1		24 12		cl		
SILTY SAND - 30% silt; 70% vfg sand; gm clay stringers and lenses; slightly moist; no odor; 7.5YR 5/6		24 18		sl		
CLAY - low plast.; stiff; blocky text.; gm mottling; occ. Fe stains 2.5YR 5/4 - sm sand lenses; lr carb nod; red/brown mottling; slightly moist; no odor; 5Y 7/1 - slightly silty; green mottling; slt moist; 5YR 4/6		24 15 24 17		cl		25
SILTY CLAY - low plast.; stiff; 15% silt; grn. mottling and coat. on frc. faces; blk. staining (Mg?); no odor; 5YR 4/6 - at 30 feet 15-20% silt; blk. stained stringers						30
TOTAL DEPTH 31.0 FEET						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A36 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-55

DRILLING AND SAMPLING INFORMATION

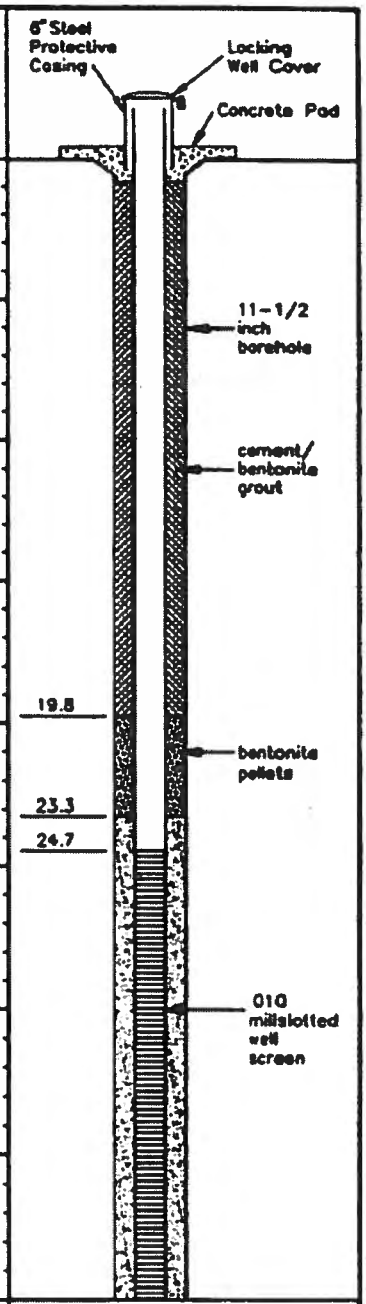
Boring Location: SE CORNER OF DNT TRUCK LOADING PAD
SURFACE ELEV.(FT): 25.2
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 4/30/92
Drilled By: R. REED REED AND MORRIS
Date Completed: 5/01/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4 INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH DIA. X 2-FOOT SHELBY TUBE

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.49 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.7 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 24.7-44.6 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.3-46.0
   Conc. Pad Size: 2'x2'x6"

Notes: SS = STAINLESS STEEL

DESCRIPTION	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell; wet						
CLAY - high plasticity; soft; no odor; minor iron stains; 2.5Y 3/0; fill material?; 2.5Y 3/2 at 4.5'		24/10		ch		5
- shell chunks		24/10				
- gold and red mottling; 5GY 7/1		24/14				
- plastic; firm; green mottling and clay coating on fractures; magnesium staining along microfractures; 10YR 5/8		24/14				10
SANDY CLAY - slightly plastic; moderately firm; 30% vfg-fg sands; green and red mott.; no odor; 5YR 5/8; at 12.5 feet 5YR 4/6		24/15		ch/cl		
CLAYEY SAND - vfg-fg sand; well rounded grains; green/yellow mottling; 5YR 5/6; moist; no odor; at 14.5 feet 5YR 4/6		24/15		sc		15
SANDY CLAY - low plasticity; very firm; vfg-fg sands; increasing sand; occ. carbonate nodules; abundant magnesium stained fractures; green/yellow mottling; 5YR 6/4; no odor; increase in sands at 18 feet		24/16		cl		
- stiff; about 20% sand; yellow mottling; - magnesium stained nodules		24/14				
- slightly silty; drill stem and shelby tube are wet		24/16				20
- decrease in sand - 5GY 7/1 at 20 feet - blocky texture		24/19				
CLAY - low plasticity; stiff; trace of sand; blocky texture; green mottling; 2.5 YR 4/6; black staining on microfractures; no odor		24/16		cl		
- slightly silty		24/19				
- green clay coating on fracture faces		24/17				25
CLAYEY SAND - vfg-fg sand; well rounded grains; green matting and green clay coating on fractures; 2.5YR 4/6; no odor		24/15		sc		
CLAY - low plasticity; stiff; slightly silty; green mottling; 2.5YR 4/6; no odor; small silty seams at 33.5 feet		24/15		cl		
CLAYEY SILT - large stiff clay lenses; green mottling; 5YR 5/4; moist; no odor		24/15		sms		30
SILTY SAND - vfg-fg sand; about 8 inches of saturated sand - lge clay lens at 37ft (low plast; stiff); increase in silt; moist		24/16		sm		
CLAY - low plastic.; stiff; black and green filling in microfractures; 2.5YR 4/6; rare sm silty sand seams and lenses; no odor		24/16		cl		35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A37 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-55

DRILLING AND SAMPLING INFORMATION

Boring Location: SE CORNER OF DNT TRUCK LOADING PAD
SURFACE ELEV.(FT): 25.2
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 4/30/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 5/01/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4 INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH DIA. X 2-FOOT SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.49
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.7 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Milsslotted
   Depth Interval(ft.): 24.7-44.6 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.3-46.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- 2 inches of wet vfg silty sand at 40 feet; 2.5YR 4/4-4/6 - fg-vfg sand along fracture faces; sand lenses in clay; wet - sand seam at 42 feet; occasional iron staining - low plasticity; very stiff; iron staining; yellow mottling; 5G 6/1; no odor		24/18, 24/20, 24/18				45
TOTAL DEPTH = 46.0 FEET						50, 55, 60, 65, 70, 75, 80

44.6
44.7
46.0
filter pack 20/40 silica sand
SS cap

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A37 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-56

DRILLING AND SAMPLING INFORMATION

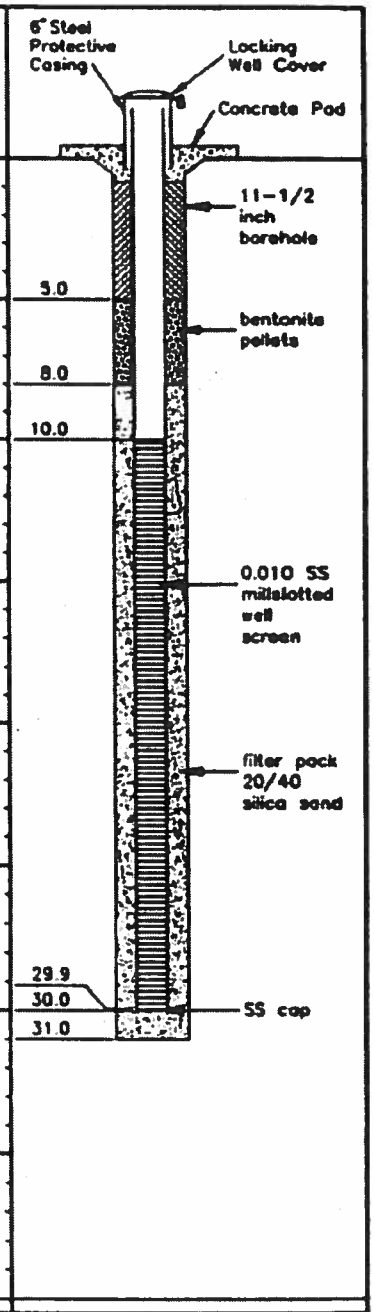
Boring Location: SE CORNER OF DNT TRUCK LOADING PAD
SURFACE ELEV.(FT): 24.7
TOTAL DEPTH(FT.): 31.0
Logged By: V. CRNICH
Date Started: 5/1/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 5/4/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: NO SAMPLES COLLECTED

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.51 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 10.0 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 10.0-29.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 8.0-31.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell						0
CLAY - high plasticity; soft; no odor; minor iron stains; 2.5Y 3/0; fill material? 2.5YR 3/2 at 4.5'				ch		5
- shell chunks						
- gold and red mottling; 5GY 7/1						
- high plasticity; firm; green mottling and clay coating on fractures; magnesium staining along microfractures; 10YR 5/8						10
SANDY CLAY - slightly plastic; moderately firm; 30% vfg-fg sand; green and red mott.; no odor; 5YR 5/8; at 12.5 feet 5YR 4/8				ch/cl		
CLAYEY SAND - vfg-fg sand; well rounded grains; green/yellow mottling; 5YR 5/6; moist; no odor; at 14.5 feet 5YR 4/8				sc		15
SANDY CLAY - low plasticity; very firm; vfg-fg sands; increasing sand; carbonate nodules; abundant magnesium stained fractures; green/yellow mottling; 5YR 6/4; no odor; increase in sands at 18 feet				cl		
- stiff; about 20% sand; yellow mottling; 5GY 7/1; magnesium stained nodules						20
- slightly silty; drill stem and shelby tube are wet						
- decrease in sand						
- blocky texture						25
CLAY - low plasticity; stiff; trace of sand; blocky texture; green mottling; 2.5YR 4/6; black staining on microfractures; no odor				cl		
- slightly silty						
- slightly firm; iron stains; 2.5Y 3/0; slight odor						30
- green clay coating on fracture faces						
TOTAL DEPTH = 31.0 FEET						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A38 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-57

DRILLING AND SAMPLING INFORMATION

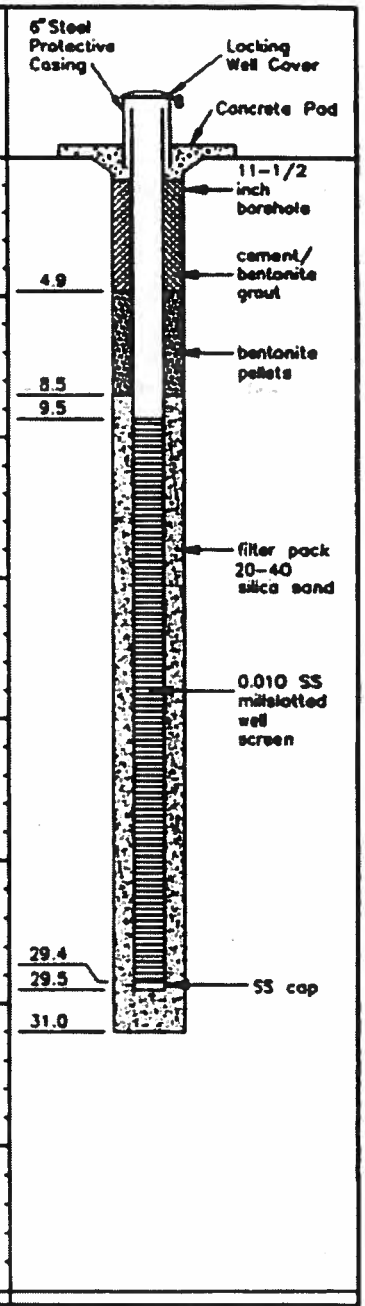
Boring Location: NE CORNER OF MAIN & NORTH ST
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 31.0
Logged By: V. CRNICH
Date Started: 5/5/92
Drilled By: W.WRIGHT REED AND MORRIS
Date Completed: 5/5/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4 INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH DIA. X 2-FOOT SHELBY TUBE

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.20 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 9.5 Type: Sch 40 SS
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
Depth Interval(ft.): 9.5-29.4 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 8.5-31.0
Conc. Pad Size: 2'x2'x6"

Notes: SS = STAINLESS STEEL

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel	MW-57-1.5	24				
CLAY - plastic; firm; 5BG 4/1-5B 4/1; no odor; backfill?	MW-57-3.0	24/12		ch		
- soft; crumbly; roots	MW-57-5.0	24/11				
- soft; yellow mottling; 5Y 4/2 to 2.5Y 6/0	MW-57-7.0	24/10				
- 5YR 5/6		24/12				
- low plasticity; slightly silty; slightly crumbly; magnesium staining; orange/brown mottling; 5G 7/1	MW-57-9.0	24/14		ch/cl		
SANDY CLAY - low plasticity; soft; vfg-fg sands; 20% sand; green mottling; 5YR 5/8; no odor		24/17		cl		
CLAYEY SAND - vfg-fg sand; 5YR 5/8; moist; no odor		24/18		sc		
SILTY SAND - vfg-fg sand; well rounded grains; poorly graded; green mottling; 5YR 5/8; wet; no odor		24/18		sm		
SANDY CLAY - stiff; fg sand; trace of carbonate nodules; some sand seams; 5YR 5/8; stiff at 17 feet; vfg sand (20-25%); orange/brown mottling; 5Y 7/2; magnesium coated nodules; saturated; low plasticity; no odor		24/23		cl		
- increase in sand (about 35%); sand coatings on fracture faces; occasional carbonate nodules; black (magnesium?) staining		24/15				
- zones of clayey fine grained sand; small zones of highly plastic clay		24/17				
CLAYEY SAND - fine grained sand; poorly graded; crumbly; tr. very fine gr. sand; 7.5YR 5/4; dry; no odor; vfg-fg sand at 23.5 ft; green mottling; moist; no odor; decrease in clay at 24.5 ft; wet		24/18		sc		
SANDY CLAY - low plasticity; very firm; vfg-fg sand (15%) green mottling; rare small sandy lenses; no odor; decrease in sand at 28.5 feet; blocky texture		24/15		cl		
CLAY - low plasticity; very firm, 2.5YR 4/8; green clay coating on fracture faces; green mottling; black staining on micro-fractures; blocky texture		24/17		cl		
		24/17				
TOTAL DEPTH = 31.0 FEET						



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A39 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-58

DRILLING AND SAMPLING INFORMATION

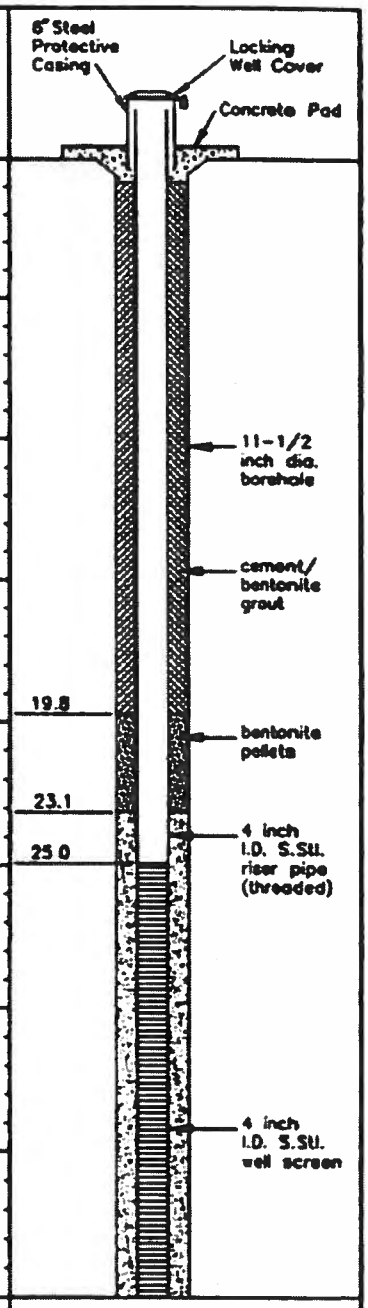
Boring Location: EAST OF DNT TANK CAR LOADING
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 5/7/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 5/7/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.52 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.0 Type: Sch 40 S.Stl.
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl.Millslotted
   Depth Interval(ft.): 25.0-44.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.1-46.0
   Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell							
CLAY - high plasticity; soft; roots; 10YR 2/1; no odor; (backfill material?)			24/13		ch		
- 10YR 2/1 to 10YR 3/1; slight odor			24/9				
- 2.5Y 4/2, black and gray mottling			24/11				
- slightly silty; iron and magnesium stained nodules; 10YR 6/8; green mottling; no odor			24/12				
- plastic, firm; occasional carbonate nodules; green clay on fractured faces; odor			24/11				
SILTY CLAY - plastic; firm; approximately 10% silt; 10YR 6/8; magnesium staining; green mottling; mild odor			24/17		cl		
CLAYEY SILT - soft; 7.5YR 5/6; dry; slight odor			24/10		cl		
SANDY CLAY - low plasticity; very firm; approximately 30% very fine to fine grained sand; 7.5YR 5/8; slight odor			24/14		cl		
CLAYEY SAND - fine to very fine grained sand; well rounded grains; minor amounts of carbonate nodules; green clay lenses; orangish brown mottling; dry; mild odor			24/16		sc		
- slight increase in clay content; large, highly plastic, soft, green clay lenses; 10YR 6/8; greenish red mottling			24/14				
- indurated; abundant carbonate nodules; 2.5Y 6/4; green mottling			24/13		sm		
- orangish brown mottling; no odor					cl		
- fine grained sand; minor amounts of carbonate nodules; stiff, green clay lenses and seams; white staining; 5YR 5/6 to 4/6			24/14		sm		
SILTY SAND - small interval (approximately 6 inches); 5YR 5/6 to 5YR 4/6; moist			24/14		cl		
CLAY - low plasticity; stiff; blocky texture; trace of sand; 5YR 5/6 to 5YR 4/6			24/14				
SILTY SAND - very fine grained sand; approximately 1 inch of stiff clay; green clay seams; 7.5YR 5/6; green mottling; moist; no odor			24/14				
CLAY - low plasticity; very firm; small sandy seams; carbonate nodules; 7.5YR 5/6			24/14				
- green sandy clay lenses; trace amounts of carbonate nodules; black coating on microfractures; 5YR 4/6; no odor			24/15				
- stiff; (at 28 feet)			24/16		sm		
- rare, small sand seams			24/16		sp		
SILTY SAND - very fine grained sand; well rounded grains; poorly graded; 7.5YR 5/4; green mottling; moist to wet; no odor			24/16		sm		
- saturated			24/20		sl		
SAND - very fine to fine grained; well rounded grains; saturated; no odor			24/14		cl		
SILTY SAND - very fine grained sand; saturated; no odor							
SILT - slightly clayey; 7.5YR 5/4; moist; no odor							
CLAY - low plasticity; stiff; blocky texture; very thin silty seams (rare); 2.5YR 4/6; no odor							
- very stiff; no silty seams							



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A52 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-58

DRILLING AND SAMPLING INFORMATION

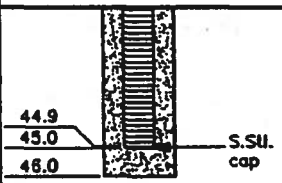
Boring Location: EAST OF DNT TANK CAR LOADING
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 5/7/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 5/7/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.52
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 25.0 Type: Sch 40 S.Stl.
   Centralizers-Type: -
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Type: Sch 40 S.Stl.Millslotted
   Depth Interval(ft.): 25.0-44.9
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 23.1-46.0
   Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- small sandy lenses and stringers - green clay coated burrows(?): 2.5YR 4/6 to 5YR 5/4; - very firm; slightly blocky texture; green clay stringers: 2.5Y 6/4 to2.5Y 5/4 - trace amounts of carbonate nodules		24/15 24/16 24/14				
TOTAL DEPTH = 46.0 FEET						



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A52 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-59

DRILLING AND SAMPLING INFORMATION

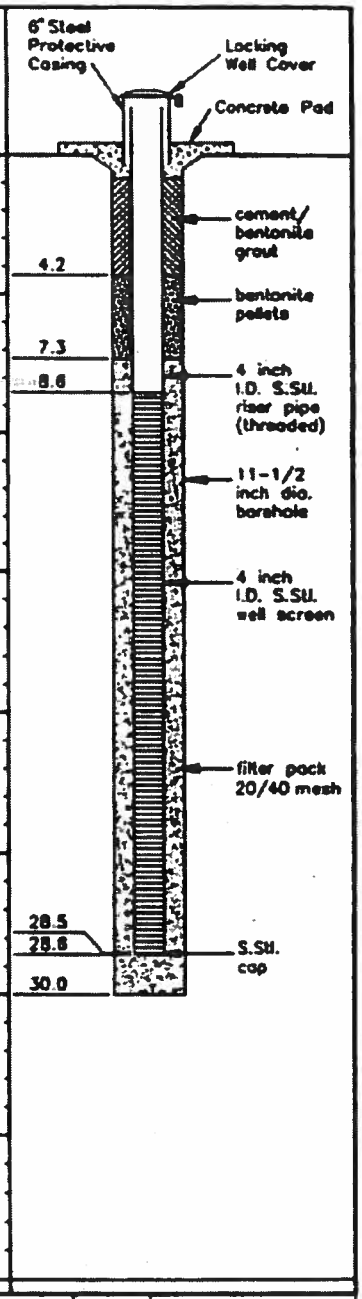
Boring Location: EAST OF DNT TANK CAR LOADING
SURFACE ELEV.(FT): 24.7
TOTAL DEPTH(FT.): 30.0
Logged By: V. CRNICH
Date Started: 5/8/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 5/8/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER WITH 11 1/2 INCH BIT
Sampling Method: NO SAMPLES COLLECTED

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.76 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 8.6 Type: Sch 40 S.Stl.
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl.Millslotted
   Depth Interval(ft.): 8.6-28.5 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 7.3-30.0
   Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	USCS	DEPTH IN FEET
FILL - gravel and shell		
CLAY - high plasticity; soft, roots; 10YR 2/1; no odor; (backfill material?)	ch	
- 10YR 2/1 to 10YR 3/1, slight odor		
- 2.5Y 4/2, black and gray mottling		
- slightly silty; iron and magnesium stained nodules; 10YR 6/8, green mottling; no odor		
- plastic; firm; occasional carbonate nodules; green clay on fractured faces; odor		
SILTY CLAY - plastic; firm; approximately 10% silt; 10YR 8/8; magnesium staining; green mottling; mild odor	cl	
CLAYEY SILT - soft; 7.5YR 5/6; dry; slight odor	cl	
SANDY CLAY - low plasticity; very firm; approximately 30% very fine to fine grained sand; 7.5YR 5/8, slight odor	cl	
CLAYEY SAND - fine to very fine grained sand; well rounded grains; minor amounts of carbonate nodules; green clay lenses; orangish brown mottling; dry; mild odor	sc	
- slight increase in clay content; large, highly plastic, soft, green clay lenses; 10YR 8/8; greenish red mottling		
- indurated; abundant carbonate nodules; 2.5Y 8/4; green mottling		
- orangish brown mottling; no odor		
- fine grained sand; minor amounts of carbonate nodules; stiff, green clay lenses and seams; white staining; 5YR 5/6 to 4/6		
SILTY SAND - small interval (approximately 6 inches); 5YR 5/6 to 5YR 4/6; moist	sm	
CLAY - low plasticity; stiff; blocky texture; trace of sand; 5YR 5/6 to 5YR 4/6	cl	
SILTY SAND - very fine grained sand; approximately 1 inch of stiff clay; green clay seams; 7.5YR 5/8; green mottling; moist; no odor	sm	
CLAY - low plasticity, very firm; small sandy seams; carbonate nodules; 7.5YR 5/6	cl	
- green sandy clay lenses; trace amounts of carbonate nodules; black coating on micro fractures; 5YR 4/6; no odor		
- stiff; (at 28 feet)		
TOTAL DEPTH = 30.0 FEET		



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A53 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-60

DRILLING AND SAMPLING INFORMATION

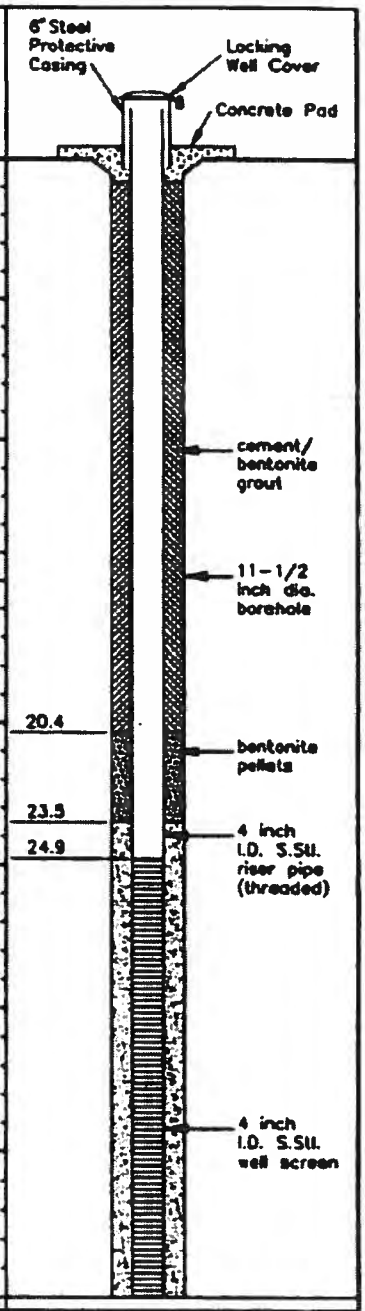
Boring Location: WEST OF AMMONIA TANKS
Logged By: V. CRNICH
Drilled By: R. REED, REED AND MORRIS
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
SURFACE ELEV.(FT): 23.1
TOTAL DEPTH(FT.): 46.0
Date Started: 5/11/92
Date Completed: 5/12/92

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.36 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.9 Type: Sch 40 S.Stl.
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. Milsslotted
   Depth Interval(ft.): 24.9-44.8 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.5-45.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell	MW-60-1.5	24		ch		
CLAY - high plasticity; soft, trace of gravel and shell fill; 5Y 3/1, greenish brown mottling; (backfill material?)	MW-60-2.5	10				
- iron stained nodules	MW-80-5.0	18 / 9				
		60				5
SILTY CLAY - plastic; soft; approximately 10% silt; abundant carbonate and iron stained nodules; 5Y 3/1 to 5Y 4/3; no odor				ch-cl		
- 10YR 5/8, green mottling		57				
CLAYEY SILT - bands of highly plastic green clay; trace amounts of carbonate nodules; 7.5YR 5/4 to 7.5YR 5/6, moist, no odor		60		ml-ch		10
SILTY SAND - very fine to fine grained sand; poorly graded; small, thin bands of pinkish brown fine grained sand; 7.5YR 5/4; wet, no odor				ml		
- approximately 30% silt; lense of iron stained nodules; 10YR 7/8; green mottling; moist to wet		26 / 60				15
CLAYEY SAND - very fine to fine grained sand; small vugs of fine grained white sand, rare silty stringers; iron stains; 5Y 7/1 to 5GY 7/1; no odor				ml		
- increase in clay		60				
SANDY CLAY - low plasticity; firm; approximately 40% very fine to fine grained sand; small zone of clayey sand (fine grained; moist); 5Y 7/1 to 5GY 7/1; orangish brown mottling; no ododr		60		cl		20
- lenses of moist silty sand		60				
SILTY SAND - very fine to fine grained sand; magnesium stains; green sandy clay mottling, 7.5YR 5/8; moist; no odor				ml		
CLAY - soft to firm; crumbly zones; blocky texture; 5YR 5/6; greenish white mottling		60		cl		25
- slightly sandy; silty bands						
- more firm; green clay coating on fractured faces; silty coating on fractured faces; 5YR 4/6						
- clay more crumbly; larger silty lenses and seams		58				
CLAYEY SAND - very fine to fine grained sand; well sorted; 5YR 4/6; no odor		60		ml		30
SANDY CLAY - low plasticity; firm; blocky texture; green mottling				cl		
- silty, sandy seams and lenses						
SILTY SAND - very fine to fine grained sand; slightly clayey; 5YR 5/4; green mottling; saturated; no odor				ml		
- decrease in silt (approximately 1 foot)		60				35
- small clay lense		60				
CLAY - low plasticity; stiff; 2.5YR 4/6; no odor		60		cl		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A54 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-60

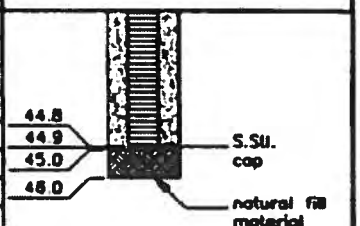
DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF AMMONIA TANKS
SURFACE ELEV.(FT): 23.1
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 5/11/92
Drilled By: R. REED
REED AND MORRIS
Date Completed: 5/12/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.36
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
Depth(ft.): 24.9 Type: Sch 40 S.Stl.
Centralizers-Type: -
Depths(ft.): -
2. Screen Dia.(in.): 4
Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 24.9-44.8
Slot Size(in.): .010
Centralizers-Type: -
Depths(ft.): -
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 23.5-45.0
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- carbonate nodules; iron stains; 5Y 7/1		60 / 12				45
- slightly sandy						
TOTAL DEPTH = 46.0 FEET						50
						55
						60
						65
						70
						75
						80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A54 Sheet 2 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-61

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST END OF NEUTRAL PIT
SURFACE ELEV.(FT): 23.9
TOTAL DEPTH(FT.): 27.0
Logged By: K. HENKE
Date Started: 6/1/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 6/1/92
Drill Rig Type: BACKHOE
Drilling Method: HAND AUGER WITH 5 INCH BIT

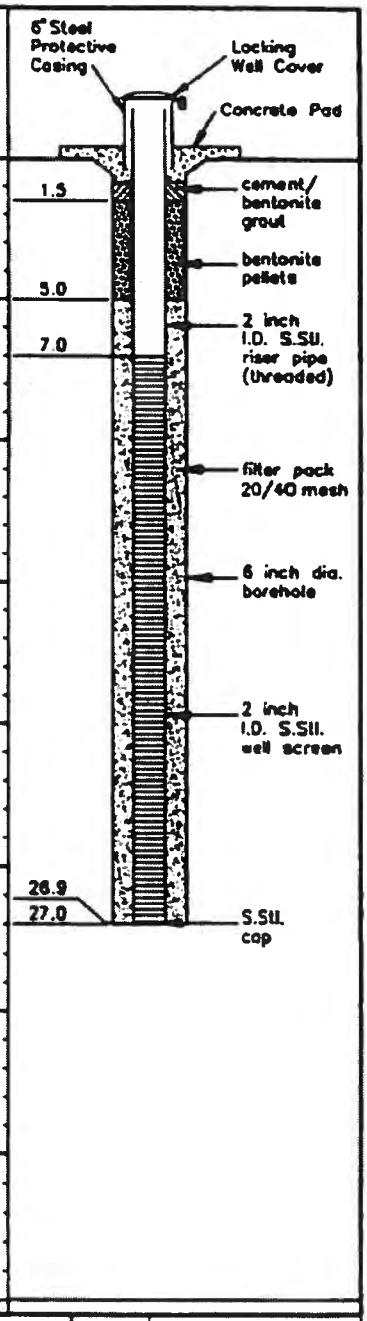
Sampling Method: DESCRIBE CUTTINGS OFF AUGER FLIGHTS

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.77 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 2 Depth(ft.): 7.0 Type: Sch 40 S.Stl.
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 2 Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 7.0-26.9 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 5.0-27.0
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL						
CLAY - slightly silty with some sand lenses; dark gray				cl		
- increase in sand stringers with depth						5
SILTY CLAY - some sandier stringers; brownish gray				ch		10
- smelled DNT odor while drilling						
CLAY - some siltier lenses; dark gray and red				cl		15
- slight DNT odor						
- some silt or sand; very difficult to see sandy zones						20
						25
TOTAL DEPTH = 27.0 FEET						30
						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A55 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-62

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF FAB SHOP
WEST OF FORMER WASTE IMPOUNDMENT
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REEO ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 4" MUD ROTARY TO 47' AND
8" MUD ROTARY TO 60'
Sampling Method: 2' SHELBY TUBE (ST)

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 60.1
Date Started: 6/23/95
Date Completed: 8/4/95

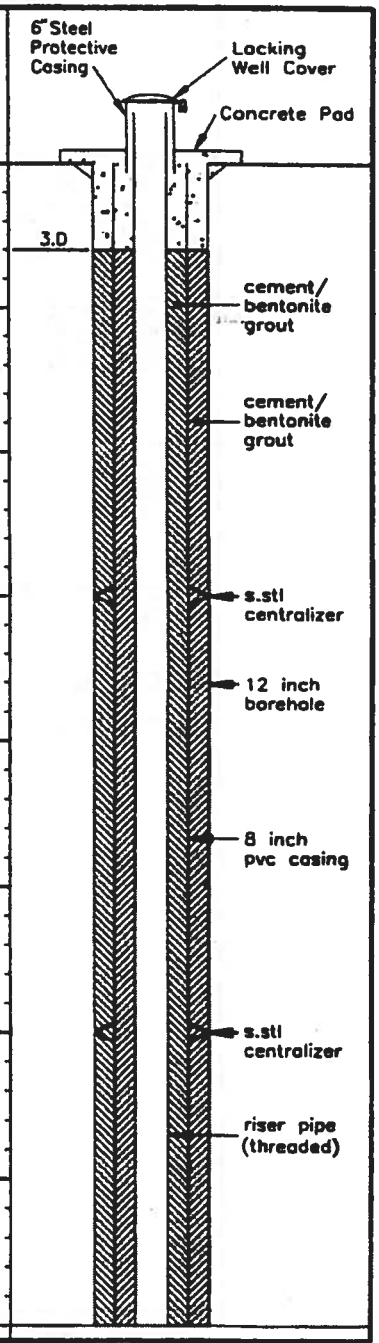
Notes: REAM TO 12" BOREHOLE TO 47'

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.64
Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8
   Depth(ft.): 47.0 Type: Sch 40 PVC
   Centralizers-Type: S.Stl
   Depths(ft.): 15, 30, 46
2. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 50.0 Type: Sch 10 S.Stl
   Centralizers-Type:
   Depths(ft.):
3. Screen Dia.(in.): 4
   Type: Sch 10 S.Stl Wire Wrapped
   Depth Interval(ft.): 50.0-60.0
   Slot Size(in.): .010
   Centralizers-Type:
   Depths(ft.):
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 48.5-60.0
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravels; shells; white to gray							
CLAY - 5% to 10% very fine to fine grained sand; highly plastic; soft; damp; yellowish red (5YR-5/6); mottled with black and green clays; no odor	ST		24/24		ch		5
- 10% to 15% very fine grained sand; firm; 20% mottled green dendritic clay	ST		24/24				10
CLAY WITH SAND - 20% to 25% very fine grained sand; moderately plastic; stiff; moist; yellowish red (5YR-5/8); black dendritic clay; well cemented; carbonate nodules	ST		24/24		cl		15
CLAYEY SAND - fine to medium grained sand; 20% to 25% fines; poorly sorted; angular; firm; wet; light gray (2.5Y-7/2); yellowish red mottled plastic clay lamination; coarse cemented gravels	ST		24/24		sc		20
SAND WITH CLAY - fine grained sand; 15% to 20% fines; moderately well sorted; yellowish red (7.5YR-6/6); trace of gravel	ST		24/24		sc		25
CLAY WITH SAND - 15% to 20% fine grained sand; moderately plastic; hard; yellowish red (5YR-5/6); 10% to 15% greenish gray mottled clay; clayey sand seams	ST		24/24		cl		30
CLAY - 5% to 10% very fine grained sand; moderate to slightly plastic; moist	ST		24/24		cl		35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/21/95	DRAFT CHK	PHS 9/11/95	PROJ. CHK	MLK 9/11/95	APPRV. BY	[illegible] 9/1/95	DWG. NO.	448339-A14 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-(

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF FAB SHOP
WEST OF FORMER WASTE IMPOUNDMENT
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 4" MUD ROTARY TO 47' AND
8" MUD ROTARY TO 60'
Sampling Method: 2' SHELBY TUBE (ST)

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 60.1
Date Started: 6/23/95
Date Completed: 8/4/95

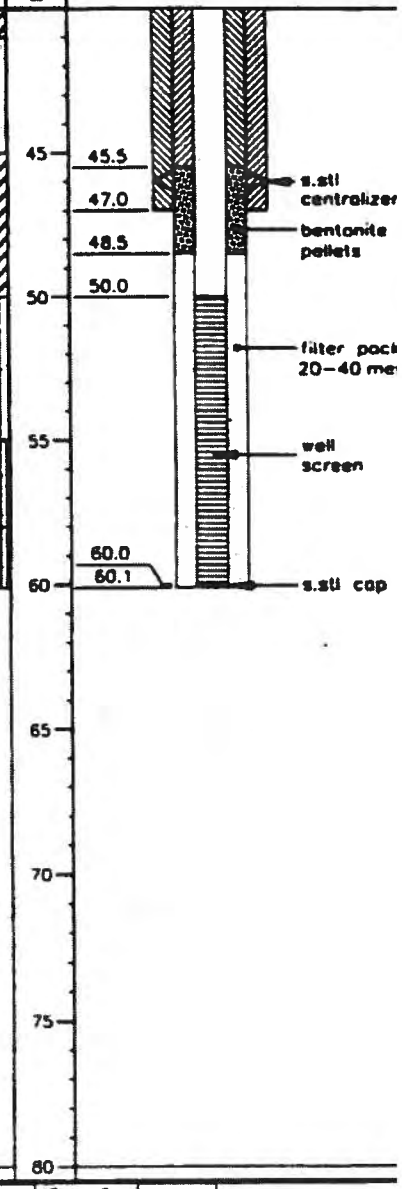
Notes: REAM TO 12" BOREHOLE TO 47'

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.64 Ref. Datum: MSL

1. Surf Casing-I.D.(in.): 8 Depth(ft.): 47.0 Type: Sch 40 P
   Centralizers-Type: S.Stl Depths(ft.): 15, 30, 46
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50.0 Type: Sch 10 S
   Centralizers-Type: Depths(ft.):
3. Screen Dia.(in.): 4 Type: Sch 10 S.Stl Wire Wrapped
   Depth Interval(ft.): 50.0-60.0 Slot Size(in.): .010
   Centralizers-Type: Depths(ft.):
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5-60.0
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY WITH GRAVEL - 10% coarse well cemented carbonate gravel, 10% to 15% very fine grained sand; moderately plastic; wet; firm; yellowish red (5YR-5/6); greenish gray mottled clay	ST		24/24		cl		
SILTY SAND - fine grained sand; 20% to 30% fines; well sorted; angular; compact; wet; light gray (10YR-7/2); black rock fragments; very fine carbonate nodules; trace of odor					sm		
CLAY WITH GRAVEL - 10% to 15% well cemented white/tan carbonate gravel, slightly plastic, hard; dense, moist; reddish brown (10YR-7/2), iron staining; trace of very fine grained sand, 30% yellowish red mottling; 70% light gray matrix	ST		24/24		cl		45
SILTY SAND - fine grained sand; 25% to 30% fines; well sorted; subrounded, compact; wet; light yellowish brown (10YR-6/4); traces tannish brown rock fragments, iron stains; yellowish red clay	ST		18/18		sm		50
SANDY SILT - 25% to 30% fine grained sand; nonplastic; stiff; moist; light gray (10YR-7/2); traces of mottled yellowish red clay	ST		24/24		ml		55
SILT WITH SAND - 15% to 20% fine grained sand; damp; light gray (10YR-7/1); increase in mottled yellowish red/reddish brown clay; iron staining; possible bioturbation; burrows; root casts					ml		60
TOTAL DEPTH = 60.1 FEET							65
							70
							75
							80



IT INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/21/95	DRAFT CHK	8/1/95	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A14 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-63

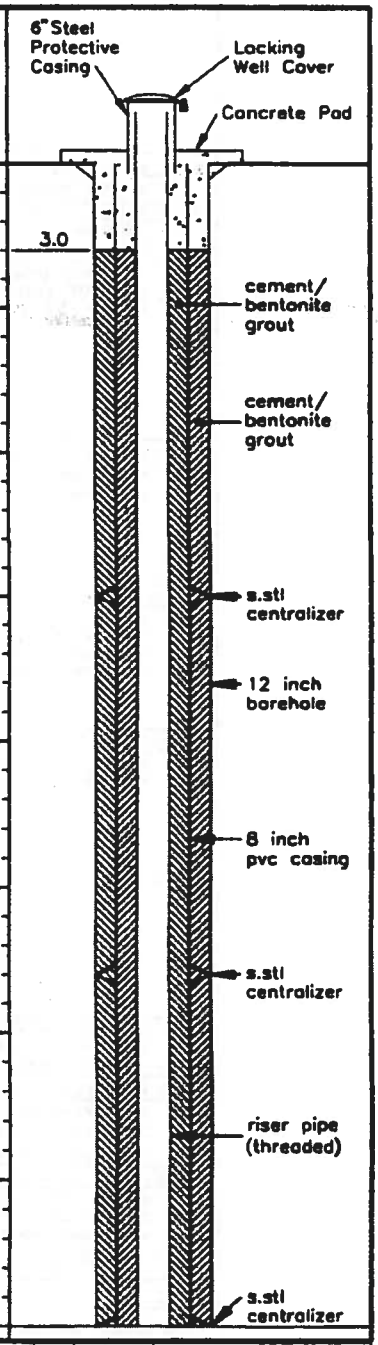
DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM WEST OF FORMER WASTE PONDS
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 90.5
Logged By: M. NEWTON
Date Started: 6/28/95
Drilled By: W. WRIGHT
Date Completed: 8/4/95
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY
Sampling Method: 2' SHELBY TUBE (ST) AND 2' SPLIT SPOON (SS)
Notes: REAM TO 12" BOREHOLE TO 75'
LITHOLOGIC DESCRIPTIONS AND SAMPLE INTERVALS/RECOVERIES FROM SURFACE TO 60 FEET IN DEPTH ARE TAKEN FROM RECOVERY WELL RW-26

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.66
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
   Depth(ft.): 75.0 Type: Sch 40 PVC
   Centralizers-Type: S.Stl
   Depths(ft.): 15, 40, 58, 74
2. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 80.0 Type: Sch 10 S.Stl
   Centralizers-Type:
   Depths(ft.):
3. Screen Dia.(in.): 4
   Type: Sch 10 S.Stl Wire Wrapped
   Depth Interval(ft.): 80.0-90.0
   Slot Size(in.): .010
   Centralizers-Type:
   Depths(ft.):
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 78.0-90.5
   Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravels; shells; white to gray							
CLAY WITH SAND - 15% to 20% very fine grained sand; moderately plastic; firm; damp; yellowish red (5YR-5/6); grayish green mottled clay; black stains; no odor	ST		24/24		cl		5
CLAY WITH GRAVEL - trace <5% fine grained sand; highly plastic; 20% to 25% carbonate gravel; firm to stiff; damp; yellowish red (5YR-5/6); greenish dark gray mottled dendritic clays; no odor	ST		24/24		ch		10
SANDY CLAY - 25% to 30% fine grained sand; slightly plastic; carbonate nodules; 5% gravels; stiff; moist; reddish yellow (5YR-6/8); dark dendritic patterns on bedding planes	ST		24/24		cl		15
SILTY SAND - fine uniform grained sand; 15% to 20% fines; loose; wet; strong brown (7.5YR-5/8); traces (<5%) of green and gray mottling; well cemented carbonate nodules from 20.3-20.7'	ST		24/24		sm		20
CLAYEY SAND WITH GRAVEL - 10% to 15% cemented white to tan carbonate gravel, 20% to 25% clay fines, fine uniform grained sand; moderately well sorted; loose to compact; wet; strong brown (7.5YR-5/6); green clay seams	ST		24/10		sc		25
CLAY WITH GRAVEL - cemented carbonate gravel; highly plastic; stiff; moist; yellowish red (5YR-5/6); green dendritic clay throughout; possible fractures or cracks; 10% to 15% coarsed grained sand	ST		24/20		ch		30
CLAY - 5% to 10% gravel; moderately plastic; stiff to hard; decreasing in green dendritic clay; mottling	ST		24/24		cl		35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	RPS 9/1/95	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A15 Sheet 1 of 3

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-(

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM WEST OF FORMER WASTE PONDS
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 90.5
Logged By: M. NEWTON
Date Started: 6/28/95
Drilled By: W. WRIGHT
Date Completed: 8/4/95
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY
Sampling Method: 2' SHELBY TUBE (ST) AND 2' SPLIT SPOON (SS)
Notes: REAM TO 12" BOREHOLE TO 75'
LITHOLOGIC DESCRIPTIONS AND SAMPLE INTERVALS/RECOVERIES FROM SURFACE TO 60 FEET IN DEPTH ARE TAKEN FROM RECOVERY WELL RW-26

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.66 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 75.0 Type: Sch 40 P
Centralizers-Type: S.Stl Depths(ft.): 15, 40, 58, 74
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 80.0 Type: Sch 10 S
Centralizers-Type: Depths(ft.):
3. Screen Dia.(in.): 4 Type: Sch 10 S.Stl Wire Wrapped
Depth Interval(ft.): 80.0-90.0 Slot Size(in.): .010
Centralizers-Type: Depths(ft.):
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 78.0-90.5
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY WITH SAND - 15% to 20% medium grained poorly sorted sand, slightly plastic; hard; dry; red (2.5YR-4/6)	ST		24/24		cl		
SILTY SAND - fine to medium grained sand; angular; firm; 15% to 20% fines; damp; light brownish gray (10YR-6/2); interbedded with clay	ST		12/12		sm		
CLAY - slightly plastic; hard; dense; damp, reddish brown (5YR-5/3) and 40% grayish green, dendrites; nodules; trace of sand; approx. 5% gravels	ST		24/20		cl		45
SAND WITH SILT - fine grained sand; 20% to 25% fines; loose; moderately well sorted; wet; light gray (10YR-7/2); traces of black rock fragments; thin beds of clay and gravel	SS		24/24		sm		50
SANDY SILT - 25% to 30% fine to very fine grained sand; slightly plastic; moderately well graded; firm; wet; light gray (10YR-7/1); lens of mottled yellowish reddish brown clay; fracture and bioturbation; root casts and burrow filled with carbonate and iron stains	SS		24/24		ml		55
SANDY CLAY - 25% to 30% fine grained sand; moderate to highly plastic; firm; wet; light gray (10YR-7/1); approx. 30% to 40% yellowish red mottled clay	SS		24/24		ch		60
- moist, 20% to 25% mottled clay	SS		24/24				65
CLAY - 15% to 20% fine grained sand; highly plastic; stiff; wet; trace of yellowish red mottled clay - contact between clay and sand with solid chunk of wood	SS		24/24		ch		70
SAND WITH SILT - fine medium to coarse grained sand; 20% to 25% fines; compact; well graded; poorly sorted; angular; wet; dark gray (10YR-4/1); black staining; abundant organic matter; wood chips and debris; thin yellow clay lens	ST		24/24		sm		
CLAYEY SILT WITH SAND - 10% to 15% fine grained sand; slightly plastic; stiff; dry to slightly damp; 20% gray (10YR-5/1) and 80% brown (10YR-4/3), mottled; burrows and root casts filled with clays, sands and iron stains - increasing fine grained sand; brown (10YR-4/3) at 78'	ST		24/24		ml		75 75.0 78.0
SILTY SAND - fine to medium grained sand, 25% to 30% fines;	ST		24		sm		80

s.stl centralizer
cement/bentonite grout
cement/bentonite grout
s.stl centralizer
12 inch borehole
8 inch pvc casing
riser pipe (threaded)
s.stl centralizer
bentonite pellets
filter pack 20-40 mes

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	PROJ. CHK	APPRV. BY	DWG. NO.	448339-A15 Sheet 2 of 3

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-63

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 90.5
Logged By: M. NEWTON
Date Started: 6/28/95
Drilled By: W. WRIGHT
Date Completed: 8/4/95
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY
Sampling Method: 2' SHELBY TUBE (ST) AND
2' SPLIT SPOON (SS)
Notes: REAM TO 12" BOREHOLE TO 75'
LITHOLOGIC DESCRIPTIONS AND SAMPLE INTERVALS/RECOVERIES FROM SURFACE TO 60 FEET IN DEPTH ARE TAKEN FROM RECOVERY WELL RW-26

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.66
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
Depth(ft.): 75.0 Type: Sch 40 PVC
Centralizers-Type: S.Stl
Depths(ft.): 15, 40, 58, 74
2. Riser Pipe-I.D.(in.): 4
Depth(ft.): 80.0 Type: Sch 10 S.Stl
Centralizers-Type:
Depths(ft.):
3. Screen Dia.(in.): 4
Type: Sch 10 S.Stl Wire Wrapped
Depth Interval(ft.): 80.0-90.0
Slot Size(in.): .010
Centralizers-Type:
Depths(ft.):
4. Filter Pack Type: Silica Sand
Depth Interval(ft.): 78.0-90.5
Conc. Pad Size: 4'x4'x6"

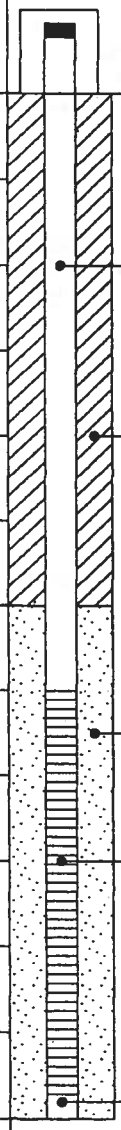
DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
compact; well graded; poorly sorted; subangular to round; wet; gray (GLEY-6/N) to brown (10YR-4/3); mottled; lens of grayish green clays; black to red rock fragments			24				
SAND WITH SILT - 15% to 20% fines; brown (10YR-4/3)	ST		24 / 24		sm		85
TOTAL DEPTH = 90.5 FEET							90
							95
							100
							105
							110
							115
							120

80.0
90.0
90.1
90.5
filter pack 20-40 mesh
well screen
s.stl cap

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	RPS 9/1/95	PROJ. CHK	MSE 9/1/95	APPRV. BY	MJ.S 9/1/95	DWG. NO.	448339-A15 Sheet 3 of 3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-64**
BORING LOCATION: DNT tank storage area	TOP OF CASING ELEVATION AND DATUM: TOC = ~~29.85~~ ft. (MSL) 28.03
DRILLING CONTRACTOR: Geomatrix Consultants, Inc.	DATE STARTED: 5/22/98 / DATE FINISHED: 5/22/98
DRILLING METHOD: Hand Auger	TOTAL DEPTH (ft.): 12.0 / SCREEN INTERVAL (ft.): ~~8~~ 7 - 12' 7 - 12
DRILLING EQUIPMENT: Stainless steel hand auger	DEPTH TO WATER ATD: NA / CASING: 3/4" diameter PVC
SAMPLING METHOD: Stainless steel hand auger	LOGGED BY: C. Young
HAMMER WEIGHT: N/A DROP: N/A	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION (NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.)
					Surface Elevation:
					GRAVEL - SHELL FILL
					SILTY CLAY (CL): reddish brown and gray mottled, dry, moderate plasticity, soft
10					CLAY (CL): yellowish brown to pale brown, damp, moderate plasticity, soft
					Total Depth: 12 feet below ground surface
15					



WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

WELL3

PROJECT: Air Products, Inc.

Log of Well No. MW-65

BORING LOCATION: West Side of TDA Loading Area

GROUND SURFACE ELEVATION AND DATUM:

DRILLING CONTRACTOR: Fugro

DATE STARTED: 12/6/00 | DATE FINISHED: 12/6/00

DRILLING METHOD: Hollow-Stem Auger

TOTAL DEPTH (ft.): 25.0 | SCREEN INTERVAL (ft.): 15 - 25'

DRILLING EQUIPMENT: CME 75

DEPTH TO WATER ATD: | CASING:

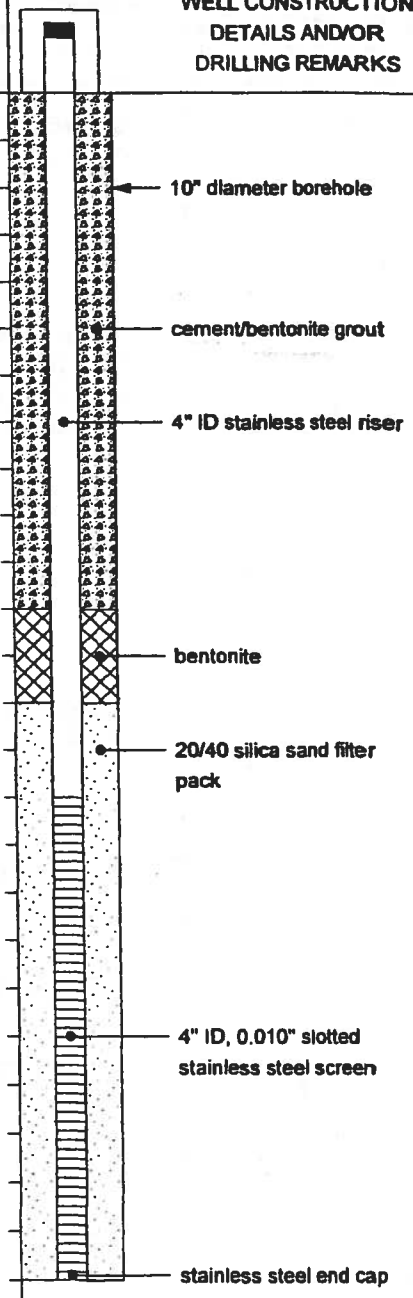
SAMPLING METHOD: Not Applicable (NA)*

LOGGED BY: P. Bullock

HAMMER WEIGHT: NA | DROP: NA

RESPONSIBLE PROFESSIONAL: M. Bentley | REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
				CLAY: reddish brown, high plasticity, firm, moist
				becomes dark gray
5				* Note: Lithology interpreted from drill cuttings and from Cone Penetrometer Testing (CPT) Logs HP-83 and HP-84, located approximately 22 feet southeast of monitoring well MW-65.
10				becomes grayish brown SILTY CLAY
15				CLAYEY SILT to SILTY CLAY: brown, moist
				CLAY
20				SILTY CLAY
				CLAY
				CLAYEY SILT: brown, moist
				CLAY
25				SILTY CLAY

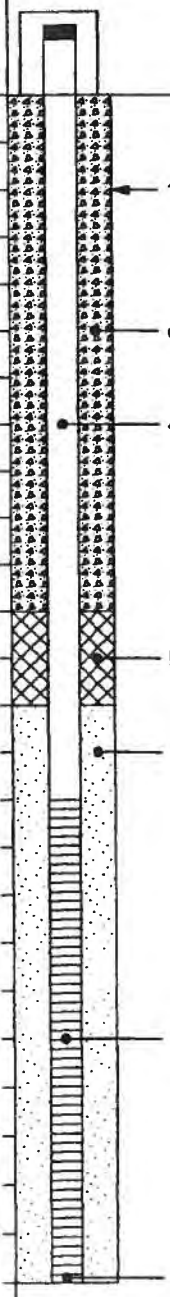


WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

WELL3

PROJECT: Air Products, Inc.	**Log of Well No. MW-66**
BORING LOCATION: East Side of TDA Loading Area	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Fugro	DATE STARTED: 12/6/00 / DATE FINISHED: 12/6/00
DRILLING METHOD: Hollow-Stem Auger	TOTAL DEPTH (ft.): 25.0 / SCREEN INTERVAL (ft.): 15 - 25'
DRILLING EQUIPMENT: CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

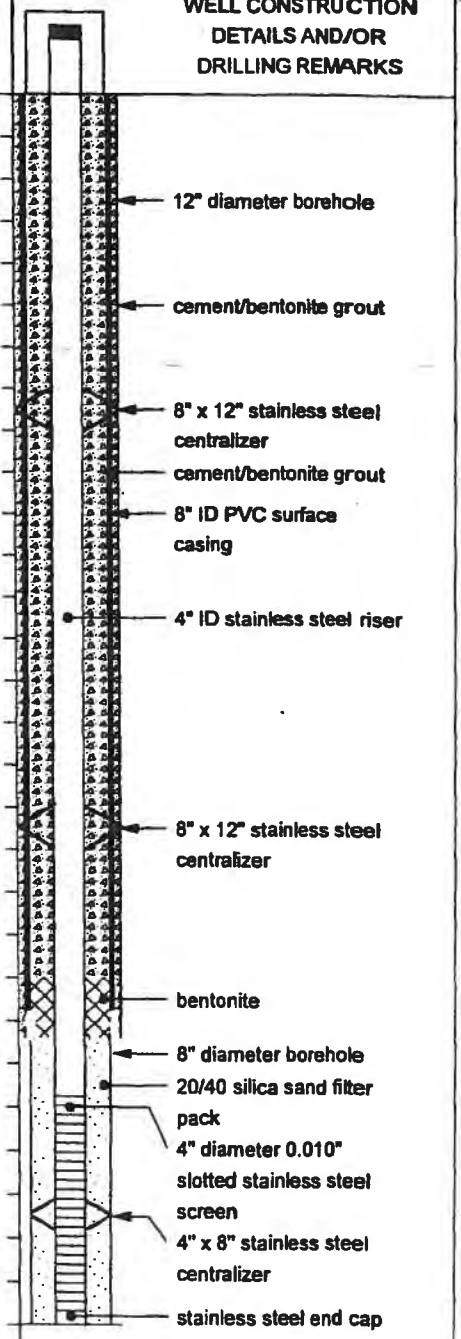
DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
0					GRAVEL surface over CLAY: gray, firm
5					* Note: Lithology interpreted from drill cuttings and from Cone Penetrometer Testing (CPT) Logs HP-85 and HP-86, located approximately 32 feet southwest of monitoring well MW-66.
10					
13					CLAYEY SILT to SILTY CLAY
15					CLAY
17					CLAYEY SILT to SILTY CLAY
18					CLAY
20					SANDY SILT
20					CLAY
21					CLAYEY SILT: brown, moist
25					CLAY



WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

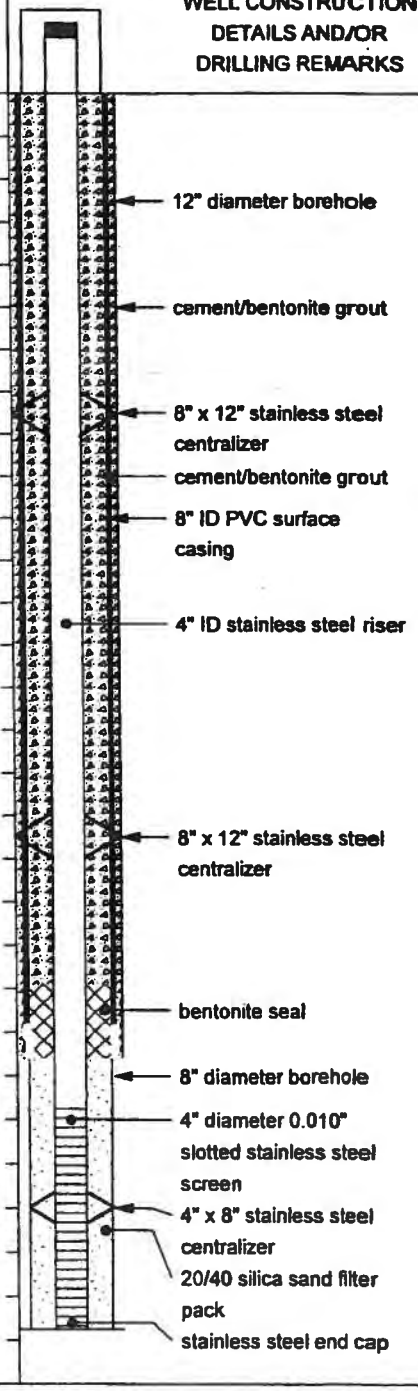
PROJECT: Air Products, Inc.	**Log of Well No. MW-67**
BORING LOCATION: East Side of DNT Loading Area	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Fugro	DATE STARTED: 12/4/00 / DATE FINISHED: 12/8/00
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 58.0 / SCREEN INTERVAL (ft.): 47.5 - 57.5'
DRILLING EQUIPMENT: Failing 250/ CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
					CLAY * Note: Lithology interpreted from Cone Penetrometer Testing (CPT) Log HP-20, located approximately 12 feet south of monitoring well MW-67.
10					SILTY SAND
					CLAY
20					CLAYEY SILT
					CLAY
30					SILTY CLAY
					SAND and CLAYEY SAND
					SILTY CLAY
40					CLAY
50					CLAYEY SAND
					CLAY and SILTY CLAY
					base of CPT log
60					



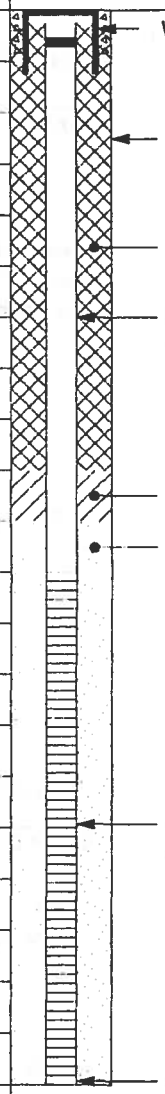
PROJECT: Air Products, Inc.	**Log of Well No. MW-68**
BORING LOCATION: West Side of Spill Off Pond	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Fugro	DATE STARTED: 11/30/00 / DATE FINISHED: 12/8/00
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 57.5 / SCREEN INTERVAL (ft.): 47.5 - 57.5'
DRILLING EQUIPMENT: Failing 25 / CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
					SANDY FILL
					CLAY and SILTY CLAY
					* Note: Lithology interpreted from Cone Penetrometer Testing (CPT) Log HP-21, located approximately 40 feet south of monitoring well MW-68.
10					
20					SILTY SANDY CLAY
					SILTY CLAY
30					
					SILTY SAND
					SILTY CLAY
40					
					CLAY
					SILTY CLAY
					CLAY
					SAND
50					
					CLAY and SANDY CLAY
60					



PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-69**
BORING LOCATION: Davison Road	GROUND SURFACE ELEVATION AND DATUM: TOC = 22.98 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/24/03 / DATE FINISHED: 11/24/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: TOC = 22.98 ft. (MSL)
				GRAVEL: dark gray clay, sand, rootlets, moist
				CLAY (CL): grayish brown (10yr 5/2), mottled with yellowish brown (10YR 5/6)
				Moist, medium stiff to stiff, roots and rootlets
10				CLAY (CL): yellowish red (5YR 5/6) mottled with gray (5YR 6/1) red (10YR 4/8) and black, slightly moist, stiff to very stiff
				CLAY (CL): fine sandy, yellowish red (5YR 5/6) and gray (5YR 6/1), sand, slightly moist, very stiff
20				
				CLAY (CL): Fine sandy, strong brown (7.5 YR 4/6), sand, slightly moist, medium stiff
30				
				CLAYEY SAND (SC): fine grained, strong brown, saturated
				CLAY (CL): strong brown (7.5 YR 4/6), moist, very stiff
				CLAY (CL): and CLAYEY SAND (SC): strong brown, saturated, fine grained
40				CLAY (CL): strong brown (7.5 YR 4/6), slightly moist, very stiff
				Total Depth: 42 feet below ground surface
50				

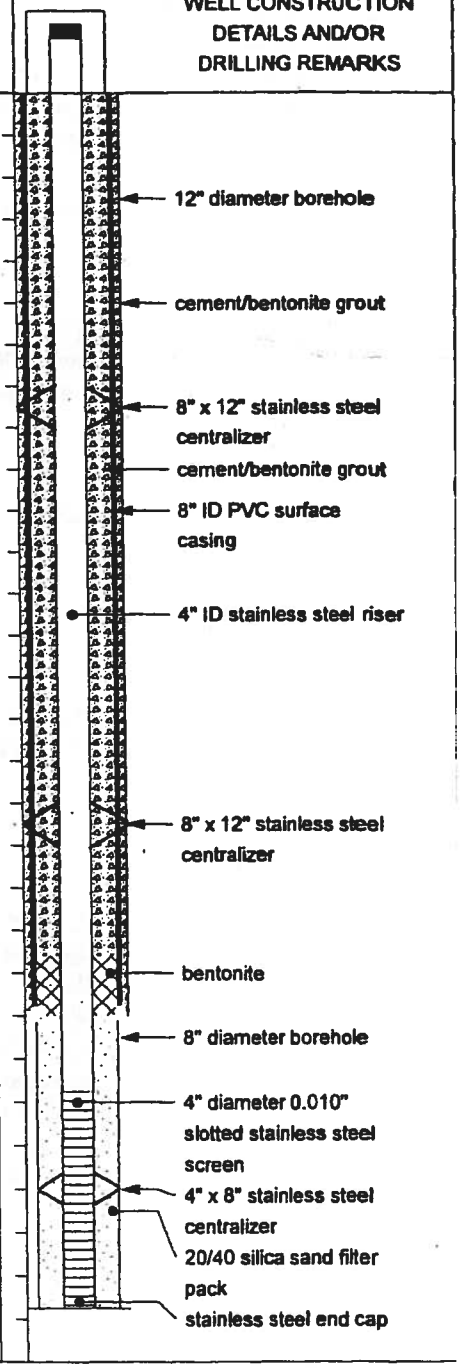


WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

WELL3

PROJECT: Air Products, Inc.	**Log of Well No. MW-70**
BORING LOCATION: North of Railroad Tracks	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Fugro	DATE STARTED: 11/29/00 / DATE FINISHED: 12/1/00
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 57.5 / SCREEN INTERVAL (ft.): 47.5 - 57.5'
DRILLING EQUIPMENT: Mud Rotary	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

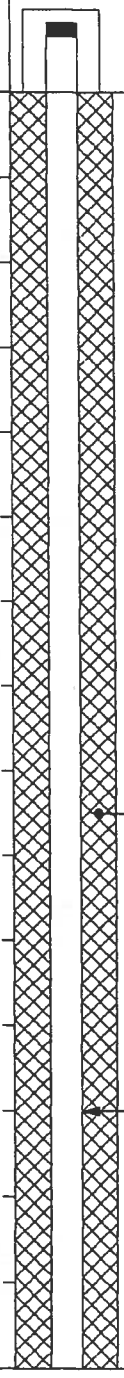
DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
				SANDY SILT fill material
				CLAY
10				* Note: Lithology interpreted from Cone Penetrometer Testing (CPT) Log HP-43, located approximately 30 feet south of monitoring well MW-70.
20				SILTY CLAY layers (< or = 1' thickness) at 22', 23', 25', 27', and 33' below ground level
30				
				CLAYEY SAND
				SILTY CLAY
40				CLAY Interbedded SILT and CLAY
				SAND
50				Interbedded SAND and CLAY
				base of CPT log
60				



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-71**
BORING LOCATION: 200 ft. South of Acid Spill Impoundment	GROUND SURFACE ELEVATION AND DATUM: TOC = 25.07 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/21/03 / DATE FINISHED: 11/21/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
				Surface Elevation: TOC = 25.07 ft. (MSL)	
				CLAY (CL): grayish brown (10YR 5/2) mottled with yellowish brown, moist, rootlets and caliche-like pebbles 1-4 feet	
5				CLAY (CL): yellowish red (5YR 5/16) mottled with dark gray, (5YR 4/1), moist caliche-like pebbles 5-7 ft., mottled with gray (5YR 6/1), red (10 R 4/8), and black 10-15 feet	
10					cement/bentonite grout
					4" diameter 304L stainless steel casing
15					



PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-71 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAY (CL): fine sandy, gray (10YR 6/1) and yellowish red (5YR 5/6), moist, stiff	bentonite pellets
20					CLAYEY SAND (SC): fine-grained, gray (10YR 6/1), yellowish red (5YR 5/6), wet	20/40 silica sand pack
					CLAY (CL): yelowish red (5YR 5/6) mottled with black, hard, caliche-like pebbles, slightly moist	
25					CLAYEY SAND (SC): gray (10YR 6/1), yellowish red (5YR 5/6), fine grained, wet	
					CLAY (CL): yellowish red (5YR 5/6), slightly moist, very stiff	
30					CLAYEY SAND (SC): fine grained, yellowish red (5YR 5/6), saturated	4" diameter 304L stainless steel 0.010-in wire wrapped screen

WELL:

PROJECT: Air Products, L.P., Pasadena, Texas

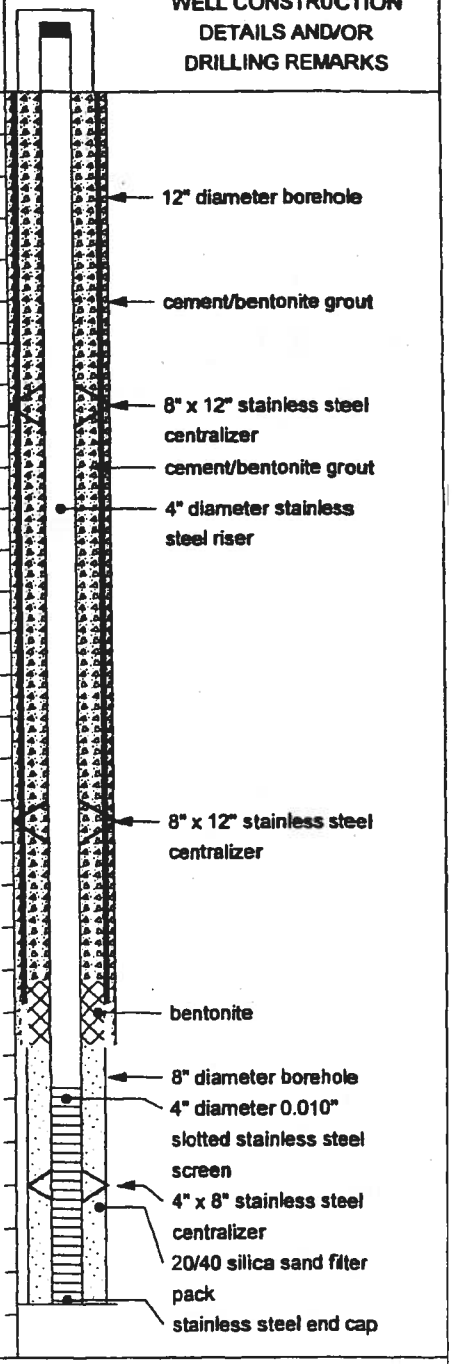
Log of Well No. MW-71 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35		X			CLAY (CL): yellowish red 34-35 ft., strong brown (7.5YR 5/6) 35-42 ft. slightly moist, very stiff to hard	
40		X			Total Depth: 42 feet below ground surface	stainless steel endcap
45						
50						

WELL3

PROJECT: Air Products, Inc.	**Log of Well No. MW-72**
BORING LOCATION: Northeast of DNT Storage Area	GROUND SURFACE ELEVATION AND DATUM:
.LLING CONTRACTOR: Fugro	DATE STARTED: 12/5/00 / DATE FINISHED: 12/7/00
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 57.5 / SCREEN INTERVAL (ft.): 47.5 - 57.5'
DRILLING EQUIPMENT: Failing 250	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Cuttings/Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
				SANDY FILL
				CLAY
				* Note: Lithology interpreted from Cone Penetrometer Testing (CPT) Log HP-27, located approximately 130 feet west of monitoring well MW-72.
10				
				SILTY CLAY layer (<1' thickness) at 19' below ground level
20				
				SILTY CLAY
				CLAY
30				
				CLAYEY SAND
				CLAY
				CLAYEY SAND
				CLAY with SANDY and SILTY CLAY layers (<1' thickness) at 40', 42', and 45' below ground level.
40				
				SAND
50				
				SANDY CLAY and CLAYEY SAND
				CLAY base of CPT log
60				



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-73

BORING LOCATION: TDA Storage Tank

GROUND SURFACE ELEVATION AND DATUM: TOC 27.86 ft. (MSL)

DRILLING CONTRACTOR: Best Drilling Services, Inc.

DATE STARTED: 11/14/03 | DATE FINISHED: 11/14/03

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH (ft.): 42.0 | SCREEN INTERVAL (ft.): 22-42

DRILLING EQUIPMENT: Mobil Drill B-59

DEPTH TO WATER ATD: NA | CASING: 4" Diameter SS

SAMPLING METHOD: Split-barrel Continuous Sampler

LOGGED BY: D. Holman

HAMMER WEIGHT: NA | DROP: NA

RESPONSIBLE PROFESSIONAL: M. Bentley | REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: TOC 27.86 ft. (MSL)	
					Gravel cover CLAY (CL): dark brown (7.5YR 5/1) 0.3-5ft., dark gray (10YR 4/1) 5-10 ft., moist, medium stiff to stiff, rootlets 3-4 ft.	
5						
						cement/bentonite grout
10					CLAY (CL): yellowish red (5YR 5/6) mottled with gray (5YR 6/1), stiff, moist caliche-like pebbles at 12 feet.	
						4" diameter 304L stainless steel casing
15						

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-73 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAY (CL): fine sandy, gray (5YR 6/1) and yellow (10YR 7/8), medium stiff to medium, mottled with black, increasing sand content 19.5-20ft., moist	bentonite pellets
20					SAND (SC): clayey, yellow and gray, 20-25 ft., light brown (7.5YR 6/4) 25-27ft, saturated, fine grained interbedded with two fine sandy clay layers ~1ft. thick	20/40 silica sand pack
25					CLAY (CL): reddish yellow (5YR 4/6), slightly moist, very stiff, mottled with gray, minor fine sand 27-30 ft., minor caliche-like pebbles	
30						4" diameter 304L stainless steel 0.010-in wire wrapped screen

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-73 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						
					SAND (SC): clayey, fine grained, 2.0-2.5, saturated, reddish yellow (5YR 4/6)	
					CLAY (CL): reddish yellow (5YR 4/6) slightly moist, very stiff	
40						stainless steel endcap
					Total Depth: 42 feet below ground surface	
45						
50						

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-74**
BORING LOCATION: Contractor Fab. Shop	GROUND SURFACE ELEVATION AND DATUM: TOC = 28.75 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/18/03 / DATE FINISHED: 11/18/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: TOC = 28.75 ft. (MSL)	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Asphalt 0-0.3 ft. Limestone gravel base 0.3-0.8ft. CLAY (CL): dark gray (5YR 4/1), moist, medium stiff, rootlets 0.8-3.0ft.	
5						
10						cement/bentonite grout 4" diameter 304L stainless steel casing
					CLAY (CL): fine sandy, yellowish red (5YR 5/6), moist	
15					CLAYEY SAND (SC): fine grained, yellowish red and gray (5YR 6/1), very moist	

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-74 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAY (CL): fine sandy, brownish yellow (10YR 6/6) and gray (5YR 6/1), moist	bentonite pellets
20						20/40 silica sand pack
25					CLAYEY SAND (SC): fine grained, yellowish red (5YR 5/6), saturated	
					CLAY (CL): yellowish red (5YR 4/6); slightly moist, very stiff, minor gray mottling	
30						4" diameter 304L stainless steel 0.010-in wire wrapped screen

WELL3

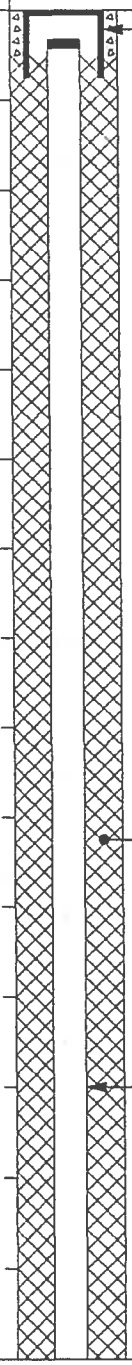
PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-74 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						
40						stainless steel endcap
					Total Depth: 42 feet below ground surface	
45						
50						

ROJECT: Air Products, L.P., Pasadena, Texas		**Log of Well No. MW-75**	
ORING LOCATION: Container Storage Area		GROUND SURFACE ELEVATION AND DATUM: TOC = 23.91 ft. (MSL)	
ILLING CONTRACTOR: Best Drilling Services, Inc.		DATE STARTED: 11/19/03	DATE FINISHED: 11/19/03
RILLING METHOD: Hollow Stem Auger		TOTAL DEPTH (ft.): 42.0	SCREEN INTERVAL (ft.): 22-42
RILLING EQUIPMENT: Mobil Drill B-59		DEPTH TO WATER ATD: NA	CASING: 4" Diameter SS
AMPLING METHOD: Split-barrel Continuous Sampler		LOGGED BY: D. Holman	
AMMER WEIGHT: NA	DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley	REG. NO. 6748

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: TOC = 23.91 ft. (MSL)	
					Limestone gravel cover and rail line ballast 0-1ft compacted base fill 1-2ft	Well Vault
					CLAY (CL): dark gray (10YR 4/1) moist, medium stiff to stiff, minor caliche-like pebbles 3-5ft.	
5						
10					CLAY (CL): strong brown (7.5YR 5/6), mottled with gray 10-15ft, with orange and black bands 15-20ft., moist, minor fine sand	cement/bentonite grout
						4" diameter 304L stainless steel casing
15						



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-75 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
20					Mottled with yellow and gray 20-25ft.	bentonite pellets 20/40 silica sand pack
25					CLAY (CL): reddish yellow (5YR 4/6), slightly moist, hard, minor caliche-like pebbles	
					CLAYEY SAND (SC): fine grained, wet, reddish yellow (5YR 4/6)	
					CLAY (CL): reddish yellow (5YR 4/6), slightly moist, very stiff	
30						4" diameter 304L stainless steel 0.010-in wire wrapped screen

WE

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-75 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						
40					Total Depth: 42 feet below ground surface	stainless steel endcap
45						
50						

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-76**
BORING LOCATION: Closed Effluent Impoundment	GROUND SURFACE ELEVATION AND DATUM: TOC - 27.02 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/13/03 / DATE FINISHED: 11/14/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: TOC - 27.02 ft. (MSL)	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Asphalt 0-0.3 ft. CLAY (CL): very dary gray (3YR 5/1), moist, medium stiff to stiff	
5					Dark gray (5YR 4/1) 5-10 ft., mottled with yellowish red (5YR 5/6) 9-10ft.	cement/bentonite grout
10					CLAY (CL): yellowish red (5YR 5/6) 10-15ft., medium stiff to stiff 10-15ft., stiff to very stiff 15-20 ft.	4" diameter 304L stainless steel casing
15						

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-76 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Reddish brown (5YR 4/4) 15-17ft. gray (7.5YR 6/1) mottled with reddish brown 17-20ft. slightly moist 15-20ft. with minor fine sand	bentonite pellets
20					CLAY (CL): fine sandy, gray mottled with reddish brown, moist, very stiff	20/40 silica sand pack
					CLAY (CL): gray mottled with reddish brown, slightly moist, very stiff to hard, caliche-like pebbles 22-25ft, fine sand 25-25.5ft.	
25					SAND (SC): clayey, light brown (7.5YR 6/4), saturated	
					CLAY (CL): reddish brown (5YR 4/4) 28'-30', very stiff to hard, slightly moist, yellowish red (5YR 4/6) 30-38ft., caliche-like pebbles 30-33ft.	
30						4" diameter 304L stainless steel 0.010-in wire wrapped screen

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-76 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						
					CLAY (CL): sandy, reddish brown	
40					SAND (SC): clayey, reddish brown, fine grained, saturated	
					CLAY (CL): yellowish red, slightly moist, very stiff	
					Total Depth: 42 feet below ground surface	stainless steel endcap
45						
50						

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-77

BORING LOCATION: Fire Water Pond

GROUND SURFACE ELEVATION AND DATUM: TOC = 27.03 ft. (MSL)

DRILLING CONTRACTOR: Best Drilling Services, Inc.

DATE STARTED: 11/19/03 | DATE FINISHED: 11/20/03

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH (ft.): 42.0 | SCREEN INTERVAL (ft.): 22-42

DRILLING EQUIPMENT: Mobil Drill B-59

DEPTH TO WATER ATD: NA | CASING: 4" Diameter SS

SAMPLING METHOD: Split-barrel Continuous Sampler

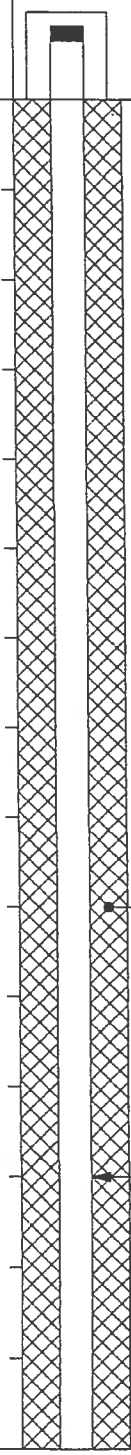
LOGGED BY: D. Holman

HAMMER WEIGHT: NA | DROP: NA

RESPONSIBLE PROFESSIONAL: M. Bentley | REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.
					Surface Elevation: TOC = 27.03 ft. (MSL)
					Gravel cover 0-0.5'
					CLAY (CL): dark gray (10YR 4/1), mottled with yellowish brown (10YR 5/4) 8.5-10ft., moist, stiff
5					
10					CLAY (CL): strong brown (7.5YR 5/6) and gray, (5YR 6/1), moist, stiff
15					

WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-77 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAY (CL): yellowish red (5YR 5/6) 15-15.75ft., brownish yellow (10YR 6/6) with gray 15.75-24.5ft., moist, stiff to very stiff	bentonite pellets
20						20/40 silica sand pack
25					CLAYEY SAND (SC): fine grained, brownish yellow, moist SAND (SC): fine grained, strong brown (7.5YR 5/6), saturated, minor clay content	
30					CLAT (CL): yellowish red (5YR 4/6), slightly moist, very stiff	4" diameter 304L stainless steel 0.010-in wire wrapped screen

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-77 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					CLAY (CL): strong brown (7.5YR 5/6), slightly moist, medium stiff	
					Fine sandy 37-37.5, medium stiff, moist to wet	
40						stainless steel endcap
					Total Depth: 42 feet below ground level	
45						
50						

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-78**
BORING LOCATION: Coling Tower	GROUND SURFACE ELEVATION AND DATUM: TOC = 27.29 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/20/03 / DATE FINISHED: 11/20/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: TOC = 27.29 ft. (MSL)	
					Gravel cover, concrete and asphalt fragments, (fill)	
					CLAY (CL): dark gray (10YR 4/1) mottled with yellowish brown 5-10ft., soft to medium stiff, very moist, rootlets 3-5ft.	
5						
						cement/bentonite grout
10					CLAY (CL): strong brown (7.5YR 5/6) and gray (5YR 6/1), moist, stiff	
						4" diameter 304L stainless steel casing
					Yellowish red (5YR 4/6) with minor fine sand 15-16ft.	
15						

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-78 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					CLAY (CL): fine sandy, yellowish red (5YR 4/6) and gray (10YR 6/1), mottled with yellow (10YR 7/8) and black 20-23.5 ft., moist, stiff to hard	bentonite pellets
20						20/40 silica sand pack
25					CLAYEY SAND (SC): gray (10YR 6/1) and yellowish red (5YR 4/6), fine grained, saturated	
					CLAY (CL): yellowish red (5YR 4/6), slightly moist, very stiff, caliche-like pebbles 28-30ft.	
30						4" diameter 304L stainless steel 0.010-in wire wrapped screen

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-78 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						
					CLAYEY SAND (SC): fine grained, yellowish red, saturated	
40					CLAY (CL): yellowish red (5YR 5/6), moist, fine sandy 39.25-40ft., stiff to hard	
					Total depth: 42 feet below ground surface	stainless steel endcap
45						
50						

PROJECT: Air Products, Inc.

Log of Well No. MW-79

BORING LOCATION:

GROUND SURFACE ELEVATION AND DATUM:

DRILLING CONTRACTOR: Best Drilling Services

DATE STARTED: 12/12/05

DATE FINISHED: 12/12/05

DRILLING METHOD: Hollow Stem Auger

TOTAL DEPTH (ft.): 40.0

SCREEN INTERVAL (ft.): 30-40

DRILLING EQUIPMENT: CME-75

DEPTH TO WATER ATD:

CASING:

SAMPLING METHOD: Split-barrel continuous sampler

LOGGED BY: D. Holman

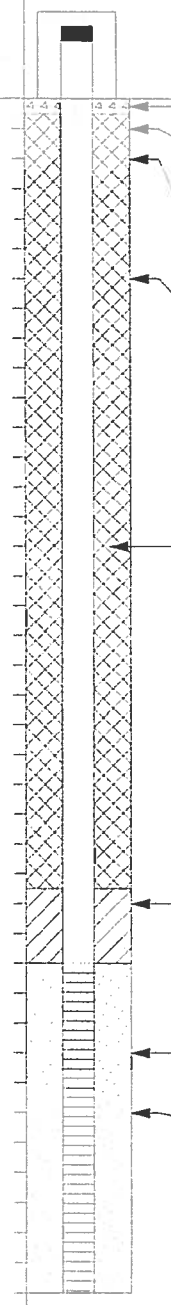
HAMMER WEIGHT: NA

DROP: NA

RESPONSIBLE PROFESSIONAL: M. Bentley

REG. NO.

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.
					Surface Elevation:
					Clay, Silt, Sand, roots, a few gravels
					CLAY (CL): gray to grayish brown, moist, hard, PP=2.25, medium plastic
5					
					CLAY (CL): reddish brown and gray, moist, firm to hard, PP=1.5-2.0, medium plastic
10					Silty 13-14 ft.
15					
					CLAY (CL): light gray and yellow, silty, moist, hard, PP=2.25, medium plastic
20					CLAY (CL): fine sandy, moist, light gray and red brown
					SAND (SC): light gray and reddish brown, fine-grained, clayey, moist and wet
25					SAND (SP): fine-grained, reddish brown, wet
					CLAY (CL): reddish brown, moist, hard, PP=3.0 medium plastic
30					SAND (SC): fine-grained, clayey, reddish brown, wet
					CLAY (CL): reddish brown, hard, PP=3.0, fine sandy 32-32.5 ft.
35					SAND (SC): fine-grained, reddish brown, clayey, wet
					CLAY (CL): fine sandy, reddish brown, moist to wet, hard, PP=3.0
40					Total Depth 40 feet
45					



WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

- Concrete
- 4" x 4" Protective Steel Casing
- 4' x 4' Concrete pad with 4x4" steel bollards at each corner
- 32' x 2" Sch 40 PVC Casing
- Portland cement/bentonite grout
- bentonite pellet seal
- 6 50-lb. sacks 20-40 silica sand
- 10' x 2" Sch 40 PVC 0.010-inch slotted screen

WELL3

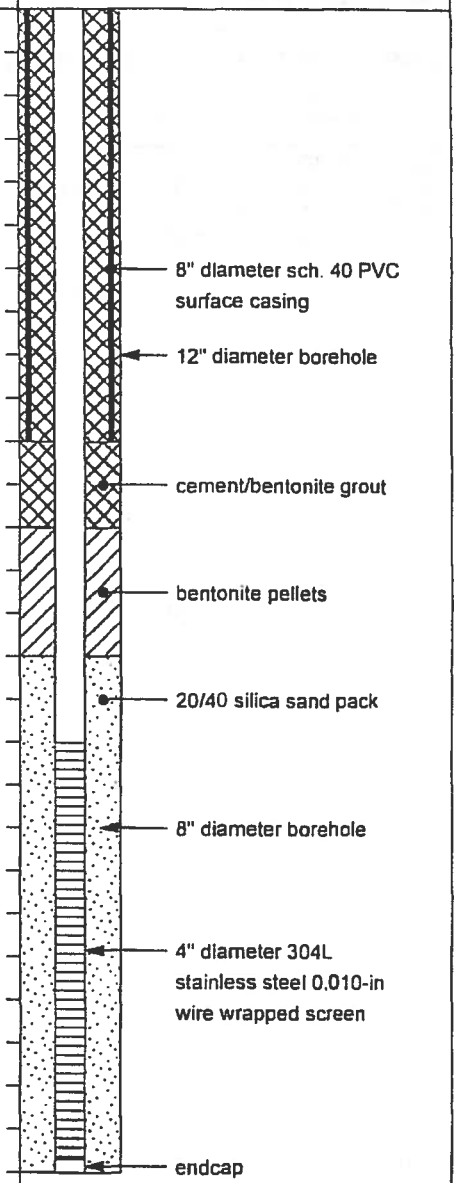
PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-80**
BORING LOCATION: DNT Loading Area	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 8/25/04 / DATE FINISHED: 8/27/04
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 57.0 / SCREEN INTERVAL (ft.): 47-57 ft.
DRILLING EQUIPMENT:	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Drill Cuttings	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Fill; silt and clay, dark brown	Well Vault
5						12" diameter borehole
					CLAY (CL): brown, soft	cement/bentonite grout
10					CLAY (CL): yellowish red	8" diameter Sch. 40 PVC surface casing
						4" diameter 304L stainless steel casing
15					SANDY CLAY (CL): brown	
					CLAY (CL): reddish brown	
20						cement/bentonite grout
25						
30						

PROJECT: Air Products, LLC, Pasadena, Texas

Log of Well No. MW-80 (cont'd)

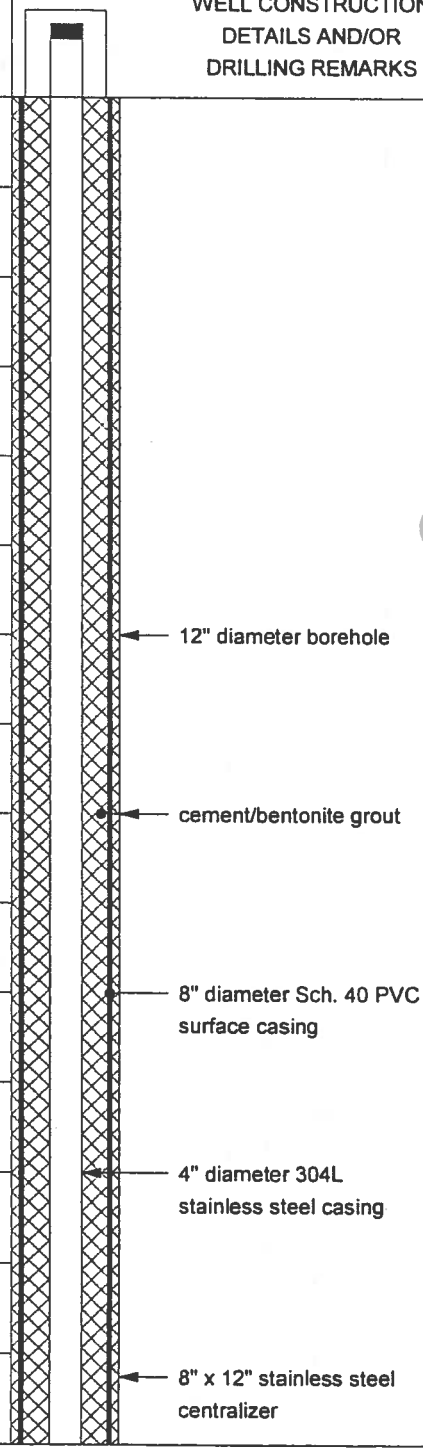
DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					SANDY CLAY (CL): brown	
35					CLAYEY SAND (SC): fine to medium grained	
40					CLAY (CL): reddish brown	
45					SAND (SP): brown, fine to medium grained	
50						
55					CLAY (CL)	
					Total Depth: 57 feet below ground surface	
60						
65						



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-81**
BORING LOCATION: Neutralization Pit Area	GROUND SURFACE ELEVATION AND DATUM: TOC = 25.31 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/25/03 / DATE FINISHED: 12/1/03
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 58.0 / SCREEN INTERVAL (ft.): 48-58
DRILLING EQUIPMENT:	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Drill Cuttings	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: TOC = 25.31 ft. (MSL)	
					CLAY (CL): gray and brown	
5						
10						
15						



PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-81 (cont'd)

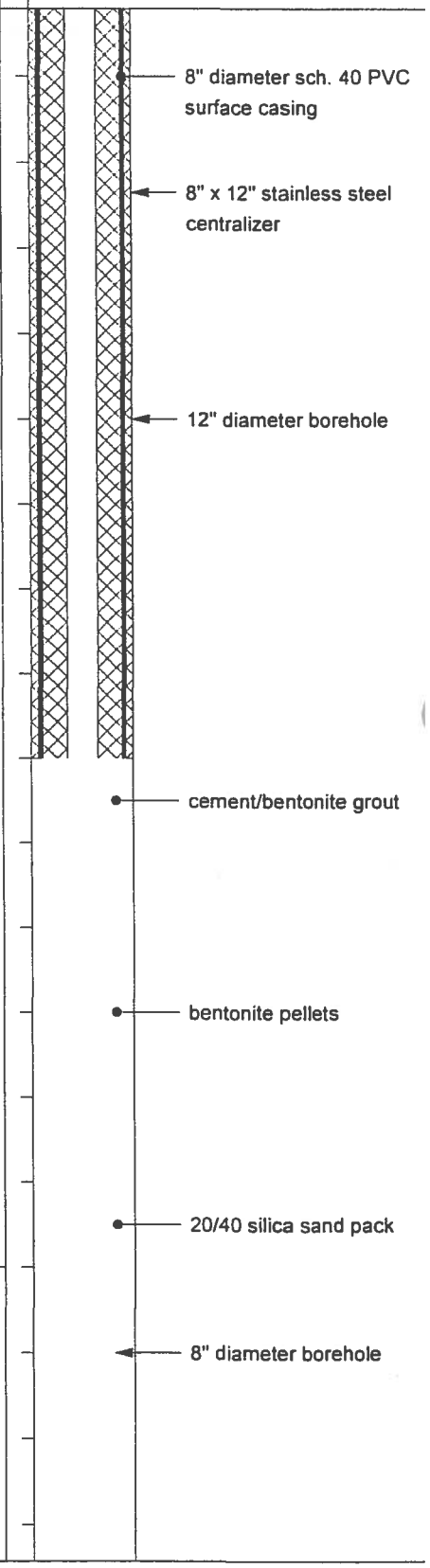
DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Yellowish red at 15ft.	
20						cement/bentonite grout
25					CLAYEY SAND (SC):	8" diameter SCH. 40 PVC casing
					CLAY (CL):	
						4" diameter 304L stainless steel casing
30						

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-81 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						8" diameter sch. 40 PVC surface casing 8" x 12" stainless steel centralizer 12" diameter borehole
40						cement/bentonite grout bentonite pellets
45						20/40 silica sand pack
					SAND (SP): fine grained, medium to coarse grained at 52ft.	8" diameter borehole
50						



WE

ROJECT: Air Products, L.P., Pasadena, Texas

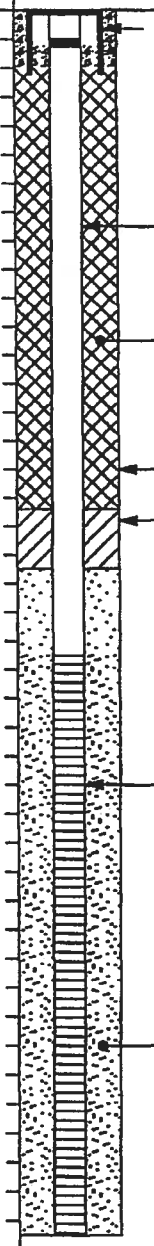
Log of Well No. MW-81 (cont'd)

(feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
55					CLAY (CL):	4" diameter 304L stainless steel 0.010-in wire wrapped screen
					Total Depth: 58 feet below ground surface	endcap
60						
65						

WELL3

PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-82**
BORING LOCATION: DNT Unit No. 1	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling Services, Inc	DATE STARTED: 10/17/05 / DATE FINISHED: 10/18/05
DRILLING METHOD: Hollow-Stem Auger	TOTAL DEPTH (ft.): 42.5 / SCREEN INTERVAL (ft.): 22.5-42.5
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrell Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.
				Surface Elevation:
				GRAVEL and CLAY(GP-GC);brown, moist.
			10.9	CLAY(CL): grayish brown, moist, firm, medium plastic.
5			4.4	
			0.0	
10				CLAY(CL); reddish brown with gray and black, moist, hard, pp=2.5, low to medium plastic.
			0.0	
15				CLAY(CL): silty, reddish brown, greenish gray 18-20 feet, moist, firm, low to medium plastic.
			10.6	
20				
			7.8	SAND(SC); fine-grained, clayey, reddish brown, wet.
25				CLAY(CL); reddish-brown, moist, hard, low plastic.
				SAND(SC); fine-grained, clayey, reddish-brown, wet.
				CLAY(CL): fine-sandy, red-brown, firm, wet.
30				CLAY(CL); reddish-brown, moist, hard, medium plastic.
35				
40				
				Total Depth=42.5ft. OVM readings in ppm.
45				

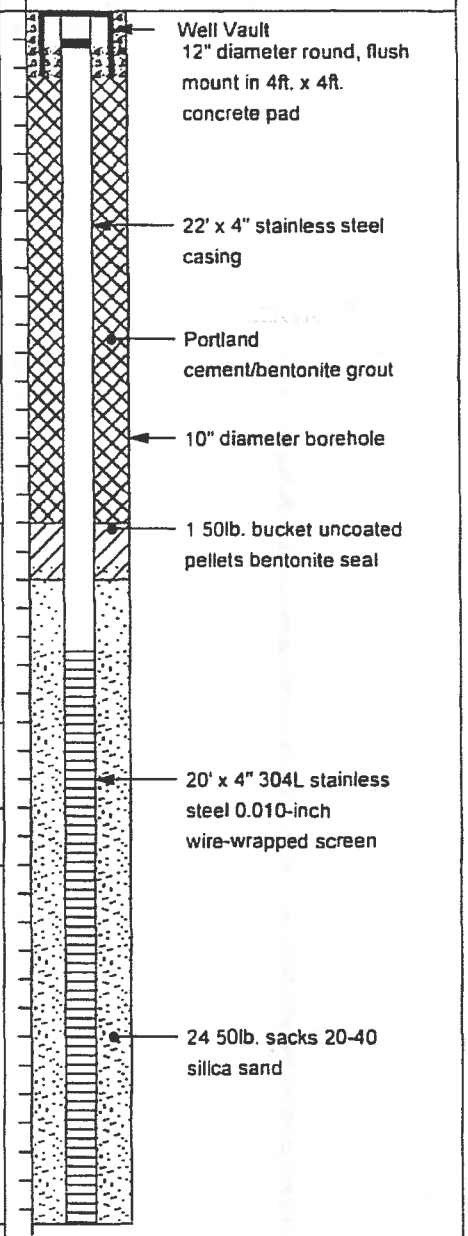


WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

- Well Vault 12" diameter round, flush mount in 4ft. x 4ft. concrete pad
- 22' x 4" stainless steel casing
- Portland cement/bentonite grout
- 10" diameter borehole
- 1 50lb. bucket uncoated pellets bentonite seal
- 20' x 4" 304L stainless steel 0.010-inch wire-wrapped screen
- 24 50lb. sacks 20-40 silica sand

PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-83**
BORING LOCATION: DNT Unit No. 1	GROUND SURFACE ELEVATION AND DATUM
DRILLING CONTRACTOR: Best Drilling Services, Inc	DATE STARTED: 10/18/05 / DATE FINISHED: 10/19/05
DRILLING METHOD: Hollow-Stem Auger	TOTAL DEPTH (ft.): 42.5 / SCREEN INTERVAL (ft.): 22.5-42.5
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrell Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. Inter.
					Surface Elevation:
					GRAVEL and CLAY(GP-GC);brown, moist.
5				0.0	
				1.1	CLAY(CL): dark gray, moist, firm, clayey sand with black staining 6-6.5 ft.
				0.0	
10				1.0	CLAY(CL): reddish-brown, moist, hard, medium plastic.
15					
				6.6	
20					CLAY(CL): silty, greenish-gray, firm to hard, low plastic.
				25.5	
25					SAND(SC): fine-grained, clayey, reddish- brown with gray, wet.
					CLAY(CL): fine-sandy, red-brown, firm, wet.
30					CLAY(CL): reddish-brown with some black, moist, hard, medium plastic.
35					
40					
					Total Depth=42.5ft.
45					OVM Reading in ppm



WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW84**
BORING LOCATION: 450.0839N -780.6302E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.92 ft.msl / TOC = 23.34 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 12/8/09 / DATE FINISHED: 12/8/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 43.0 / SCREEN INTERVAL (ft.): 23-43
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.92 ft.msl / TOC = 23.34 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
		NR				10-in Diameter Borehole
5						
					CLAY (CH); dark grey; moist to very moist; soft; high plasticity	Cement/Bentonite Grout
10					CLAY (CH); brown to red brown; stiff; moist; medium to high plasticity	
						4-in Diameter Sch 10 Stainless Steel Casing
15						
						Seal of Hydrated Bentonite Pellets
20					CLAY (CH); light brown to tan; stiff; moist; medium to high plasticity	20/40 Silica Sand
25					SITLY CLAY (CL) AND CLAYEY SILT (ML); light brown; wet; moderately stiff; medium to high plasticity; minor fine grained sands	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW84 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					Poor recovery, Driller indicates back in clay	4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40		NR			CLAY (CL); red to red brown; hard; dry; low plasticity	
					Total Depth 43 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW85**
BORING LOCATION: 382.7407N -85.1531E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.68 ft.msl / TOC = 23.27 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/16/09 / DATE FINISHED: 11/16/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.68 ft.msl / TOC = 23.27 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey; stiff; medium to high plasticity; moist CLAY (CH); brown to orange-brown; stiff; medium to high plasticity; moist	Cement/Bentonite Grout 4-in Diameter Sch 10 Stainless Steel Casing
15						
20					CLAY (CH); light brown to tan; stiff; medium plasticity; slightly moist; becomes wet at 25	Seal of Hydrated Bentonite Pellets 20/40 Silica Sand
25					SILTY CLAY/CLAY (MH/CH); light brown; high plasticity; soft; moist to wet	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW85 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; stiff to very stiff; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW86**
BORING LOCATION: 234.4531N 16.1390E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.75 ft.msl / TOC = 23.15 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/10/09 / DATE FINISHED: 11/10/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: Ground Surface = 23.75 ft.msl / TOC = 23.15 ft.msl	
					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey and orange; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
15					CLAY (CH); orange-brown; stiff to very stiff; medium to high plasticity; slightly moist	4-in Diameter Sch 10 Stainless Steel Casing
20					SANDY CLAY/CLAY(CH); tan to light brown; moist; high plasticity; moist; 10-15% sand and silt; very silty and wet at 25'	Seal of Hydrated Bentonite Pellets
25						20/40 Silica Sand
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW86 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-orange with grey mottles; very stiff to hard; low plasticity; very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						



WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW87**
BORING LOCATION: -95.4147N 45.2263E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.76 ft.msl / TOC = 23.54 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/11/09 / DATE FINISHED: 11/11/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.76 ft.msl / TOC = 23.54 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey and orange mottled; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
15						4-in Diameter Sch 10 Stainless Steel Casing
20						Seal of Hydrated Bentonite Pellets
25					Poor cuttings return, clay is very sticky, becoming silty	20/40 Silica Sand
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW87 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					SILT (MH); light brown; saturated	4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); orange-brown with grey mottles; hard; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW88**
BORING LOCATION: -219.4864N -54.6136E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 25.37 ft.msl / TOC = 24.99 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/12/09 / DATE FINISHED: 11/12/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: Ground Surface = 25.37 ft.msl / TOC = 24.99 ft.msl	
					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
					CLAY (CH); dark grey; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
10					CLAY (CH); grey and brown; stiff; medium to high plasticity; moist	
						4-in Diameter Sch 10 Stainless Steel Casing
15						
						Seal of Hydrated Bentonite Pellets
20						20/40 Silica Sand
25					Grading to light brown/tan	
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW88 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					SILTY CLAY/CLAYEY SILT (CH/MH); light orange-brown; very moist to wet; poor cuttings return; silt is orange-brown; saturated 38-40'	4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown with light grey mottles; very stiff to hard; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW89**
BORING LOCATION: 66.3381N 13.3958E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.52 ft.msl / TOC = 22.89 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/11/09 / DATE FINISHED: 11/11/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.52 ft.msl / TOC = 22.89 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey and orange mottled; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
15					SANDY CLAY/CLAY (CH); tan to light brown; stiff; high plasticity; moist; 10% silts and fine grained sand; wet at 25'	4-in Diameter Sch 10 Stainless Steel Casing
20						Seal of Hydrated Bentonite Pellets
25						20/40 Silica Sand
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW89 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); orange-brown; very stiff to hard; low plasticity slightly moist to dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW91**
BORING LOCATION: 30.4704N -127.3703E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.99 ft.msl / TOC = 23.42 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/12/09 / DATE FINISHED: 11/12/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.99 ft.msl / TOC = 23.42 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					NRNot Recovered/Hydroexcavated	Traffic Rated Well Box
		NR				10-in Diameter Borehole
5						
					AUGERCLAY (CH); dark grey; moderately stiff; high plasticity; moist	Cement/Bentonite Grout
10					SSCLAY (CH); brown to orange-brown; stiff; medium to high plasticity; moist	
						4-in Diameter Sch 10 Stainless Steel Casing
15						
						Seal of Hydrated Bentonite Pellets
20						20/40 Silica Sand
25					SSSILT/CLAYEY SILT (MH); light orange-brown; soft; saturated; strong chemical odor	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW91 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; hard; low plasticity; dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW93**
BORING LOCATION: 29.7987N -465.4896E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.99 ft.msl / TOC = 23.46 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/16/09 / DATE FINISHED: 11/16/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.99 ft.msl / TOC = 23.46 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	Traffic Rated Well Box
		NR				10-in Diameter Borehole
5						
					CLAY (CH); dark grey; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
10					CLAY (CH); brown to dark tan; stiff; medium to high plasticity; moist	
						4-in Diameter Sch 10 Stainless Steel Casing
15						
						Seal of Hydrated Bentonite Pellets
20					SILTY CLAY/CLAY (CH); light brown to tan; high plasticity; moist to wet; grading to a clayey silt	20/40 Silica Sand
25					SILT/CLAYEY SILT (MH); light brown; saturated; plastic; 30-40% clay	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW93 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; very stiff; low plasticity; moist to dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

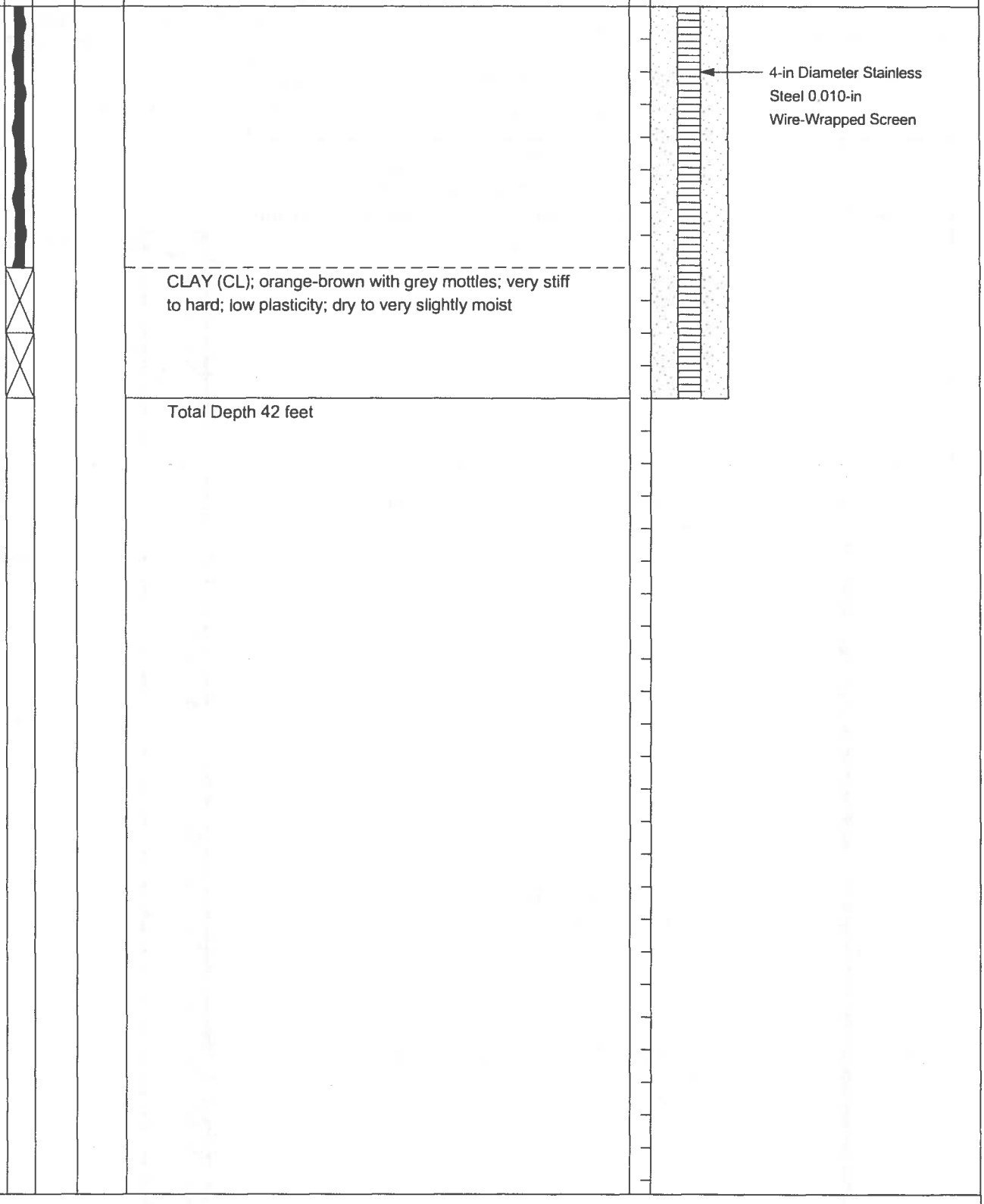
PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW94**
BORING LOCATION: 28.7931N -715.9210E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.03 ft msl / TOC = 23.68 ft msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/13/09 / DATE FINISHED: 11/13/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.03 ft.msl / TOC = 23.68 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey; stiff; medium to high plasticity; moist CLAY (CH); orange-brown; stiff; medium to high plasticity; moist	Cement/Bentonite Grout 4-in Diameter Sch 10 Stainless Steel Casing
15						Seal of Hydrated Bentonite Pellets
20					SILTY CLAY/CLAY (CH); light brown to tan; high plasticity; moist to wet; grades to a clayey silt at 25	20/40 Silica Sand
25					CLAYEY SILT/ SILTY CLAY (MH/CH); light brown to tan; high plasiticity; wet	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW94 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); orange-brown with grey mottles; very stiff to hard; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						



WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW95**
BORING LOCATION: 149.6308N -368.8302E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.52 ft.msl / TOC = 22.85 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/19/09 / DATE FINISHED: 12/2/09
DRILLING METHOD: Hollow Stem Auger/Mud Rotary	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 50-60
DRILLING EQUIPMENT: CME-75/Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.52 ft.msl / TOC = 22.85 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				
10					CLAY (CH); grey and orange-brown mottled; moist; stiff; medium to high plasticity	8-in Diameter PVC Casing
15						12-in Diameter Borehole
20					CLAY (CL); red brown; slightly moist; stiff; low to medium plasticity	Cement/Bentonite Grout
25					CLAY/SILTY CLAY (CH); orange and tan; moist to wet; high plasticity	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW95 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red orange; very slightly moist; very stiff; low plasticity	
					Logging from mud cuttings. Same ast 40-42 foot interval	8-in Diameter Borehole
45						Seal of Hydrated Bentonite Pellets
					SILT (MH) AND SILTY/SANDY CLAY (CH); grey and brown; fine grained sands and silts	Centralizer
50						
						20/40 Silica Sand
55						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
						Centralizer
60					Total Depth 60 feet	
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW96**
BORING LOCATION: 126.2784N -306.4170E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.68 ft.msl / TOC = 26.31 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 12/3/09 / DATE FINISHED: 12/9/09
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 75.0 / SCREEN INTERVAL (ft.): 80-95
DRILLING EQUIPMENT: Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: Ground Surface = 23.68 ft.msl / TOC = 26.31 ft.msl	
					Not Recovered/Hydroexcavated	
5		NR				
					CLAY (CH); grey and brown; high plasticity	
10					CLAY (CH); red brown; high plasticity	8-in Diameter PVC Casing
15						12-in Diameter Borehole
20					CLAY (CH); red brown; high plasticity; becomes silty at 26'	
25						
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW96 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red brown; hard; low plasticity	Cement/Bentonite Grout
45						
50					CLAYEY SILT (MH) AND SITLY CLAY (CH); brown	
55						
60					CLAY (CL); grey and brown; hard; low plasticity	
65						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW96 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
70						Centralizer
75					Logging from mud cuttings. CLAY (CL) AND CLAYEY SILT (ML); brown to red brown; low to medium plasticity clay with silt	Seal of Hydrated Bentonite Pellets
80						8-in Diameter Borehole
85						Centralizer 20/40 Silica Sand 4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
90						
95					Total Depth 95 feet	Centralizer
100						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW97**
BORING LOCATION: 370.3015N -1723.6863E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.23 ft.msl / TOC = 26.63 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/17/09 / DATE FINISHED: 11/17/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.23 ft.msl / TOC = 26.63 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	10-in Diameter Borehole
5		NR				
10					CLAY (CH); dark grey and dark brown; stiff; medium to high plasticity; slightly moist	Cement/Bentonite Grout
					CLAY (CH); brown-orange; stiff; medium to high plasticity; slightly moist	4-in Diameter Sch 10 Stainless Steel Casing
15					SILTY CLAY (CH); orange-brown; stiff; high plasticity; moist; becomes saturated silt at approximately 17'	Seal of Hydrated Bentonite Pellets
20					CLAYEY SILT/SILTY CLAY (MH/CH); brown; soft to firm; high plasticity; wet; flowing clayey silt at 23'	20/40 Silica Sand
25						
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW97 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0 010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown with some grey mottles; very stiff to hard; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW98**
BORING LOCATION: 601.8522N -953.5020E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.09 ft msl / TOC = 26.38 ft msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/18/09 / DATE FINISHED: 12/1/09
DRILLING METHOD: Hollow Stem Auger/Mud Rotary	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 50-60
DRILLING EQUIPMENT: CME-75/Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.09 ft.msl / TOC = 26.38 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	
5		NR				
10					CLAY (CH); grey and brown; moist; stiff; medium to high plasticity	8-in Diameter PVC Casing
15					CLAY (CH); red brown; moist; stiff; medium to high plasticity	12-in Diameter Borehole
20						Cement/Bentonite Grout
25					SILTY CLAY/CLAYEY SILT (CH/ML); brown/tan; silty; soft; plastic; saturated	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW98 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					CLAY (CH); red brown; moist; medium to high plasticity	4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red brown; stiff; slightly moist; low plasticity	
					Logging from mud cuttings. Same as 38-42 foot interval	8-in Diameter Borehole
45					SILTY/SANDY CLAY (CH); brown to tan clay with very fine grained sands and silt	Seal of Hydrated Bentonite Pellets
50						Centralizer
55						20/40 Silica Sand 4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
60					CLAY (CL); brown; hard; low plasiticity; contains minor silts	Centralizer
					Total Depth 60 feet	
65						

WELL3

Recovery Wells

LOG OF BORING NO. RW-1

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

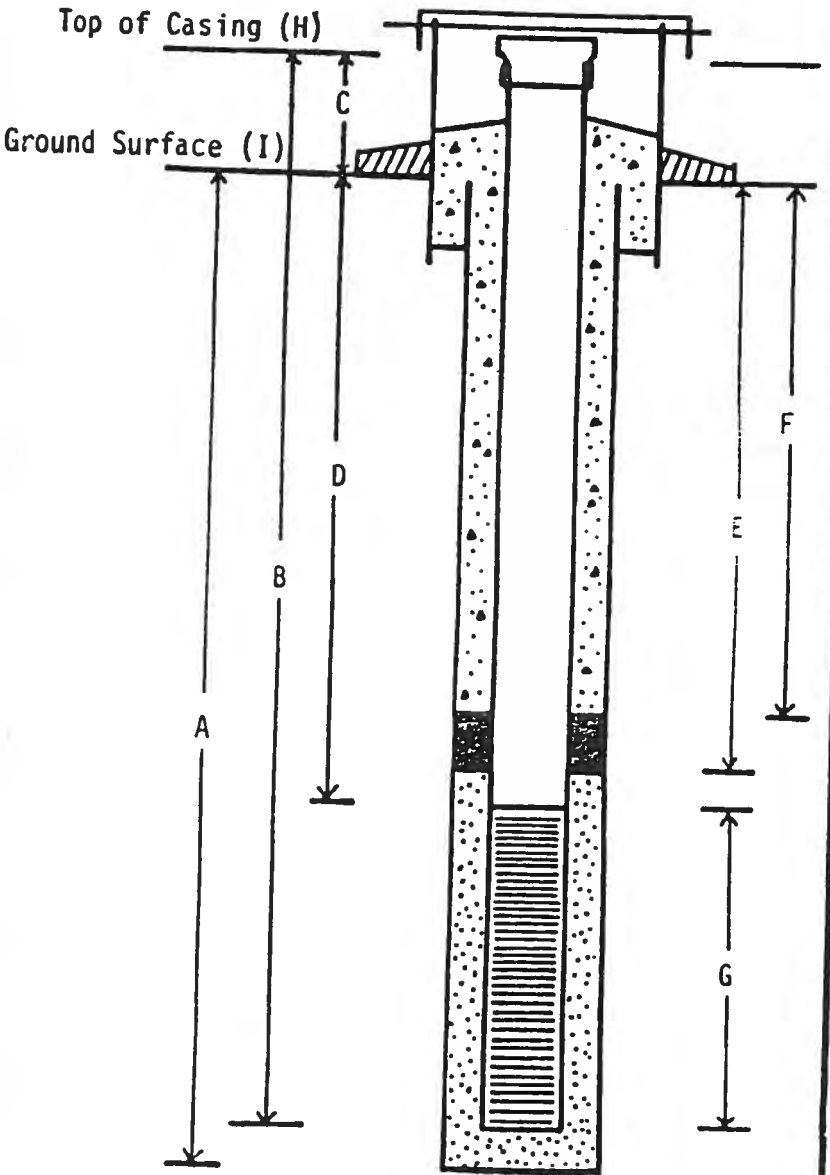
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray clay w/cgravel						
			Dark gray clay						
5									
10			- tan						
15			- brown and light gray w/sand seams						
20			- w/calcareous nodules						
25			- tan						
30			Brown and light gray clayey sand w/calcareous and ferrous nodules						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 21 & 22, 1988

DEPTH TO WATER: 8.3'
DATE: 7/14/88

PLATE 2

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 38.3
(C)	Casing stickup above ground surface, feet	: 3.3
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-1

PLATE 22

LOG OF BORING NO. RW-2

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

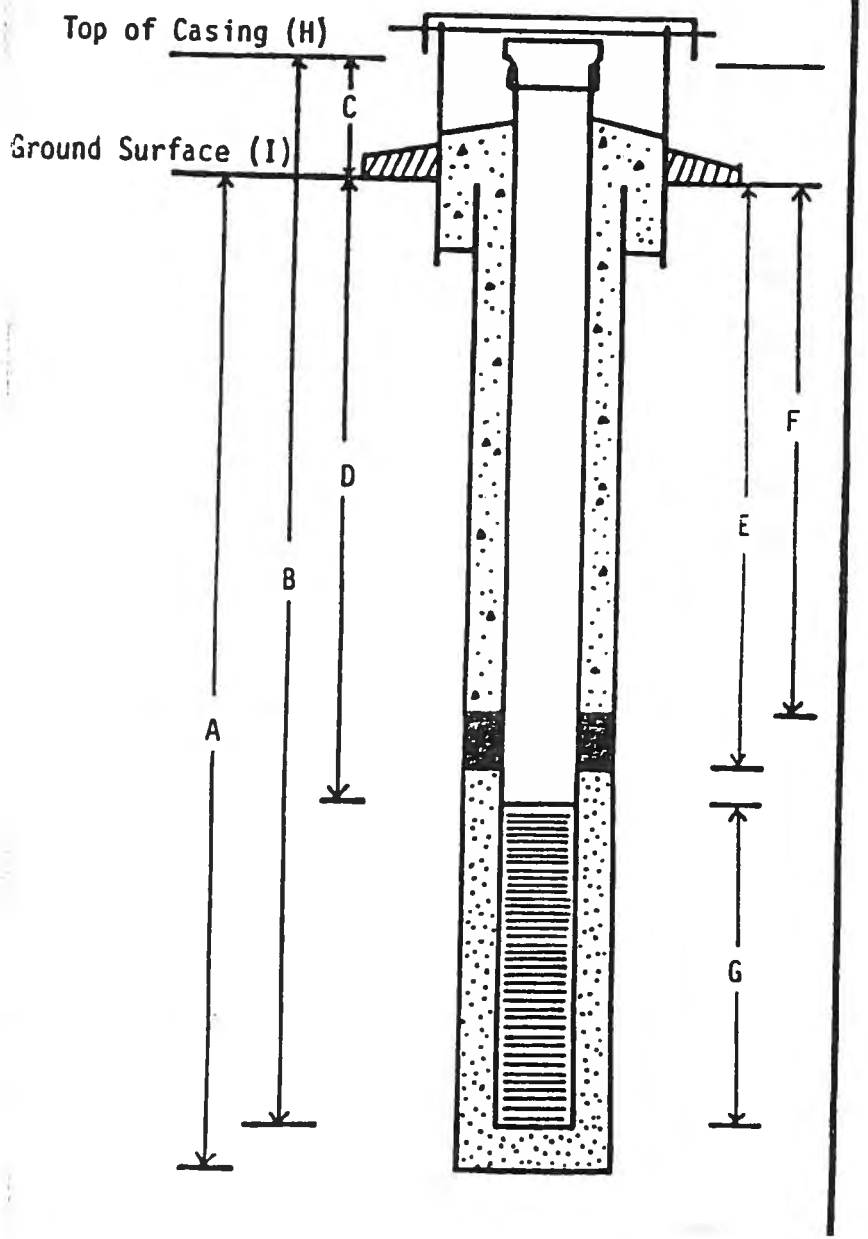
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray w/gravel						
			Dark gray clay						
5									
10			- w/sand seams						
15			- brown and light gray w/sand seams						
20			- tan						
25									
			Brown and gray clayey sand w/calcareous & ferrous nodules						
30			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 36'
DATE: June 21, 1988

DEPTH TO WATER: 7.8'
DATE: 7/14/88

PLATE 3

(A) Borehole depth, feet : 36.0
(B) Total casing length, feet : 38.2
(C) Casing stickup above ground surface, feet : 2.2
(D) Depth to top of screen, feet : 21.0
(E) Depth to top of sand pack, feet : 19.0
(F) Depth to top of bentonite seal, feet : 17.0
(G) Screen length, feet : 15.0
(H) Top of casing elevation, feet
(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-2

PLATE 23

LOG OF BORING NO. ~~MW-3~~ RW-3

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray clay w/gravel						
5			Dark gray clay w/ferrous nodules						
10			- tan and light gray						
15			- w/calcareous nodules & slickensides						
			Tan and gray sandy clay w/calcareous and ferrous nodules						
20									
			Brown and light gray clay w/ferrous stains						
25									
30			Brown and light gray clayey sand w/silt seams						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 36'
DATE: June 23, 1988

DEPTH TO WATER: 8.4'
DATE: 7/14/88

(A) Borehole depth, feet : 36.0

(B) Total casing length, feet : 38.2

(C) Casing stickup above ground surface, feet : 2.2

(D) Depth to top of screen, feet : 21.0

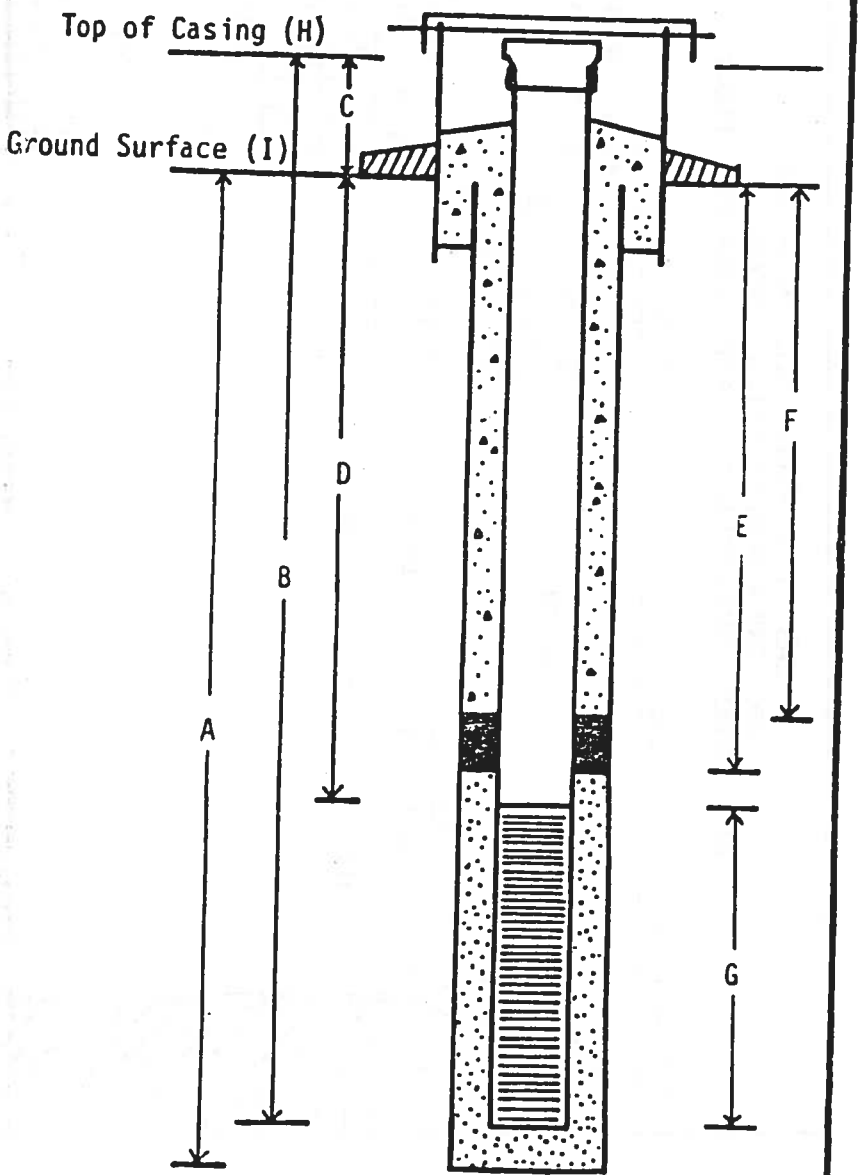
(E) Depth to top of sand pack, feet : 19.0

(F) Depth to top of bentonite seal, feet: 17.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-3

PLATE24

LOG OF BORING NO. RW-4

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray clay w/gravel						
5			Dark gray and tan clay w/ferrous nodules						
10									
15			- brown and light gray						
20									
25			- tan and light gray w/calcareous nodules						
30			Brown and light gray clayey sand w/ calcareous and ferrous nodules						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 21 & 22, 1988

DEPTH TO WATER: 8.4'
DATE: 7/14/88

PLATE 5

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 38.3

(C) Casing stickup above ground surface, feet : 3.3

(D) Depth to top of screen, feet : 20.0

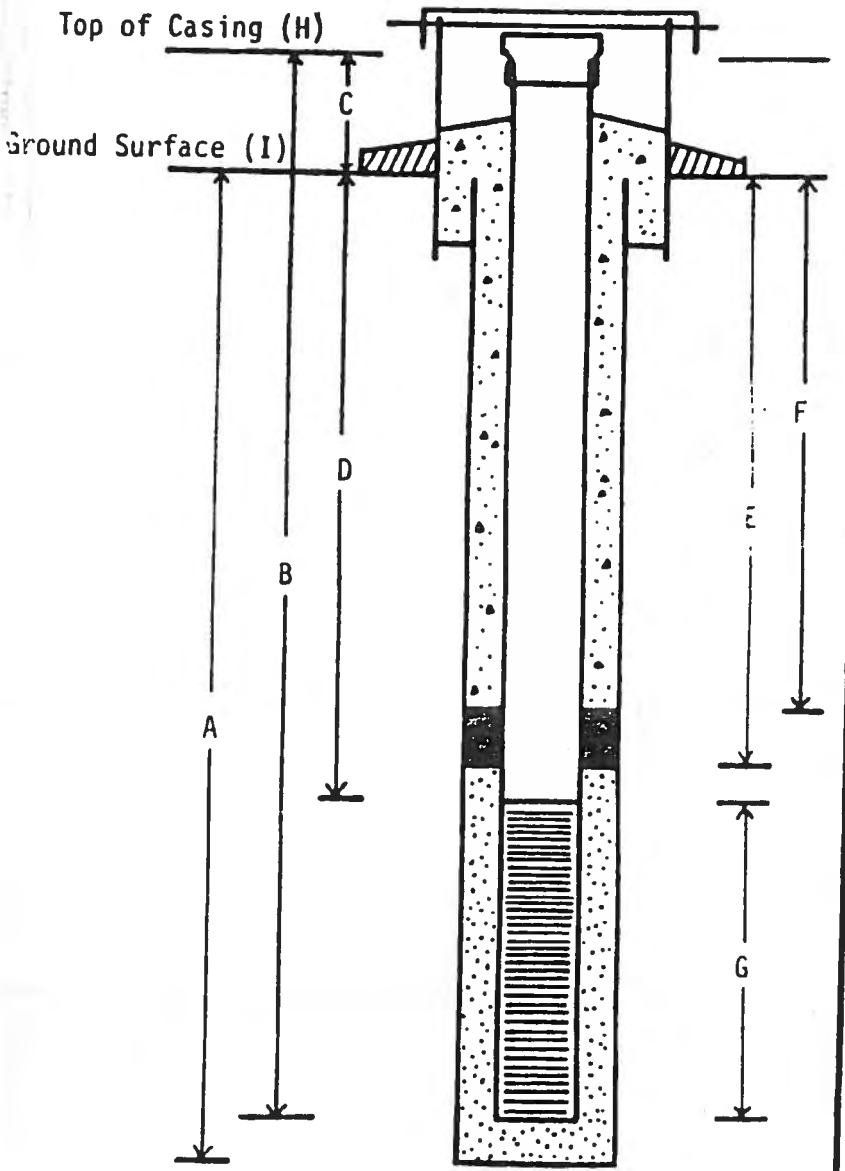
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-4

PLATE 25

LOG OF BORING NO. RW-5

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - gray and brown clay w/gravel						
			Dark gray clay						
5									
10									
15									
20			- tan and light gray w/calcareous nodules						
25			- brown and light gray w/calcareous and ferrous stains and sand seams						
30			Brown and light gray clayey sand						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 21, 1988

DEPTH TO WATER: 7.7'
DATE: 7/14/88

PLATE 6

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 38.2

(C) Casing stickup above ground surface, feet : 3.2

(D) Depth to top of screen, feet : 20.0

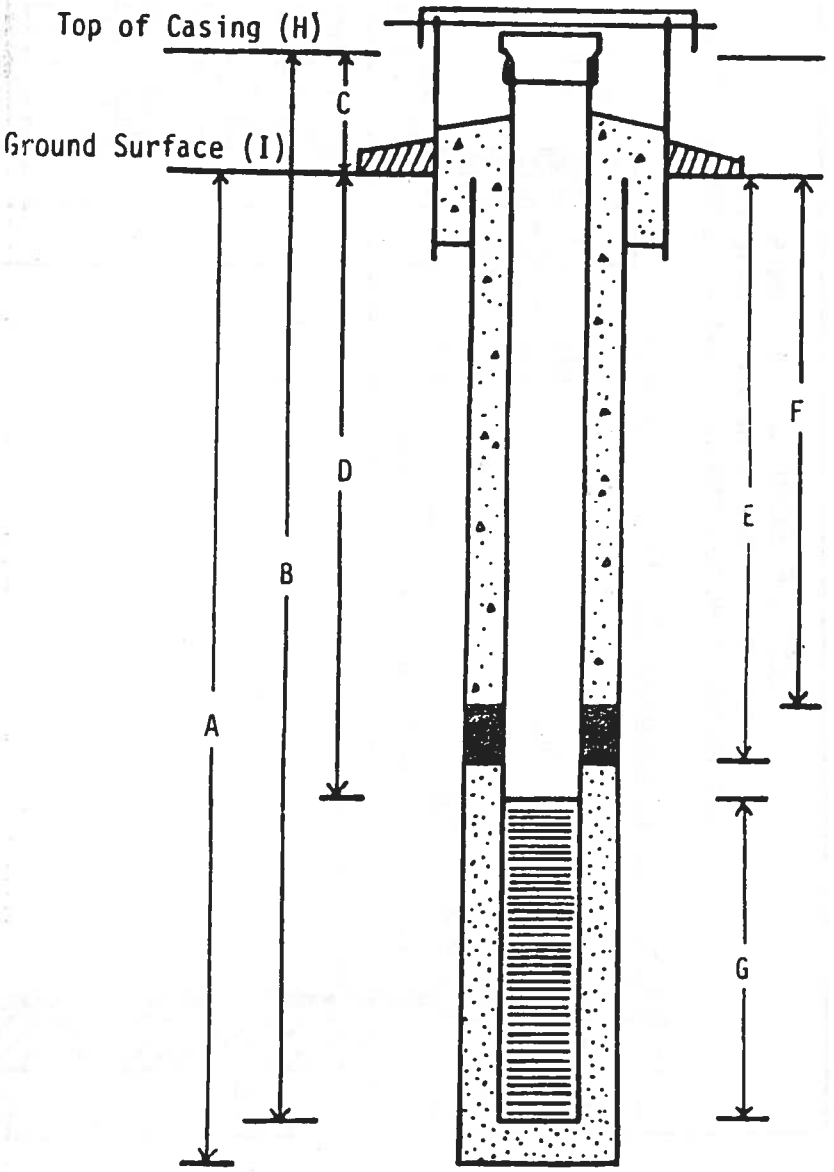
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-5

PLATE 26

LOG OF BORING NO. RW-6

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown and gray clay w/gravel and sand						
5			Dark gray clay w/ferrous nodules						
10			- dark brown						
15			- w/sand seams						
20			- tan and brown w/sand seams and calcareous nodules						
25			- brown						
30			Brown clayey sand w/silt seams						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 22, 1988

DEPTH TO WATER: 8.6'
DATE: 7/14/88

PLATE 7

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 38.0

(C) Casing stickup above ground surface, feet : 3.0

(D) Depth to top of screen, feet : 20.0

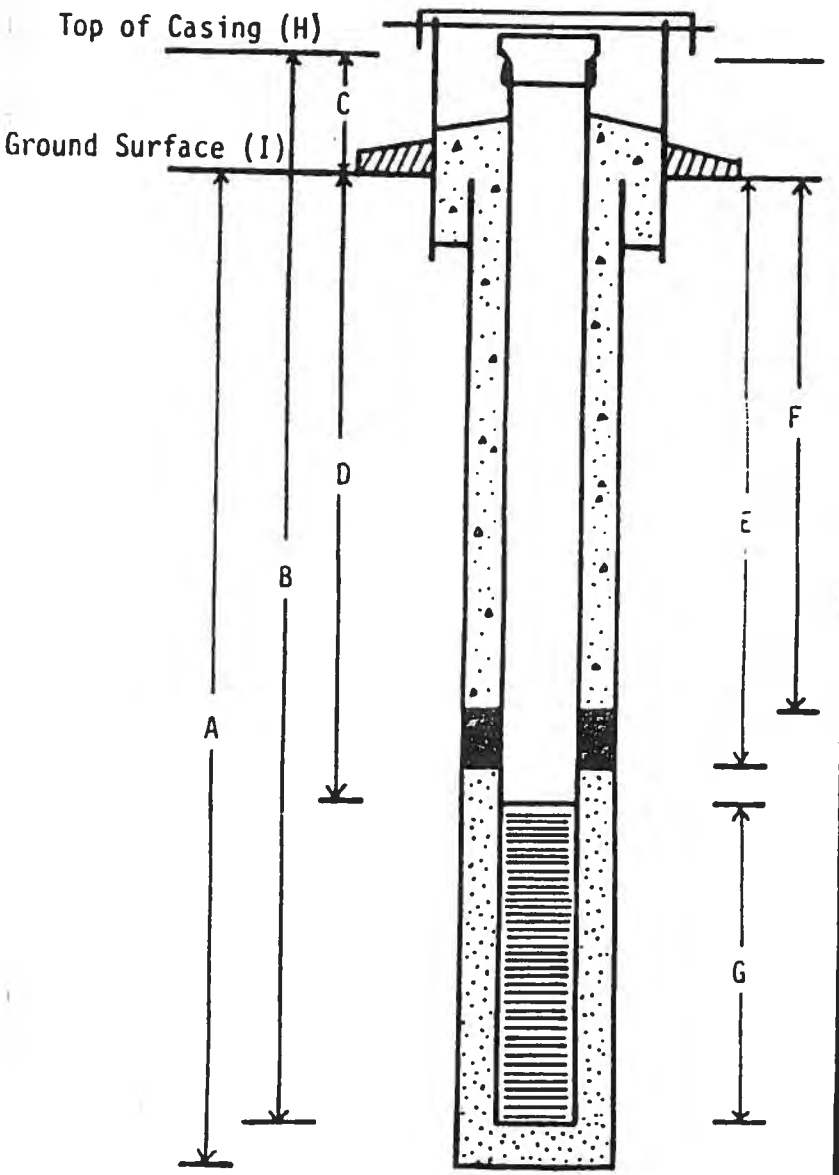
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet : 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-6

PLATE 27

LOG OF BORING NO. RW-7

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

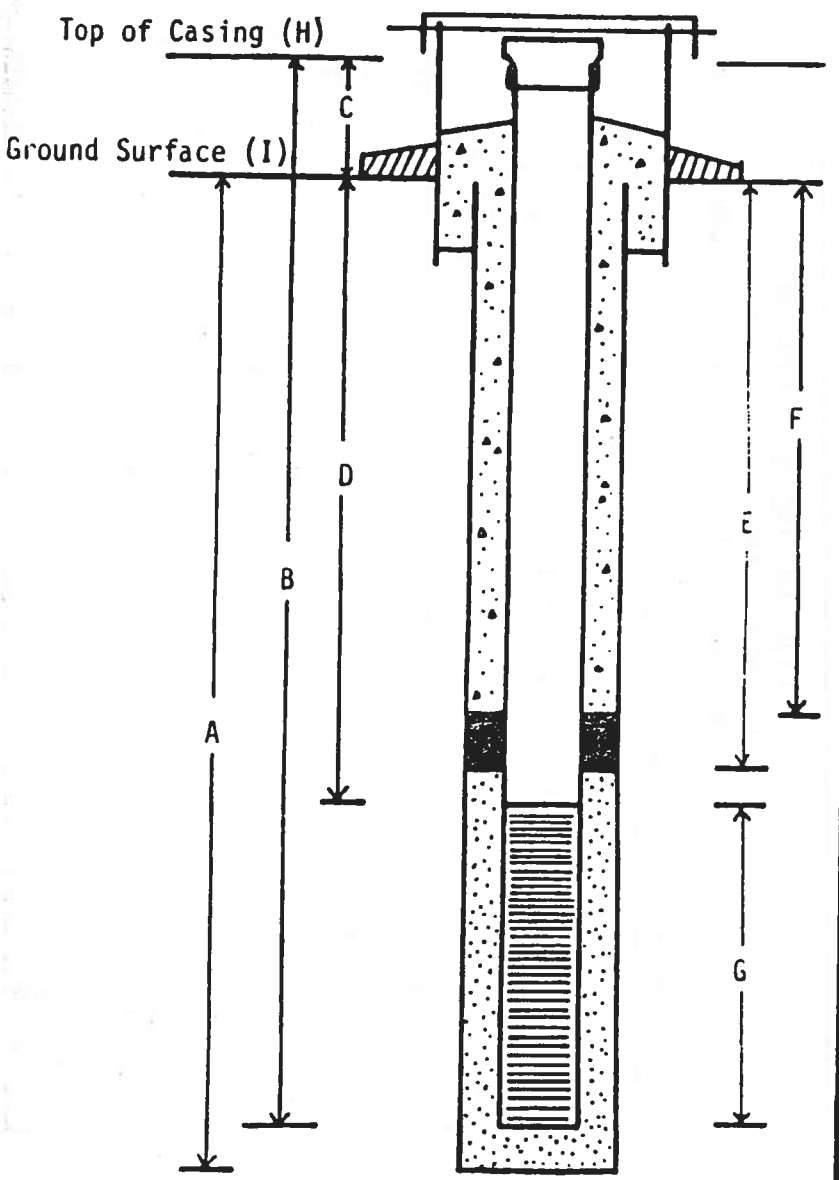
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION SURF. ELEV.:	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			Fill - brown clay w/gravel						
5			Dark gray clay w/ferrous stains						
			- w/fine sand						
10			- tan and light gray w/sand seams						
15									
20									
25									
30			Brown clayey sand w/silt layer						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35.3' DEPTH TO WATER: 8.8'

DATE: June 17, 1988 DATE: 7/14/88

PLATE 8

(A)	Borehole depth, feet	: 35.3
(B)	Total casing length, feet	: 38.3
(C)	Casing stickup above ground surface, feet	: 3.0
(D)	Depth to top of screen, feet	: 20.3
(E)	Depth to top of sand pack, feet	: 18.3
(F)	Depth to top of bentonite seal, feet	: 16.3
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-7

PLATE 28

LOG OF BORING NO. RW-8

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown and gray clay w/gravel						
			Dark gray clay w/ferrous stains						
5									
10			- tan and light gray w/calcareous nodules						
15									
			- brown w/calcareous nodules						
20									
			- w/sand seams and silt seams						
25									
30			Brown clayey sand w/silt seams						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 16, 1988

DEPTH TO WATER: 7.8'
DATE: 7/14/88

PLATE 9

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 38.0

(C) Casing stickup above ground surface, feet : 3.0

(D) Depth to top of screen, feet : 20.0

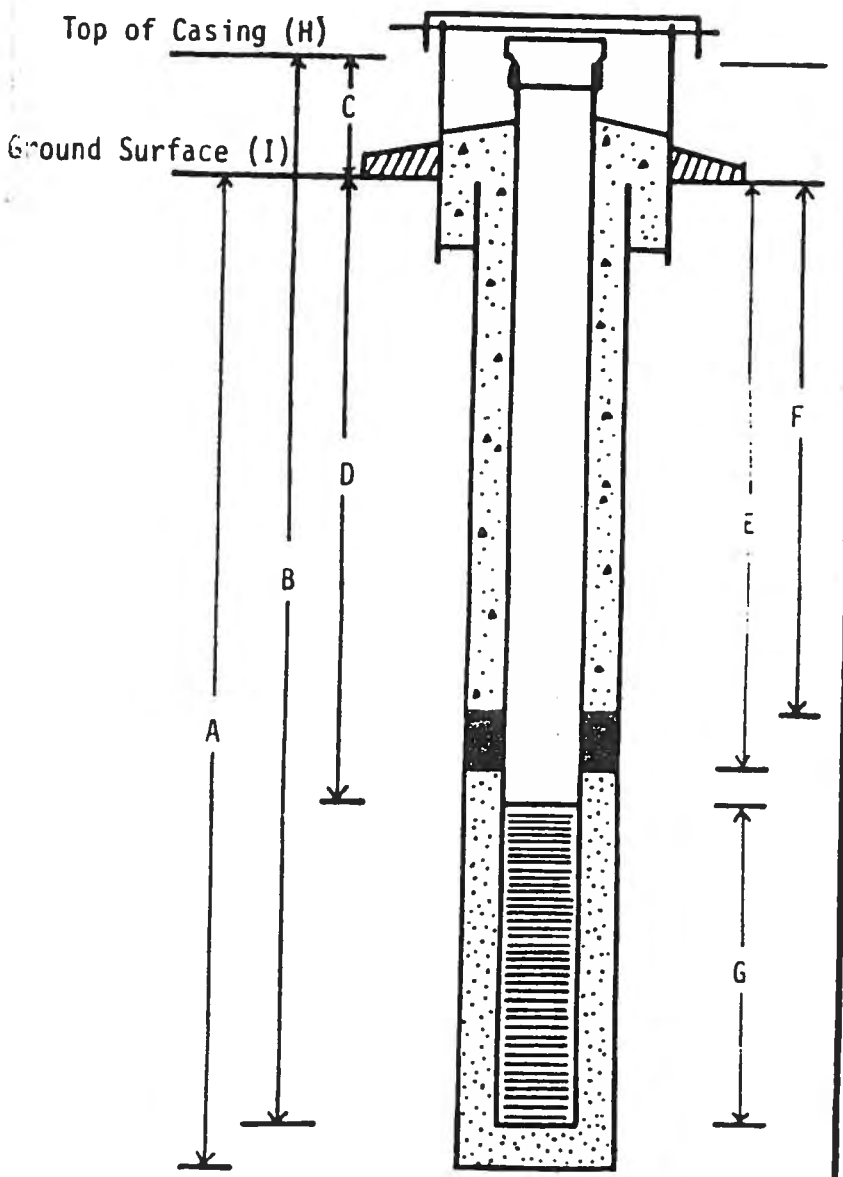
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet: 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-8

PLATE 29

LOG OF BORING NO. RW-9

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:							
			Fill - brown clay w/gravel							
5			Dark gray clay w/ferrous nodules							
10			- tan and light gray w/calcareous nodules							
15										
20			- w/sand seams							
25										
30			Brown clayey sand w/silt seams							
35			Brown clay							
40										
45										
50										

COMPLETION DEPTH: 35.3' DEPTH TO WATER: 8.3'

DATE: June 15, 1988 DATE: 7/14/88

PLATE 10

(A) Borehole depth, feet : 35.3

(B) Total casing length, feet : 38.0

(C) Casing stickup above ground surface, feet : 2.7

(D) Depth to top of screen, feet : 20.3

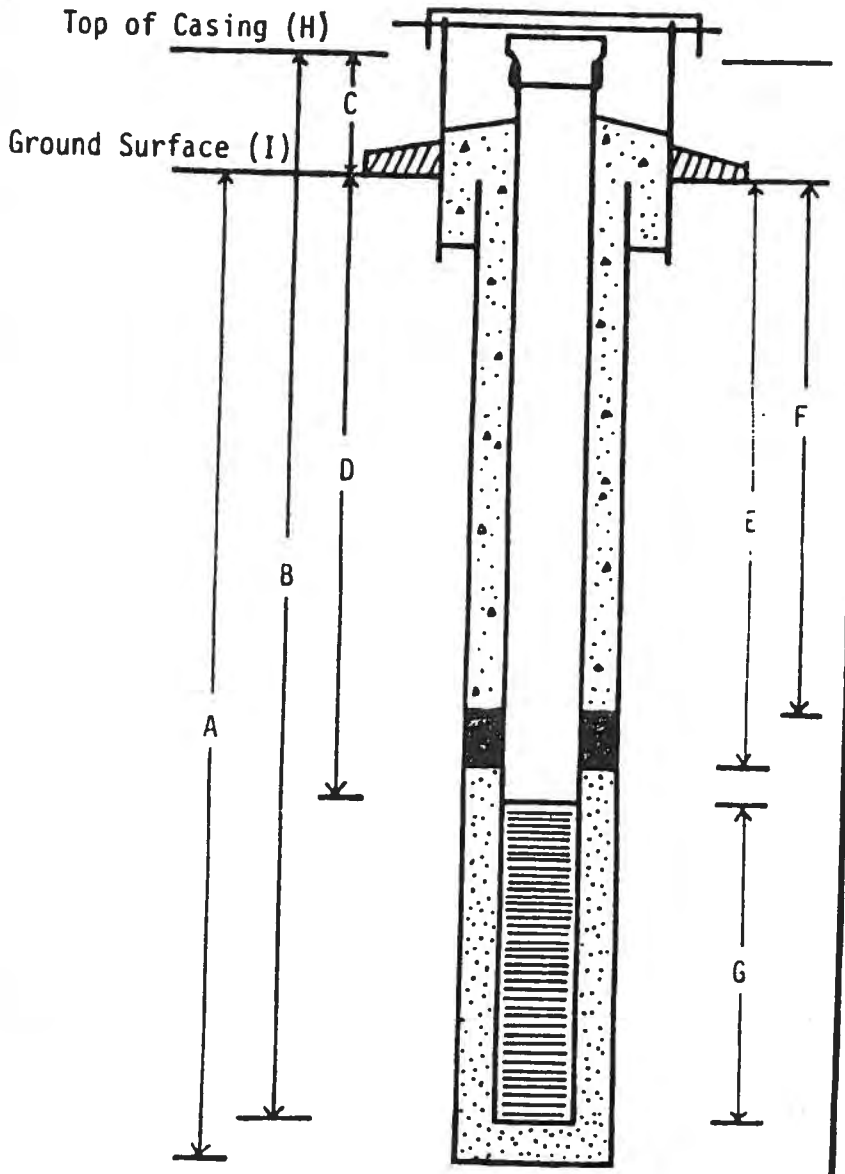
(E) Depth to top of sand pack, feet : 18.3

(F) Depth to top of bentonite seal, feet: 16.3

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-9

PLATE 30

LOG OF BORING NO. RW-10

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

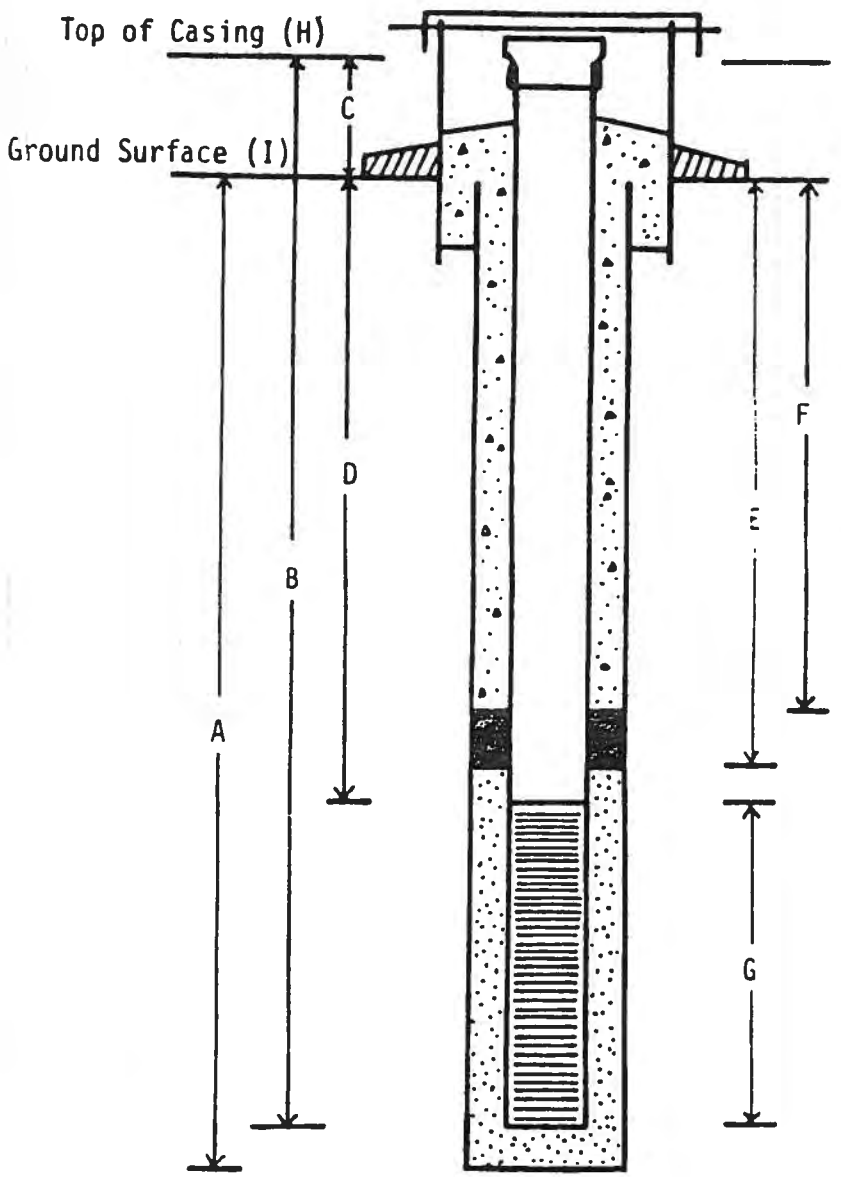
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:							
			Fill - brown and light gray clay w/gravel							
5			Dark gray clay w/ferrous nodules							
10			- tan and light gray w/calcareous nodules							
15										
20			- brown and light gray w/calcareous nodules							
25			- w/silt seams							
30			Brown and light gray clayey sand w/silt seams							
35			Brown clay							
40										
45										
50										

COMPLETION DEPTH: 35'
DATE: June 14, 1988

DEPTH TO WATER: 8.0'
DATE: 7/15/88

PLATE 11

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 37.8
(C)	Casing stickup above ground surface, feet	: 2.8
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-10

PLATE 31

Recovery Well RW-11

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0- miles in ~ (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to the form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34

Date drilled Oct. 8, 1990
Completed Oct. 15, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Undereamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 16.5 ft. to 34 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	348	Stiff Reddish Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	23.5	Sch40
4	N	SS Wire Wrap Screen w/cap (Western Well Screen)	18.5	33.5	Sch40

CEMENTING DATA
Cemented from 0 ft. to 14.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other Low volume by owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

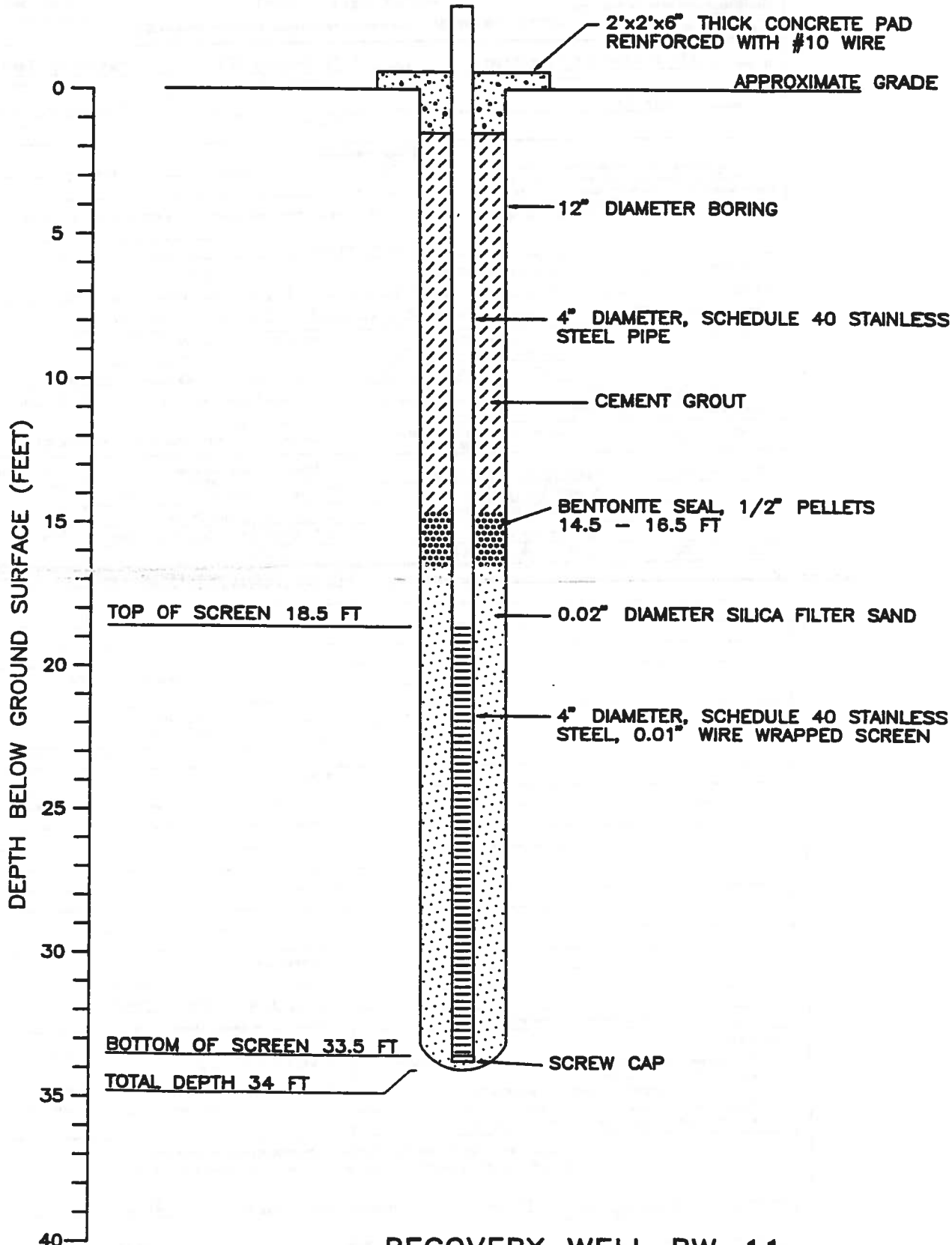
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric-log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR 0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-11
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1623 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in – (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	35

Date drilled Oct. 5, 1990 Completed Oct. 15, 1990

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	35	Stiff Reddish Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 17 ft. to 35 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	19.5	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well Screen)	19.5	34.5	Sch40

CEMENTING DATA
Cemented from 0 ft. to 14.8 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9.5 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

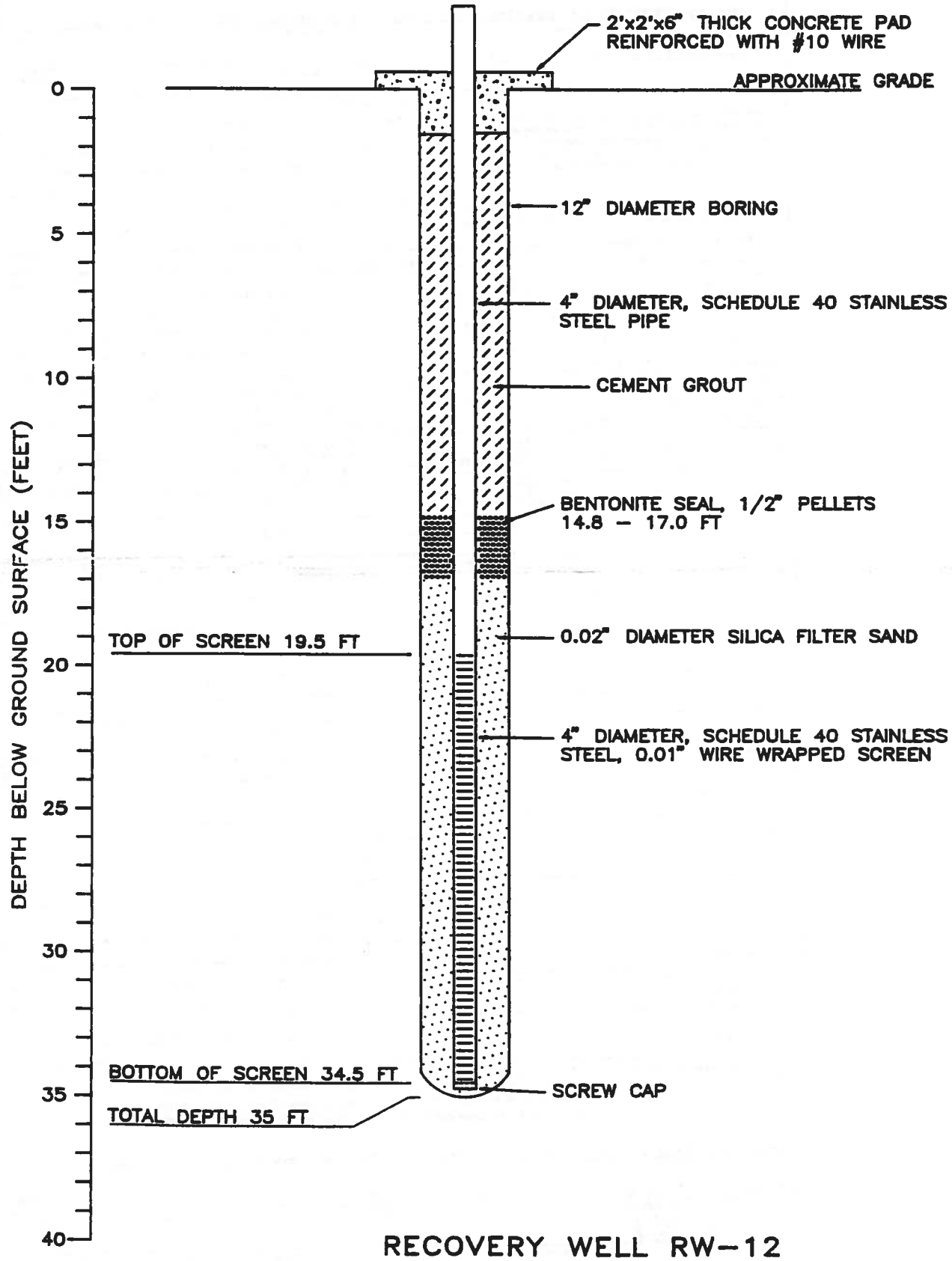
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-12
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-13

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in – (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 2, 1990
Completed Oct. 15, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	35

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 16 ft. to 35 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	35	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	19.5	SCH40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	19.5	34.5	SCH40

CEMENTING DATA
Cemented from 0 ft. to 14 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1810 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

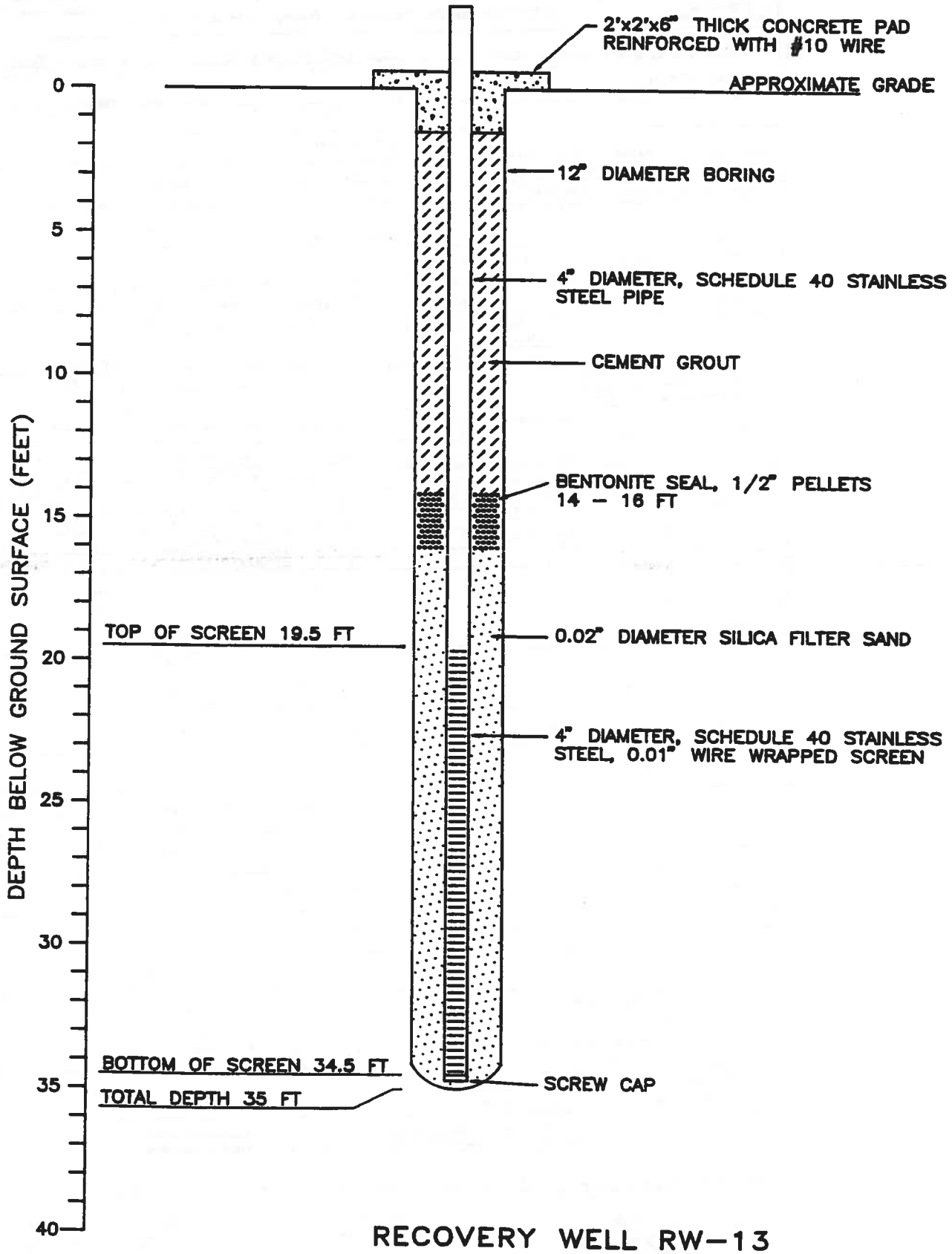
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-83)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-13
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-14

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1623 Highway 225 (Street or RFD) Pasadena, Texas (City) 77087 (State) (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34.5

Date drilled Oct. 4, 1990 Completed Oct. 18, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 17 ft. to 34.5 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34.5	Stiff Reddish Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	19	Sch40
4	N	SS Wire Wrapped	19	34	Sch40
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 15 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc. _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1008 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

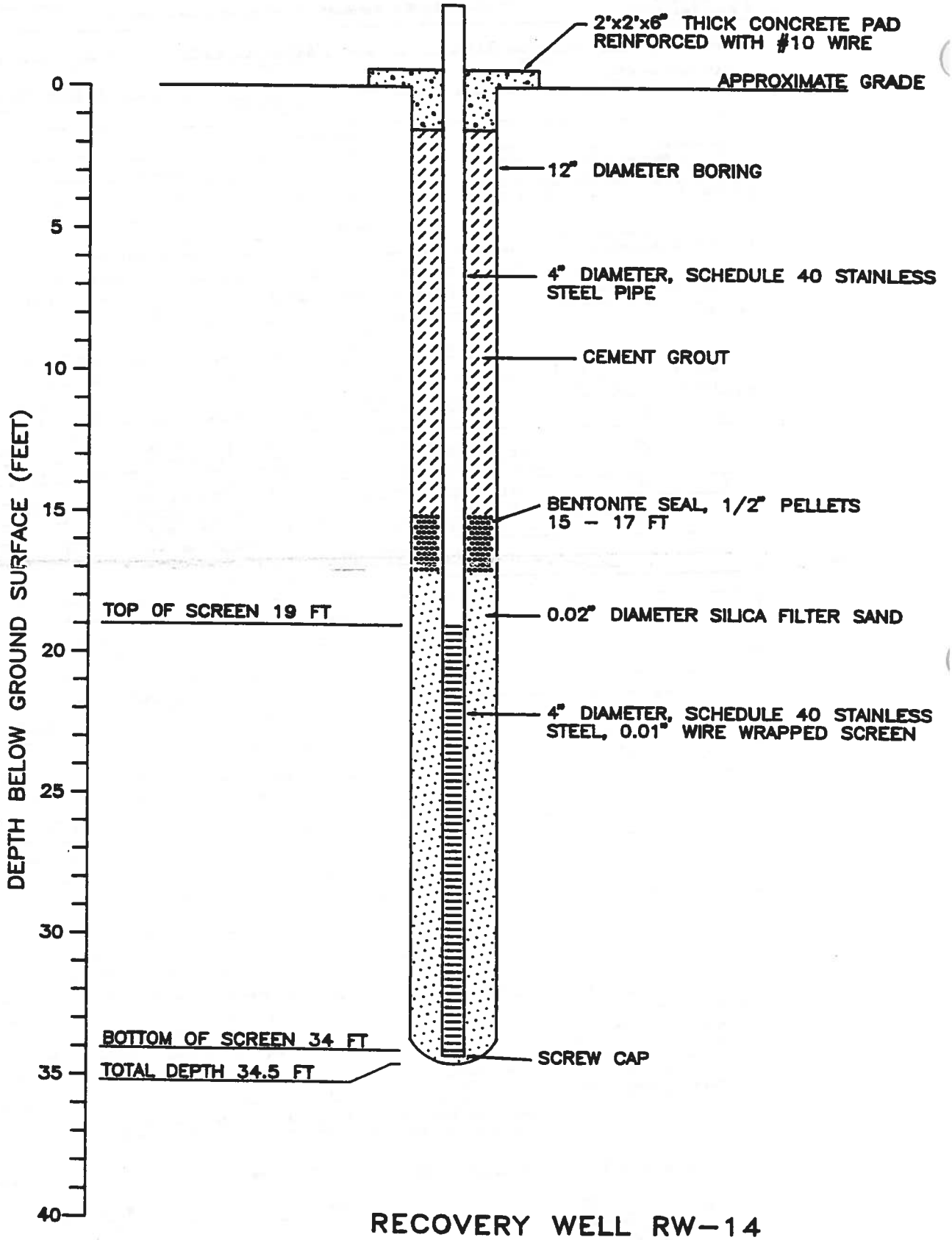
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0382 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-14
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-15

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in – (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34

Date drilled Oct. 4, 1990 Completed Oct. 15, 1990

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34	Stiff Reddish Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 14.5 ft. to 34 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18.5	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	18.5	33.5	Sch40

CEMENTING DATA
Cemented from 0 ft. to 12 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9.5 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc.. _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1810 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

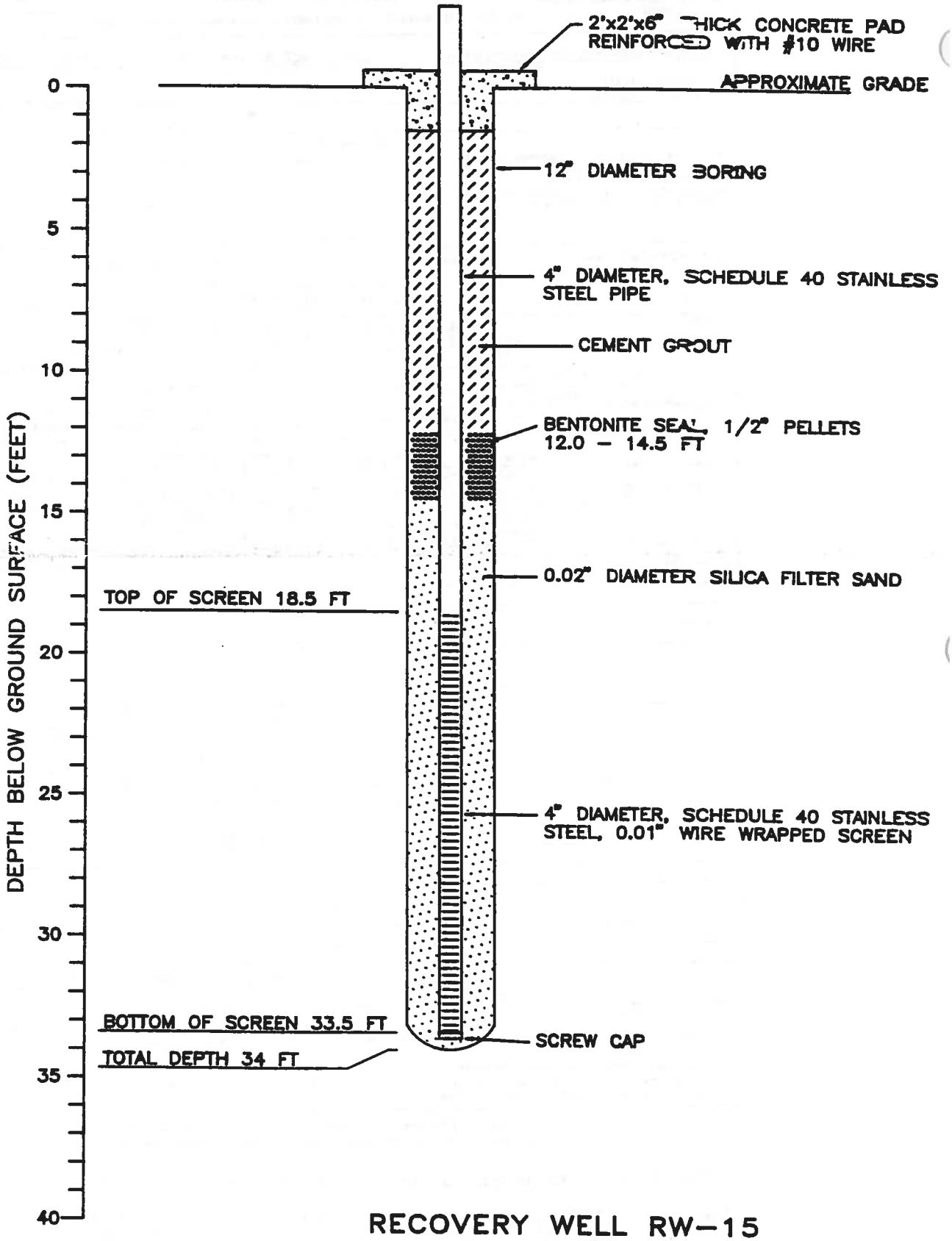
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW–15
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-16

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 3, 1990
Completed Oct. 18, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 15.5 ft. to 34 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18.9	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	18.9	33.4	Sch40

CEMENTING DATA
Cemented from 0 ft. to 13.6 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9.5 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

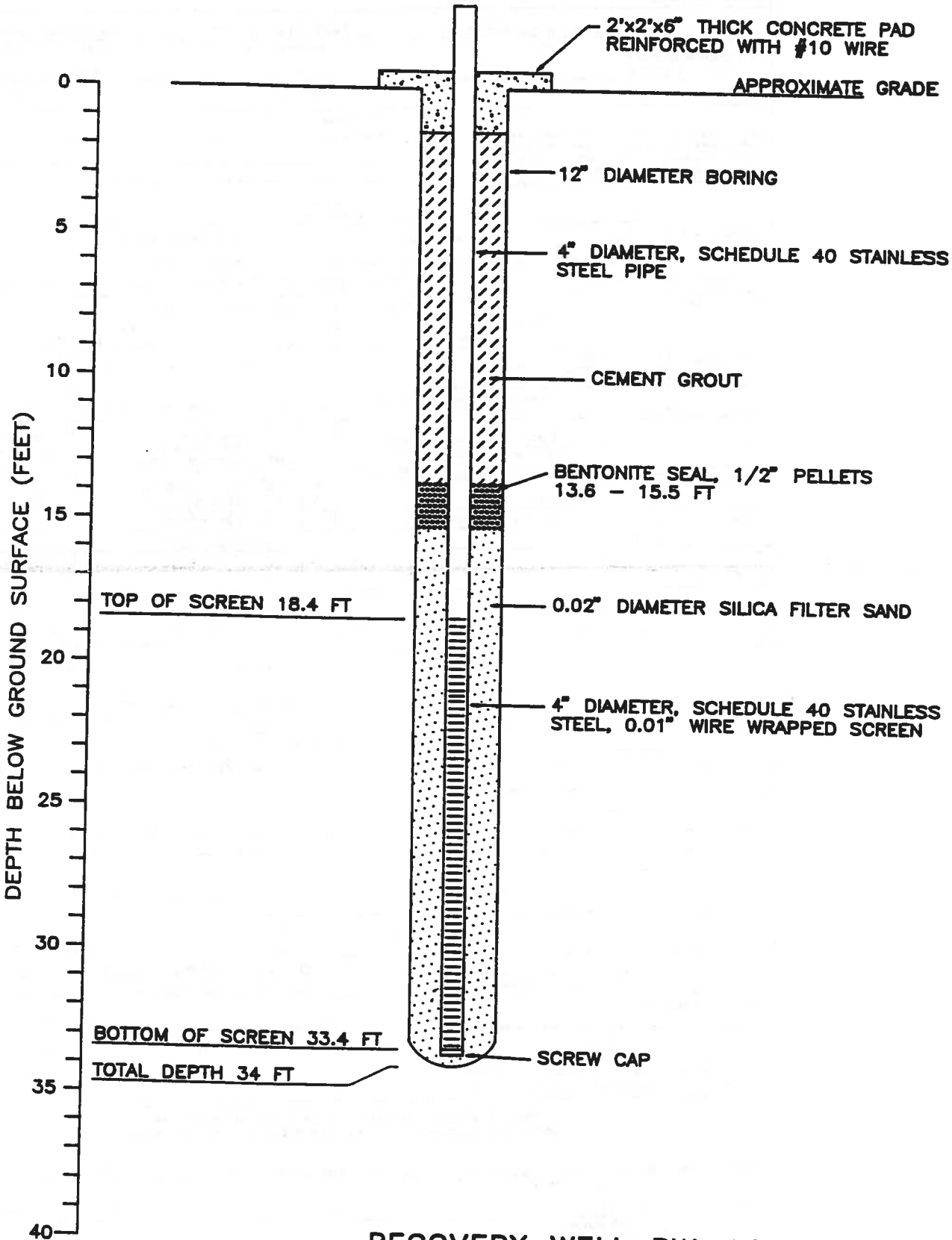
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-16
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-17

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1623 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 1, 1990
Completed Oct. 1, 1990

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	33.7

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34	Stiff Reddish Clay

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 16 ft. to 33.7 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18.8	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	18.8	33.3	Sch40

CEMENTING DATA
Cemented from 0 ft. to 13.8 ft.
Method used Tremie
Cemented by DRILLER (Company or Individual)

9) WATER LEVEL:
Static level 9.3 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

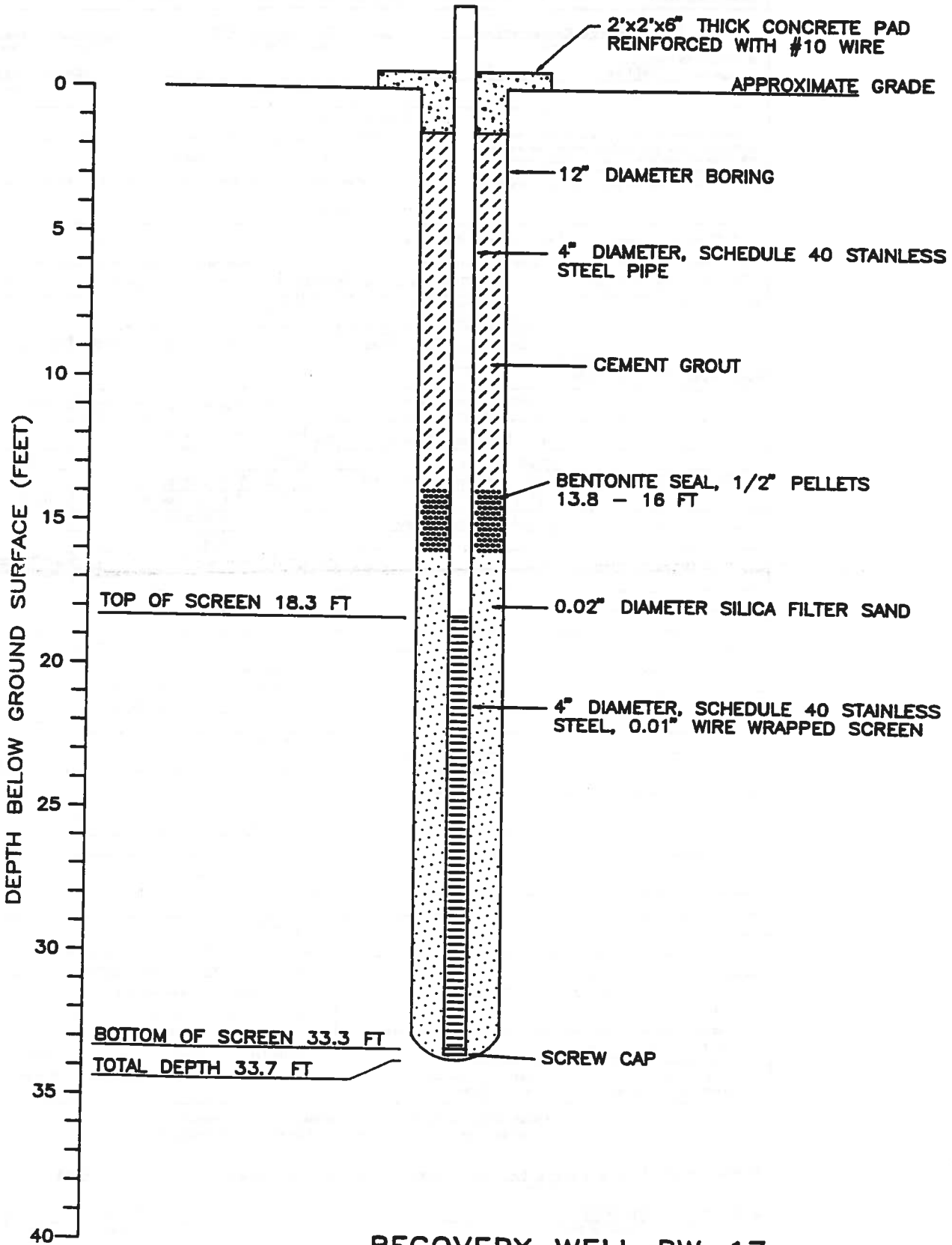
ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR 0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-17
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well Rw-18

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	33.4

Date drilled Oct. 2, 1990 Completed Oct. 18, 1990

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 14 ft. to 33.4 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	34	Stiff Reddish Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18	
4	N	SS Wire Wrapped	18	33	
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 14 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

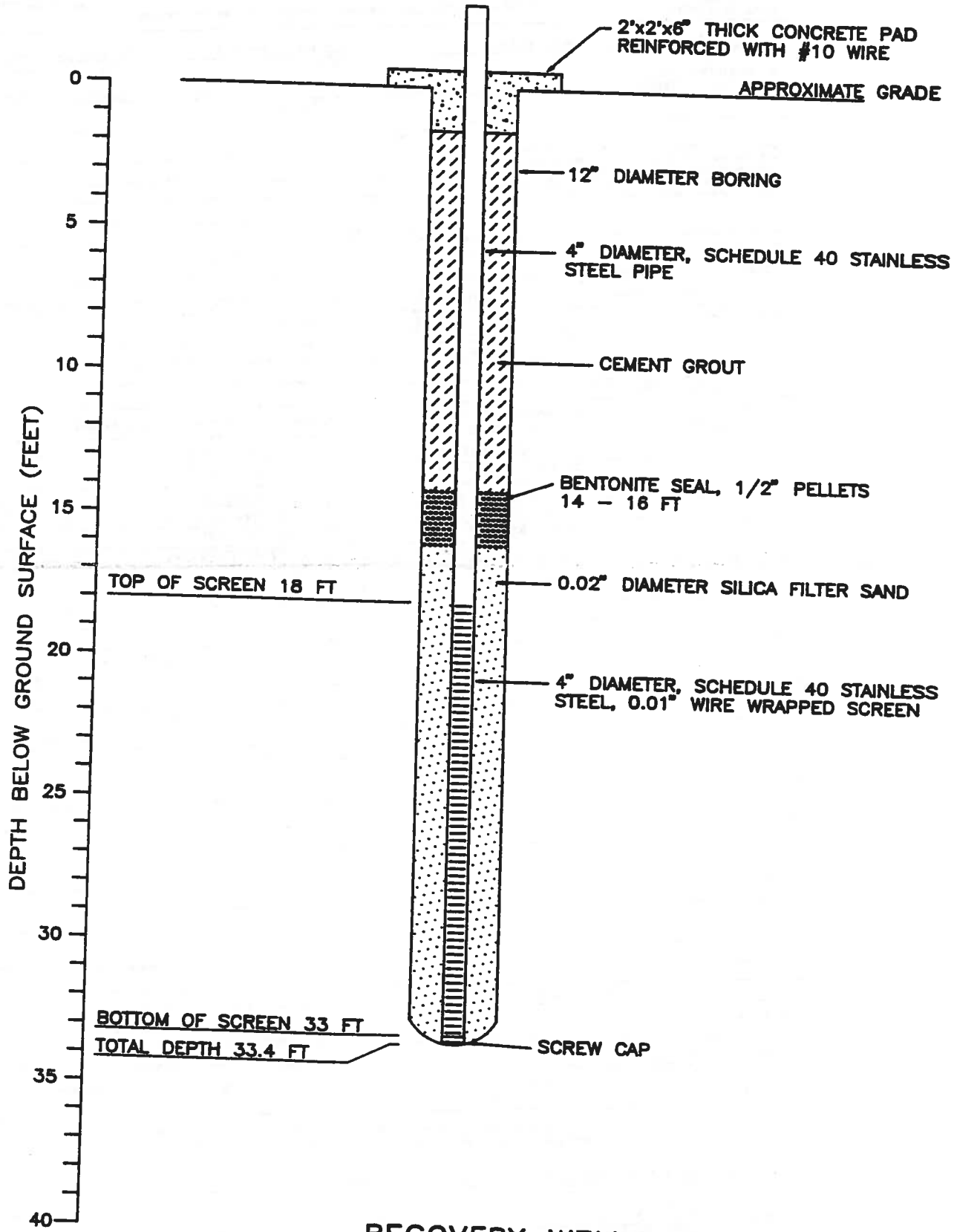
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-18
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Plate B-21

Recovery Well RW-17

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	33.5

Date drilled Sept. 25, 1990 Completed Oct. 18, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pac'

If Gravel Packed give interval . . . from 19.5 ft. to 33.5 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	33.5	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	23	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	23	33	Sch40

(Use reverse side if necessary)

CEMENTING DATA
Cemented from 0 ft. to 18 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10.5 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc. _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

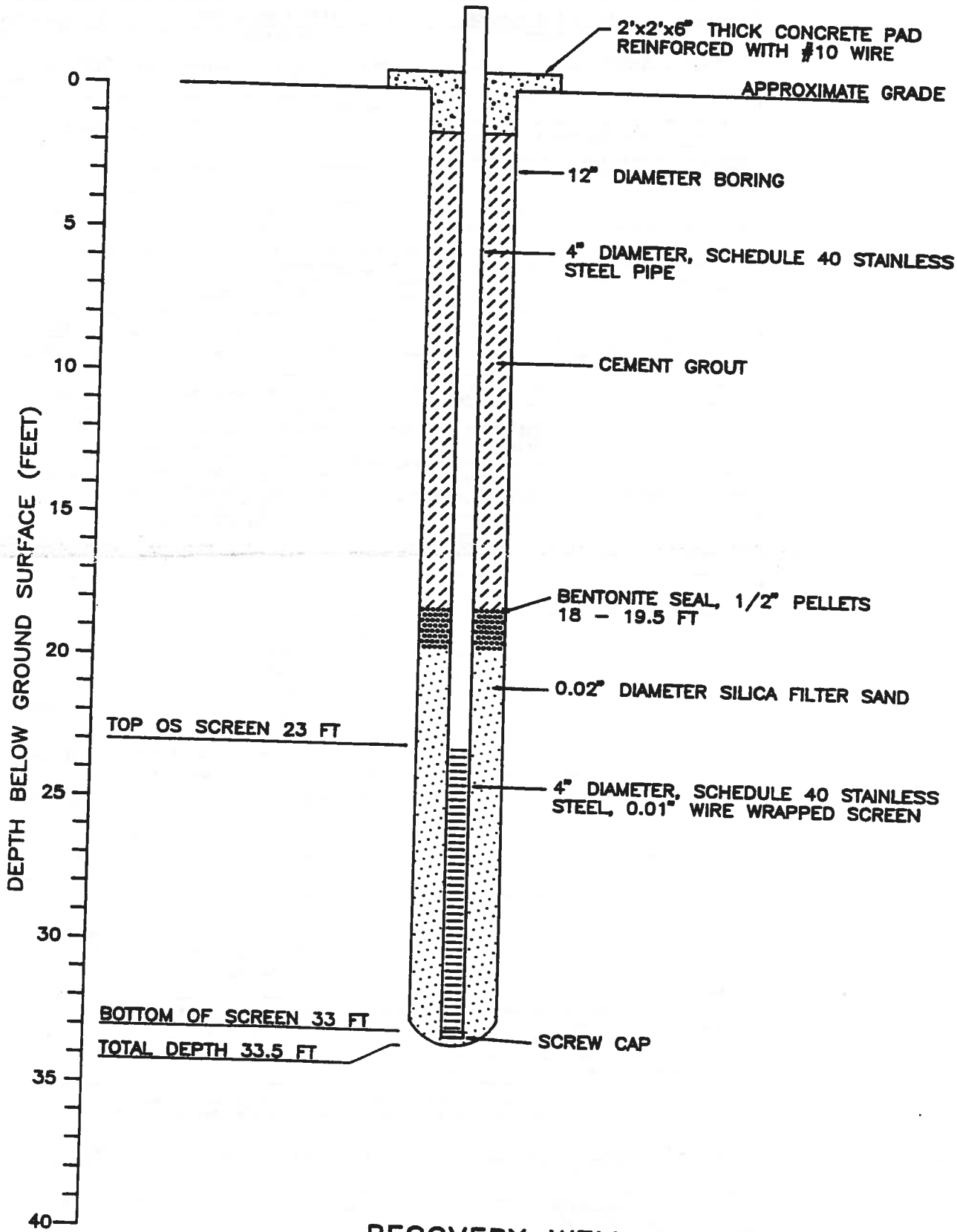
ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR 0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-19
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Plate B-22

Recovery Well RW-20

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Sept. 26, 1990 Completed Oct. 18, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	35

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	35	Stiff Reddish Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION:
☐ Open ...le ☐ Straight Wall ☐ Underreamed
☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 16.5 ft. to 35 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	20.5	Sch40
4	N	SS Wire Wrapped	20.5	34.5	Sch40
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 14.8 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10.5 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

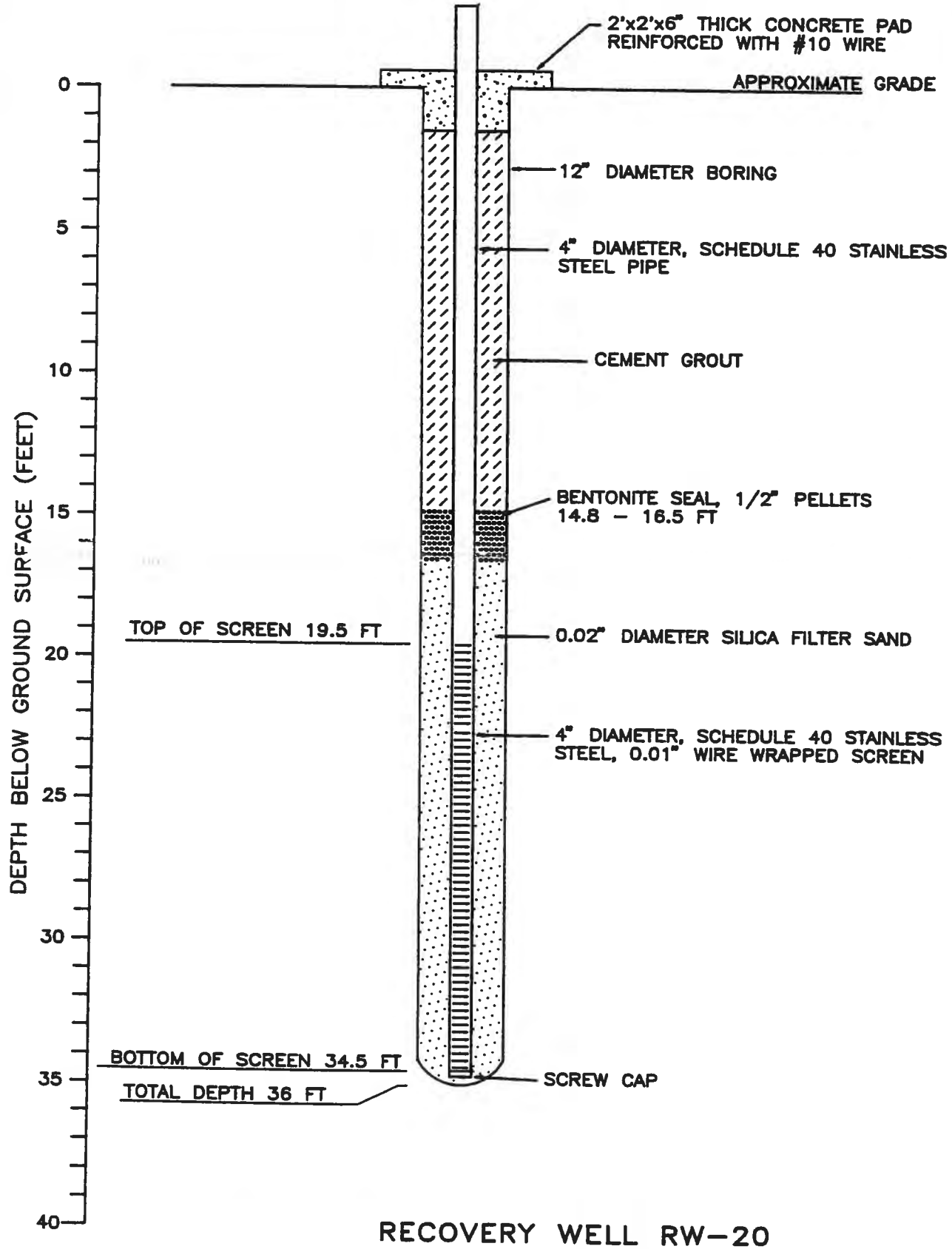
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-20
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-21

DRILLING AND SAMPLING INFORMATION

Boring Location: CORNER OF MAIN AND POWERLINE DRIVE
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 44.0
Logged By: S. INGRAM
Date Started: 6/2/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 6/2/92
Drill Rig Type: MUD ROTARY
Drilling Method:

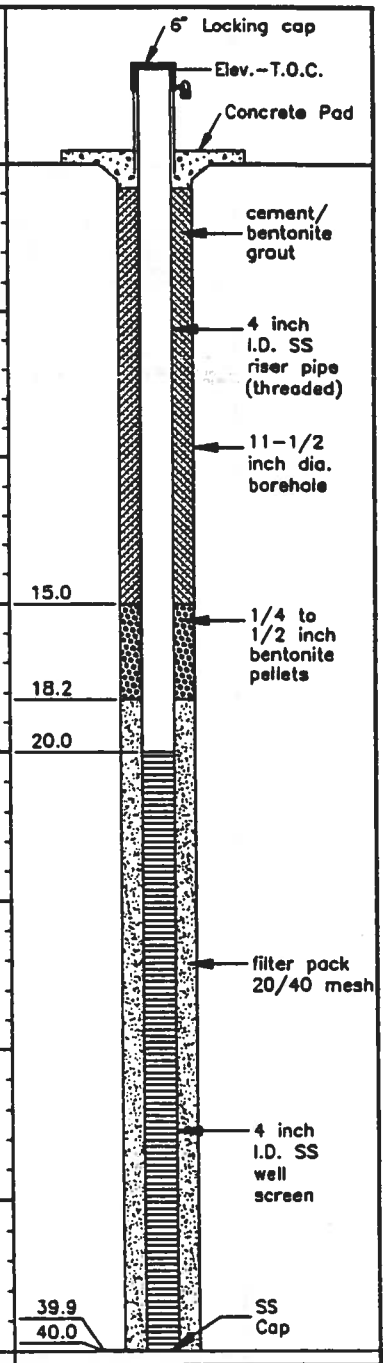
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 27.53 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): – Depth(ft.): – Type: –
   Centralizers–Type: – Depths(ft.): –
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 20.0 Type: S.Stl.
   Centralizers–Type: Depths(ft.): –
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 20.0–39.9 Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 18.2–44.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL						
CLAY – firm; rootlets; black (5YR 2.5/1); moist		24		cl		
		12				
		24				
– dark reddish brown (5YR 3/2); grades to mottled gray and yellowish red		12				5
– 5YR 5/1 with 5YR 5/6		24				
		20				
		24				
coarser layer followed by firmer, redder (5YR 5/8), mottled clay; occasional pockets of black clay and gray clay		24				10
		24				
– red and gray mottling		17				
		24				
		24				
		24				15
		24				
		24				
– gray (5YR 5/1); grades into silt		24				
		24				18.2
SILTY CLAY				cl		
SILT – crumbly; white calcareous material; light reddish brown (5YR 8/4)		24		ml		20.0
CLAY – firm; gray (5YR 5/1); yellow and red mottling; black inclusions at 20.8 feet; moist		24		cl		
		16				
– white calcareous material at 22.5 feet; 5YR 5/1 with 5YR 5/8		24				
		24				
– white calcareous material at 24.8 feet; darker red (2.5YR 4/8)		24				25
CLAYEY SILT – moderately friable; 5YR 6/4; moist		24		ml		
CLAY – 5YR 5/1 with 5YR 5/8		24		cl		
– alternating silt and clay layers from 27.5 to 28 feet		24				
– very firm; less silt; calcareous materials; red (2.5YR 4/8) with gray; slightly dry		24				
		24				30
– 2 inch soft layer		24				
		24				
		24				
– 7 inch soft layer		24				
– very firm; friable; very dry		24				35
– gray mottling		24				
SILT – friable; light reddish brown (5YR 6/4); moist		24		ml		
CLAY – firm; light reddish brown (5YR 6/4); moist		24		cl		39.9
SANDY SILT – friable; light reddish brown (5YR 6/4); moist		24		ml		40.0



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053–A26 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-

DRILLING AND SAMPLING INFORMATION

Boring Location: CORNER OF MAIN AND POWERLINE DRIVE
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 44.0
Logged By: S. INGRAM
Date Started: 6/2/92
Drilled By: R. REED REED AND MORRIS
Date Completed: 6/2/92
Drill Rig Type: MUD ROTARY
Drilling Method:

Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.53
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): -
   Depth(ft.): - Type: -
   Centralizers-Type: -
   Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 20.0 Type: S.Stl.
   Centralizers-Type:
   Depths(ft.): -
3. Screen Dia.(in.): 4
   Type: Sch 40 S.Stl. WIRE WRAPPE
   Depth Interval(ft.): 20.0-39.9
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 18.2-44.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - very firm; dark red (2.5YR 3/6); dry		24/24		cl		
- soft; light reddish brown (5YR 6/4); moist		24/24				
- very firm; dark red (2.5YR 3/6); gray mottling at 43.8 feet; dry		24/24				44.0
TOTAL DEPTH = 44.0 FEET						45, 50, 55, 60, 65, 70, 75, 80

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A26 Sheet 2 of 2

Revised 7/7/

(RW-22)

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-42

DRILLING AND SAMPLING INFORMATION

Boring Location: NW OF ACID POND SURFACE ELEV.(FT): 22.9
W OF TANK V16.14B TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN Date Started: 9/3/91
Drilled By: J. LANOEROS Date Completed: 9/11/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY

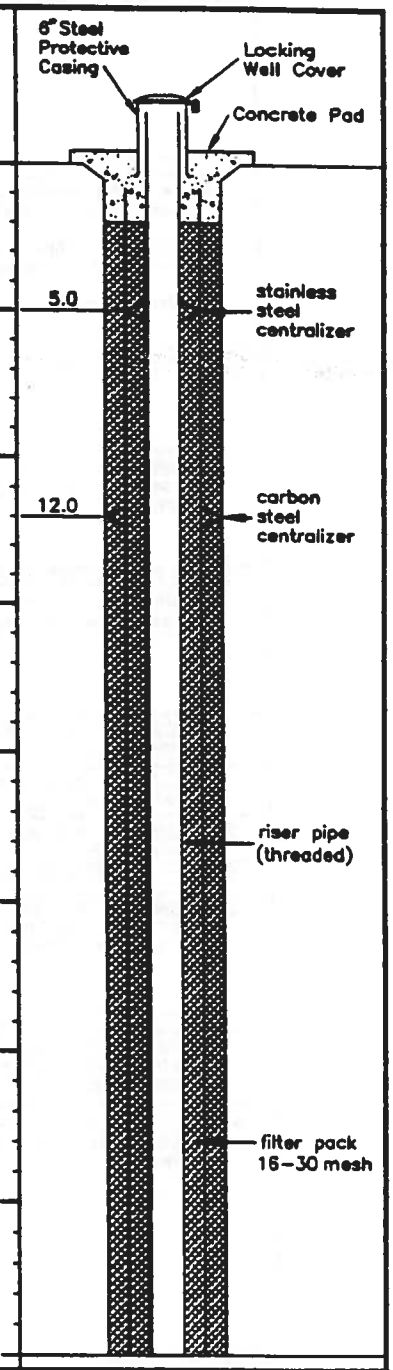
Sampling Method: 2' SPLIT SPOON AND 5' CONTINUOUS CORE BARREL

Notes: CHEMICAL ANALYSIS SAMPLE EVERY 5 FEET

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 24.36 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45.5 Type: Sch 40 PVC
Centralizers-Type: Carbon Stl Depths(ft.): 12, 42
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
Depth Interval(ft.): 50-70 Slot Size(in.): .010
Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6-71
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA) 20 30 40	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - highly plastic, very stiff, no odor; few small iron oxide stain fragments; black; damp		CS		60	36				0
- predominatly red (mottled)		CS		60	42				5
- few iron stained fragments, few black fragments and thin lenses, predominately dark brown		CS		60	60				10
SILTY CLAY - moderate plastic; very stiff; mottled, predominatly strong brown; damp		CS		60	60				15
- 10% silt; light olive gray		CS		60	60				20
- high number of small to large nodules, white, few stained black on the surface		CS		60	60				25
SILTY CLAY - plastic; 10% silt high percentage of precipitated nodules make soil crumbly in zones; white nodules with few stained black on surface; light olive gray (mottled)		CS		60	60				30
SILTY SAND - non plastic; compact; moist; 40% silt, 60% very fine sand; dark brown		CS		60	60				35
CLAY - highly plastic; very stiff; few gray streaking; yellowish red; damp		CS		60	30				40
SILTY SAND - 30% silt, 70% very fine sand; compact; no odor; yellowish red; saturated									
SILTY CLAY - moderate plastic; dense; damp streaking; yellowish red; damp									
SILTY SAND - 30% silt, 70% very fine sand loose; no odor; light olive gray; saturated									



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	J.V. 10/9/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A5 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

(RW-

MONITOR WELL MW-4

DRILLING AND SAMPLING INFORMATION

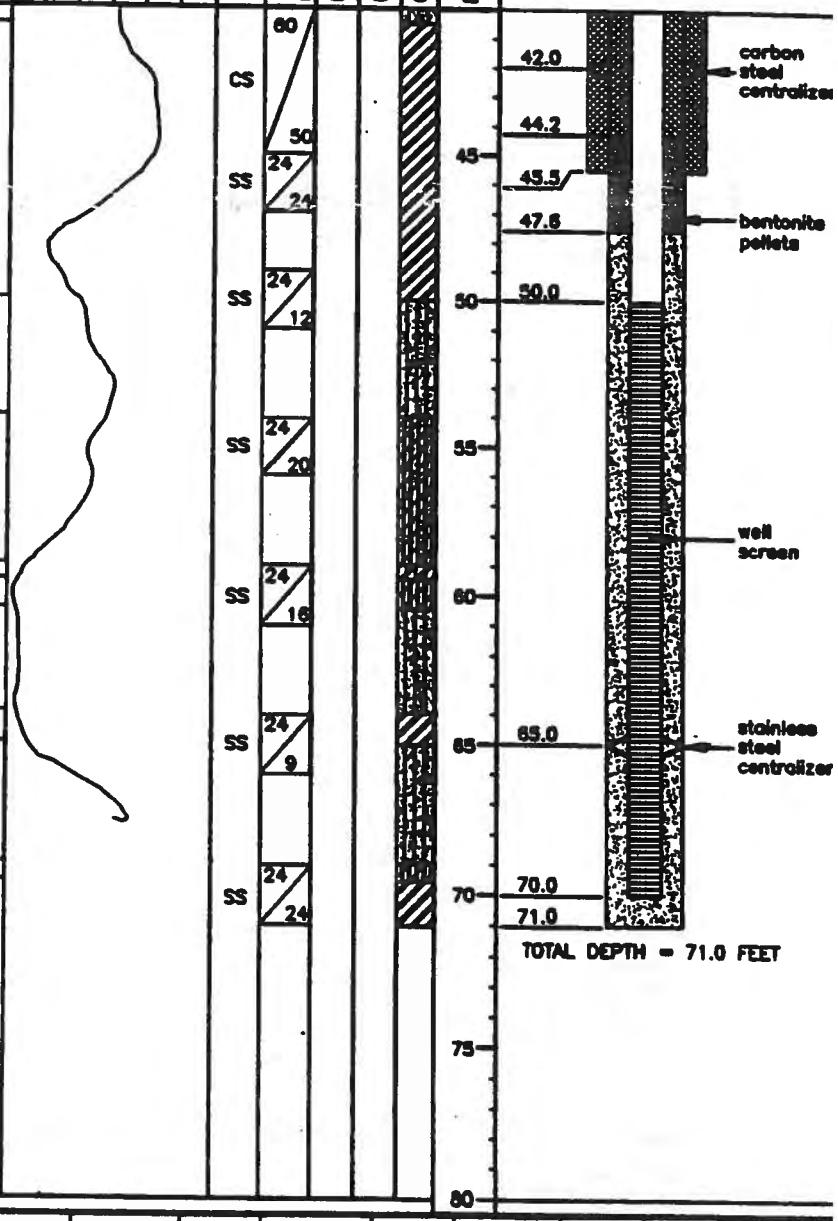
Boring Location: NW OF ACID POND SURFACE ELEV.(FT): 22.9
W OF TANK V16.148 TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN Date Started: 9/3/91
Drilled By: J. LANDEROS Date Completed: 9/11/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY
Sampling Method: 2' SPLIT SPOON AND 5' CONTINUOUS CORE BARREL
Notes: CHEMICAL ANALYSIS SAMPLE EVERY 5 FEET

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 24.36 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45.5 Type: Sch 40
Centralizers-Type: Carbon Stl Depths(ft.): 12, 42
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40
Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
Depth Interval(ft.): 50-70 Slot Size(in.): .010
Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6-71
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA)	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - highly plastic; very stiff strong sweet odor; yellowish red; damp		CS		60 / 50				
- few small white fragments; origin or composition unknown; light brownish gray		SS		24 / 24				
- strong odor								
SILTY SAND - 20% silt, 80% very fine sand; loose; no odor; very pale brown; saturated		SS		24 / 12				
SANDY CLAYEY SILT - 20% very fine sand, 20% clay, 60% silt; very stiff; moderate plastic; very pale brown		SS		24 / 20				
SILTY CLAY - non plastic; stiff; light brownish gray; saturated								
CLAYEY SILT - non plastic; very stiff; light brownish gray; saturated		SS		24 / 16				
SILTY SAND - 40% silt, 60% very fine sand; dense; saturated								
CLAY - moderate plastic; very stiff; damp								
SILTY SAND - 30% silt, 70% very fine sand; loose; no odor; few thin lenses of organic material; saturated		SS		24 / 9				
CLAYEY SILT - non-plastic; 10 % clay; stiff; few thin seams of organic material; no odor; greenish gray; damp		SS		24 / 24				
CLAY - highly plastic; very stiff; few cavities filled with sand; dark brown; damp								



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	J.V. 10/9/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A5 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-23

DRILLING AND SAMPLING INFORMATION

Boring Location: ±5' WEST OF MW-23 (PLUGGED)
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 70.0
Logged By: G. ROBERTSON
Date Started: 4/20/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 4/24/92
Drill Rig Type: MUD ROTARY
Drilling Method:

Sampling Method: SHELBY TUBE

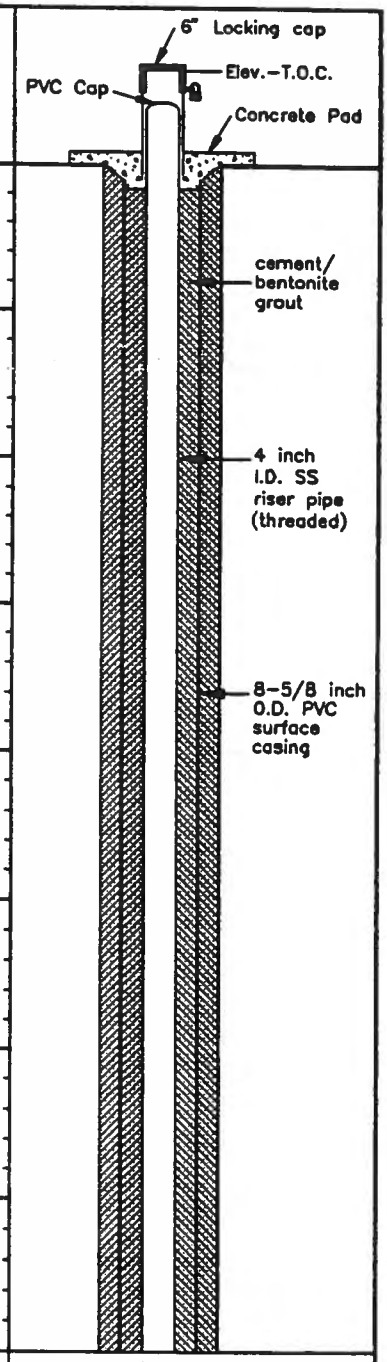
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.51
Ref. Datum: MSL

1. Surf Casing-O.D.(in.) 8-5/8 — Depth(ft.): 46.0 Type: Sch 40 PVC
   Centralizers-Type: - — Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 — Depth(ft.): 50.0 Type: S.Stl.
   Centralizers-Type: - — Depths(ft.): -
3. Screen Dia.(in.): 4 — Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): - — Slot Size(in.): .010
   Centralizers-Type: - — Depths(ft.): -
4. Filter Pack Type: Silica Sand — Depth Interval(ft.): 48.5-70.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - limestone; subangular; light gray - silt, clay, very fine grained sand and shell fragments; medium to dark gray; wet to moist; no noticeable odor		12/12, 24/24, 24/20, 24/12				0
- silt, clay and very fine grained sand; occasional shell fragments; moderate plasticity; moist - silty clay and shell; dark gray; wet; no odor; (too much fill for cave-in, this site is possibly a filled pit)		24/15		ch		5
SILTY CLAY - very plastic; slickensides along 40 degree fractures; irregular, discomformable surface contact at approximately 9.5 feet; occasional white concretions (calcareous?); occasional dark gray and reddish brown iron stained concretions; red and yellowish brown with light to medium gray mottling; moist; no odor - yellowish brown with occasional black mottling; occasional light gray; occasional reddish brown		24/24, 24/24, 24/18				10
SANDY SILTY CLAY - slight to moderate plasticity; very fine grained sand; occasional white concretions; light gray to reddish brown; occasional black along fractures; moist; no odor - moderate plasticity; mottled		24/20, 24/18, 24/3		cl		15
SILTY CLAY - moderate plasticity; occasional white concretions; snail fossils; light gray to reddish brown (mottled); moist; no odor - very plastic; occasional yellowish brown mottling; occasional black along fractures and burrows		24/12, 24/20, 24/24, 24/20		ch		20
SILTY CLAYEY SAND - very fine grained sand; well sorted; abrupt upper contact; light gray to light reddish brown (mottled); moist; no odor		24/14		sc		25
SILTY CLAY - very plastic; occasional, minor white concretions; very light reddish brown with light brown mottling; occasional fractures, mottled light gray; moist; no odor		24/24		ch		30
CLAYEY SILTY SAND - very fine grained sand; well sorted; gradational upper contact; abrupt lower contact; very light reddish brown, mottled light gray; moist; no odor		24/24				35
SILTY CLAY - high plasticity; stiff; occasional slickensides; occasional burrows filled with clay; reddish brown,'mottled yellowish brown and light gray; moist; sweet odor (may be gloves?)		24/24, 24/24		sm ch		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A20 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-

DRILLING AND SAMPLING INFORMATION

Boring Location: ±5' WEST OF MW-23 (PLUGGED)
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 70.0
Logged By: G. ROBERTSON
Date Started: 4/20/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 4/24/92
Drill Rig Type: MUD ROTARY
Drilling Method:

Sampling Method: SHELBY TUBE

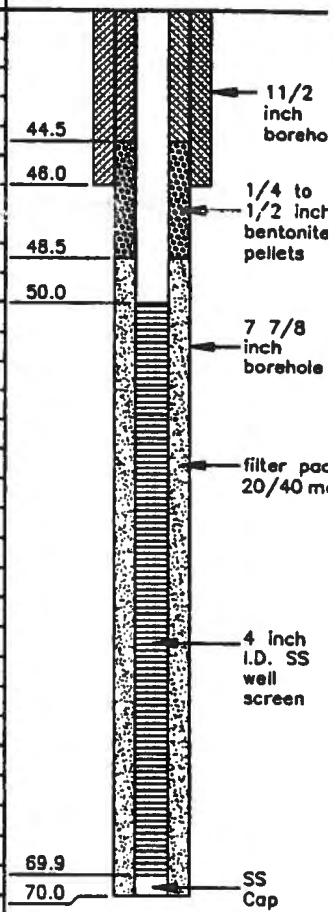
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.51 Ref. Datum: MSL

1. Surf Casing-O.D.(in.): 8-5/8 Depth(ft.): 46.0 Type: Sch 40
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50.0 Type: S.Stl.
   Centralizers-Type: - Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPE
   Depth Interval(ft.): - Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5-70.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- occasionally micaceous - slickensides along intersecting (diagonal) 45 degree fractures; occasional white concretions; no mica noted; light gray to reddish brown; no odor		24/24, 24/24, 24/24, 24/19, 24/24, 24/24, 24/24				45
SILTY SAND - very fine grained sand; well sorted; mottling/staining along burrows; bioturbated; compact; light gray with occasional orangish brown mottling; moist to wet; no odor - coarsening downward/fining upward; abrupt contact		24/11		sp		
CLAYEY SANDY SILT - slight plasticity; very fine grained sand; well sorted; compact; bioturbated; light gray with orangish brown mottling; wet; no odor - 5Y 7/1; iron staining		24/24, 24/24, 24/24, 24/24		ml		55
SILTY SAND - very fine to fine grained; approximately 35% silt; 5Y 7/1; saturated; no odor		24/24		ml		
CLAYEY SANDY SILT - large clay lenses; 5Y 7/1; wet		24/17		ml		60
SILTY SAND - very fine to fine grained; 15% silt; 5Y 7/3; saturated; no odor - 5 to 10% silt; clayey zones at approximately 62 feet; 2.5Y 7/0 - slightly clayey		24/11, 24/14		ml		
SILTY CLAYEY SAND - wet; no odor; large chunks of burnt wood in core - increase in amount of clay		24/20, 24/20		ml		65
CLAYEY SILT - 10YR 5/1; wet; no odor; chunks of burnt wood		24/20		ml		
SILTY CLAY - low plasticity; stiff				ml		
CLAYEY SILT - moist				ml		
CLAY - slightly silty; stiff; crumbly; 5G 6/1; no odor		20		cl		70
TOTAL DEPTH = 70.0 FEET						75
						80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A20 Sheet 2 of 2

Revised 7/7/9

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-24

DRILLING AND SAMPLING INFORMATION

Boring Location: SW CORNER OF DRUM PAD AREA
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT, REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:
SURFACE ELEV.(FT): 25.4
TOTAL DEPTH(FT.): 76.0
Date Started: 4/22/92
Date Completed: 4/28/92

Sampling Method: SHELBY TUBE

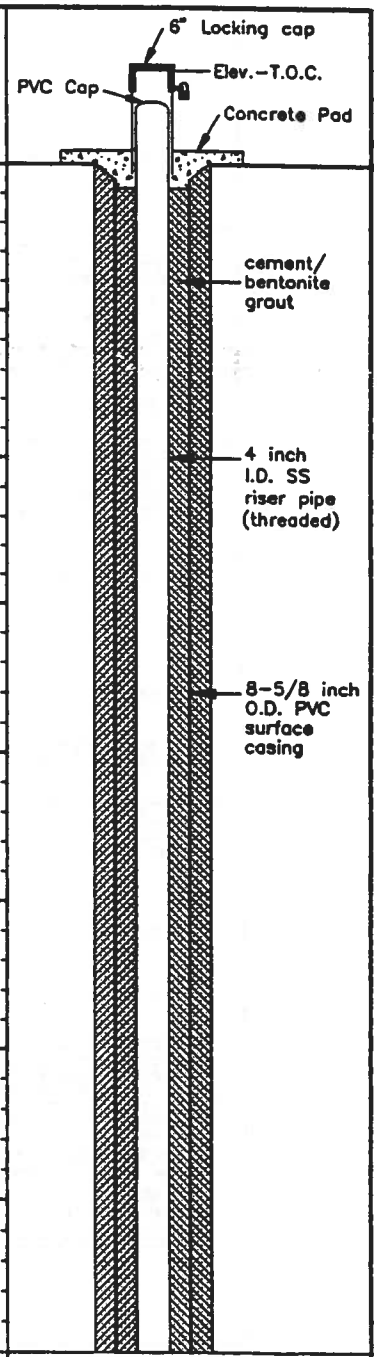
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.44 Ref. Datum: MSL

1. Surf Casing-O.D.(in.)8-5/8 Depth(ft.): 48.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 55.0 Type: S.Stl.
   Centralizers-Type: - Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 55.0-74.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 53.3-76.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel; granule to pebble sized; subangular; light gray		12 0				
SILTY CLAY - moderate to high plasticity; occasional shell fragments from 1 to 3 feet; dark to medium gray; moist to dry; no odor		24 6		ch		
SILTY SAND - slight plasticity; very fine grained sand; medium gray; moist; no odor		24 12		cl		5
SILTY CLAY - slight to moderate plasticity; granule sized pink calcareous concretions; yellowish brown with light gray mottling; moist to wet; no odor		24 24		cl		
- high plasticity; less silt; occasional iron (red) concretions; occasional slickensides; fractures at approximately 33 degrees; reddish brown with light bluish gray mottling; occasionally black; moist		24 20		ch		10
- moderate to high plasticity; occasional white to pink calcareous concretions; light gray to reddish brown; occasionally yellowish brown; moist to wet		24 24				
SANDY SILTY CLAY - nonplastic to slightly plastic; very fine grained sand; light gray with occasional orangish brown mottling		24 24		cl		15
SILTY CLAY - moderate to high plasticity; occasional slickensides; frequent granule to pebble sized concretions and fillings (white); reddish brown to light gray; occasionally white; moist to dry; no odor		24 ?				
SILTY SAND - very fine grained; well sorted; compact; (abrupt contact); reddish brown with occasional light gray mottling; moist; no odor		24 24		ch		20
SANDY SILTY CLAY - slight to moderate plasticity; very fine grained sand; occasional mica; orangish to yellowish brown with light gray mottling; dry; no odor		24 24		ch		
CLAY - very plastic; occasionally slightly silty; no mica; occasional slickensides along 45 degree fractures; occasionally black along fillings; occasional light gray and black fillings; reddish to yellowish brown; moist to dry; no odor		24 14		ch		25
- occasional white concretions; moist to slightly moist; (at 36.5 feet)		24 18		ch		
- no concretions; (at 38.5 feet)		24 24				30
SILY SAND - very fine grained sand; well sorted; light gray to brown; possible sweet odor		24 24				
SILTY CLAY - high plasticity; occasional silty, very fine grained sand lamination; occasional black fillings; reddish brown with occasional light gray mottling		24 24				35
		24 20		SP ch		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A25 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-

DRILLING AND SAMPLING INFORMATION

Boring Location: SW CORNER OF DRUM PAD AREA
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT, REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:
SURFACE ELEV.(FT): 25.4
TOTAL DEPTH(FT.): 76
Date Started: 4/22/92
Date Completed: 4/28/92

Sampling Method: SHELBY TUBE

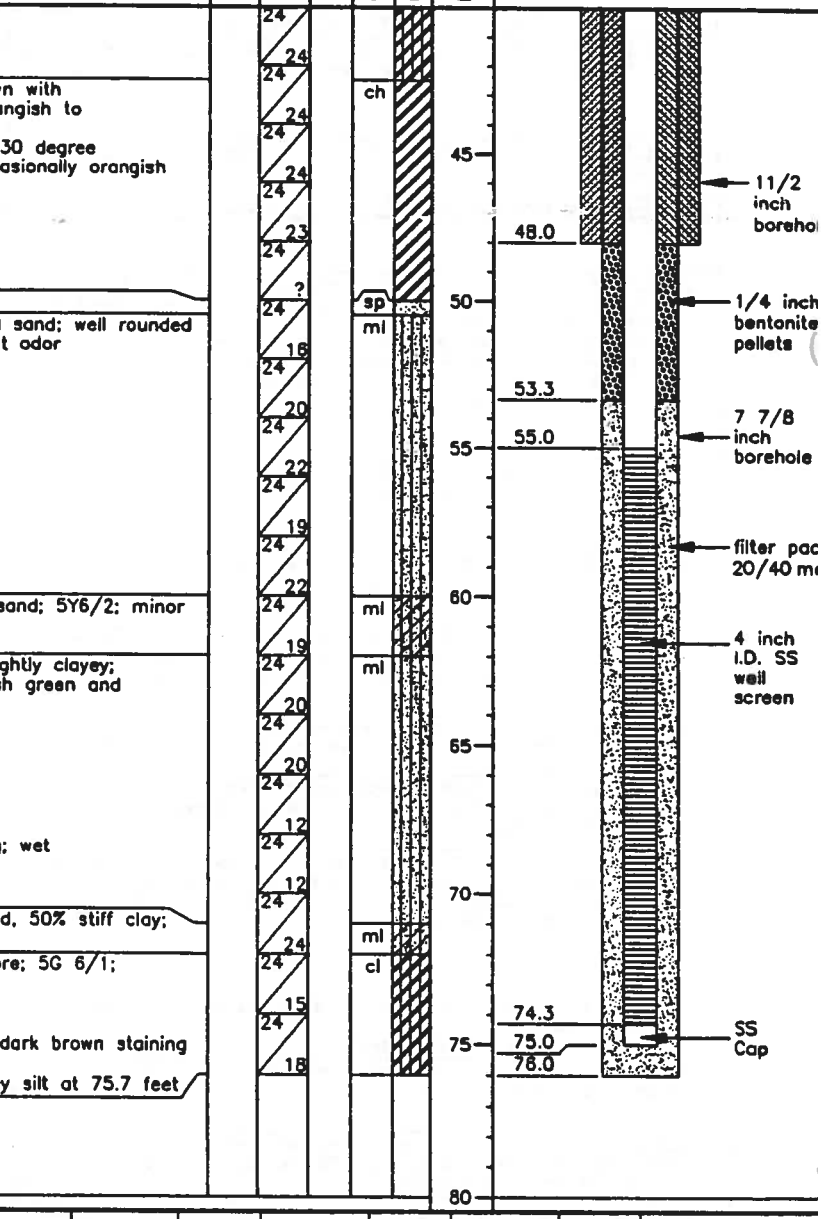
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.44
Ref. Datum: MSL

1. Surf Casing-O.D.(in.)8-5/8 — Depth(ft.): 48.0 Type: Sch 40
   Centralizers-Type: - — Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 — Depth(ft.): 55.0 Type: S.Stl.
   Centralizers-Type: - — Depths(ft.): -
3. Screen Dia.(in.): 4 — Type: Sch 40 S.Stl. WIRE WRAPPE
   Depth Interval(ft.): 55.0-74.9 — Slot Size(in.): .010
   Centralizers-Type: - — Depths(ft.): -
4. Filter Pack Type: Silica Sand — Depth Interval(ft.): 53.3-76
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - high plasticity; slickensides; reddish brown with occasional light gray mottling; occasionally orangish to yellowish brown; moist; no odor		24/24		ch		
- very stiff; slickensides along approximately 30 degree fractures; occasional white concretions; occasionally orangish brown		24/24				
		24/24				
		24/24				
		24/24				
- stiff		24/23				
SAND - fine grained; tan and light orange		24/?		sp		
SAND TO SILTY SAND - fine to very fine grained sand; well rounded grains; light gray with some tan; strong, sweet odor		24/18		ml		
- 5Y 8/1; iron staining; no odor		24/20				
- clayey along fractured faces; moist		24/22				
		24/19				
- small clay lenses and seams		24/22				
SILTY CLAYEY SAND - very fine to fine grained sand; 5Y6/2; minor iron stains; moist; no odor		24/19		ml		
SILTY SAND - fine to very fine grained sand; slightly clayey; occasional worm burrows (?); 5Y 6/2; yellowish green and light gray mottling; moist; no odor		24/20		ml		
		24/20				
- 5Y 7/1		24/12				
- 5Y 7/1 to 5Y 6/1; occasional iron staining; wet		24/12				
- black staining		24/24		ml		
SILTY CLAYEY SAND - 50% very fine grained sand, 50% stiff clay; 5G 6/1; distinct teal color		24/15		cl		
SILTY CLAY - plastic; firm; pieces of twigs in core; 5G 6/1; no odor		24/18				
- clay becomes siltier						
- stringers of light gray silty sand						
- approximately 2 inches very stiff clay with dark brown staining at 75 feet						
- approximately 3 inches of dark brown clayey silt at 75.7 feet						
TOTAL DEPTH = 76.0 FEET						



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A25 Sheet 2 of 2

Revised 7/7/9

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-25

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF DRUM PAD
WEST OF FORMER EFFLUENT POND
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 4" WET ROTARY
REAM TO 8" TO SET WELL
Sampling Method: 2' SHELBY TUBE (ST)

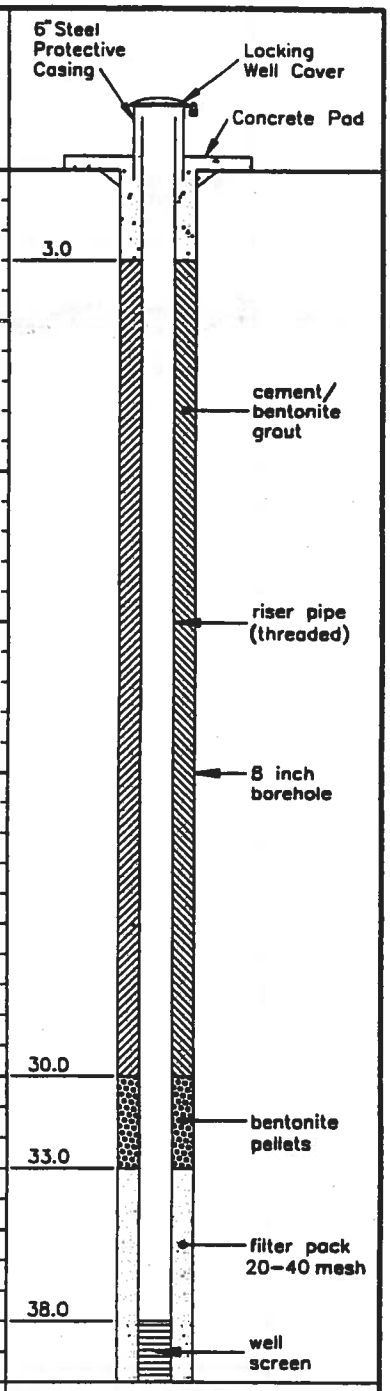
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 48.1
Date Started: 6/22/95
Date Completed: 8/4/95

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.42 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 38.0 Type: Sch 40 S.Stl
Centralizers-Type: Depths(ft.):
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl Wire Wrapped
Depth Interval(ft.): 38.0-48.0 Slot Size(in.): .010
Centralizers-Type: Depths(ft.):
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 33.0-48.0
Conc. Pad Size: 4'x4'x6"

Notes:

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravels; shells; white to gray	ST		24				0
CLAY - 10% to 15% fine grained sand; highly plastic; firm; damp; dark grayish brown (10YR-4/2); yellow to tan mottling; traces of black staining	ST		24/10		ch		10
- 20% to 25% fine sands; yellowish red mottled clay; 10% to 15% greenish clay	ST		24/24		sc		15
CLAYEY SAND - fine grained sand; 25% to 30% fines; well sorted; angular; compact; dry; light greenish gray (1-7/10)					ch		
CLAY - 10% to 15% fine grained sand; highly plastic; firm; damp; dark grayish brown (10YR-4/2); yellow to tan mottling; traces of black staining							
CLAYEY SAND - fine to medium grained sand; 15% to 20% fines; moderately sorted; firm; moist; light yellowish brown (2.5YR-6/6)	ST		24/24		sc		20
SAND WITH SILT - fine grained sand; 10% to 15% fines; firm to hard; well sorted; moist; reddish yellow (7.5YR-6/6); greenish mottled clayey sand	ST		24/24		sm		25
CLAY WITH SAND - 15% to 20% fine grained sand; moderately plastic; stiff; wet; dark red (2.5YR-4/6); green mottled clay with nodules and dendrites; no odor	ST		24/24		cl		30
SANDY CLAY - 20% to 25% fine grained sand; moderately plastic; hard; wet	ST		24/24		cl		35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/19/95	DRAFT CHK	9/1/95	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A12 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS

Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF DRUM PAD
WEST OF FORMER EFFLUENT POND
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 4" WET ROTARY
REAM TO 8" TO SET WELL
Sampling Method: 2' SHELBY TUBE (ST)

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 48.1
Date Started: 6/22/95
Date Completed: 8/4/95

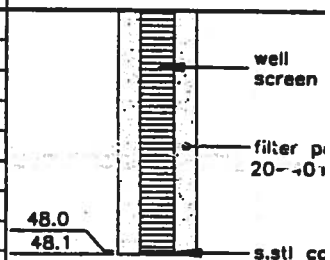
WELL COMPLETION DATA

Elev–Top of Casing(ft.): 27.42
1. Riser Pipe–I.D.(in.): 4
Centralizers–Type:
2. Screen Dia.(in.): 4
Depth Interval(ft.): 38.0–48.0
Centralizers–Type:
3. Filter Pack Type: Silica Sand
Conc. Pad Size: 4'x4'x6"

Ref. Datum: MSL
Depth(ft.): 38.0 Type: Sch 4(
Depths(ft.):
Type: Sch 40 S.Stl Wire Wrap
Slot Size(in.): .010
Depths(ft.):
Depth Interval(ft.): 33.0–48.0

Notes:

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND – fine grained sand; 20% to 30% fines; well sorted; firm; wet; dark red (2.5YR–4/6); green mottled sands and clays; trace of odors	ST		24/24		sm		
– silts interbedded with silty sands (41.5–42.0')							
– fine to medium grained sand; 10% to 15% fines; firm; moderately well sorted; subangular; wet; greenish gray (6/10Y); traces of fine black mafic rock fragments	ST		24/24				
– increasing clay; moderately plastic; trace of odor							
TOTAL DEPTH = 48.1 FEET							



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/19/95	DRAFT CHK	PFS 9/1/95	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339–A1 Sheet 2 of

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-26

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 58.1
Date Started: 6/26/95
Date Completed: 8/4/95

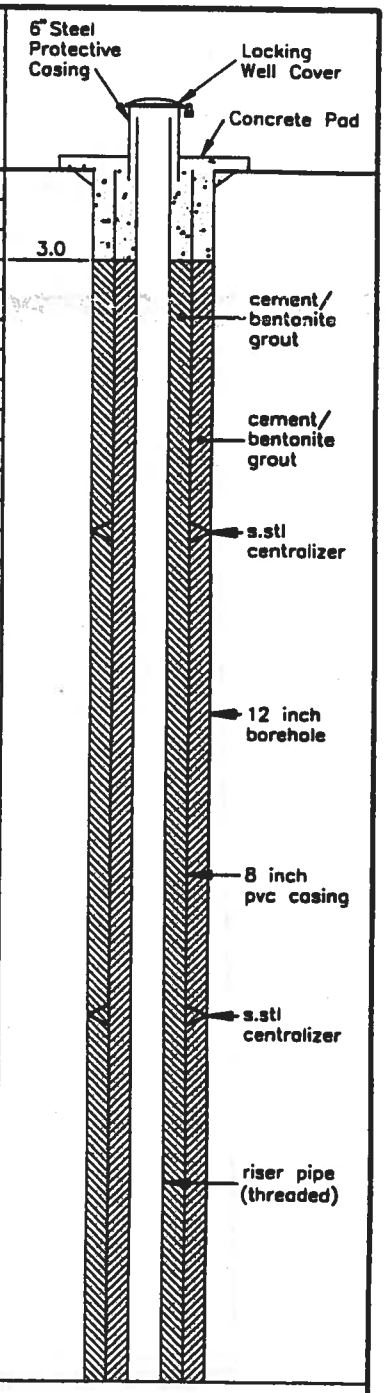
Sampling Method: 2' SHELBY TUBE (ST)

Notes: REAM TO 12" BOREHOLE TO 45'
WATER LEVEL AT 14.70 BGL ON 7/6/95

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 27.18 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8 Depth(ft.): 45.0 Type: Sch 40 PVC
Centralizers–Type: S.Stl Depths(ft.): 12, 28, 43
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 48.0 Type: Sch 40 S.Stl
Centralizers–Type: Depths(ft.):
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl Wire Wrapped
Depth Interval(ft.): 48.0–58.0 Slot Size(in.): .010
Centralizers–Type: Depths(ft.):
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 46.5–58.0
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL – gravels; shells; white to gray							
CLAY WITH SAND – 15% to 20% very fine grained sand; moderately plastic; firm; damp; yellowish red (5YR–5/6); grayish green mottled clay; black stains; no odor	ST		24/24		cl		5
CLAY WITH GRAVEL – trace <5% fine grained sand; highly plastic; 20% to 25% carbonate gravel; firm to stiff; damp; yellowish red (5YR–5/6); greenish dark gray mottled dendritic clays; no odor	ST		24/24		ch		10
SANDY CLAY – 25% to 30% fine grained sand; slightly plastic; carbonate nodules; 5% gravels; stiff; moist; reddish yellow (5YR–6/8); dark dendritic patterns on bedding planes	ST		24/24		cl		15
SILTY SAND – fine uniform grained sand; 15% to 20% fines; loose; wet; strong brown (7.5YR–5/8); traces (<5%) of green and gray mottling; well cemented carbonate nodules from 20.3–20.7'	ST		24/24		sm		20
CLAYEY SAND WITH GRAVEL – 10% to 15% cemented white to tan carbonate gravel, 20% to 25% clay fines, fine uniform grained sand; moderately well sorted; loose to compact; wet; strong brown (7.5YR–5/6); green clay seams	ST		24/10		sc		25
CLAY WITH GRAVEL – cemented carbonate gravel; highly plastic; stiff; moist; yellowish red (5YR–5/6); green dendritic clay throughout; possible fractures or cracks; 10% to 15% coarsed grained sand	ST		24/20		ch		30
CLAY – 5% to 10% gravel; moderately plastic; stiff to hard; decreasing in green dendritic clay; mottling	ST		24/24		cl		35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	RPS 9/1/95	PROJ. CHK	[illegible] 9/1/95	APPRV. BY	[illegible] 9/1/95	DWG. NO.	448339–A13	Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 58.1
Date Started: 6/26/95
Date Completed: 8/4/95

Sampling Method: 2' SHELBY TUBE (ST)

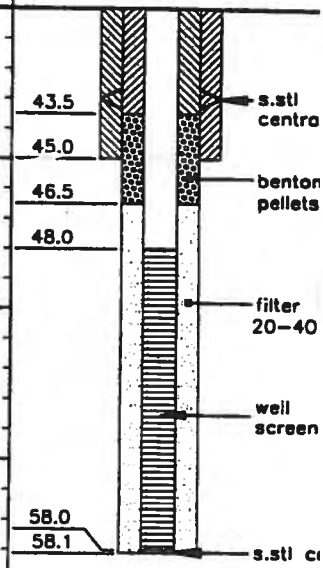
Notes: REAM TO 12" BOREHOLE TO 45'
WATER LEVEL AT 14.70 BGL ON 7/6/95

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.18
1. Surf Casing-I.D.(in.): 8
Centrolizers-Type: S.Stl
2. Riser Pipe-I.D.(in.): 4
Centrolizers-Type:
3. Screen Dia.(in.): 4
Depth Interval(ft.): 48.0-58.0
Centrolizers-Type:
4. Filter Pack Type: Silica Sand
Conc. Pad Size: 4'x4'x6"

Ref. Datum: MSL
Depth(ft.): 45.0 Type: Sch
Depths(ft.): 12, 28, 43
Depth(ft.): 48.0 Type: Sch
Depths(ft.):
Type: Sch 40 S.Stl Wire Wrap
Slot Size(in.): .010
Depths(ft.):
Depth Interval(ft.): 46.5-58.0

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY WITH SAND - 15% to 20% medium grained poorly sorted sand; slightly plastic; hard; dry; red (2.5YR-4/6)	ST		24/24		cl		
SILTY SAND - fine to medium grained sand; angular; firm; 15% to 20% fines; damp; light brownish gray (10YR-6/2); interbedded with clay	ST		12/12		sm		
CLAY - slightly plastic; hard; dense; damp; reddish brown (5YR-5/3) and 40% grayish green; dendrites; nodules; trace of sand, approx. 5% gravels	ST		24/20		cl		45
SANDY CLAY - 25% to 30% very fine grained sand; loose; wet; poor recovery	ST		24/8		sm		50
SANDY SILT - 25% to 30% fine to very fine grained sand; slightly plastic; moderately well graded; firm; wet; light gray (10YR-7/1); lens of mottled yellowish reddish brown clay; fracture and bioturbation; root casts and burrow filled with carbonate and iron stained - decreasing sand; stiff	ST		24/24		ml		55
TOTAL DEPTH = 58.1 FEET							60 65 70 75 80



IT INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	9/11/95	PROJ. CHK	9/1/95	APPRV. BY.	9/1/95	DWG. NO.	448339-A1 Sheet 2 of

PROJECT: Air Products Pasadena, Texas	**Log of Well No. RW27**
BORING LOCATION: 52.5718N -143.0632E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.14 ft.msl / TOC = 25.88 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 12/21/09 / DATE FINISHED: 12/21/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.14 ft.msl / TOC = 25.88 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					CLAY (CH/CL); brown to reddish brown; moist; medium to high plasticity; stiff	10-in Diameter Borehole
5						Cement/Bentonite Grout
10						6-in Diameter Sch 10 Stainless Steel Casing
15						Seal of Hydrated Bentonite Pellets
20						20/40 Silica Sand
25					SILT/CLAYEY SILT (MH); light orange-brown; soft; saturated; strong chemical odor	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. RW27 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						6-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
					CLAY (CL); red-brown; hard; low plasticity; dry	
40					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

PROJECT: Air Products Pasadena, Texas	**Log of Well No. RW28**
BORING LOCATION: 146.6814N -303.7253E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 22.82 ft.msl / TOC = 25.54 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/19/09 / DATE FINISHED: 12/1/09
DRILLING METHOD: Hollow Stem Auger/Mud Rotary	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 50-60
DRILLING EQUIPMENT: CME-75/Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 22.82 ft.msl / TOC = 25.54 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	
5		NR				
10					CLAY (CH); dark grey; moist to wet; moderately stiff; high plasticity	8-in Diameter PVC Casing
					CLAY (CH); brown and orange-brown; moist; stiff; medium to high plasticity	
15						12-in Diameter Borehole
20					CLAY (CH); brown to dark brown; slightly moist; medium to high plasticity	Cement/Bentonite Grout
25					CLAY (CH); red brown; moist to dry; very stiff; medium to high plasticity	
30						

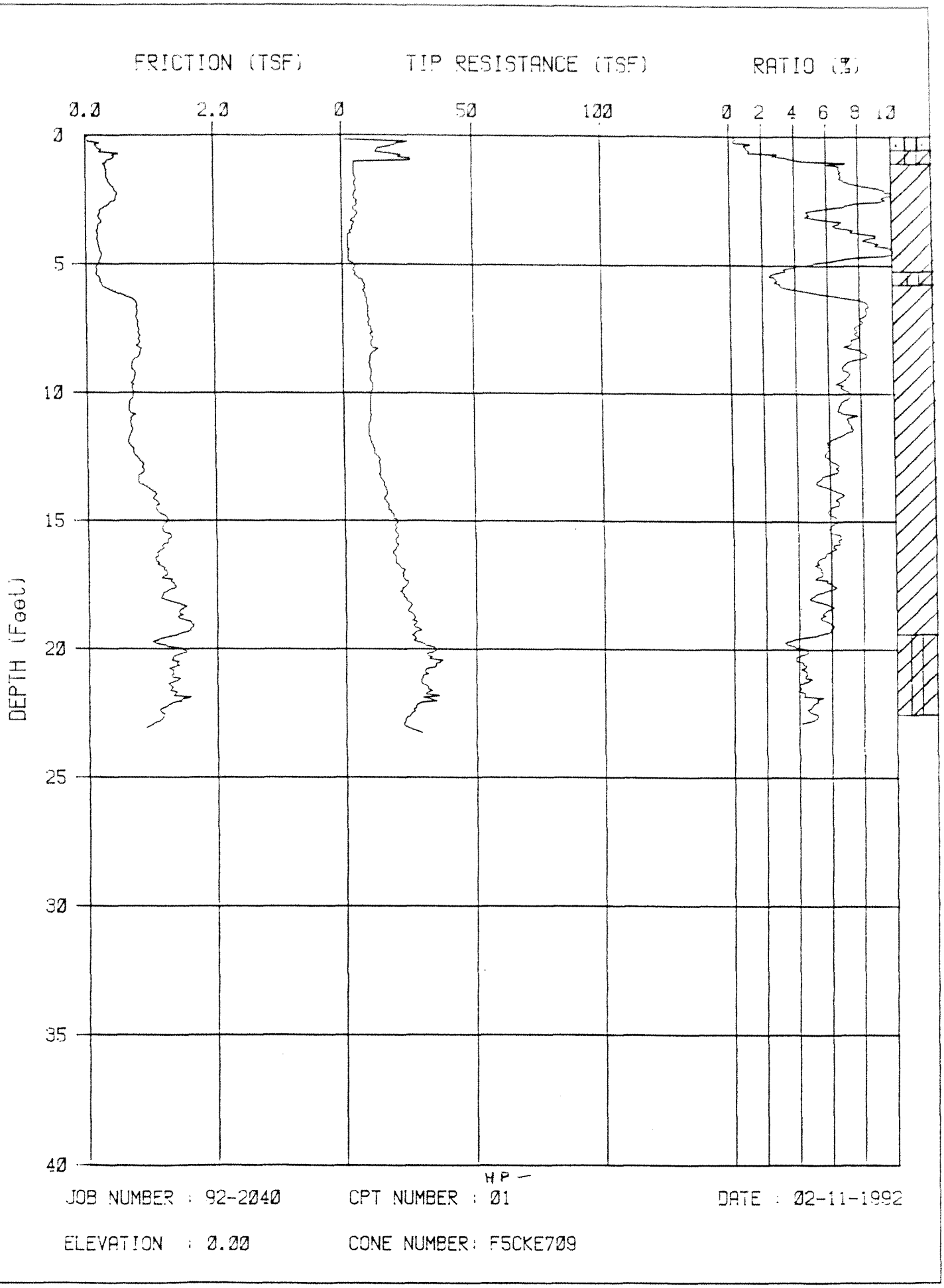
PROJECT: Air Products
Pasadena, Texas

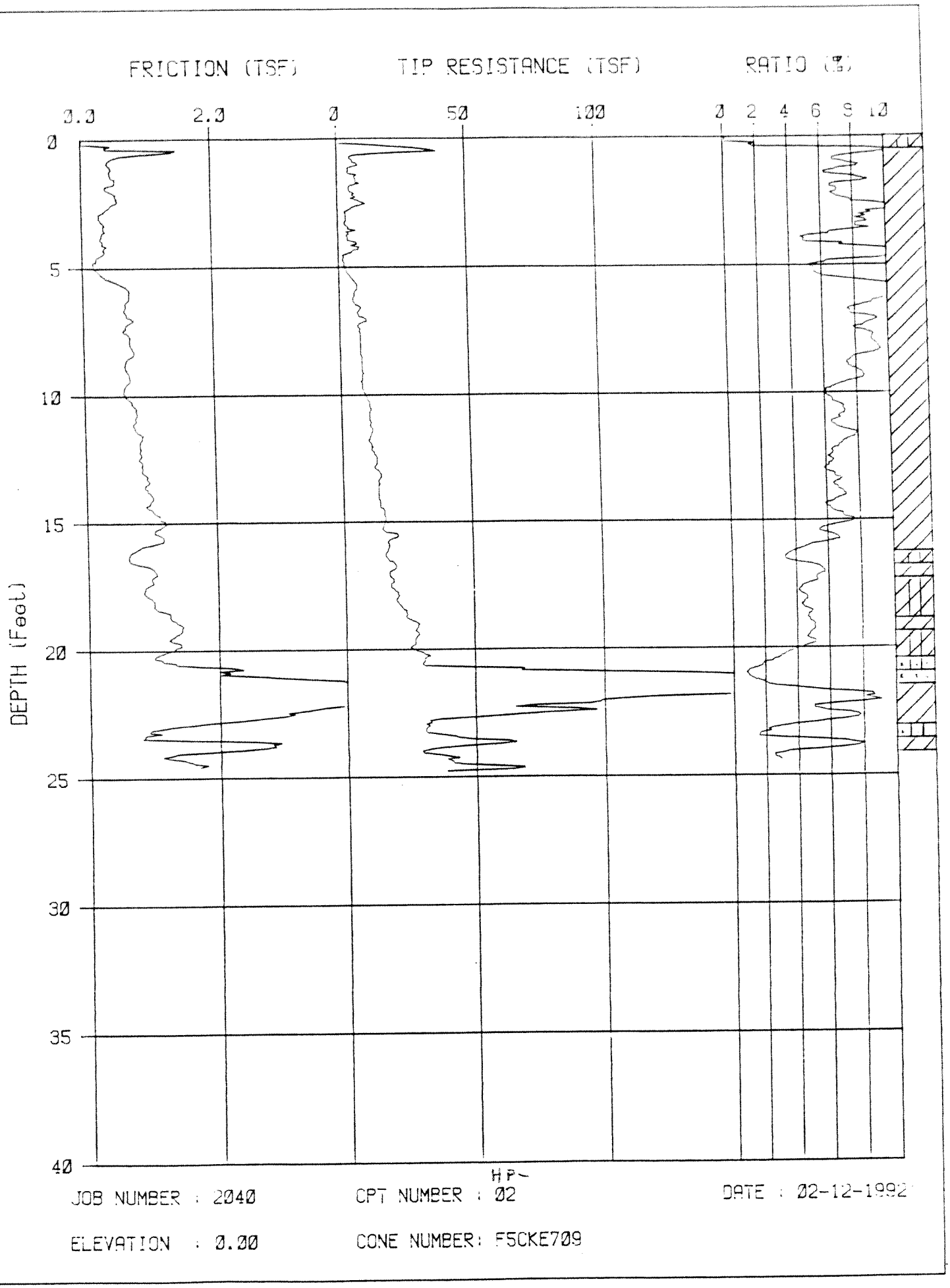
Log of Well No. RW28 (cont'd)

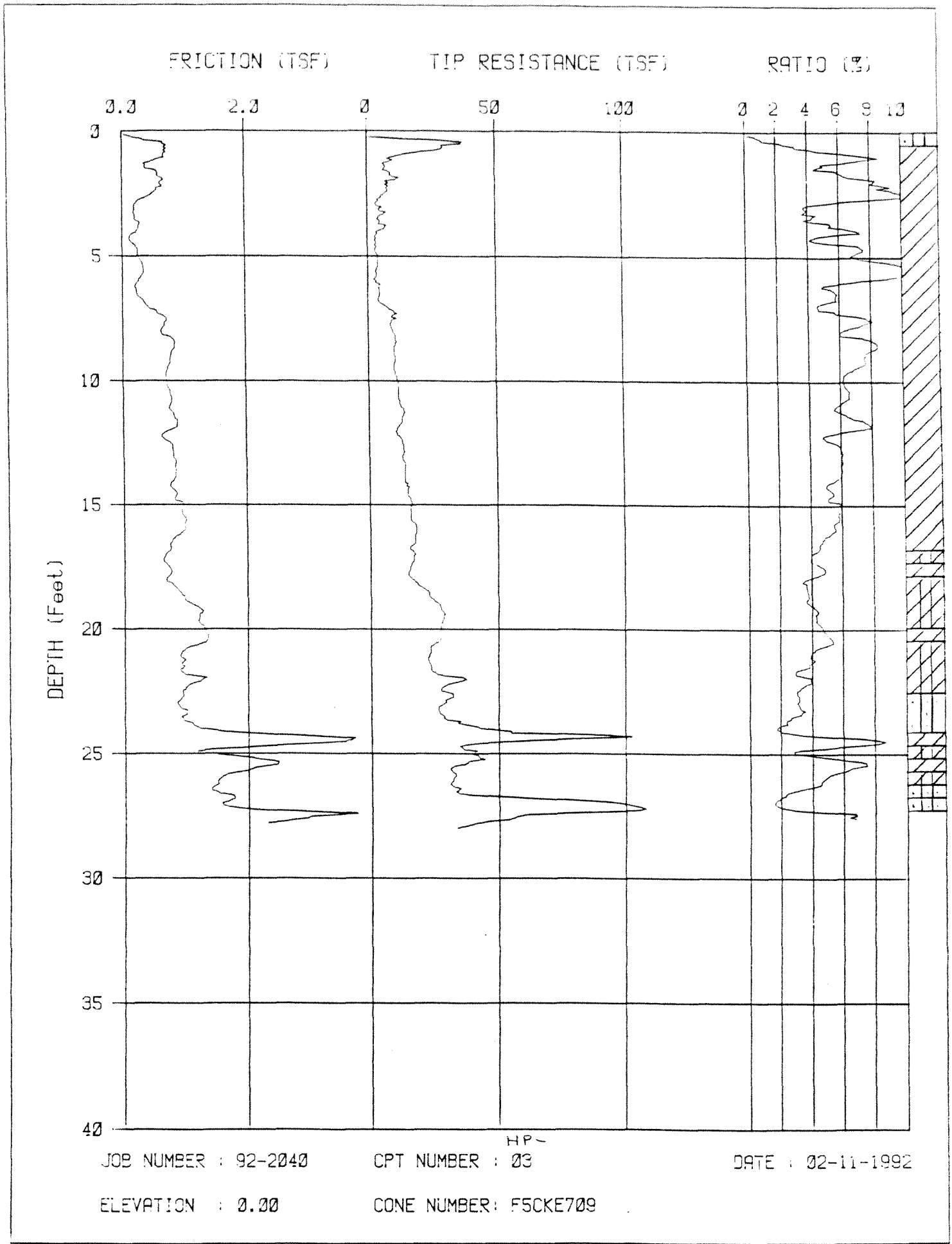
DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red brown; dry; very stiff; low to medium plasticity	
					Logging from mud cuttings. Same as 40-42 foot interval	8-in Diameter Borehole
45						Seal of Hydrated Bentonite Pellets
					SILT (MH) AND SILTY/SANDY CLAY (CH); grey and brown; fine grained sands and silts	Centralizer
50						
						20/40 Silica Sand
55						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
						Centralizer
60					Total Depth 60 feet	
65						

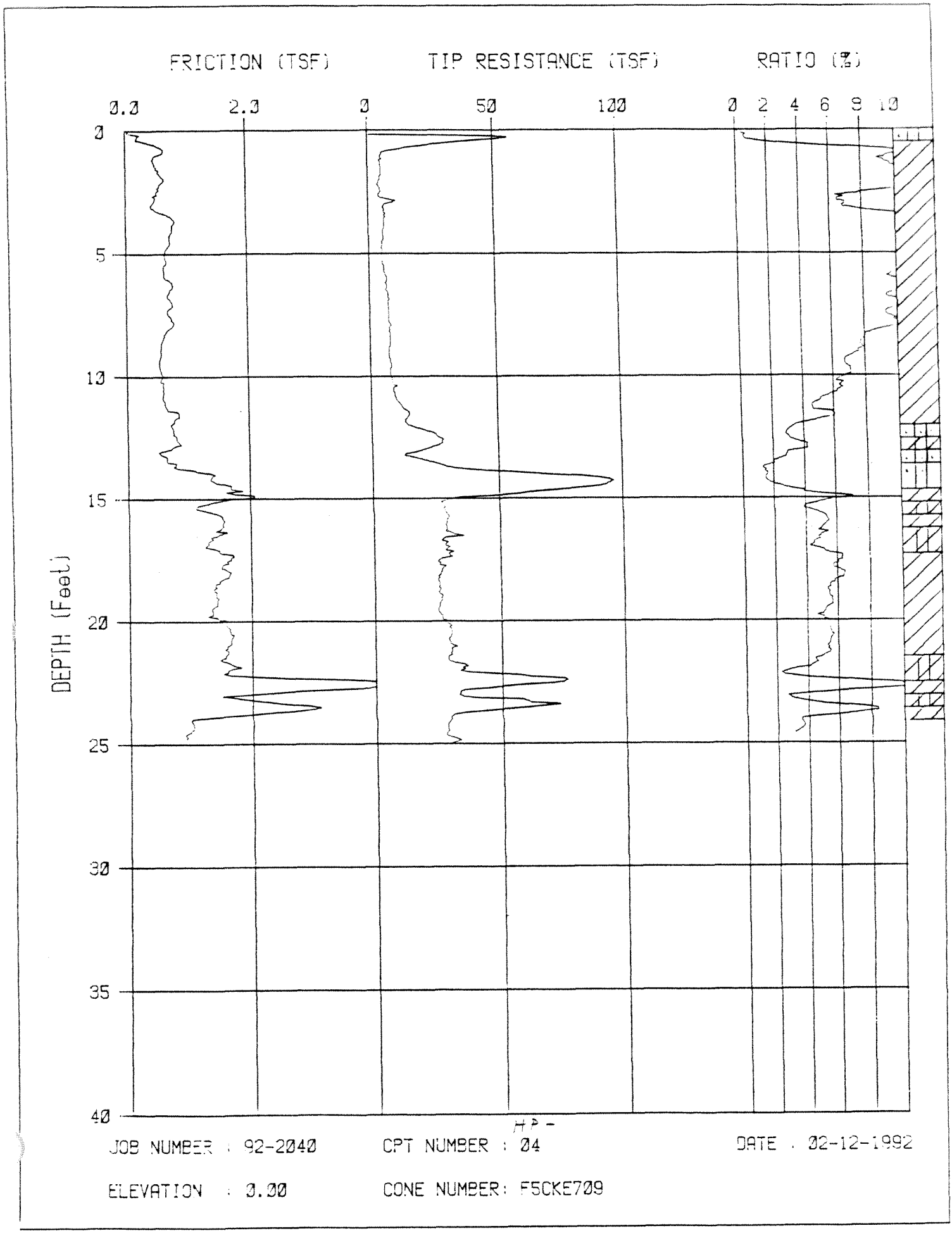
WELL3

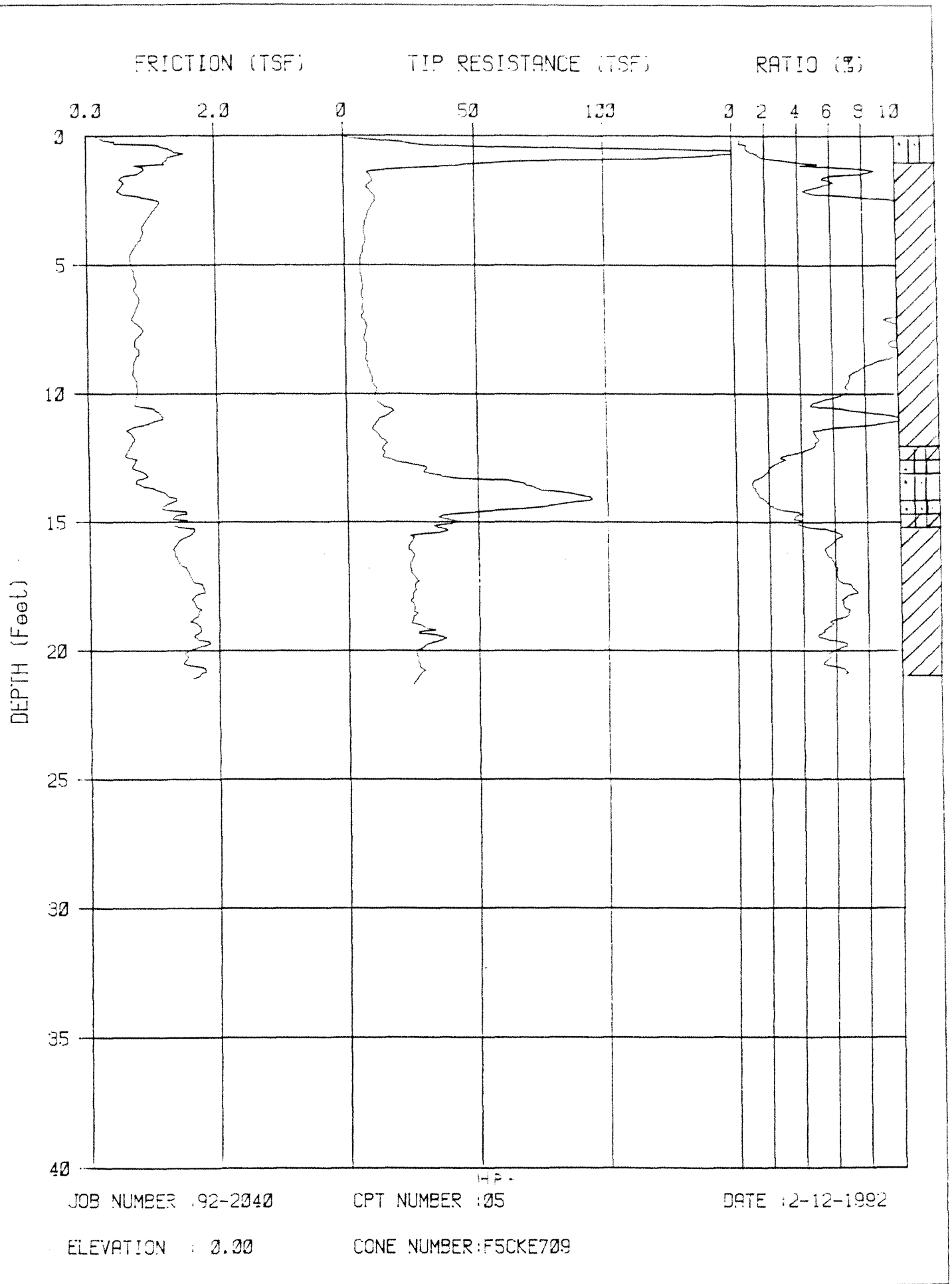
CPT Logs


FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
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2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP
JOB NUMBER : 92-2040
CPT NUMBER : 01
DATE : 02-11-1992
ELEVATION : 0.00
CONE NUMBER: F5CKE709


FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
3.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP~
JOB NUMBER : 2040
CPT NUMBER : 02
DATE : 02-12-1992
ELEVATION : 0.00
CONE NUMBER: F5CKE709

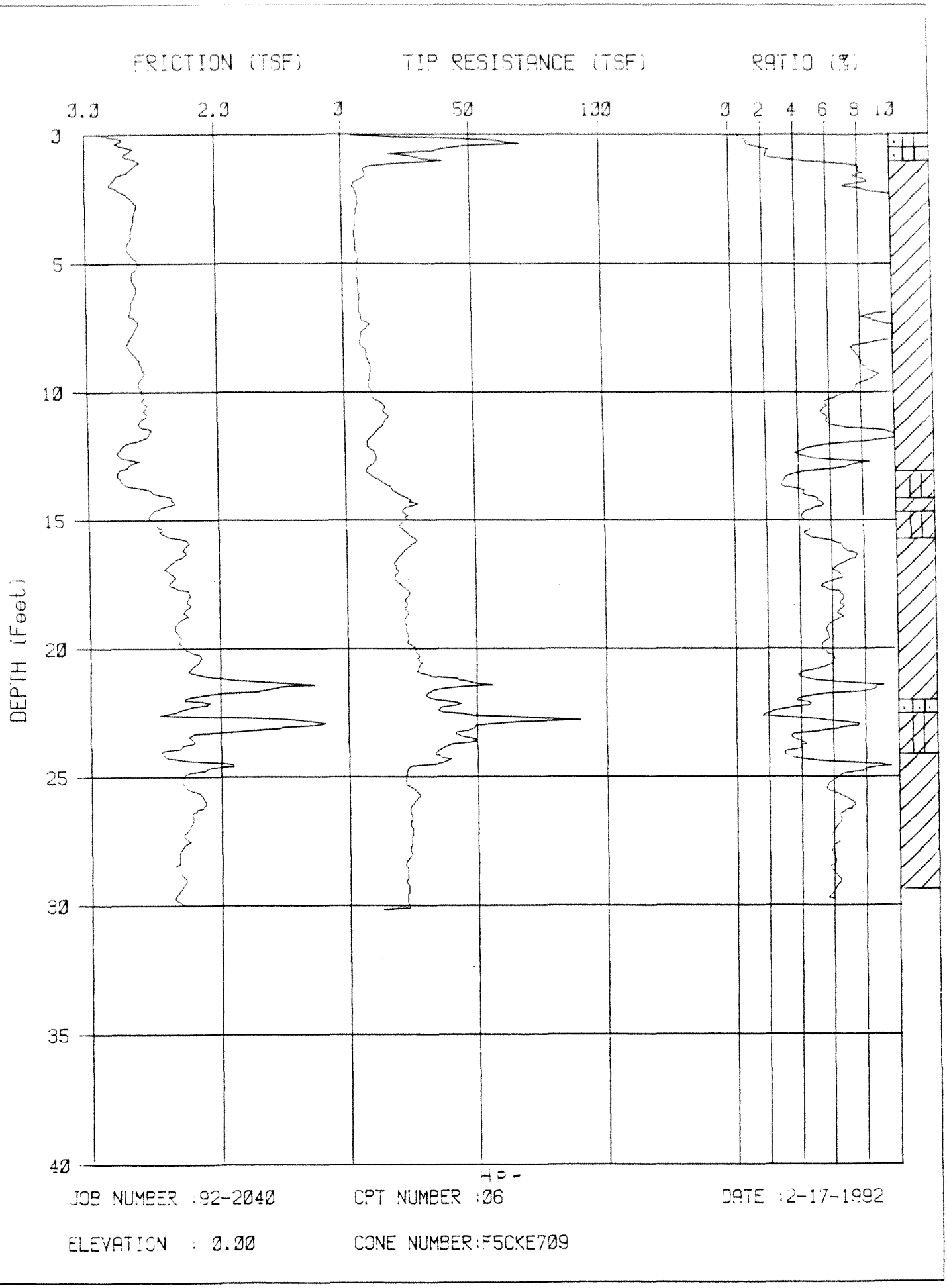

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER : 92-2040
CPT NUMBER : 03
DATE : 02-11-1992
ELEVATION : 0.00
CONE NUMBER: F5CKE709

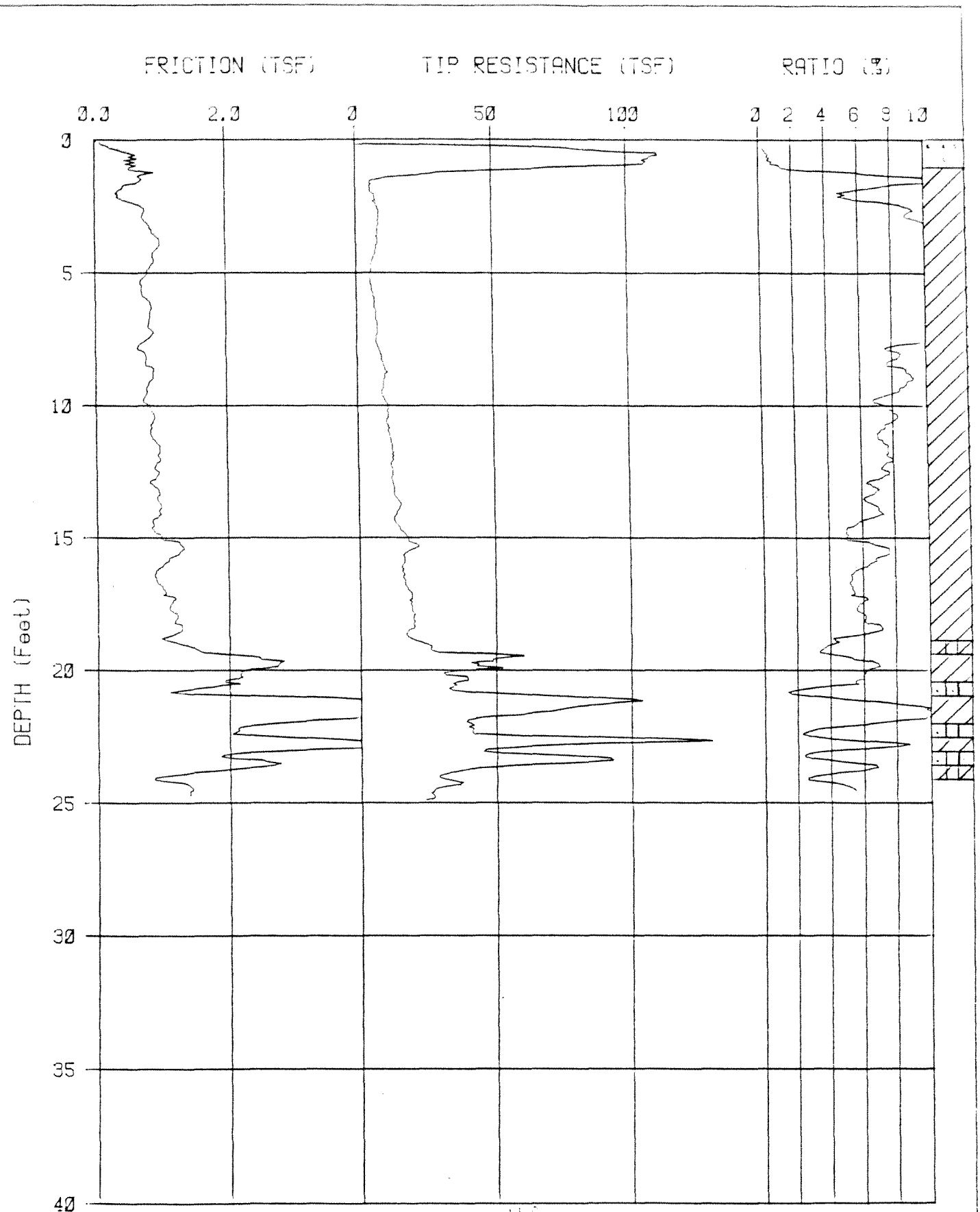

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER : 92-2040
CPT NUMBER : 04
DATE : 02-12-1992
ELEVATION : 0.00
CONE NUMBER: F5CKE709



JOB NUMBER :92-2040 CPT NUMBER :05 DATE :2-12-1992

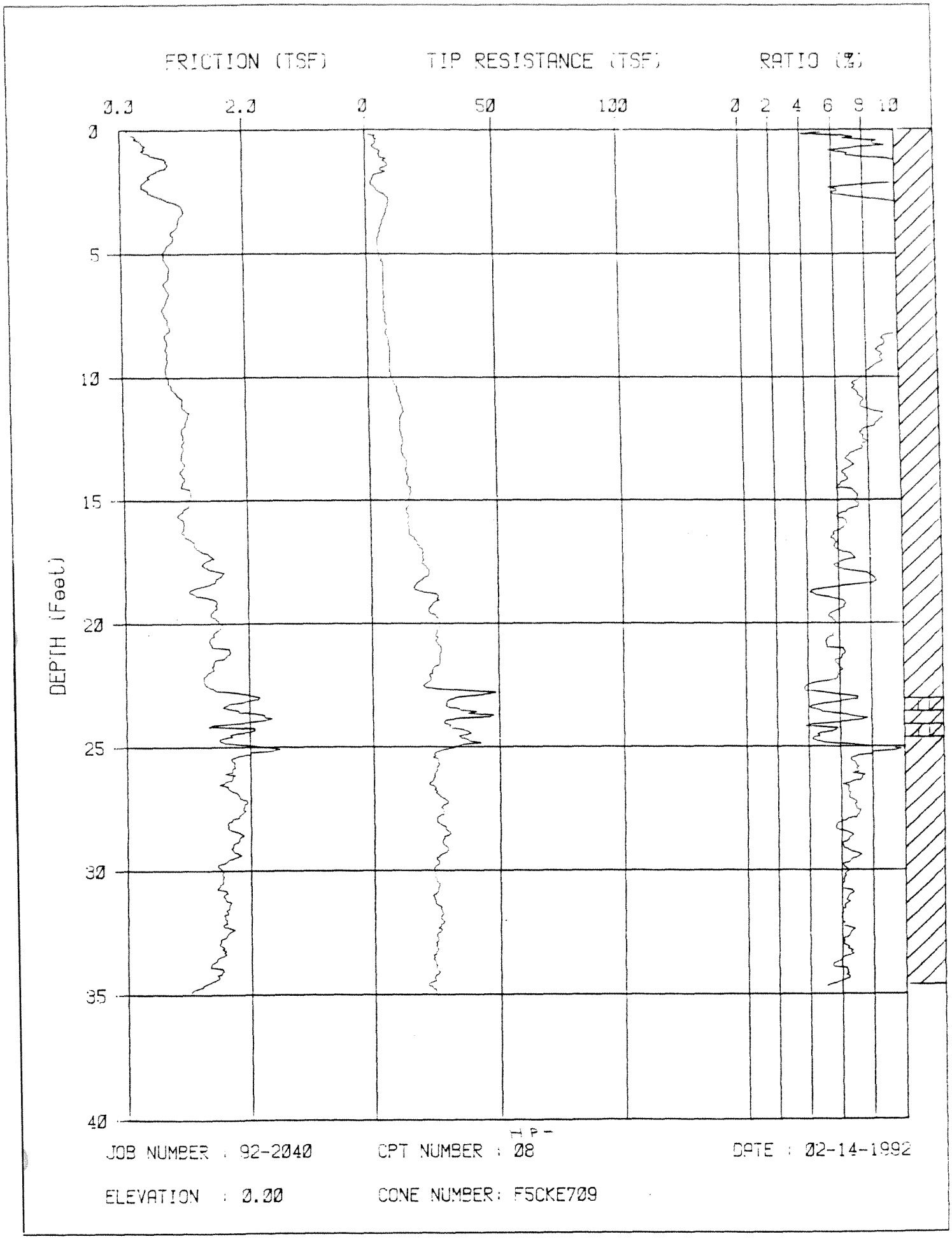
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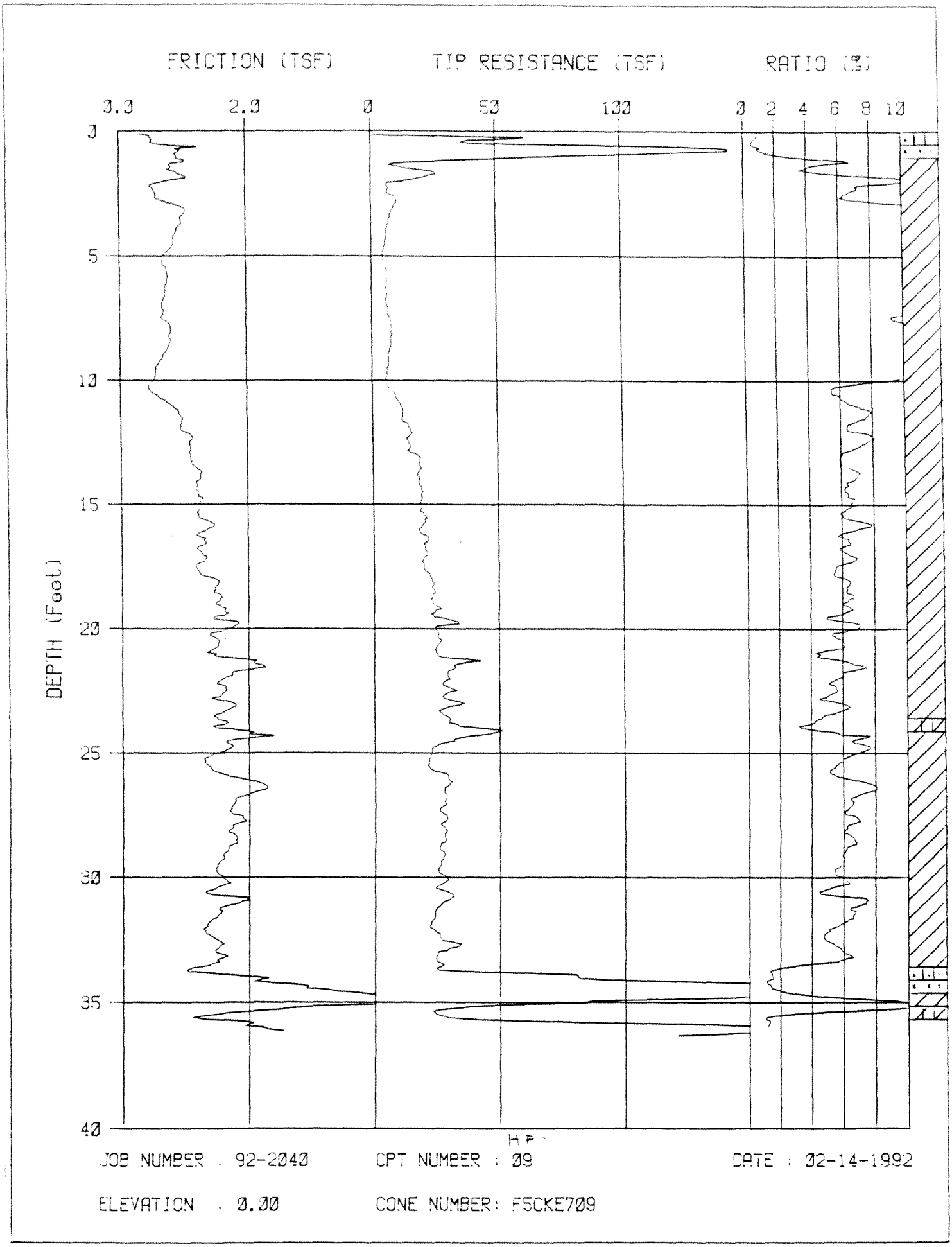

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER :92-2040
CPT NUMBER :06
DATE :2-17-1992
ELEVATION : 0.00
CONE NUMBER:F5CKE709

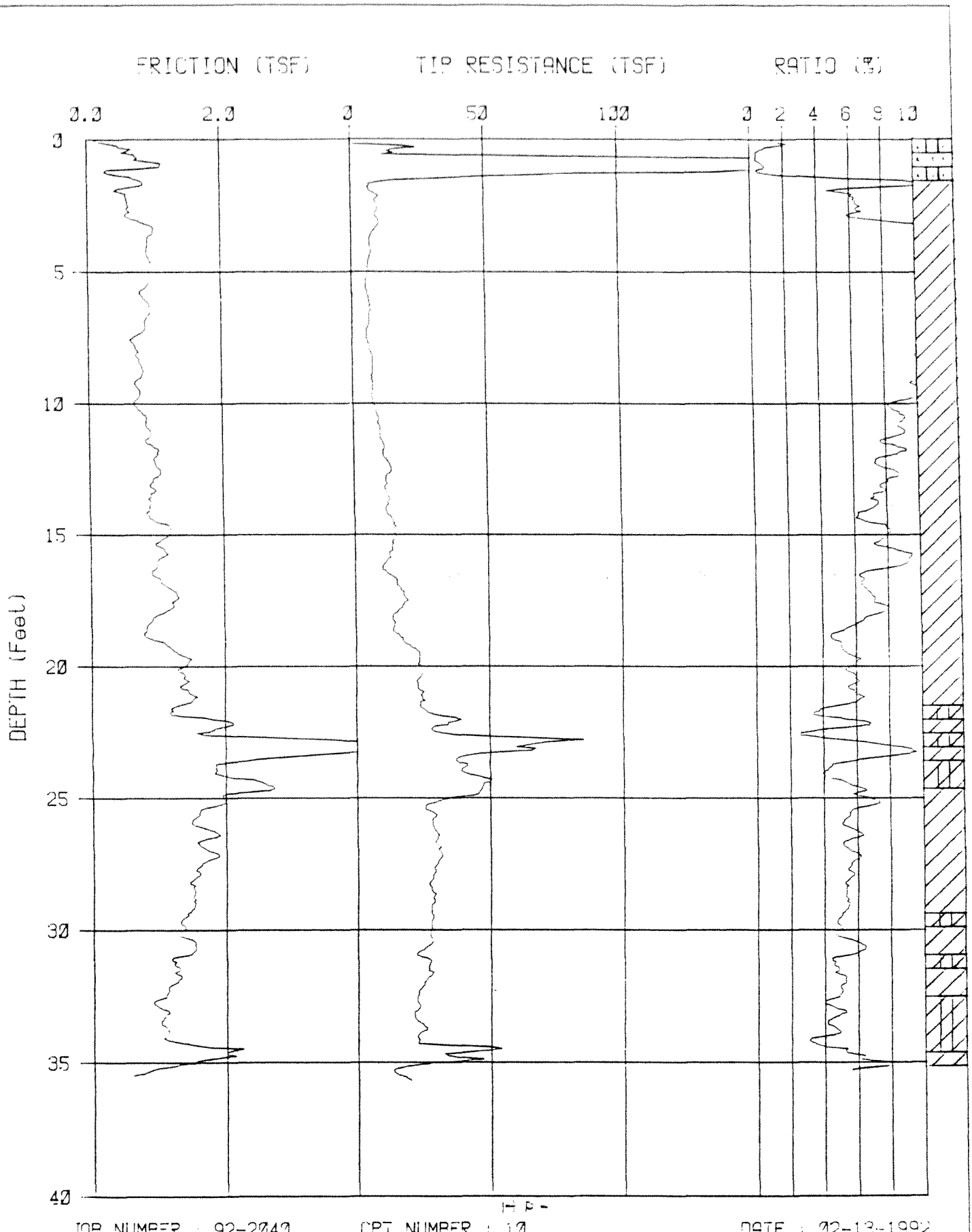


JOB NUMBER : 92-2040 CPT NUMBER : 07 DATE : 02-13-1992

ELEVATION : 0.00 CONE NUMBER: FSCKE709

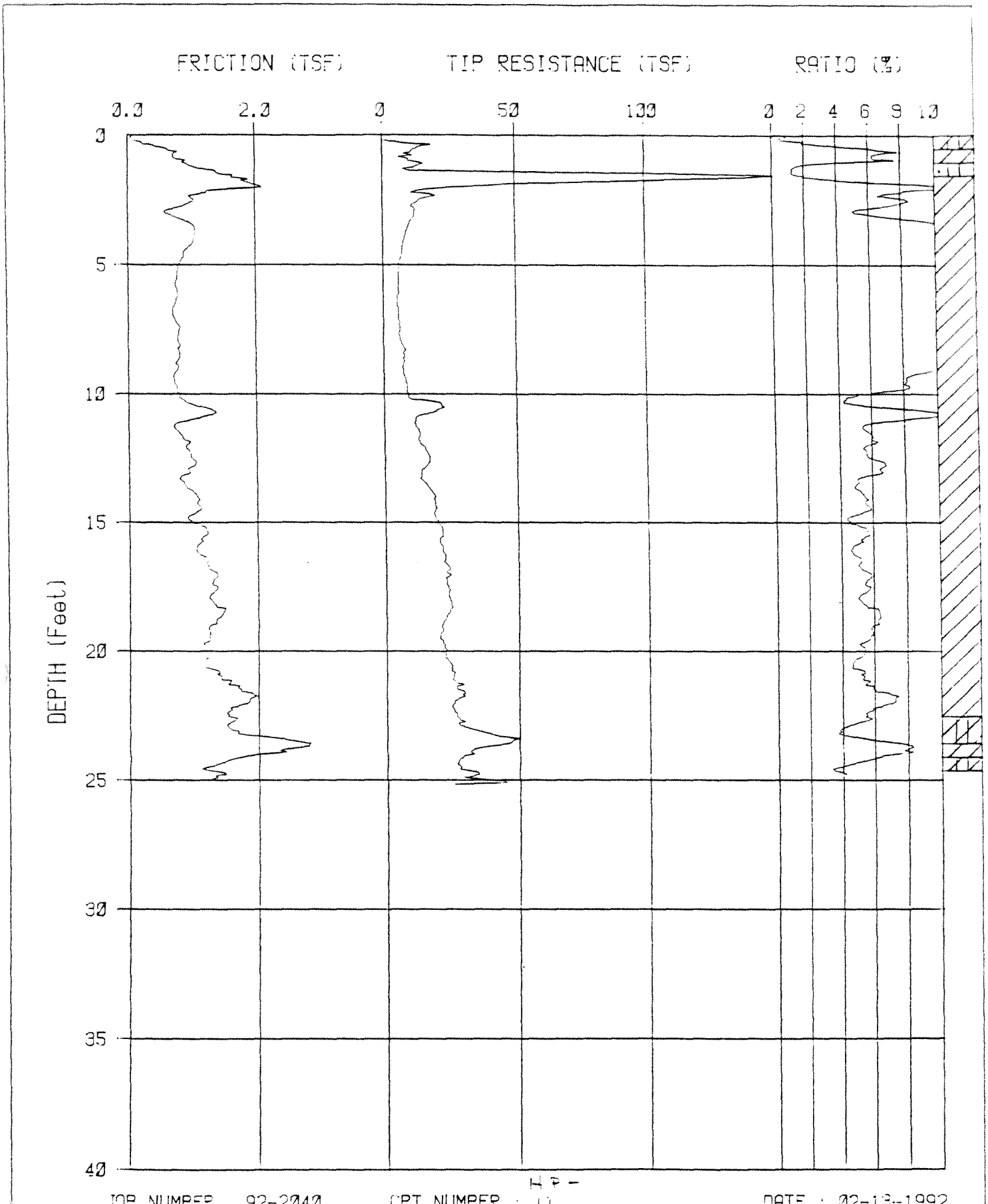

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER : 92-2040
CPT NUMBER : 08
DATE : 02-14-1992
ELEVATION : 0.00
CONE NUMBER: FSCKE709


FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP -
JOB NUMBER : 92-2040
CPT NUMBER : 09
DATE : 02-14-1992
ELEVATION : 0.00
CONE NUMBER: FSCKE709



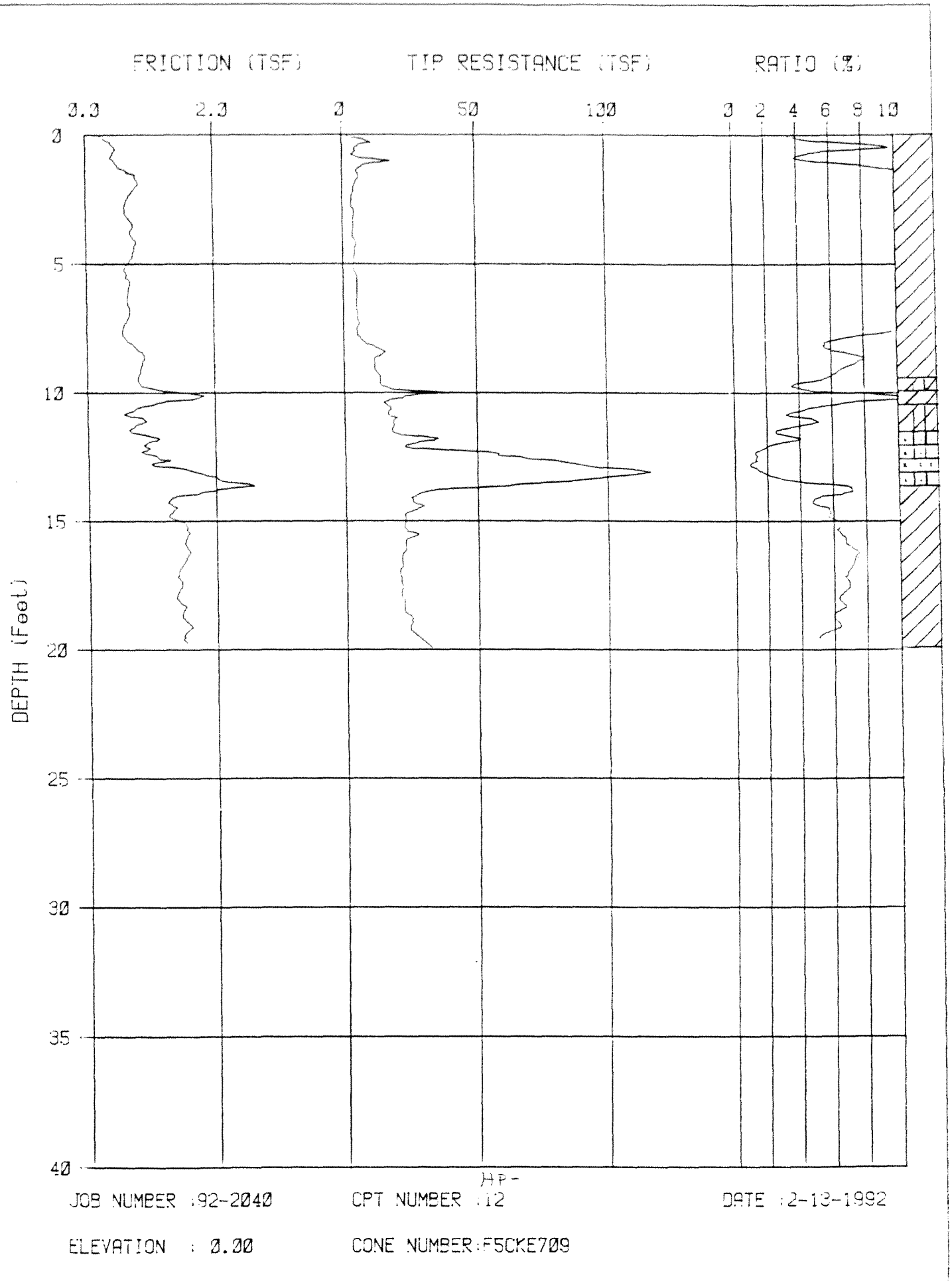
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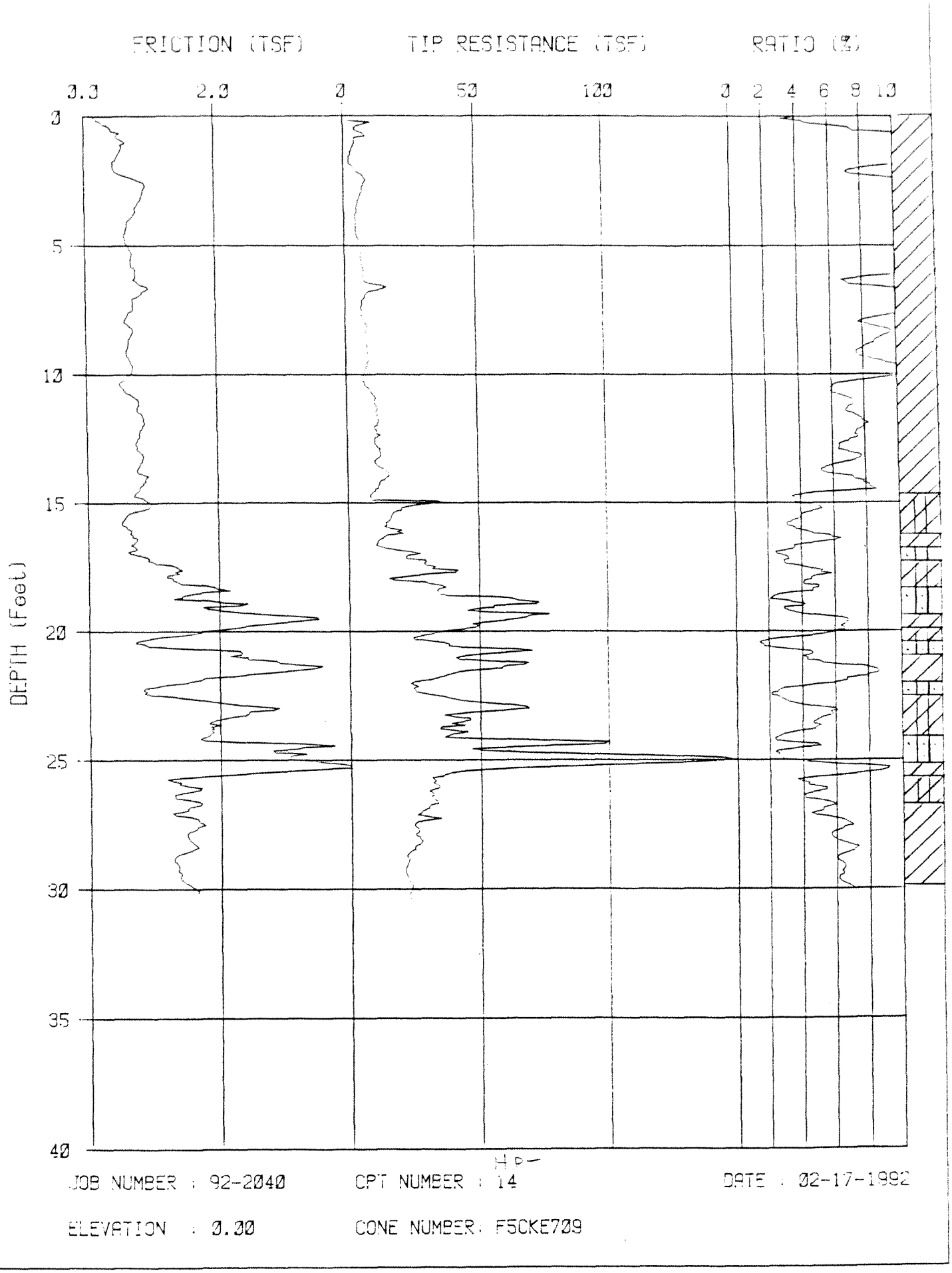
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JOB NUMBER : 92-2040 CPT NUMBER : T1 DATE : 02-13-1992

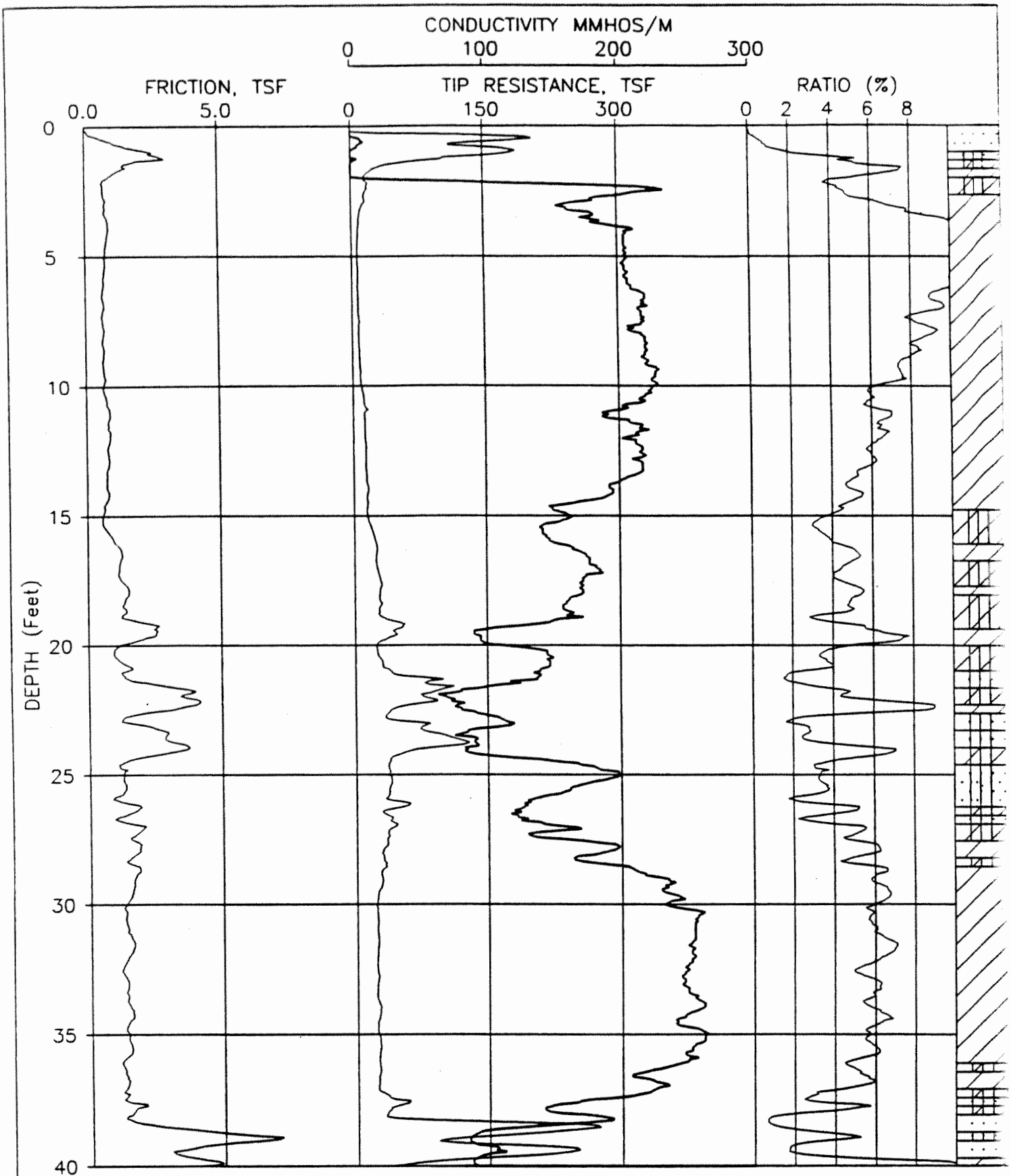
ELEVATION : 0.00 CONE NUMBER: FSCKE709


FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
AP-
JOB NUMBER :92-2040
CPT NUMBER :12
DATE :2-13-1992
ELEVATION : 0.00
CONE NUMBER:F5CKE709



JOB NUMBER : 92-2040 CPT NUMBER : 14 DATE : 02-17-1992

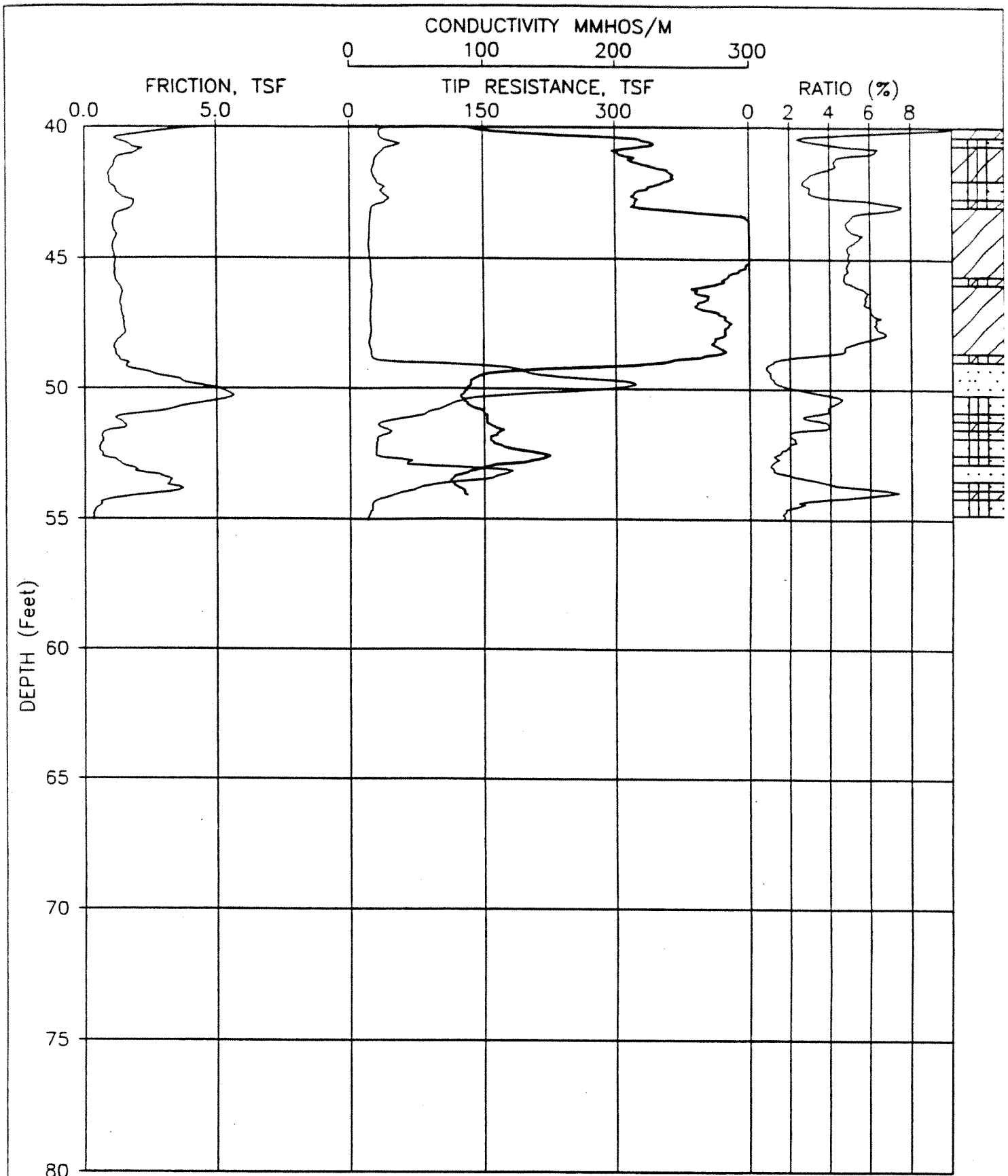
ELEVATION : 0.00 CONE NUMBER: F5CKE709



JOB NUMBER: 94-4016 CPT NUMBER: 01 DATE: 02-08-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

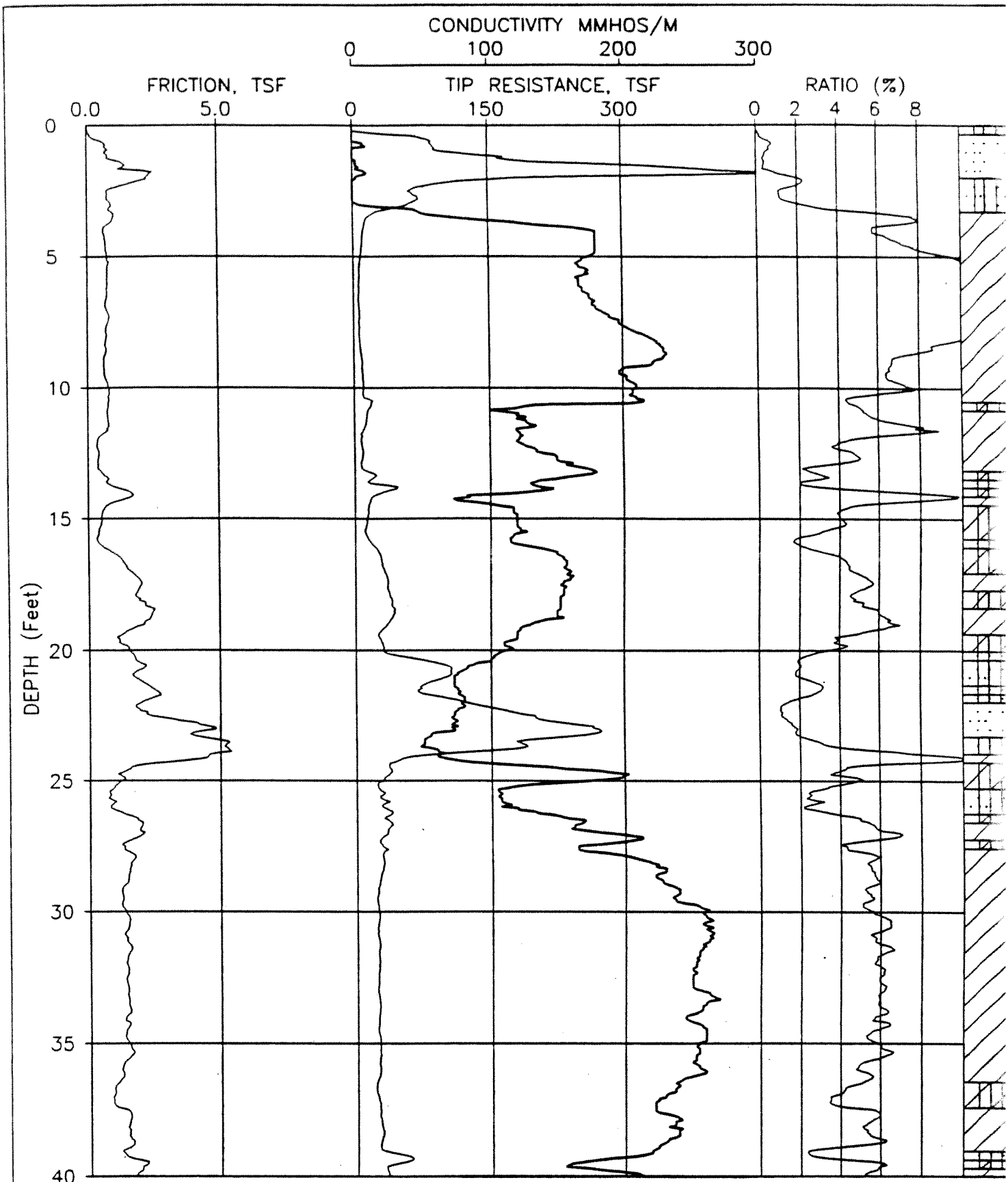
FUGRO GEOSCIENCES,INC



JOB NUMBER: 94-4016 CPT NUMBER: 01 DATE: 02-08-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

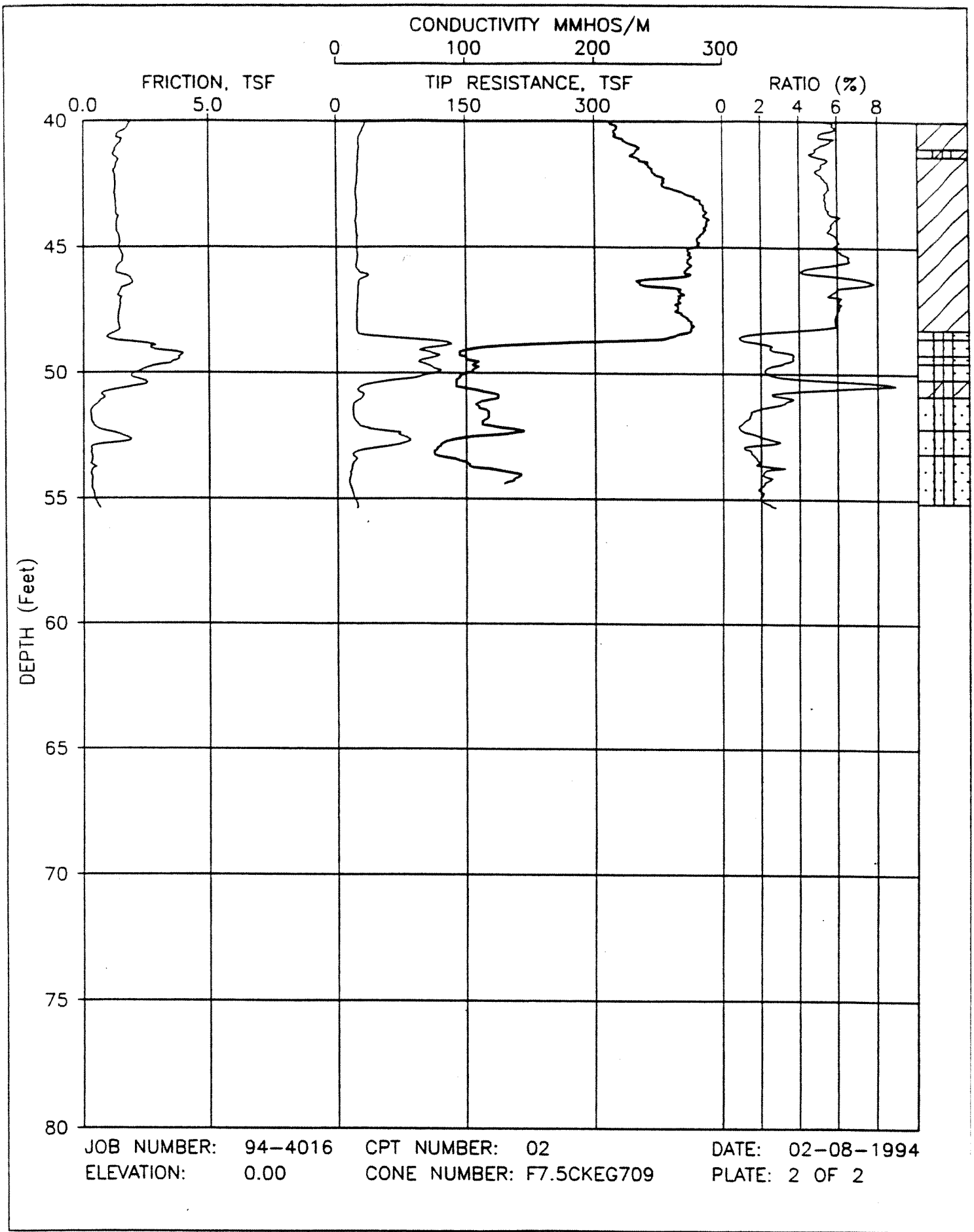
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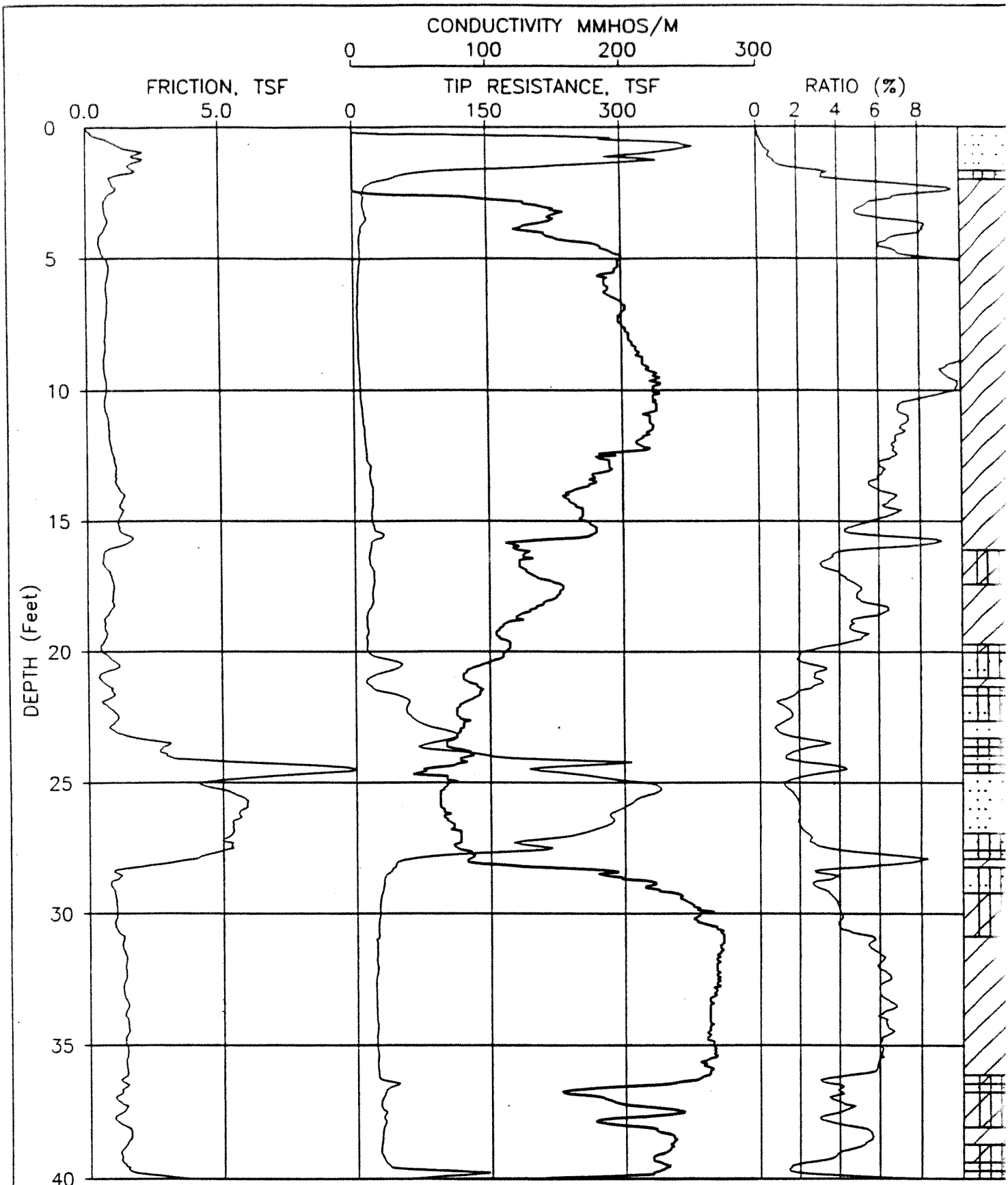
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



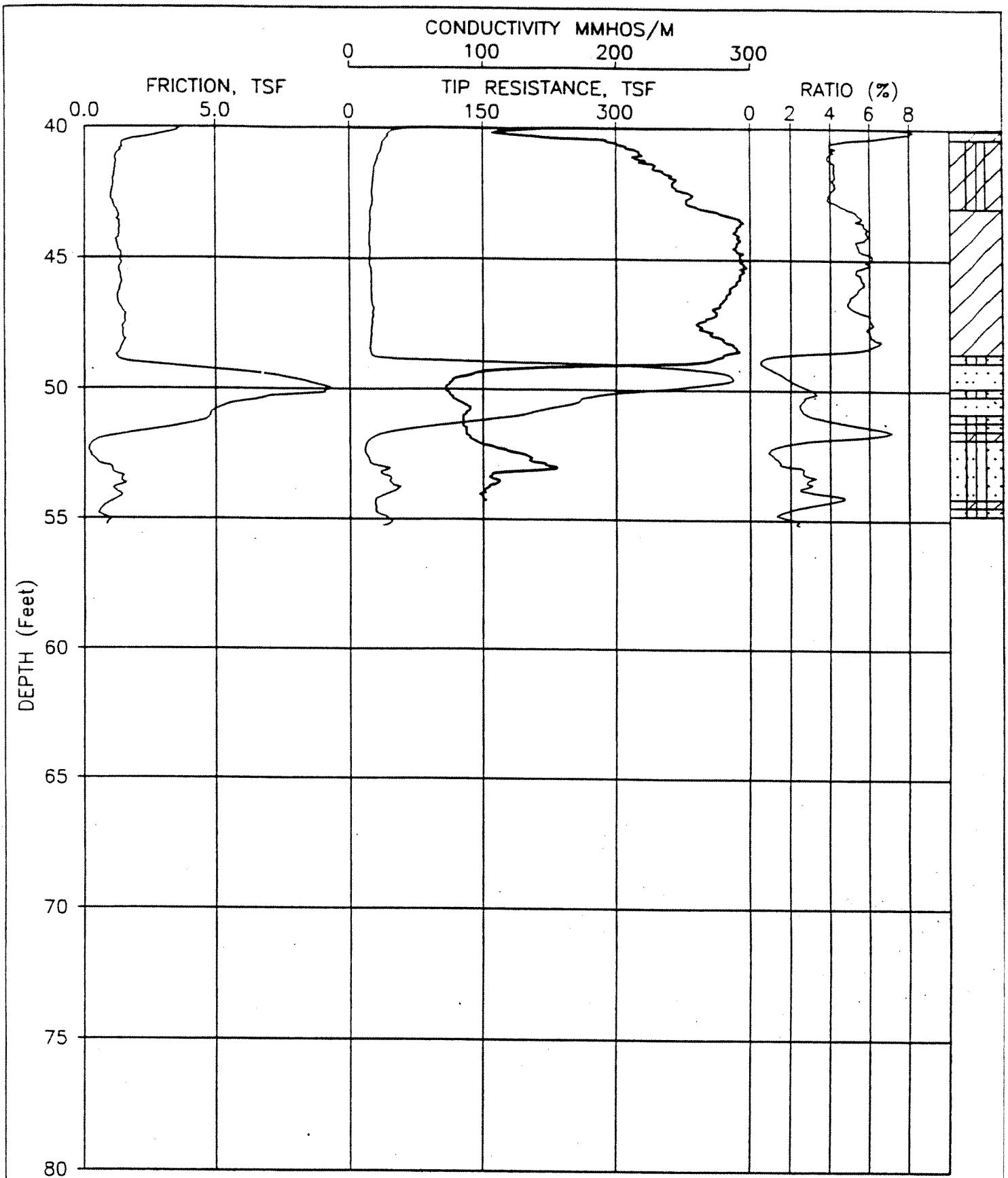
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JOB NUMBER: 94-4016 CPT NUMBER: 03 DATE: 02-08-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

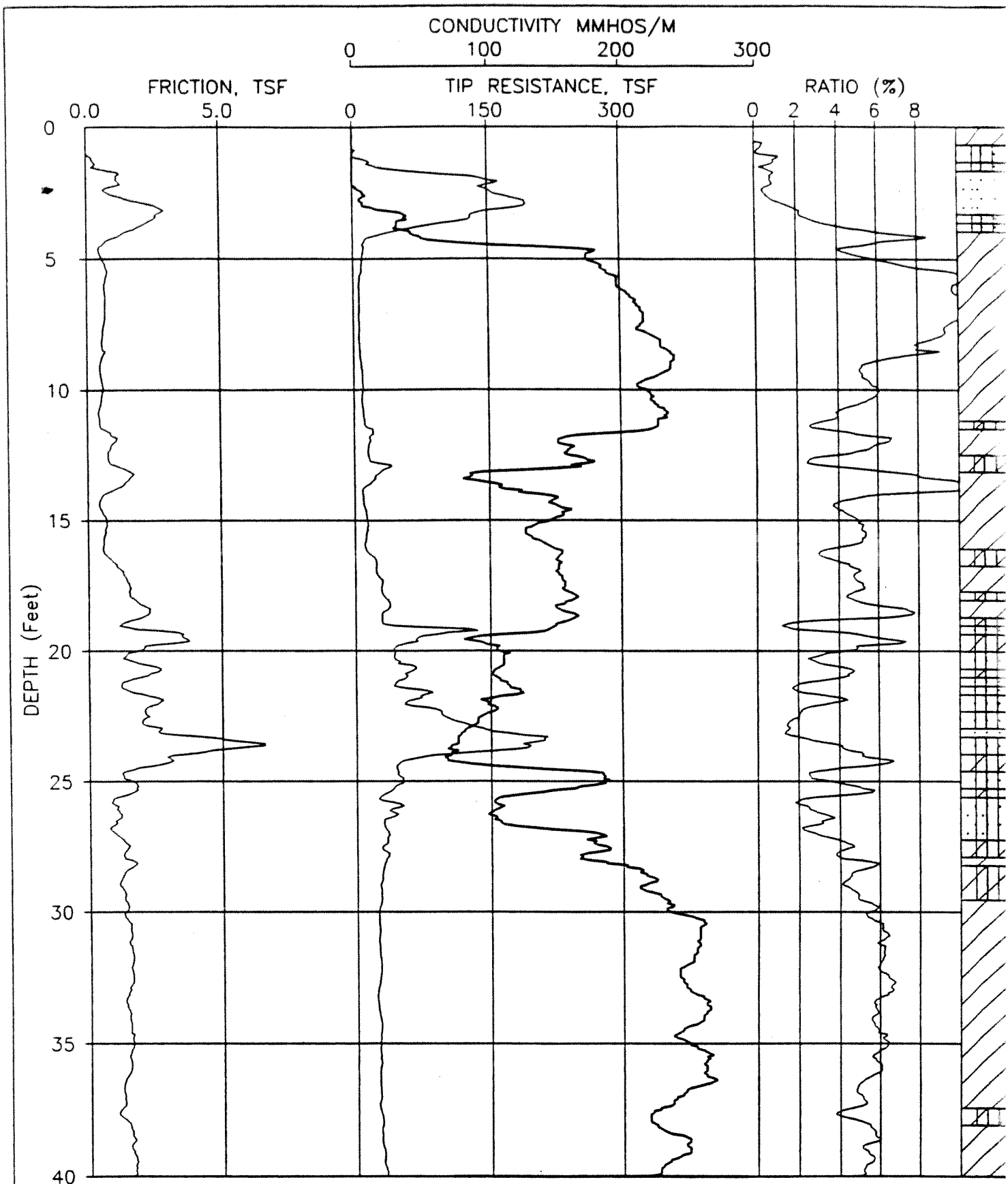
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

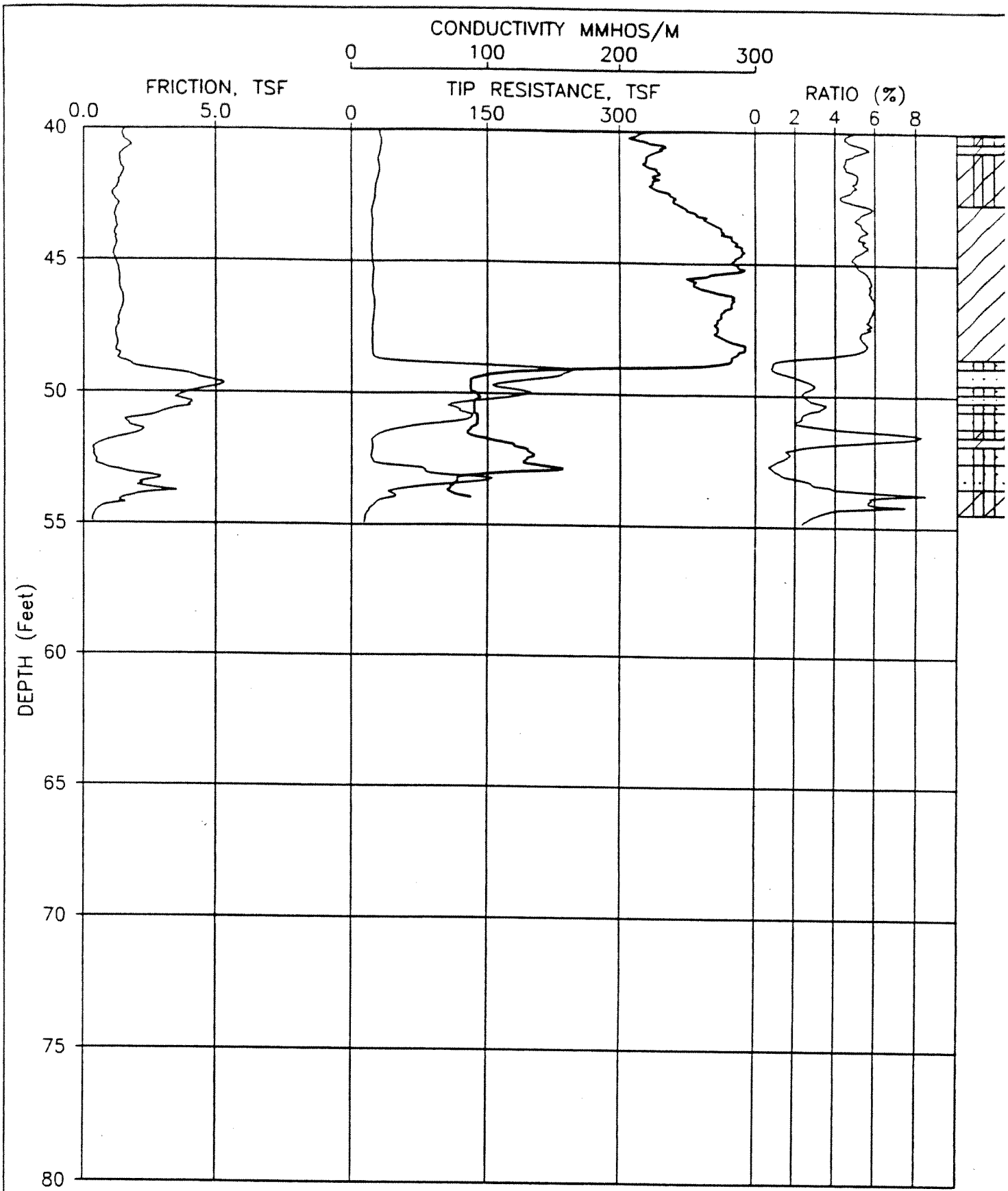
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JOB NUMBER: 94-4016 CPT NUMBER: 04 DATE: 02-08-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

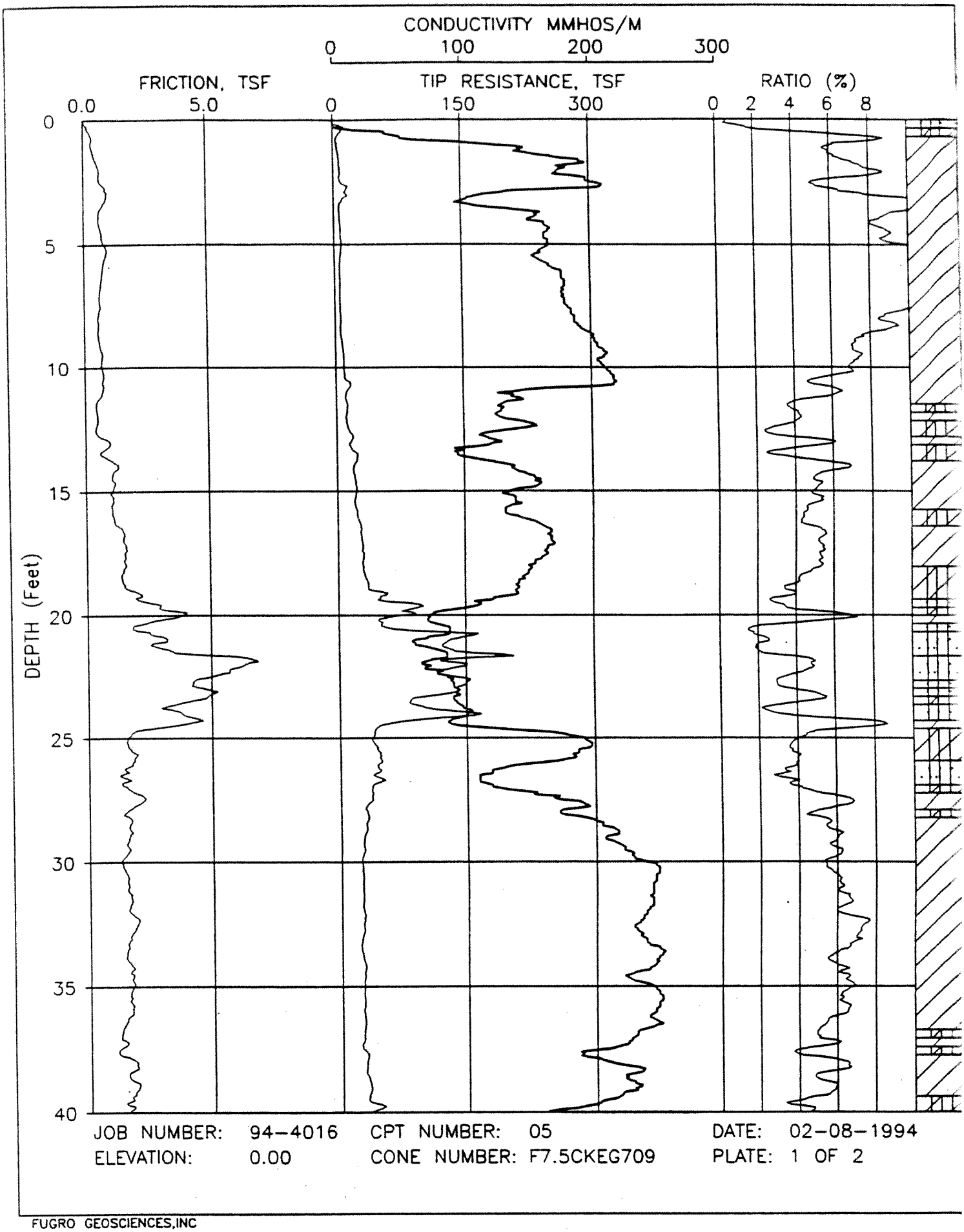
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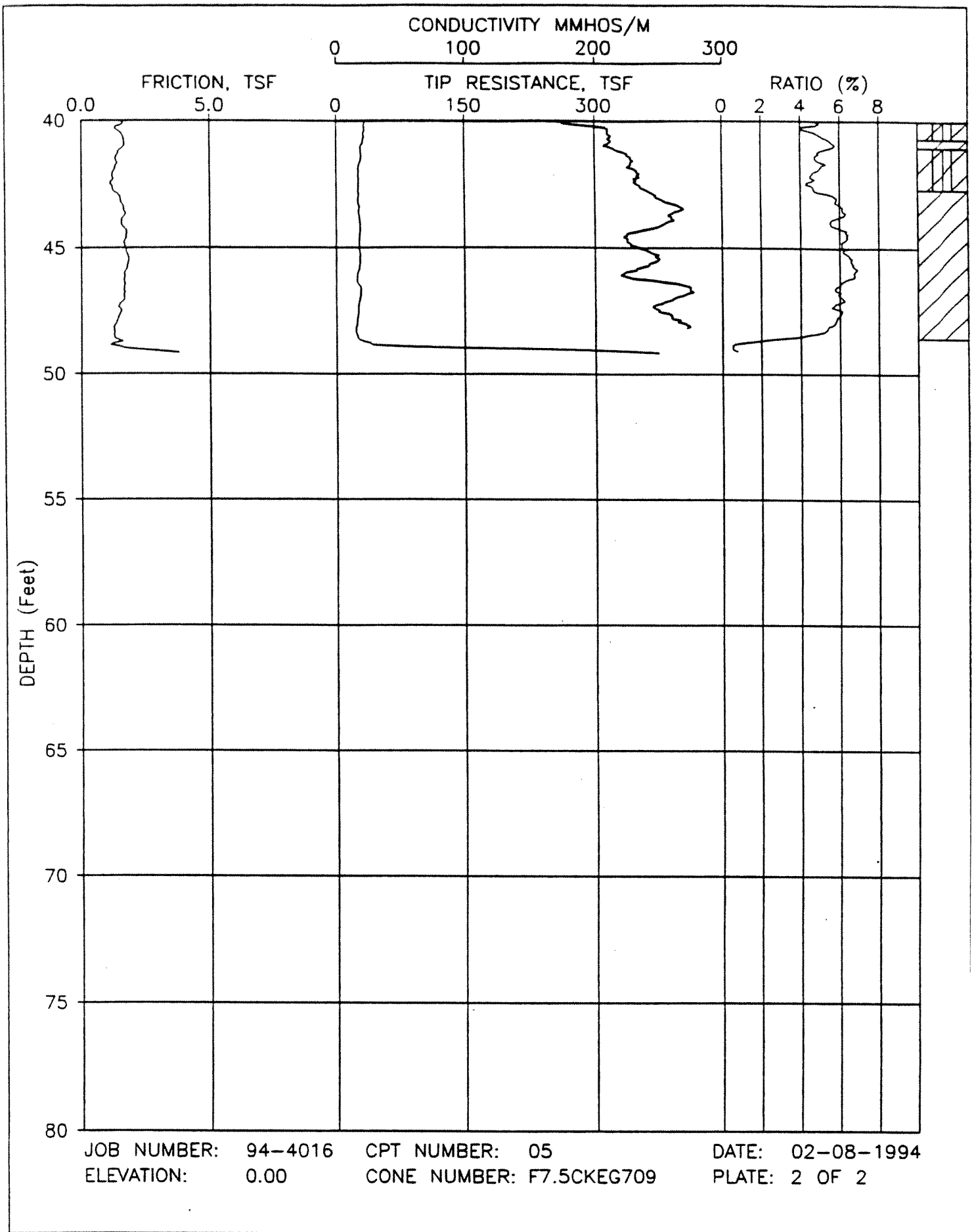
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC



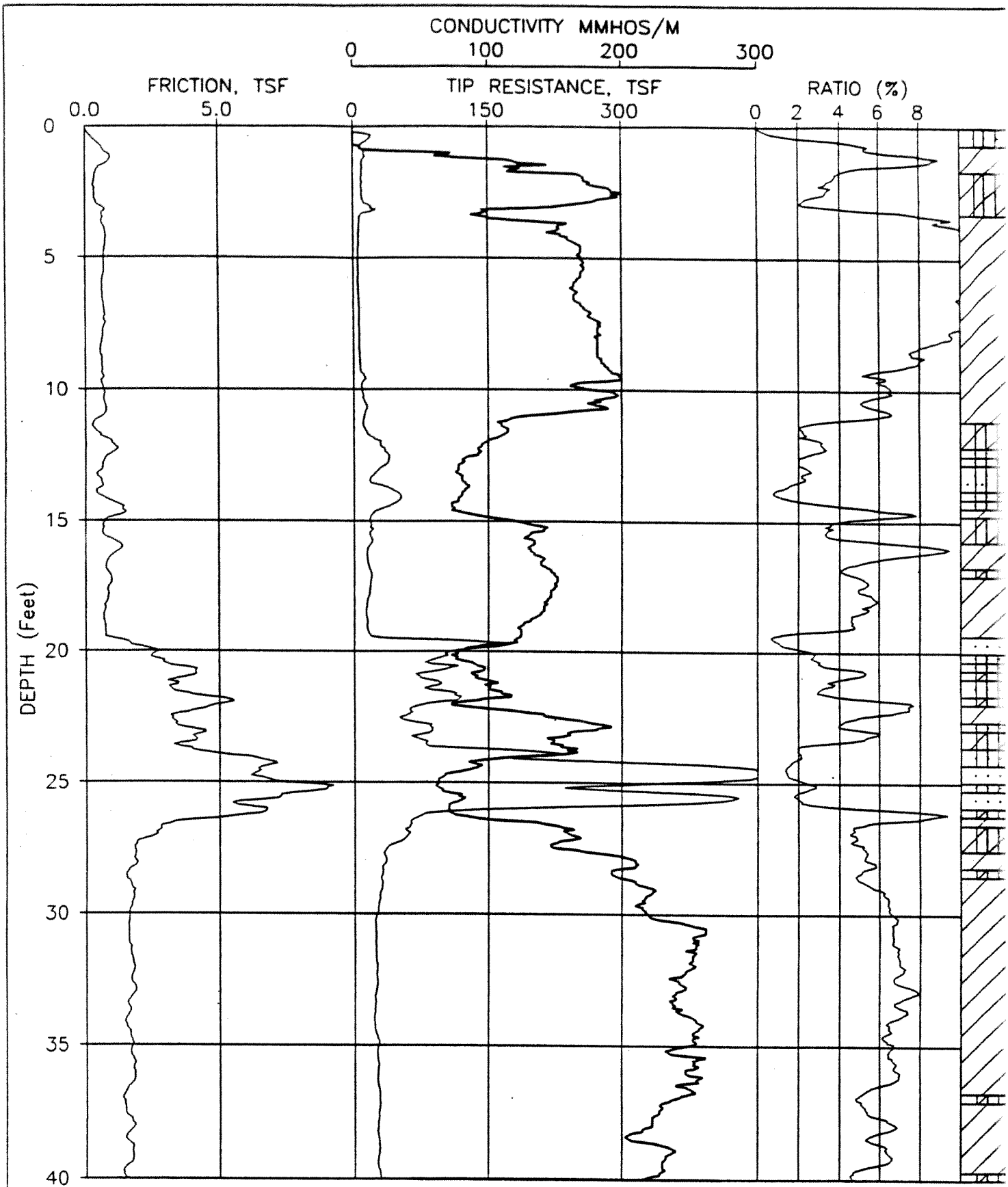
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

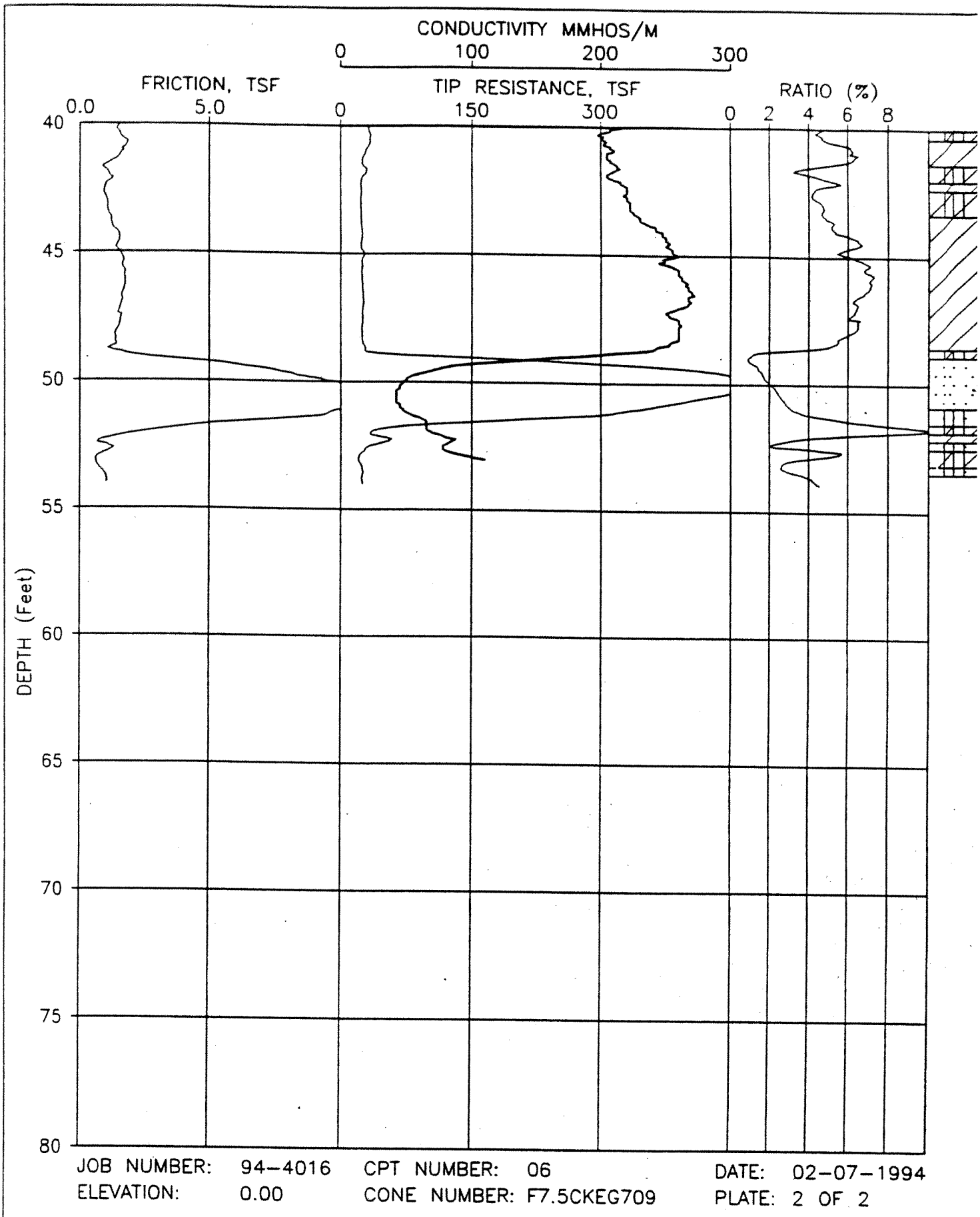
FUGRO GEOSCIENCES,INC



JOB NUMBER: 94-4016 CPT NUMBER: 06 DATE: 02-07-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

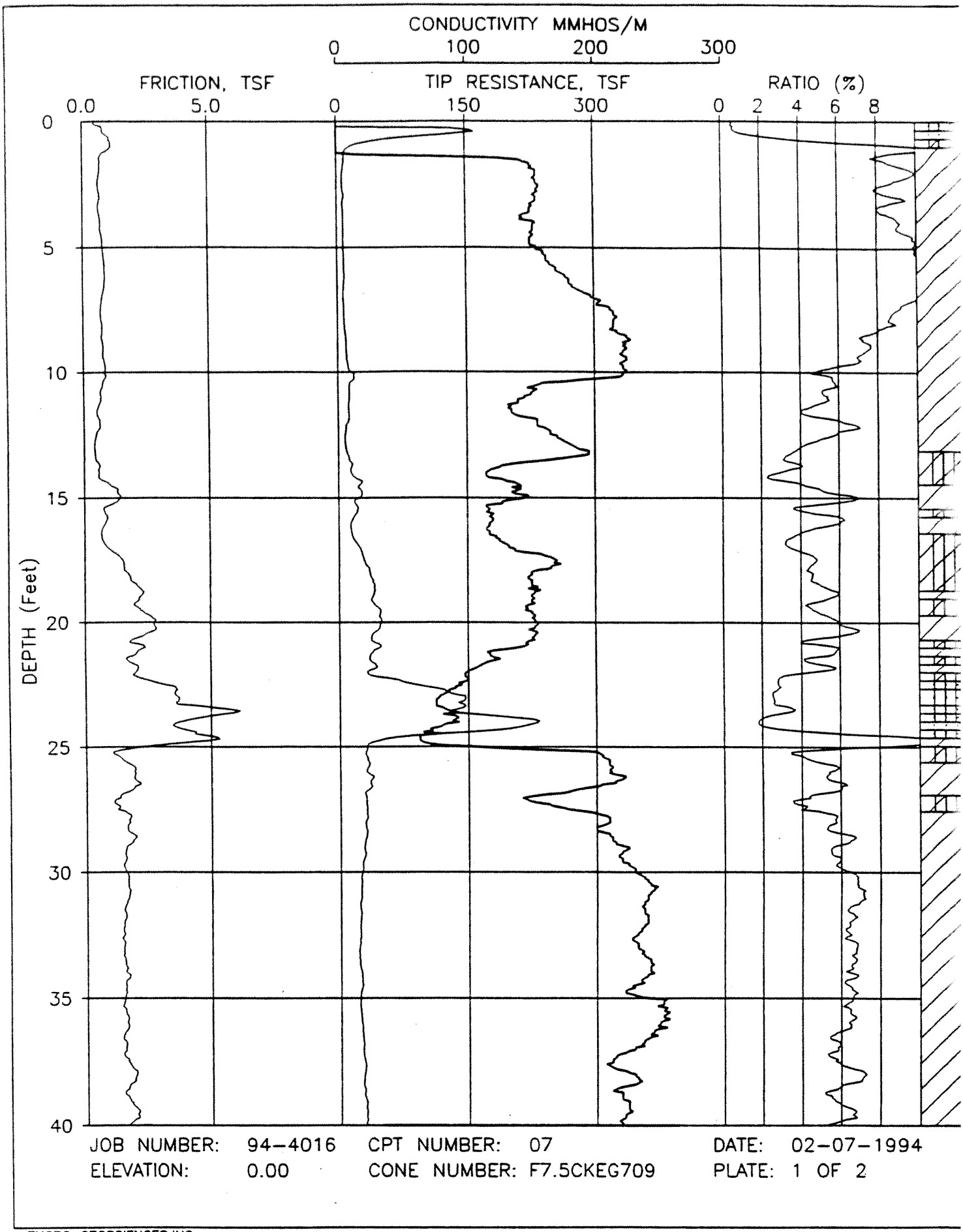
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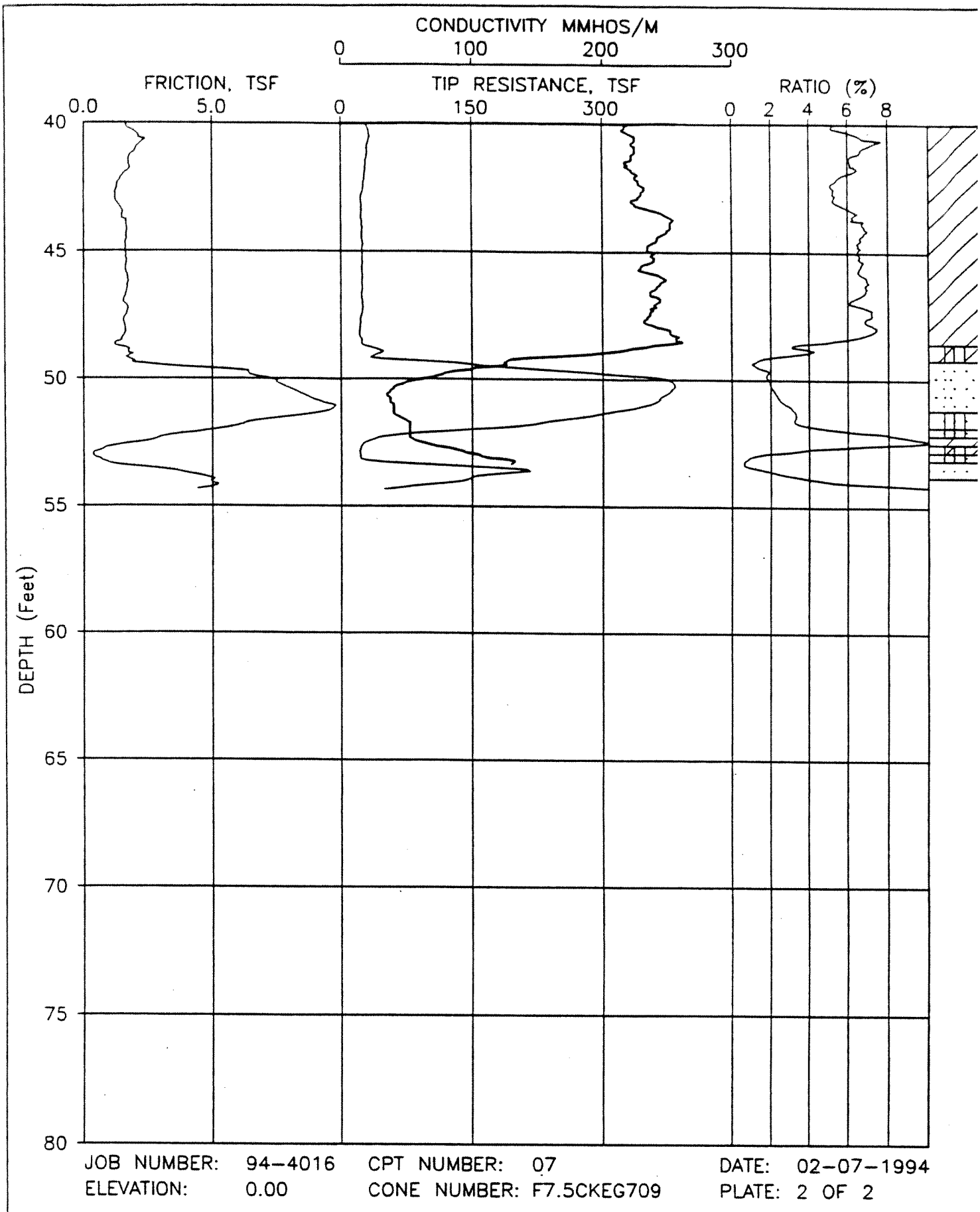
JOB NUMBER: 94–4016 CPT NUMBER: 06 DATE: 02–07–1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC



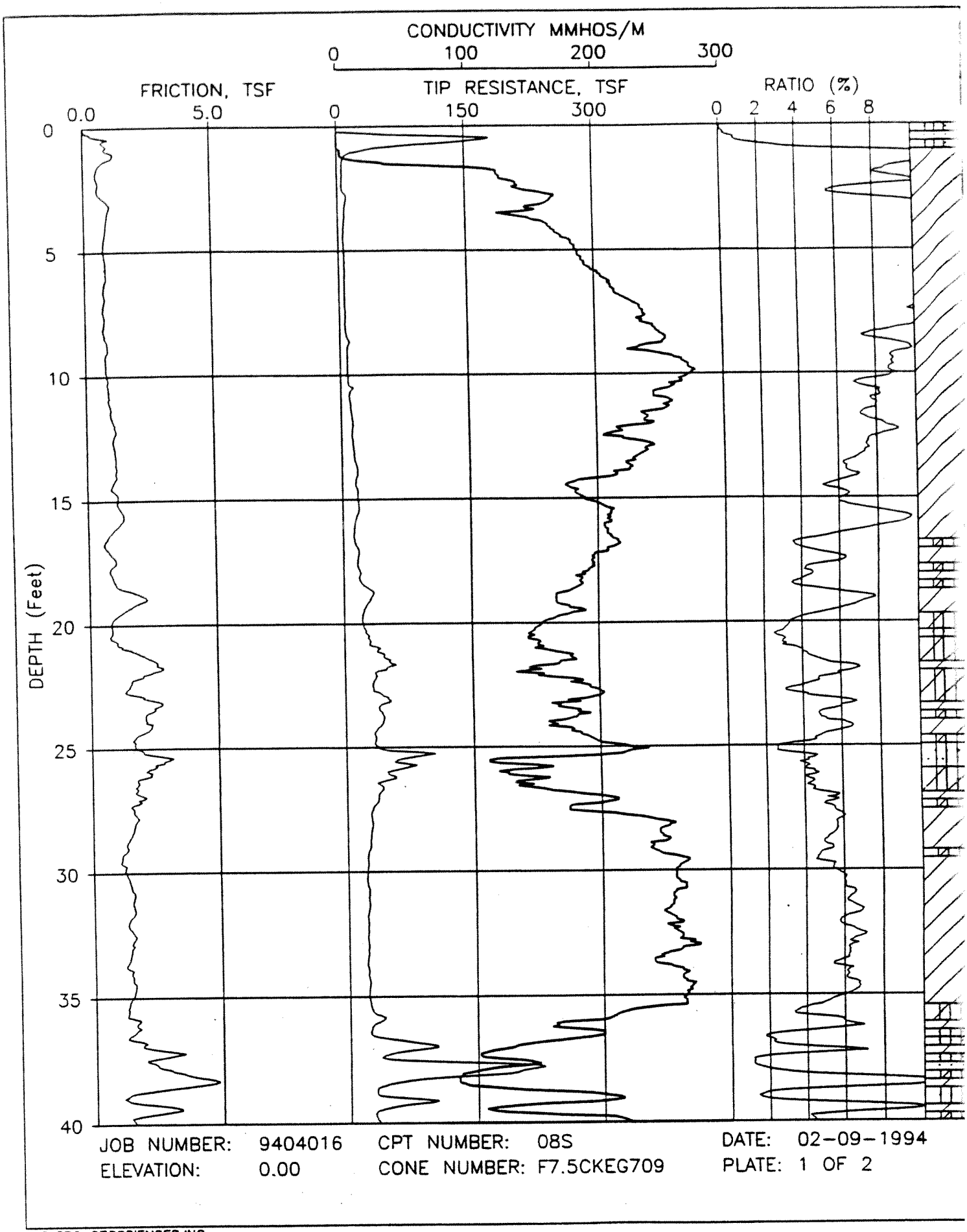
FUGRO GEOSCIENCES,INC



JOB NUMBER: 94-4016 CPT NUMBER: 07 DATE: 02-07-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC

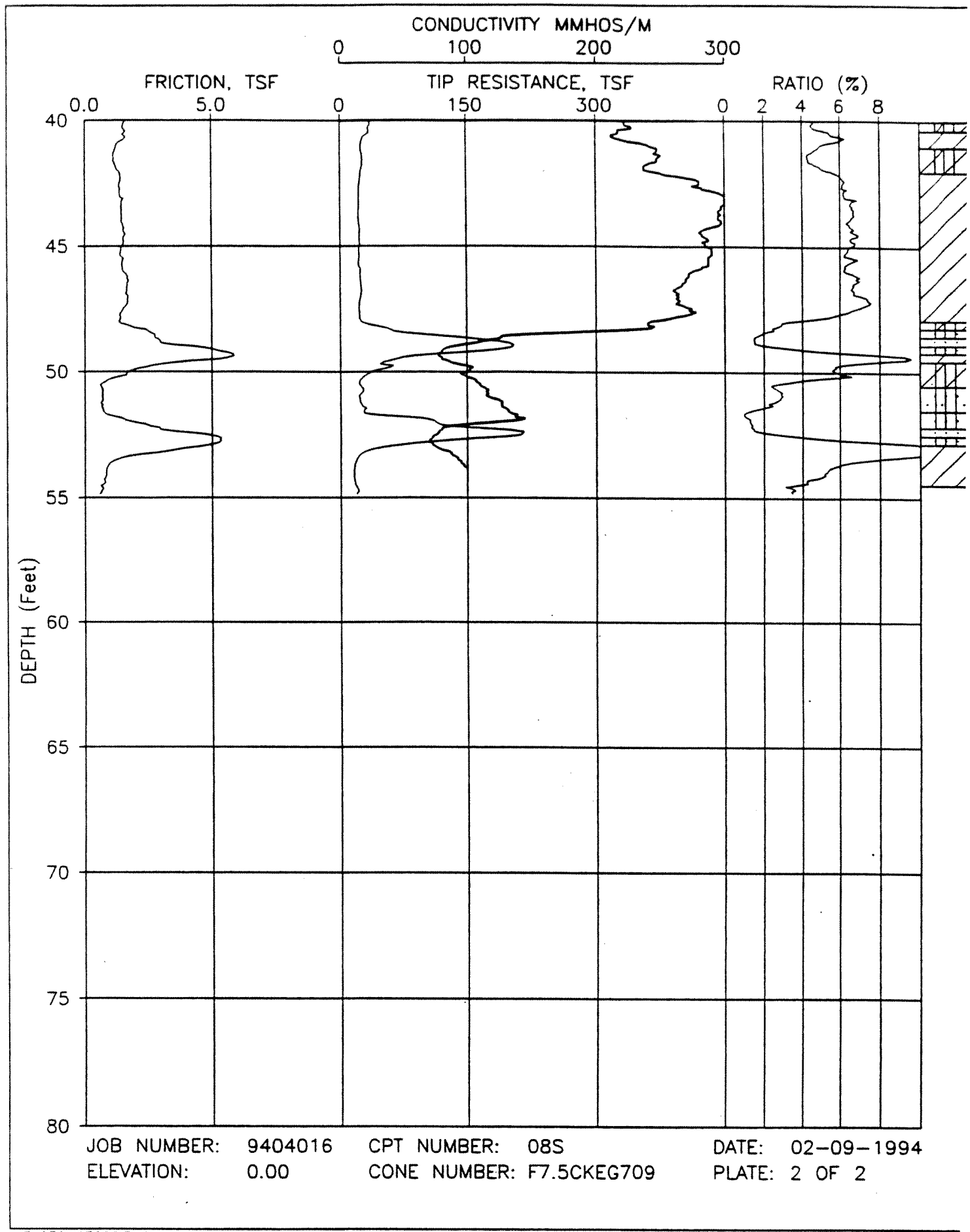


JOB NUMBER: 9404016
ELEVATION: 0.00

CPT NUMBER: 08S
CONE NUMBER: F7.5CKEG709

DATE: 02-09-1994
PLATE: 1 OF 2

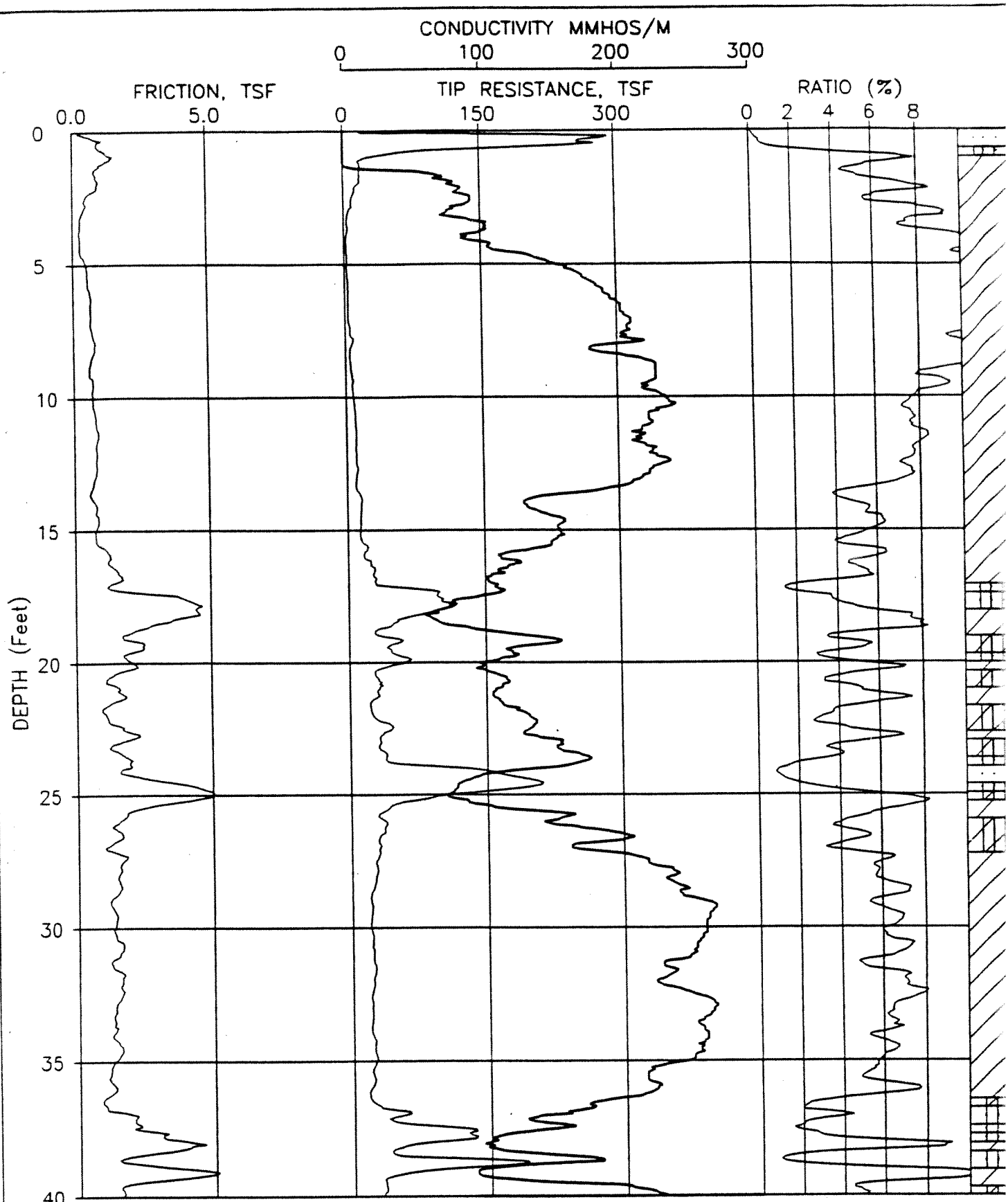
FUGRO GEOSCIENCES,INC



JOB NUMBER: 9404016 CPT NUMBER: 08S DATE: 02-09-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

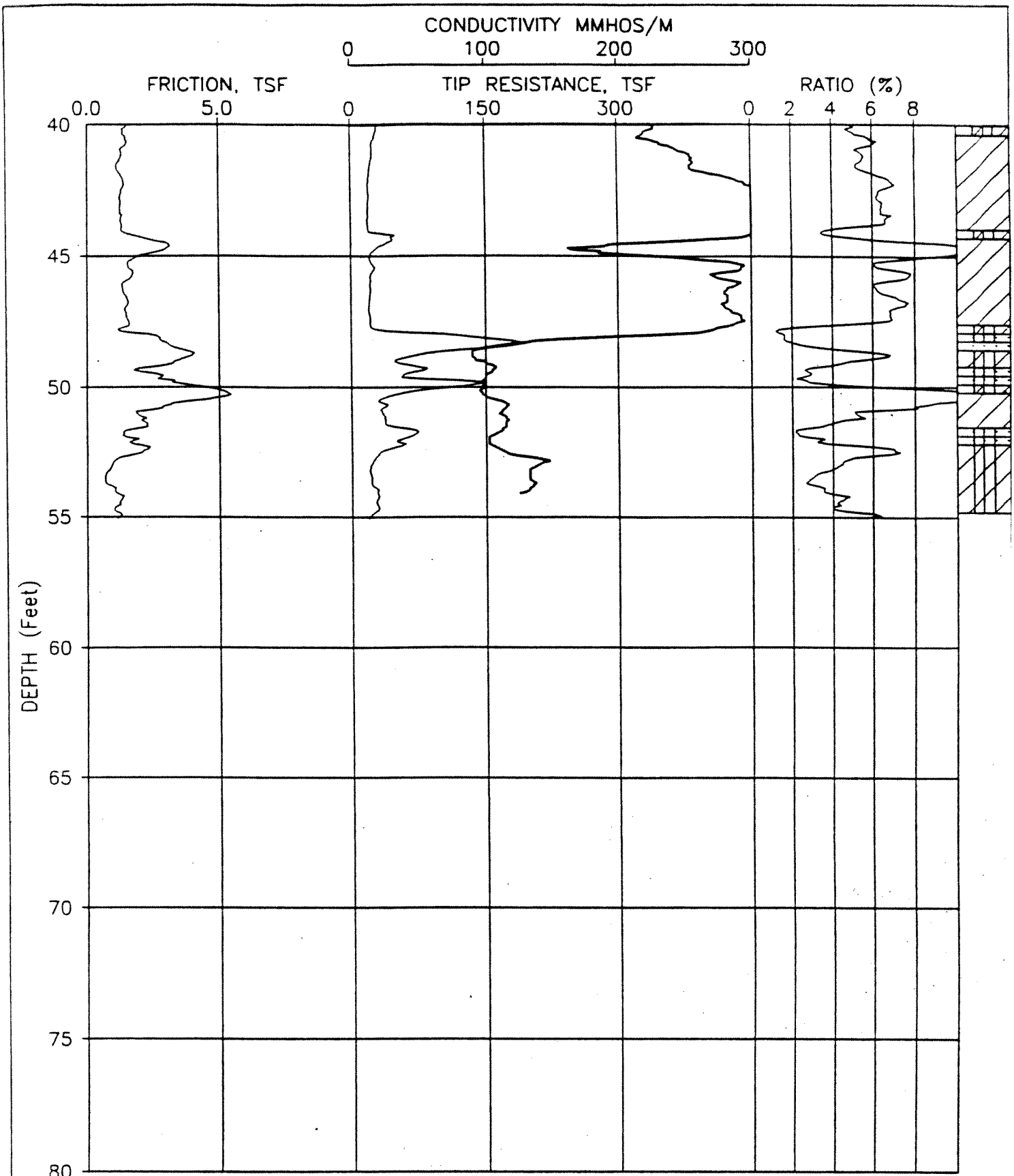
FUGRO GEOSCIENCES,INC



JOB NUMBER: 94-4016 CPT NUMBER: 09S DATE: 02-09-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

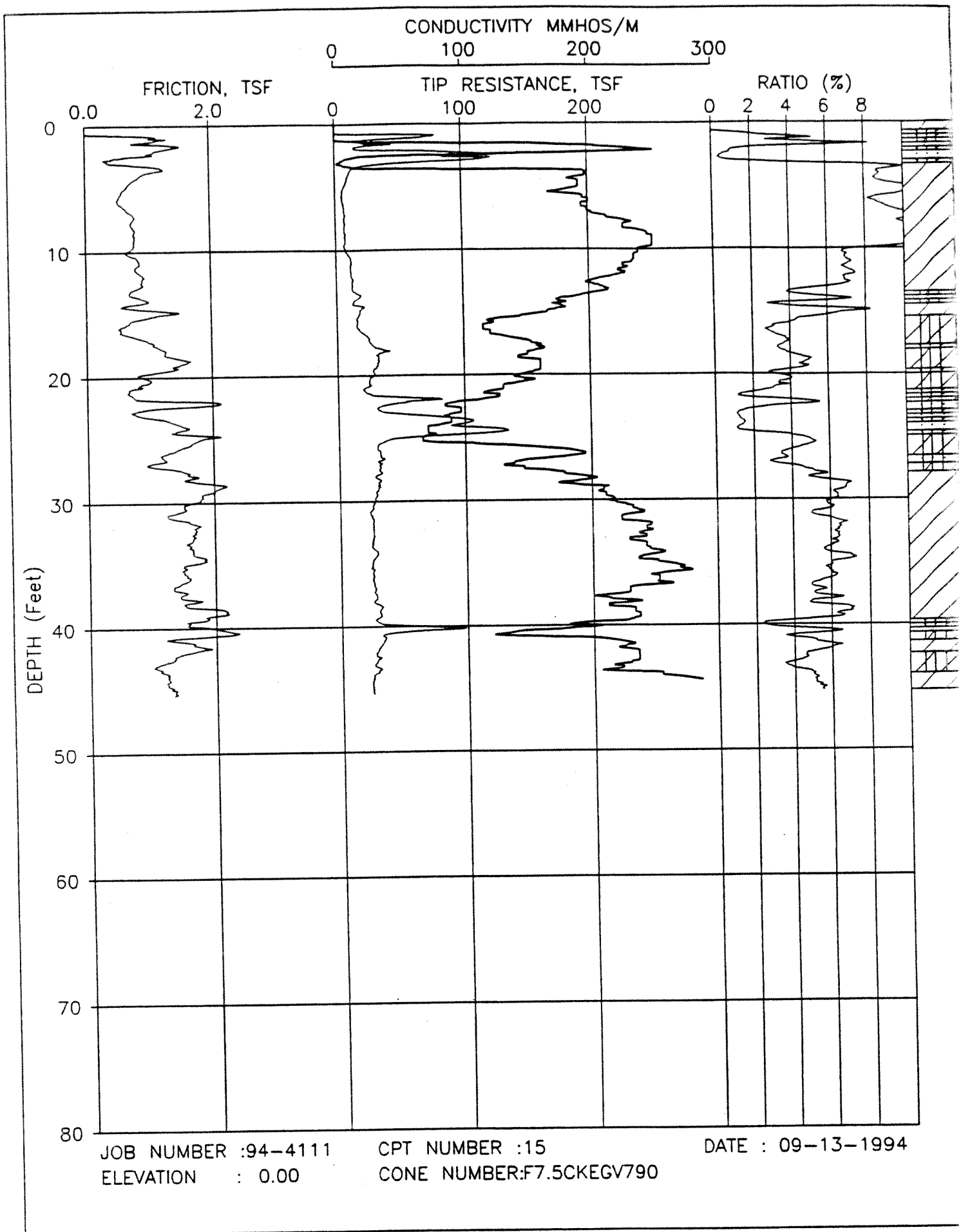
FUGRO GEOSCIENCES,INC



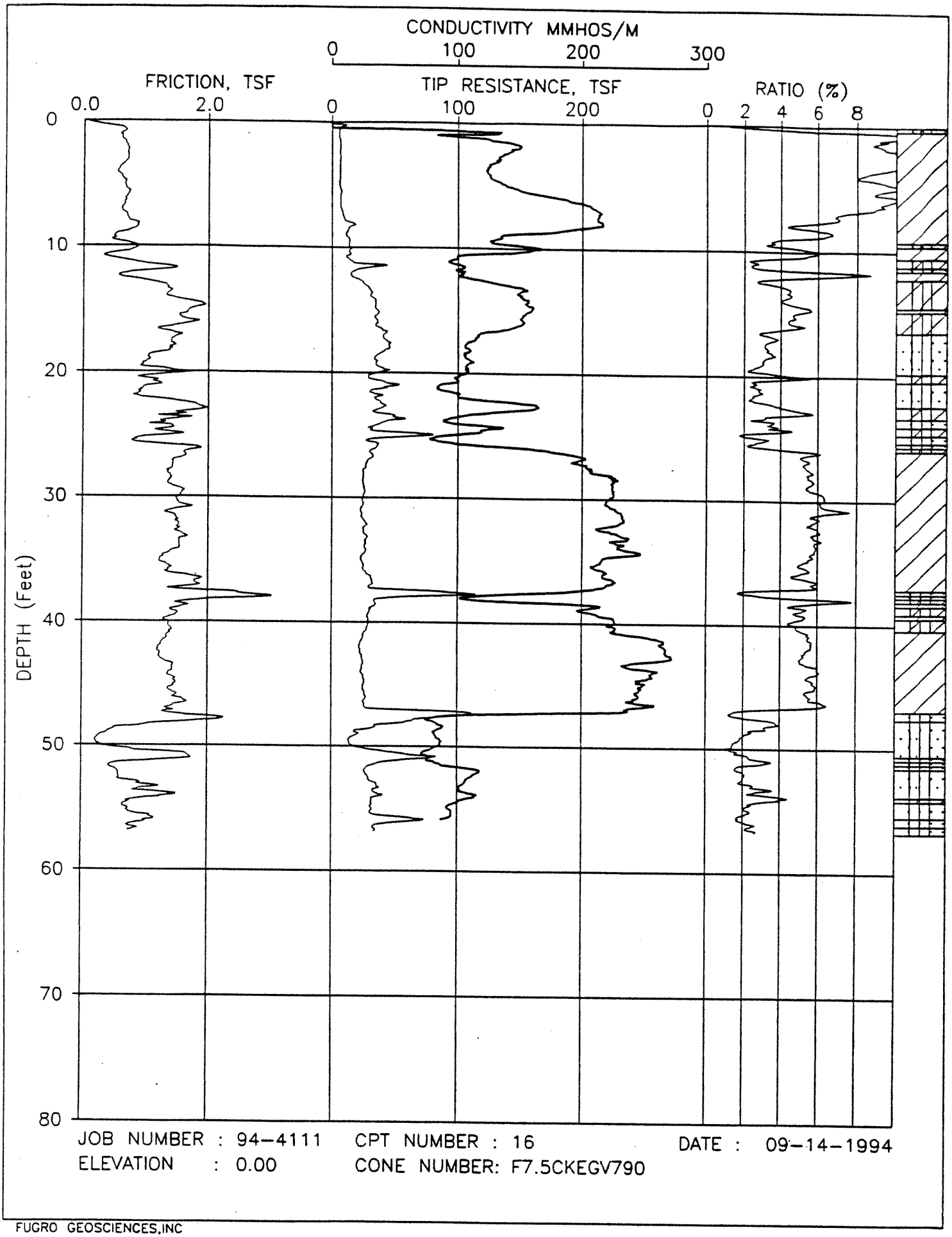
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

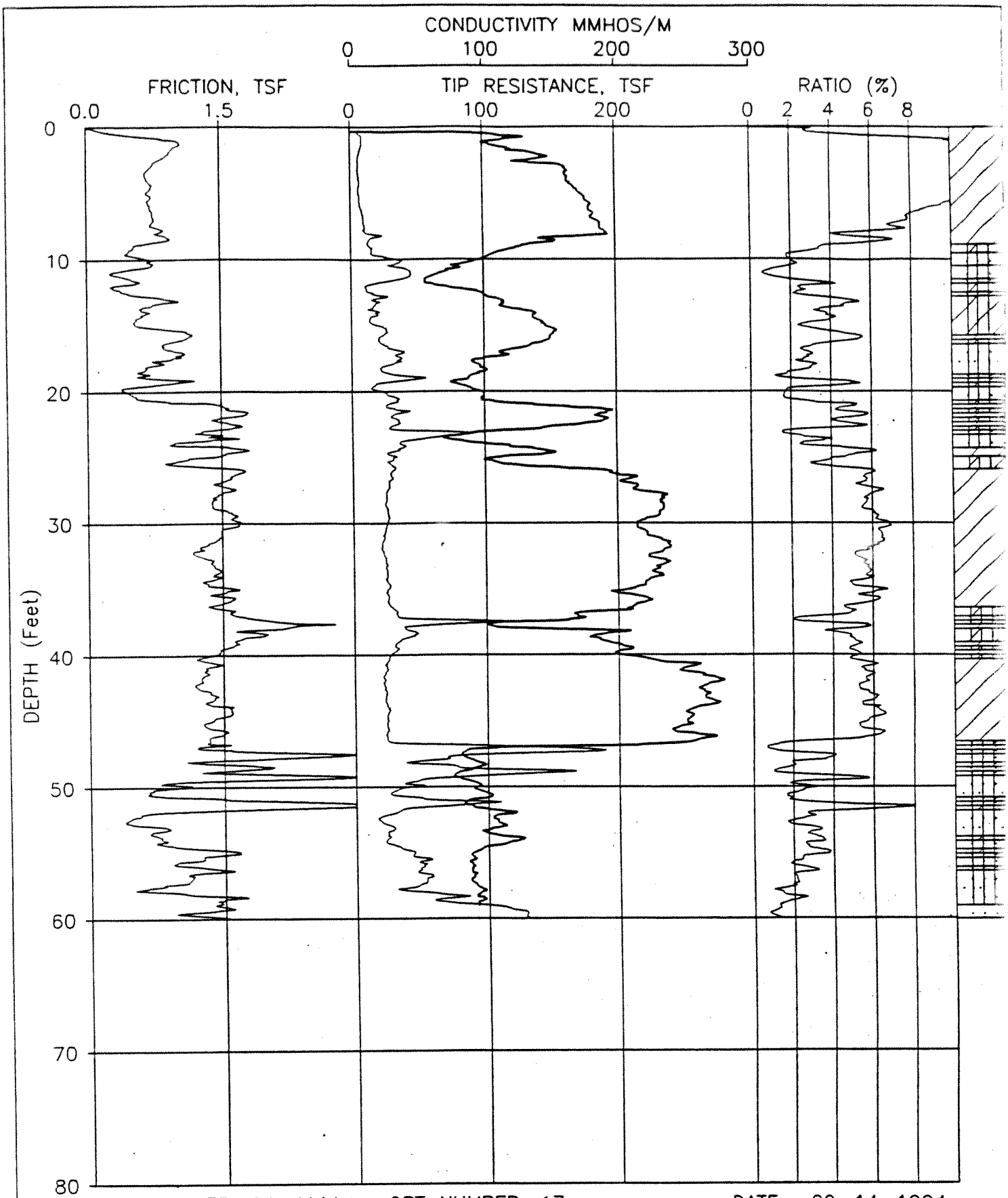
FUGRO GEOSCIENCES,INC



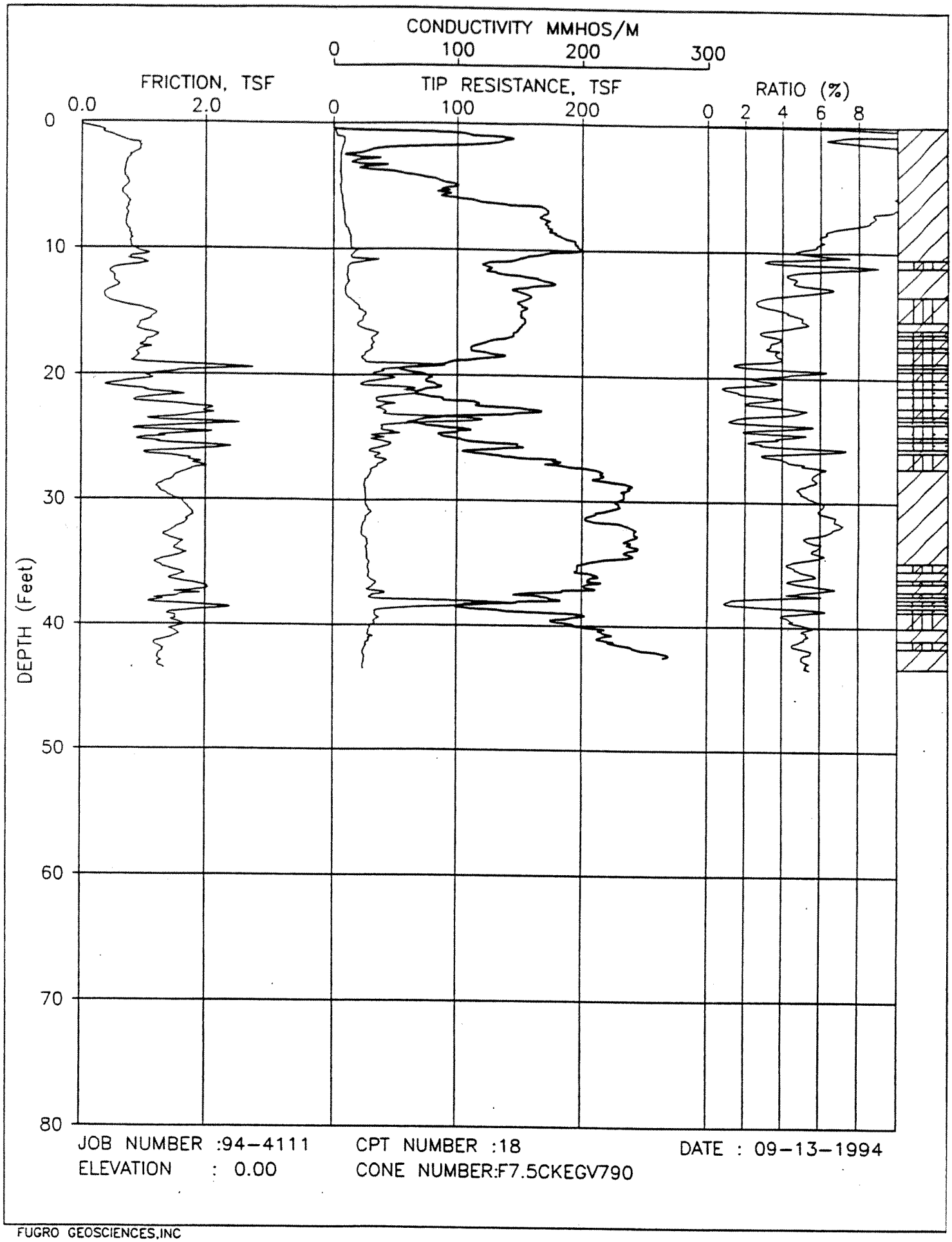
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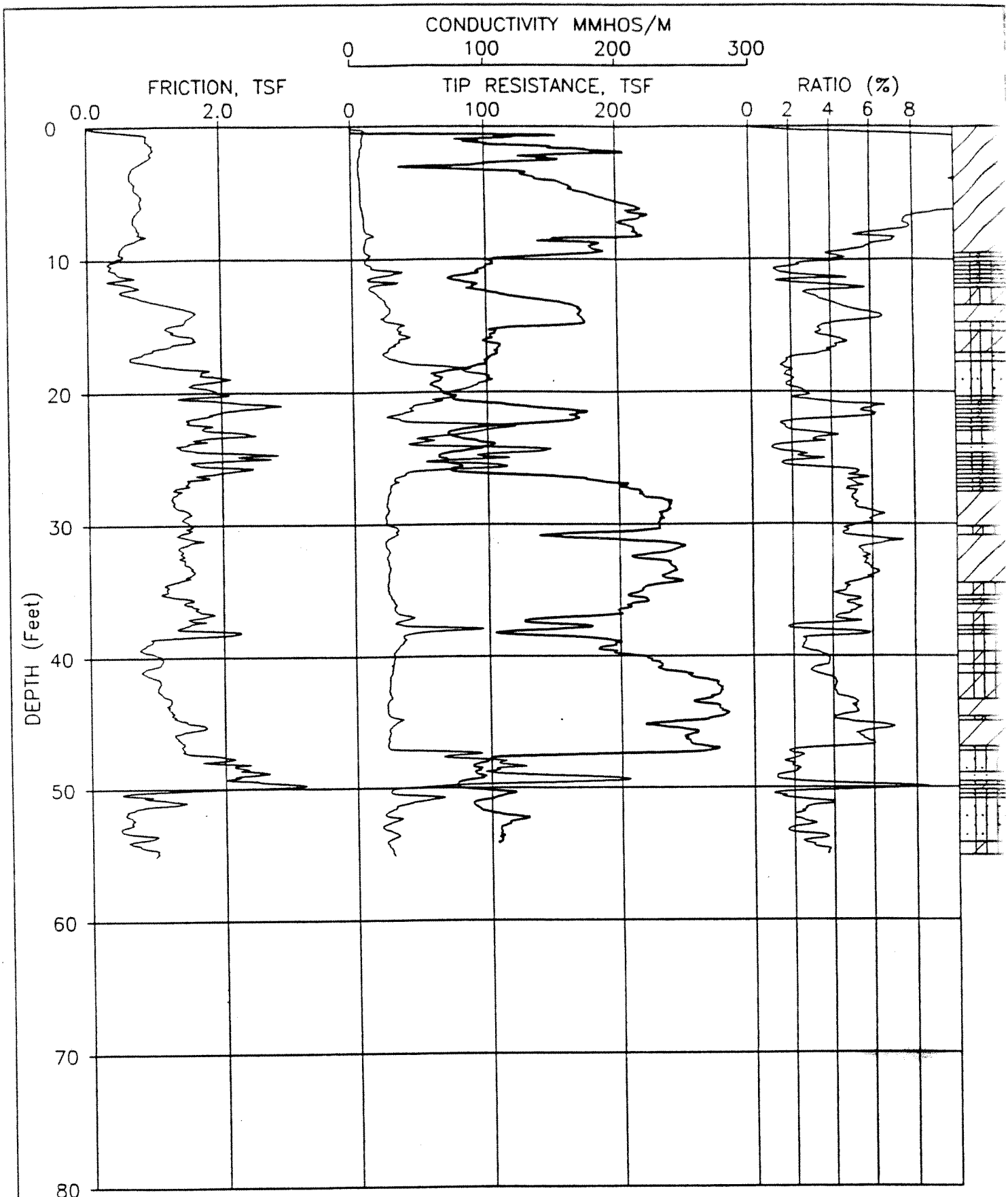
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FUGRO GEOSCIENCES,INC



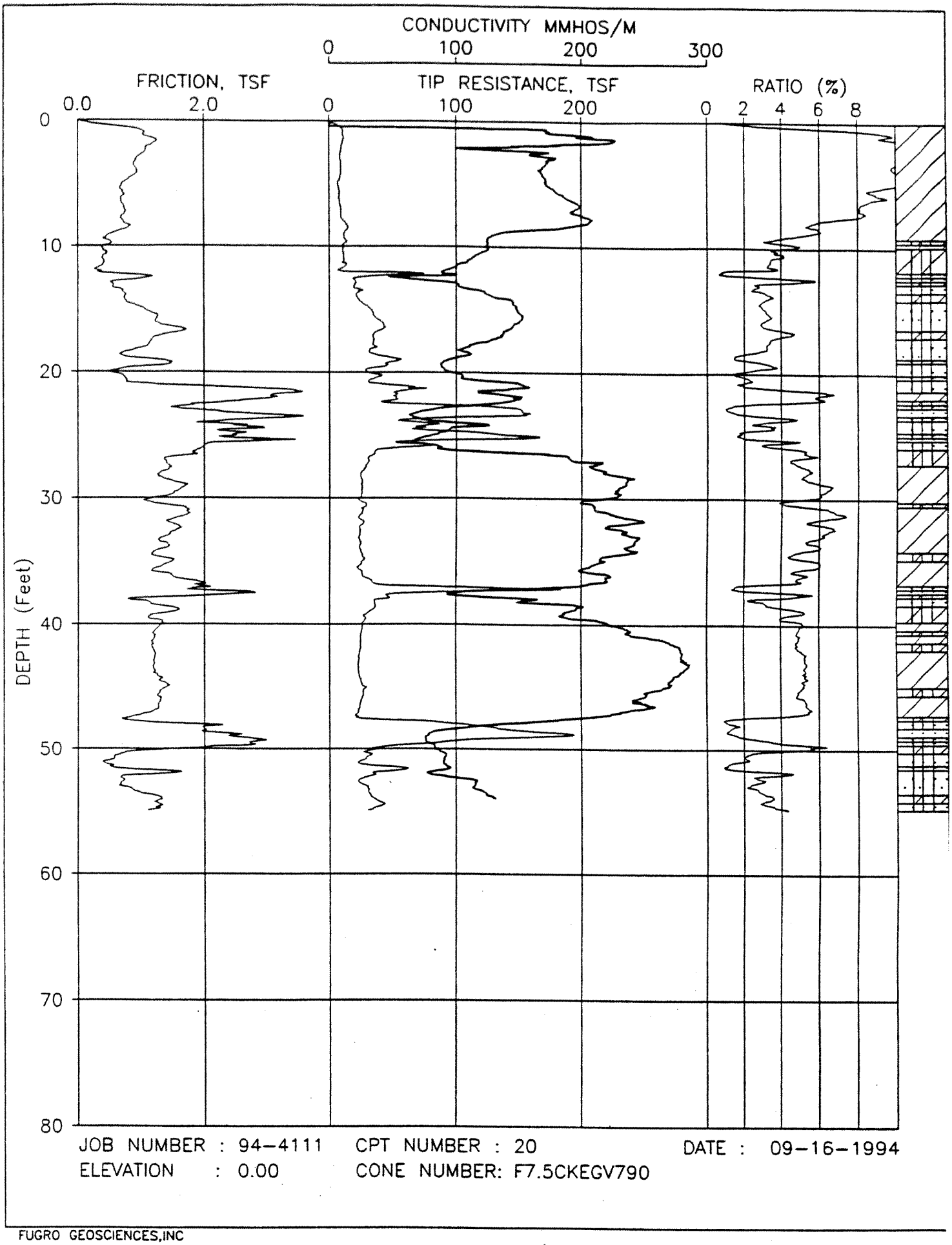
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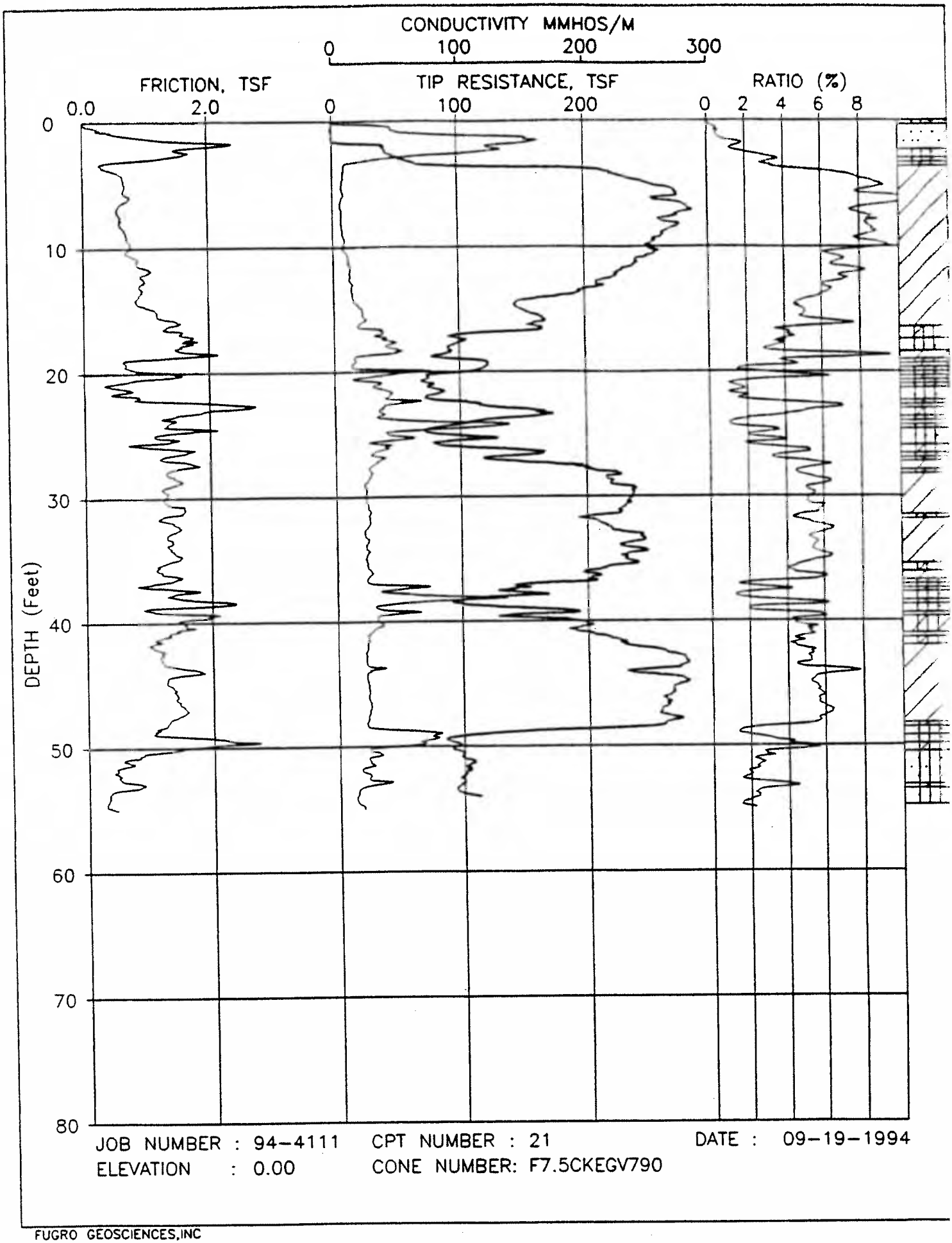
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ELEVATION : 0.00 CONE NUMBER: F7.5CKEGV790

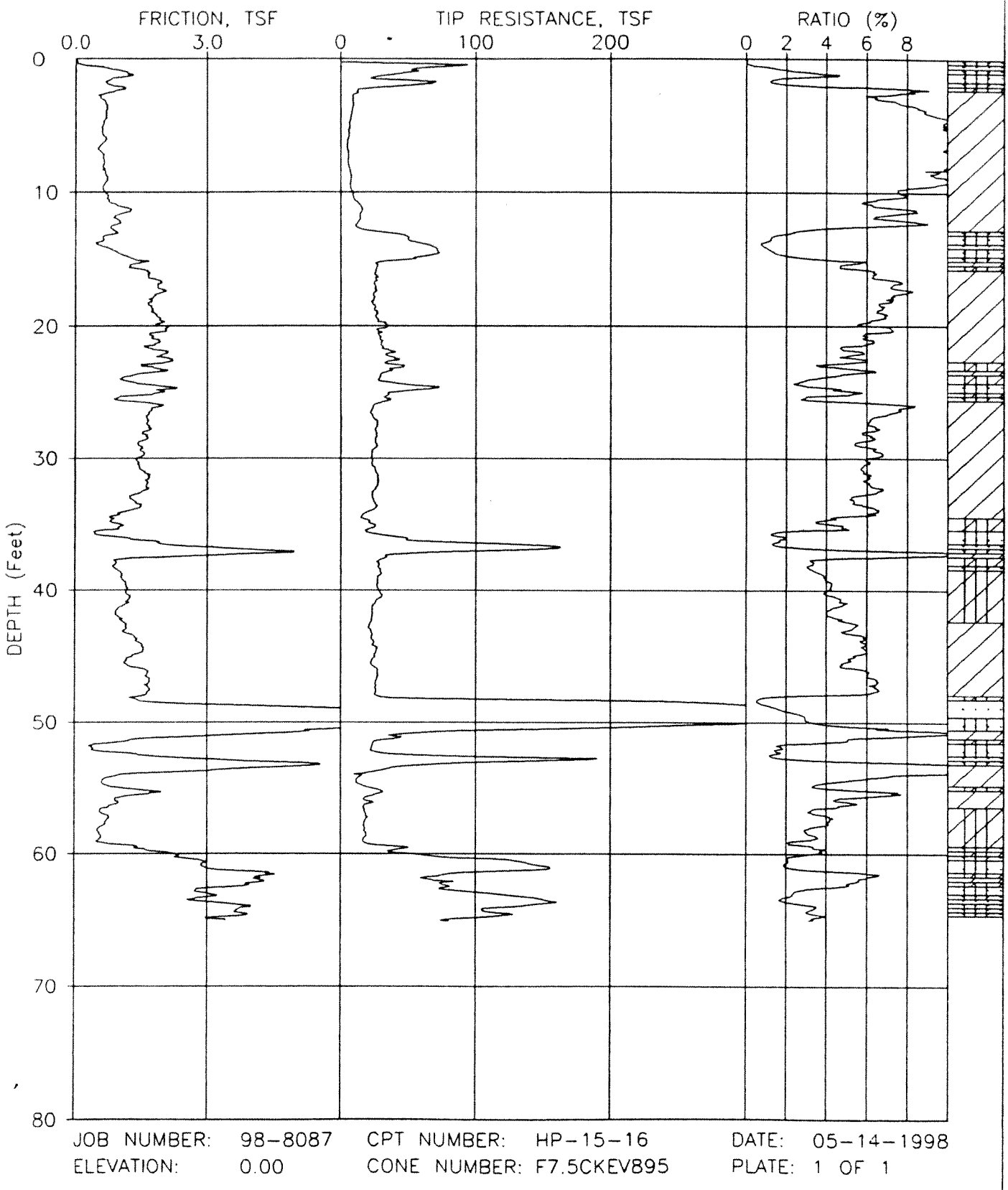
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FUGRO GEOSCIENCES,INC

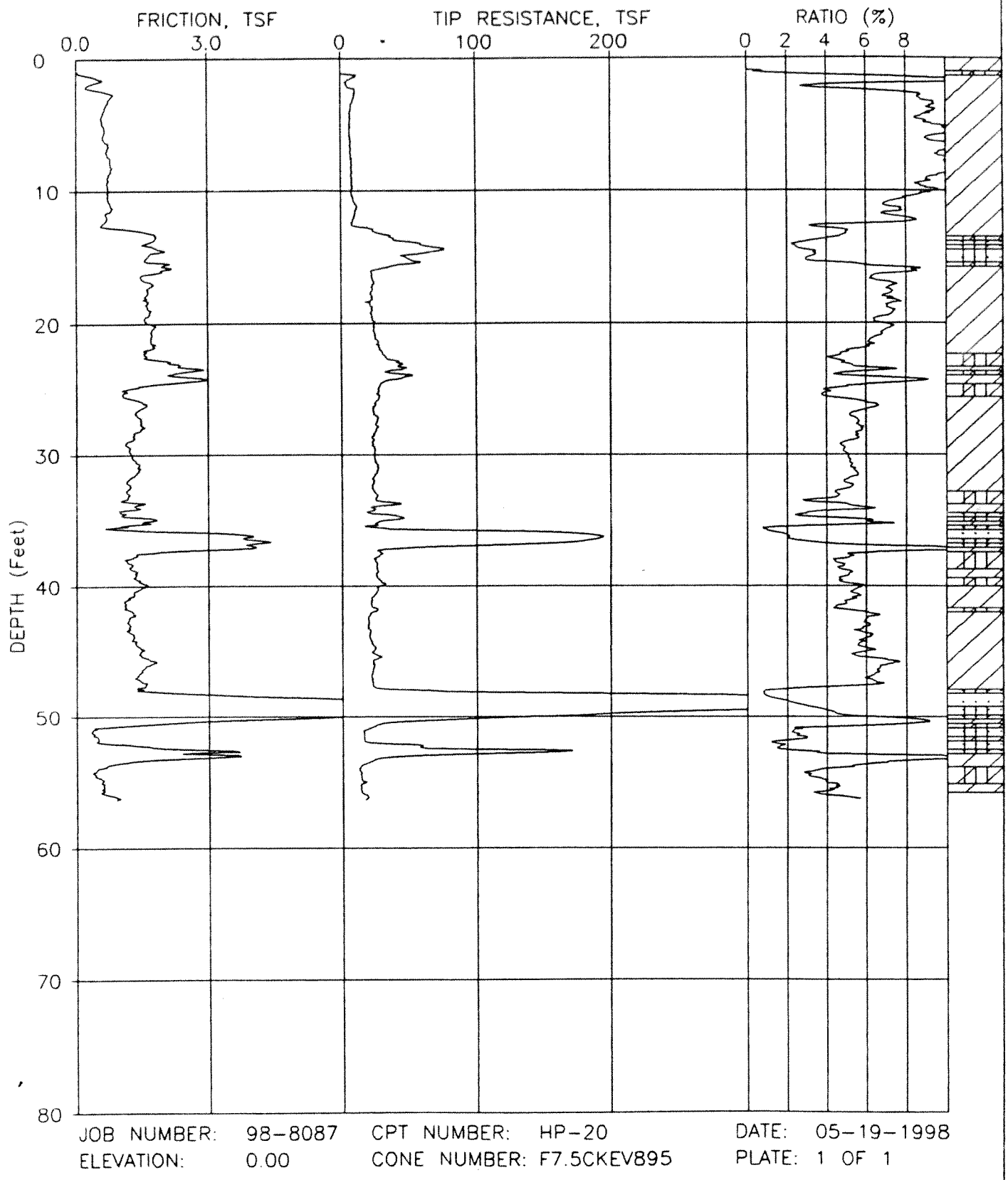


FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8087 CPT NUMBER: HP-15-16 DATE: 05-14-1998

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

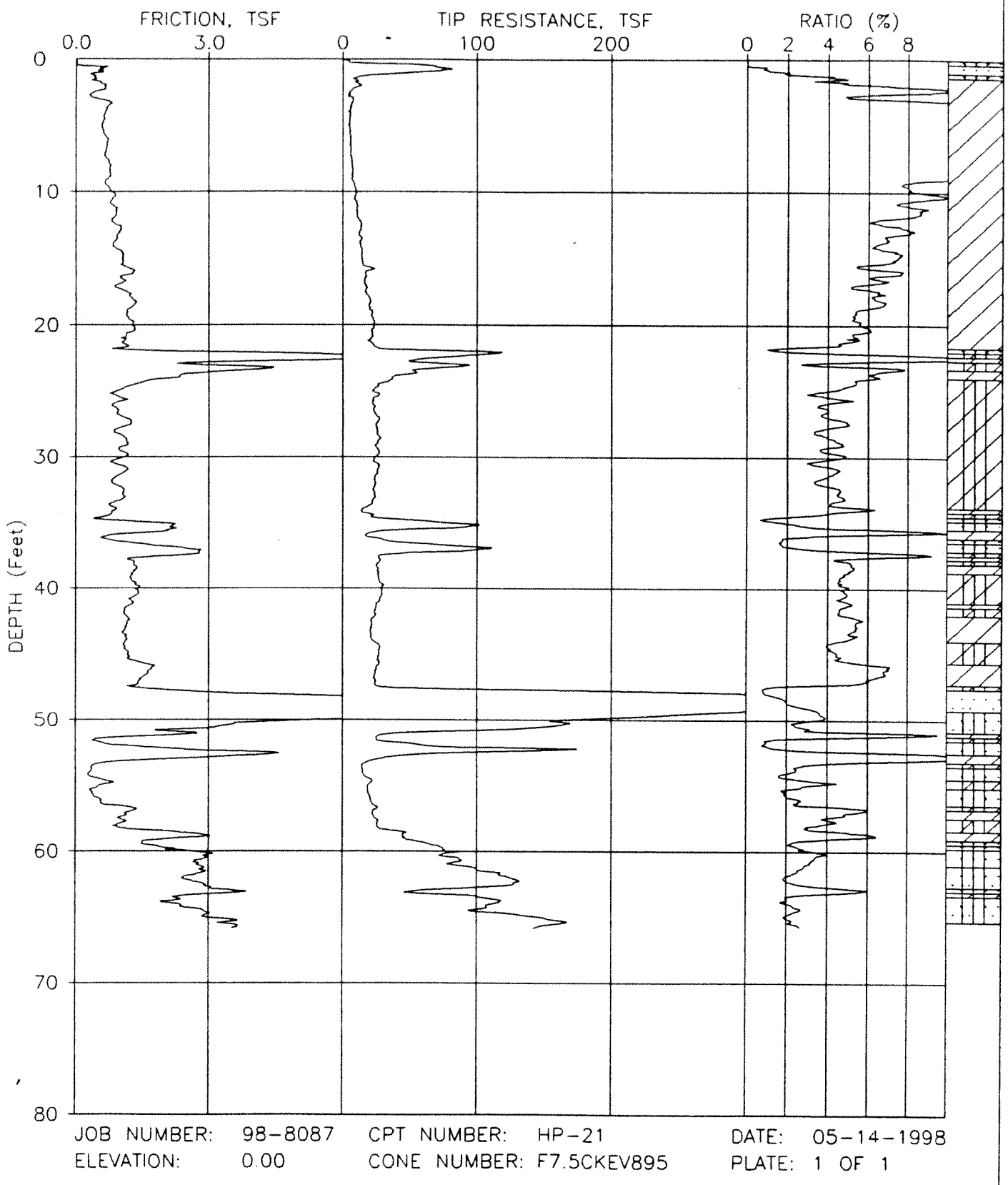


JOB NUMBER: 98-8087
ELEVATION: 0.00

CPT NUMBER: HP-20
CONE NUMBER: F7.5CKEV895

DATE: 05-19-1998
PLATE: 1 OF 1

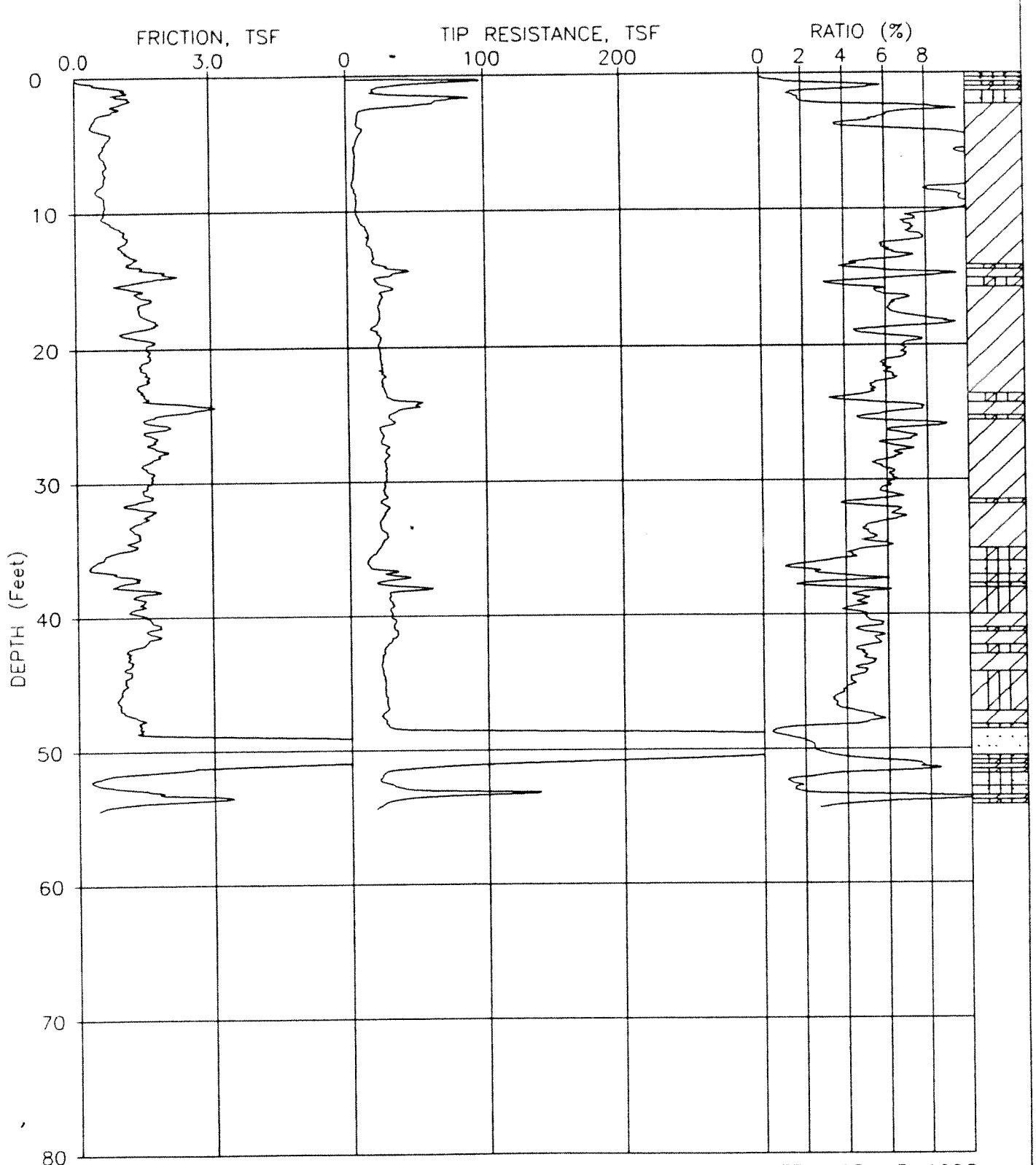
FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8087 CPT NUMBER: HP-21 DATE: 05-14-1998

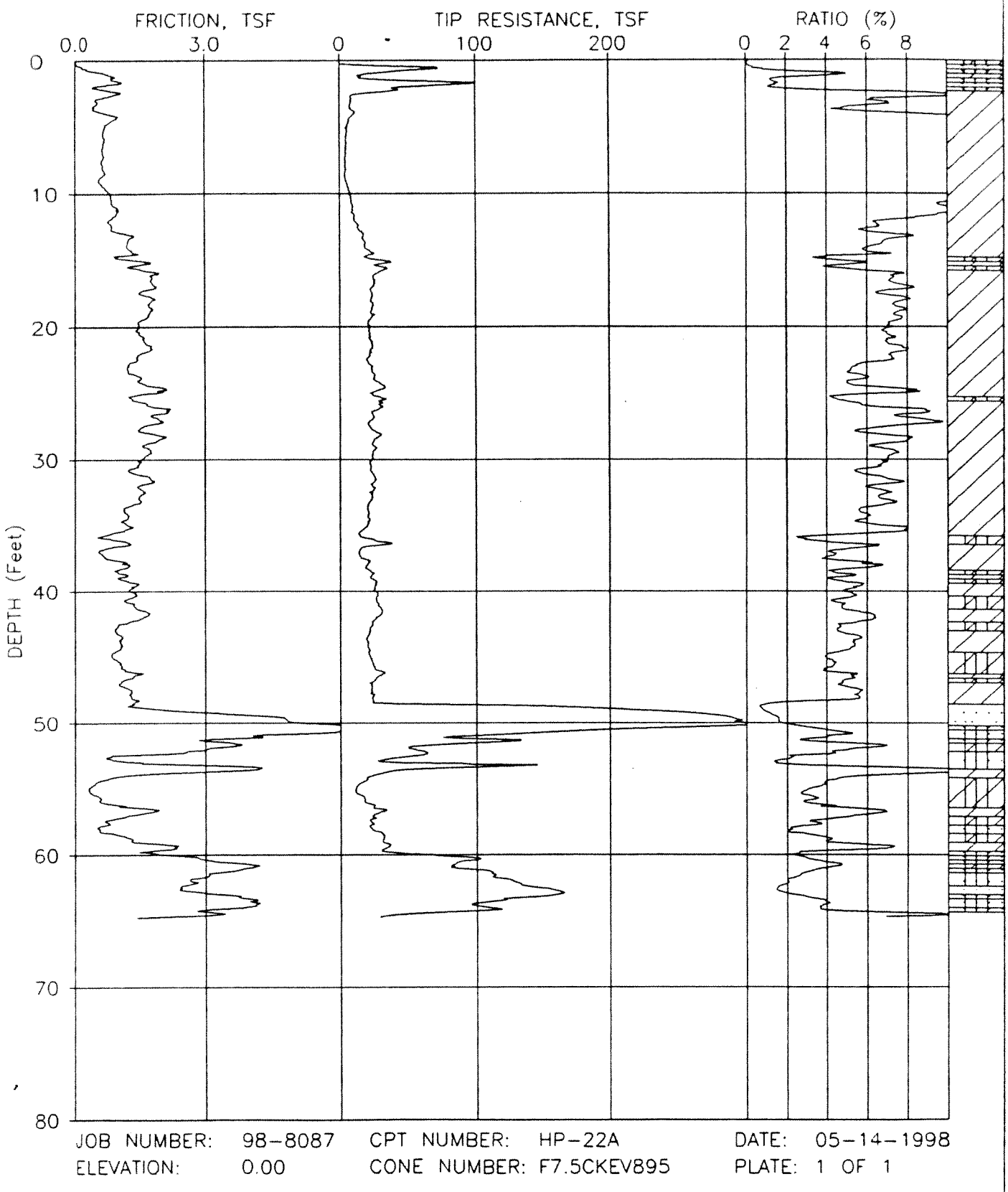
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FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8087 CPT NUMBER: HP-22 DATE: 05-13-1998

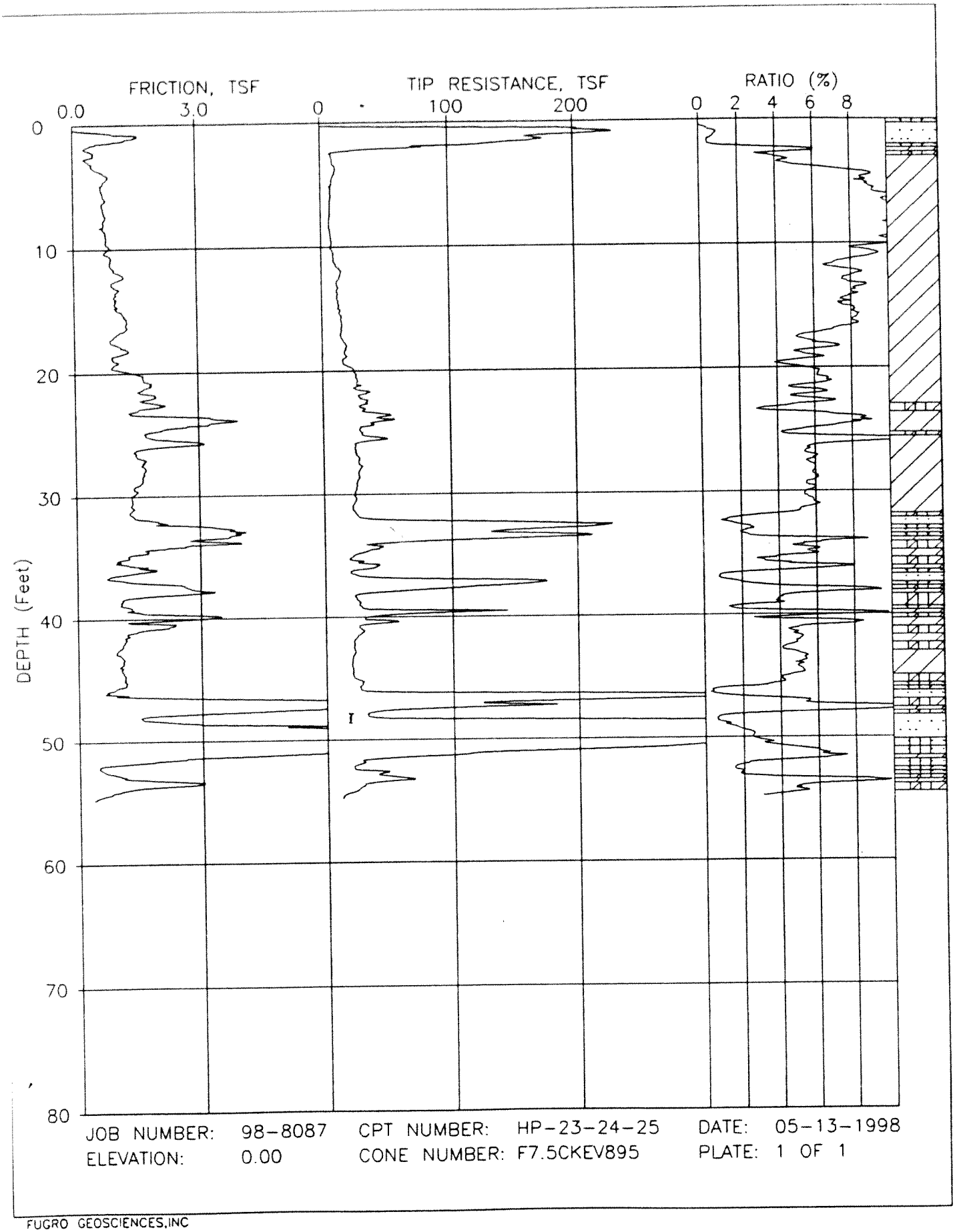
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JOB NUMBER: 98-8087 CPT NUMBER: HP-22A DATE: 05-14-1998

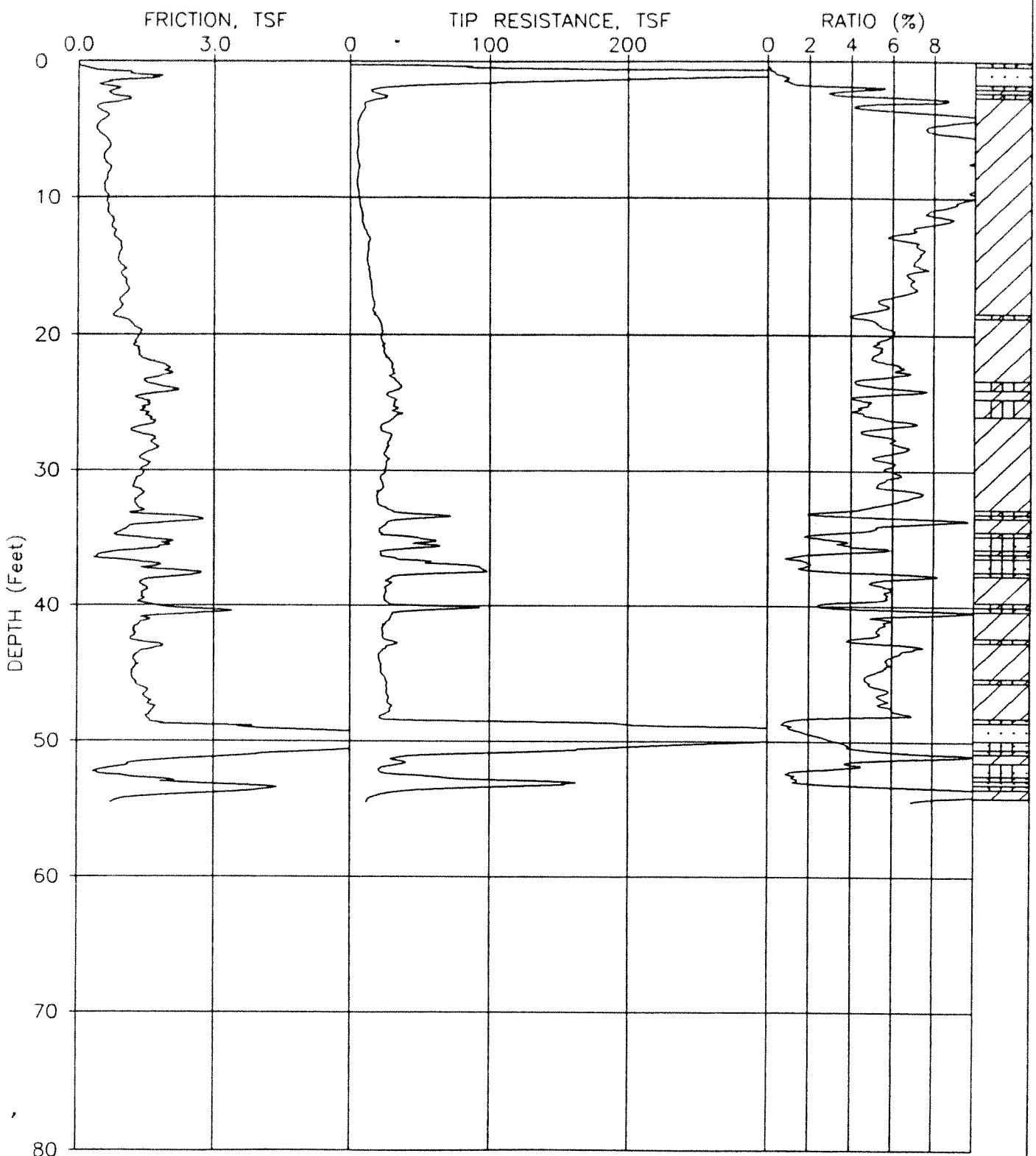
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FUGRO GEOSCIENCES,INC



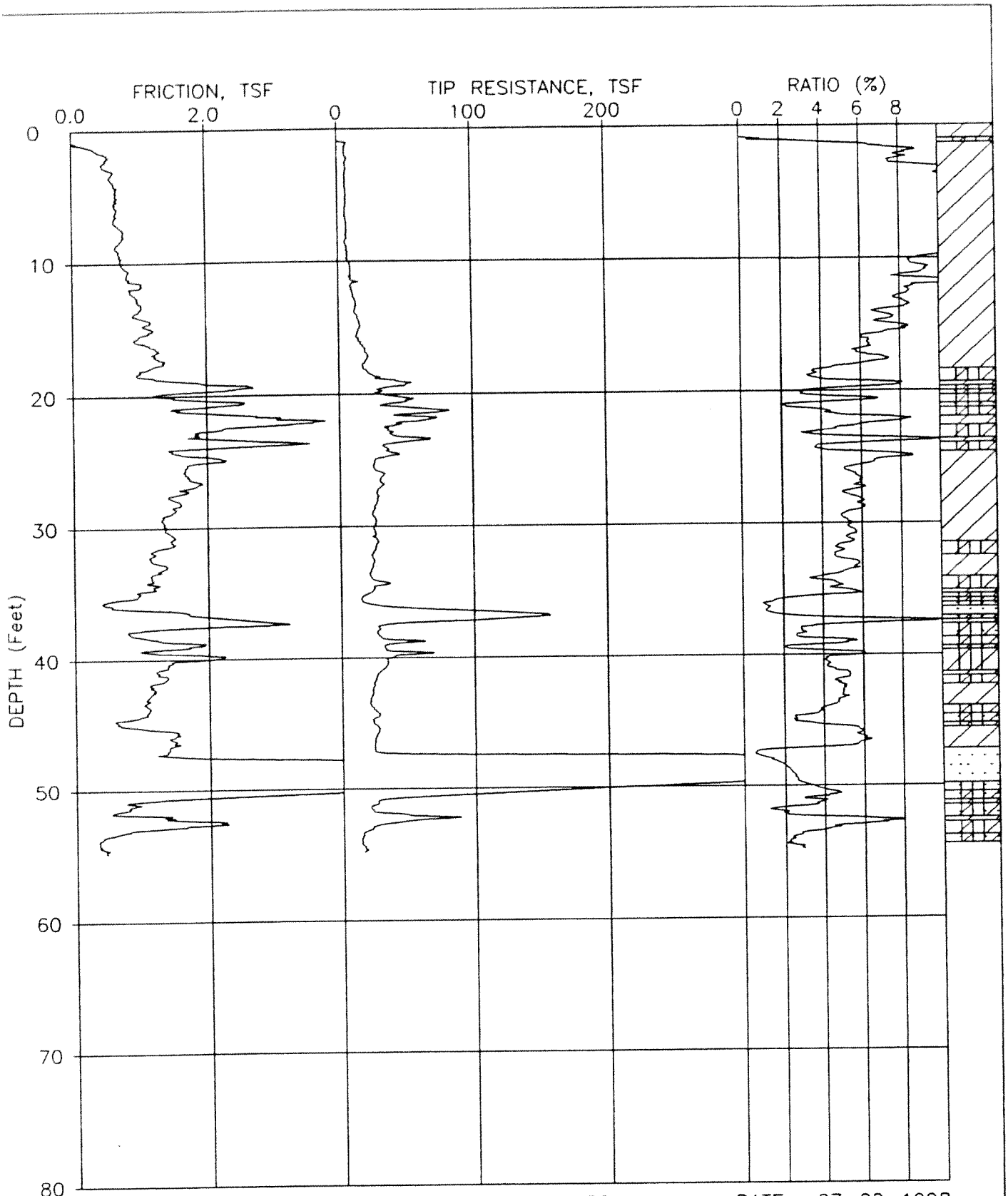
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8087 CPT NUMBER: HP-26-27-28 DATE: 05-13-1998
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

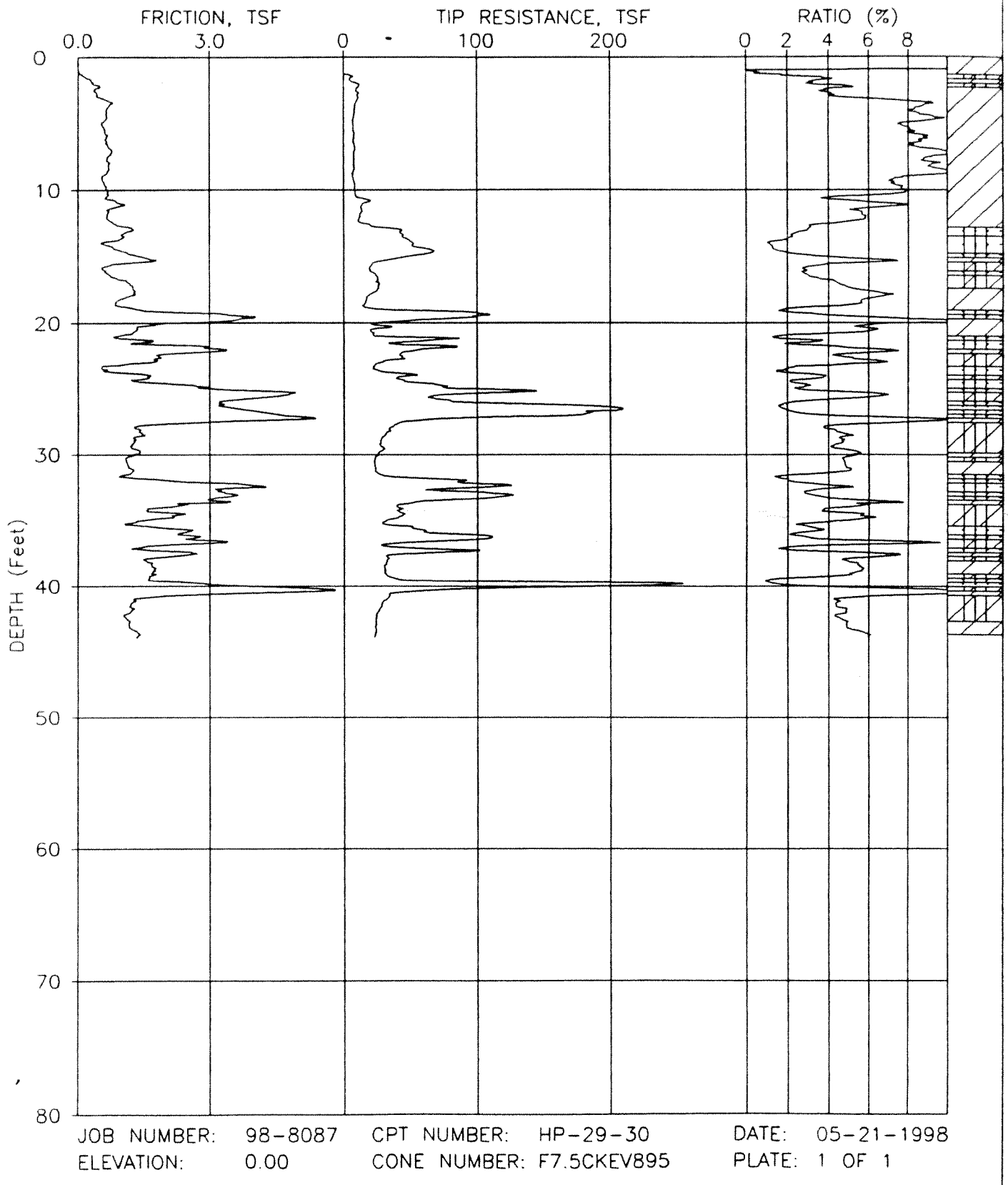


JOB NUMBER: 98-8110
ELEVATION: 0.00

CPT NUMBER: HP-28
CONE NUMBER: F7.5CKEV868

DATE: 07-22-1998
PLATE: 1 OF 1

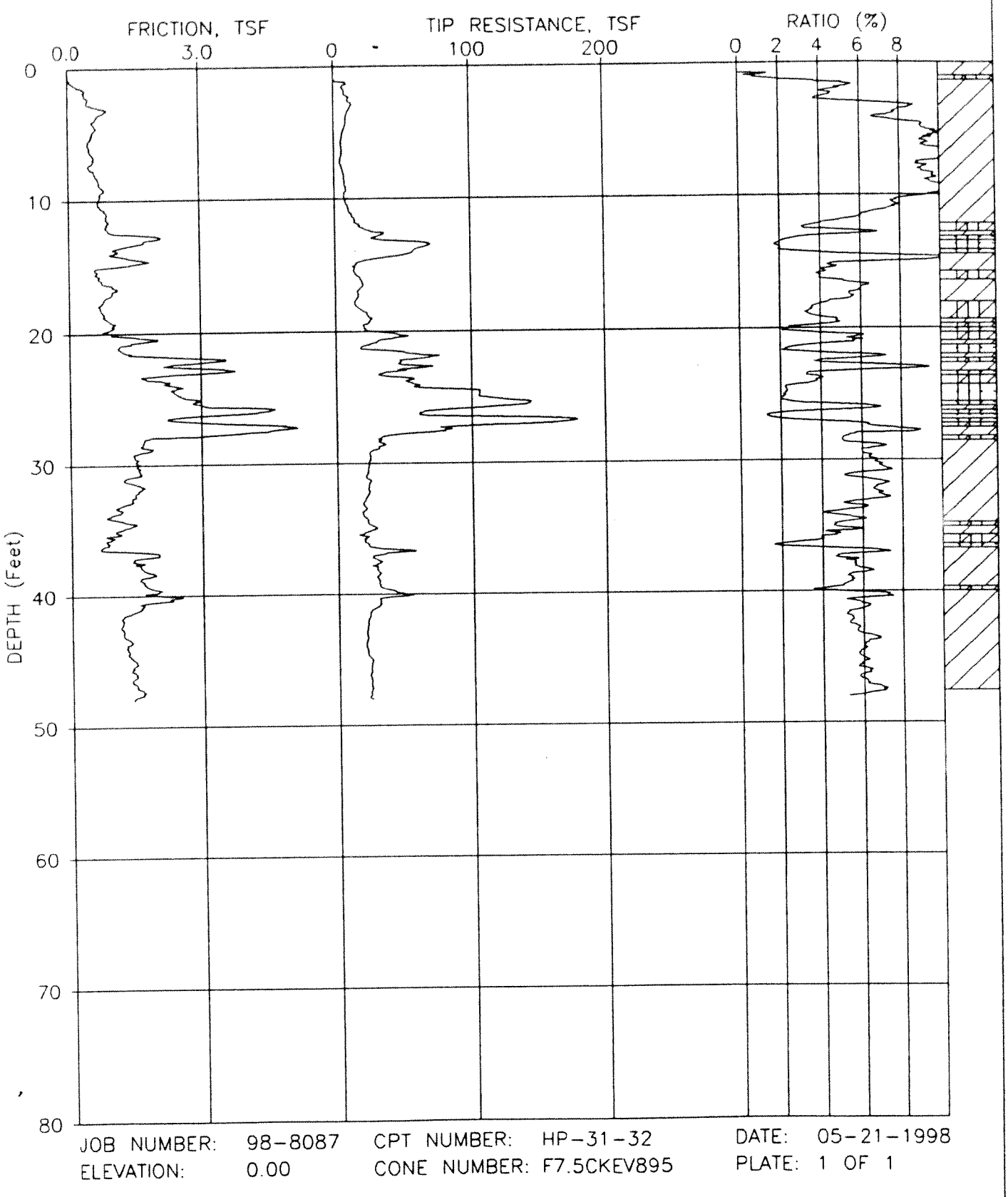
FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8087 CPT NUMBER: HP-29-30 DATE: 05-21-1998

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

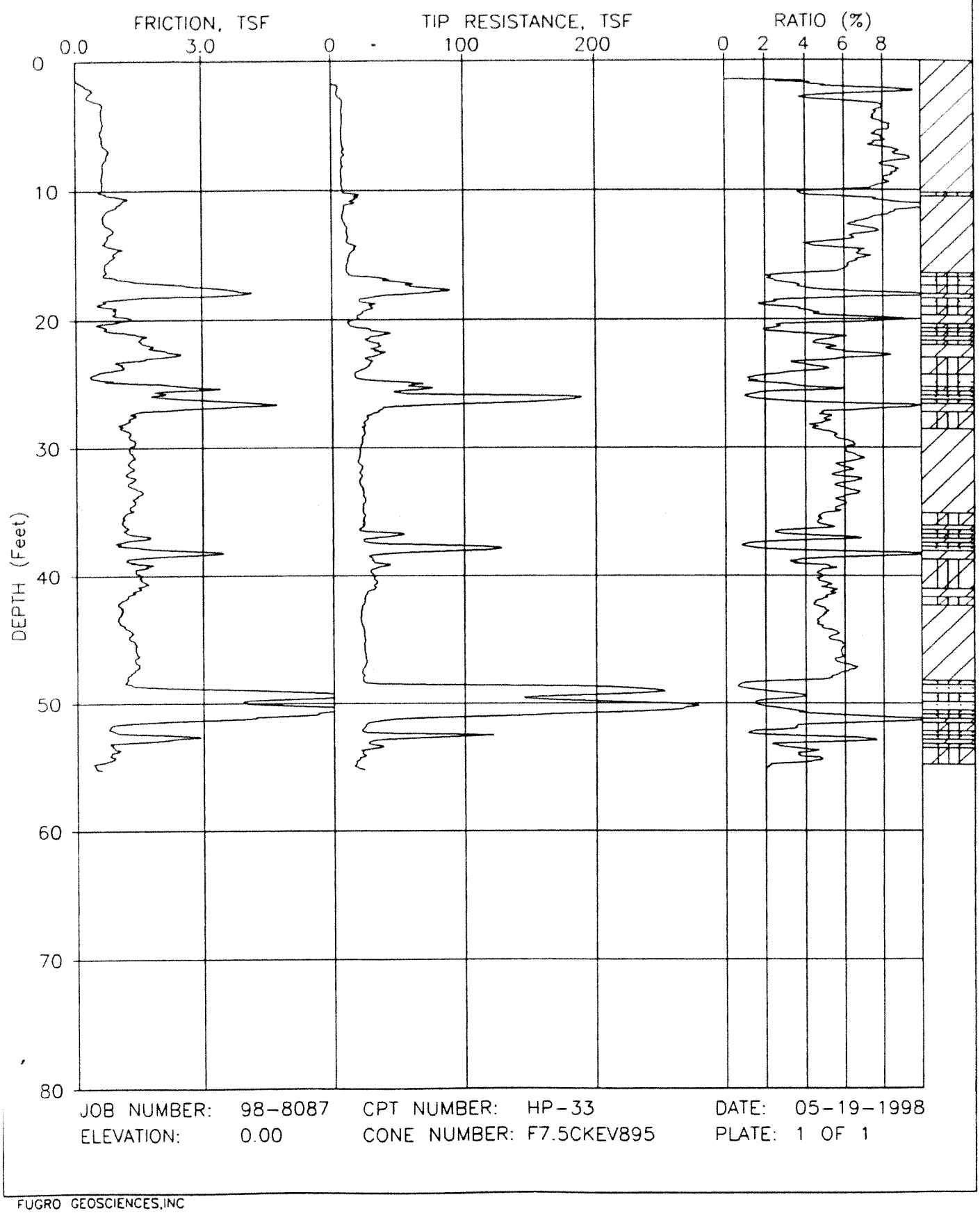
FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8087
ELEVATION: 0.00

CPT NUMBER: HP-31-32
CONE NUMBER: F7.5CKEV895

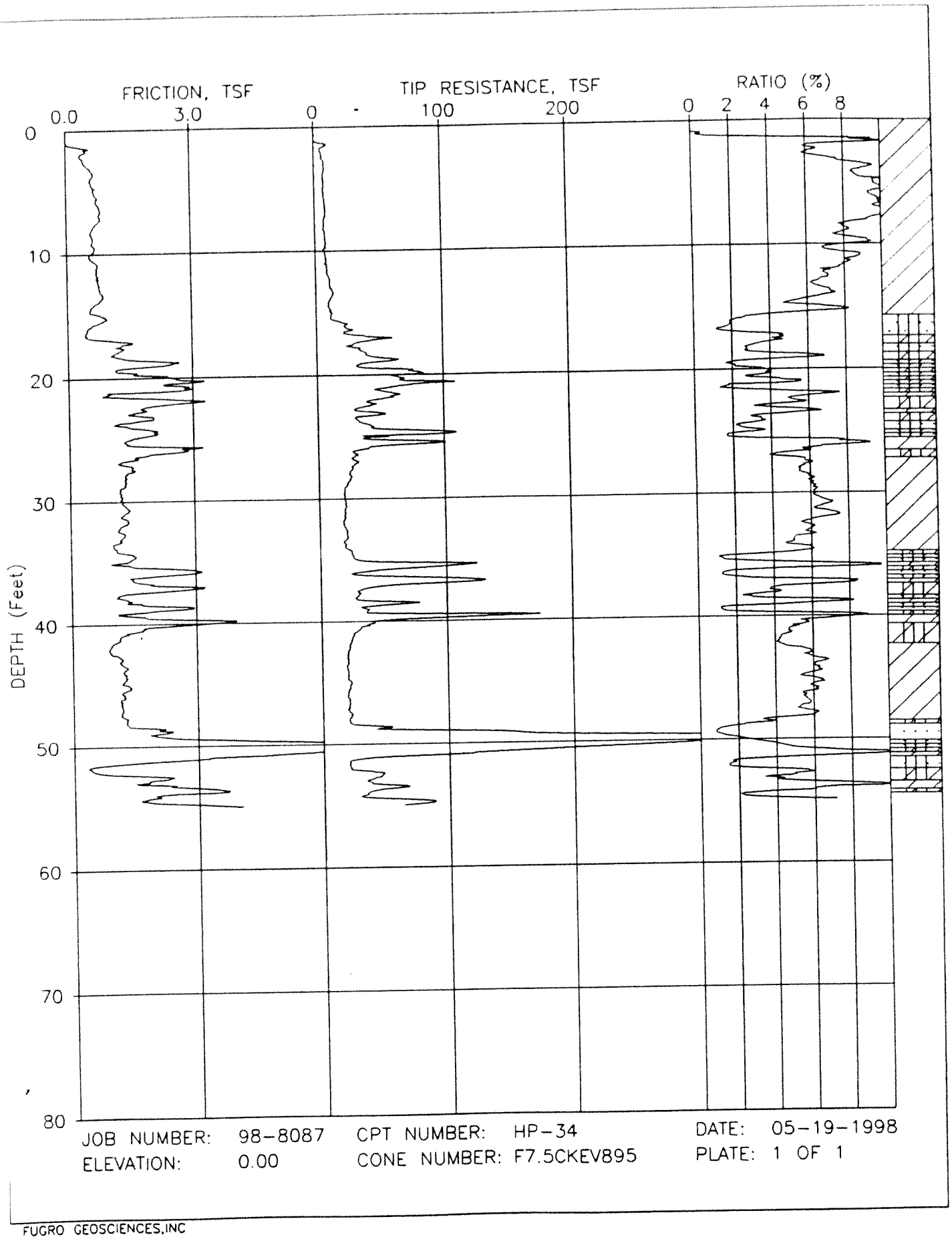
DATE: 05-21-1998
PLATE: 1 OF 1



JOB NUMBER: 98-8087 CPT NUMBER: HP-33 DATE: 05-19-1998

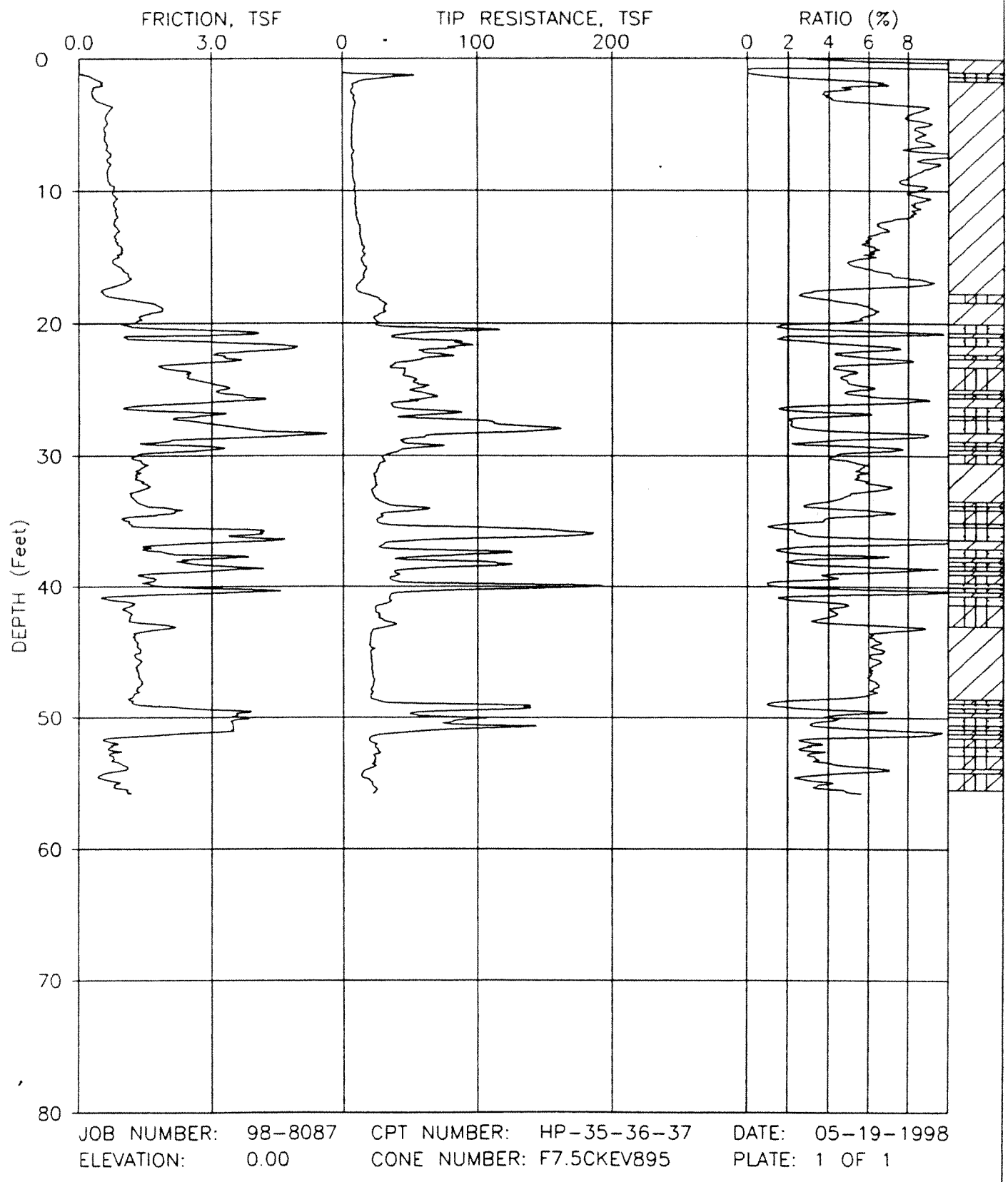
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FUGRO GEOSCIENCES,INC



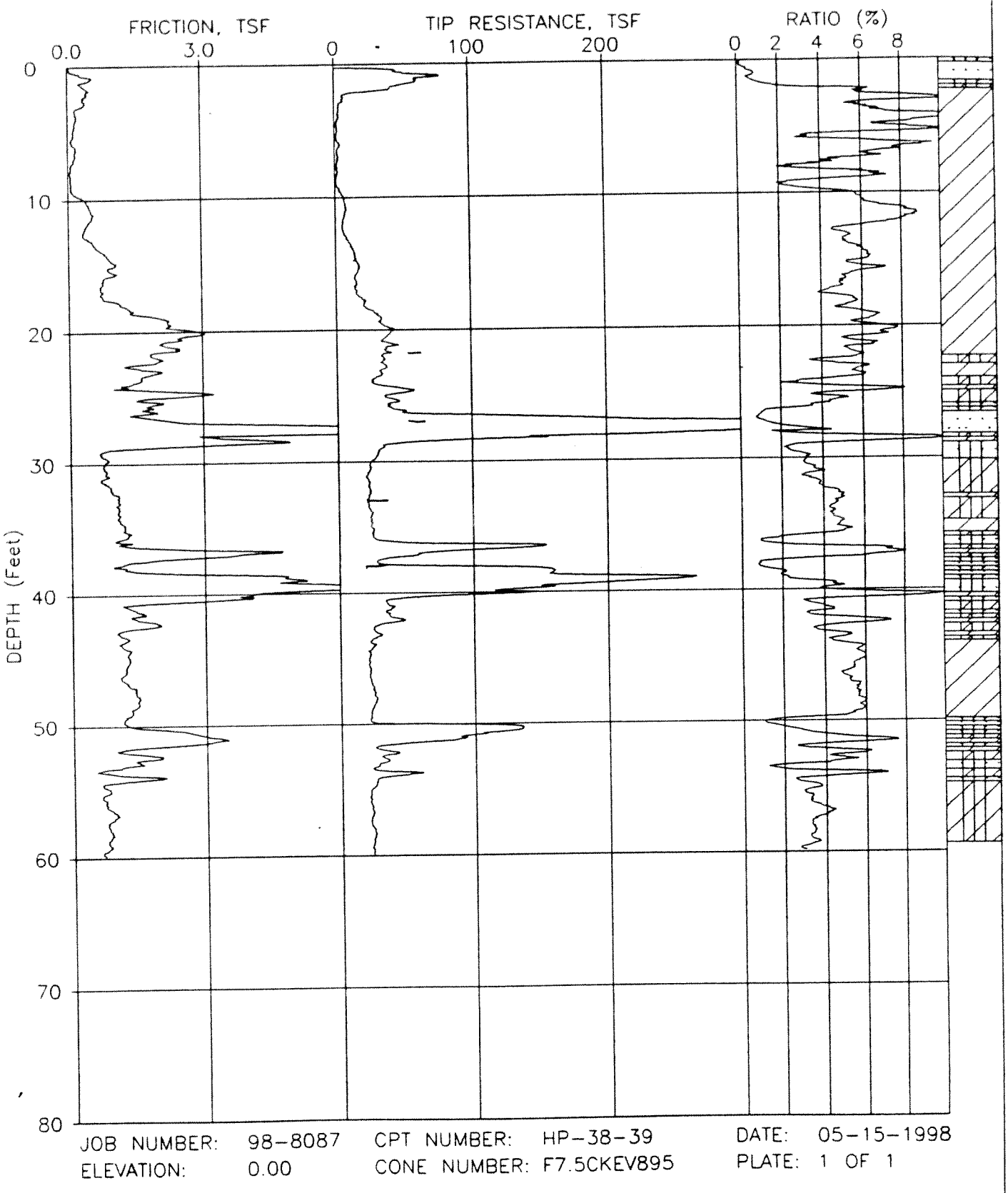
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ELEVATION: 0.00
CPT NUMBER: HP-34
CONE NUMBER: F7.5CKEV895
DATE: 05-19-1998
PLATE: 1 OF 1

FUGRO GEOSCIENCES, INC



JOB NUMBER: 98-8087 CPT NUMBER: HP-35-36-37 DATE: 05-19-1998
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

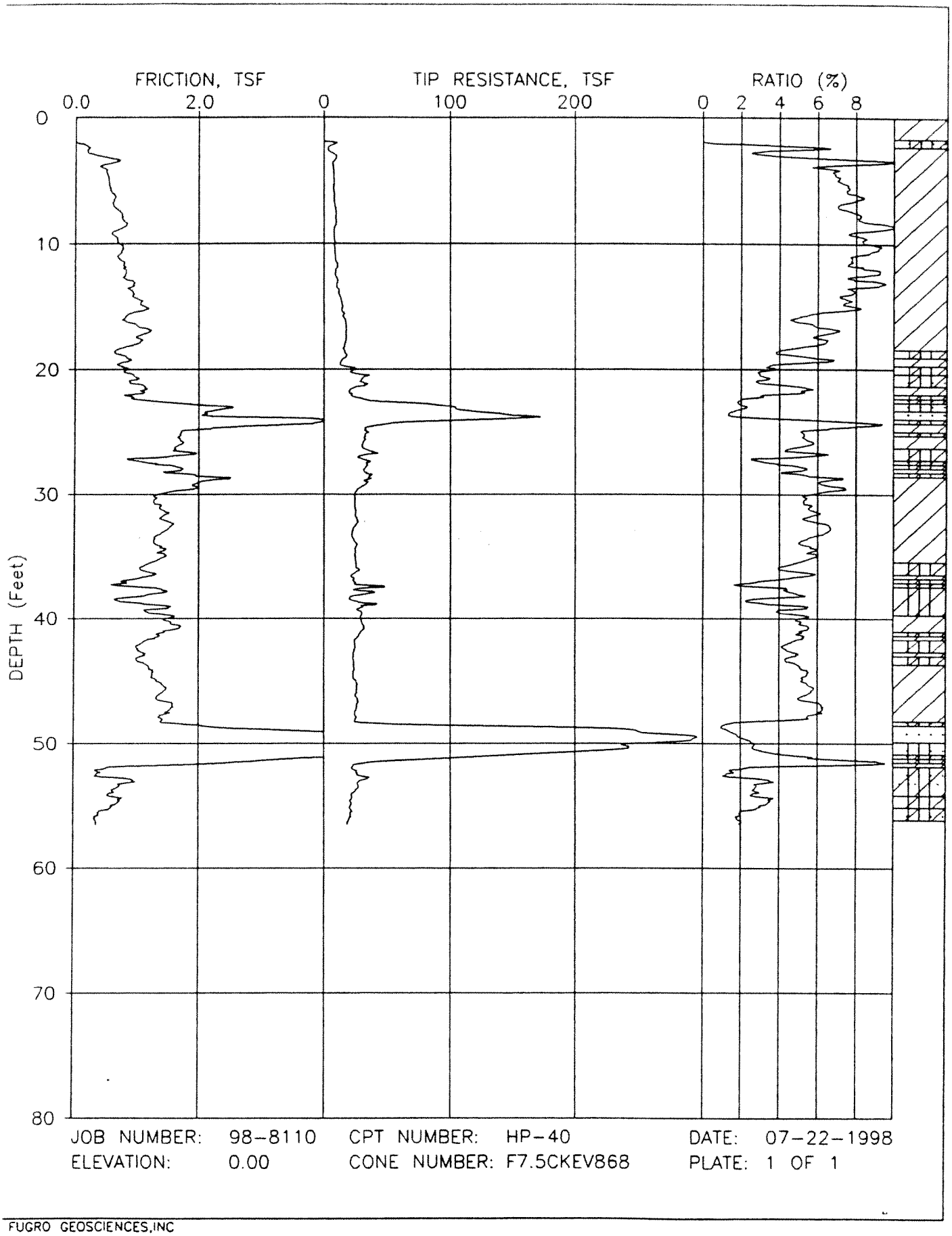


JOB NUMBER: 98-8087
ELEVATION: 0.00

CPT NUMBER: HP-38-39
CONE NUMBER: F7.5CKEV895

DATE: 05-15-1998
PLATE: 1 OF 1

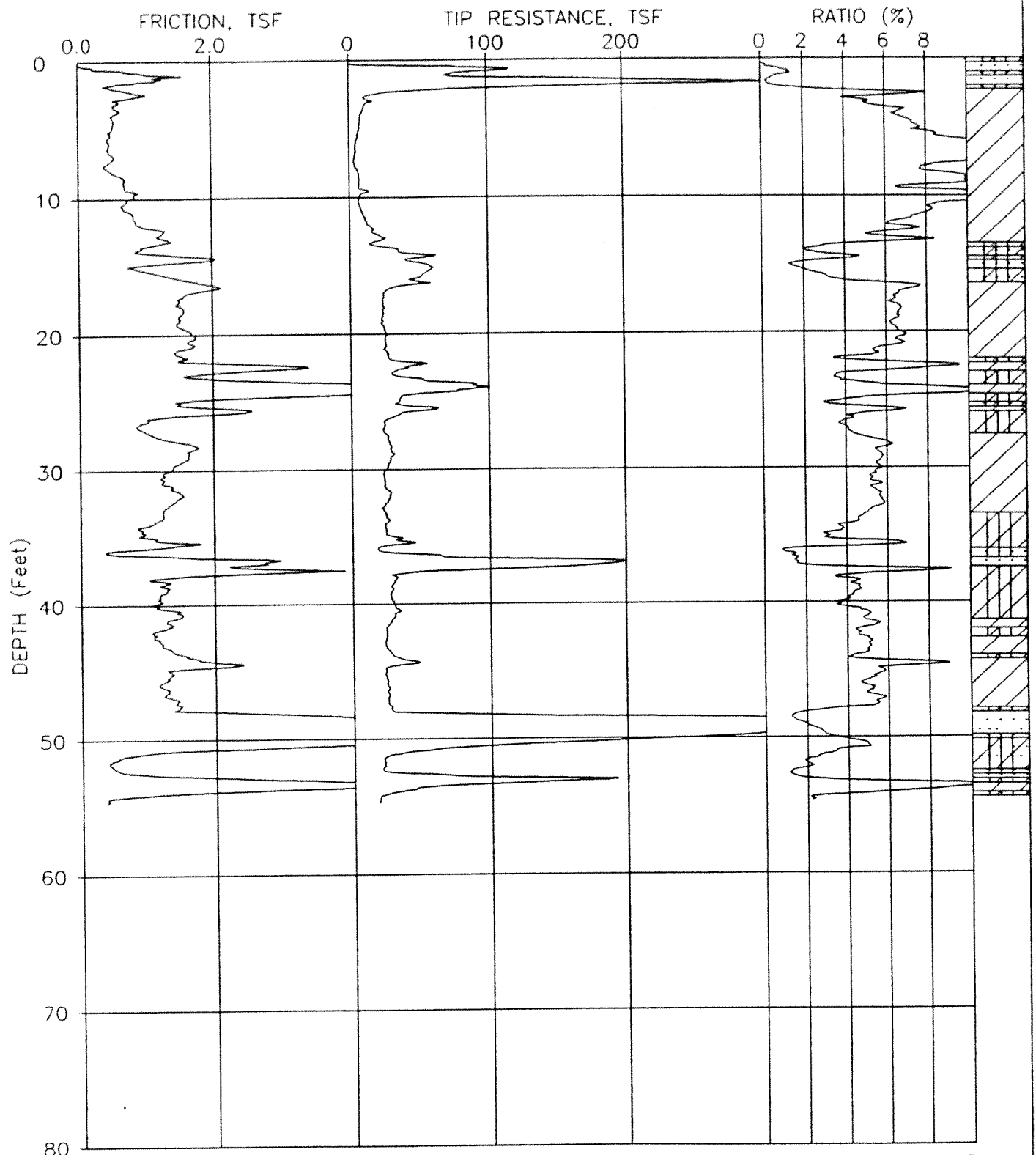
FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8110 CPT NUMBER: HP-40 DATE: 07-22-1998

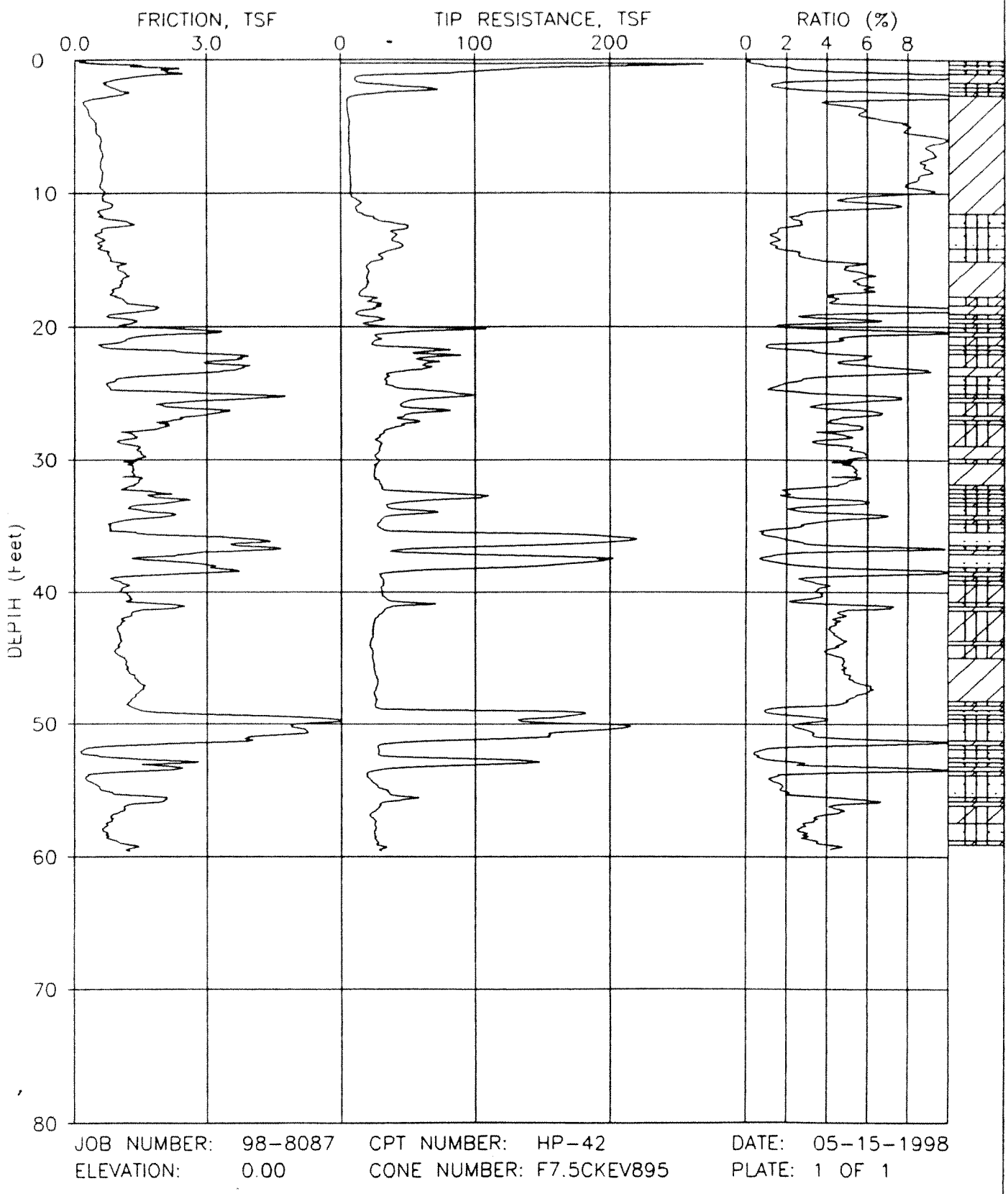
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV868 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



JOB NUMBER: 98-8110
ELEVATION: 0.00
CPT NUMBER: HP-41
CONE NUMBER: F7.5CKEV868
DATE: 07-22-1998
PLATE: 1 OF 1

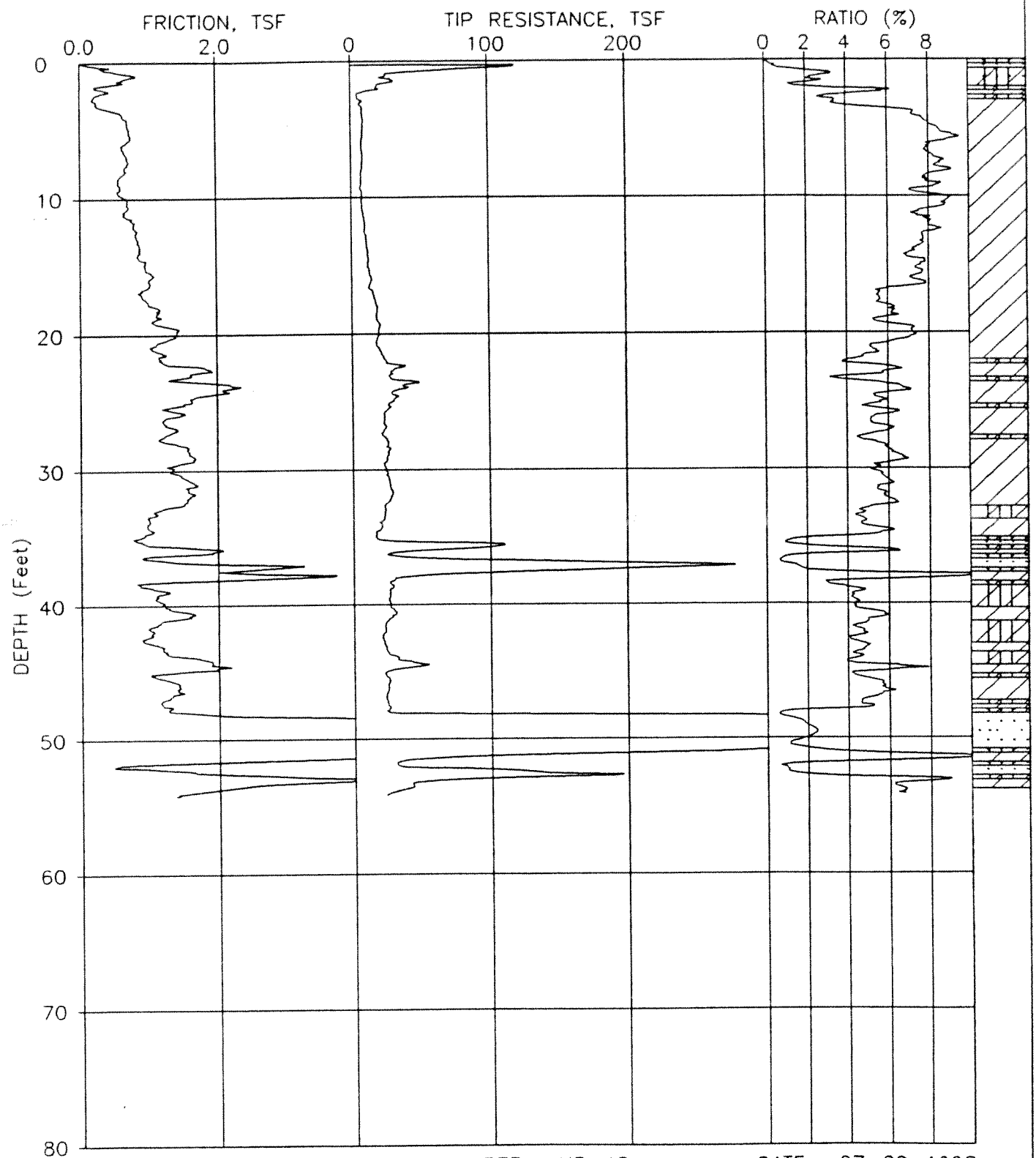
FUGRO GEOSCIENCES,INC



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ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

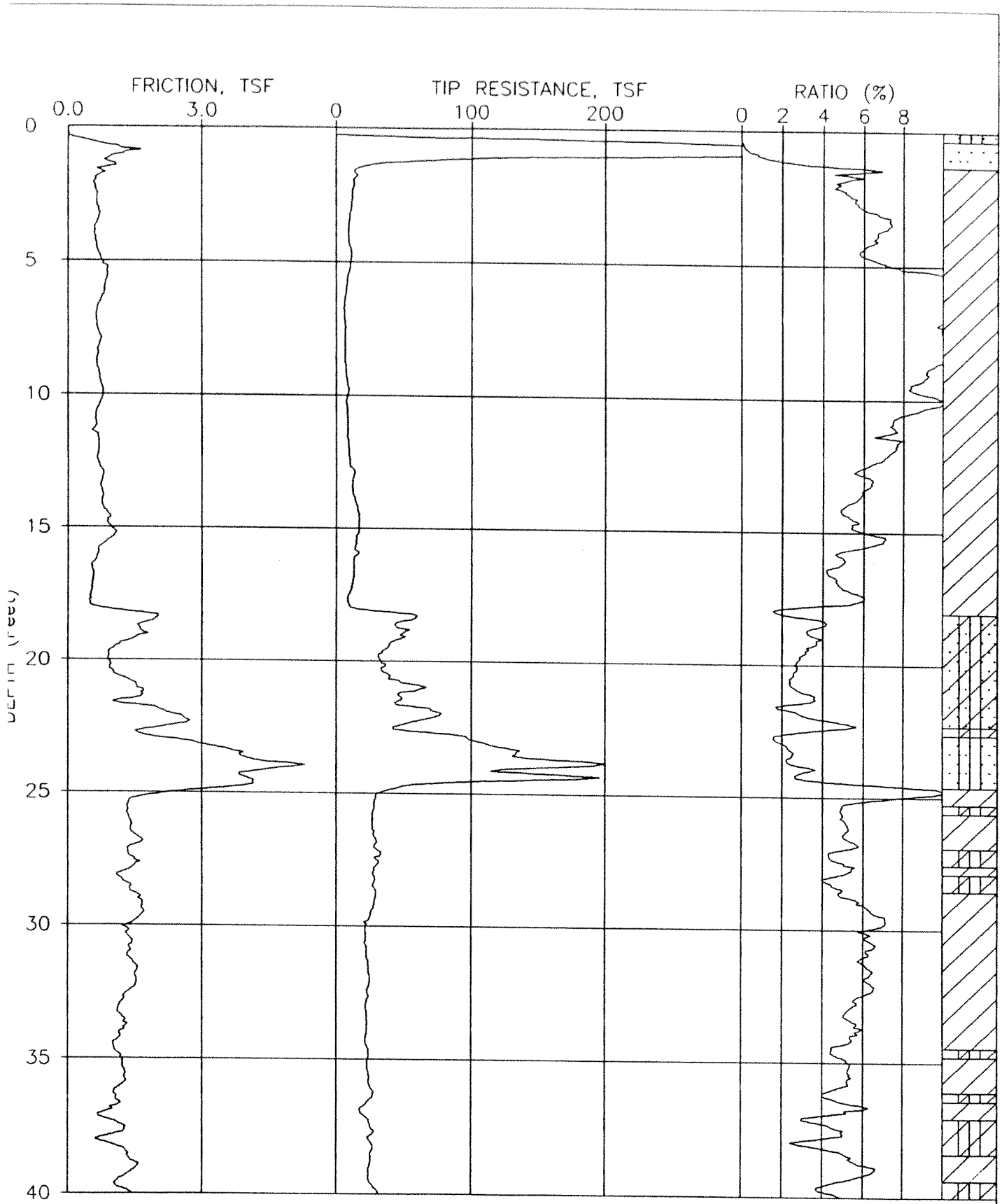
FUGRO GEOSCIENCES,INC



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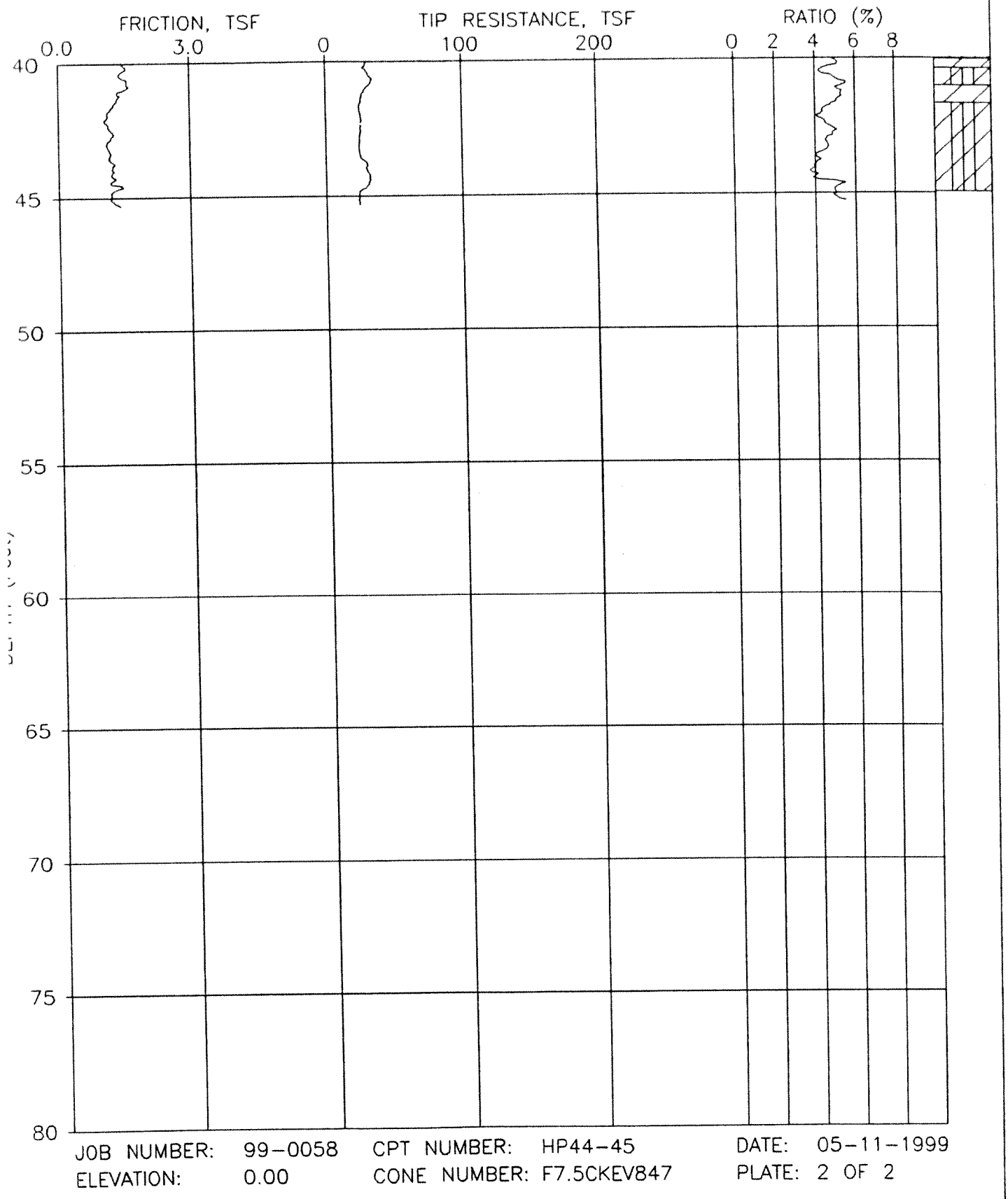
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FUGRO GEOSCIENCES,INC



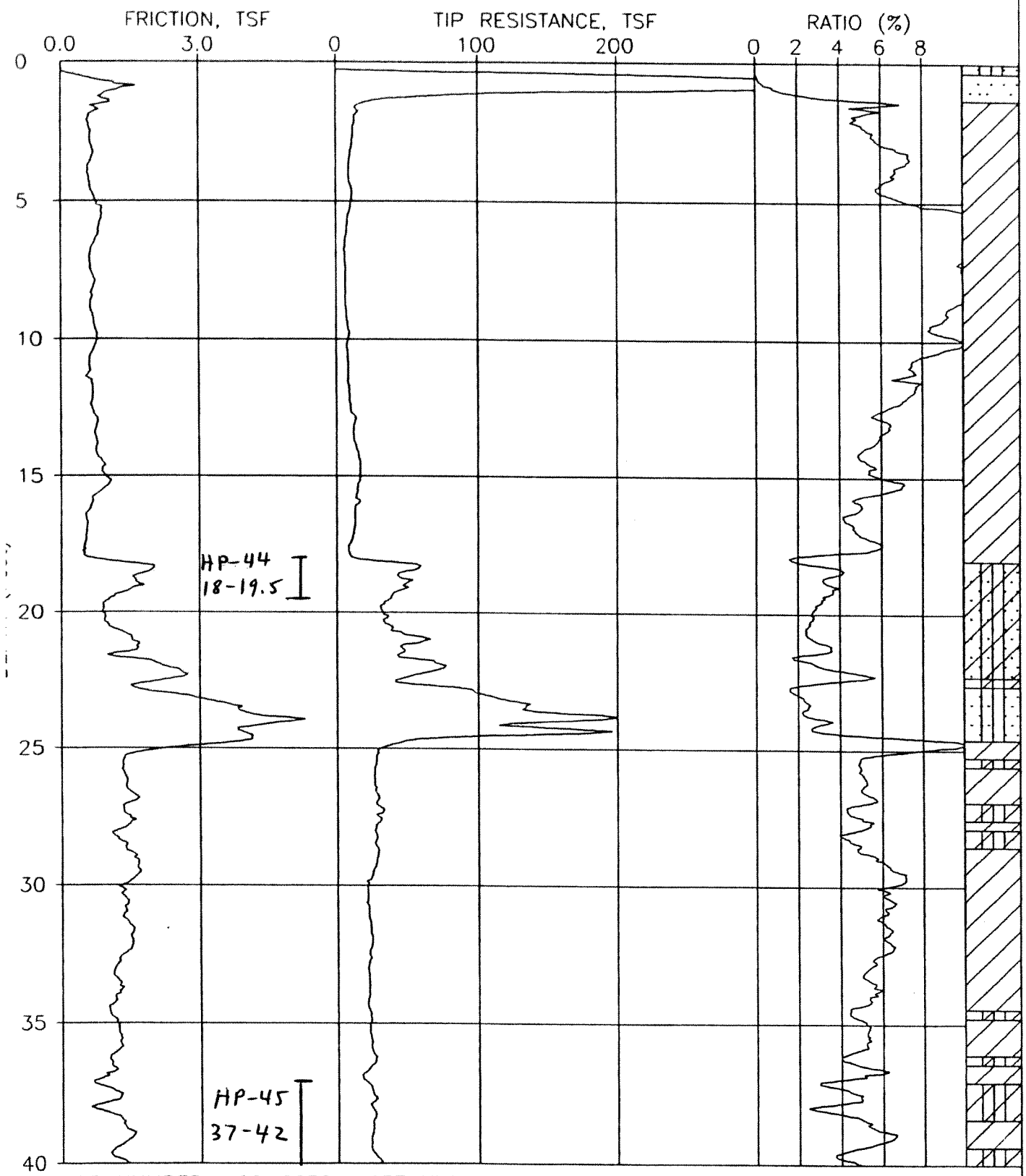
JOB NUMBER: 99-0058 CPT NUMBER: HP44-45 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 2



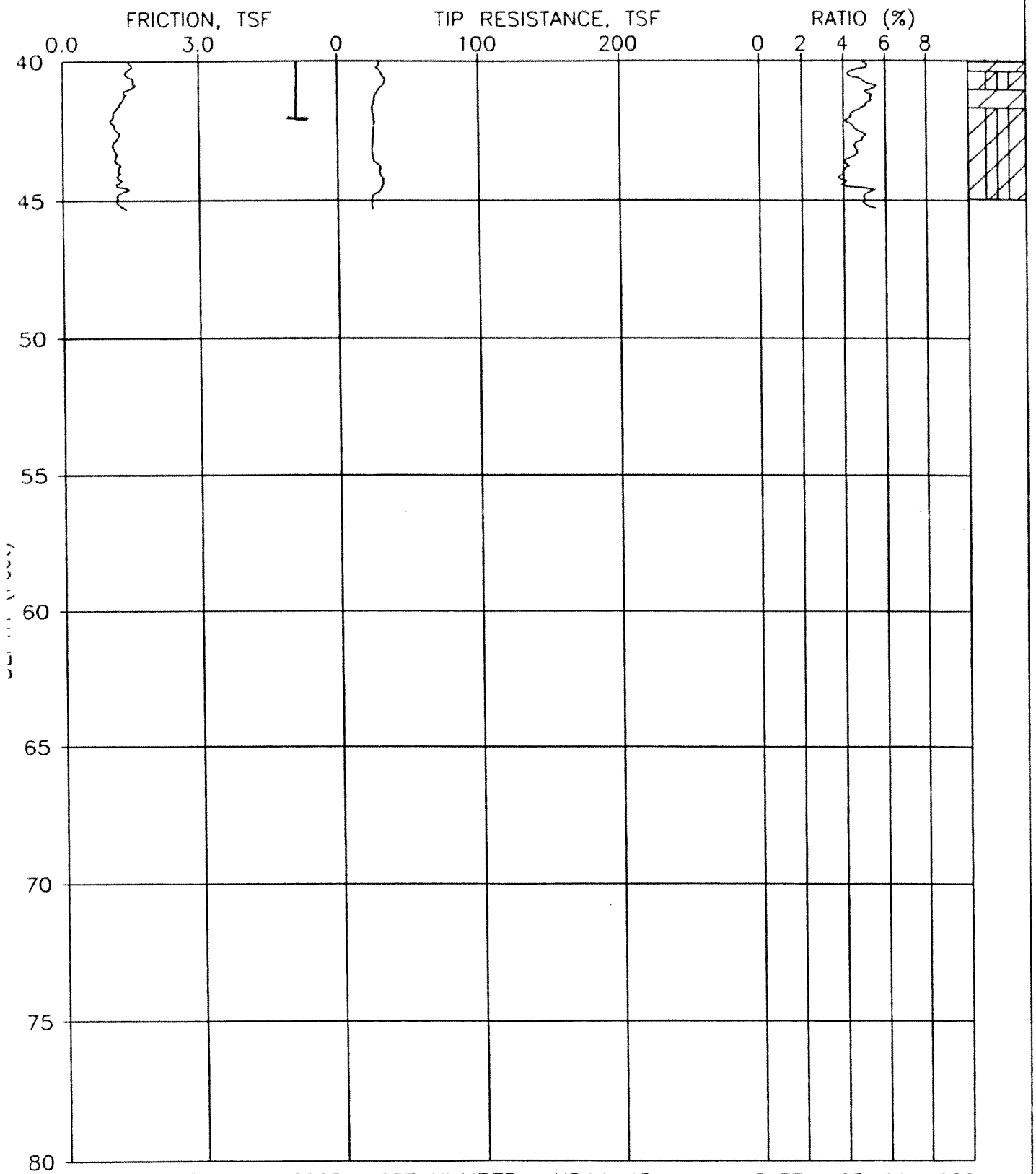
JOB NUMBER: 99-0058 CPT NUMBER: HP44-45 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2



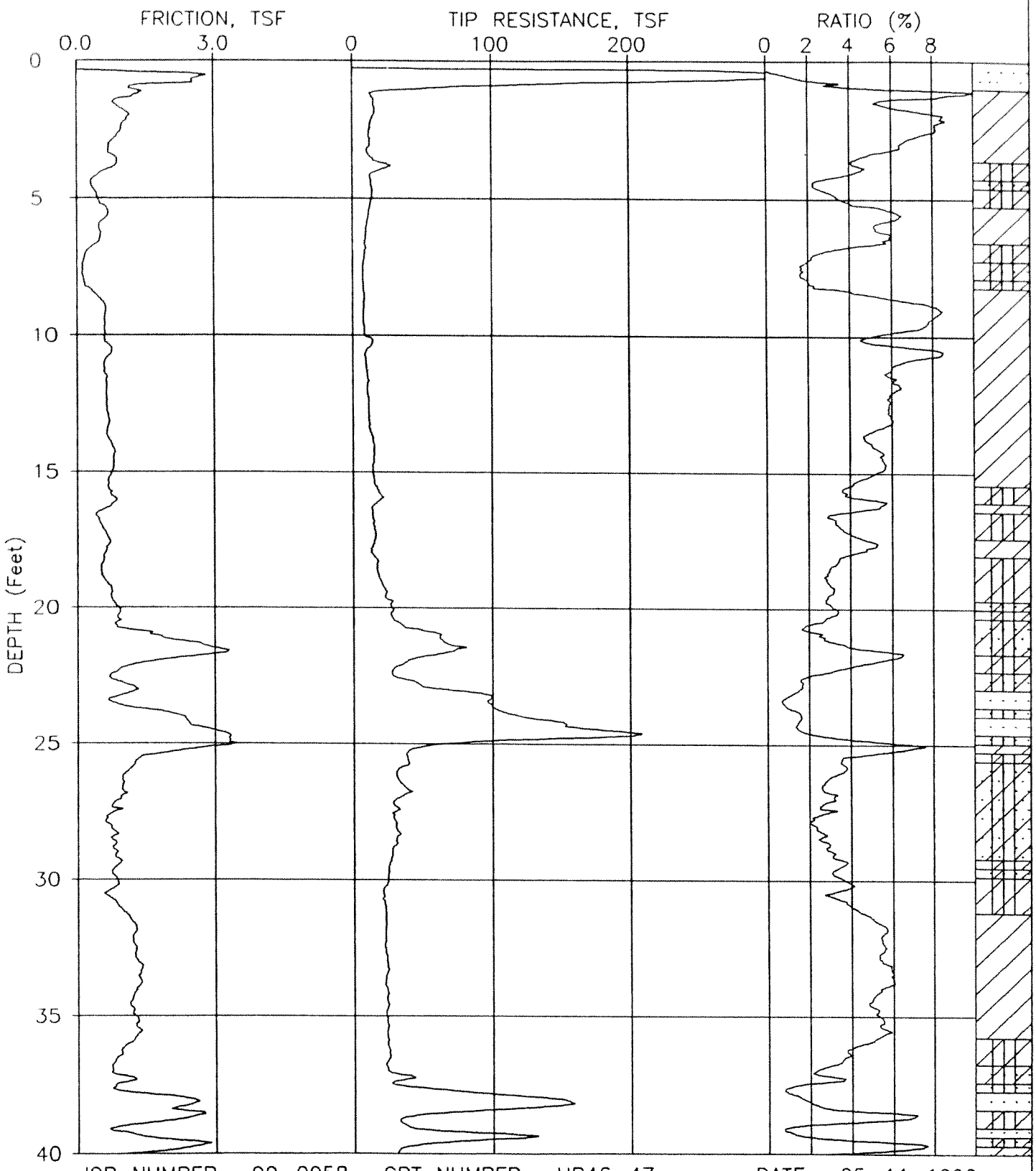
JOB NUMBER: 99-0058 CPT NUMBER: HP44-45 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 2



JOB NUMBER: 99-0058 CPT NUMBER: HP44-45 DATE: 05-11-1999

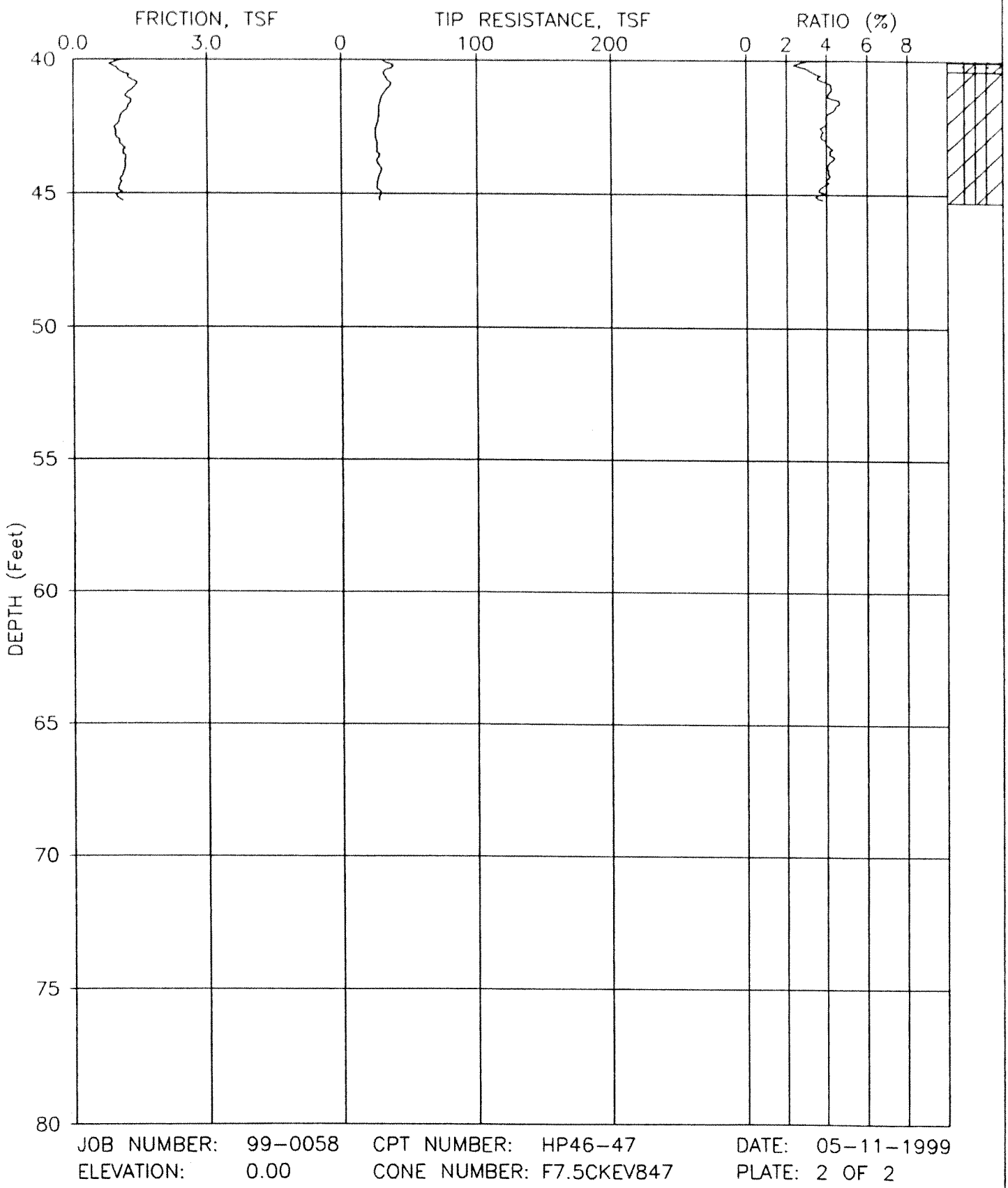
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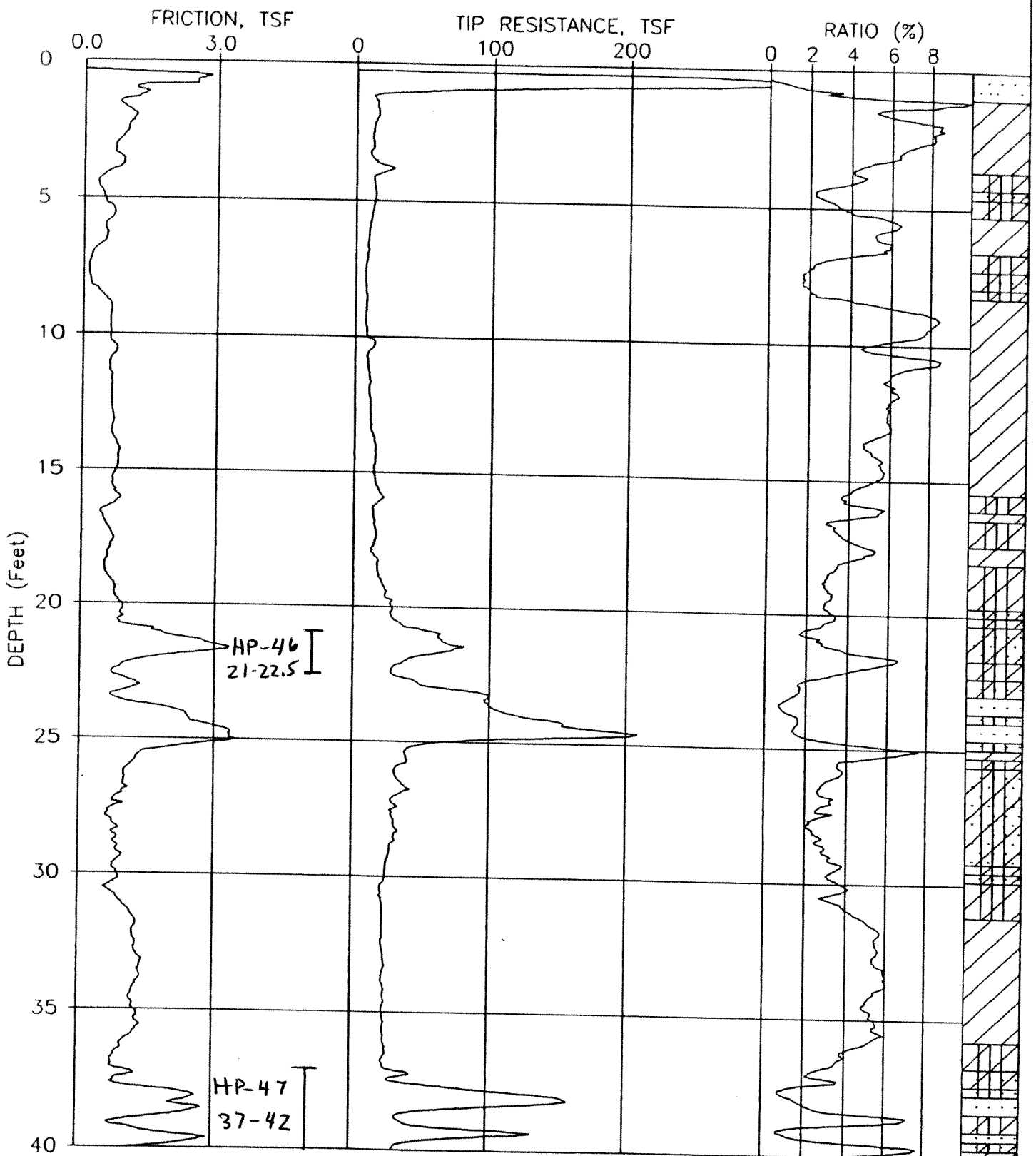
JOB NUMBER: 99-0058 CPT NUMBER: HP46-47 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP46-47 DATE: 05-11-1999
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2

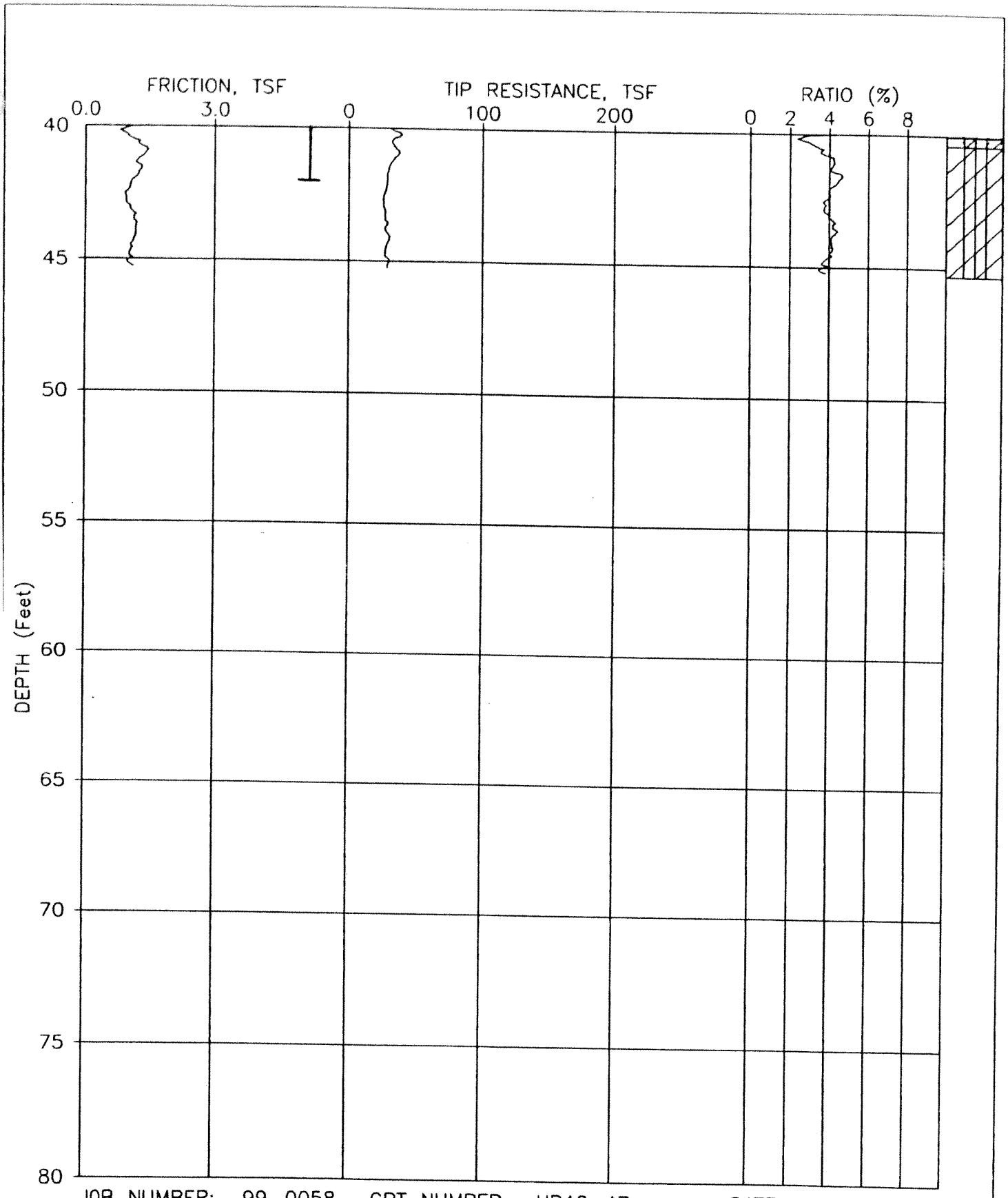


JOB NUMBER: 99-0058
ELEVATION: 0.00

CPT NUMBER: HP46-47
CONE NUMBER: F7.5CKEV847

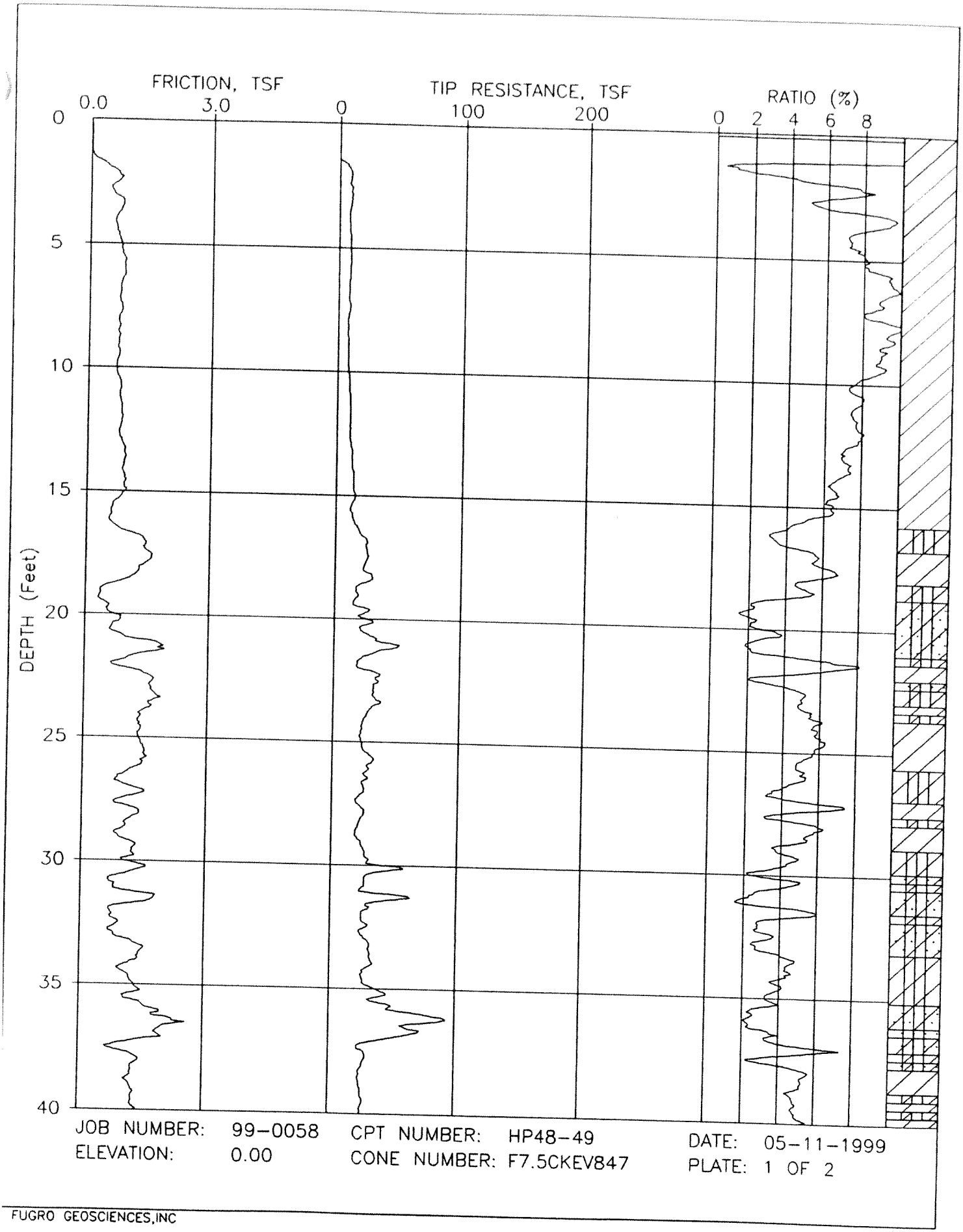
DATE: 05-11-1999
PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP46-47 DATE: 05-11-1999
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2

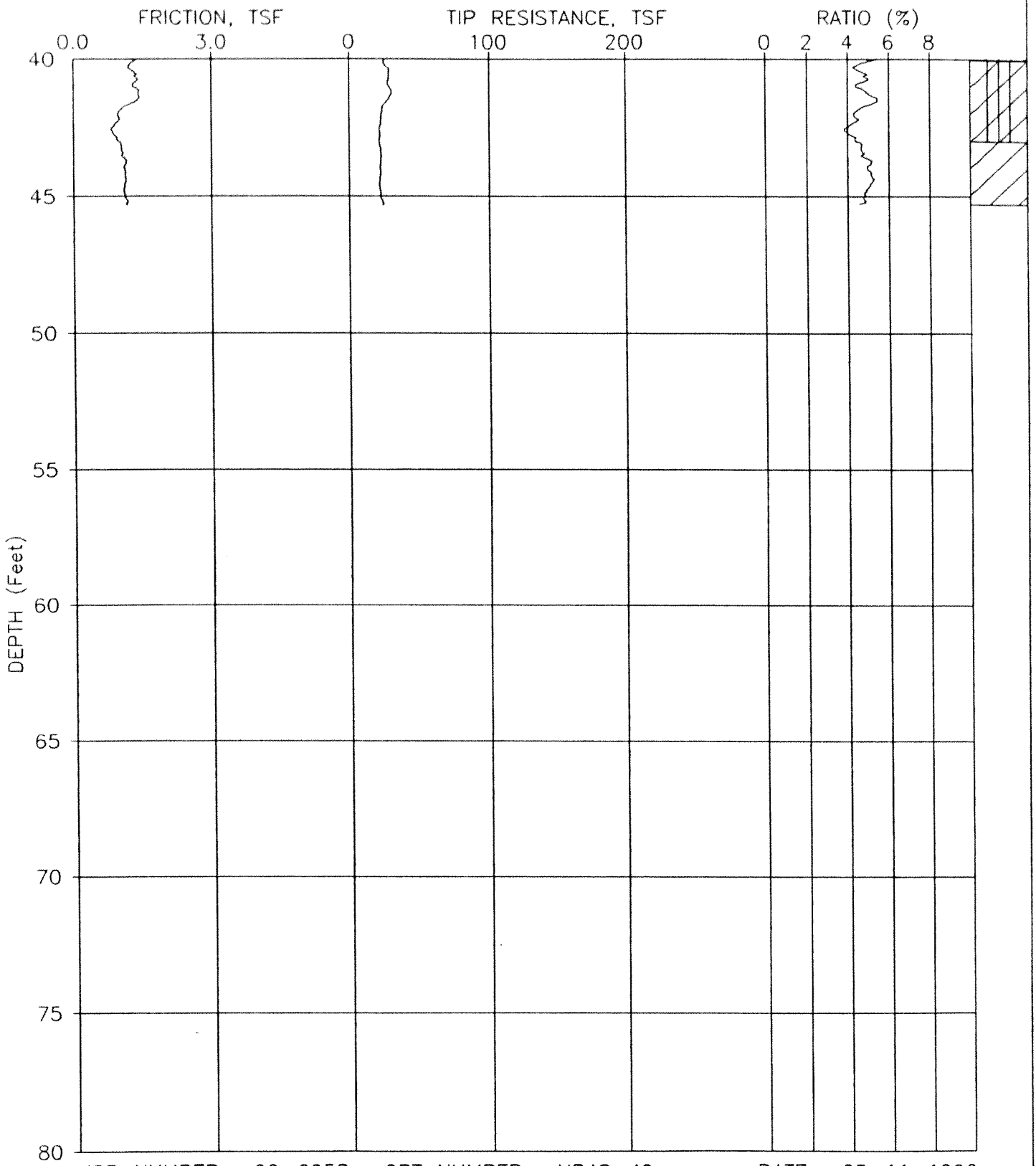
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058
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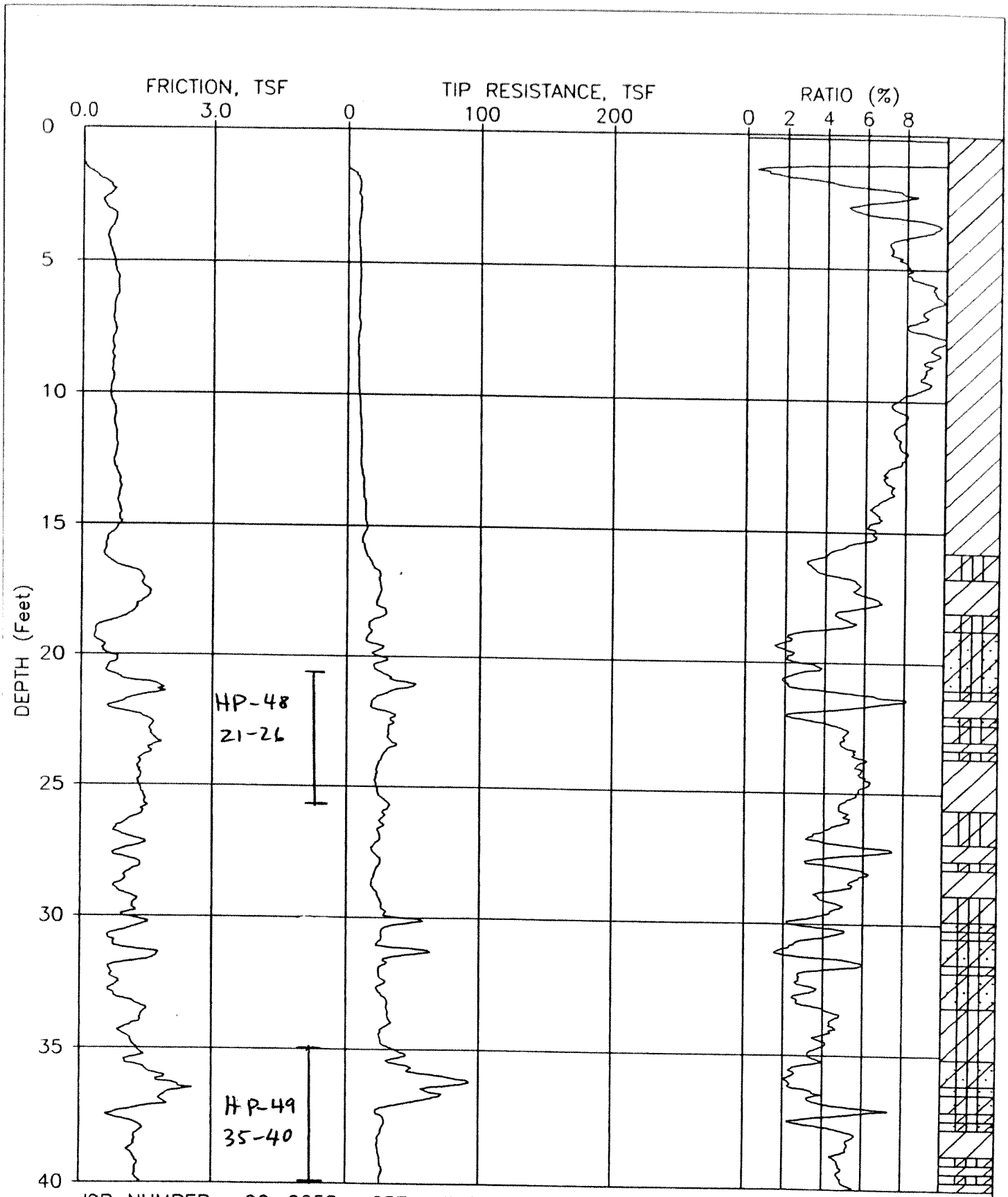
CPT NUMBER: HP48-49
CONE NUMBER: F7.5CKEV847

DATE: 05-11-1999
PLATE: 1 OF 2



JOB NUMBER: 99-0058 CPT NUMBER: HP48-49 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2

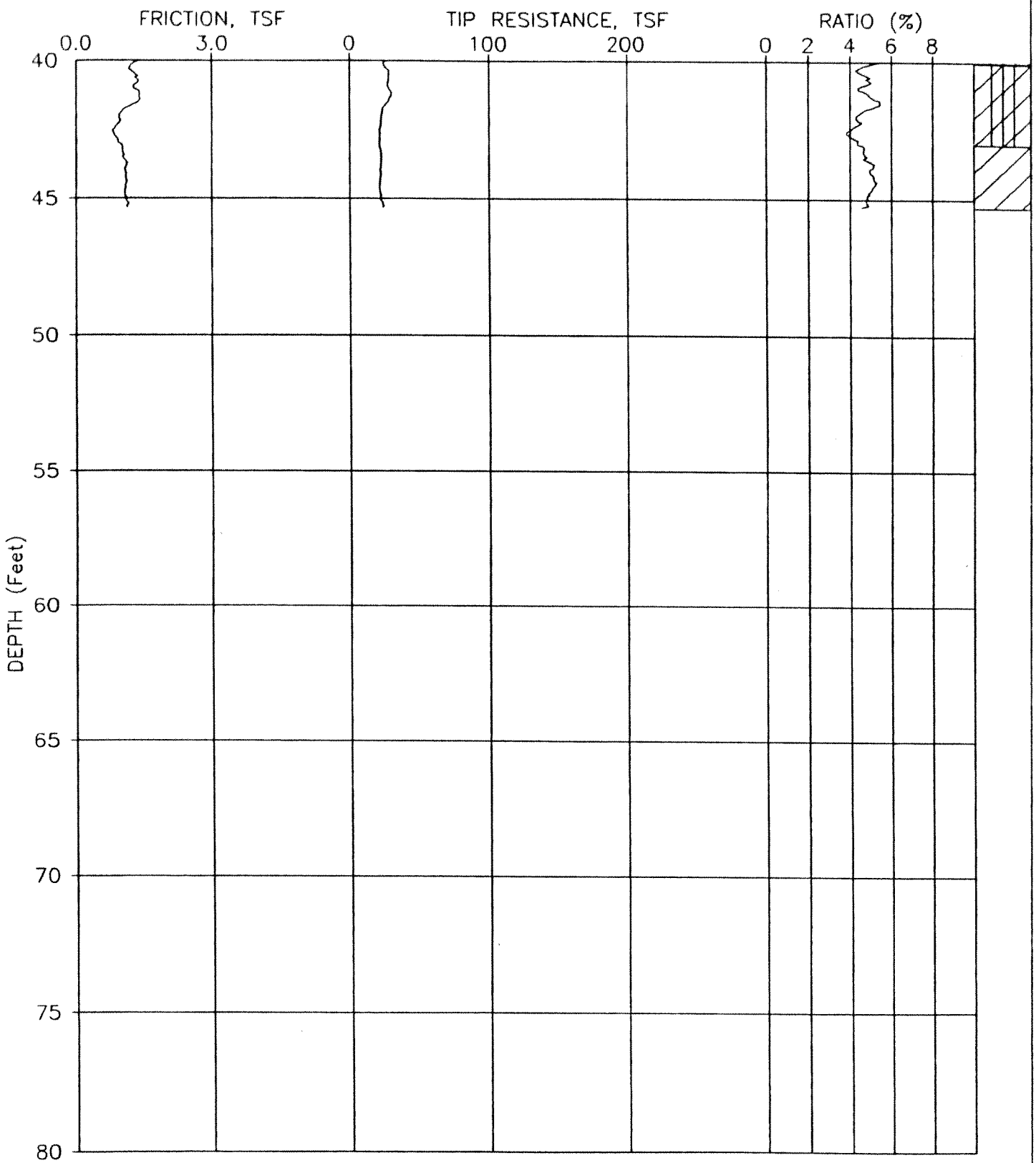


JOB NUMBER: 99-0058
ELEVATION: 0.00

CPT NUMBER: HP48-49
CONE NUMBER: F7.5CKEV847

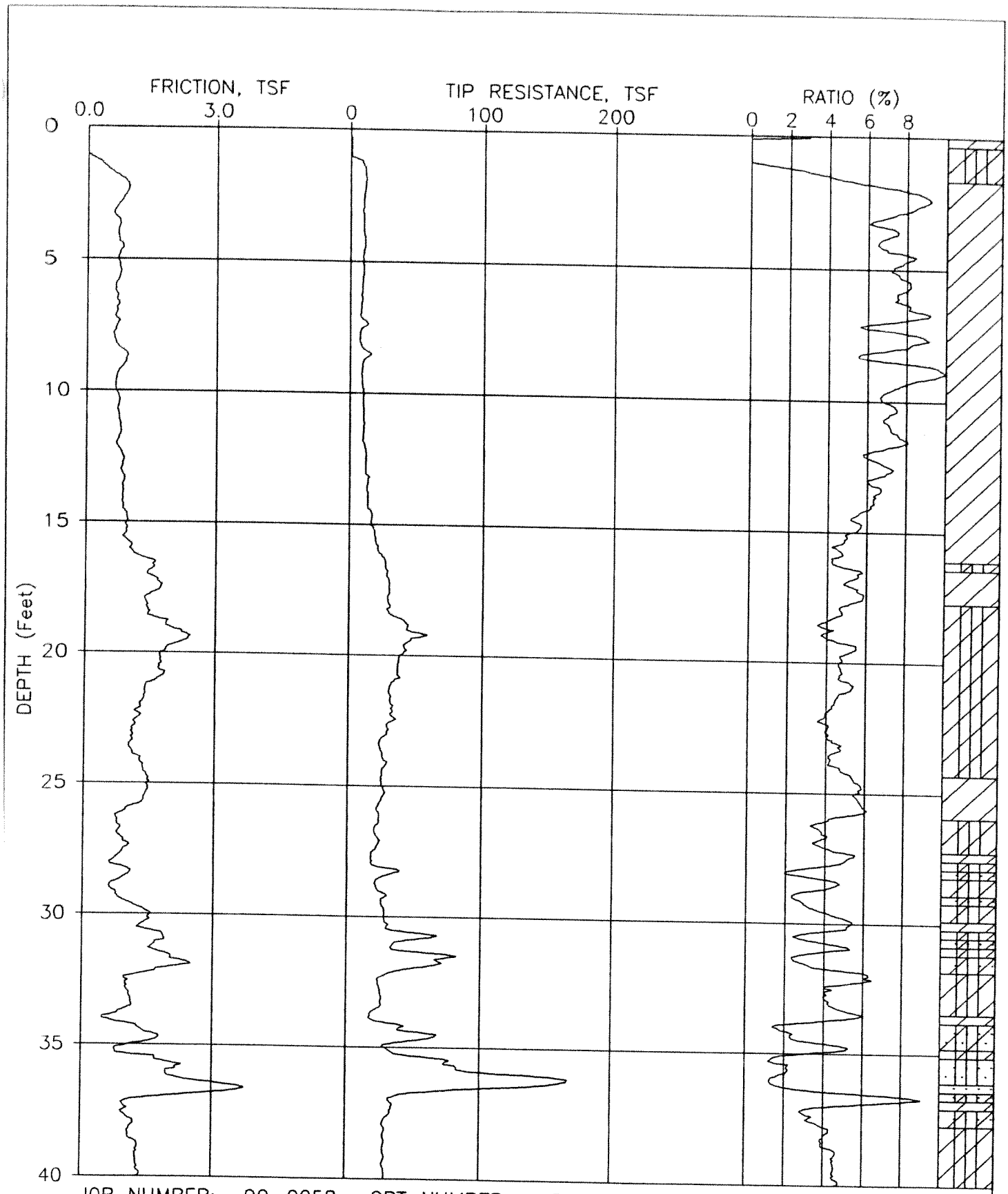
DATE: 05-11-1999
PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP48-49 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2

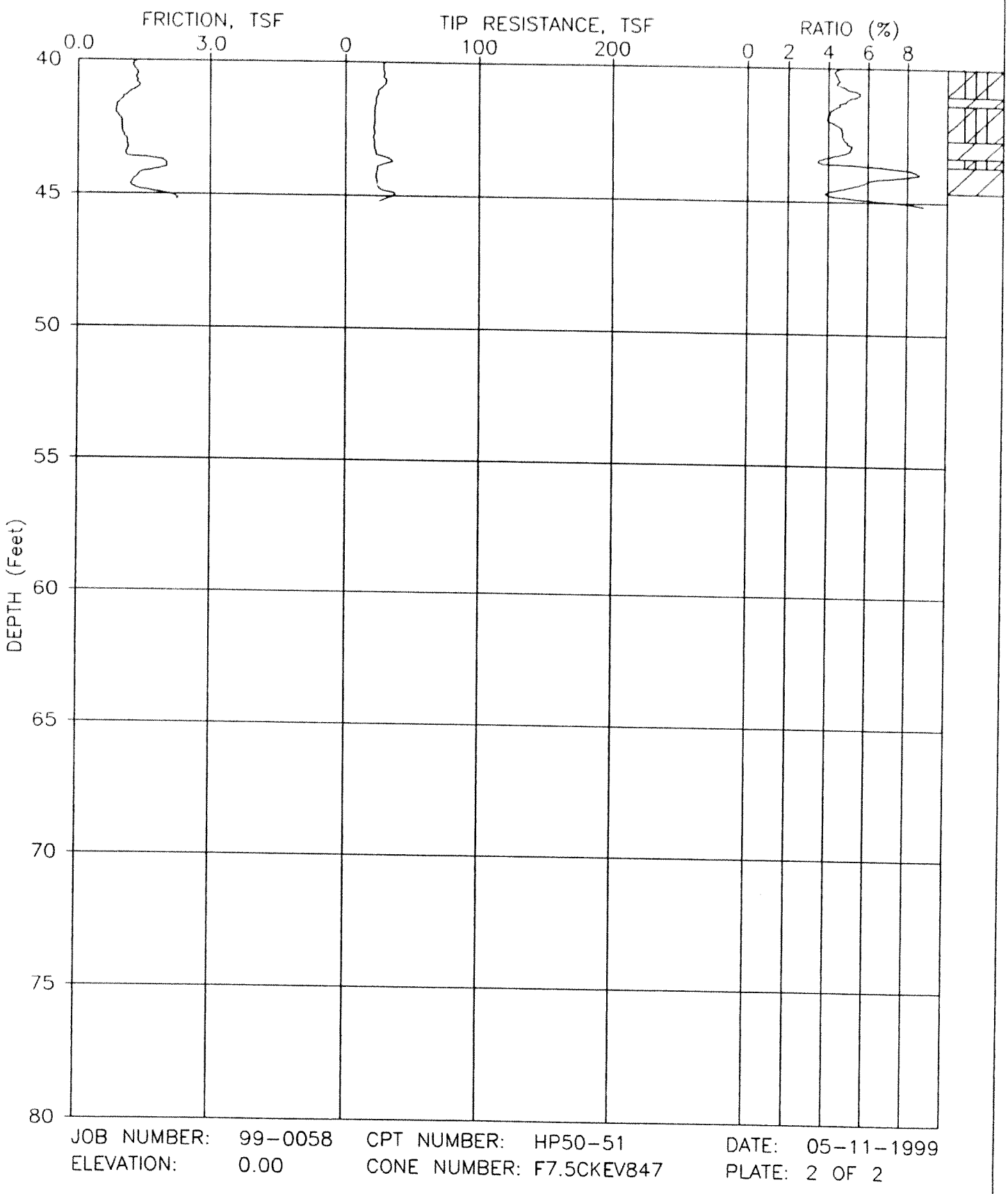


JOB NUMBER: 99-0058
ELEVATION: 0.00

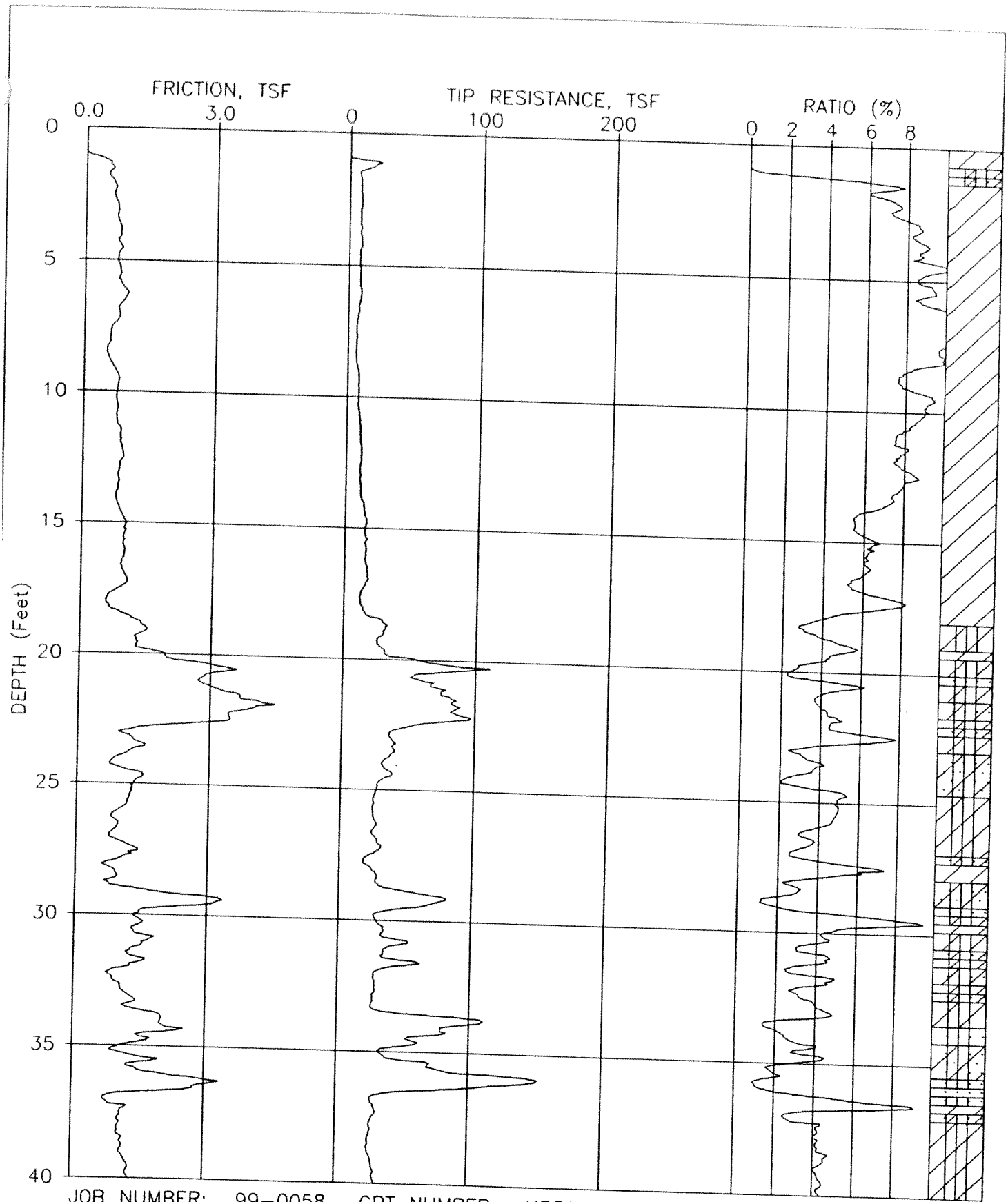
CPT NUMBER: HP50-51
CONE NUMBER: F7.5CKEV847

DATE: 05-11-1999
PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



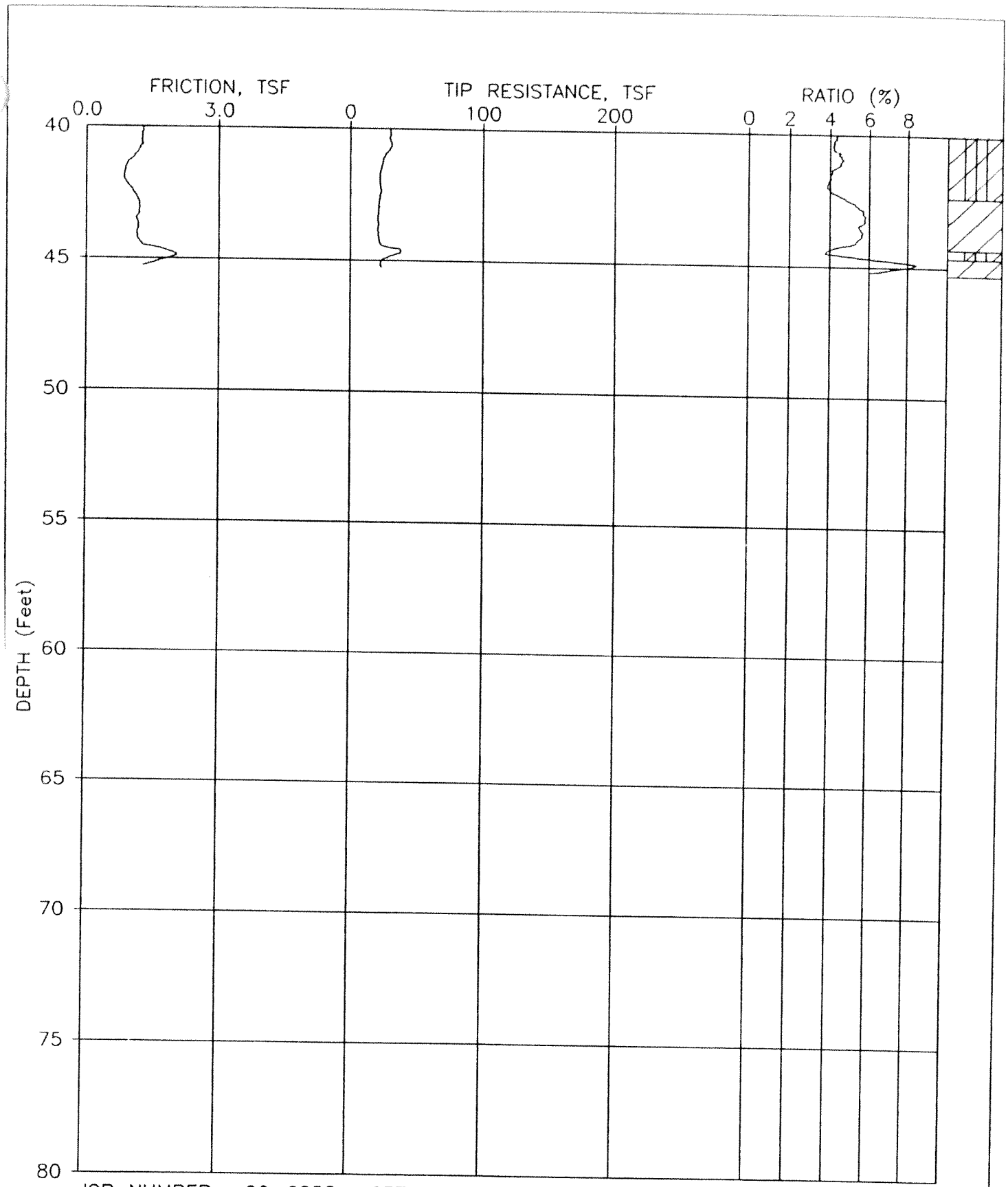
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ELEVATION: 0.00
CPT NUMBER: HP50-51
CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 2 OF 2



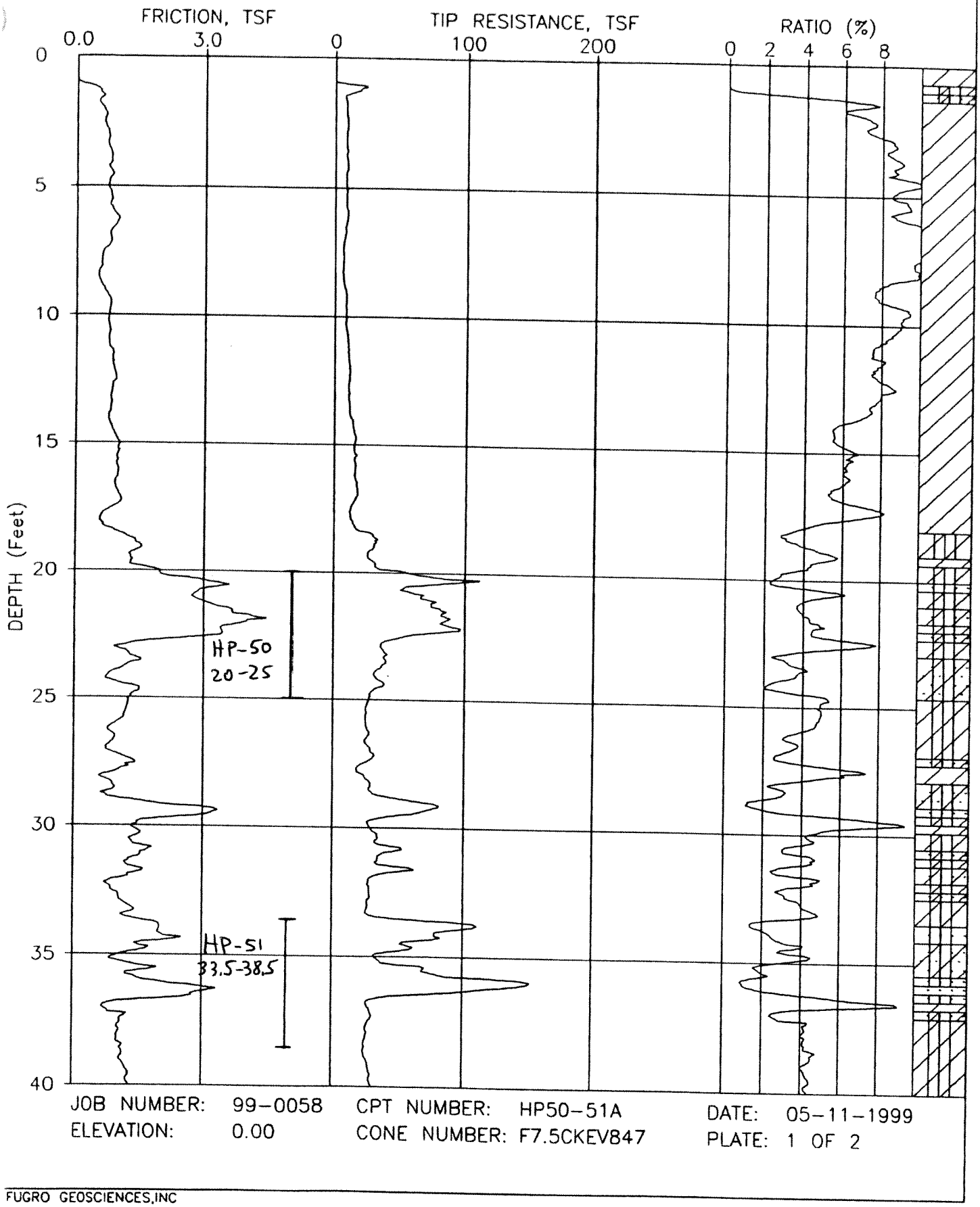
JOB NUMBER: 99-0058
ELEVATION: 0.00

CPT NUMBER: HP50-51A
CONE NUMBER: F7.5CKEV847

DATE: 05-11-1999
PLATE: 1 OF 2



JOB NUMBER: 99-0058
ELEVATION: 0.00
CPT NUMBER: HP50-51A
CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 2 OF 2

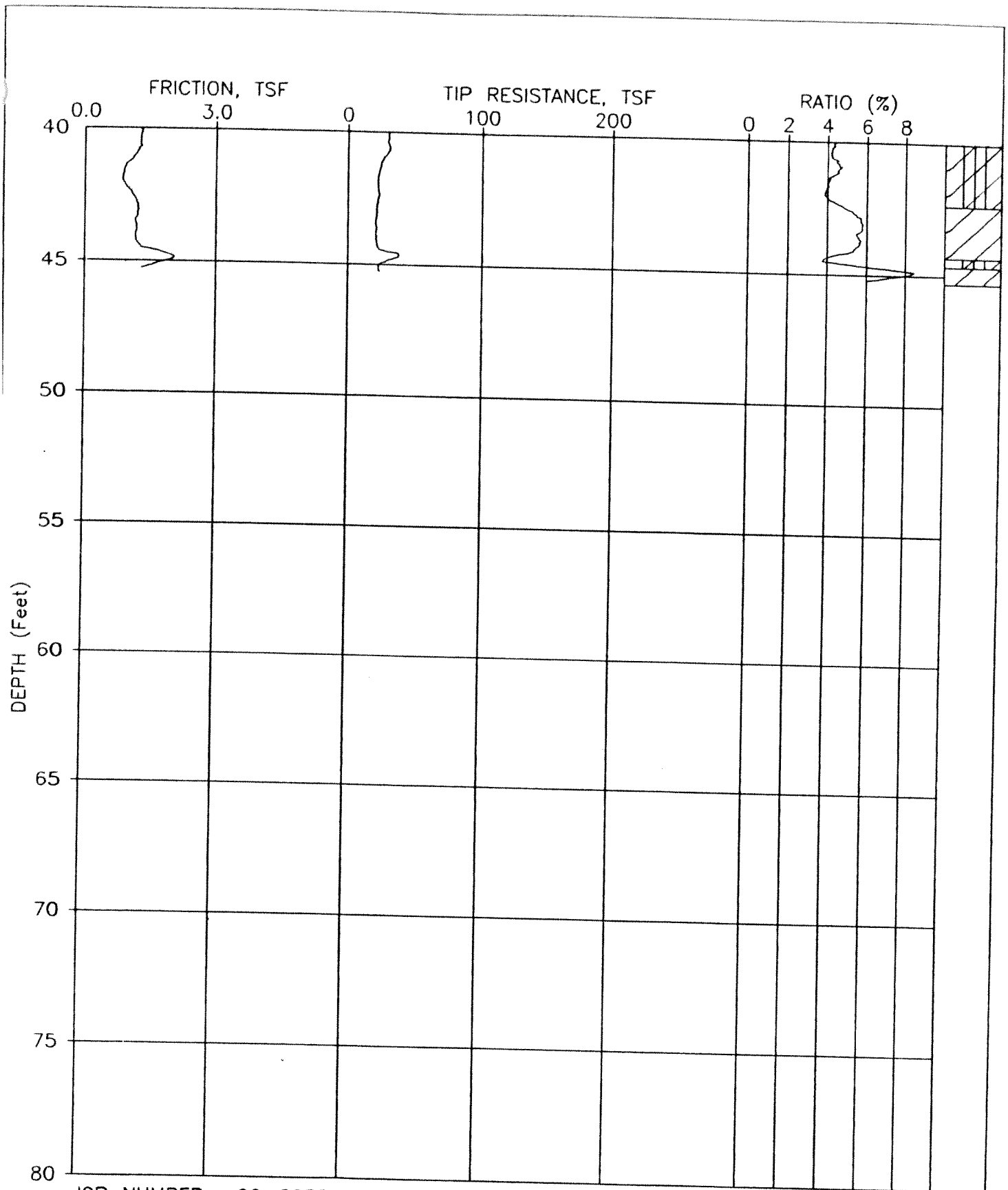


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ELEVATION: 0.00

CPT NUMBER: HP50-51A
CONE NUMBER: F7.5CKEV847

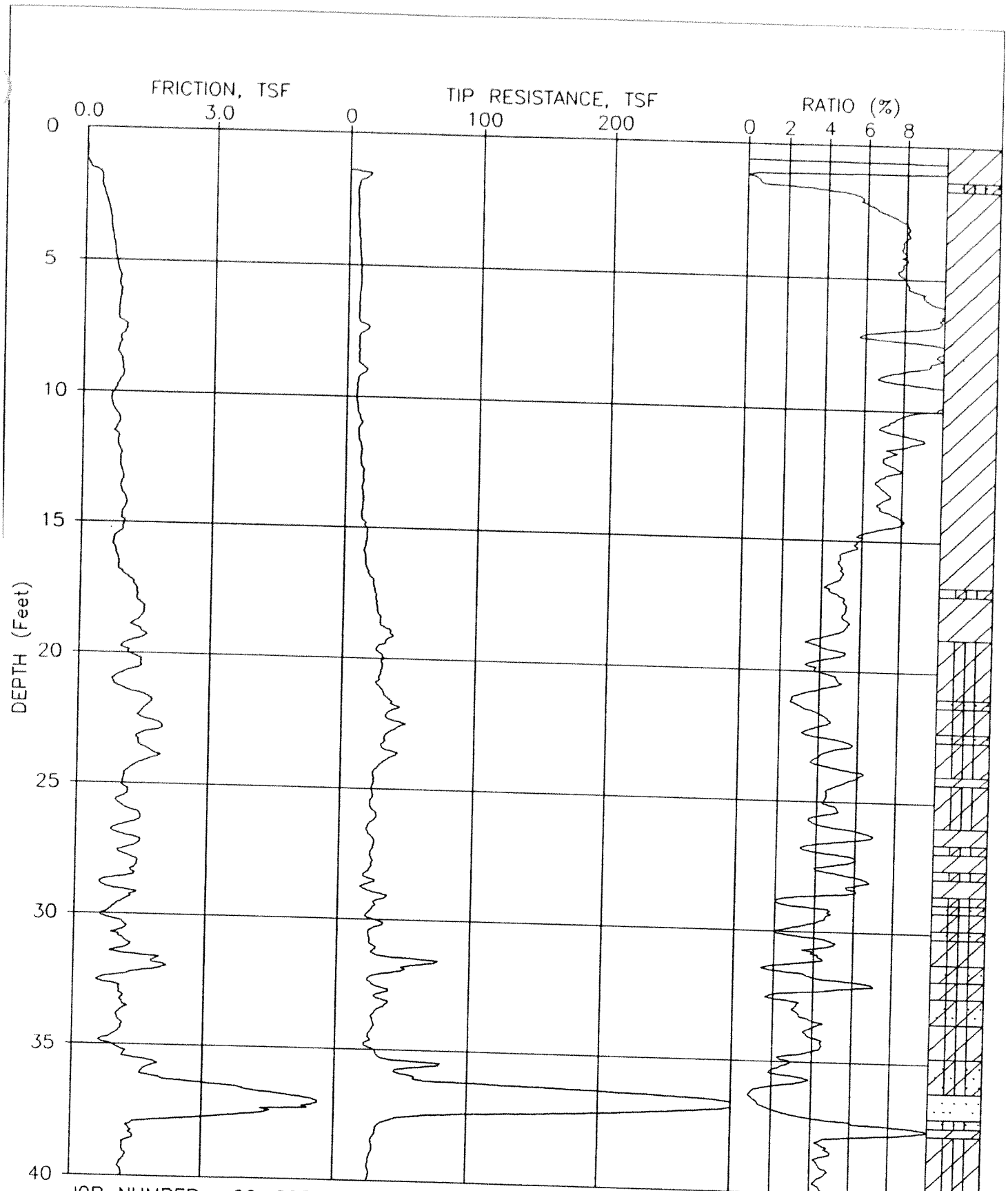
DATE: 05-11-1999
PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



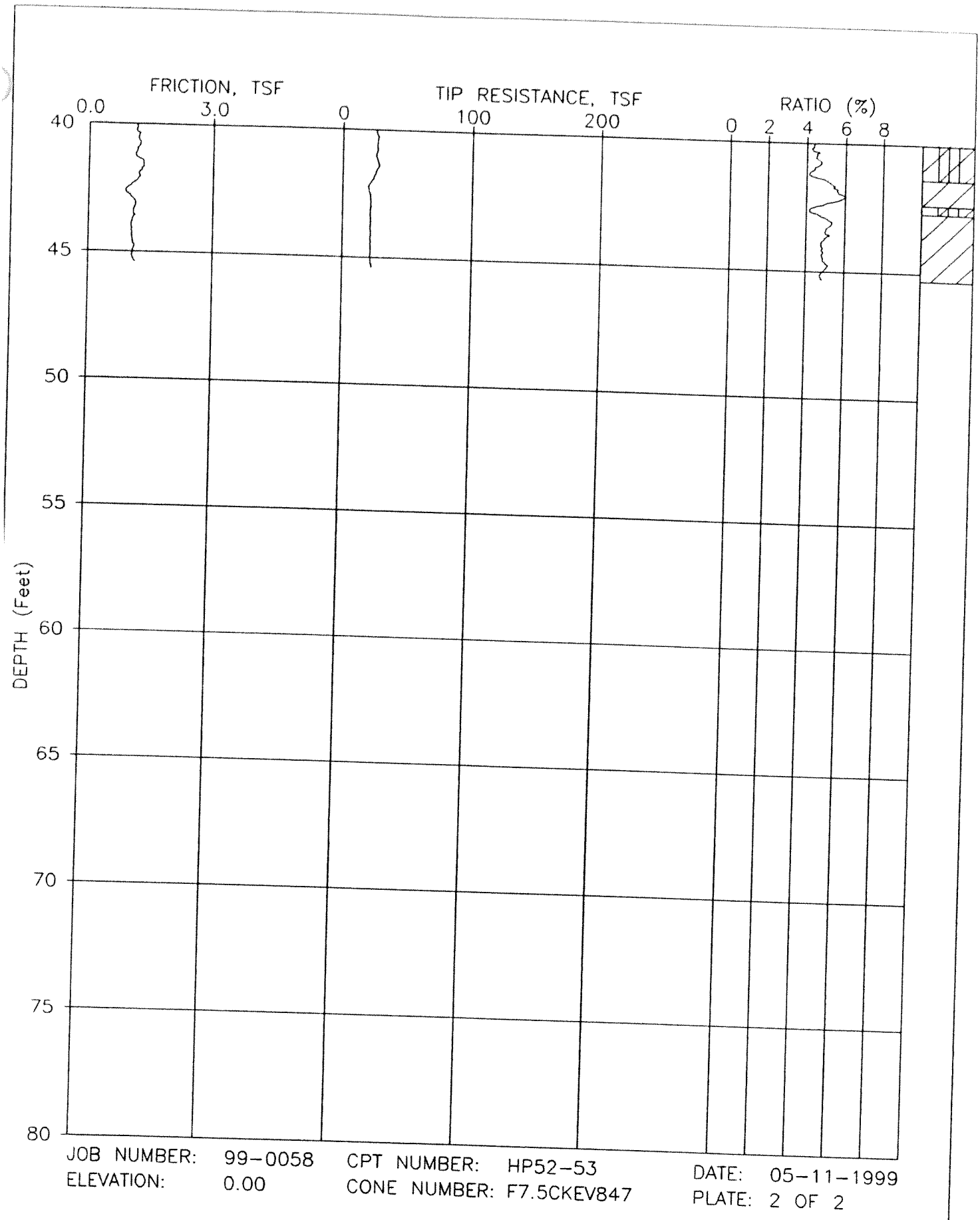
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CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC

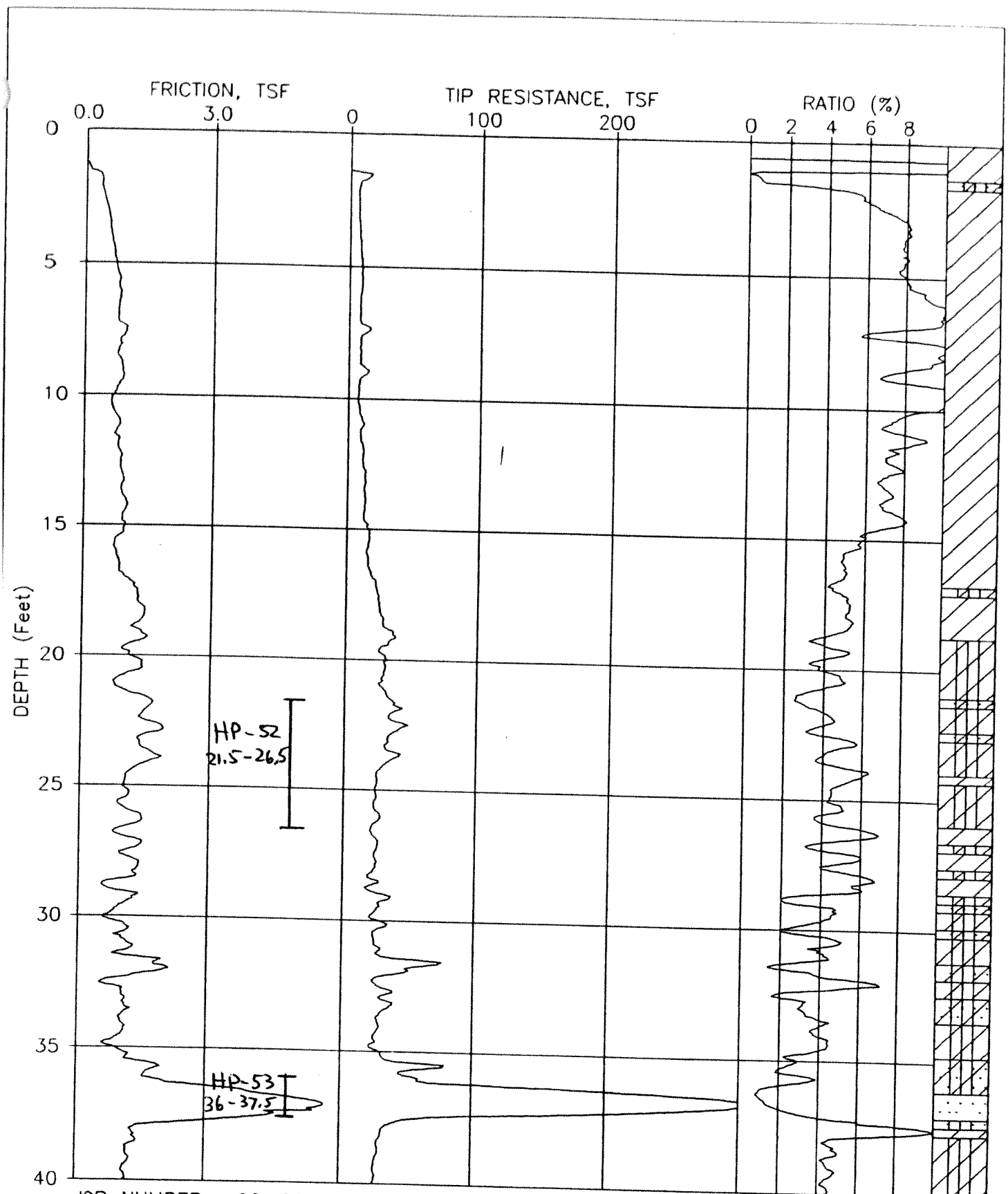


JOB NUMBER: 99-0058
ELEVATION: 0.00
CPT NUMBER: HP52-53
CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC

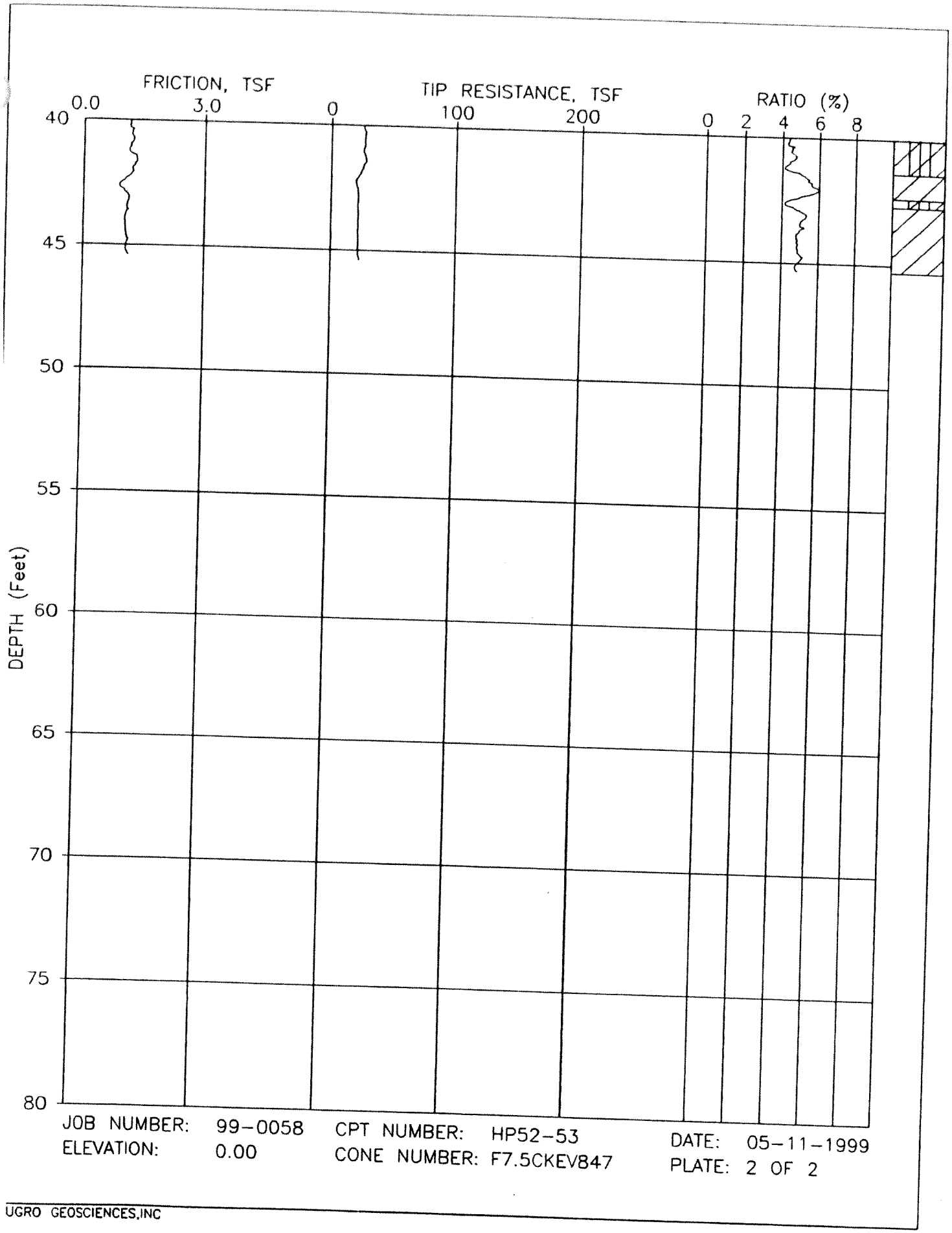


JOB NUMBER: 99-0058
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CPT NUMBER: HP52-53
CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 2 OF 2



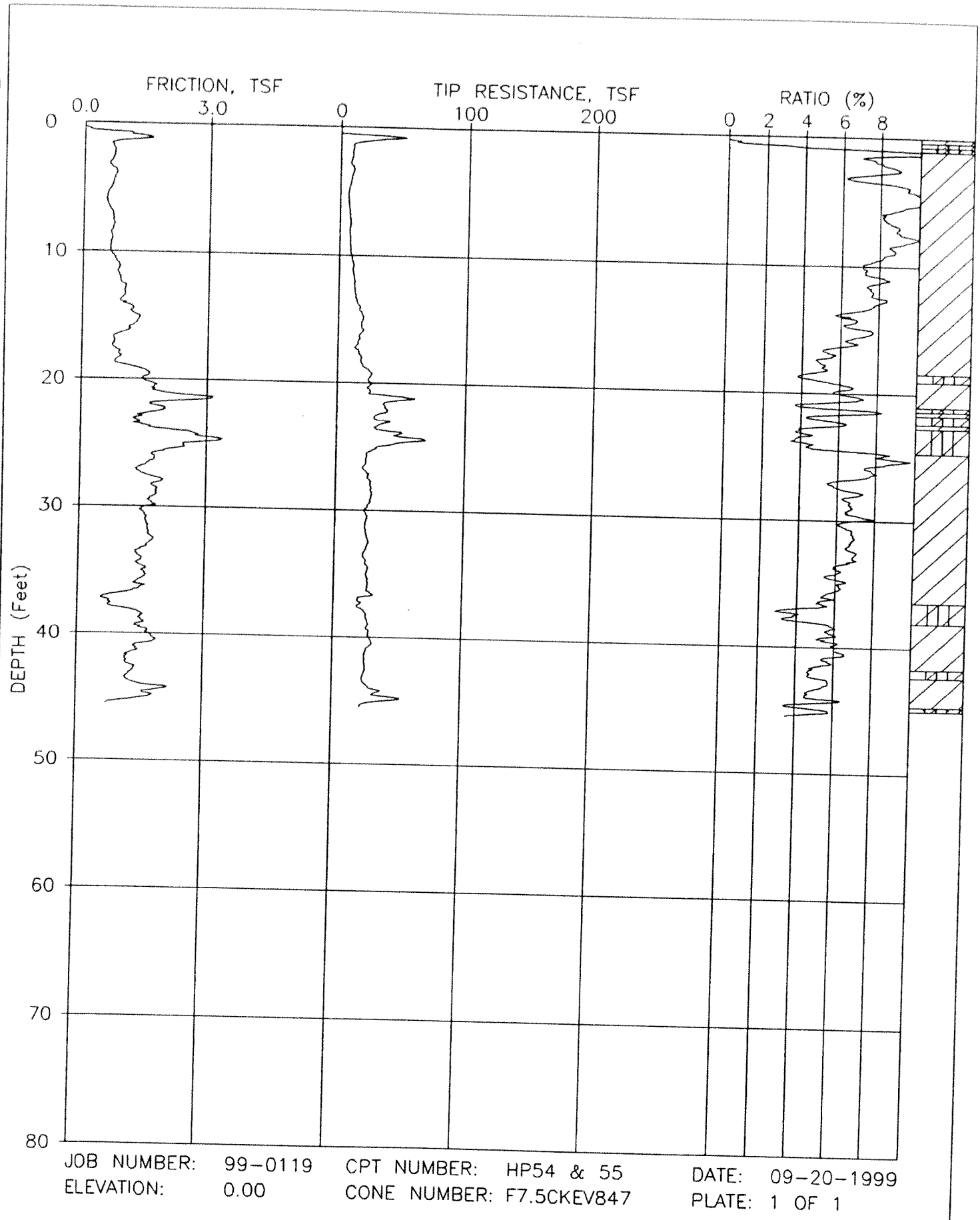
JOB NUMBER: 99-0058
ELEVATION: 0.00
CPT NUMBER: HP52-53
CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 1 OF 2

FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058
ELEVATION: 0.00
CPT NUMBER: HP52-53
CONE NUMBER: F7.5CKEV847
DATE: 05-11-1999
PLATE: 2 OF 2

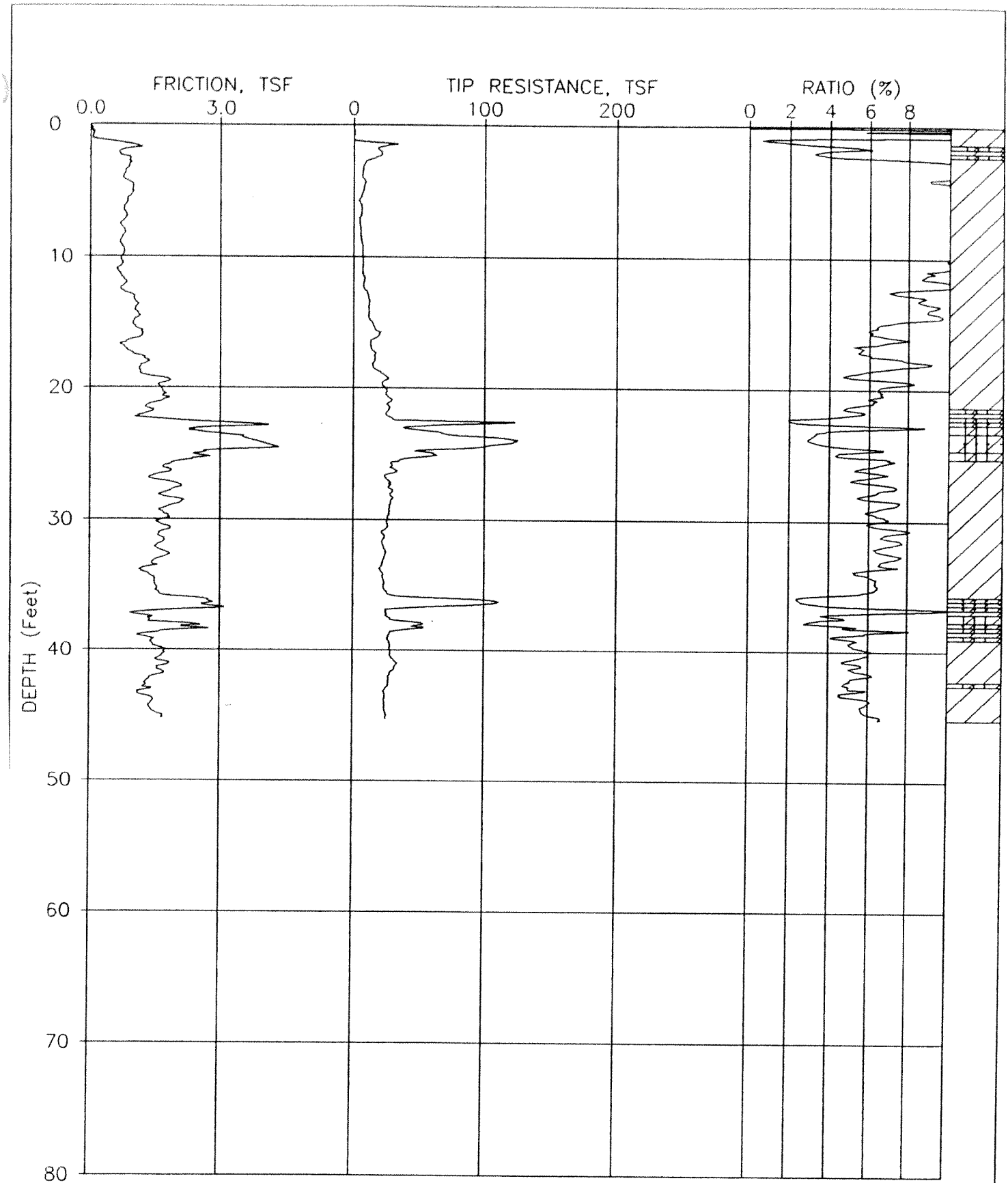
UGRO GEOSCIENCES,INC



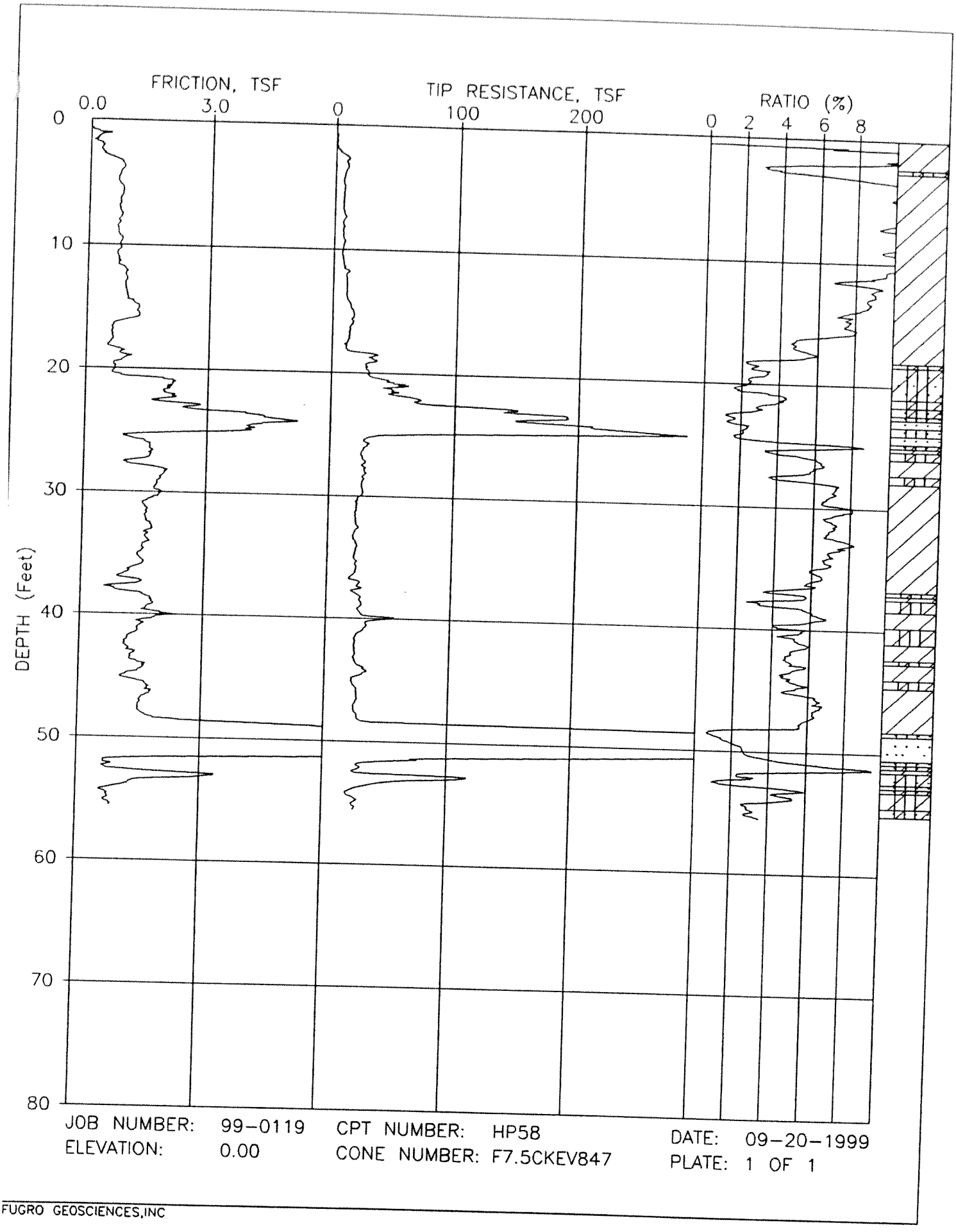
JOB NUMBER: 99-0119
ELEVATION: 0.00

CPT NUMBER: HP54 & 55
CONE NUMBER: F7.5CKEV847

DATE: 09-20-1999
PLATE: 1 OF 1

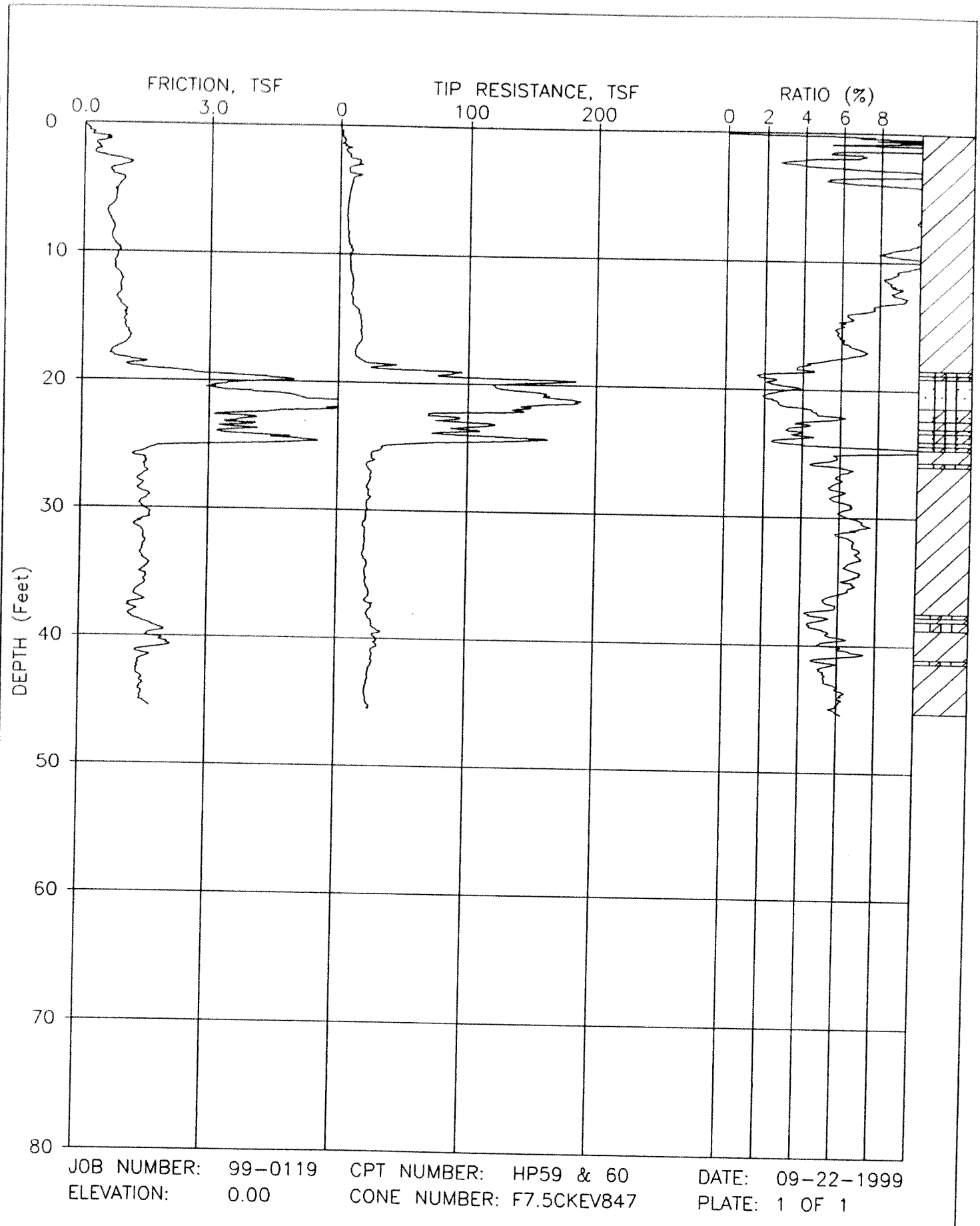


JOB NUMBER: 99-0119 CPT NUMBER: HP56 & 57 DATE: 09-20-1999
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

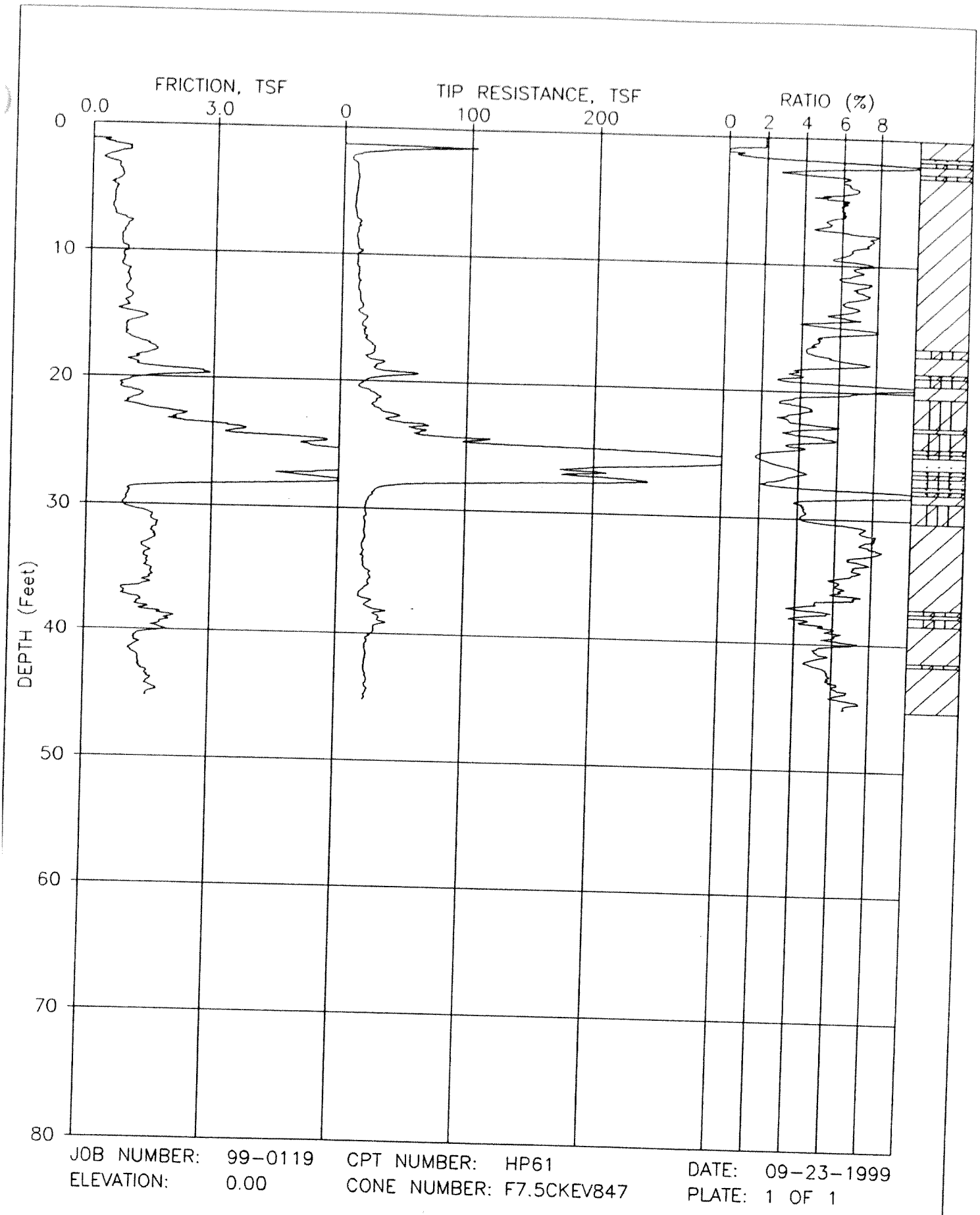


JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP58
CONE NUMBER: F7.5CKEV847
DATE: 09-20-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

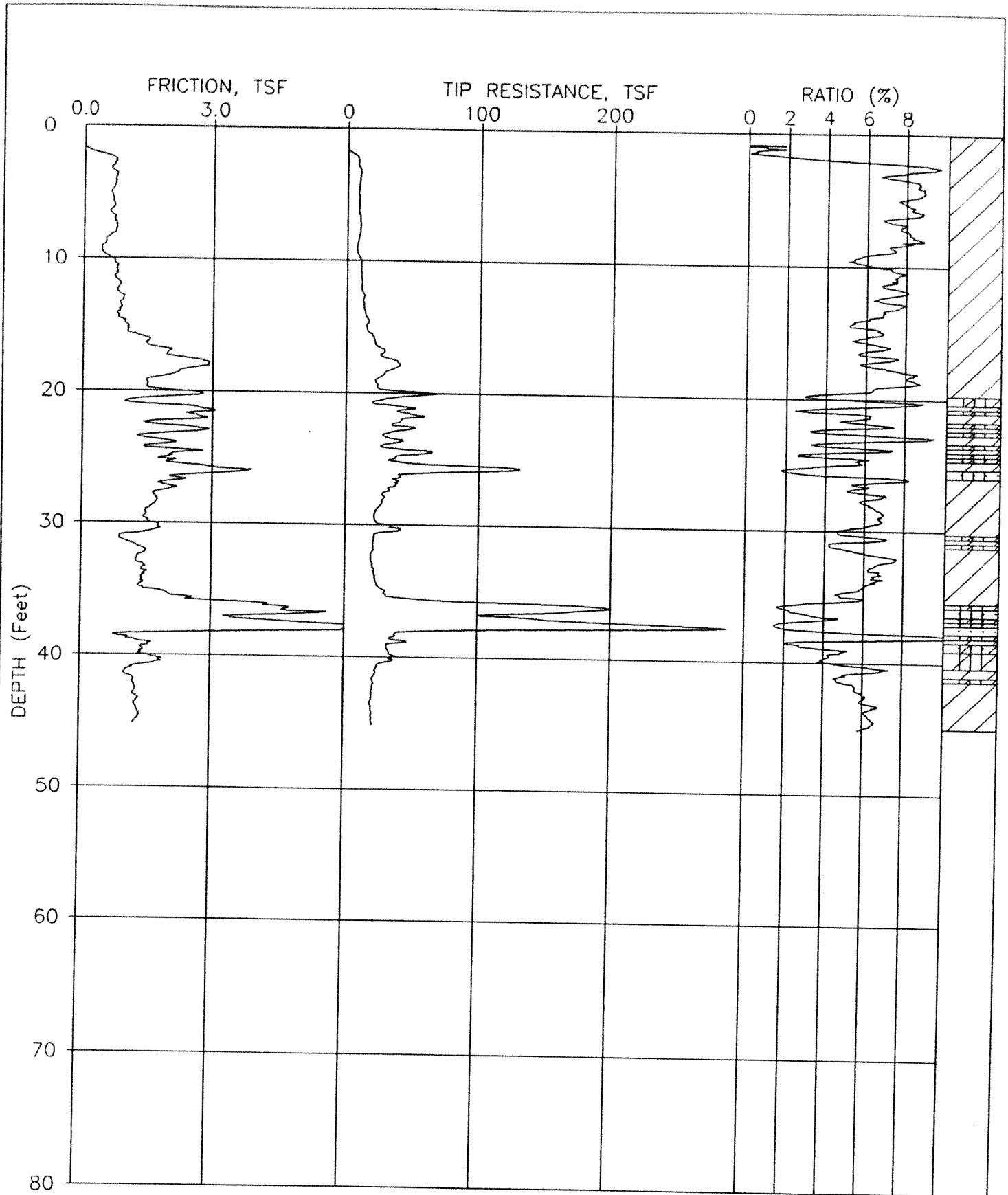


JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP59 & 60
CONE NUMBER: F7.5CKEV847
DATE: 09-22-1999
PLATE: 1 OF 1



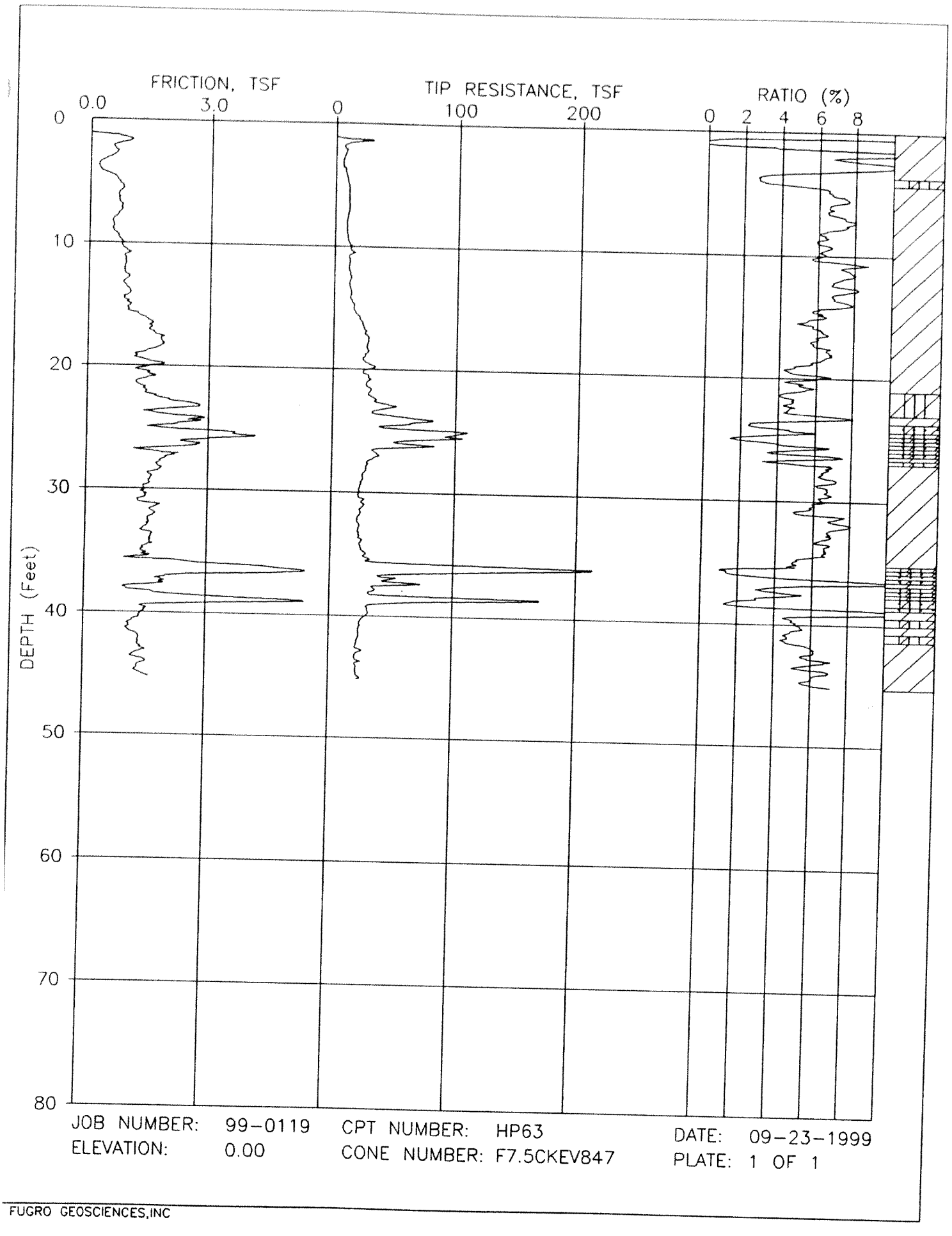
JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP61
CONE NUMBER: F7.5CKEV847
DATE: 09-23-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0119 CPT NUMBER: HP62 DATE: 09-23-1999

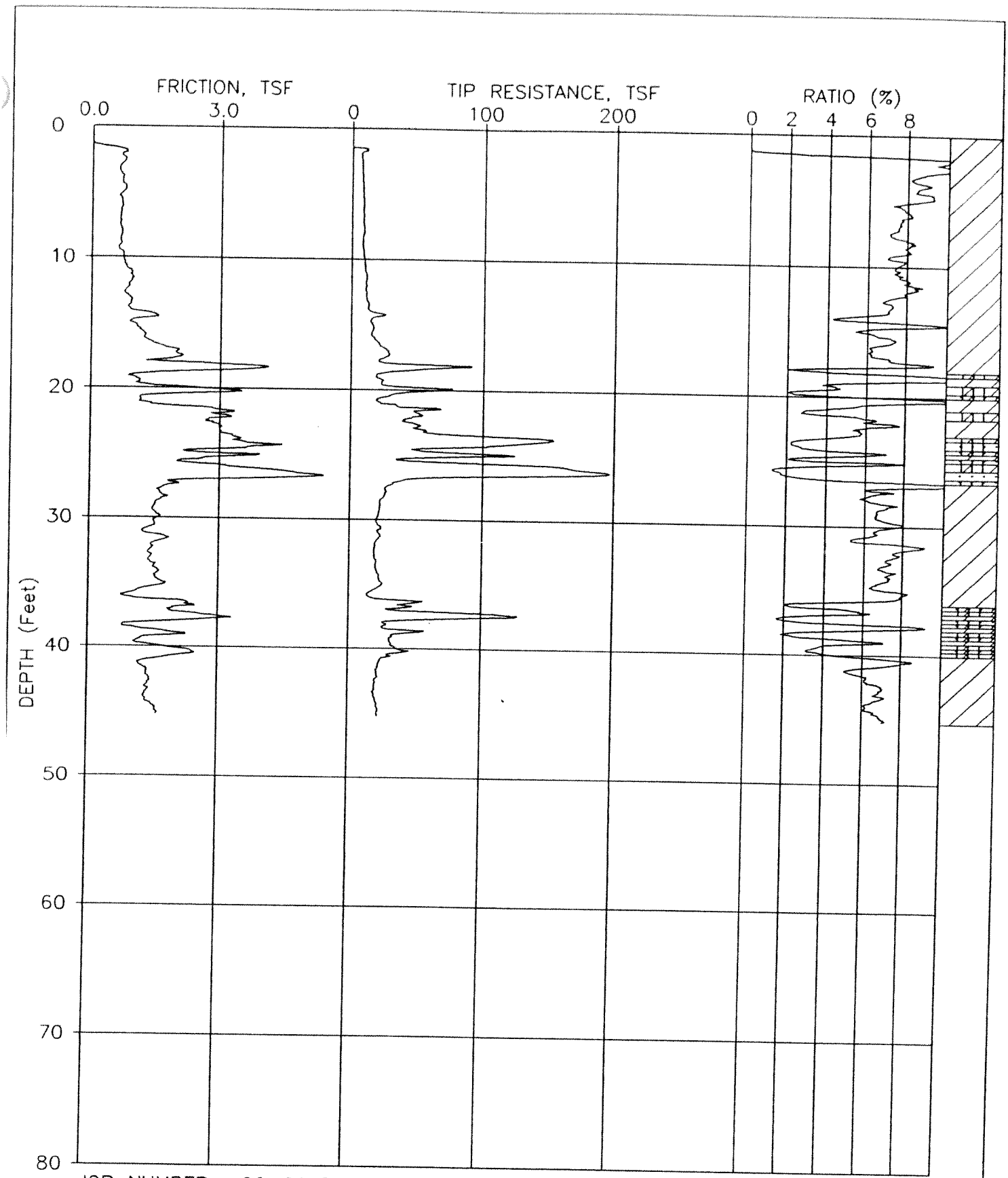
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1



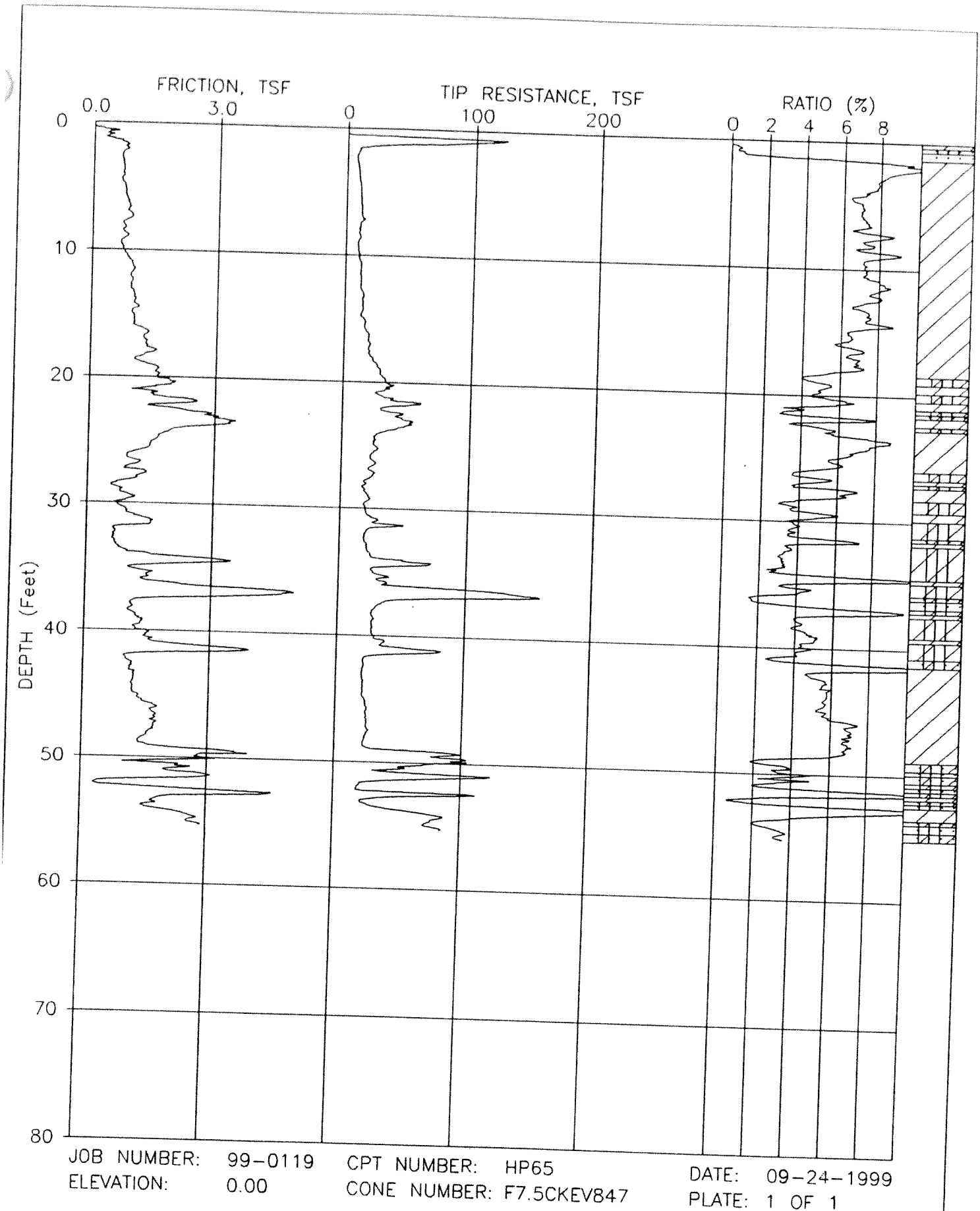
JOB NUMBER: 99-0119
ELEVATION: 0.00

CPT NUMBER: HP63
CONE NUMBER: F7.5CKEV847

DATE: 09-23-1999
PLATE: 1 OF 1



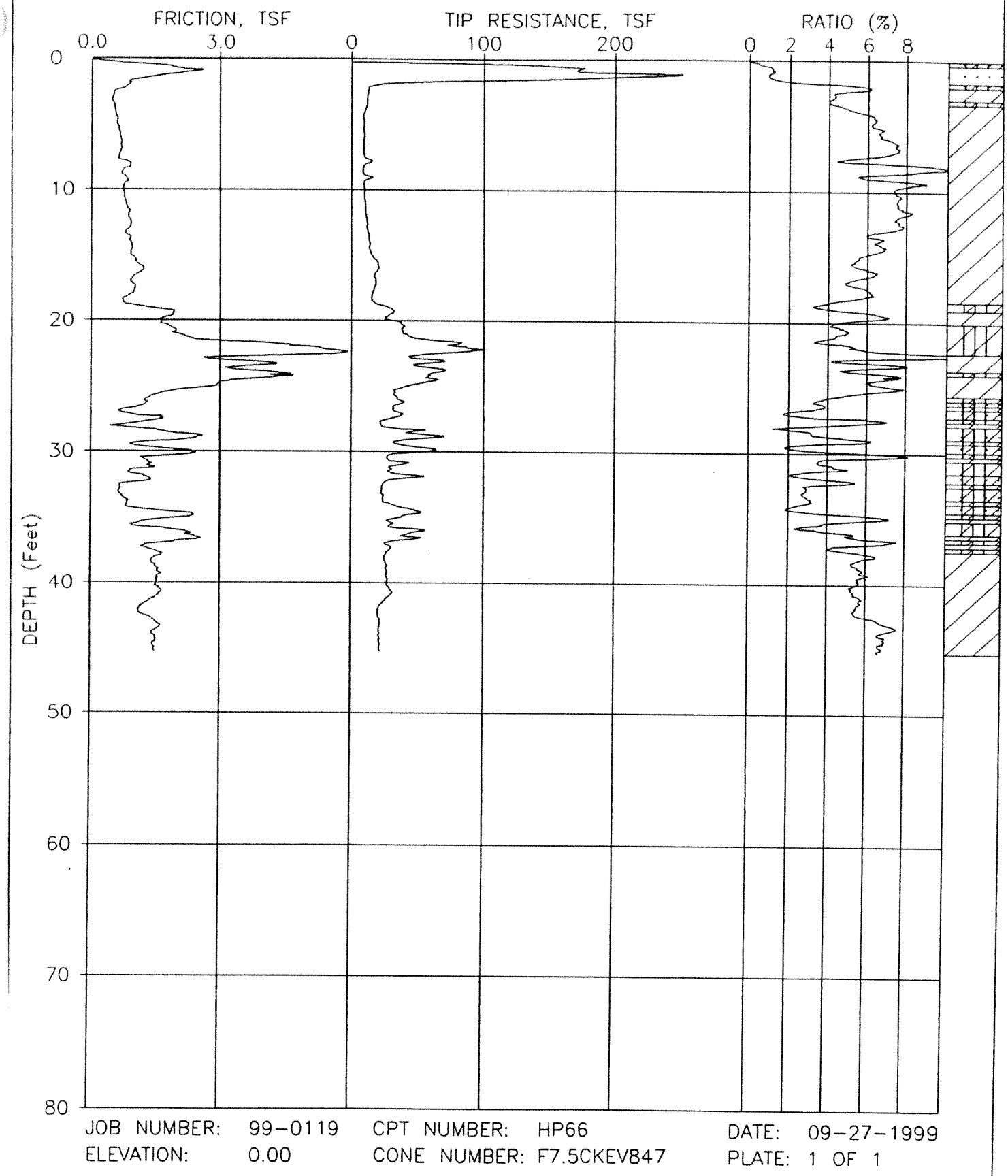
JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP64
CONE NUMBER: F7.5CKEV847
DATE: 09-23-1999
PLATE: 1 OF 1



JOB NUMBER: 99-0119
ELEVATION: 0.00

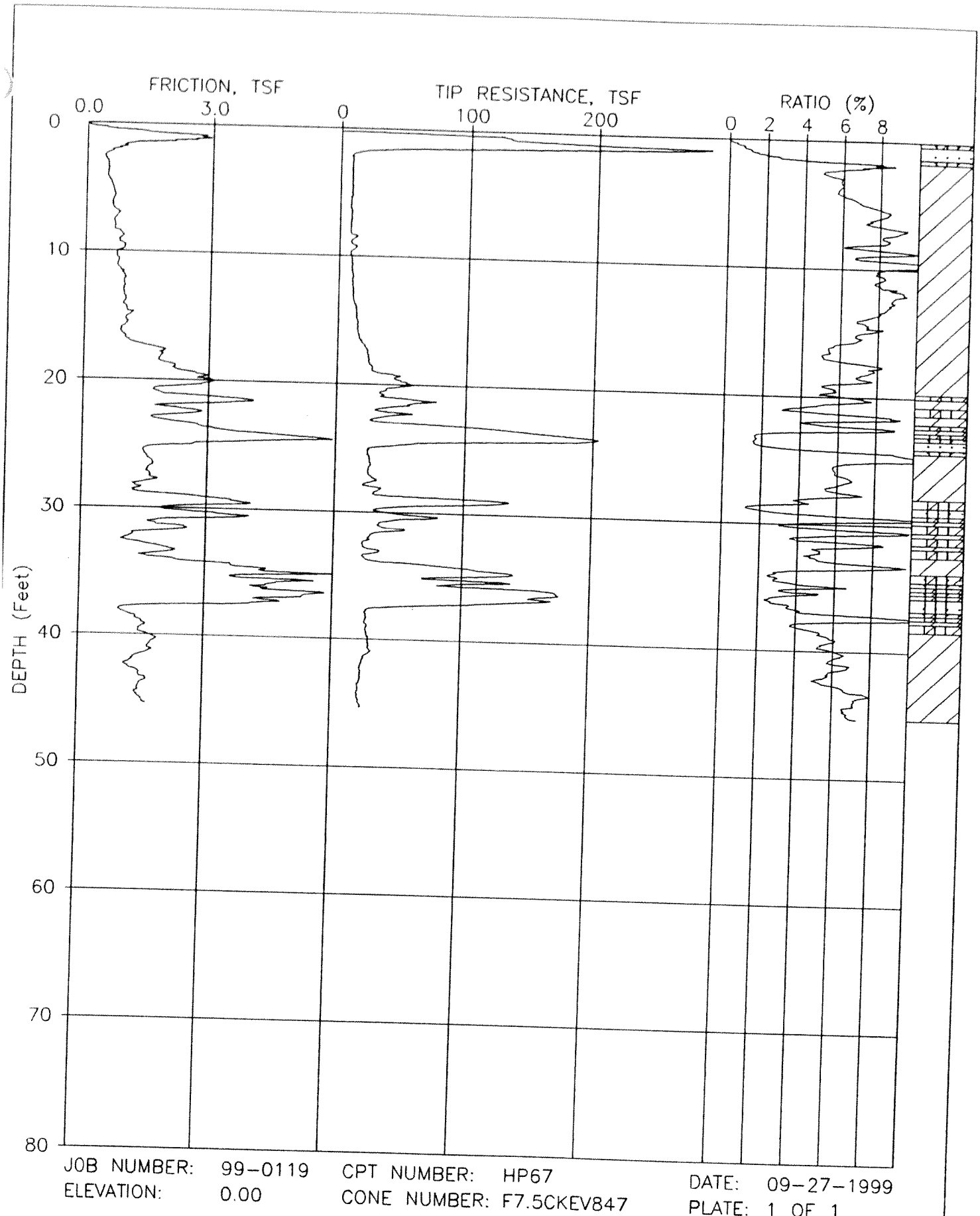
CPT NUMBER: HP65
CONE NUMBER: F7.5CKEV847

DATE: 09-24-1999
PLATE: 1 OF 1



JOB NUMBER: 99-0119 CPT NUMBER: HP66 DATE: 09-27-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1



JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP67
CONE NUMBER: F7.5CKEV847
DATE: 09-27-1999
PLATE: 1 OF 1

PROJECT: Air Products, L.P. Pasadena, Texas	**Log of Boring No. HP68**
BORING LOCATION: N 33.21, E 44.31	ELEVATION AND DATUM: 24.3 ft msl
DRILLING CONTRACTOR: Fugro Geosciences	DATE STARTED: 5/22/03 / DATE FINISHED: 5/23/03
DRILLING METHOD: DPT	TOTAL DEPTH (ft.): 39.0 / MEASURING POINT: Ground Surface
DRILLING EQUIPMENT: Geoprobe 5400	DEPTH TO WATER: FIRST 20' / COMPL. 10.6' / 24 HRS.
SAMPLING METHOD: Push - 2" Dia., 4' Steel Barrel with Acetate Liners	LOGGED BY: J. Wick
HAMMER WEIGHT: - / DROP: -	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION (NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.)	PID READING (ppm)	REMARKS
				Surface Elevation: 24.3 ft msl		
0				grass - gravel from asphalt paving, dry		
1						Set temporary well within 3" diameter borehole to 39 ft with 20' screen and 20' riser. Well material pulled and grouted with bentonite granules/slurry on 5/23/03.
2				CLAY (CH): dark gray, moist, ~95% plastic fines, traces of iron-stained concretions, soft to firm		
3						
4				CLAY (CH): similar to above		
5						
6						
7				Some mottling Change in color to olive-green and tan		
8				CLAY (CH): tan, red and gray mottled clay, ~95% + high plastic fines, traces of calcareous nodules and iron stained concretions, soft to firm		
9						
10						
11						
12				CLAY (CH): similar to above, reddish brown and tan, a few more calcareous nodules ~50% return		
13						
14						
15						

RMRK3

PROJECT: Air Products, L.P.
Pasadena, Texas

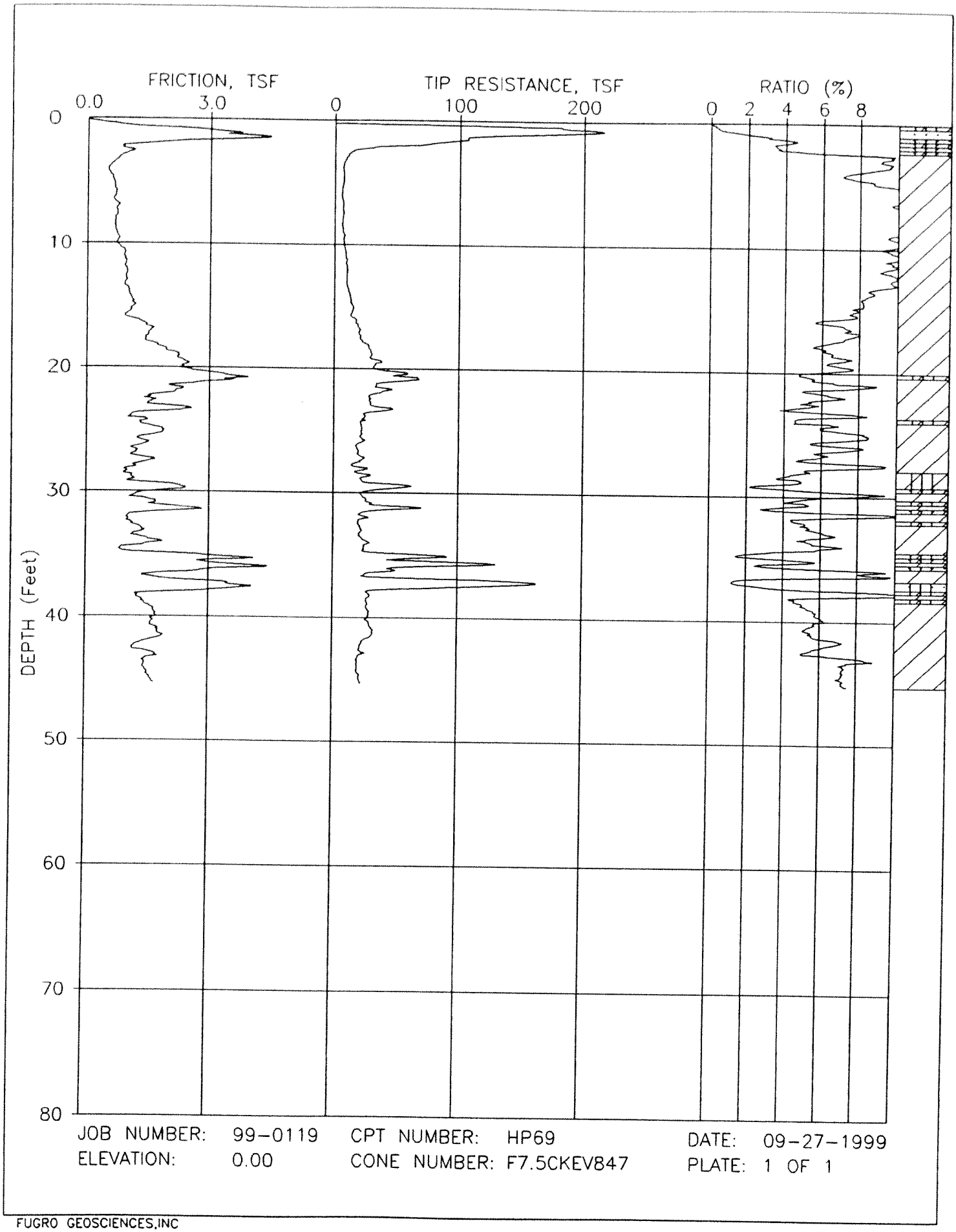
Log of Boring No. HP68 (cont'd)

DEPTH (feet)	SAMPLES Sample No	SAMPLES Sample	SAMPLES Blows/ Foot	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
16				CLAY (CH): similar to above, reddish brown		
17				CLAY (CH): gray and yellowish brown mottled, firm to stiff, slightly more silty, calcareous nodules common		
18						
19						
20				SILTY CLAY (CH): yellowish brown and gray, moist		Try 2 1/2 ft core run due to expanding clays. Switch to discrete soil sampler. First sign of water upon re-entry.
21				Layer of calcareous nodules, wet		
22				Sandy calcareous nodules layer, wet, soft to firm		
23				SILT (SM): moist, small, black iron concretions (trace)		
24				CLAY with SAND (calcareous nodules) (SC) and SILT (SM): reddish brown 23.5', moist		
25						
26				CLAY (CH): reddish brown, moist, ~95% + highly plastic, some gray color mottling, some white calcareous nodules, stiff, gray silt seam at 26'		
27						
28						
29						
30				SILT (SM) with CLAY (CH): reddish pink and gray, moist to wet, soft		
31						
32				Sand layer at 31.5', wet, fine-grained, silty		
33				CLAY (CH): reddish brown with some gray, moist, firm to stiff, mottled		

PROJECT: Air Products, L.P.
Pasadena, Texas

Log of Boring No. HP68 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/Foot	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	PID READING (ppm)	REMARKS
34				gray sand layer, wet, fine-grained with silt		
35				CLAY (CH): similar to above red brown sand seam		
36				very stiff red clay as above		
37				SAND (SW): reddish brown to brown, wet, fine-grained CLAY (CH): red and reddish brown, moist, stiff		
38						
39				SAND (SW): brown, wet, fine-grained Seam of silty sand Seam of clay CLAY (CH): reddish brown, stiff		
40				Total Depth: 40 feet below ground surface		
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						

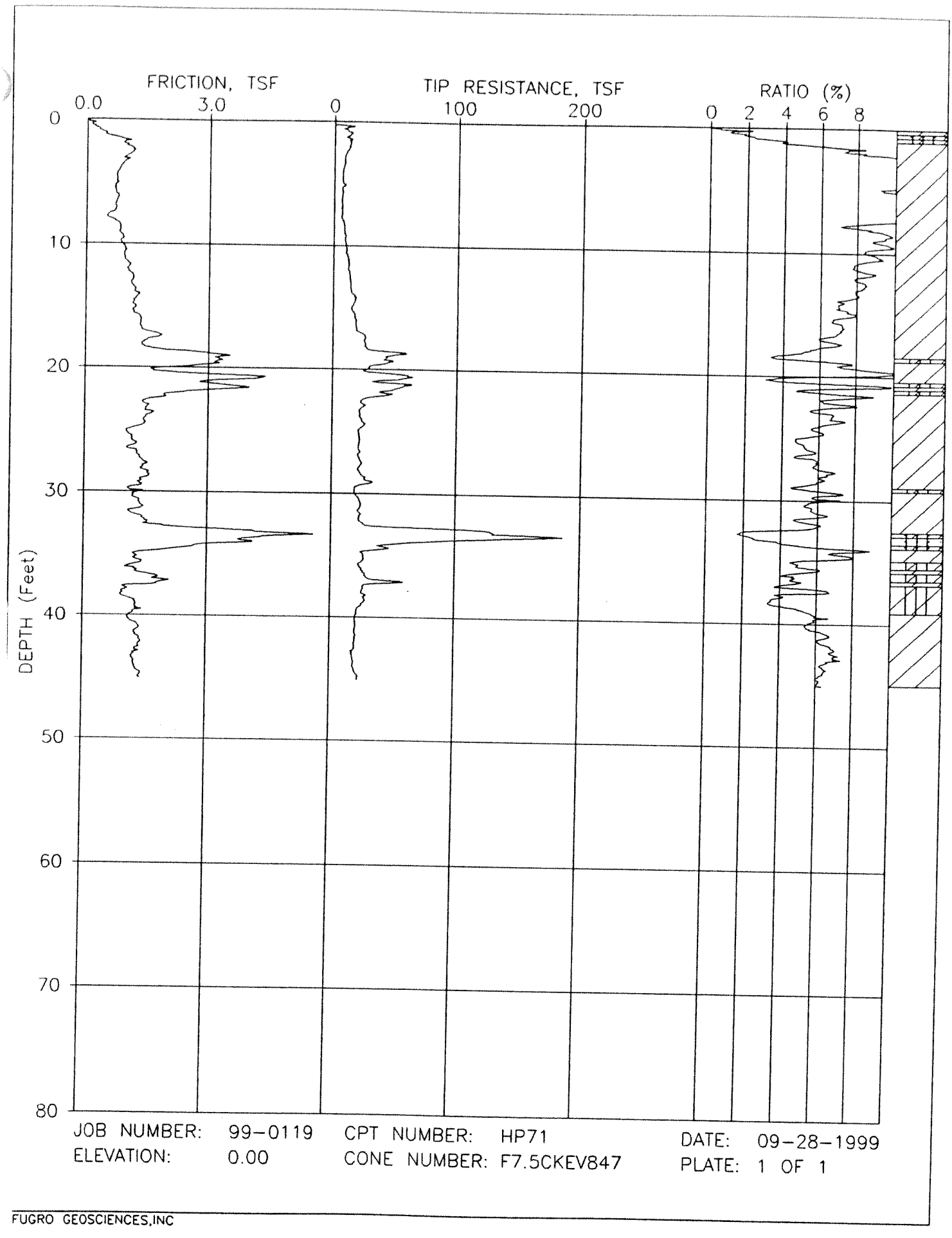


JOB NUMBER: 99-0119
ELEVATION: 0.00

CPT NUMBER: HP69
CONE NUMBER: F7.5CKEV847

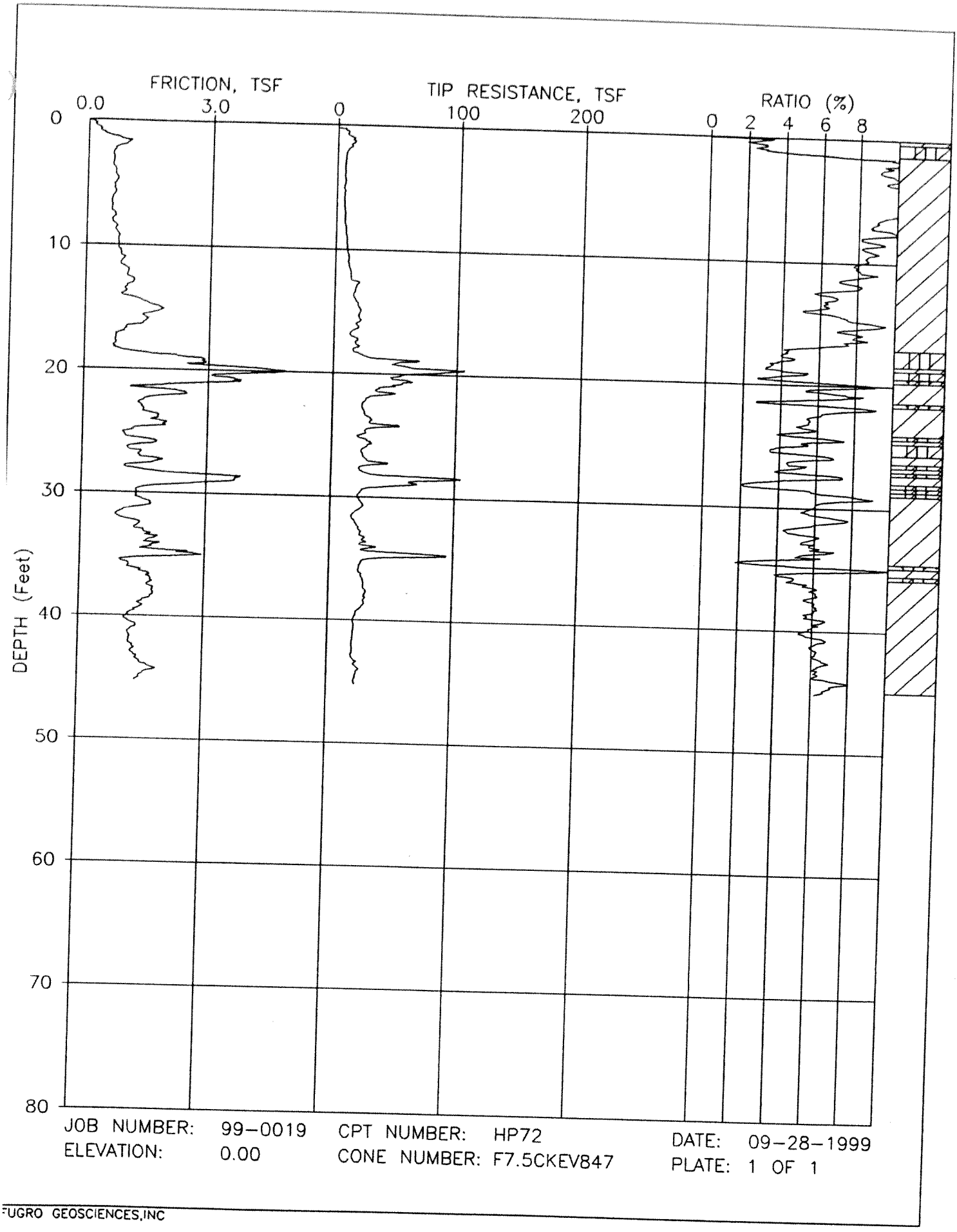
DATE: 09-27-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



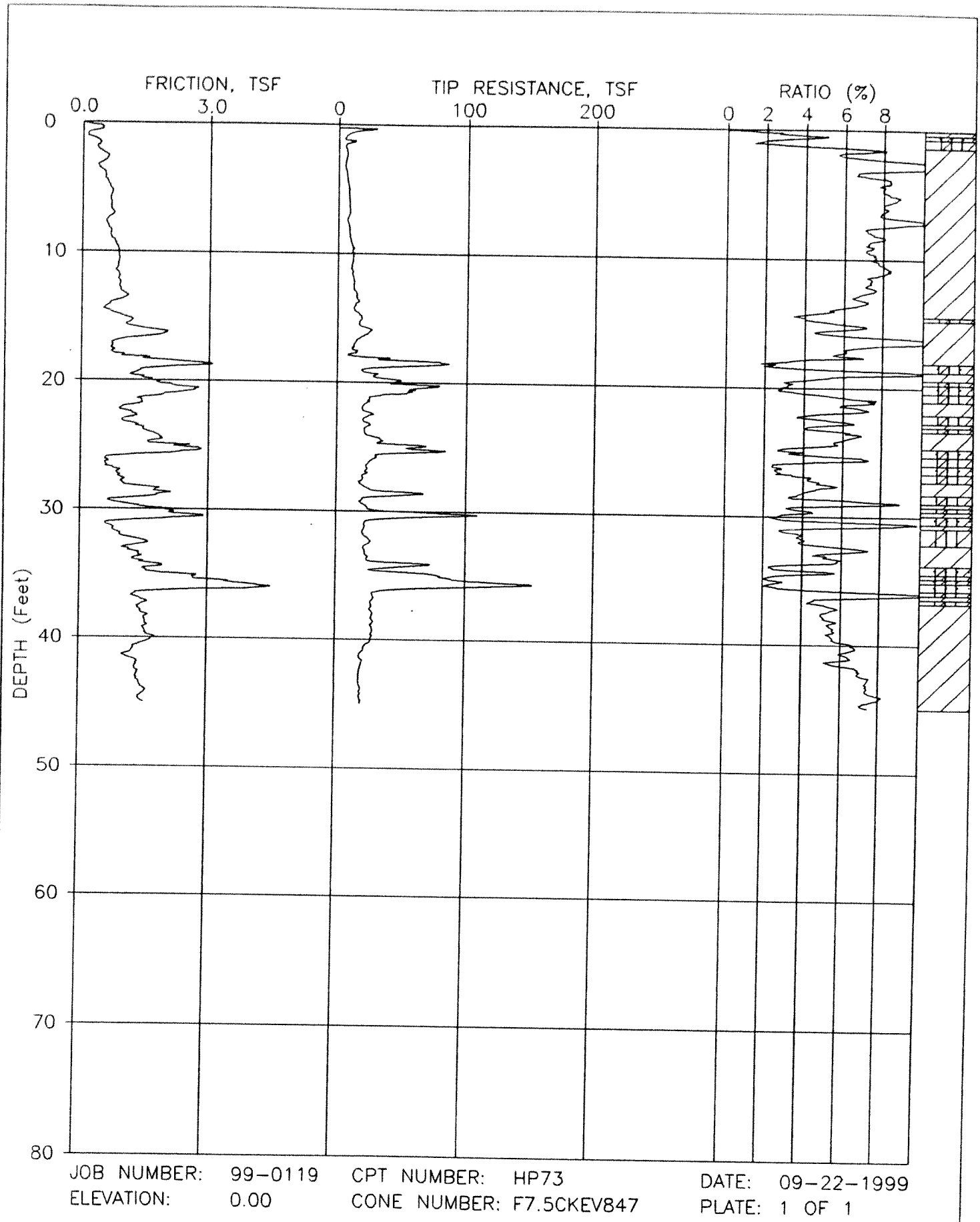
JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP71
CONE NUMBER: F7.5CKEV847
DATE: 09-28-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



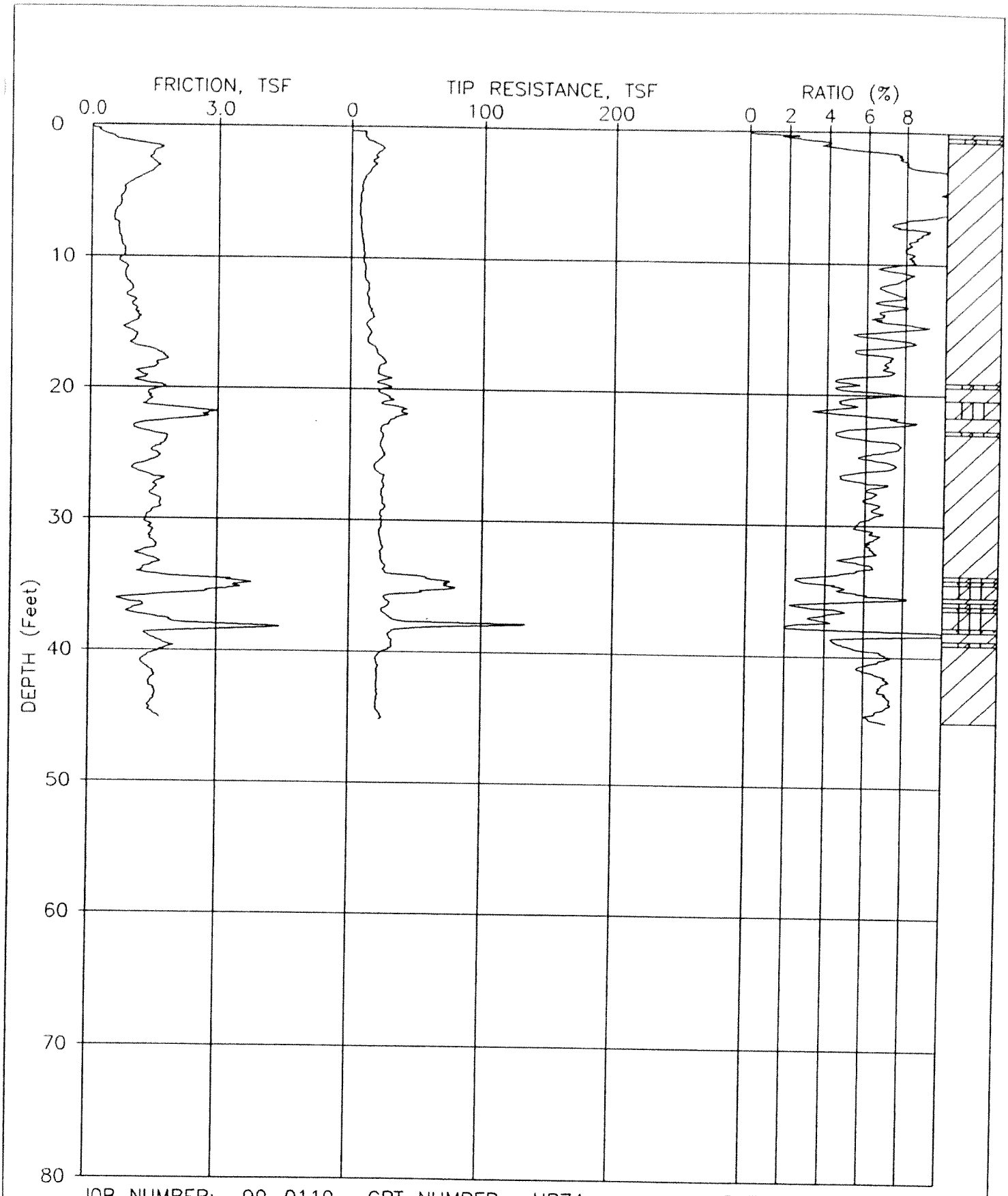
JOB NUMBER: 99-0019
ELEVATION: 0.00
CPT NUMBER: HP72
CONE NUMBER: F7.5CKEV847
DATE: 09-28-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



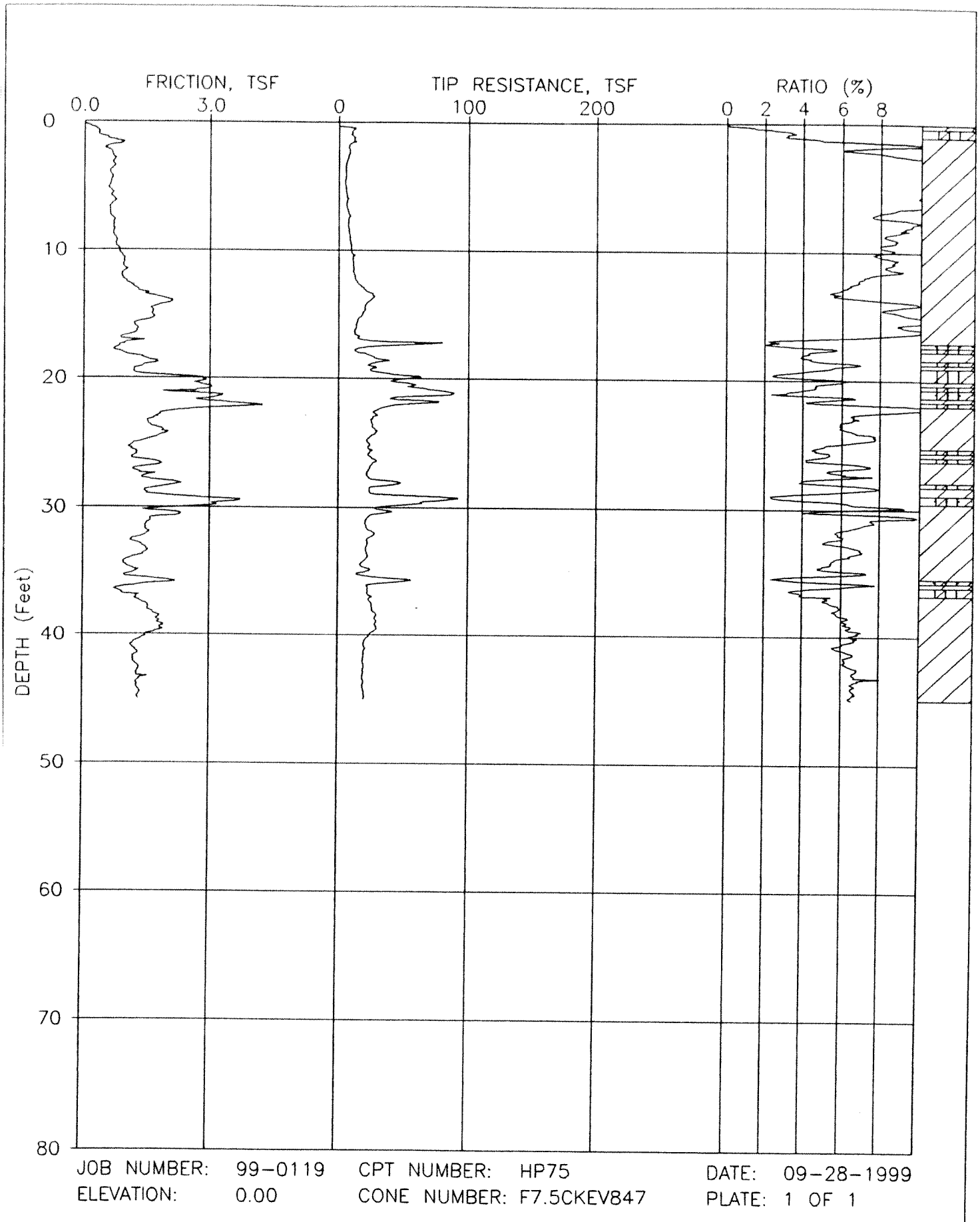
JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP73
CONE NUMBER: F7.5CKEV847
DATE: 09-22-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

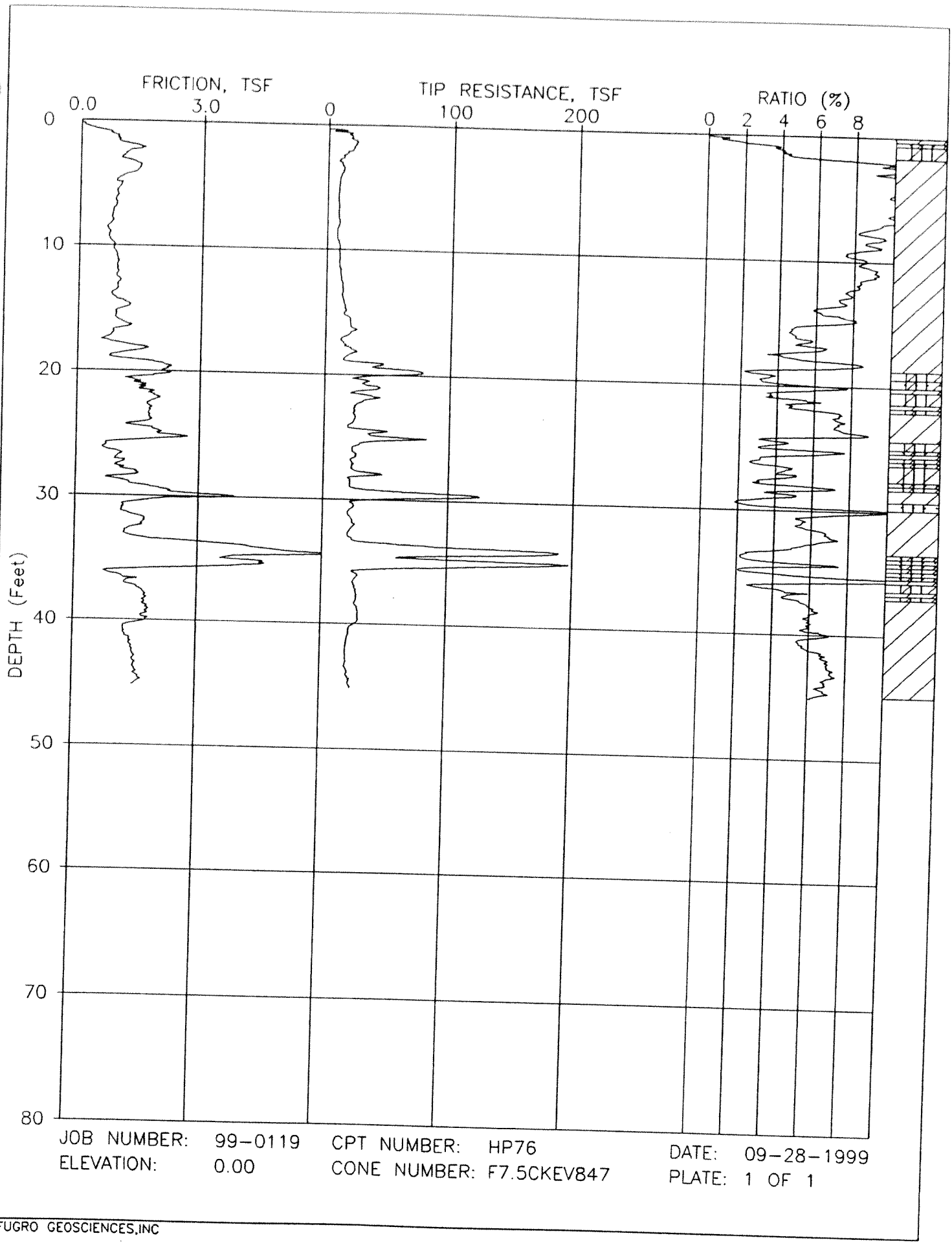


JOB NUMBER: 99-0119
ELEVATION: 0.00
CPT NUMBER: HP74
CONE NUMBER: F7.5CKEV847
DATE: 09-28-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



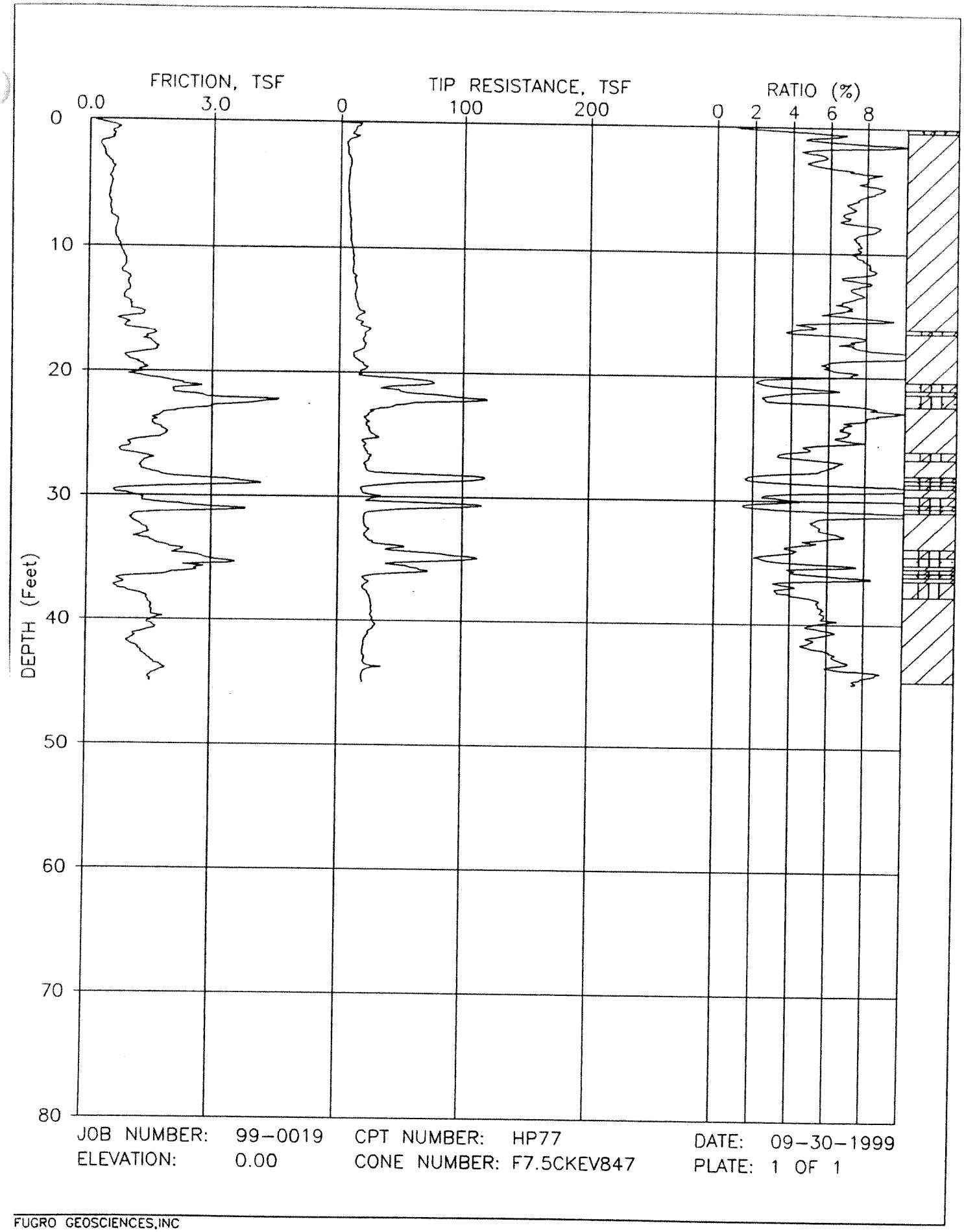
JOB NUMBER: 99-0119 CPT NUMBER: HP75 DATE: 09-28-1999
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1



JOB NUMBER: 99-0119
ELEVATION: 0.00

CPT NUMBER: HP76
CONE NUMBER: F7.5CKEV847

DATE: 09-28-1999
PLATE: 1 OF 1

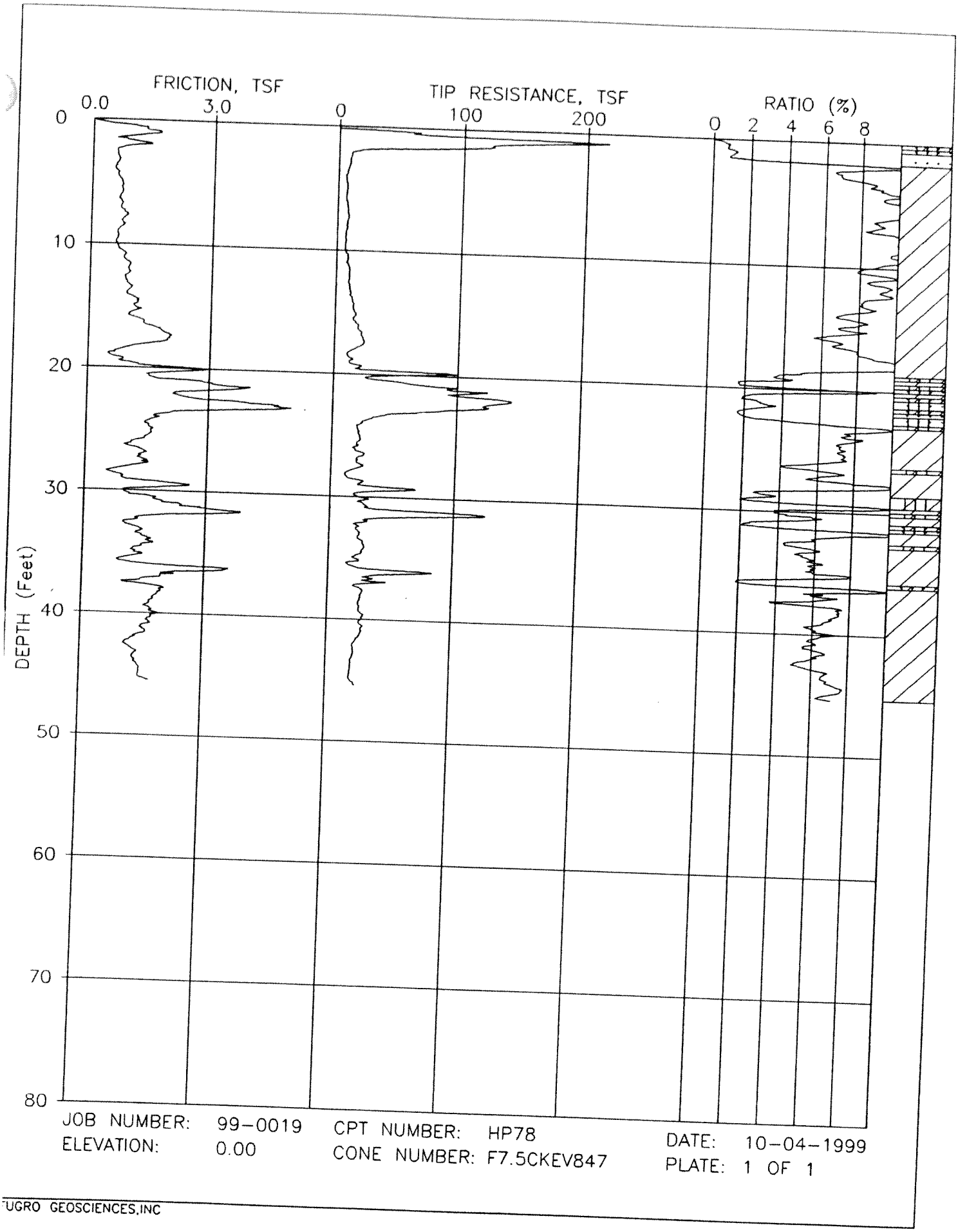


JOB NUMBER: 99-0019
ELEVATION: 0.00

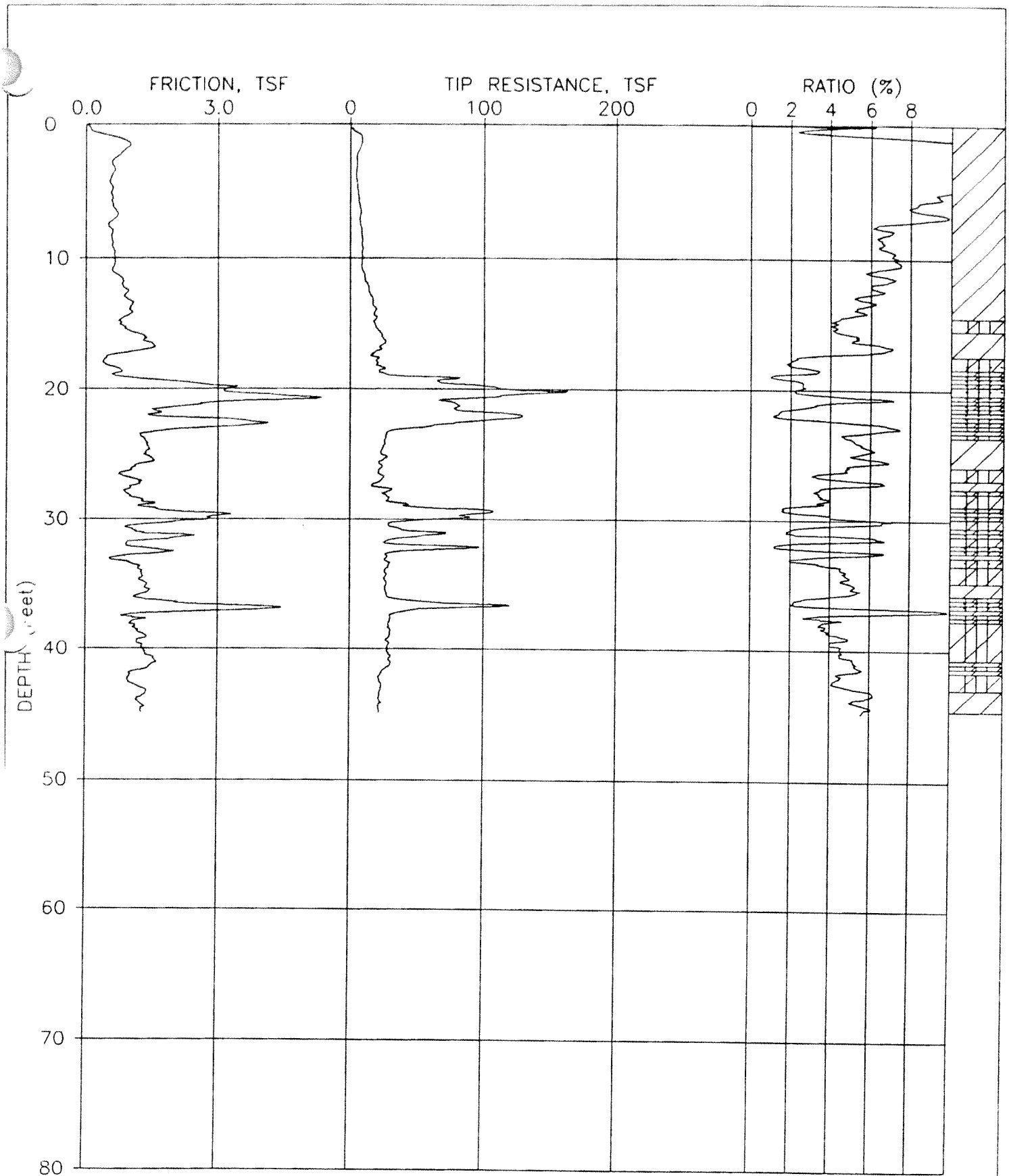
CPT NUMBER: HP77
CONE NUMBER: F7.5CKEV847

DATE: 09-30-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

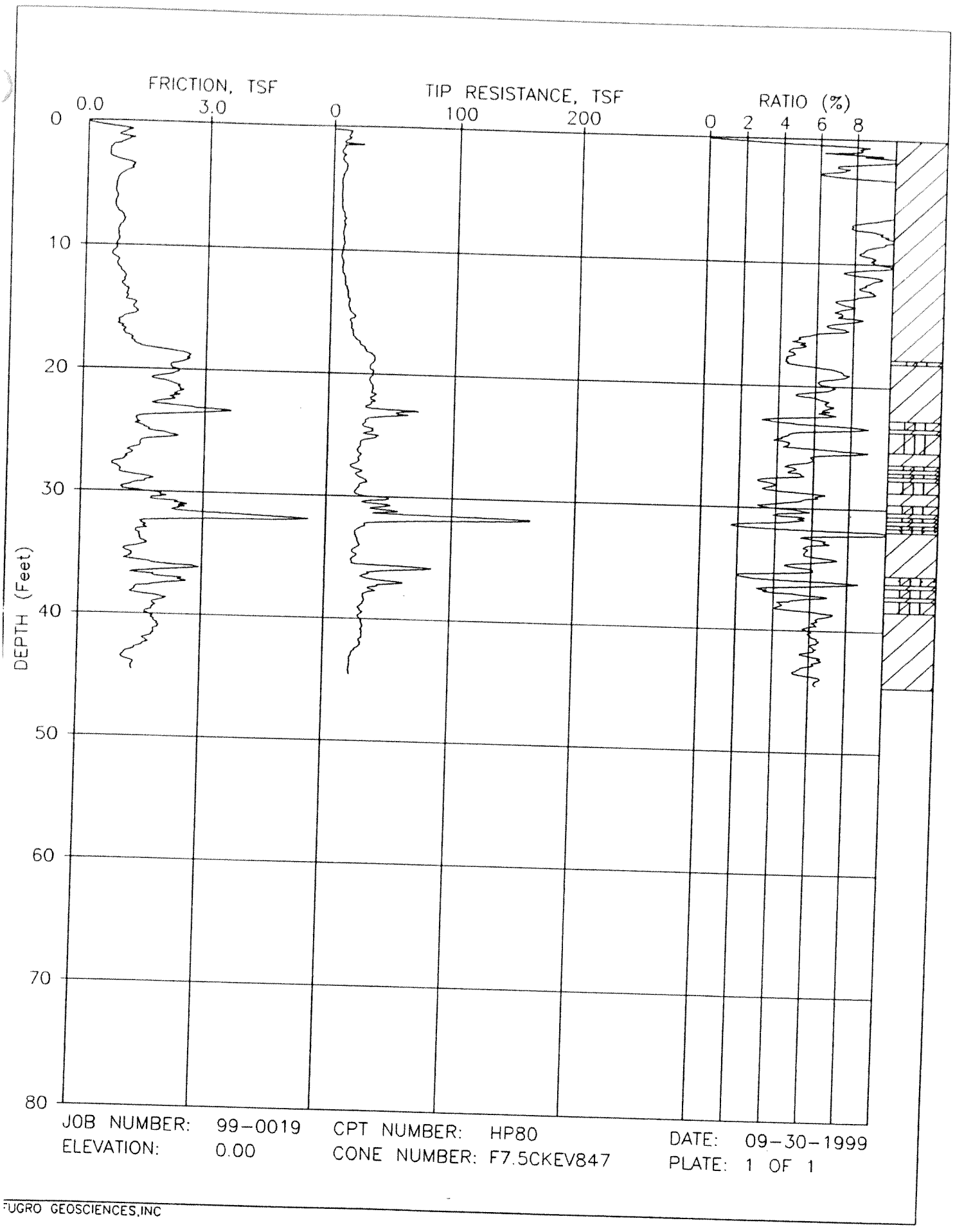


JOB NUMBER: 99-0019
ELEVATION: 0.00
CPT NUMBER: HP78
CONE NUMBER: F7.5CKEV847
DATE: 10-04-1999
PLATE: 1 OF 1



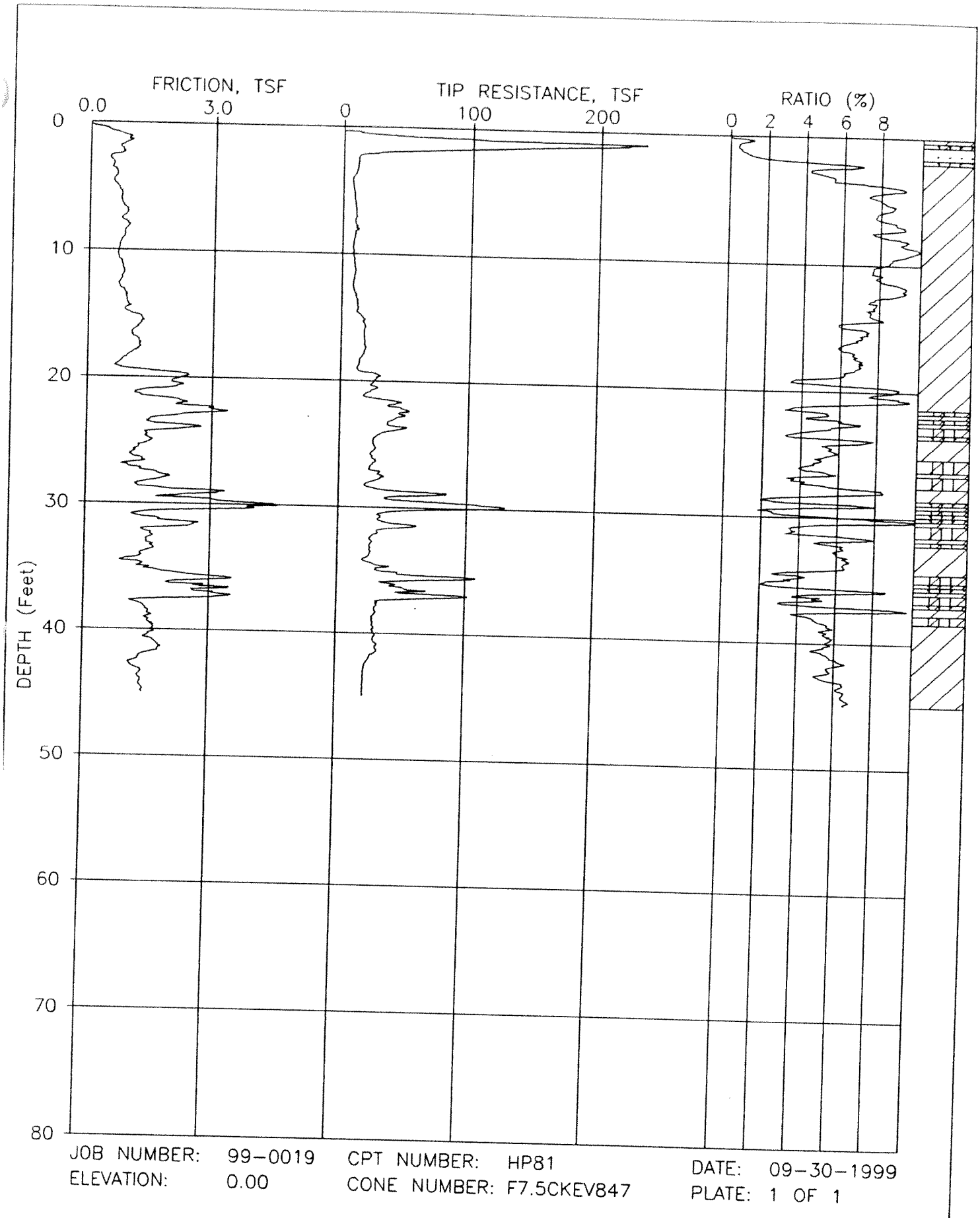
JOB NUMBER: 0305-0640 CPT NUMBER: HP79-92 DATE: 01-17-2002

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1



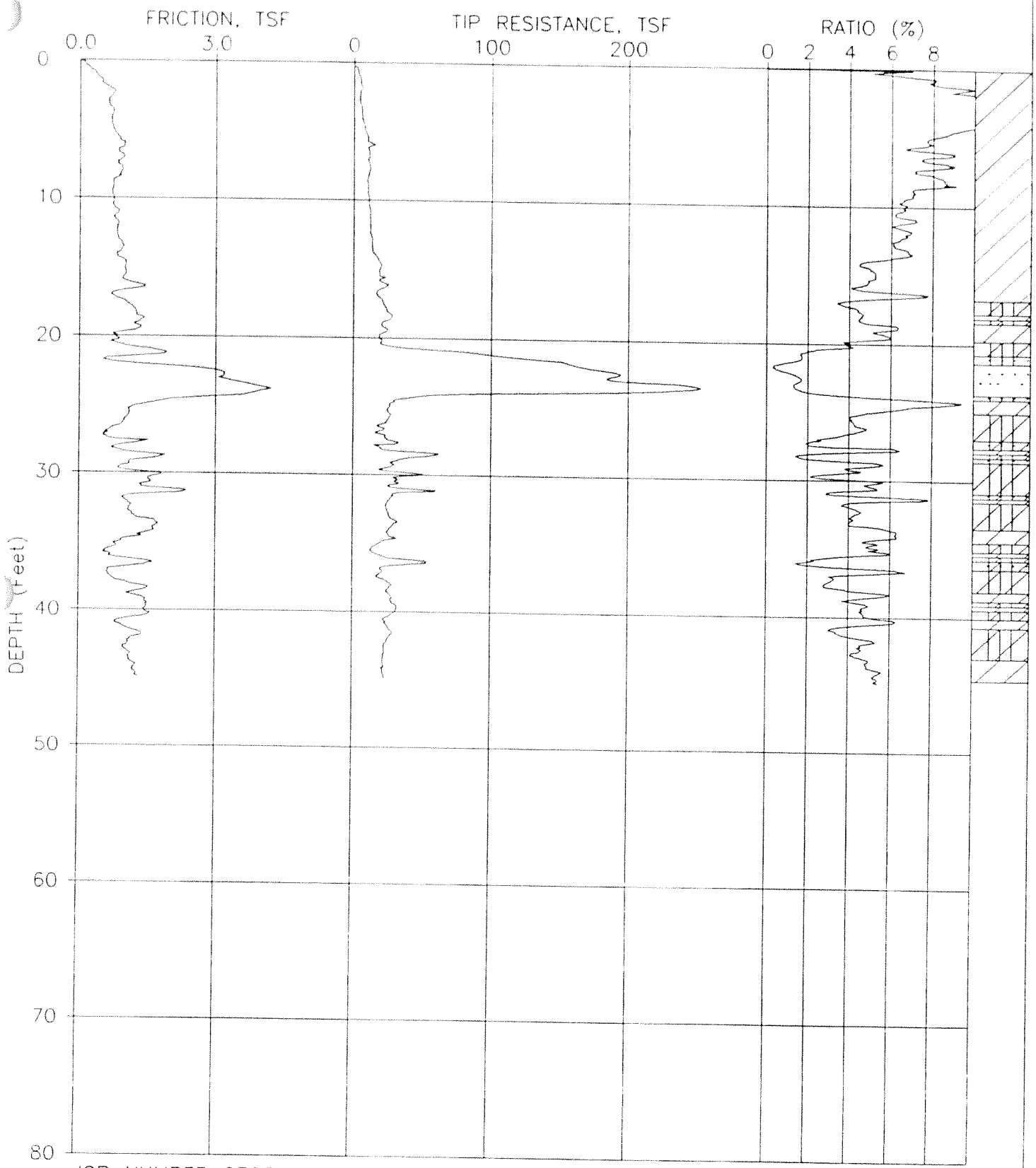
JOB NUMBER: 99-0019
ELEVATION: 0.00
CPT NUMBER: HP80
CONE NUMBER: F7.5CKEV847
DATE: 09-30-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



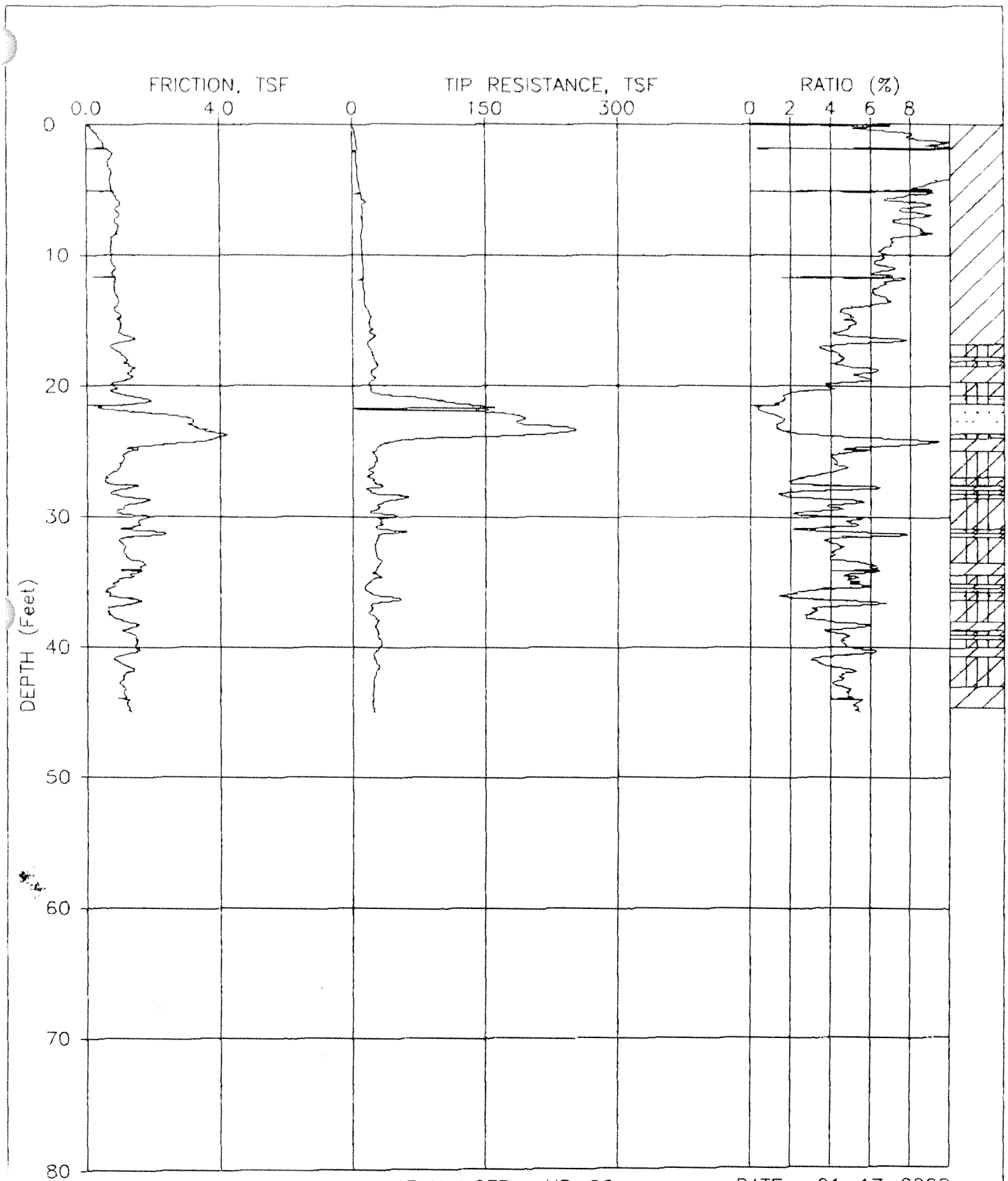
JOB NUMBER: 99-0019
ELEVATION: 0.00
CPT NUMBER: HP81
CONE NUMBER: F7.5CKEV847
DATE: 09-30-1999
PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

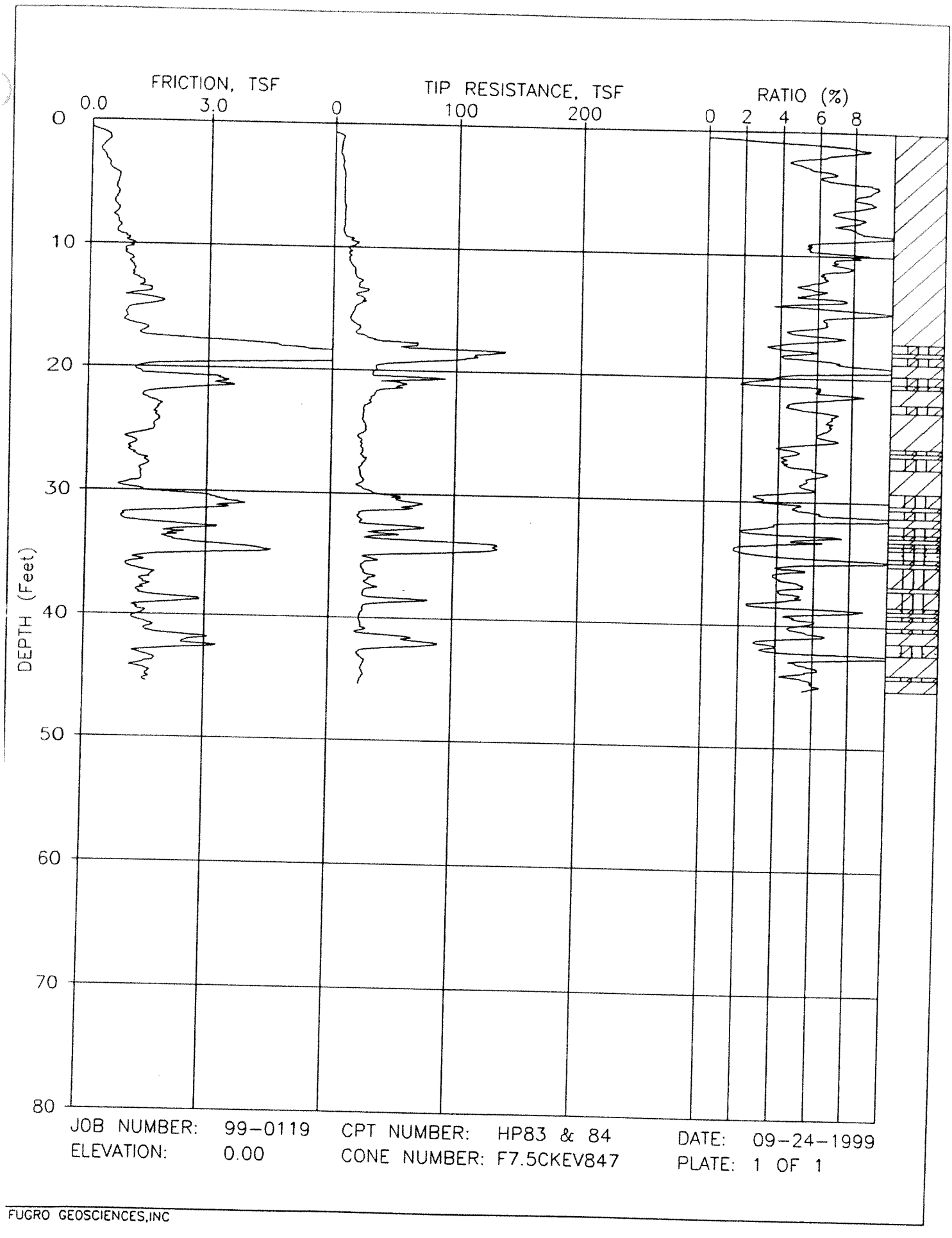


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ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1



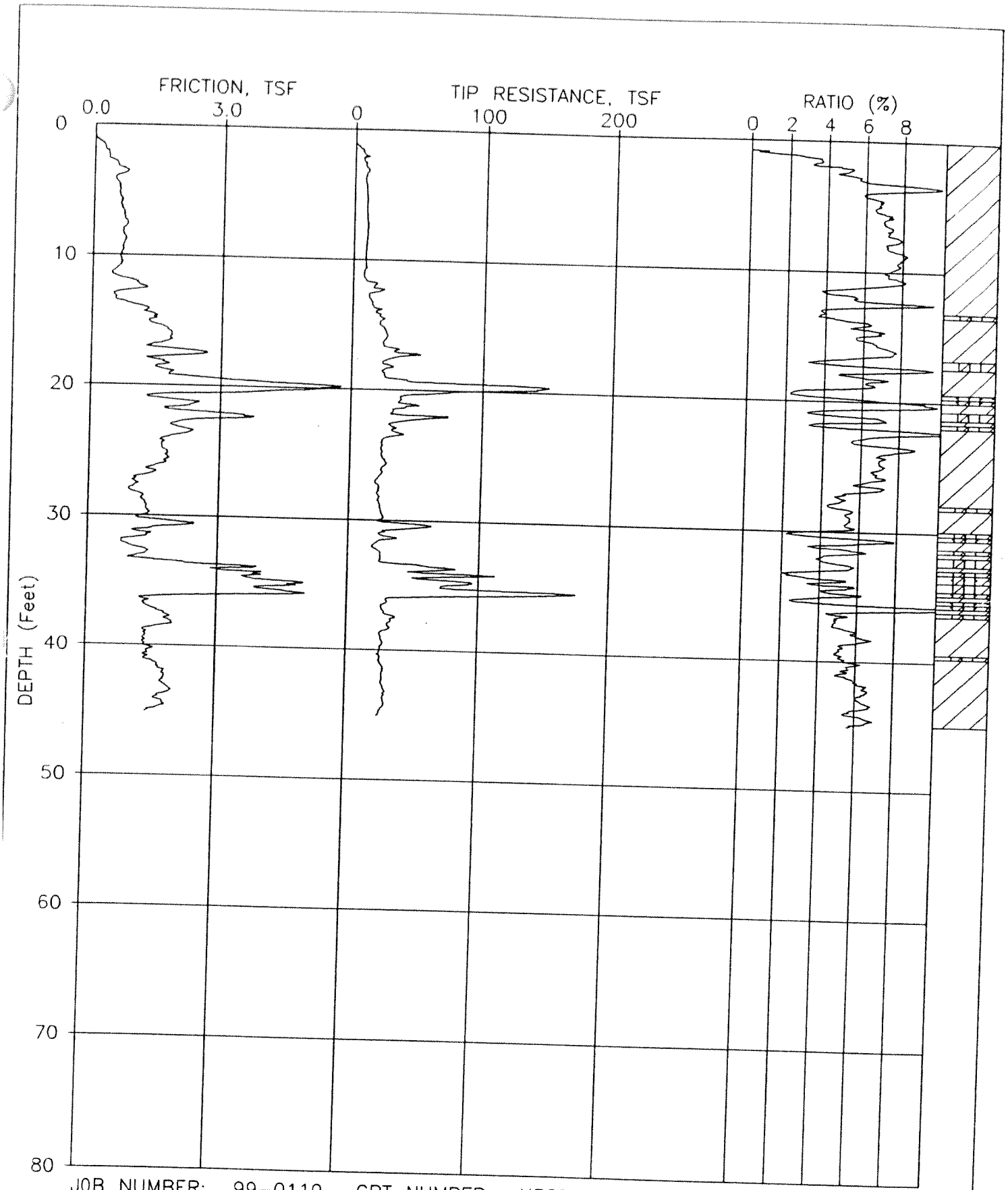
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JOB NUMBER: 99-0119
ELEVATION: 0.00

CPT NUMBER: HP83 & 84
CONE NUMBER: F7.5CKEV847

DATE: 09-24-1999
PLATE: 1 OF 1

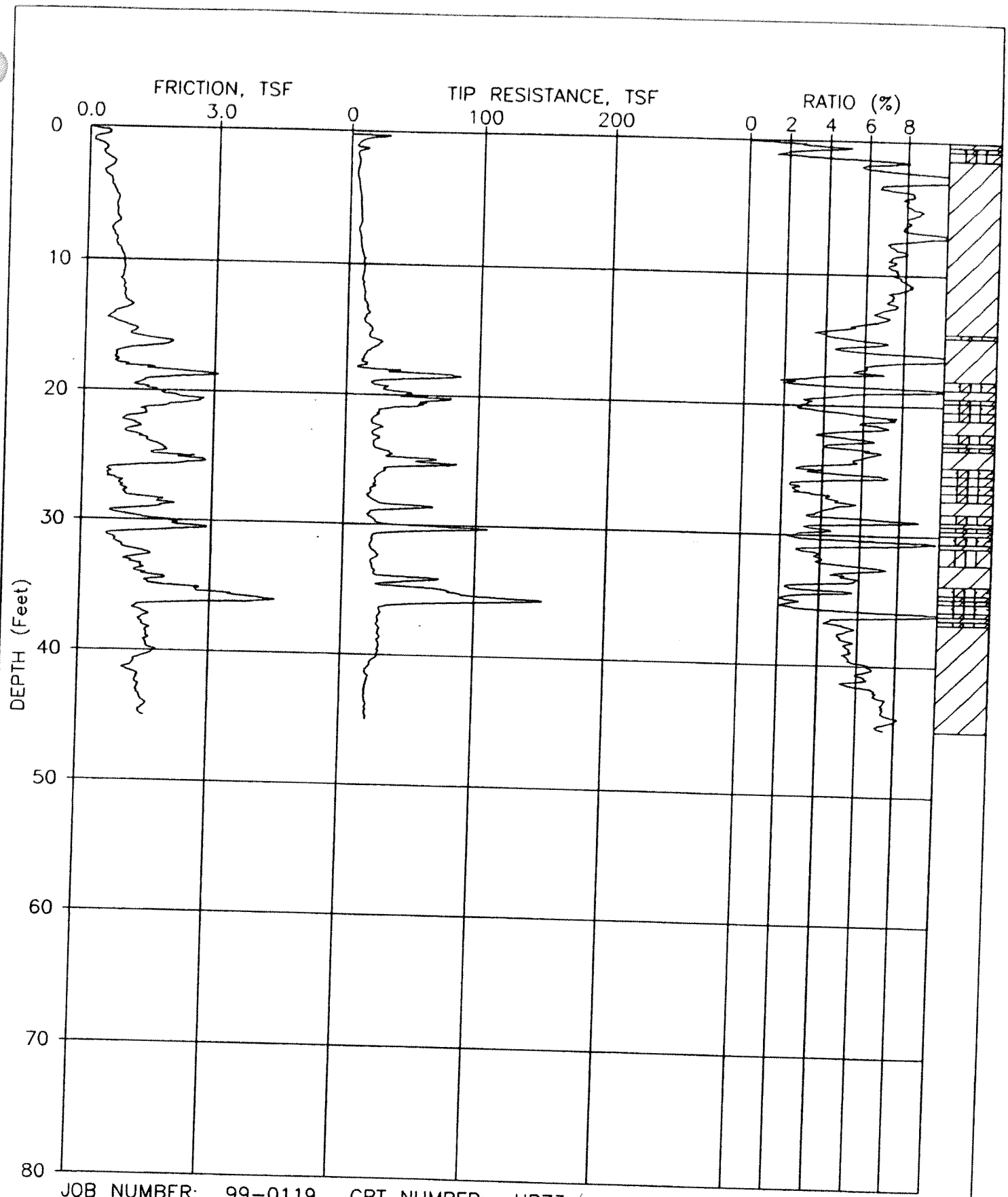


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CONE NUMBER: F7.5CKEV847

DATE: 09-24-1999
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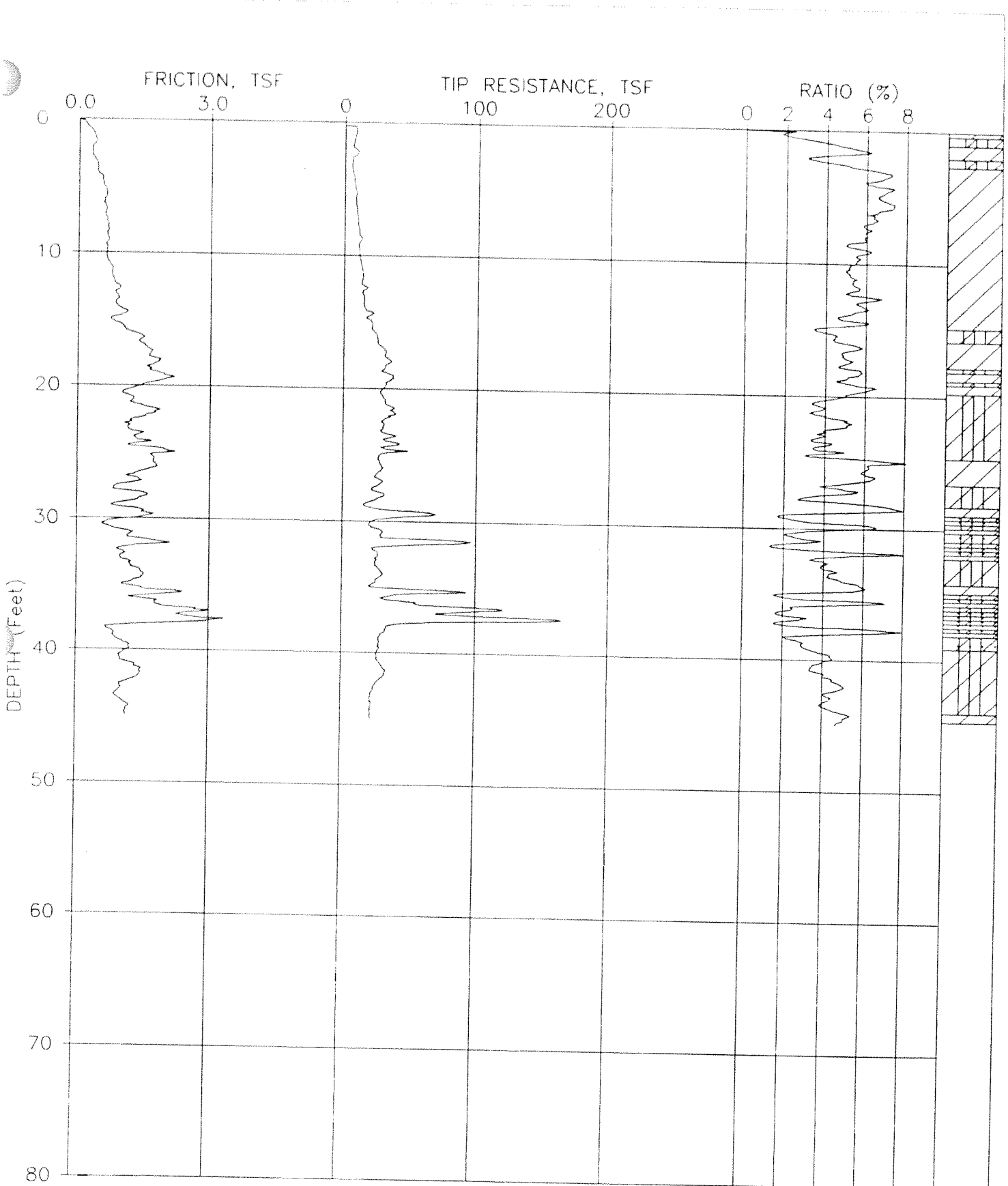
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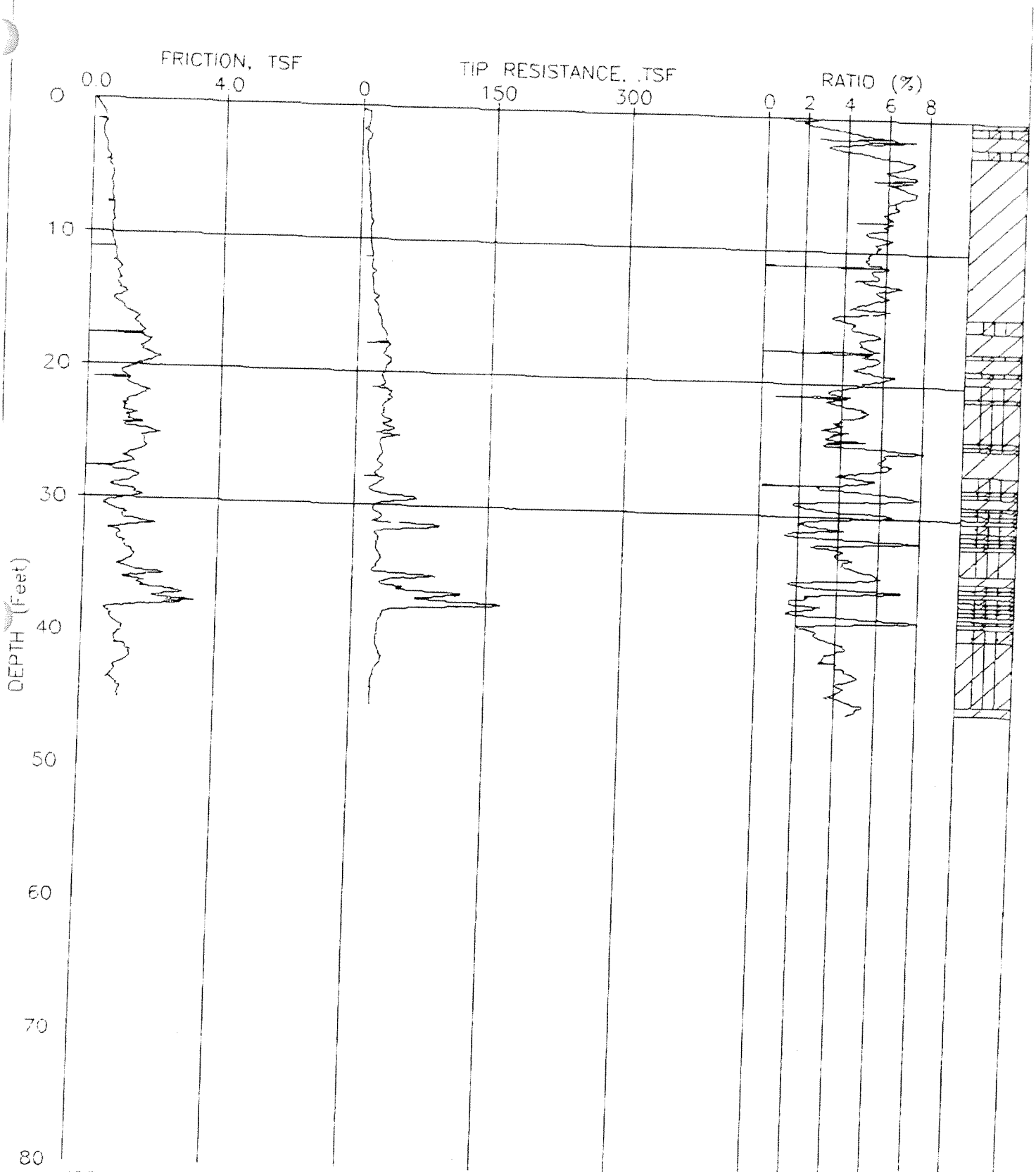
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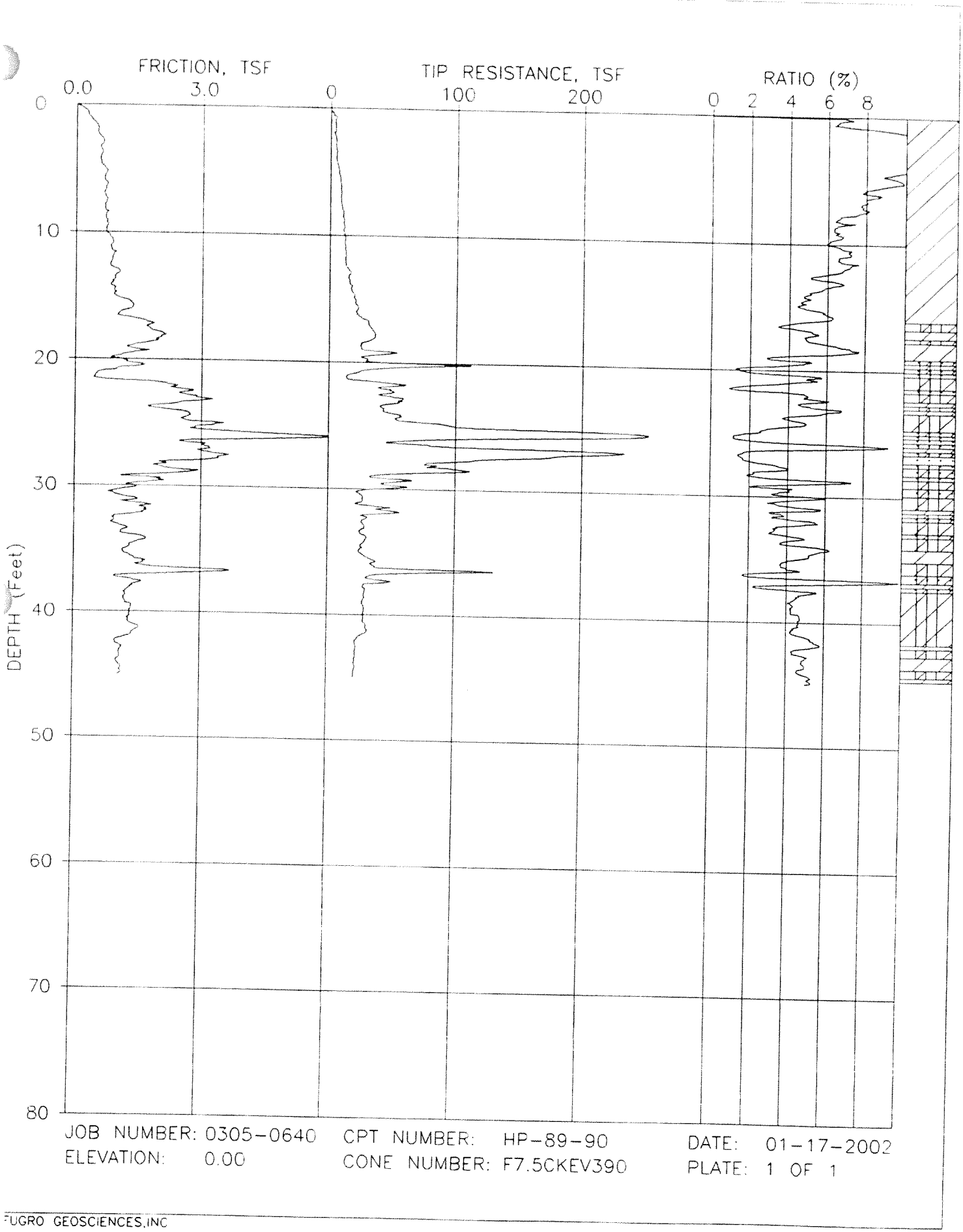
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CONE NUMBER: F7.5CKEV390

DATE: 01-17-2002
PLATE: 1 OF 1



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ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390
DATE: 01-17-2002
PLATE: 1 OF 1

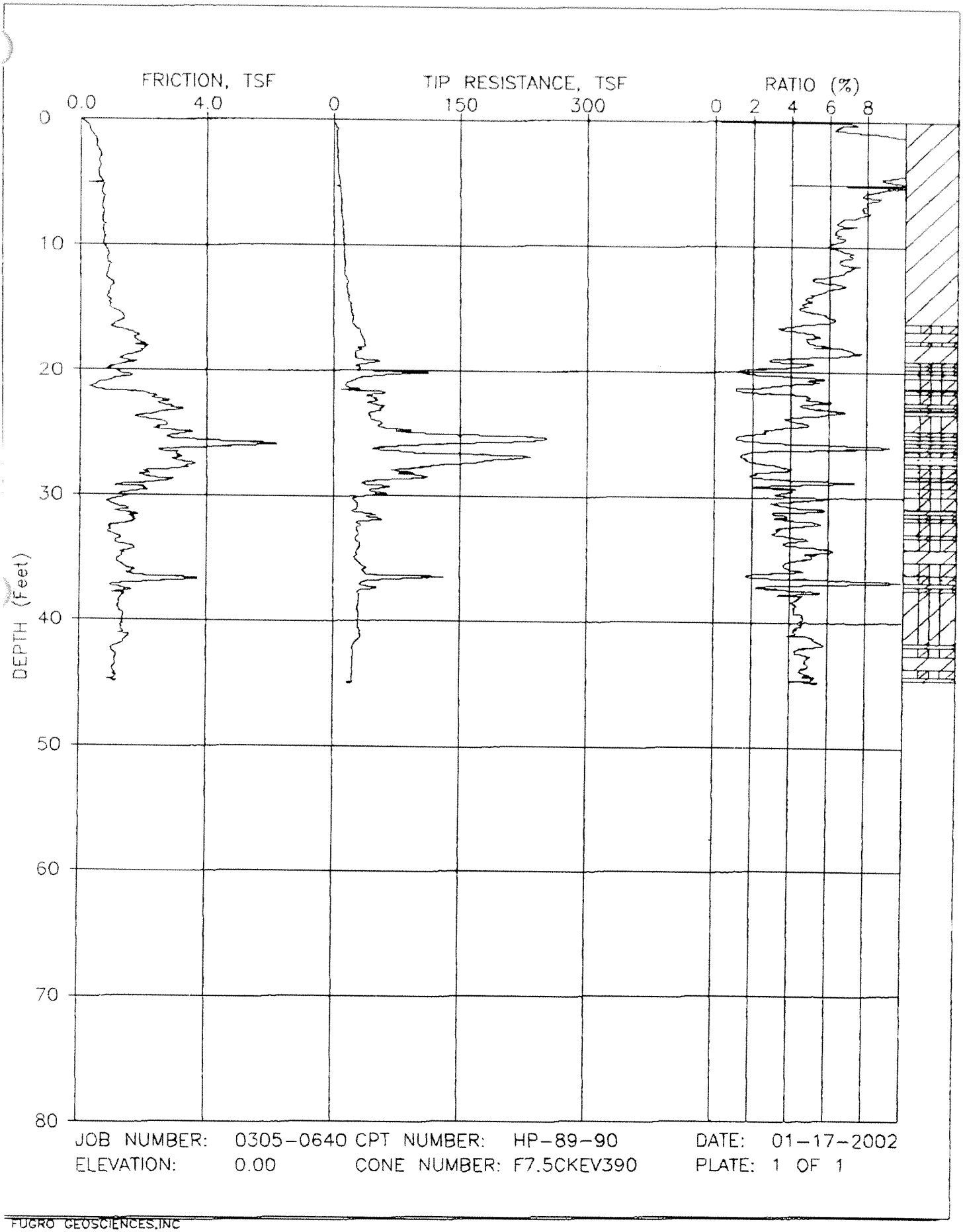


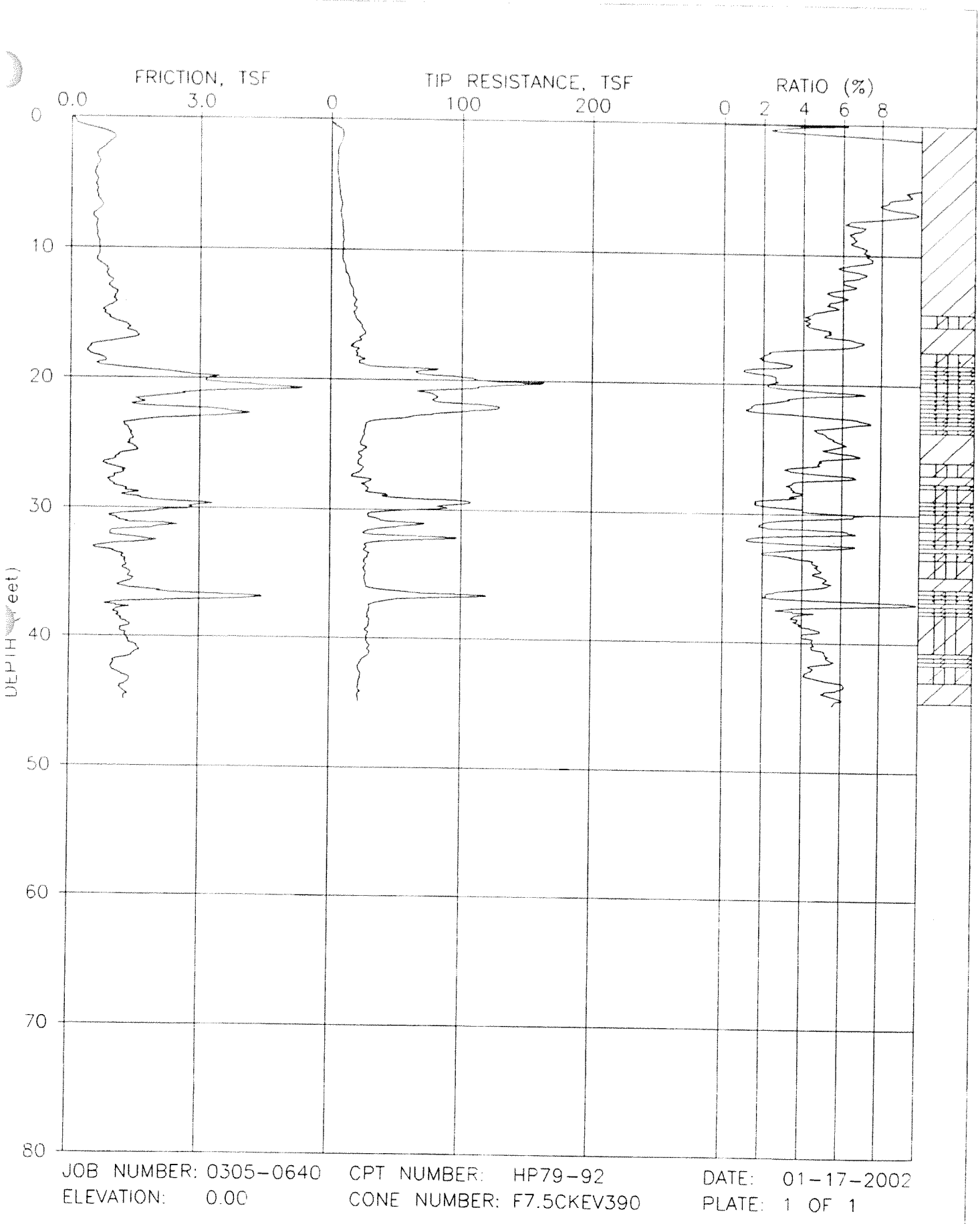
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CONE NUMBER: F7.5CKEV390

DATE: 01-17-2002
PLATE: 1 OF 1

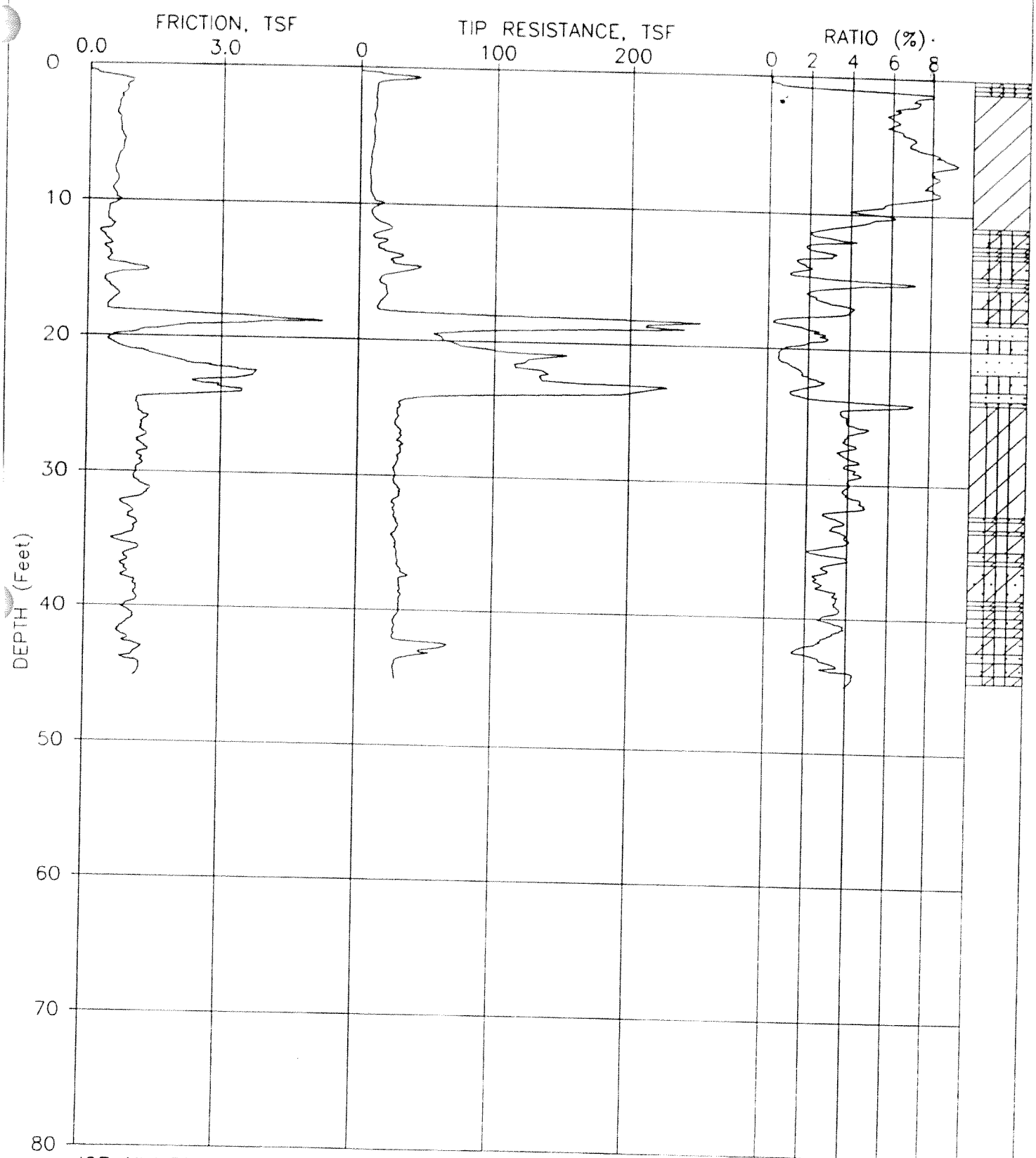
FUGRO GEOSCIENCES,INC


FRICTION, TSF
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4.0
TIP RESISTANCE, TSF
0
150
300
RATIO (%)
0
2
4
6
8
DEPTH (Feet)
0
10
20
30
40
50
60
70
80
JOB NUMBER: 0305-0640 CPT NUMBER: HP-89-90 DATE: 01-17-2002
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1



JOB NUMBER: 0305-0640 CPT NUMBER: HP79-92 DATE: 01-17-2002

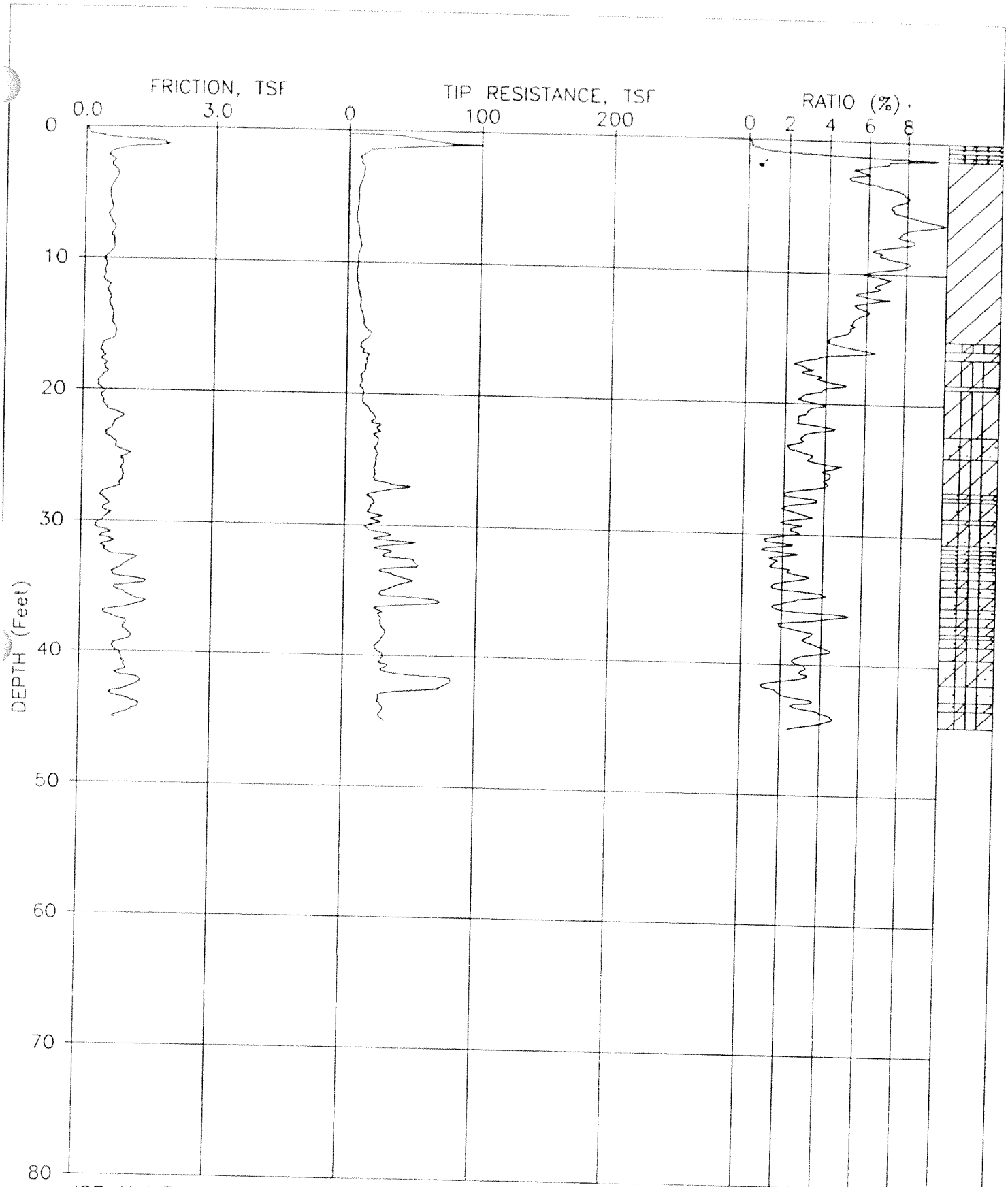
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JOB NUMBER: 00-0239
ELEVATION: 0.00

CPT NUMBER: HP93-94
CONE NUMBER: F7.5CKEGW709

DATE: 06-19-2000
PLATE: 1 OF 1

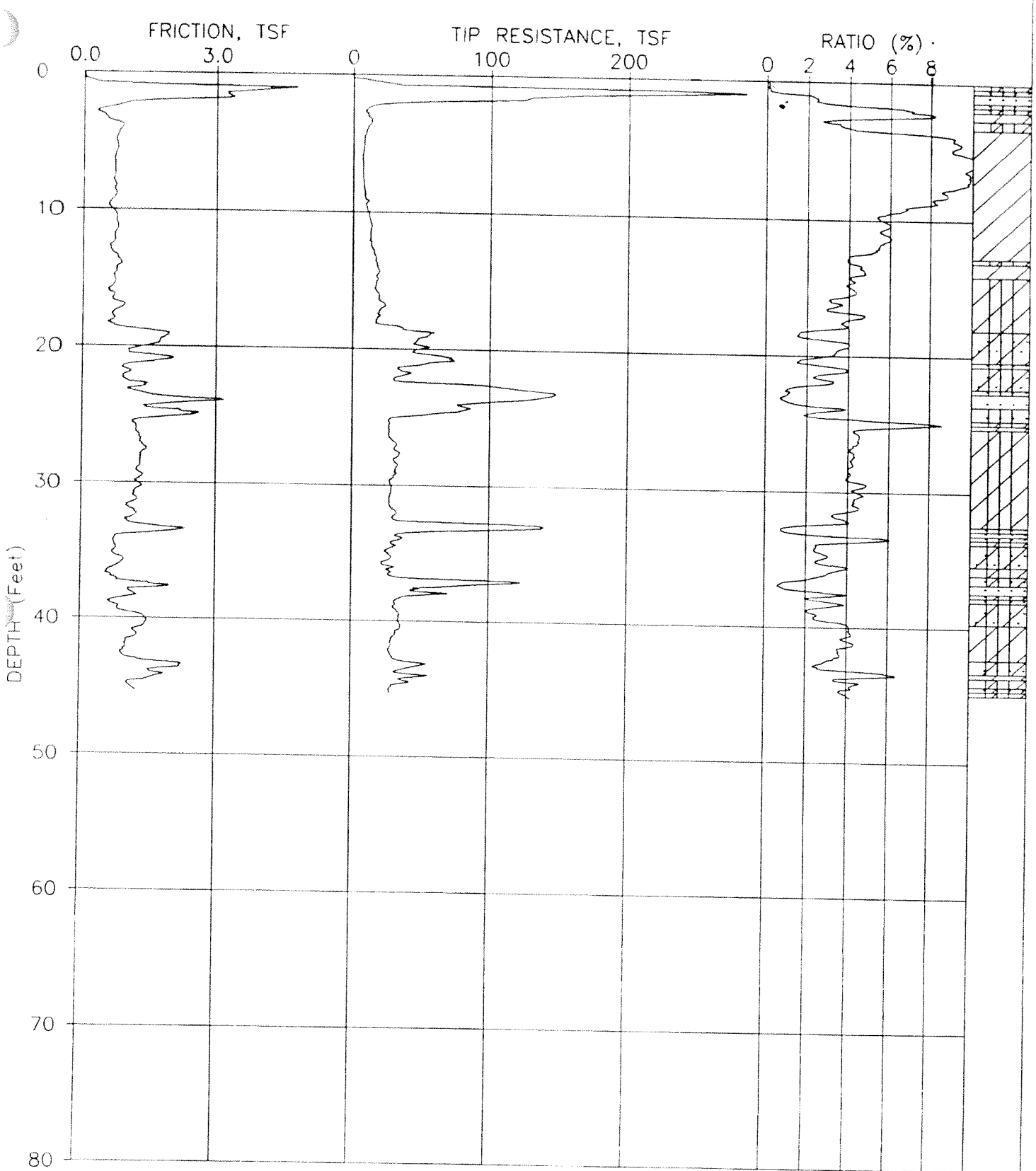


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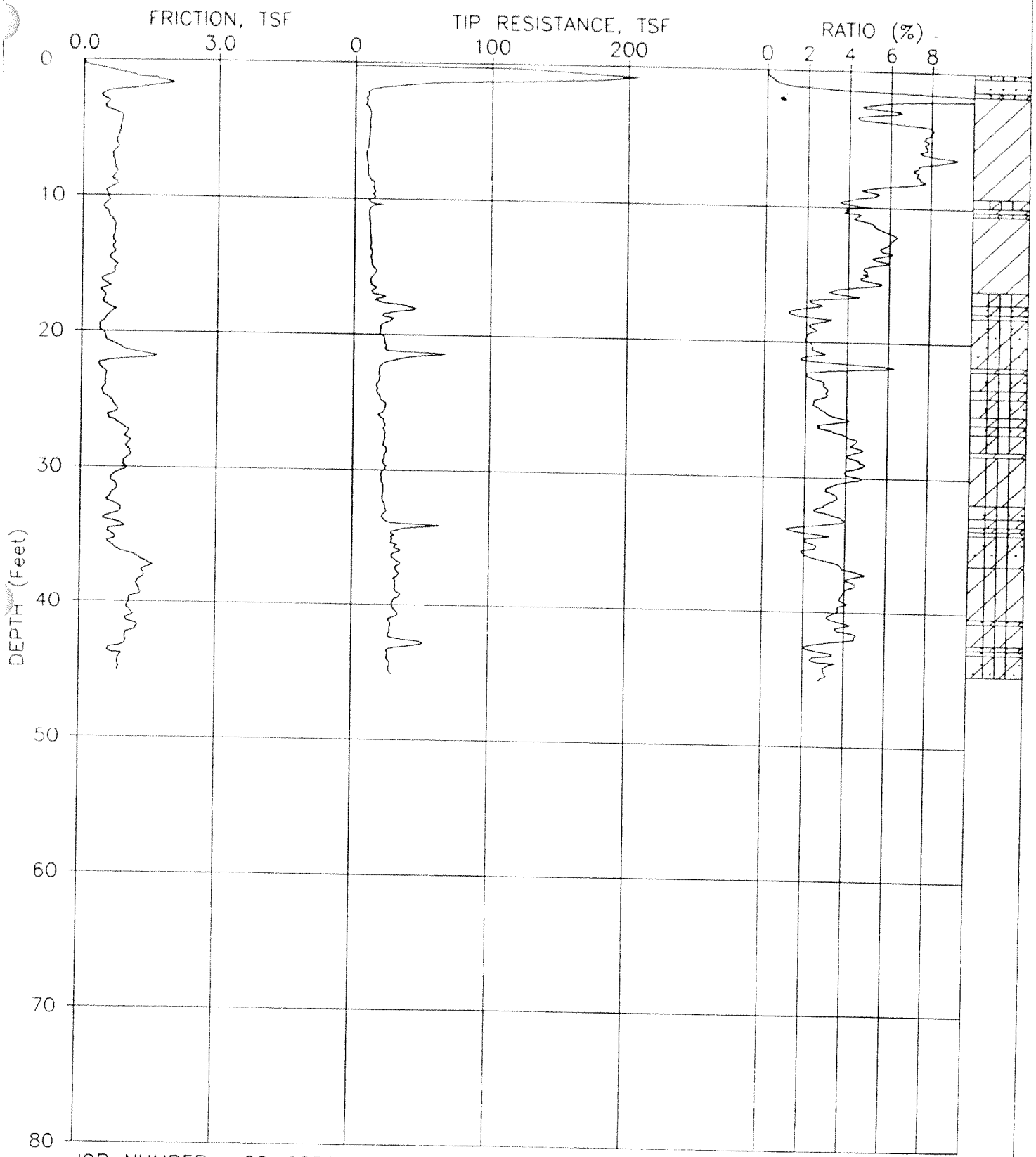
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PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



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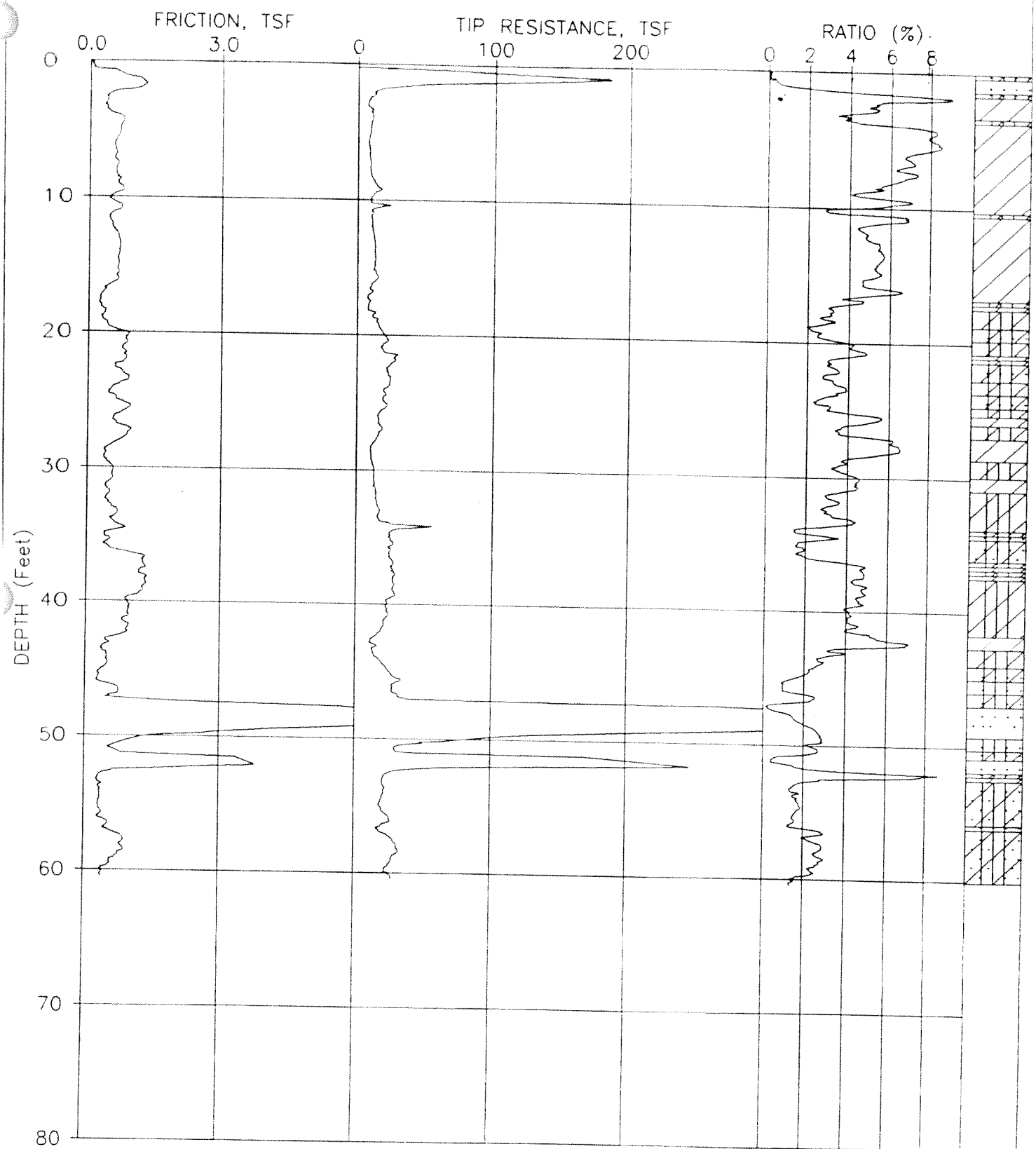
ELEVATION: 0.00 CONE NUMBER: F7.5CKEGW709 PLATE: 1 OF 1



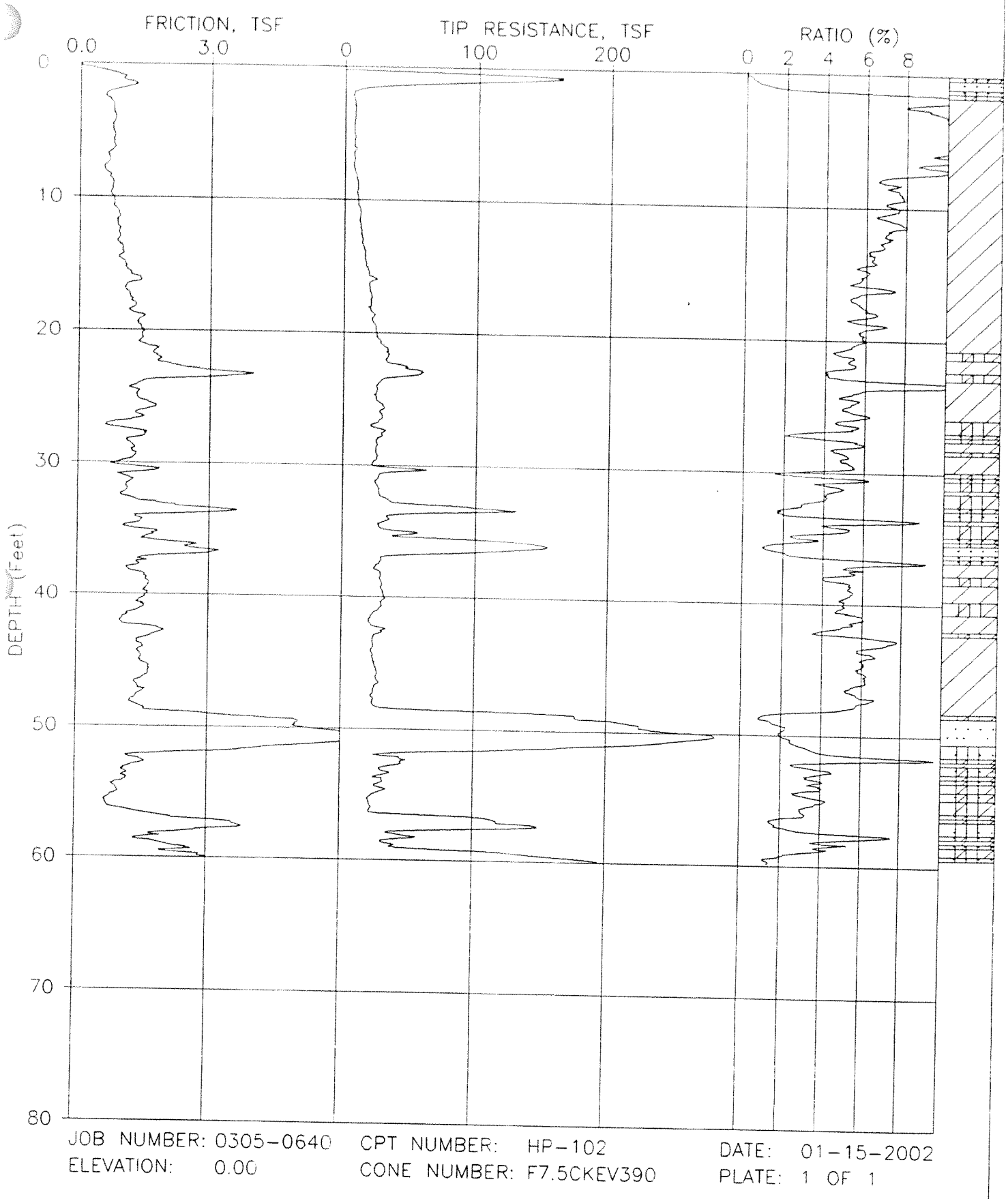
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ELEVATION: 0.00 CONE NUMBER: F7.5CKEGW709 PLATE: 1 OF 1

FUGRO GEOSCIENCES, INC

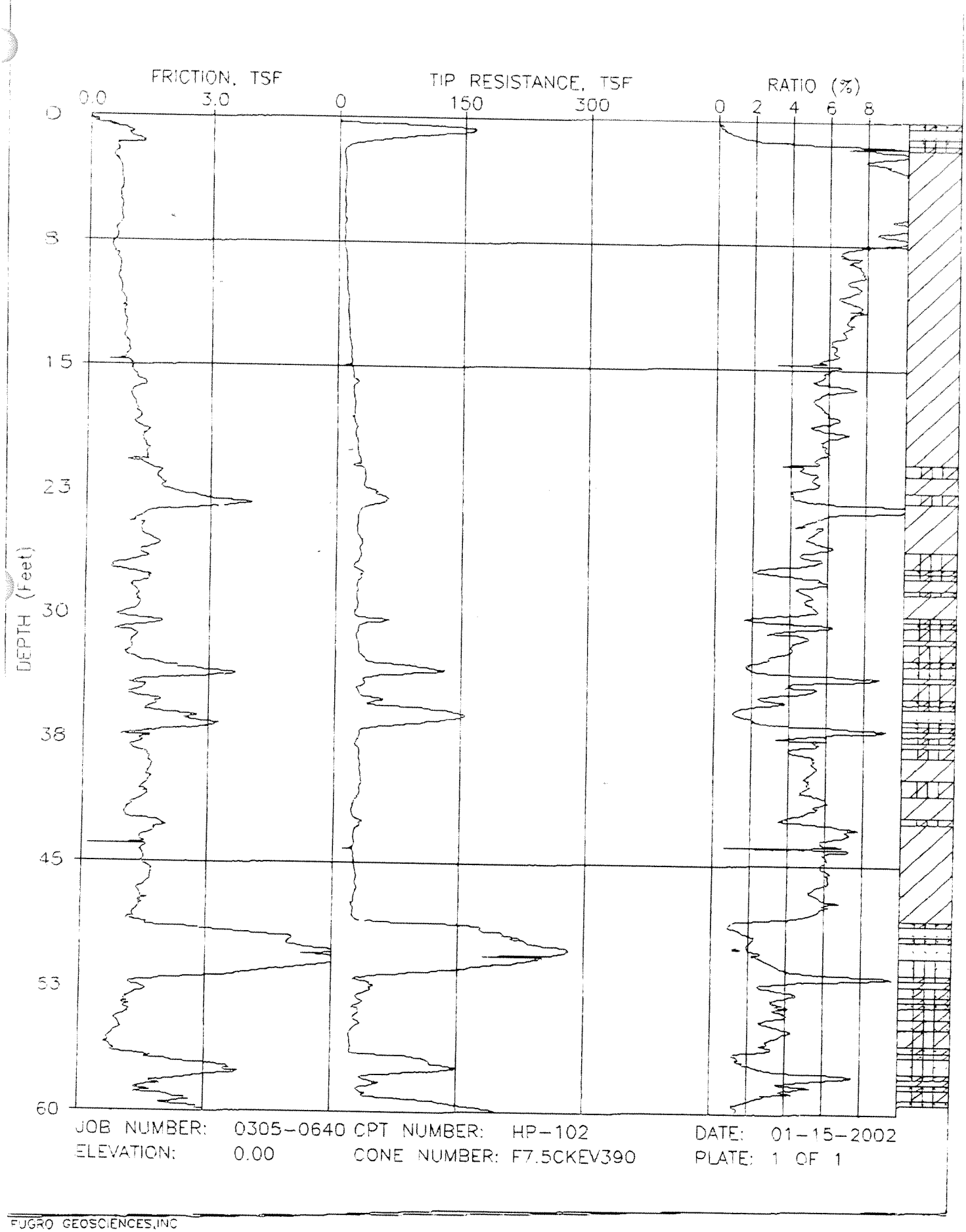


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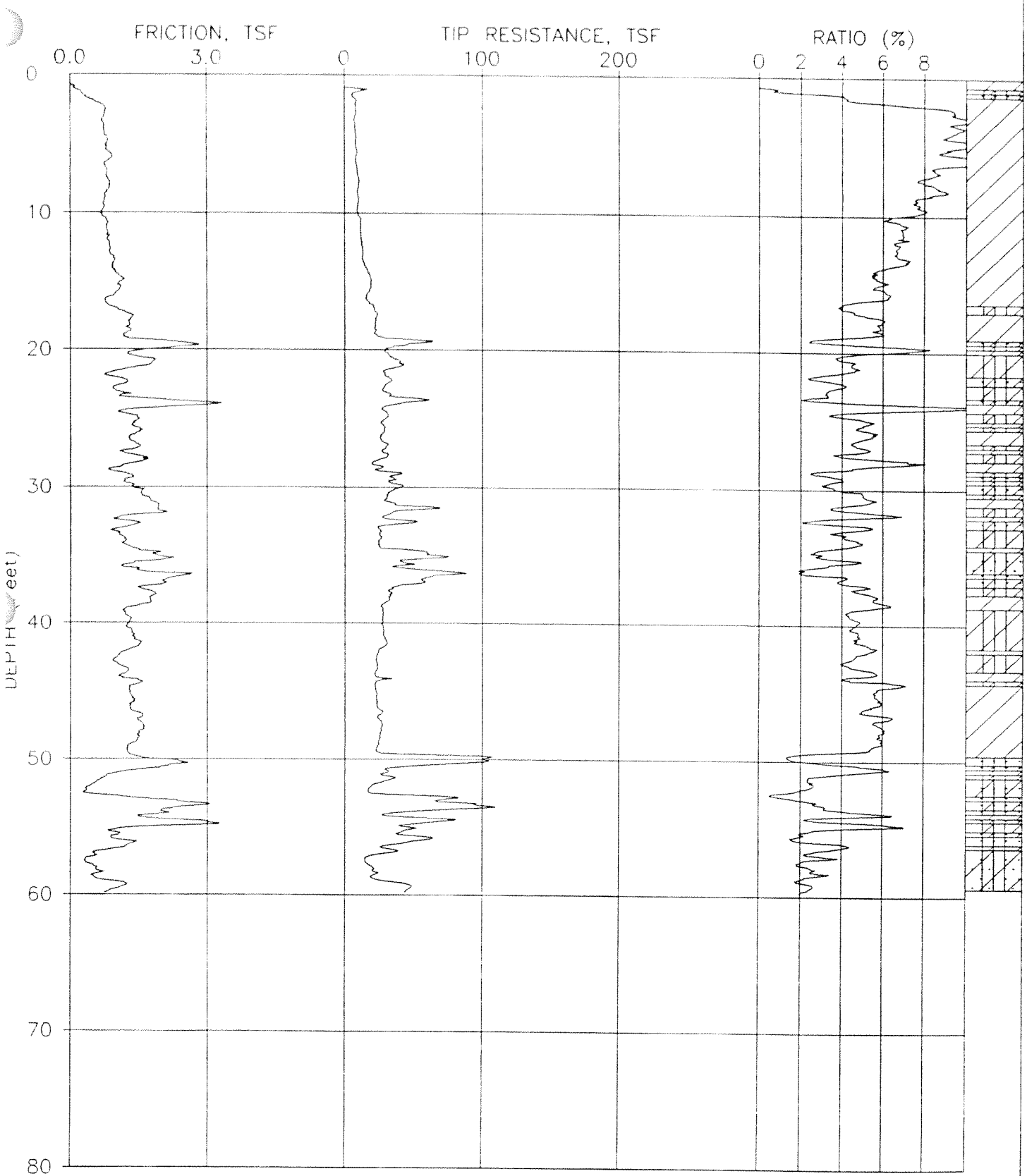


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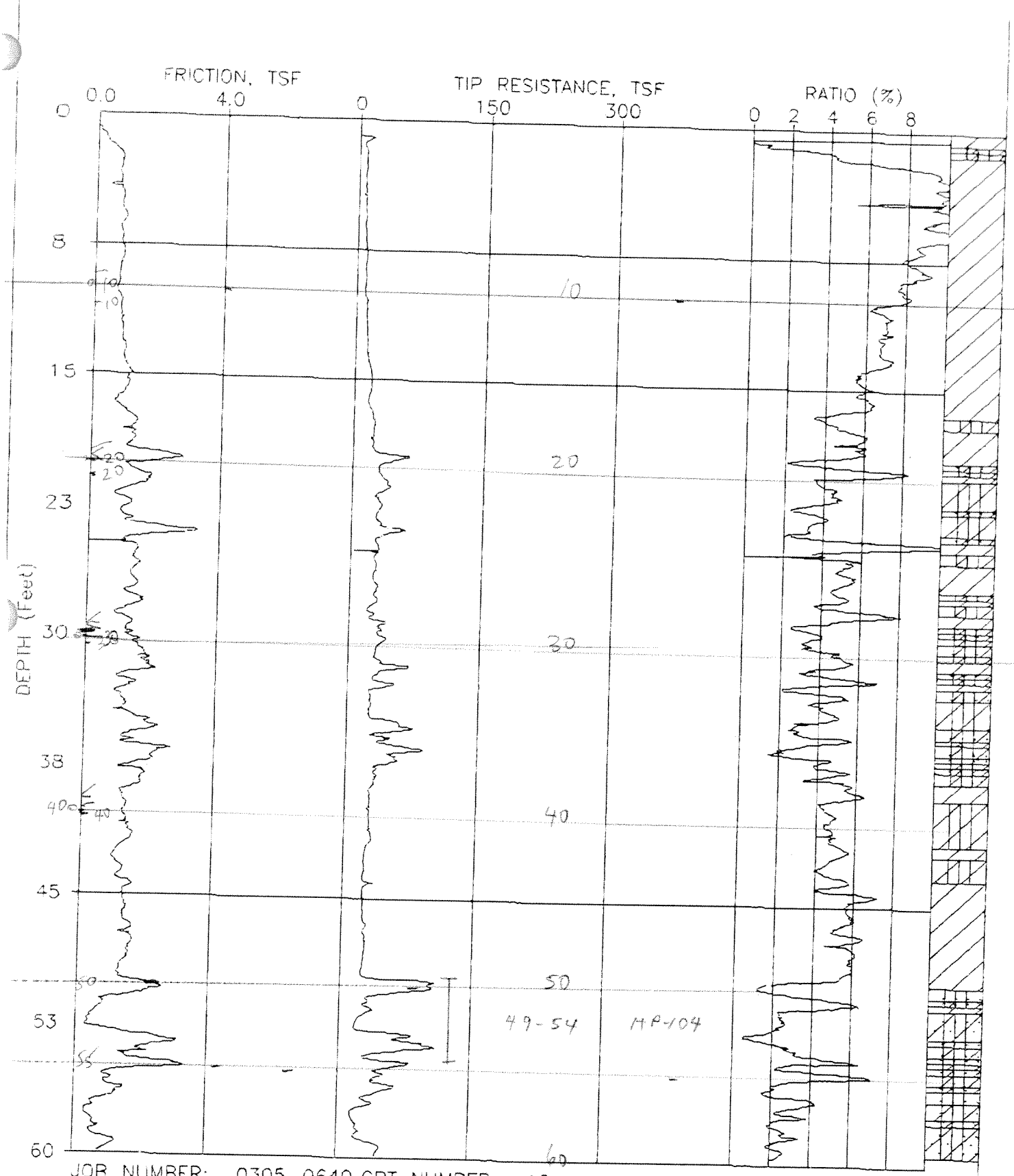


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ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1



JOB NUMBER: 0305-0640 CPT NUMBER: 104 DATE: 01-14-2002

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1



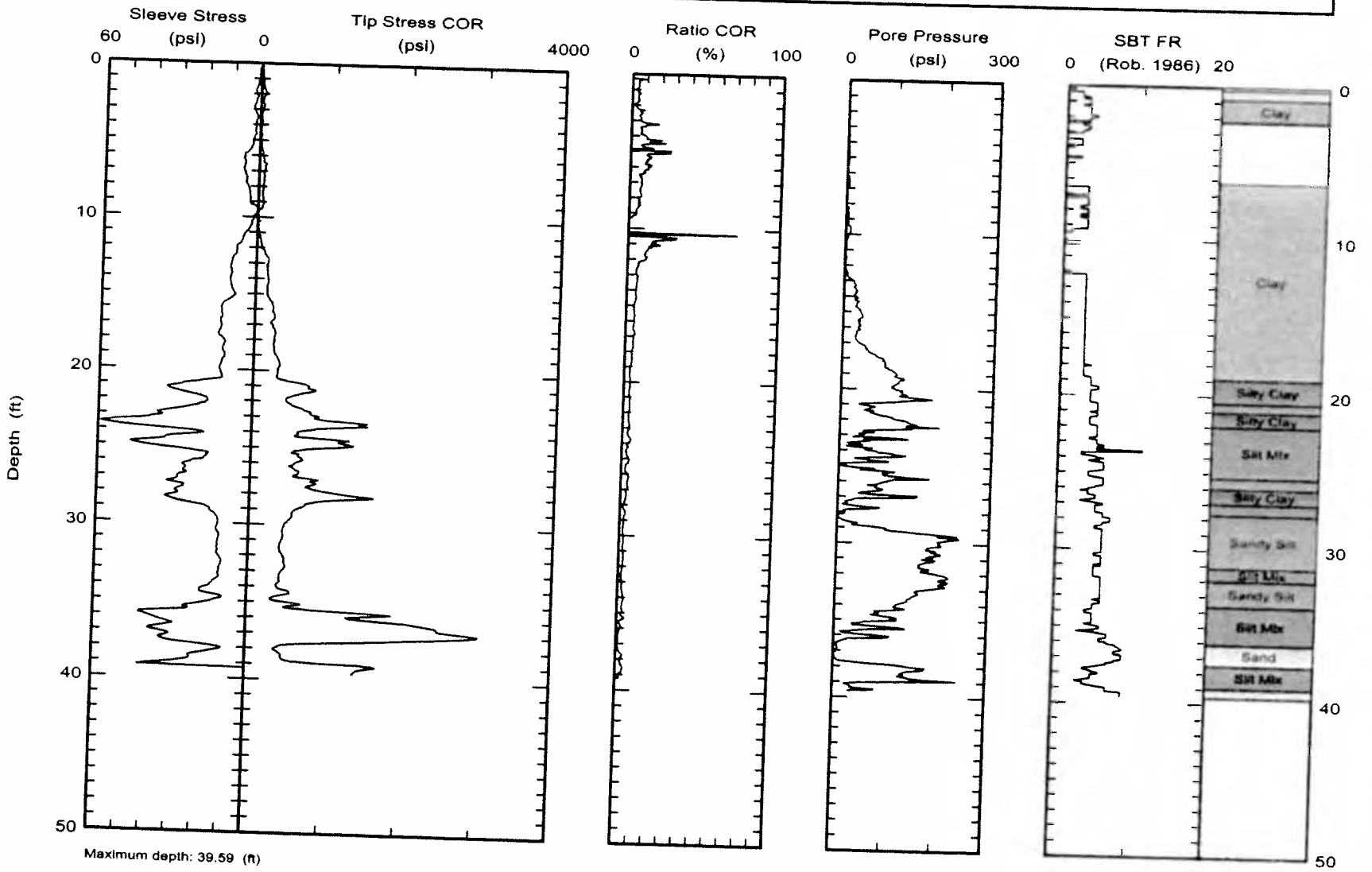
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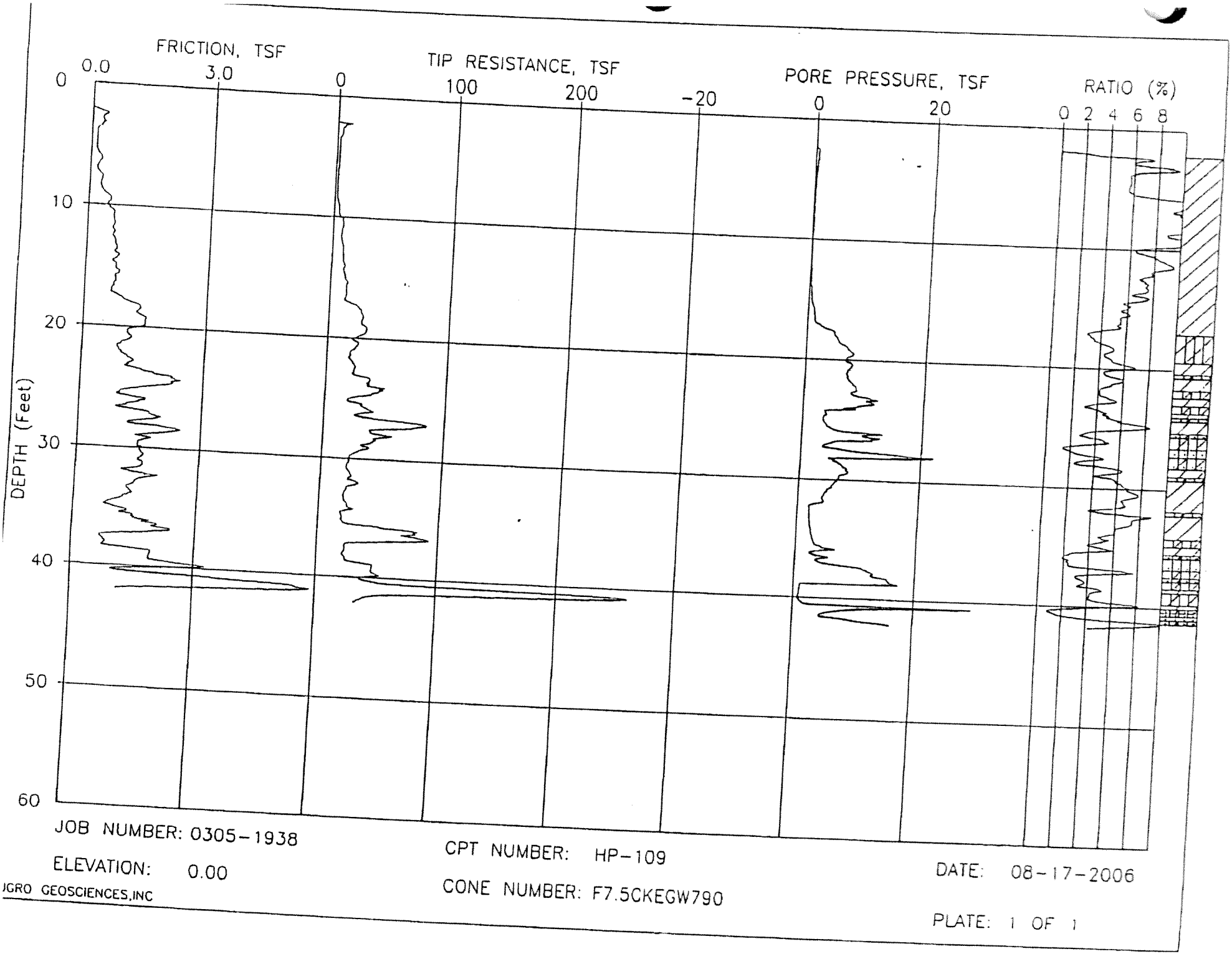
Applied Research Associates
South Royalton, VT 05068
802-763-8348
cpt@ned.ara.com
www.ara.com

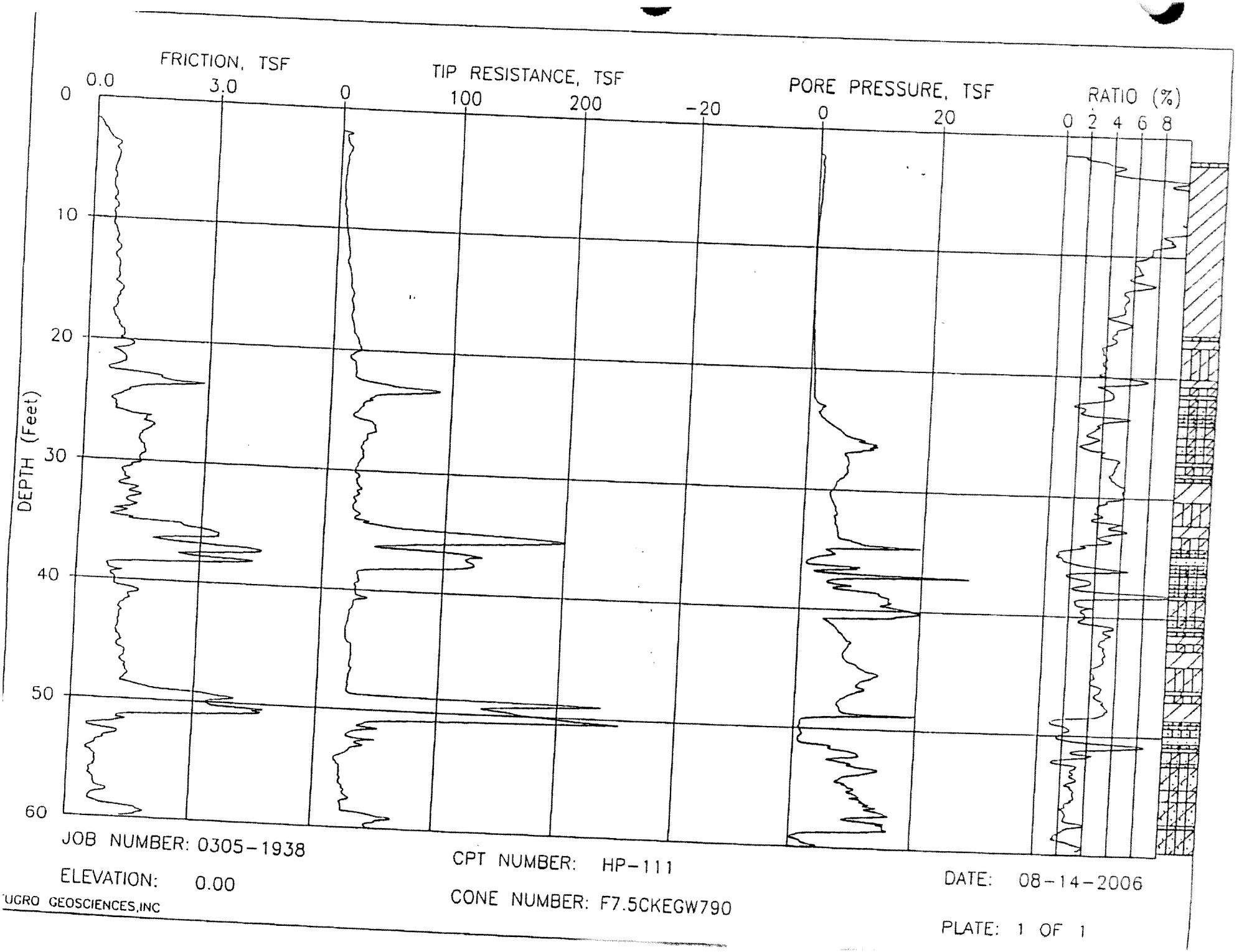
Northing:
Easting:
Elevation:

Date: 29/May/2007
Test ID: HP-107
Project: AIR PRODUCTS PHASE I

Client: GEOMATRIX
Site: PASADENA




FRICTION, TSF
0.0
3.0
TIP RESISTANCE, TSF
0
100
200
PORE PRESSURE, TSF
-20
0
20
RATIO (%)
0
2
4
6
8
DEPTH (Feet)
0
10
20
30
40
50
60
JOB NUMBER: 0305-1938
ELEVATION: 0.00
CPT NUMBER: HP-109
CONE NUMBER: F7.5CKEGW790
DATE: 08-17-2006
PLATE: 1 OF 1
JGRO GEOSCIENCES,INC



JOB NUMBER: 0305-1938

ELEVATION: 0.00

CPT NUMBER: HP-111

CONE NUMBER: F7.5CKEGW790

DATE: 08-14-2006

PLATE: 1 OF 1

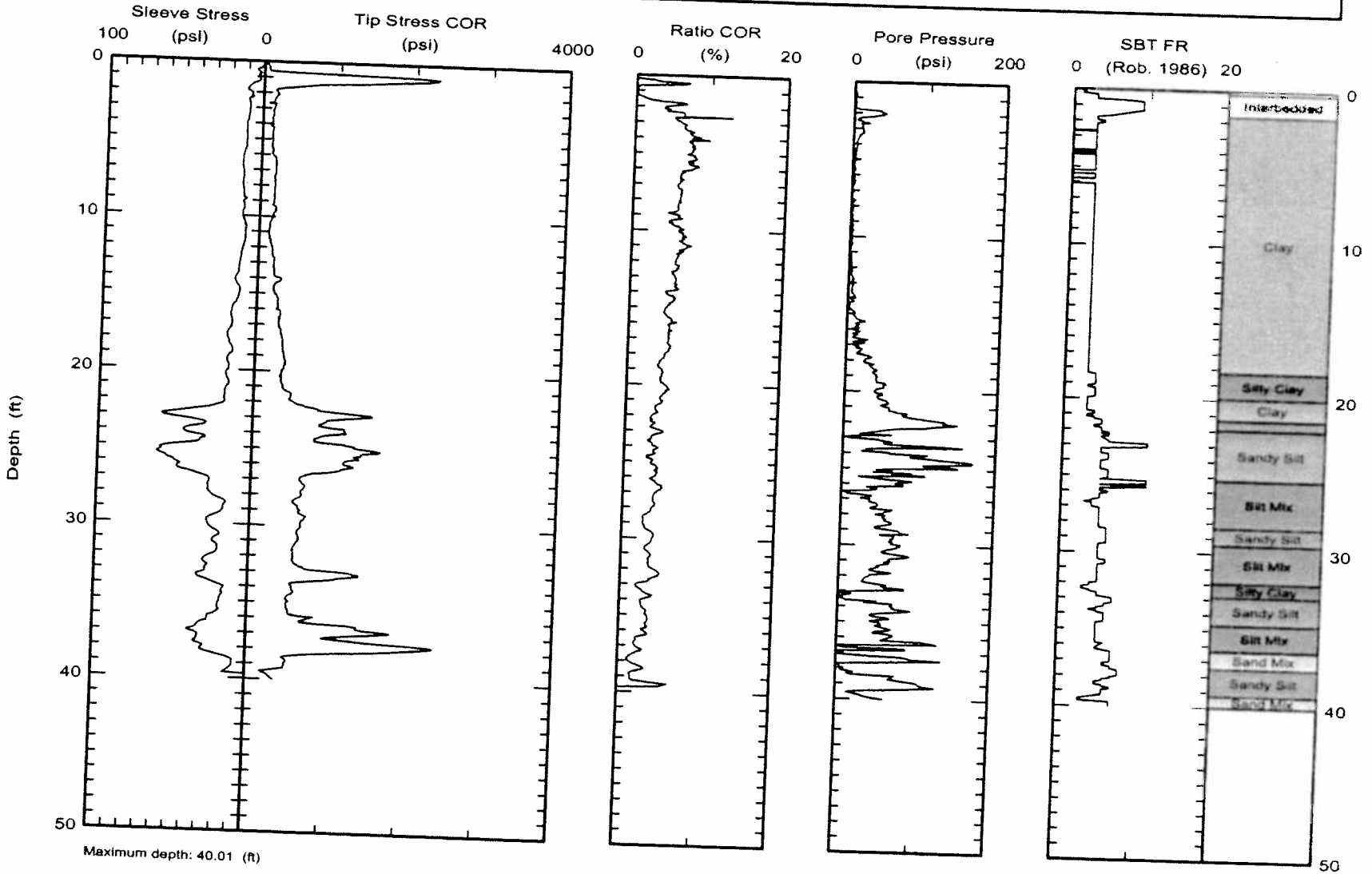
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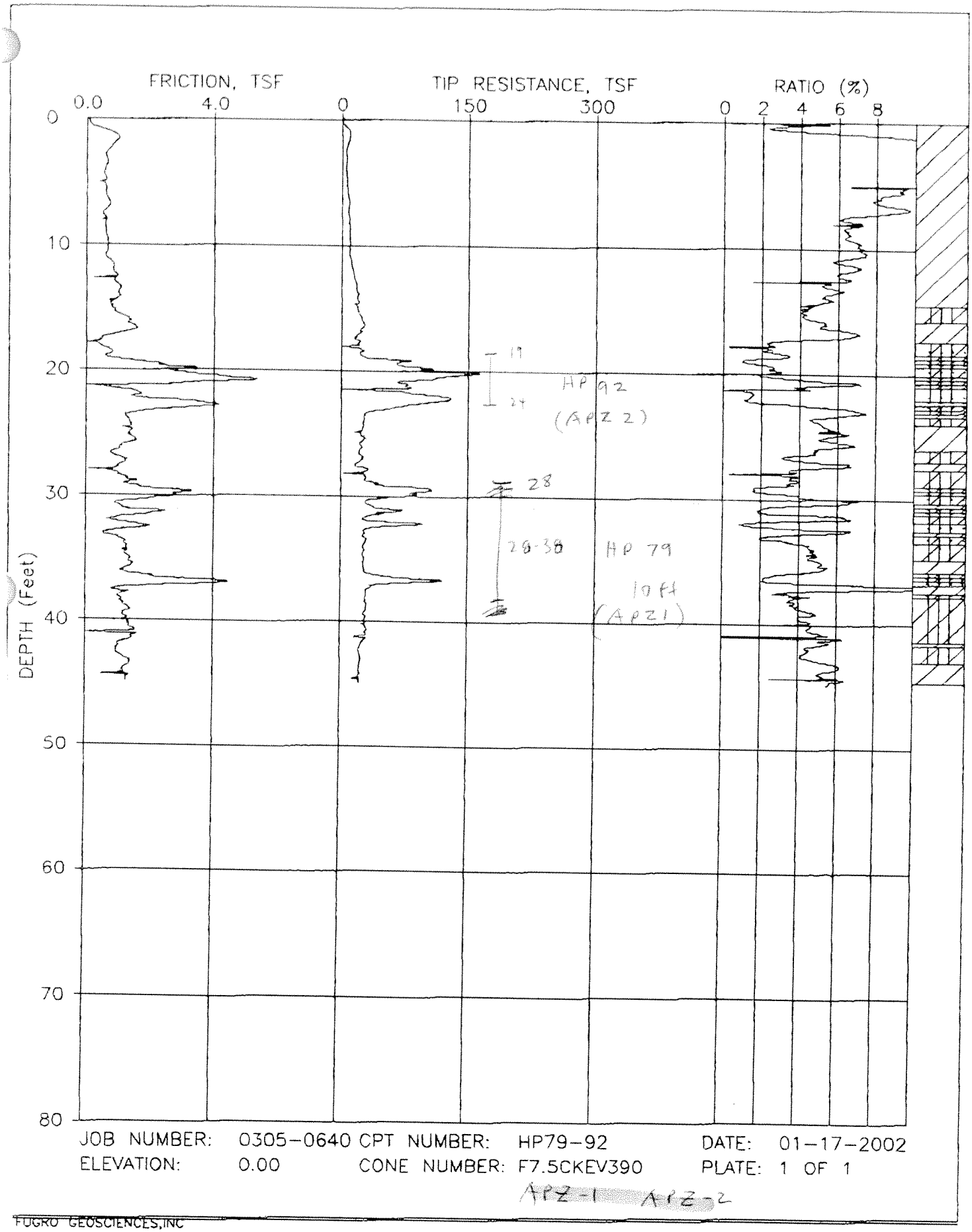
Applied Research Associates
South Royalton, VT 05068
802-763-8348
cpt@ned.ara.com
www.ara.com

Northing:
Easting:
Elevation:

Date: 30/May/2007
Test ID: HP-115
Project: AIR PRODUCTS PHASE I

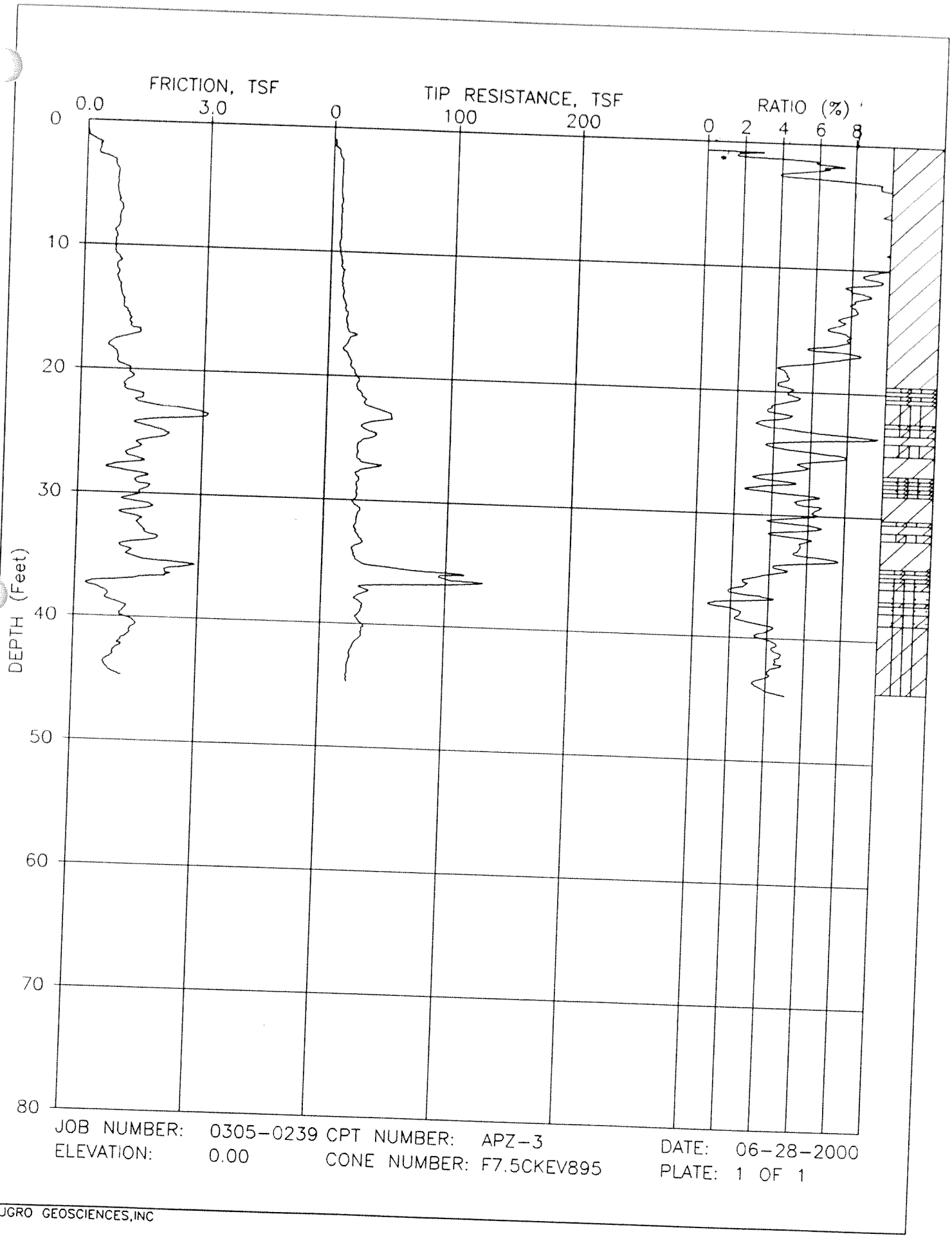
Client: GEOMATRIX
Site: PASADENA



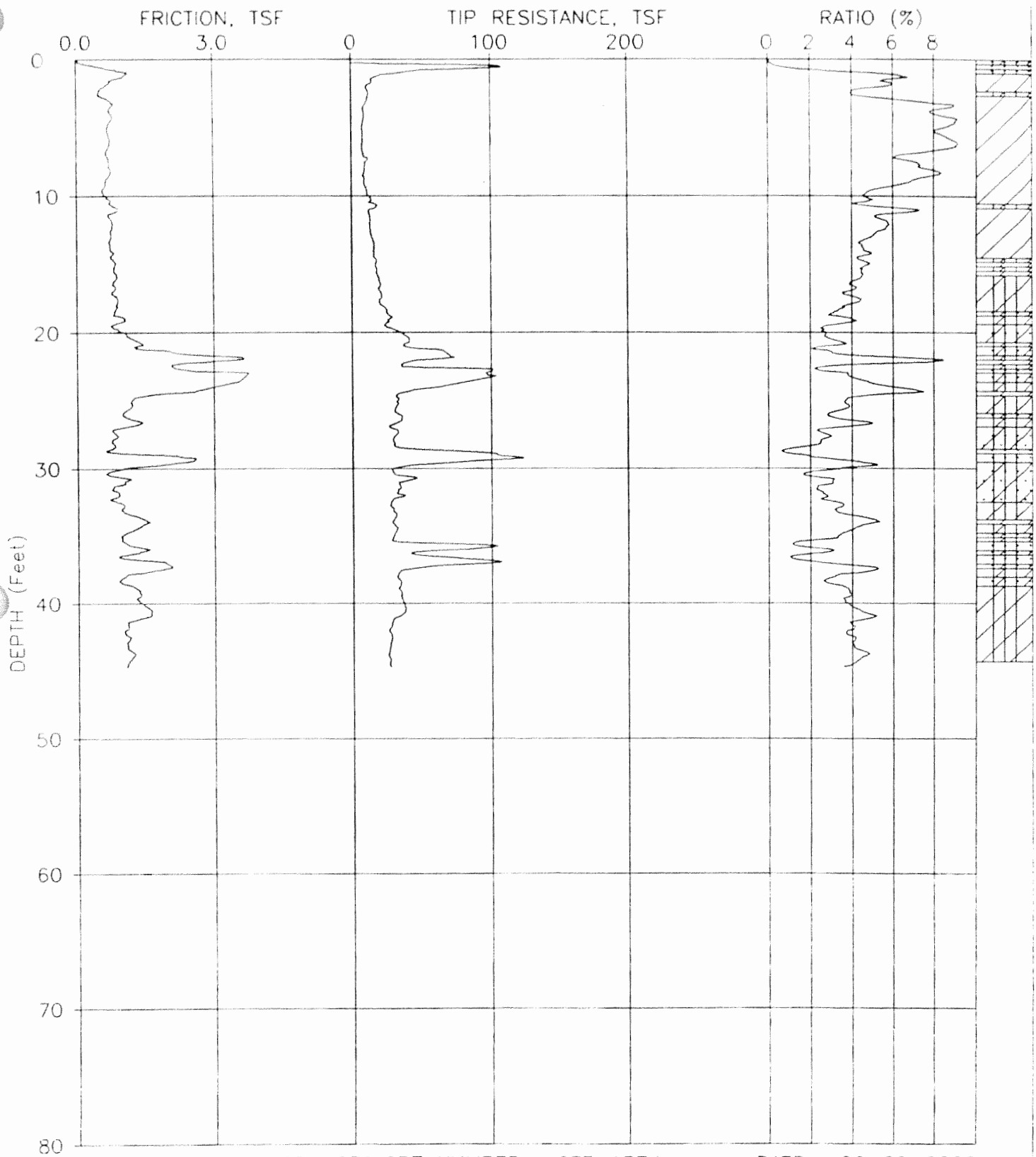


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ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1

APZ-1 APZ-2



JOB NUMBER: 0305-0239 CPT NUMBER: APZ-3
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895
DATE: 06-28-2000
PLATE: 1 OF 1



JOB NUMBER: 0305-0239 CPT NUMBER: CPT-APZ4 DATE: 06-22-2000

ELEVATION: 0.00 CONE NUMBER: F7.5CKEGW709 PLATE: 1 OF 1

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.

A. Closure

This section applies to the owners and operators of all hazardous waste management facilities to be permitted. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of hazardous waste, hazardous constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The facility type and type of unit to be closed can determine the level of detail sufficient for a closure plan.

For each unit to be permitted, complete Table VII.A. - Unit Closure and list the facility components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be included in calculating closure cost estimates.

Additionally, if the applicant plans to close a surface impoundment in accordance with 30 TAC 335.169(a)(1) and the impoundment does not comply with the liner requirements of 30 TAC Section 335.168(a) then the closure plan for the impoundment must include both a plan for complying with 30 TAC 335.169(a)(1) and a contingent plan for complying with 30 TAC 335.169(a)(2).

Guidance on design of a closure cap and final cover for landfills is given in TCEQ Technical Guideline No. 3, and EPA publication 530-SW-85-014 presents guidance on construction quality assurance of liner construction.

If a waste pile does not comply with the liner requirements of 30 TAC Section 335.170(a)(1) then the closure plan for the waste pile must include both a plan for complying with 40 CFR 264.258(a) and a contingent plan for complying with 40 CFR 264.258(b).

The final certification of closure of a land treatment unit may be prepared by an independent licensed Professional Geoscientist in lieu of an independent licensed Professional Engineer. [30 TAC 335.172(b)]

B. Closure Cost Estimate (including contingent closure) [30 TAC 335.178, 40 CFR 264.142]

This section applies to owners or operators of all hazardous waste facilities, except state and federal agencies. A detailed estimate, in current dollars, of the cost of closing the facility should be included in the report. The cost estimate must include the cost of closure at the point in the facilities operating life when the extent and manner of its operation would make closure the most expensive. The TCEQ has published Technical Guideline No. 10, Closure and Post-Closure Cost Estimates, for calculating closure costs which should be consulted. Closure costs should be developed on the basis of abandonment of the site at full capacity and closure activities to be conducted by a third party with no operable on-site equipment. The costs for closing each unit must be detailed.

1. If closure costs are based on contractor bids, the applicant should submit a copy of the bid specification and each contractor's response.

2. If closure costs are based on a detailed analysis, the applicant should submit details of item costs and number of each item, and details of costs for equipment rental, third party labor and supervision, transportation, analytical costs, etc. Provide an itemized cost on Table VII.B. - Unit Closure Cost Estimate for a complete, third party permitted facility closure.
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. The closure plan may propose on-site disposal of wastes, residues, etc. during closure of a unit, and this may be executed if on-site capacity exists in other units during closure of a unit. However, the cost estimate for closure must be based on off-site shipment and disposal during closure of all wastes, waste residues, wastes generated by decontamination, contaminated stormwater, and leachate.

4. For each surface impoundment, waste pile, or tank system required to have a contingent closure plan, the cost for closure under the contingent closure plan should be detailed, as well as the cost of proposed closure. The more expensive of the cost of the proposed closure of a unit versus the cost of the contingent closure of the unit should be used in the total facility closure cost estimate.

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:

a. Complete Table VII.G - Post Closure Period.

b. 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.

c. Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

d. Table V.G.4. - Landfill Leachate Collection System used for the landfill.

e. 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.

f. Table V.E. 3 - Waste Pile Liner System and specify the type of containment/liner system.

g. 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.

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

i. Table V.C. Tanks and Tank Systems.

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.

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

APPENDIX VII

Closure and Post-Closure Plan

VII Closure and Post-Closure Plans Response

This Part B application is for a compliance plan and post-closure care of two permitted units at the Air Products LLC (APLLC) Pasadena, TX Facility, i.e., Unit 01 Effluent Impoundment and Unit 002 Acid Spill Impoundment which were closed on 7/14/1989 and 9/1/1987, respectively. The closure cost estimates were most recently revised with the Class 1ED modification and permit HW50134 was issued July 2, 2018.

All permitted units at the facility are closed. No new units are proposed. Closure costs do not apply. APLLC's response to the Section VII requirements are shown in the table below per the Format of Hazardous Waste permit Application and Instructions.

Paragraph			Response
A. Closure			Reserved - All permitted units at the APLLC Pasadena, TX Facility have been closed.
B. Closure Cost Estimate			Reserved - All permitted units at the APLLC Pasadena, TX Facility have been closed.
C. Post-closure			See Appendix VII
	1		See Appendix V for final cover system drawings for Effluent and Acid Spill Impoundments
	2	a	See Appendix VII
		b	Reserved
		c	Reserved - all waste removed at closure for permitted units
		d	Reserved
		e	Reserved
		f	Reserved
		g	See Appendix VII
		h	Reserved - all waste removed at closure for permitted units
		i	Reserved
	1		APLLC will comply with 30 TAC 335.174(b) by implementing the approved post-closure plans for the permitted units
	2		APLLC Plant Manager (713) 920-7476 P.O. Box 3326 Pasadena, TX 77501
	3		The former Effluent Impoundment area is undeveloped land and will remain undeveloped. The former Acid Spill Impoundment has been altered to use as spill containment, and secondarily as a rainwater collection pond.
	4		Documentation of Deed Recordation of the Effluent Impoundment and Acid Spill Impoundment is in Appendix VII.C.4.
	5		Units are under post-closure care. See Appendix VII
D. Post-Closure Cost Estimate			See Appendix VII, Table VII.D for post-closure care cost estimate.
E. Post-Closure Cost			Units are in Post-Closure Care. Table VII.E.1 - Reserved See Appendix VII, Table VII.E.2 for Unit Post-Closure Cost Summary

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
RESERVED		

1. Applicants may list more than one appropriate method.

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
(Name of permitted unit, e.g., Tank TK-1)	RESERVED
Verbal description of task (waste amount generated x disposal cost/unit amount)	
Verbal description of task (waste amount generated x disposal cost/unit amount)	
Verbal description of task (waste amount generated x disposal cost/unit amount)	
Verbal description of task (waste amount generated x disposal cost/unit amount)	
Other tasks (such as labor, lab analysis, transportation, certifications, etc.)	
Other tasks	
Subtotal	
Contingency (10% minimum)	
Total Closure Cost Year	

Table VII.C.5. - Land-Based Units Closed Under Interim Status

N.O.R.Unit No.	Unit Description [1, 2]	Date of Receipt of Last Waste[3]	Date of Closure Certification[3]
RESERVED			

1. Indicates a unit for which a 40 CFR 264 closure equivalency determination has been requested pursuant to 40 CFR 270.1(c)(5).
2. Indicates a unit for which a 40 CFR 264 closure equivalency determination has been made pursuant to 40 CFR 270.1(c)(6).
3. Enter month, day, and year.

Table VII.D. - Unit Post-Closure Cost Estimate

Name of permitted unit: **Former Effluent Impoundment**

Task	Units & Unit Cost	Cost
Cover system inspection	(24 hours/year x $82.43/hour)	$1,978
Fence and gate inspection	(52 hours/year x $82.43/hour)	$4,286
Labor for cap repair	(24 hours/year x $82.43/hour)	$1,978
Materials for repair	(1 yd^3/year x $34.00/cubic yd^3)	$34
Equipment for repair	(2 days/year x $753.68/day)	$1,507
Mowing, re-seeding, and fertilizing vegetative cover	(24 half-days/yr x $261.70/half-day)	$6,281
Subtotal		$16,064
Contingency (10% minimum)		$1,606
Year(s) of Post-Closure		10
Total Unit Closure Cost Year 2025	(Annual Cost x Years of Post-Closure)	$176,700

Name of permitted unit: **Former Acid Spill Impoundment**

Task	Units & Unit Cost	Cost
Leachate disposal	(250,000 gallons/year x $0.001084)	$271
Leachate system inspection	(1 hr/week x 52 weeks/yr x $82.43/hr)	$4,286
Labor to replace pump and totalizer	(16 hours/year x $82.43/hour)	$1,319
Materials to replace pump and totalizer	($753.68/year)	$754
Synthetic liner repair – labor and materials	(2 repairs/year x $2747.81/repair)	$5,496
Subtotal		$12,126
Contingency (10% minimum)		$1,213
Year(s) of Post-Closure		10
Total Unit Closure Cost Year 2025	(Annual Cost x Years of Post-Closure)	$133,390

Total Post-Closure Care Cost **$310,090**

The estimates listed above were derived from the following sources:

- Part B Application and permit dated 7/2/2018 based on 2017 permit application adjusted for inflation. The unit costs were multiplied by the Implicit Price Deflator (IPD) change from 2017 to 2025.

- U.S. Bureau of Economic Analysis, "Table 1.1.9. Implicit Price Deflators (IPD) for Gross Domestic Product" (accessed Friday, June 13, 2025). IPD for 2017 (Q4) = 100.778; IPD for 2025 (Q1) = 127.408. The adjustment is (127.408/100.778) = 1.26

Table VII.E.1. - Permitted Unit Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
RESERVED	
Total Existing Unit Closure Cost Estimate[1] Year	

Proposed Unit Closure Cost Estimate	
Unit	Cost
Total Proposed Unit Closure Cost Estimate Footnote	

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 Effluent Impoundment	$176,700
Former Acid Spill Impoundment	$133,390
Total Existing Unit Post-Closure Cost Estimate[1]	$310,090[2] (in 2025 dollars)

Proposed Unit Post-Closure Cost Estimate	
Unit	Cost
Reserved RESERVED	
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.
2. Per 30 TAC 37.131 inflation is only applied to costs during the "active life" of a unit.

Table VII.G. – Post-Closure Period

Unit Name	Date Certified Closed	Permit Post Closure Period (Yrs)	Earliest Date post Closure Ends[1]
Effluent Impoundment	July 14, 1988	40	July 13, 2028
Acid Spill Impoundment	November 18, 1988	40	November 17, 2028

1 – Post-Closure Care shall continue beyond the specified date until the Executive Director has approved the permittee's request to reduce or terminate the post-closure period, consistent with 40 CFR Section 264.117 and 30 TAC Section 335.152(a)(5).

APPENDIX VII.C.a

Effluent Impoundment Post-Closure Plan

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Table 1. Effluent Impoundment Post-Closure Inspection and Maintenance Schedule

Attachment A. Texas Water Commission Correspondence Documenting Completion of Closure of the Effluent Impoundment

VII.C.a. EFFLUENT IMPOUNDMENT CLOSURE AND POST-CLOSURE PLAN

Introduction

This plan is submitted in accordance with 30 Texas Administrative Code (TAC) 335.174(b). APLLC 's Effluent Impoundment has been previously closed as a landfill and is presently being maintained under post-closure care (PCC). The closure of the EI consisted of removal of waste, and underlying compacted clay, sampling of the base soils, backfill with clean fill, followed by capping with a clay cap overlain by a sand drainage layer and topsoil with a vegetative cover. The cap is constructed such that run—on and run-off are managed by a vegetated and topographically positive cap, and inspections are conducted to verify the absence of erosion and correct as necessary (also described below).Attached in Attachment A is a letter dated February 2, 1989, from the Texas Water Commission (predecessor agency to the Texas Commission on Environmental Quality) documenting approval of completion and certification of closure of the surface impoundment in accordance with closure plan approved by the TWC on September 1, 1987. Post-closure care of the EI includes regular inspection and maintenance of the vegetative cover and groundwater monitoring. A groundwater Corrective Action (CA) program has been established in APLLC's Compliance Plan to address releases in the area of the former EI pursuant to 30 TAC 335.166. Following is a description of the inspection and maintenance activities carried out as part of post-closure care of the Former EI:

Post-Closure Care Inspections

Post-closure care inspections to address applicable requirements specified in 30 TAC 335.174(b)(1) and (5) include monthly cap inspections and weekly fence/gate inspections for the entire APLLC site. The following is a brief description of each of the above items.

- Monthly Cap Inspections

  The clay cap and vegetative cover will be inspected for evidence of water puddling, cap erosion and absence of vegetation. Monthly frequency is deemed adequate based upon operating experience. Vegetation is well-established. Even after rains of more than eight to ten inches, erosion or puddling has not been detected. If such deficiencies were detected additional top soil would be placed on the cap top and re-vegetated as necessary.

- Weekly Fence/Gate Inspections

  The present fence/gate system surrounds the developed portion of the APLLC manufacturing site. It is anticipated that the site will not close until after the year 2020. The fencing system should therefore remain during the entire 30-year Post Closure care period. If this is not the case, then fencing would be installed and maintained around the closed impoundment upon closure of the manufacturing facility. Weekly inspections will look for holes in the fencing or portions of the fencing that are down for various reasons.

Gates will also be inspected to verify locks are in place and the gates are locked. If deficiencies are identified, the fencing will be repaired as soon as possible and/or locks will be replaced. A weekly inspection frequency is deemed adequate based on operating experience.

Regarding protection and maintenance of surveyed benchmarks, as specified in 30 TAC 174(b)(6) [40 CFR §264.309], all plant elevations and latitude-longitudes are taken from a fixed U.S.C. & G.D. survey monument (Q-1205) located on the southwest leg of a Houston Power and Lighting Company power line tower. The power line tower is maintained by HL&P and the benchmark is maintained by U.S.C. & G.D.

Table 1. Effluent Impoundment Post Closure Inspection and Maintenance Schedule

System	Item	Inspection Frequency	Potential Defect	Response
1. Cap and Cover	Surface	Monthly	Puddling of water	Re-grade and place new vegetation
			Absence of vegetative cover	Place new vegetation
			Erosional features, rills	Re-grade and place new vegetation
			Puddling of water; absence of vegetative cover; erosion, settling and subsidence	Re-grade if necessary and place new vegetation
2. Security	Fences	Weekly	Holes, cut, or down	Replace defective section
	Gates	Weekly	Lock missing	Replace lock

ATTACHMENT A

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman
Paul Hopkins, Commissioner
John O. Houchins, Commissioner

Allen Beinke, Executive Director
Michael E. Field, General Counsel
Brenda W. Foster, Chief Clerk

February 2, 1989

RECEIVED
FEB 6 1989

Mr. Bob Martien
Air Products Manufacturing Corp.
P.O. Box 3326
Pasadena, Texas 77501

Re: Partial RCRA Closure
TWC Registration No. 30317
Effluent Pond
TWC Facility No. 01

Dear Mr. Martien:

The Texas Water Commission (TWC) has reviewed your closure certification dated July 14, 1988 by Alan D. Husak, a registered professional engineer.

Our review of this certification indicates that the referenced pond was closed in accordance with the closure plan approved by TWC on September 1, 1987.

The effluent pond is now subject to RCRA post-closure care. Your post-closure care permit application is now being processed by the TWC Hazardous & Solid Waste Division Permits Section.

If you have any questions regarding the closure certification, please contact Luis E. Campos in Austin at 512/475-2163.

Sincerely,

Samuel B. Pole, Chief
Hazardous and Solid Waste Enforcement Section
Hazardous and Solid Waste Division

cc: TWC Deer Park Office
Paul Lewis, TWC Groundwater Enforcement Unit
John Mikus, TWC Permits Section

APPENDIX VII.C.b

Acid Spill Impoundment Post-Closure Plan

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Table 1. Acid Spill Impoundment Post-Closure Inspection and Maintenance Schedule

Attachment A. Texas Water Commission Correspondence Documenting Completion of Closure of the Acid Spill Impoundment

VII.C.b. ACID SPILL IMPOUNDMENT CLOSURE AND POST-CLOSURE PLAN

Introduction

This plan is submitted in accordance with 30 Texas Administrative Code (TAC) 335.174(b). APLLC's Acid Spill Impoundment (ASI) has been previously closed as a landfill and is presently being maintained under post-closure care (PCC). The closure of the ASI consisted of removal of waste and bottom clay liner, sampling of the base soils, followed by installation of a double liner with a leak detection system. A 2-foot thick layer of compacted clean clay was placed over the bottom and sidewalls of the excavated impoundment. The double liner and leak detection system was placed over the compacted clay liner. Components of the liner system included a 60 mil HDPE secondary liner, a synthetic drainage net, and a 100 mil HDPE primary liner. A liner pump is installed in between the primary and secondary liners. In addition, there is a pump installed in the leachate collection sump located below the bottom primary liner (i.e., RL-1). The former ASI continues to be operated as a catchment for spills at the adjacent tank farm and as a Rainwater Impoundment during post-closure care. Attached in Attachment A is a letter dated February 2, 1989, from the Texas Water Commission (predecessor agency to the Texas Commission on Environmental Quality) documenting approval of completion and certification of closure of the surface impoundment in accordance with closure plan approved by the TWC on September 1, 1987. Post-closure care of the ASI consists of inspection and maintenance of the Rainwater Impoundment upper synthetic liner occurring at ground surface, removal of liquids from and maintenance of the leachate collection/removal system, monitoring and retrieval of groundwater in the immediate vicinity of the impoundment, and maintenance of facility gates and fences. A groundwater Corrective Action (CA) program has been established in APLLC's Compliance Plan to address releases in the area of the former ASI pursuant to 30 TAC 335.166. Following is a description of the inspection and maintenance activities carried out as part of post-closure care of the Former ASI:

Post-Closure Care Inspections

Post-closure care inspections to address applicable requirements specified in 30 TAC 335.174(b) include monthly liner inspections for the Rainwater Impoundment (closed ASI), weekly leachate collection/removal system inspections and weekly fence/gate inspections. The following is a brief description of each of the above items.

- Monthly Synthetic Liner Inspection

  The synthetic liner for the Rainwater Impoundment (closed ASI) is inspected weekly for signs of tears/holes in the top liner and evidence of the liner edge slipping from anchorage in the soil. Weekly frequency is deemed adequate based on operating experience. Past inspection records documented one small tear in a liner seam that formed shortly after the liner was initially installed. The cause was believed to be due to an installation deficiency which was subsequently corrected. There has been no noted evidence of liner slippage or development of new tears or holes in the liner since the

initial correction. If deficiencies are identified (i.e., tears, holes, slippage) a private liner repair contractor would be obtained by APLLC to provide appropriate repairs to the liner.

- Weekly Leachate Collection/Removal and Inspection

  Liquids (primarily comprised of recovered groundwater) were previously detected in the leachate collection sump of the Rainwater Impoundment shortly after initial closure as the "ASI". A permanent pump (i.e. RL-1) has been installed to remove these liquids from the leachate collection sump. The sump is evacuated on a weekly basis. The volume of the liquids removed is measured with a flow totalizer on a weekly basis. The liquids are then transferred, with other wastewaters to a wastewater tank. The waters are then transferred off-site to a POTW for final treatment.

  The collection/removal system for the Rainwater Impoundment leachate system is inspected weekly to verify pump operation, totalizer operation and no leaks from the system. APLLC submits semi-annual status reports of leachate collection, removal and inspection activities associated with the Rainwater Impoundment to the TCEQ on a semi-annual basis as part of the Groundwater Corrective Action program reports submitted in accordance with the requirements established in APLLC's Compliance Plan. The semi-annual CA reports provide the total volume of liquid removed from RL-1, analytical results of the removed liquid and current status of operational/maintenance activities.

- Weekly Fence/Gate Inspections

  The present fence/gate system surrounds the developed portion of the APLLC manufacturing site. It is anticipated that the site will not close until after the year 2020. The fencing system should therefore remain during the entire 30-year Post Closure Care period. If this is not the case, then fencing would be installed and maintained around the closed impoundment upon closure of the manufacturing facility. Weekly inspections will look for holes in the fencing or portions of the fencing that are down for various reasons. Gates will also be inspected to verify locks are in place and the gates are locked. If deficiencies are identified, the fencing will be repaired as soon as possible and/or locks will be replaced. A weekly inspection frequency is deemed adequate based on operating experience.

Table 1. Acid Sludge Impoundment Post Closure Inspection and Maintenance Schedule

System	Item	Inspection Frequency	Potential Defect	Response
1. Rainwater Impoundment	Synthetic Liner	Monthly	Slippage, tears	Re-anchor liner Repair tears
2. Security	Fences	Weekly	Holes, cut, or down	Replace defective section
	Gates	Weekly	Lock missing	Replace lock
3. Leachate Collection/Removal System	Pumps, Totalizer	Weekly	In operation	Repair or replace pumps, totalizer

ATTACHMENT A

TEXAS WATER COMMISSION

B. J. Wynne, III, Chairman
Paul Hopkins, Commissioner
John O. Houchins, Commissioner

Allen Beinke, Executive Director
Michael E. Field, General Counsel
Brenda W. Foster, Chief Clerk

February 2, 1989

RECEIVED
FEB 1989

Mr. Bob Martien
Air Products Manufacturing Corp.
P.O. Box 3326
Pasadena, Texas 77501

Re: Partial RCRA Closure
TWC Registration No. 30317
Acid Spill Pond
TWC Facility No. 02

Dear Mr. Martien:

The Texas Water Commission (TWC) has reviewed your closure certification dated November 18, 1988 by Alan D. Husak, a registered professional engineer.

Our review of this certification indicates that the referenced pond was closed in accordance with the closure plan approved by TWC on September 1, 1987.

The acid spill pond is now subject to RCRA post-closure care. Your post-closure care permit application is now being processed by the TWC Hazardous & Solid Waste Division Permits Section.

If you have any questions regarding the closure certification, please contact Luis E. Campos in Austin at 512/475-2163.

Sincerely,

Samuel B. Pole, Chief
Hazardous and Solid Waste Enforcement Section
Hazardous and Solid Waste Division

cc: TWC Deer Park Office
Ken Zarker, TWC Reports & Info. Management Unit
Paul Lewis, TWC Groundwater Enforcement Unit
John Mikus, TWC Permits Section

APPENDIX VII.C.c

Historical Documentation for the Effluent and Acid Spill Impoundments

VI.A. EFFLUENT IMPOUNDMENT
CLOSURE AND POST-CLOSURE PLANS

Prepared for
Air Products Manufacturing Corporation
Pasadena, Texas

Prepared by
International Technology Corporation
Austin, Texas
January 1987

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VI.A. SECTION I.
EFFLUENT IMPOUNDMENT CLOSURE PLAN

1.0 INTRODUCTION

Air Products currently operates a RCRA-regulated wastewater treatment impoundment. Wastewater from the chemical process tanks is presently routed to this effluent impoundment before it is pumped to the Gulf Coast Waste Disposal Authority-Washburn Tunnel Facility (GCWDA) for treatment. The impoundment is regulated by the Texas Water Commission because it receives RCRA waste numbers K111 and K112. Air Products has submitted a Part A permit application and is operating the effluent impoundment under RCRA interim status. By chemically treating one source of wastewater contributing to the DNT wastewater stream to this impoundment, and providing aboveground surge tank capacity, Air Products will eliminate the need for an effluent impoundment.

When the wastewater process unit is constructed and tested, and all surge tank capacity is on-line, Air Products will close the effluent impoundment to meet the requirements of 31 Texas Administrative Code, Subchapter F below:

TAC § 335.169. CLOSURE AND POST-CLOSURE CARE (SURFACE IMPOUNDMENTS)

(a) At closure, the owner or operator must:

(1) Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless 40 CFR § 261.3(d) applies; or

(2) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues; stabilize remaining wastes to a bearing capacity sufficient to support final cover; and cover the surface impoundment with a final cover designed and constructed to:

(A) Provide long-term minimization of the migration of liquids through the closed impoundment.

(B) Function with minimum maintenance.

(C) Promote drainage and minimize erosion or abrasion of the final cover.

(D) Accommodate settling and subsidence so that the cover's integrity is maintained.

(E) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils.

(b) If some waste residues or contaminated materials are left in place at final closure, the owner or operator must comply with all post-closure requirements contained in 40 CFR § 264.117-264.120, including maintenance and monitoring throughout the post-closure care period (specified in the permit under 40 CFR § 264.117). The owner or operator must:

(1) Maintain the integrity and effectiveness of the final cover including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(2) Maintain and monitor the ground water monitoring system and comply with all other applicable requirements of 335.156-335.166 of this title (relating to Applicability of Ground Water Monitoring and Response; Required Programs; Ground Water Protection Standard; Hazardous Constituents; Concentration Limits; Point of Compliance; Compliance Period; General Ground Water Monitoring Requirements; Detection Monitoring Program; Compliance Monitoring Program; Corrective Action Program); and

(3) Prevent run on and runoff from eroding or otherwise damaging the final cover.

Existing ground water monitoring analyses indicate the presence of nitroaromatic species in the ground water below the impoundment (See Section V. Ground Water Monitoring Report of Air Products Part B Permit Application for additional discussion). These chemical species are components of the wastes in the impoundment and probably represent waste residuals. Because these organic compounds have been measured at a depth of 56.6 feet below grade, it is unlikely that closure by removing all waste residuals, under paragraph (1) of the above regulation, will be feasible. This report presents plans for closure of the impoundment to meet the criteria under paragraph (a) (2) and (b) above, for closure as a disposal unit.

The process unit, and the surge tanks which will take over the function of the existing impoundment, will meet the definition of wastewater treatment units as defined in 31 TAC Subchapter A, §335.1. Since the wastewater is pumped to

a Publicly Owned Treatment Works (POTW), the process unit and the surge tanks do not require a RCRA Industrial Solid Waste permit.

2.0 FACILITY DESCRIPTION

The effluent impoundment was constructed in 1972. Figure 1 shows the location of the impoundment within the plant site. The original dimensions along the top of the dike, based on construction drawings dated December, 1972 (Plates 1 and 3), were 175 feet by 139.5 feet, and 8 feet deep.

The top of the dike is about 2 feet above natural grade. The bottom was originally constructed about 6 feet below natural grade. Side slopes on the dike are 3 to 1 on the interior slope, and 2 to 1 on the exterior slope (see Plate 2). The above-grade portion of the dikes was constructed from natural clay excavated from the impoundment. The clay for the dikes was specified to be free of any organic material and compacted to 90 percent maximum density at optimum moisture. Approximately 6 feet of the lower inside section of the dike was stabilized with 4 percent lime. Eight inches along the edge of the bottom of the impoundment were similarly treated.

A dike was constructed of lime-stabilized earth in 1973. It ran from east to west through the middle of the impoundment. This dike was subsequently removed. The current capacity of the impoundment is about 730,000 gallons. The impoundment has been dredged periodically to remove accumulated waste sludges.

2.1 ASSOCIATED PIPING

As part of the changes to the wastewater treatment system and effluent impoundment closure, several sections of the pipe will be decommissioned. The final disposition of these materials is discussed in the closure procedure for the impoundment.

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		APPROVED BY			

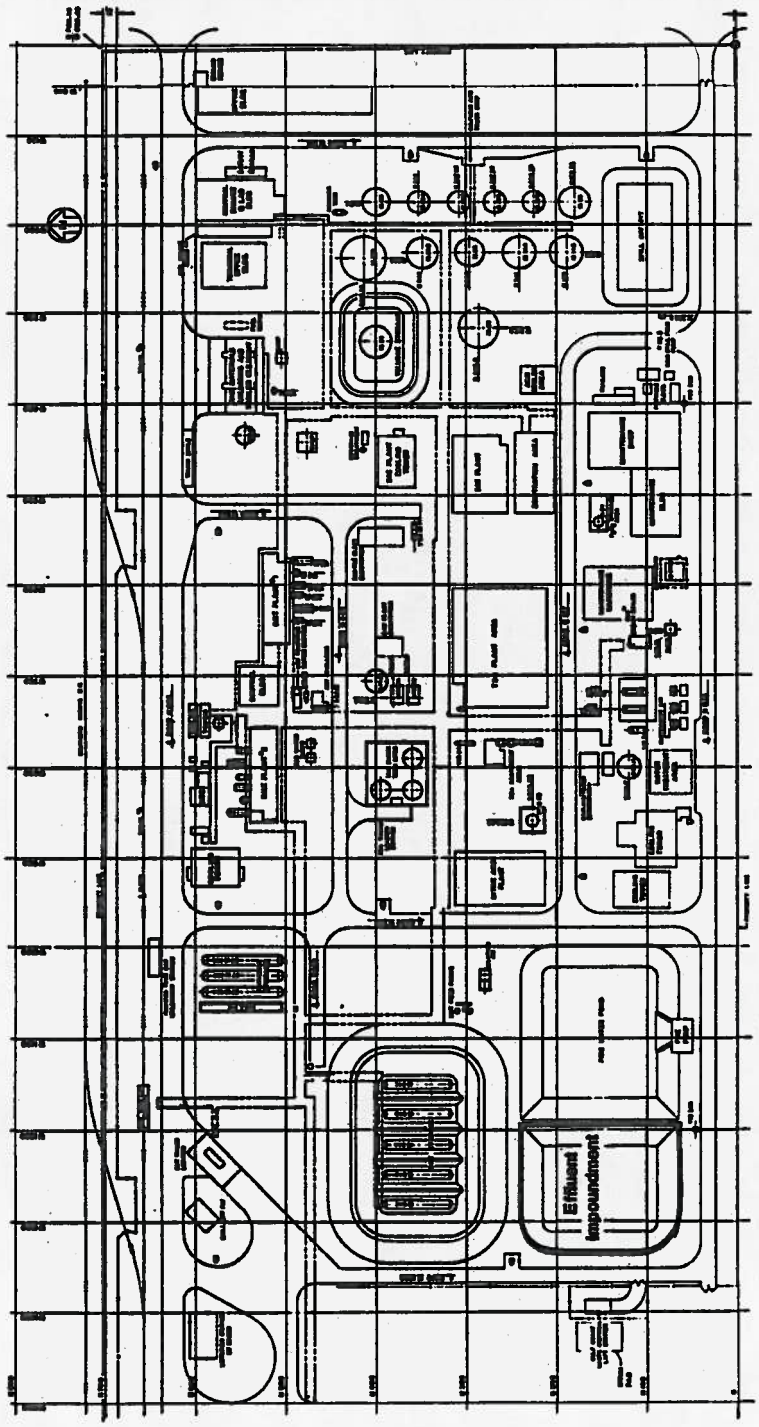


FIGURE 1

FACILITY LOCATION

PREPARED FOR

AIR PRODUCTS
PASADENA, TEXAS

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"Do Not Scale This Drawing"

INTERNATIONAL TECHNOLOGY CORPORATION

3.0 WASTE DESCRIPTION

3.1 WASTE DESCRIPTION

Figure 2 shows a flow diagram of the current plant wastewater system. There are five principle sources of wastewater: sulfuric acid denitrification/sulfuric acid concentration (SAD/SAC) area, dinitrotoluene (DNT) area, the toluenediamine (TDA) area, the nitric acid area, and the utility area. Figure 2 also shows the normal routes for wastewater flow through the system.

All wastewater is routed to either the neutralization sump or the effluent impoundment. Wastewater for the SAD/SAC and DNT areas is routed directly to the effluent impoundment. Several miscellaneous sources, as shown on Figure 2, are also routed to the effluent impoundment. Wastewater from the TDA, nitric acid and utility areas of the plant are normally routed to the neutralization pit and then to the pumps which discharge to GCWDA.

During TDA process upsets, wastewater may be routed to the effluent impoundment instead of the neutralization sump. The TDA wastewater flow is equalized in the impoundment and discharged to GCWDA.

The characteristics of wastewater from each of these areas is presented in Table 1. Data in this table represent the results of analyses of samples collected routinely, since July, 1983. The location from which each sample is collected is indicated schematically on Figure 2. The Material Safety Data Sheets (MSDS) for the DNT and TDA components of the waste are included in Appendix A.

The wastewater routing system has been essentially the same as the current system since 1978. At that time, the clean water bypass was installed. Prior to the clean water bypass, the wastewater from all five source areas was routed through the effluent impoundment before it was discharged to the treatment plant. By routing approximately two-thirds of the wastewater flow (409 gpm) around the effluent impoundment, the organic load to the GCWDA treatment plant was substantially reduced. During the last 4 years, numerous source control projects have reduced both the organic load to GCWDA and the amount of solids collecting in the impoundment.

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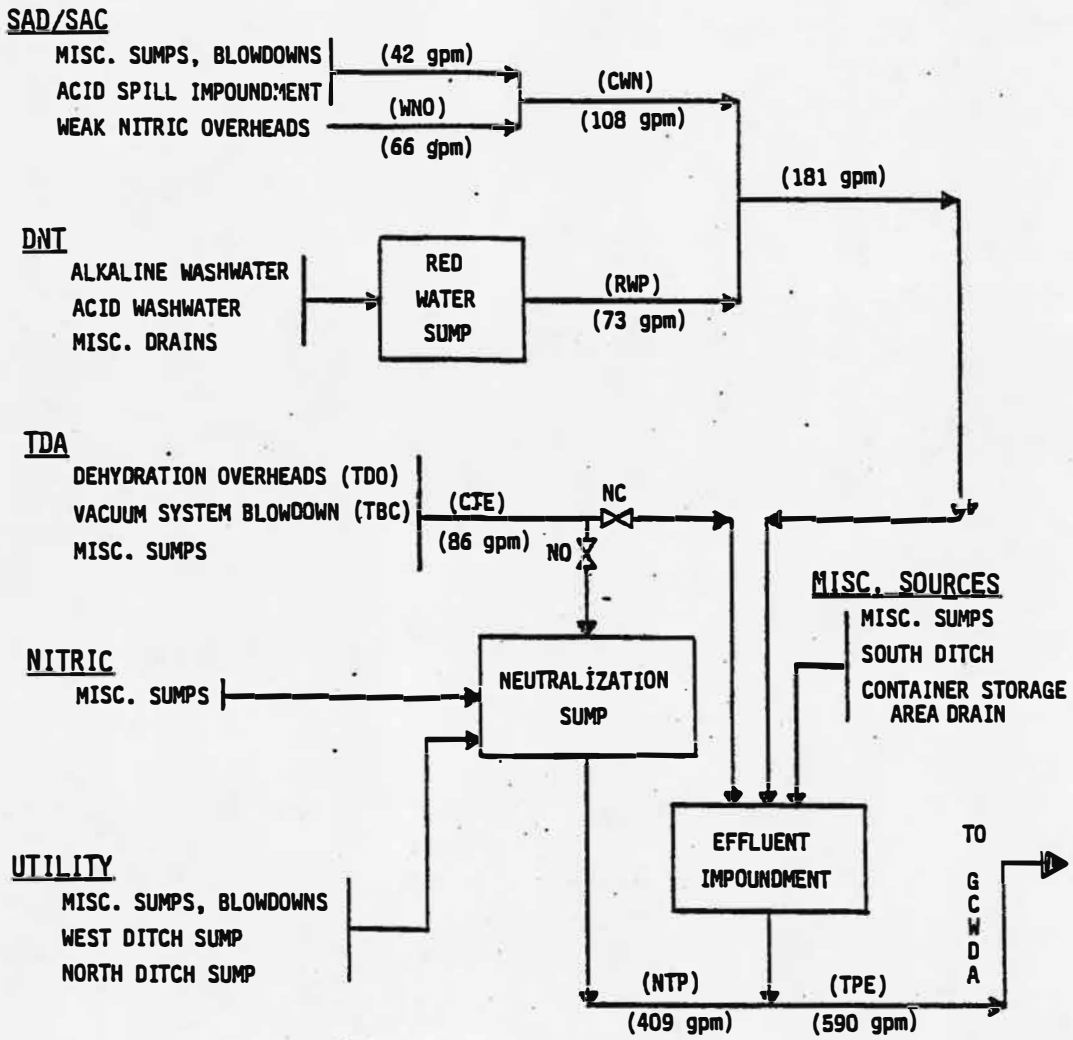


FIGURE 2

CURRENT WASTEWATER FLOW DIAGRAM

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TABLE 1

RANGE OF TYPICAL WASTEWATER ANALYSES (PPM)

	CODE (1)	MNT	DNT	NITRO-CRESOLS	TOLUIDINES	TDA
Weak nitric overheads	WNO	50 - 200	1700 - 1900	5 - 25	---	---
Combined weak nitric area effluent	CWN	20 - 130	750 - 1200	2 - 15	---	---
TDA dehydration column overheads	TDO	---	---	---	900 - 1800	300 - 600
TDA barometric condenser blowdown	TBC	---	---	---	300 - 900	700 - 1400
Combined TDA effluent	CTE	---	---	---	150 - 1300	200 - 850
Red water sump effluent	RWP	10 - 30	450 - 900	250 - 500	---	---
Neutralization sump	NTP	trace	trace - 20	trace - 10	30 - 400	40 - 300
Total plant effluent	TPE	5 - 25	200 - 400	40 - 120	20 - 250	25 - 200

(1) Code references sampling locations shown on Figure 2.

Prior to the clean water bypass in 1978, laboratory wastes were routed with the total plant flow through the effluent impoundment. A list of the most likely laboratory wastes is presented in Appendix B, attached. Items on this list are routinely used and are presented as the best available information.

It is very unlikely that any significant concentrations of these laboratory waste chemicals remain in the impoundment sludges or in the ground water or solids below the impoundment. In the seven years since laboratory wastewater was routed to the effluent impoundment, wastewater contents of the impoundment have turned over at least twice per week. Sludges have been removed from the bottom of the impoundment at least annually.

3.2 WASTEWATER TREATMENT

The primary function of the effluent impoundment is to collect organic precipitate from the DNT wastewater. In the current plant wastewater system, precipitate is formed in the effluent impoundment primarily due to precipitation of the nitrocresols and DNT. The nitrocresol/DNT precipitate forms when the alkaline wash water stream is mixed with other lower pH process wastewaters. DNT precipitation also occurs due to the change in solubility as the DNT wastewaters cool passing through the Effluent Pond. Water leaving the pond is saturated with DNT. This stream mixes with other wastewater that bypasses the pond and is pumped to GCWDA.

During TDA process upsets wastewater may be routed to the effluent impoundment instead of the neutralization sump. The TDA wastewater flow is equalized in the impoundment and discharged to GCWDA.

3.3 WASTE VOLUMES AT CLOSURE

Wastes and waste residues associated with the impoundment at closure are present in three forms: the liquid, the sludges, and the waste residual material in the soil and ground water below the clay impoundment bottom. The maximum volume of actual waste is approximately 730,000 gallons, or the impoundment volume, assuming that the volume of waste residuals in the soil and ground water is negligible compared to the total volume.

Waste sludges are presently being generated in the impoundment at a rate of about 1.64 tons per day (tpd, wet basis). The following estimated maximum mass of sludges is expected to be generated in the impoundment between the end of the latest sludge removal process (May, 1985) and the elimination of routine solids generation in December, 1986, when the chemical oxidation system for DNT wastewater comes on-line:

1.64 tpd x 457 days = 750 tons (wet weight)

The volume of wastewater in the impoundment when closure begins will be approximately 730,000 gallons, less the mass of solids, as calculated above. The net volume of wastewater will be 550,000 gallons.

Waste residues in the soil and ground water below the impoundment will remain in the disposal site until they are removed at closure by the ground water recovery system.

4.0 CLOSURE PROCEDURE PHASE I

Closure of the wastewater effluent impoundment will consist of two phases. The first phase will be detailed design, installation, and testing of a DNT wastewater treatment unit and construction of a DNT wastewater surge tank upstream of the impoundment. This phase is necessary to eliminate the formation of organic precipitate which presently collects in the impoundment. Figure 3 shows the steps of the first phase as part of an overall closure diagram. Figure 4 shows a flow diagram of the wastewater system following Phase I. The second phase will consist of installing some additional wastewater surge tankage, waste removal, soil testing, placing fill, and clay cover on the impoundment. Steps of Phase I are discussed in detail below.

4.1 INSTALL OXIDATION UNIT FOR DNT ALKALINE WASH WATER

The DNT alkaline wash water contains nitrocresols which precipitate as the wastewater pH is reduced by mixing with wastewater from other sources. This precipitation currently occurs in the effluent impoundment. Air Products has designed and will install an oxidation unit for the alkaline wash water which will convert nitrocresols to soluble organics. Hydrogen peroxide is the oxidizing agent and ferrous sulfate is the catalyst. The effluent impoundment will no longer be used to remove and collect precipitated DNT and nitrocresols.

4.2 TEST OXIDATION UNIT FOR DNT ALKALINE WASH WATER

Once the hydrogen peroxide oxidation unit is on-line, routine precipitation of organic compounds will not occur in the effluent impoundment. All plant flow will normally be routed directly to the GCWDA without passing through the effluent impoundment. This oxidation process is a new design and Air Products has submitted a patent application. Approximately two months will be required to test and stabilize the operation of the process. During this testing period, the effluent impoundment will remain as a back-up unit to be used in case of a process upset.

4.3 INSTALL DNT WASTEWATER SURGE TANK

An aboveground tank will be provided to receive all wastewater which contains DNT as shown in Figure 4. If a process upset causes organics to precipitate in the DNT Wastewater Surge Tank, they will be recycled to the DNT unit.

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FIGURE 3

EFFLUENT IMPOUNDMENT CLOSURE

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1/30/87	1-30-87	

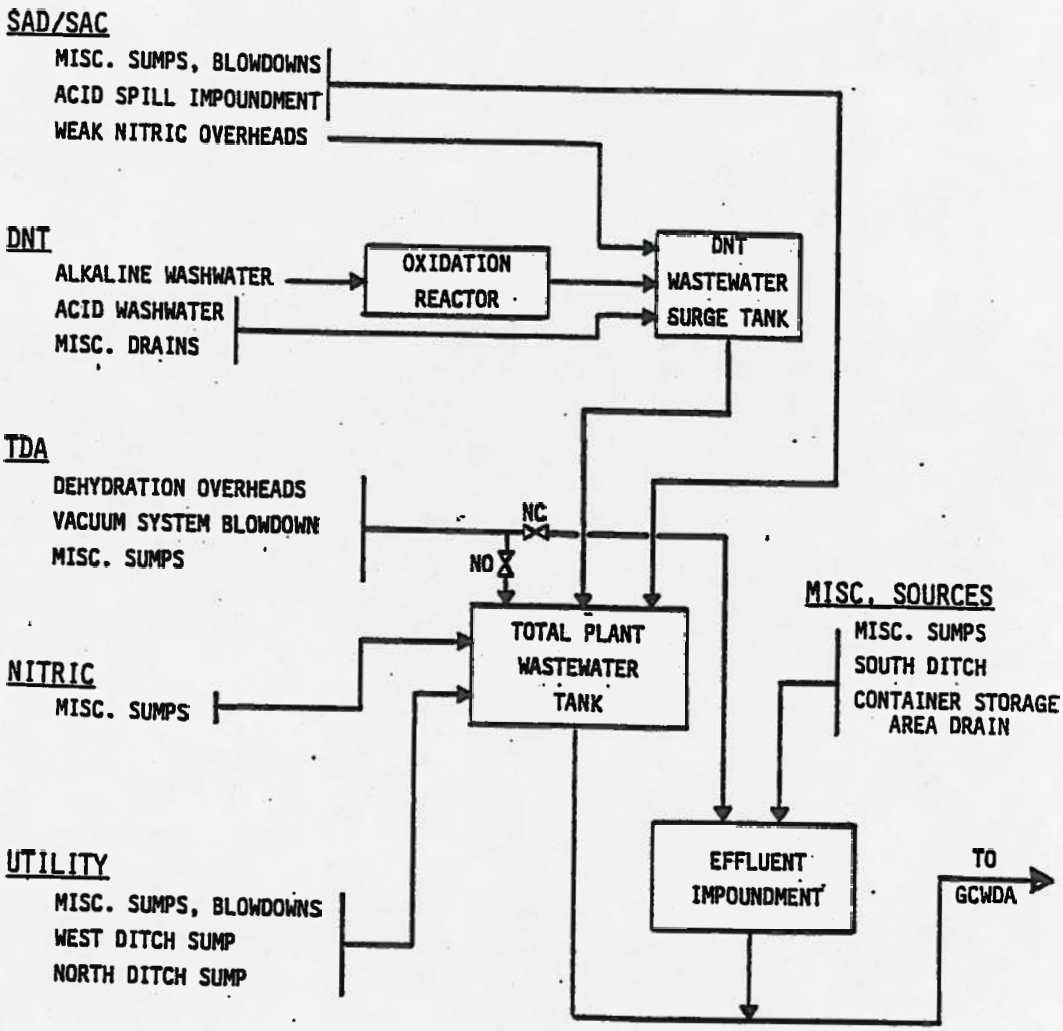


FIGURE 4

PHASE I
WASTEWATER FLOW DIAGRAM

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4.4 INSTALL TOTAL PLANT WASTEWATER TANK

The TDA wastewater, SAD/SAC sump wastewater, Nitric Acid Plant Wastewater, and utility wastewater will all be routed directly to the Total Plant Wastewater Tank. Wastewater from the DNT Wastewater Surge Tank will also be routed to the Total Plant Wastewater Tank. This tank will provide surge capacity for the pumps which discharge to GCWDA.

Following the implementation of Phase I, all wastewaters will normally be routed directly from the Total Plant Wastewater Tank to GCWDA, bypassing the effluent impoundment as shown on Figure 4. TDA wastewater will be diverted from the Total Plant Wastewater Tank to the impoundment only in the event of a TDA process upset. Some rainwater will also be pumped into the impoundment during peak rainfalls.

5.0 CLOSURE PROCEDURE PHASE II

Phase II of the effluent impoundment closure process will consist of installing the TDA Wastewater/Rainwater Surge Tank, modifying the rainwater handling system, and routing miscellaneous sources, including the Drum Pad Sump, directly to the Total Plant Tank. Phase II will also include physical closure of the effluent impoundment. Steps of this phase are shown schematically in Figure 3. Figure 5 shows a flow diagram of the wastewater system following Phase II.

The purposes of the TDA Wastewater/Rainwater Surge Tank will be to store TDA wastewater in the event of a process upset and to provide rainwater surge capacity. Presently any TDA wastewater with a higher than normal concentration of TDA is pumped to the effluent impoundment and gradually released to the GCWDA for treatment.

Physical closure of the effluent impoundment will involve the following steps.

5.1 REMOVE IMPOUNDMENT SOLIDS

Solids which have precipitated in the impoundment will be removed to the level of the natural clay liner below the impoundment. This step will occur just before physical closure of the impoundment. Minimal solids accumulation will take place between start-up of the oxidation process and closure of the impoundment.

The sludges will be removed, stabilized and disposed of in a RCRA landfill. The stabilization process has been approved by the TWC in a separate submission.

5.2 DISCHARGE WASTEWATER

Wastewater in the effluent impoundment at closure will be pumped to the GCWDA for treatment. Water below the invert of the discharge pump inlet will then be lifted by a portable pump into the Total Plant Wastewater Tank for transfer to GCWDA.

The water table of the ground water surrounding the impoundment is close to or

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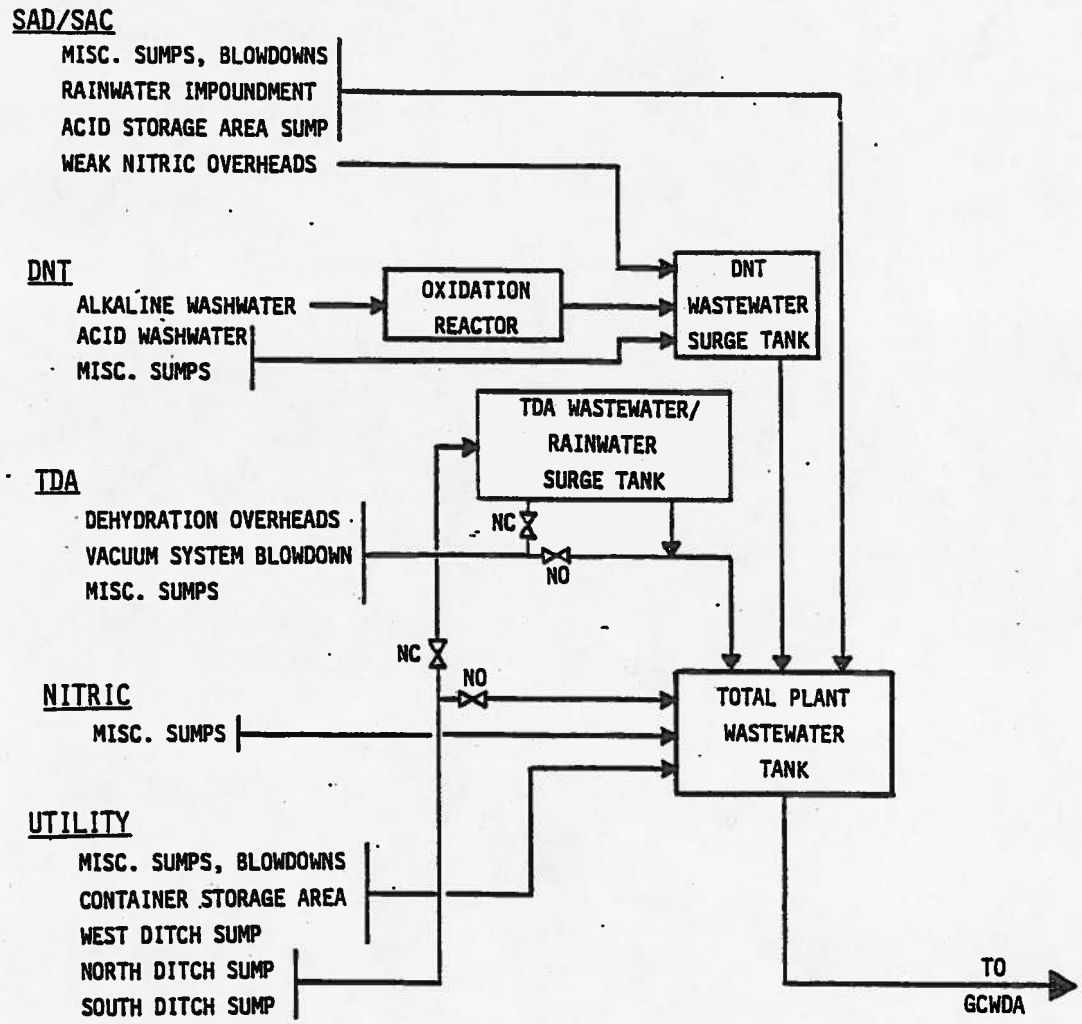


FIGURE 5

PHASE II
WASTEWATER FLOW DIAGRAM

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above the level of the bottom of the impoundment. It may not be possible to completely dry the impoundment bottom by pumping. The maximum volumes to be pumped will be 730,000 gallons, which is the capacity of the impoundment. The actual volume will be less due to the presence of waste solids. If it is feasible, given the construction schedule and flow conditions, contaminated ground water in the banks immediately surrounding the impoundment will be removed by additional low rate pumping.

5.3 DECOMMISSION AND DECONTAMINATE ASSOCIATED EQUIPMENT

Associated equipment consists of about 150 feet of 12-inch pipe. This pipe is part of the pump suction line located in the impoundment. The pipe will be removed, triple-rinsed and transported to the landfill.

5.4 REMOVE CLAY LINER

The clay liner to be removed is 8 inches of lime-stabilized clay and 12 inches of clay soil from the sides and bottom of the impoundment. The estimated total volume to be removed is 1,600 cubic yards.

The clay liner material will be excavated using a clam-shell bucket. Disposal of the clay liner will be at a commercial RCRA landfill. The soils will be excavated and stabilized as necessary using portland cement.

5.5 SAMPLE SOILS

Once the clay liner has been removed, soil samples will be collected and analyzed to document the characteristics of the materials which will remain after removal of sludges and approximately 18 inches of underlying clay. Two-foot core samples will be collected from the surface at a random location within each of eight basin quadrants. This yields eight core samples. Each core will be homogenized and independently analyzed for:

- ortho-mononitrotoluene (o-MNT)
- para-mononitrotoluene (p-MNT)
- meta-mononitrotoluene (m-MNT)
- 2,4-dinitrotoluene (2,4-DNT)
- 2,6-dinitrotoluene (2,6-DNT)
- 4,6-dinitrorthocresol (4,6-DNOC)
- Total Cyanide
- Barium
- Cadmium

- Chromium
- Lead
- Selenium
- Mercury
- Silver

Duplicate extractions of the core samples will be analyzed using EPA approved methods to quantify the concentration of constituents. Detection limits typically are in the range of 0.01 to 0.1 ppm.

5.6 PLACE FILL

Once the clay liner has been removed, fill will be placed in the impoundment to a level 2 feet below the level of the top of the fire-water impoundment dike. The fill material will consist of clean, Class III material which is free of organics. It will be placed in lifts of 6 to 9 inches and compacted to a minimum of 90 percent of the maximum density at optimum moisture content. Figure 6 shows a schematic diagram of fill placement in the closed effluent impoundment. The estimated volume of fill required is 6,400 cubic yards.

5.7 PLACE CLAY COVER

The clay cover shall consist of 3-foot thick layer with a maximum permeability of 1×10^{-7} cm/sec. Clay will be placed in lifts of 6 inches and compacted to achieve the permeability specification. The surface of the clay cover will be sloped at 2 percent over the impoundment, and at 4 to 1 slopes from the edge to existing grade to promote drainage on this layer. The cover will extend at least one foot beyond the edge of the impoundments. Figure 6 illustrates the proposed impoundment cover. The estimated in-place volume of clay is 3,000 cubic yards.

5.8 PLACE DRAINAGE LAYER

A drainage layer of 12 inches of sandy soil with a minimum permeability of 1×10^{-3} cm/sec will be placed in a level bed over the clay cover. This drainage layer will be located above the top of the fire-water impoundment dike and will drain freely to surface drainage systems.

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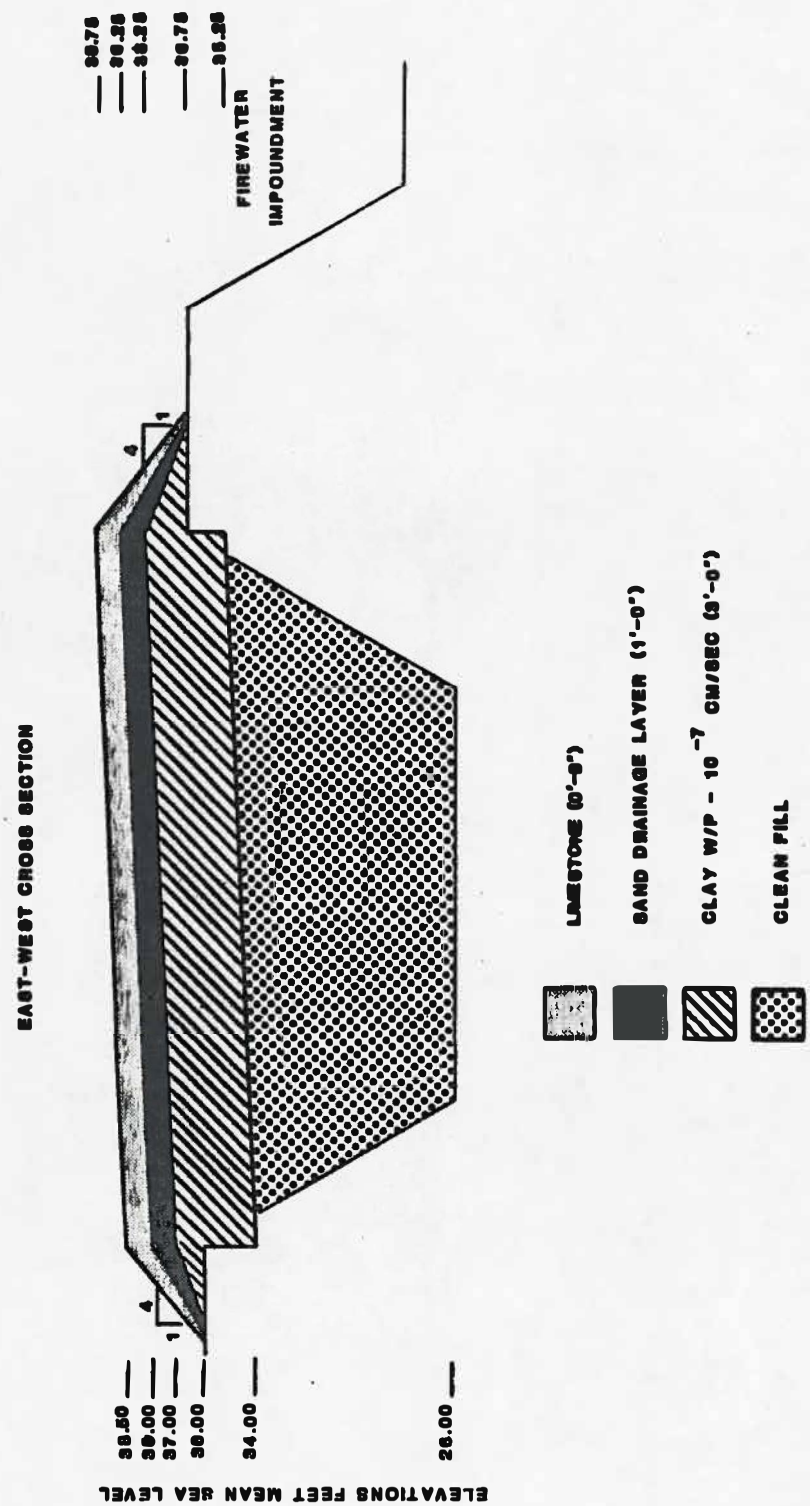


FIGURE 6
CROSS SECTION OF CLOSED EFFLUENT POND

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5.9 PLACE CRUSHED ROCK LAYER

Six inches of crushed limestone (sized approximately 3/4 inch) will be placed on the drainage layer. Placement and maintenance of the crushed stone cover will end the physical process of closing the effluent impoundment.

6.0 CLOSURE SCHEDULE

The impoundment closure schedule is summarized in Table 2. The number of weeks to complete each step of closure is presented in column 2 of the table. For each step, the number of weeks specified represents the maximum time which would be required. Based on this schedule, Air Products anticipates completing closure of the impoundment by May 6, 1988. If, due to circumstances that cannot be predicted, the closure work is not completed according to the schedule presented here, Air Products will immediately notify the TWC in writing of the delay, the consequences of the delay on the total schedule, and the reason for the change.

Air Products has begun the closure process by starting the design of the oxidation unit required for treating the DNT wastewater. Additional design time is required for this unit and Air Products anticipates beginning the physical installation of the oxidation unit on or about November 1, 1985. This date allows time in excess of the specified 180 days for TWC approval of the closure plans. Based on the schedule presented here, physical closure of the impoundment would begin on or before December 4, 1987. Physical closure would be completed in 22 weeks, by May 6, 1988.

TABLE 2

EFFLUENT IMPOUNDMENT CLOSURE SCHEDULE

	Task Name	Weeks	Start Date	Finish Date	Current Status (December 1986)
1	Start		3/01/85		
2	Phase I Design	22	3/01/85	8/02/85	Complete
3	Install the Oxidation System	30	1/03/86	8/01/86	Complete
4	Install the DNT Wastewater Surge Tank System	34	2/07/86	10/03/86	Complete
5	Install the Total Plant Wastewater Tank System	34	2/07/86	10/03/86	Complete
6	Elimination of Routine Waste Receipt			8/01/86	Complete
7	Test the Oxidation Unit	9	8/01/86	10/03/86	Complete
8	Begin Phase II		3/07/86		
9	Design Phase II	42	3/07/86	12/26/86	Complete
10	Route Miscellaneous Sources to Tank	27	5/01/87	11/06/87	Complete
11	Install the TDA Wastewater/ Rainwater Tank System	27	5/01/87	11/06/87	Complete
12	Physical Closure of the Impoundment	22	12/04/87	5/06/88	
13	End			5/06/88	

7.0 CLOSURE COST ESTIMATE

Table 3 presents an estimate of closure costs for the effluent impoundment. This estimate is based on current costs and may be revised to represent actual costs of the proposed operations at the time of closure. Closure is expected to take place in 1987.

TABLE 3

EFFLUENT IMPOUNDMENT
ESTIMATED CLOSURE COSTS

	$
Discharge Wastewater Disposal 550,000 gallons @ $0.00043/gallon	240
Wastewater Disposal Rental Equipment	6,600
Remove Waste Solids 750 yd^3 @ $283/$yd^3$	212,000
Decommission, Decontaminate Associated Equipment Remove, rinse, landfill 150 ft of 12-inch pipe	10,000
Remove Clay Liner Excavation, disposal 1,950 yd^3 @ $283/$yd^3$	552,000
Sample Underlying Soils (8 samples) Labor/Shipping/Lab Costs	4,800
Place Clean Fill 6,400 yd^3 @ $30/$yd^3$	192,000
Place Clay Cap Clay material, placement, compaction, testing 3,000 yd^3 @ $45/$yd^3$	135,000
Drainage Layer Sand material, placement 1,000 yd^3 @ $20/$yd^3$	20,000
Crushed Rock Surface Limestone material, placement 500 yd^3 @ $16/$yd^3$	8,000
Engineering Certification Engineer's Report, 1 item @ $10,000	10,000
Deed Certification and County Clerk Notice Survey/Engineer/Lawyer	1,700
Administration Supervision, 100 hrs @ $75/hr	7,500
TOTAL	$1,159,840

8.0 CLOSURE CERTIFICATION

Once Phase I and II of the effluent impoundment closure have been completed, certification will be provided to the TWC, both by Air Products and by an independent Professional Engineer registered in the State of Texas, that all closure steps have been conducted in accordance with the approved closure plan.

Specific aspects of the closure that would be addressed by the engineer are:

- Slope of the top of the granular fill
- Placement of the fill to specified density and moisture
- Slope of the top of the clay cap
- Minimum thickness of the clay cover
- Permeability of the in-place clay cap, based on field testing of test fills as described in Appendix C
- Minimum thickness of the sand drainage layer
- Permeability of the sand drainage layer, based on laboratory measurements of two recompacted samples of the material
- Minimum thickness of the limestone cover

Certification of these components of closure will consist of verifying and documenting that each component was completed to meet all of the specifications of this document. Once closure of the impoundment is complete, a recordation of closure on the land deed will be made in accordance with the requirements of TAC 335.112. A notice will be filed with the Harris County Clerk as required by TAC 335.112.

VI.A. SECTION II
EFFLUENT IMPOUNDMENT POST-CLOSURE PLAN

1.0 INTRODUCTION

The effluent impoundment will be closed under the requirements of TAC Section 335.169(a)(2) and (b) as a disposal unit. The closure will consist of removing wastewater, pond solids, and the clay liner of the impoundment. Air Products anticipates that greater than 90 percent of any waste residuals will be removed during closure. Waste residuals which do remain will consist of small amounts of organic chemicals which are absorbed on the soils or are dissolved in the ground water below the impoundment. The chemical composition of the material left in the disposal unit will be documented by laboratory analyses.

Once the wastes are removed and samples have been collected, the impoundment site will be filled and capped with a clay cover. A drainage layer of sand and a crushed limestone layer will be provided as specified in the closure plans. The post-closure care plan presented here addresses the ongoing ground water program, the cap and security maintenance programs, and post-closure care period.

2.0 POST-CLOSURE USE OF THE IMPOUNDMENT SITE

Once the closure is completed, the impoundment site will represent a negligible threat to the surface environment. Most of the hazardous materials will have been removed. The residual materials will be separated from the surface by fill, by two feet of low permeability clay, a drainage layer, and a crushed rock cover. Wastes will not be exposed to either the public, livestock, or to the employees of Air Products.

Air Products will maintain the impoundment site within their production facility. Its central location in the facility ensures a buffer area of at least 1,000 feet between the closed site and any property not owned by Air Products except for the HL&P right-of-way. Access to the site will be controlled by the fencing and guard gates of the entire production facility. As long as the plant is owned and operated by Air Products, the in-place security system presented in the Part B permit application will be maintained. If, during the 30-year post-closure care period, Air Products should close the plant and maintain ownership of the site, the existing fencing will be maintained or a smaller fence will be installed around the impoundment site. The smaller fence would consist of a minimum of 6 feet chain-link and 3 strands of barbed wire. It will be posted with signs warning the public of the hazardous nature of the site. The gates will be locked. If the plant site is sold, the new owner will purchase the site contingent on the limitations on use of the disposal site.

Air Products plans to maintain the site as an open area. If, however, during the post-closure care period the closed disposal site would be useful or critical to a plant expansion, Air Products would petition the TWC to alter the care plan to accommodate development of the site. Such development might include laying an asphalt or concrete pad, and developing process, storage, or transfer units over the site. In no circumstances, however, will the clay cap be disturbed or penetrated. Any future use of the site would be limited to use of the surface and the area above the clay cap. Use of the site would be contingent on approval of the TWC.

3.0 POST-CLOSURE GROUND WATER MONITORING

Waste residuals which contain hazardous organic compounds have been detected in the ground water near the effluent impoundment. Air Products has submitted a Compliance Monitoring Program and Corrective Action Program Permit Application for the ground water. These programs will be in place through the entire post-closure care period. If the corrective action program is completed, as specified in the permit, the Compliance Monitoring Program will be continued. Other than these programs, no ground water monitoring program will be implemented during the post-closure care period.

If the results of the Corrective Action Program demonstrate that no waste residual material remains below the impoundment site, Air Products will petition the TWC of the RCRA Program to close the disposal facility under the specifications of TAC Section 335.169(a)(1). The post-closure care period and the ground water monitoring program would be terminated when and if this petition were granted.

4.0 POST-CLOSURE CARE INSPECTION AND MAINTENANCE

The discussion below specifies the routine inspection and maintenance for the disposal site during the post-closure care period.

4.1 MONITOR/RECOVERY WELLS

Monitor and/or recovery wells will be maintained as part of the Compliance Monitoring and Corrective Action Programs. If, for any reason, the wells specified as part of these programs become defective or inoperable, they will be repaired or replaced. Table 4 presents a list of possible malfunctions and their remedies.

4.2 CAP AND CRUSHED ROCK COVER

The surface of the disposal site will be covered by a crushed rock cover. This cover will be isolated from any waste residuals by approximately 6 feet of fill, low-permeability clay, and a sand drainage layer. Wind- or water-generated sediment transport and dust would affect this surface layer. Eroded sediments would not contain waste residuals from the disposal site.

The crushed rock surface of the disposal site will be maintained to drain all rainfall. The surface will be graded to drain most of the rainfall on the top of the cover to the surface water drainage system. Rainfall on the sloped sides of the cover will drain to natural grade around the cap and then into the plant drainage system.

The disposal site cover will be inspected every three months and after every storm event exceeding the 1-year, 24-hour storm event (approximately 3.75 inches in a 24-hour period) for disturbance of the rock cover, settlement, and pooling of water. If any of these conditions are observed, appropriate action, as specified in Table 4, will be taken.

4.3 SECURITY SYSTEM

Air Products plans to continue operating the production facility throughout the post-closure care period. As long as the production facility is operating, Air Products will maintain a fence around the entire production facility which encompasses the impoundment disposal site. Gates to the area are

TABLE 4

EFFLUENT IMPOUNDMENT POST-CLOSURE
INSPECTION AND MAINTENANCE SCHEDULE

SYSTEM	ITEM	FREQUENCY	POTENTIAL DEFECT	RESPONSE
Ground Water	Wells	Quarterly	Lock missing	Replace Lock
			Clogged well screen	Jet or surge well
			Defective surface casing	Replace casing or, if necessary, replace well
Cap and Cover	Surface	Quarterly and after 1-yr/24-hr storm events	Puddling of water	Re-grade and place new crushed rock
			Absence of rock cover	Place new rock
			Erosional features, rill	Re-grade and place new rock
Security	Fences	Weekly	Holes, cut, or down	Replace defective section
	Gates	Weekly	Lock missing	Replace lock

guarded and access is restricted.

If Air Products closes the production facility during the post-closure care period, either the fences around the entire production facility or a smaller fence around the impoundment will be maintained. During the entire post-closure care period, the fence will be inspected weekly by walking or driving the perimeter. Any deterioration or breaks in the fence will be noted and repaired.

5.0 POST-CLOSURE CARE PERIOD

The post-closure care period will extend from completion of the final step of closure for 30 years. The anticipated date of closure completion is on or before May 6, 1988. The post-closure care period will end on May 6, 2018.

Air Products will operate a ground water Compliance Monitoring Program and recovery system at the impoundment site during the post-closure care period. The objective of the recovery system will be to recover those waste residuals from the impoundment which remain in the subsurface environment. If a determination can be made that all of the waste residuals from the impoundment have been recovered, Air Products anticipates petitioning the TWC for an amendment to the closure plans to close in accordance with TAC Section 335.169 (a)(1). Under this closure option, the impoundment site will no longer be a disposal site. The post-closure care and ground water monitoring system would be terminated when and if this petition is granted.

Air Products and Chemicals, Inc.
Box 538
Allentown, PA 18105

MATERIAL SAFETY DATA SHEET

AIR PRODUCTS

EMERGENCY TELEPHONE NUMBERS
800-523-9374 (except PA) 800-322-9092 (PA only) 215-481-4911 (outside U.S.A.)

DINITROTOLUENE

I--PRODUCT IDENTIFICATION

Manufacturing Site
Pasadena, Texas

Business Contact
Product Manager
Nitration Products
Industrial Chemicals Department

Sales Office
P.O. Box 538
Allentown, Pennsylvania 18105

Sales Phone
(215) 481-4911

Issue Date, Revision 4
1 February 1986

Trade Name
Dinitrotoluene
DNT

Chemical Names and Synonyms
2,4- and 2,6-Dinitrotoluene
Dinitrotoluol
1-Methyl-2,4- and 1-Methyl-2,6-Dinitrobenzene
Toluene, Dinitro

Chemical Family
Aromatic Nitro Compounds

Formula
$C_7H_6N_2O_4$

Chemical Abstract Registry Numbers
[1]121-14-2 (for 2,4-Dinitrotoluene)
[2]606-20-2 (for 2,6-Dinitrotoluene)

This Material Safety Data Sheet is furnished without charge to responsible persons who use it at their discretion and risk. Although the information and suggestions contained herein have been compiled, as of the issue date above, from sources believed to be reliable, there is no warranty of any kind, express or implied, as to the completeness or accuracy thereof.

II--HAZARDOUS INGREDIENTS

The product is essentially a mixture of the 2,4-(80%) and 2,6-(20%) isomers of dinitrotoluene as described in Section 1. The four other isomers are present at low levels (in aggregate <5%). It is a solid at ambient temperatures and is generally transported in a molten state or in drums as a cast solid. Molten liquid contacting the skin causes thermal burns.

DNT is harmful when inhaled, swallowed or absorbed through the skin. Experimentally, DNT has been shown to cause cancer in animals. When confined and exposed to high temperatures, it presents an explosion hazard.

III--PHYSICAL DATA

Appearance	Yellow solid at ambient temperature
Boiling Point	513-572°F (267-300°C) @ 760mm Hg
Melting Point Range	133°F (56°C) to 140°F (60°C)
Specific Gravity (H_2O = 1)	1.346 @ 151°F (molten state) 1.31 @ 176°F (molten state)
Viscosity (Oswald)	9.06 cps @ 140°F 6.09 cps @ 176°F
Solubility (2,4 isomer)	in Water - 0.03 g/ 100g solution in Alcohol- 1.2 g/100g solution in ether- 9.0 g/100g solution
Relative Vapor Density (Air = 1)	6.3

IV--FIRE AND EXPLOSION DATA

Flash Point 404°F (207°C)

(2,4 isomer only)

The flash point for the 2,4/2,6 mixture is not expected to vary significantly from this temperature.

DNT fires should be treated as Class A fires. Use water to extinguish fires. Do not attempt to fight fire involving confined DNT because of the explosion hazard. Dry chemical extinguishers are not effective on DNT fires.

Special Fire Fighting Instructions:

Firemen must wear a self-contained breathing apparatus to prevent inhalation of vapors and toxic combustion product gases. Butyl rubber gloves (or equivalent), apron and boots must be worn. Contain water used to extinguish a fire for proper disposal (see Section VII).

Explosion Hazard

DNT is not sensitive to impact shock.

At temperatures above 536°F (such as in a fire), the product decomposes spontaneously and if confined, causes an explosion. The explosive energy of DNT is approximately 85% of an equivalent amount of TNT.

In areas where drums of DNT are stored, an automatic sprinkler system should be installed to permit immediate cooling of DNT containers to keep the temperature below that at which decomposition will be sustained. Heat sensing devices and deluge sprinklers are recommended.

Contamination of DNT with organic materials will lower the decomposition temperature and increase the risk of explosion.

V--HEALTH HAZARD INFORMATION

The Threshold Limit Value (TLV) on an 8 hour time-weighted average is 1.5 mg/m^3 (American Conference of Governmental Industrial Hygienists, ACGIH, 1983). Note: The TLV does not take into account additional absorption of DNT through the skin and is valid only when skin contact is prevented.

Routes of Exposure:

Exposure to DNT is most likely to occur by contact with the skin. DNT is rapidly absorbed through the skin. Clothing constructed of butyl rubber or equivalent should be worn to prevent contact. Eye protection must be worn at all times. Spectacle-type safety glasses or chemical safety goggles and a full face shield are recommended.

Inhalation of DNT vapors and dust is injurious. The risk of inhalation of vapors is increased where molten DNT is handled. An air-purifying respirator mask, National Institute for Occupational Safety and Health (NIOSH) approved for organic vapors and fitted with a dust filter, must be worn when handling DNT.

The immediate toxic effect to humans from overexposure to DNT is methemoglobinemia which results in chemical cyanosis - a blue to lilac color of skin. Additional symptoms related to methemoglobinemia which may be observed are headache, irritability, dizziness, weakness, nausea, vomiting, dyspnea and drowsiness. Extensive overexposure may result in unconsciousness, and possibly death. Repeated or prolonged exposure may cause anemia. DNT absorption can cause liver damage and may cause cancer.

Toxicological Studies:

Acute toxicity tests, as well as primary skin and eye irritation tests, have been conducted on DNT using methodology described in the Federal Hazardous Substances Act (see 16 Code of Federal Regulations 1500.3, 1500.40, 1500.41, 1500.42). The results of these tests are given below:[3]

Acute Oral LD_{50}	790 mg/kg (in rats)
Acute Dermal LD_{50}	>1000 mg/kg (in rabbits)
Acute Inhalation LC_{50}	<2 mg/L (in rats-FHSA protocol) >2 mg/L (in rats-DOT protocol)

DNT is not a skin irritant.

DNT is not a primary eye irritation.

DNT causes cancer in laboratory animals.[1,2] The liver, bile duct, mammary glands, kidneys and subcutaneous tissues are the primary sites identified with carcinogenic or tumorigenic responses.

Data from animal studies which showed reduced sperm formation, testicular atrophy in exposed dogs, rats and mice and nonfunctioning ovaries in DNT-exposed mice indicate a potential for adverse reproductive effects in humans from exposure to DNT.

[1] Midwest Research Institute report presented at Society of Toxicology Meeting, San Francisco, 1978.

[2] Chemical Industry Institute of Toxicology interim report following 52 weeks of a proposed two-year feeding study in rats, Research Triangle Park, N.C., Nov. 1978.

[3] Air Products and Chemicals, Inc., Data. Report available upon request.

FIRST AID

Eye Contact:

Immediately flush eyes with large quantities of water for a minimum of 15 minutes. Call a physician.

Skin Contact:

Immediately wash exposed skin with large quantities of soapy water. Call a physician. Discard contaminated clothing and shoes in an approved Class I hazardous chemical waste landfill.

Inhalation:

There has been no clinical experience with overexposure via the respiratory route. If such exposure should occur, remove patient to fresh air. If breathing is impaired, assisted respiration (e.g., mouth-to-mouth) may be necessary. Supplemental oxygen may be needed. Seek medical advice.

Ingestion:

If DNT is swallowed, it is recommended that the stomach be emptied by induced vomiting or gastric suction. Seek medical advice.

Note:

Persons acutely exposed to DNT should be maintained for 24 hours under observation for cyanosis. Immediate medical attention must be obtained if symptoms of cyanosis become apparent.

VI--REACTIVITY DATA

DNT is stable at ambient temperatures. It will decompose at approximately 482°F (250°C) at a nonsustaining rate. Above 536°F (280°C) DNT decomposes vigorously at a self-sustaining rate and if confined may cause an explosion. Oxygen from an outside source, such as air, is not necessary for oxidation. Organic contaminants may significantly lower the decomposition temperature.

The chemical structure of DNT suggests that toxic nitrogen oxides, carbon monoxide and carbon dioxide gases may be released when the product decomposes or burns.

Although DNT is generally recognized to be insensitive to impact shock, it can be detonated by high energy boosters or high velocity missiles. It must be considered as potentially explosive.

DNT does not polymerize.

VII--SPILL OR LEAK PROCEDURES

DNT is shipped in the molten (at elevated temperatures) or fused state.

If molten material is spilled, evacuate the area until DNT solidifies. Personnel must wear complete body protection and a self-contained breathing apparatus. Shovel solidified material into steel drums for disposal. Waste containers should bear warning of the toxicity of DNT and a precaution against inhalation of vapors. Flush the area with hot water to remove all residual DNT from surfaces. Prevent contaminated water from entering bodies of water and drinking supplies.

Waste Disposal:

Waste material may be incinerated or disposed (in sealed containers) in an approved Class I hazardous waste landfill. Large quantities of molten DNT well diluted with fuel oil or waste alcohols may be burned in a chemical waste incinerator designed for liquid wastes.

Caution! .DNT begins to decompose anaerobically at 482°F. Dry DNT in small quantities can be burned in an open area in a thin layer without confinement. Do not burn DNT in closed containers as it will explode. DNT must be emptied from drums or other containers before incineration. The potential for generating toxic nitrogen oxides, carbon monoxide and carbon dioxide must be recognized. Consult local authorities before proceeding.

Wash waters contaminated with DNT can be settled to recover the bulk of the DNT for disposal by methods indicated above. Residual soluble wastes may be diluted with water to less than 1 mg DNT per liter and discharged to an industrial waste water treatment system providing all federal, state and local environmental regulations are observed.

VIII--SPECIAL PROTECTION INFORMATION

Because of the inhalation hazard of vapors, work areas need to be well ventilated. For respiratory protection, a self-contained breathing apparatus is recommended. Alternatively, a respirator of the cartridge type NIOSH approved for organic vapors may be utilized. If dust or mist particulate is to be removed, a dust filter in series with the organic vapor filter is required.

For eye protection a face shield and chemical splash goggles or safety glasses with side shields should be worn to protect against spattered molten DNT.

For skin protection, cuffed butyl rubber gloves (or equivalent), butyl rubber overshoes and apron should be worn. Clean rubber gear thoroughly after contamination. Discard other contaminated clothing and shoes. Emergency showers should be easily accessible.

Air Products and Chemicals, Inc.
Box 538
Allentown, PA 18105

MATERIAL SAFETY DATA SHEET

AIR PRODUCTS

IX--SPECIAL PRECAUTIONS

Label:

DINITROTOLUENE

WARNING!

CAUSES CANCER IN LABORATORY ANIMALS.

HARMFUL IF SWALLOWED,
INHALED OR ABSORBED THROUGH
THE SKIN.

CAUSES CYANOSIS.

Avoid breathing dust or vapor.
Avoid contact with eyes, skin, or clothing.
Use only with adequate ventilation.
Wash thoroughly after handling.
Use protective clothing, butyl rubber gloves and boots, goggles.
Discard contaminated clothing.
Molten materials will cause skin and eye burns.
Keep containers closed.

FIRST AID:

If swallowed, induce vomiting. Give soapy water and repeat until vomit is clear. Call a physician.
If inhaled remove victim to fresh air.
In case of skin or eye contact, immediately flush eyes and skin with large quantities of water for 15 min.
Remove contaminated clothing and shoes.

SPILL OR LEAK:

Evacuate Area.
Contain spill with earth dikes, allow to solidify.
Avoid mixing with organic material.
Scoop into drums by personnel with full body protection.
Product will burn in absence of air once ignited.
Qualified incinerator or hazardous waste landfill required for disposal.

IN CASE OF FIRE:

Cool the fire by drowning in excess water.

Handling and Storage Requirements:

Store DNT in a cool, well ventilated location away from heat generating sources and strong oxidizing or reducing agents. Storage areas should be protected from fires by a heat activated water-deluge sprinkler system.

Only steam or hot water should be used in coils or jackets for heating storage tanks. It is recommended that DNT not be heated above 194°F (90°C). Drums may be emptied by gravity or dip hose connected to a vacuum receiver. Tank cars should be unloaded only by compressed air or nitrogen not to exceed 20 psi.

Shipping Requirements

Dinitrotoluene is not regulated except when greater than 1000 lbs. (a reportable quantity, RQ) is packaged in one container or transport vehicle. For DNT in containers of more than 1000 lbs., the base description is RQ Dinitrotoluene, ORM-E, UN2038.

Air Products

MATERIAL SAFETY DATA SHEET

Air Products and Chemicals, Inc.
P.O. Box 538
Allentown, PA 18105

EMERGENCY TELEPHONE NUMBERS

800-523-9374 (except Pennsylvania)
800-322-9092 (Pennsylvania only)

TOLUENEDIAMINE

I—PRODUCT IDENTIFICATION

Manufacturing Site
Pasadena, Texas

Business Contact
Product Manager
Nitration Products
Industrial Chemicals Department

Sales Office
P.O. Box 538
Allentown, Pennsylvania 18105

Sales Phone
(215) 481-8793

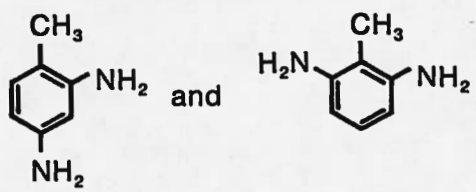
Issue Date, Revision 5
1 June 1982

Trade Name
Meta-Toluenediamine, 99%

Chemical Names and Synonyms
2, 4 and 2, 6-Toluenediamine
Metatolylenediamine
2, 4 and 2, 6 diaminotoluene
4-Methyl—1, 3-benzenediamine
2-Methyl—1, 3-benzenediamine
TDA
2, 4-and 2, 6-TDA

Chemical Family
Aromatic amines

Formula



Chemical Abstract Registry Numbers
95-80-7 (for 2, 4-TDA)
823-40-5 (for 2, 6-TDA)

This Material Safety Data Sheet is furnished without charge to responsible persons who use it at their discretion and risk. Although the information and suggestions contained herein have been compiled, as of the issue date above, from sources believed to be reliable, there is no warranty of any kind, express or implied, as to the completeness or accuracy thereof.

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II—HAZARDOUS INGREDIENTS

Components of the product are:

2,4 - Toluenediamine, approx. 80% (Toxic)
2,6 - Toluenediamine, approx. 20% (Toxic)
Trace amounts of the 2,3; 2,5; 3,4 and 3,5 isomers may be present.

Toluenediamine has been shown to cause cancer in laboratory animals.[1,3] It is absorbed in the body via ingestion, inhalation and skin contact.

III—PHYSICAL DATA

Appearance	Solid, light yellow to tan, darkens on storage and exposure to air
Odor	Slight ammonia-like
Properties Melting Range	176-194°F (80-90°C); (75-85% 2,4-isomer)
Melting Point	210.2°F (99°C); (pure 2,4-isomer)
Boiling Point	541°F (283°C) @ 760 mm Hg (80/20 TDA)
Vapor Pressure	0.34 x 10^{-3} mm Hg @ 100°F (37.8°C); 1 mm Hg @ 223°F (106.5°C); 100 mm Hg @ 413.6°F (212°C)
Density	8.68 lb/gal @ 221°F (105°C); 1.04 g/ml

Soluble in hot water, alcohol, ether, and many polar organic solvents.

IV—FIRE AND EXPLOSION DATA

Flash Point	284°F (140°C) ASTM 092
Autoignition Temperature	842°F (450°C)

Extinguishing Media: water, carbon dioxide, or foam.

Potentially toxic products of combustion suggest that surrounding areas should be evacuated.

Due to the biological properties of TDA, an attempt should be made to contain water used to extinguish a fire.

The chemical structure of TDA suggests that toxic ammonia, carbon monoxide and nitrogen oxides may be liberated when TDA is heated to high temperatures or pyrolyzed. Since materials of combustion may be toxic, full body protection (constructed of butyl rubber or its equivalent) including a self-contained breathing apparatus, should be worn when fighting fires.

V—HEALTH HAZARD INFORMATION

General

Toluenediamine is an aromatic amine which can cause chemical cyanosis through the conversion of hemoglobin to methemoglobin. Toluenediamine has hepatotoxic and nephrotoxic properties and can cause abnormal liver function. The compound has been shown to have carcinogenic properties in experimental studies with laboratory animals.

Toluenediamine is a toxic chemical and should be handled so as to minimize human exposure and environmental dissemination. The compound can be absorbed by inhalation, ingestion or by passage through the skin.

Acute Toxicity for the Product[2]

Dermal LD_{50} (60% aqueous paste, 24 hour exposure)	>5750 mg/kg (in rabbits)
Oral LD_{50} (4% aqueous solution by gavage)	=212 mg/kg (in rats)
Inhalation LC_{50}	>0.9 mg/l (in rats) (4 hr exposure)
LC_{50}	>5.3 mg/l (in rats) (1 hr exposure)

Irritation Data on the Product[2]

Primary skin irritation testing (16 CFR 1500.41) shows a 60% aqueous paste of TDA *not* to be a primary skin irritant.

The eye irritant test (16 CFR 1500.42) shows a 5% aqueous solution *not* to be a primary eye irritant in the eyes of an albino rabbit after 24 hours.

Fish Toxicity Data on the Product[2]

96 hr TL_m 360 mg/l (in killifish)
430 mg/l (in golden shiners)
1000 mg/l (in minnows)

Routes of Exposure

The principal route of exposure to TDA is by contact with the skin. Acute dermal toxicity and primary irritation tests on rabbits produced no observable toxicity or significant irritation. A skin sensitization test (Landsteiner) produced no significant sensitization. This material is commonly transported in a hot molten state and inadvertent contact may cause thermal burns.

From acute oral toxicity data, TDA is classified as toxic (LD_{50} in range of 50-500 mg/kg-rats). Chronic ingestion has been reported to cause anemia and jaundice.

To generate TDA vapors suitable for inhalation toxicity testing, the sample was heated above its melting temperature. Fewer than one-half of the rats died. Exposure to TDA vapor concentrations greater than 5.3 mg/l is unlikely when the product is used in any reasonably foreseeable manner, however, it is recommended that respiratory protection equipment be utilized (see Section VIII).

First Aid

Eye Contact: Flush eye for at least 15 minutes with large quantities of water.

Skin Contact: Remove material from skin with soap and warm water. General contamination of the body or limbs requires a full body shower with special attention to hair and fingernails. Hot water should be avoided as it may enhance absorption. Discard contaminated clothing and shoes. For burns of the skin, cover the affected area with a sterile dressing or clean sheeting and transport for medical care. Control shock.

Inhalation: Remove victim to fresh air. Administer artificial respiration and oxygen if victim is not breathing. If breathing is difficult administer oxygen. CALL A PHYSICIAN.

Ingestion: If ingested, empty stomach by aspiration or induced vomiting. CALL A PHYSICIAN.

VI—REACTIVITY DATA

The product is stable and does not undergo spontaneous polymerization. TDA undergoes oxidation when exposed to air with the production of color bodies and tars. This reactivation proceeds most rapidly at high temperatures, for example, when in the molten state. Oxidation products have not been fully characterized and should be treated as toxic materials.

TDA is weakly basic and reacts with mineral acids to form water soluble amine salts. These salts are more stable to oxidation than the basic amine.

VII—SPILL OR LEAK PROCEDURES

The product is shipped in the molten or solid state. If a spill occurs, the area should be evacuated until the TDA solidifies. Spill clean-up should be done by personnel wearing complete body protection (see Section VIII). Following removal of solidified TDA, the area should be cleaned thoroughly with hot water to remove all residual TDA from surfaces. Contaminated water should be contained to prevent surface and ground water contamination. Solid TDA should be scooped into disposal containers constructed of corrosion-protected carbon steel or of stainless steel. Disposal containers should bear warning of Toluenediamine, a toxic substance (see label in Section IX) and warning against skin contact or inhalation of vapors.

Waste Disposal

Waste material may be incinerated or disposed in a Class I hazardous chemical landfill where permitted by local authorities. Drums containing TDA should not be re-used but should be buried in a Class I hazardous chemical landfill. Disposal should be completed by an authorized, licensed disposal agent. Care should be taken to assure proper container sealing to prevent ground and surface water contamination. Incineration of TDA at controlled rates in a properly designated chemical waste incinerator is the preferred method of disposal. Toxic nitrogen oxide emissions may increase as a result of burning.

VIII—SPECIAL PROTECTION INFORMATION

Work areas need to be well ventilated.

For respiratory protection, a half-face mask of the cartridge type, National Institute for Occupational Safety and Health (NIOSH) approved for organic vapors, is recommended. If dust or mist particulate is to be removed, a dust filter in series with the organic vapor filter is required.

For *eye* protection, wear safety glasses with side shields or chemical splash goggles. When molten TDA is being handled, a full-face shield should be worn in conjunction with safety glasses or goggles.

For *skin* protection, wear gloves and overshoes made of butyl rubber or its equivalent and a long sleeved shirt. When molten TDA is handled, a lab apron or coat made of butyl rubber or its equivalent should be worn in conjunction with gloves and overshoes.

IX—SPECIAL PRECAUTIONS

Label

TOLUENEDIAMINE

CAUSES CANCER IN LABORATORY ANIMALS

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN
MAY CAUSE CHEMICAL CYANOSIS

Avoid breathing dust or vapor. Avoid contact with eyes, skin or clothing. Use only with adequate ventilation. Keep containers closed. Wash thoroughly after handling. Use protective clothing, butyl rubber gloves, boots and goggles. Discard contaminated clothing and shoes. Molten material will cause skin and eye burns.

First Aid: If swallowed, induce vomiting. If patient is cyanotic (blue color of skin), give oxygen. CALL A PHYSICIAN.

If inhaled, remove victim to fresh air.

In case of skin contact, remove clothing, take a body shower in lukewarm water. Clean under fingernails. DO NOT USE HOT WATER.

In case of eye contact, flush with large quantities of water for at least 15 minutes.

Spill or leak: Evacuate area. Contain spill with earth dikes and allow to solidify. Scoop into drums by personnel with full body protection. Rinse down area with water. Waste material may be incinerated or used as landfill if permitted by local authorities.

Handling and Storage Requirements

The product oxidizes in the presence of air. Exposure to air should be minimized. Melt should be transferred in leak-free systems (pumps, pipe and coupling).

Regulatory Concerns

TDA (MTD) is a restricted article for air transport according to the Department of Transportation (DOT) and the International Air Transport Association (IATA). When shipping by air the hazard class is ORM-A.

TDA is not a restricted article for highway transport.

References

1. N. Ito, Y. Hiasa, Y. Knoshi and M. Marugami, Cancer Research, 29: 1137-45, (1969).
2. Air Products and Chemicals, Inc., data. Report available upon request.
3. R. H. Cardy, J. of National Cancer Institute, 26(4) 1107-1113, (1979).

Air Products

Printed in U.S.A. MSDS-221

MATERIAL SAFETY DATA SHEET

LAB L

ORTHO-TOLUENEDIAMINE

Air Products and Chemicals, Inc.
P.O. Box 538
Allentown, PA 18105

EMERGENCY TELEPHONE NUMBERS

800-523-9374 (except Pennsylvania)
800-322-9092 (Pennsylvania only)

I—PRODUCT IDENTIFICATION

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Pasadena, Texas

Business Contact
Product Manager
Nitration Products Business Area
Industrial Chemicals Department

Sales Office
P.O. Box 538
Allentown, Pennsylvania 18105

Sales Phone
(215) 481-8793

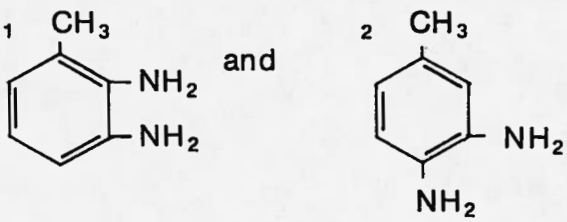
Issue Date, Revision 1
1 August 1980

Trade Name
Ortho-Toluenediamine, 99%

Chemical Names and Synonyms
Toluenediamine
Tolylenediamine
Ortho-tolylenediamine
2,3[1]- and 3,4[2]-diaminotoluene
3-methyl - 1,2-benzenediamine[1]
4-methyl - 1,2-benzenediamine[2]
o-TDA
OTD

Chemical Family
Aromatic amines

Formula
$C_7H_{10}N_2$



Chemical Abstract Registry Numbers
[1]2687-25-4
[2]496-72-0

The Material Safety Data Sheet is furnished without charge to responsible persons who use it at their discretion and risk. Although the information and suggestions contained herein have been compiled from sources believed to be reliable, there is no warranty of any kind, express or implied, as to the completeness or accuracy thereof.

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II—HAZARDOUS INGREDIENTS

Ortho-toluenediamine (OTD) is a mixture of two predominant isomers in the following approximate proportions: 3,4 - Toluenediamine 60 wt.% and 2,3 - Toluenediamine 40 wt.%.

The product is to be treated as a highly toxic material. It contains small amounts of meta-toluenediamine which has been shown to cause cancer in laboratory animals.[1] OTD may have similar properties.

III—PHYSICAL DATA

Appearance	Light gray to purple solid. (For shipping and transfer, the product is often in a heated molten state.)
Odor	Slight ammonia-like
Melting Point	104°-122°F (40°-50°C)
Boiling Point	> 480°F (> 250°C)
Vapor Pressure	2.23 mm Hg @ 100°C 27.8 mm Hg @ 140°C 43.5 mm Hg @ 160°C
Specific Gravity	1.045 @ 100°C
Solubility	Soluble in hot water, alcohol, ether and many polar organic solvents.

IV—FIRE AND EXPLOSION DATA

Flash Point	> 230°F (> 110°C)
Autoignition Temperature	1005°F (540°C)

OTD fires should be treated as Class A fires. Use water, carbon dioxide or foam to extinguish fires.

Fire Fighting Procedures

Evacuate the surrounding area. Fire fighters must wear full body protection (constructed of butyl rubber or equivalent) and a self- contained breathing apparatus. Water used to extinguish a fire should be contained for proper disposal. Toxic products released during a fire include gaseous ammonia, carbon monoxide and nitrogen oxides.

V—HEALTH HAZARD INFORMATION

OTD contains small quantities of meta-toluenediamine. Meta-toluenediamine, a toxic material, is rapidly absorbed through the skin and has been shown to cause cancer in laboratory animals.[1] OTD may have similar properties. Therefore Air Products handles OTD as a hazardous chemical with particular emphasis on preventing worker exposure. It is recommended that users treat it in a like fashion and restrict its availability to those persons trained, qualified, and equipped to handle it properly.

Routes of Exposure

Absorption of OTD is most likely to occur by contact with the skin. This material is commonly transported in the molten state and inadvertent contact may also cause thermal burns.

Although the vapor pressure of OTD is low, the probability of exposure to hazardous vapor is increased when the product is in the molten state. Respiratory protection equipment must be utilized.

In addition to the cancer potential, exposure to toluenediamines can cause chemical cyanosis and damage to the liver and blood.

Acute Toxicity for Product[2]

Oral LD_{50}	660 mg/kg (in rats)
Dermal LD_{50}	> 5750 mg/kg (in rabbits)
Inhalation LC_{50}	> 670 ppm (in rats)

First Aid

Eye Contact: Flush eyes for at least 15 minutes with copious quantities of water. Call a physician.

Skin Contact: Remove material from skin with soap and warm water. General contamination of the body or limbs requires a full body

shower with special attention to hair and fingernails. Hot water should be avoided as it may enhance absorption. Discard contaminated clothing and shoes. Note: This material is commonly transported in the molten state. Inadvertent contact may cause thermal burns. Except in the most minor, superficial and localized burns, cover the affected area with a sterile dressing or clean sheeting and transport for medical care. Control shock, if present.

Inhalation: Remove victim to fresh air. Administer artificial respiration and oxygen if victim is not breathing. If breathing is difficult administer oxygen. CALL A PHYSICIAN.

Ingestion: If ingested, empty stomach by aspiration or induced vomiting. CALL A PHYSICIAN.

VI—REACTIVITY DATA

The product is stable and does not undergo spontaneous polymerization. OTD undergoes oxidation when exposed to air with the production of color bodies and tars. The reaction proceeds most rapidly at high temperatures (i.e., when in the molten state). Oxidation products have not been identified and should be treated as toxic materials.

OTD is weakly basic and reacts with mineral acids to form water soluble amine salts. These salts are more stable to oxidation then the basic amine.

VII—SPILL OR LEAK PROCEDURES

The product is shipped in the molten or solid state. If a spill occurs, the area should be evacuated until the OTD solidifies. Spill clean-up should be done by personnel wearing complete body protection (see Section VIII).

Following removal of solidified OTD, the area should be cleaned thoroughly with hot water to remove all residual OTD from surfaces. Contaminated water should be contained to prevent surface and ground water contamination. Solid OTD should be scooped into disposal containers constructed of corrosion protected carbon steel or of stainless steel. Disposal containers should bear warning of Toluenediamine, a toxic substance (see label in Section IX) and warning against skin contact or inhalation of vapors.

Waste Disposal

Waste material may be incinerated or disposed in a RCRA[3] approved hazardous chemical landfill where permitted by local authorities. Drums containing OTD should not be re-used but should be buried in a RCRA permitted hazardous chemical landfill. Disposal should be completed by a government authorized, licensed disposal agent. Care should be taken to assure proper container sealing to prevent ground and surface water contamination. Incineration of OTD at controlled rates in a properly designed chemical waste incinerator is the preferred method of disposal. Toxic nitrogen oxide emissions may increase as a result of burning.

VIII—SPECIAL PROTECTION INFORMATION

Work areas need to be well ventilated.

For respiratory protection, a half-face mask of the cartridge type, National Institute for Occupational Safety and Health (NIOSH) approved for organic vapors, is recommended. If dust or mist particulate is to be removed, a dust filter in series with the organic vapor filter is required.

For *eye* protection, wear safety glasses with side shields or chemical splash goggles. When molten OTD is being handled, a full-face shield should be worn in conjunction with safety glasses or goggles.

For *skin* protection wear gloves and overshoes made of butyl rubber or its equivalent and a long sleeved shirt. When molten OTD is handled, a lab apron or coat made of butyl rubber or its equivalent should be worn in conjunction with gloves and overshoes.

IX—SPECIAL PRECAUTIONS

Handling and Storage Requirements

The product oxidizes in the presence of air. Exposure to air should be minimized. Melt should be transferred in leak free systems (pumps, pipe and coupling).

Label

ORTHO-TOLUENEDIAMINE

CANCER WARNING!
OTD CONTAINS SMALL AMOUNTS OF META-TOLUENEDIAMINE ISOMERS WHICH HAVE BEEN SHOWN TO CAUSE CANCER IN LABORATORY ANIMALS. OTD MAY HAVE SIMILAR PROPERTIES.

WARNING! HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN

Avoid breathing dust or vapor. Avoid contact with eyes, skin or clothing. Use only with adequate venitlation. Keep containers closed. Wash thoroughly after handling. Use protective clothing, butyl rubber gloves, boots and goggles. Discard contaminated clothing and shoes. Molten material will cause skin and eye burns.

FIRST AID: If swallowed, induce vomiting. If patient is blue, give oxygen. CALL A PHYSICIAN.

If inhaled, remove victim to fresh air.

In case of skin contact, remove clothing, take a body shower in lukewarm water. Clean under fingernails. DO NOT USE HOT WATER.

In case of eye contact, flush with copious quantities of water for at least 15 minutes.

Spill or leak: Evacuate area. Contain spill with earth dikes and allow to solidify. Scoop into drums by personnel with full body protection. Rinse down area with water. Waste material may be incinerated or used as landfill if permitted by local authorities.

X—REGULATORY CONCERNS

OTD is a restricted article for air transport according to Department of Transportation (DOT) and International Air Transport Association (IATA) regulations.

XI—REFERENCES

1. N. Ito, Y. Hiasa, Y. Knoshi and M. Marugami, Cancer Research, 29: 1137-45, (1969)
2. Air Products and Chemicals, Inc. data. Report available upon request.

3. Resource Conservation and Recovery Act of the Environmental Protection Agency.

APPENDIX A
MATERIAL SAFETY DATA SHEETS

APPENDIX B
COMMONLY USED LABORATORY CHEMICALS

APPENDIX B

COMMONLY USED LABORATORY CHEMICALS

Acetic Acid

Acetone

Acetonitrile

Benzene

Dichloromethane

Dinitrotoluene

Dimethyformamide

Ethyl Acetate

Ethanol

Ethylene Glycol

Formaldehyde

Hydrochloric Acid

Isopropanol

Karl Fisher Reagent

Methanol

Nitric Acid

Nitrocresols

Nitrotoluene

Perchloric Acid

Sodium Hydroxide

Sodium Persulfate

Sulfuric Acid

Toluene

Toluenediamine

APPENDIX C
HAZARDOUS WASTE FACILITY CONSTRUCTION
QUALITY ASSURANCE PROGRAM

HAZARDOUS WASTE FACILITY CONSTRUCTION
QUALITY ASSURANCE PROGRAM
IS CONTAINED IN THIS APPLICATION
AS SECTION VID

HAZARDOUS WASTE FACILITY CONSTRUCTION
QUALITY ASSURANCE PROGRAM
IS CONTAINED IN THIS APPLICATION
AS SECTION VI.D

VI.B. ACID SPILL IMPOUNDMENT
CLOSURE AND POST-CLOSURE PLANS

Prepared for
Air Products Manufacturing Corporation
Pasadena, Texas

Prepared by
International Technology Corporation
Austin, Texas

January 1987

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SECTION I
ACID SPILL IMPOUNDMENT CLOSURE PLAN

1.0 INTRODUCTION

Air Products proposes to close the acid spill impoundment as a hazardous waste facility. The impoundment was originally constructed to contain process materials in the event of a rupture in the acid tank farm. The impoundment currently receives water from several sources. These include rainfall runoff from the acid tank farm, runoff from other nonprocess plant areas and occasional leakage from the pumps, tanks and piping in the acid tank farm. The material in the acid spill pond has been classified as hazardous because of low pH. The objective of the closure procedure presented here is to eliminate the sources causing this low pH. After closure is complete, inflow into the impoundment will be limited to process materials from a tank rupture and rainwater runoff.

Because of the presence of hazardous constituents in the ground water below the impoundment, Air Products does not anticipate being able to remove all waste residual as part of the closure process. Based on analyses of the sludges from this impoundment, these compounds in the ground water are attributable to waste migration and leaching from this impoundment. Air Products is conducting a ground water investigation and has submitted a permit application for a Compliance Monitoring Program and Corrective Action to the Texas Water Commission (TWC). These ground water monitoring results are discussed in more detail in Section V., Ground Water Monitoring Report, of this permit application.

Air Products anticipates closing to meet all of the requirements for closure of a disposal facility as specified in Texas Administrative Code (TAC) Section 335.469 (a), Paragraph (2):

TAC §335.169. Closure and Post-Closure Care (Surface Impoundments).

(a) At closure, the owner or operator must:

1. Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous unless 40 CFR §261.3(d) applies; or

2. Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues; stabilize remaining wastes to a bearing capacity sufficient to support final cover; and cover the surface impoundment with a final cover designed and constructed to:

   (A) Provide long-term minimization of the migration of liquids through the closed impoundment;

   (B) Function with minimum maintenance;

   (C) Promote drainage and minimize erosion or abrasion of the final cover;

   (D) Accommodate settling and subsidence so that the cover's integrity is maintained; and

   (E) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(b) If some waste residues or contaminated materials are left in place at final closure, the owner or operator must comply with all post-closure requirements contained in 40 CFR §264.117-264.120, including maintenance and monitoring throughout the post-closure care period (specified in the permit under 40 CFR §264.117). The owner or operator must:

1. Maintain the integrity and effectiveness of the final cover including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

2. Maintain and monitor the ground water monitoring system and comply with all other applicable requirements of §335.156-335.166 of this title (relating to Applicability of Ground Water Monitoring and Response; Required Programs; Ground Water Protection Standard; Hazardous Constituents; Concentrations Limits; Point of Compliance; Compliance Period; General Ground Water Monitoring Requirement; Detection Monitoring Program; Compliance Monitoring Program; Corrective Action Program); and

3. Prevent run on and runoff from eroding or otherwise damaging the final cover.

To accommodate process materials from a tank rupture and the facility storm water drainage system, Air Products proposes an alternative impoundment clo-

sure system to the traditional clay and/or synthetic cap and vegetated cover. To dike or regrade the tank farm so these process materials collect in the tank farm or drain to another location is not prudent. Collecting acid within a dike could lead to multiple tank failures due to incompatible materials of construction. There is also no adequate alternate location for a new impoundment. A significant portion of the nonprocess plant area rainwater runoff also drains to the acid spill impoundment. Air Products proposes to remove all significantly contaminated wastes and soils, as proposed in this closure plan; install a double-synthetic liner and leak detection system; and operate an impoundment for process materials from a tank rupture and rainwater runoff over the closed impoundment disposal site.

The design presented here and the specifications of the Post-Closure Care Plan will meet all current regulatory requirements for closure of a RCRA surface impoundment as a disposal facility. Given the lack of feasible alternatives for containment of process materials from a tank rupture or rainwater runoff, Air Products presents this closure plan as a reasonable scenario which will meet all technical specifications for closure of a disposal facility and protect human health and the environment.

2.0 FACILITY DESCRIPTION

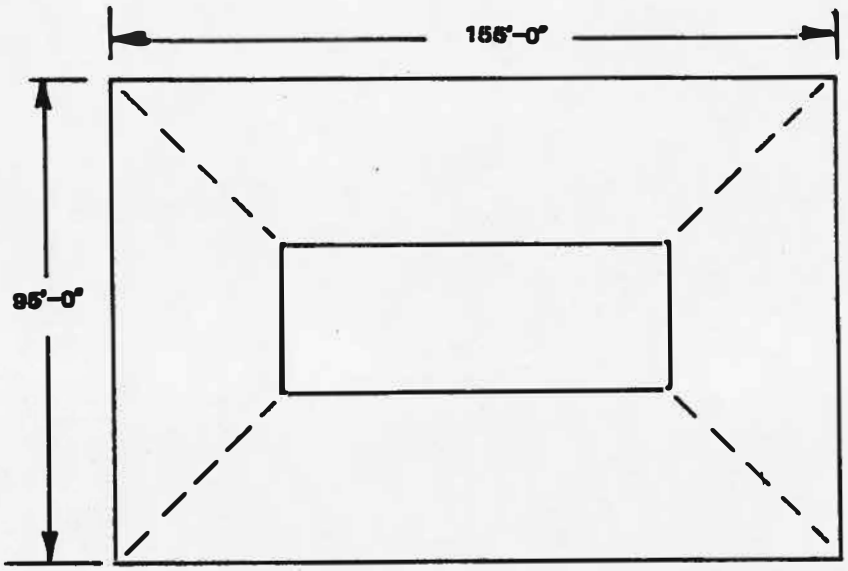
The acid spill impoundment was originally constructed in 1972 to contain process materials in the event of a rupture in the tank farm, located north of the impoundment. The impoundment has also served to collect rainfall runoff from the acid tank farm and other nonprocess areas of the plant.

A field survey conducted on September 24, 1984, documented the existing dimensions of the outside perimeter of the impoundment dikes to be 90 feet by 152 feet. Dimensions from the survey are shown on Figure 1. The depth to the bottom of the impoundment was not surveyed. Construction drawings, Plates 1 and 3, show the depth in 1972 to have been 5.8 feet. In 1977, the impoundment was excavated to a depth of 7.8 feet to provide additional capacity. Plans and details for the acid spill impoundment are shown on Plate 1. The impoundment capacity, based on the 1977 construction drawings, is 335,000 gallons. In the September 1984 survey, the depth from the top of dike to the pump inlet was 5.85 feet. The invert of the pump is above the bottom of the impoundment. The calculated capacity of the impoundment, above standing water, is 278,000 gallons.

Associated facilities are approximately 38 feet of 12-inch ID resin pipe and 10.5 feet of 36-inch ID resin pipe, a pump, a strainer, and two concrete slabs. Dimension of the concrete slabs are 5 feet square by 6 inches and 6 feet square by 6 inches.

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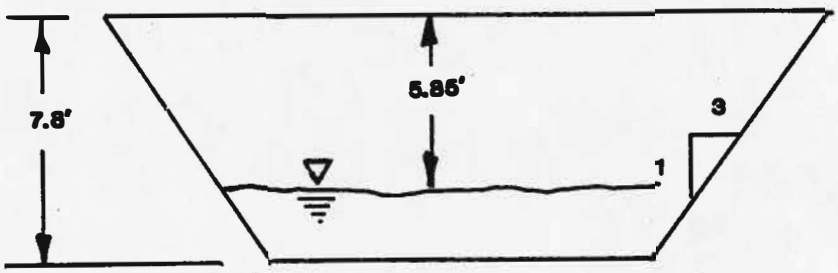


FIGURE 1

ACID SPILL IMPOUNDMENT DIMENSIONS

PREPARED FOR

AIR PRODUCTS PASADENA, TEXAS

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3.0 WASTE DESCRIPTION

Wastes enter the acid spill impoundment via two conveyances on the north side of the impoundment. The tank farm, which is approximately 1.3 acres, drains to the impoundment along with about 7.6 acres of the plant site. The area included in this total of 8.9 acres is shown in Figure 2. Process areas within the 8.9 acres are surrounded by concrete (and acid-brick in acid handling areas) and curbed pads which are drained to sumps and pumped to the plant wastewater system. A clay pipe which runs down the center of the tank farm and collects spills and runoff from pump pads in the tank farm is also drained to the impoundment.

The composition of the waste in the impoundment is primarily that of storm water runoff but will contain those materials that may have drained from the acid tank farm. These materials include nitric acid, sulfuric acid, and toluene. From its use in the nitration process, some of the sulfuric acid stored in the tank farm contains traces of dinitrotoluene and nitrotoluene. Analyses of the liquid and sludge phases of the waste from the impoundment are presented in Table 1.

Waste in the impoundment at closure will consist of the liquid and sludges. The maximum volume of both phases will be approximately 335,000 gallons. The composition of each phase at closure is expected to be represented by the results of the analyses in Table 1.

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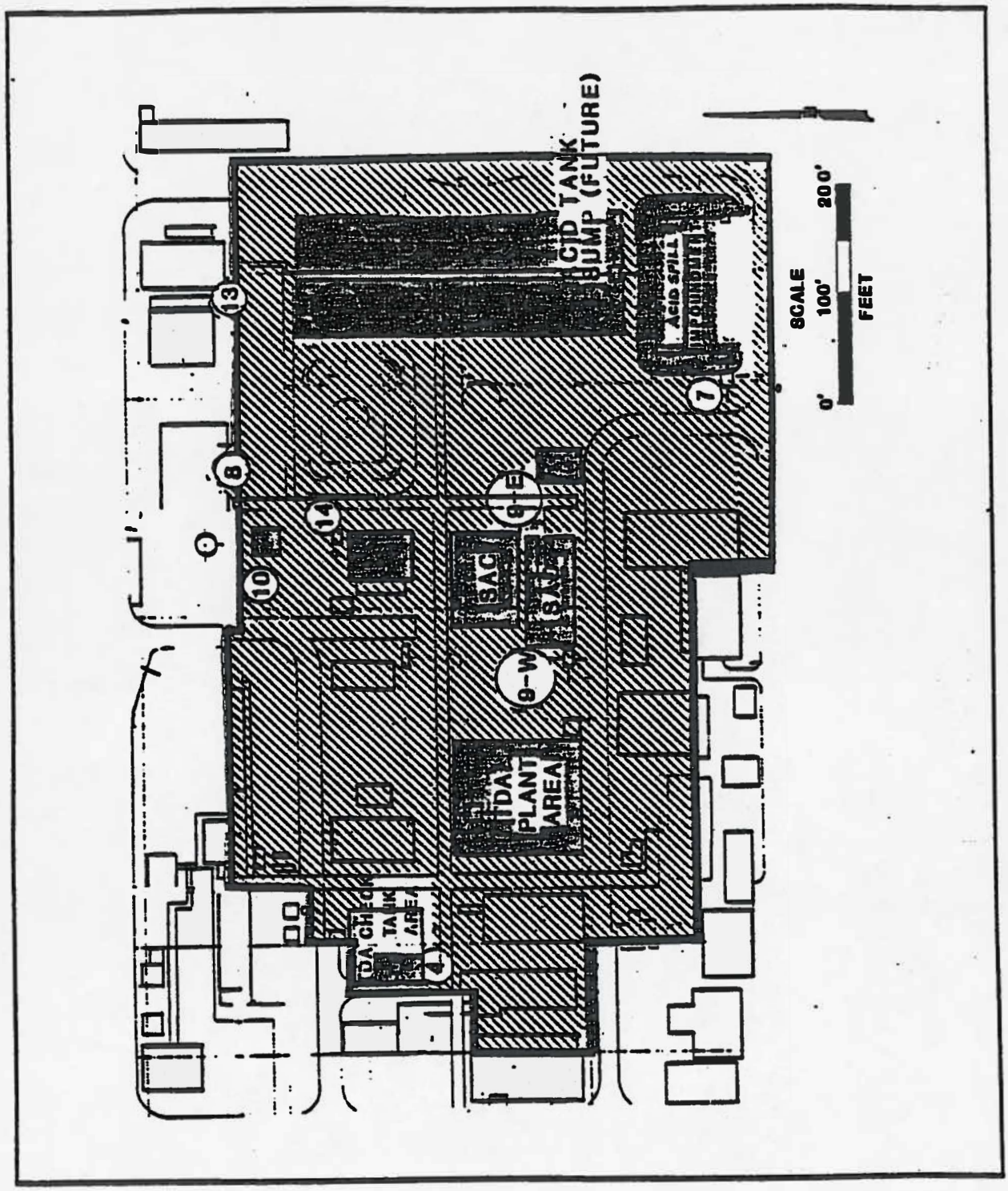


FIGURE 2

AREA DRAINED TO
AC D SPILL IMPOUNDMENT

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TABLE 1
LABORATORY ANALYSES OF ACID SPILL IMPOUNDMENT WASTE

Parameter	Concentration Liquid (mg/l)	Sludges (mg/kg)
o-Nitrotoluene	0.35	41,000
m-Nitrotoluene	ND	5,000
p-Nitrotoluene	0.25	35,000
2,4-dinitrotoluene	1.3	120,000
2,6-dinitrotoluene	0.36	39,000

4.0 INTERIM CLOSURE PROCEDURE

The interim closure process for the acid spill impoundment will consist of re-routing upstream waste sources, removing the waste contents, excavating contaminated soils, and installing a double liner and leak detection system for the Nonhazardous impoundment. Air Products will notify the TWC District 7 office at least 5 days before commencing interim closure activities.

4.1 CHANGE WASTE SOURCES TO IMPOUNDMENT

Air Products will construct a sump to collect the runoff from the first inch of rainfall from the tank farm and pump it to the plant wastewater system, as shown in Figures 2 and 3. This sump will also receive de minimus leaks and runoff from tank farm pumps via hard piping. This will eliminate all noncatastrophic hazardous waste influents to the acid spill impoundment. The total volume of the sump will be 1,500 gallons. The capacity of the pump in the sump will be 180 gpm. This pump capacity will be adequate to handle the runoff from the first inch of rain to fall on the acid tank farm and de minimus pump seal leaks and pump pad runoff.

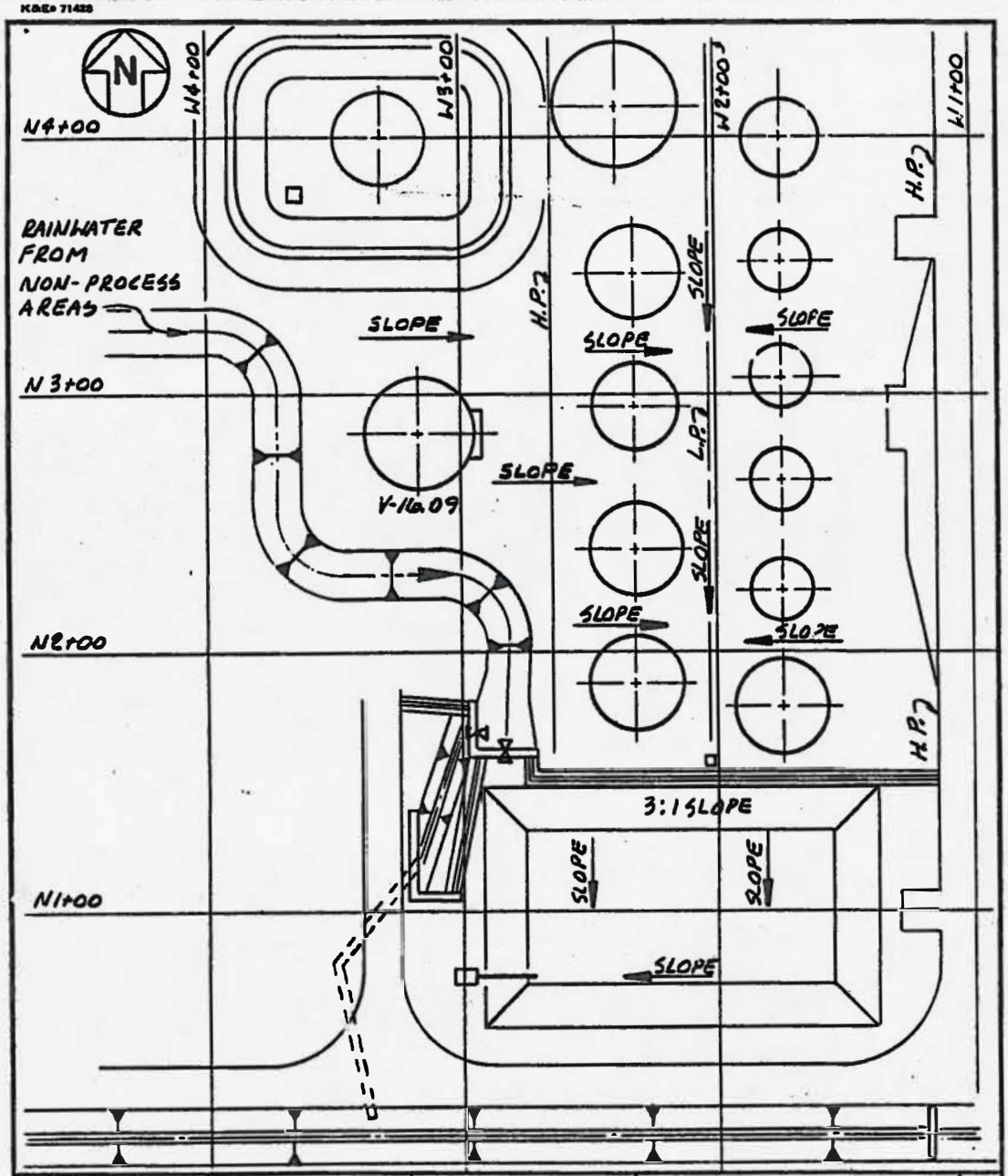
A headwall will be constructed along the south side of the tank farm and between the tanks and the impoundment to further divert any runoff into the sump. The headwall will be a minimum of 3 inches high and constructed of clay. The low height of the headwall causes process material from a tank rupture to flow into the proposed impoundment and prevents material from diverting around the impoundment.

After installation of the sump and headwall, the only rainwater that will flow into the impoundment will be runoff from nonprocess areas of the plant. The drainage system after this step is implemented is presented in Figure 3.

4.2 DISCHARGE WASTEWATER

The first step of the physical interim closure procedure for the impoundment will be removal of the wastewater. The water which is above the existing pump inlet in the impoundment will be discharged to the plant wastewater system and then to the GCWDA. This discharge will be through the same pump system by which wastewater from the impoundment has been removed from the impoundment

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REV.	DATE	APP'D	DATE 6-4-85	MADE BY T. JONES
			SCALE 1"=50'	APP'D
			TITLE Figure 3. Proposed Rainwater Impoundment Drainage System	

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

FORM 9031-1

Reference: Original drawing adapted from Air Products, figure dated 6/4/85

PREPARED FOR
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PASADENA, TEXAS

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during normal operation. Wastewater below the existing pump inlet will be lifted to the pump sump by a portable pump placed in the bottom of the impoundment. It is probable that the bottom of the impoundment is at or above the ground water table in the surrounding soils. In this situation, a volume of wastewater equal to the total impoundment volume will be discharged, based on rated pump capacity and pump operating time. If the construction schedule and flow conditions allow, additional water from the bank storage around the impoundment will be removed by the pumps. It is possible, however, that the impoundment will not be completely dry at the end of this process.

4.3 REMOVE IMPOUNDMENT SLUDGES

Sludges will be removed and landfilled. Depending on the presence of free liquids, the sludges may require stabilization before landfilling. A description of the stabilization process will be provided to TWC under separate cover for approval.

4.4 DECOMMISSION AND DECONTAMINATE ASSOCIATED EQUIPMENT

Associated equipment consists of 38 feet of 12-inch ID resin pipe and 10.5 feet of 36-inch ID resin pipe, a pump, a strainer, and two concrete slabs. The pipe, strainer, and concrete slabs will be removed and transported to the landfill with the sludges. The pump will be a triple-rinsed and re-used on site or disposed of.

4.5 REMOVE CLAY LINER

Air Products anticipates removing 2 feet of silt and soil liner from the bottom of the impoundment. The total volume of material removed will be approximately 1,200 cubic yards. This material will include some solids which have settled from the waste. The material contains a low level of contamination and the sludges and soils will be disposed of together in a RCRA landfill.

The clay liner soils will be excavated from the bottom of the impoundment using a clam-shell bucket. If the clay liner soils contain free water, portland cement will be added to stabilize the clays. Clay liner soils will be disposed of at a landfill permitted to receive waste of its class.

4.6 SAMPLE SOILS

Once the clay liner has been removed, soil samples will be collected and analyzed to document the characteristics of the materials which will remain after removal of approximately 24 inches of underlying clay. Two-foot core samples will be collected from the surface at a random location within each of eight basin quadrants. This yields eight core samples. Each core will be homogenized and independently analyzed for:

- ortho-mononitrotoluene (o-MNT)
- para-mononitrotoluene (p-MNT)
- meta-mononitrotoluene (m-MNT)
- 2,4-dinitrotoluene (2,4-DNT)
- 2,6-dinitrotoluene (2,6-DNT)
- 4,6-dinitrorthocresol (4,6-DNOC)
- Total Cyanide
- Barium
- Cadmium
- Chromium
- Lead
- Selenium
- Mercury
- Silver

Duplicate extractions of the core samples will be analyzed using EPA approved methods to quantify the concentration of constituents. Detection limits typically are in the range of 0.01 to 0.1 ppm.

4.7 INSTALL DOUBLE-LINED IMPOUNDMENT

Once the liner soils have been removed and the remaining soils sampled, construction of the double-lined, rainwater impoundment will begin. Construction methods and design drawings for the impoundment liner and leak detection system are presented as Appendix A.

5.0 INTERIM CLOSURE SCHEDULE

The impoundment interim closure schedule is summarized in Table 2. Air Products will begin the interim closure procedure as soon as the plans have been approved by the TWC. The time for approval by the regulatory agency is assumed to be within 180 days, or approximately 26 weeks. The number of weeks to complete each step of interim closure is presented in column 2 of the table. For each step, the number of weeks specified represents the maximum time that would be required. Based on this schedule, Air Products anticipates completing interim closure of the impoundment by May 1988. If the interim closure work is not completed according to the schedule presented here, Air Products would immediately notify the TWC in writing of the delay, the consequences of the delay on the total schedule, and the reason for the change.

TABLE 2
ACID SPILL IMPOUNDMENT INTERIM CLOSURE SCHEDULE

	TASK NAME	START DATE	FINISH DATE
1.	Start		
2.	TWC Approval of Plans	3/01/87	
3.	Rainwater Impoundment and Tank Farm Sump Design	10/01/86	01/05/87
4.	Install Tank Farm Sump and Regrade Tank Farm	02/16/87	05/29/87
5.	Initiate Physical Closure and Discharge Wastewater	07/06/87	08/06/87
6.	Remove Clay Liner and Sample Underlying Soils	08/17/87	12/30/87
7	Decontaminate Equipment	08/7/87	09/30/87
8.	Install Double-lined Impoundment	01/04/88	03/30/88
9.	Complete Engineering Certification	03/30/88	04/30/88
10.	Interim Closure Completed		05/30/88

6.0 CLOSURE COST ESTIMATE

Table 3 presents an estimate of closure costs for the nonhazardous rainwater impoundment. This estimate is based on current costs and may be revised to represent actual costs of the proposed operations at the time of final closure of the rainwater impoundment. Closure is expected to take place when the total plant facility is decommissioned. No date can be projected for this at this time.

The costs presented in Table 3 are the final closure costs for the Acid Spill Impoundment.

TABLE 3

ESTIMATED FINAL CLOSURE COSTS
FOR RAINWATER IMPOUNDMENT
(1987 COSTS)

	$
Discharge Wastewater Disposal 376,000 gallons @ $0.00043/gal	200
Decommission, Decontaminate Associated Equipment Remove, rinse, landfill Suction line, sump and pump	15,000
Remove Clay Liner Excavation, disposal 1,000 yd^3 @ $283/$yd^3$	283,000
Sample Underlying Soils (8 Samples) Labor/Shipping/Lab Costs	4,800
Place Clean Fill Class III fill, placement, compaction, testing 2,600 yd^3 @ $30/$yd^3$	78,000
Place Clay Cap Clay material, placement, compaction, testing 2,100 yd^3 @ $45/$yd^3$	94,500
Drainage Layer Sand material, placement 380 yd^3 @ $20/$yd^3$	7,600
Crushed Rock Surface Limestone material, placement 1,300 yd^3 @ $16/$yd^3$	20,800
Engineering Certification Engineer's Report 1 item @ $10,000	10,000
Deed Certification and County Clerk Notice Survey/Engineer/Lawyer	1,700
Administration Supervision 100 hrs. @ $75/hr	7,500
TOTAL	$523,000

7.0 INTERIM CLOSURE CERTIFICATION

Once the acid spill impoundment interim closure has been completed, closure will be certified by a report submitted to the TWC by an independent Professional Engineer, registered in the State of Texas. Specific components of closure which will be certified are:

- Changes to the impoundment waste sources
- Removal and decontamination of appurtenant equipment
- Removal, dewatering, and disposal of the clay liner soils
- Sample collection and chain-of-custody for remaining soils.
- Installation of the double liner and leak detection system for the nonhazardous rainwater impoundment.

Certification of these components of interim closure will consist of verifying and documenting that each component was completed to meet all of the specifications of this document. Once final closure of the impoundment is complete, a recordation of closure on the land deed will be made in accordance with the requirements of TAC 335.112. A notice will be filed with Harris County Clerk as required by TAC 335.112.

At the time that the new impoundment, described in Section II, is closed the TWC will be notified. The closure of this non-permitted, non-hazardous unit will follow all applicable regulations existing at the time of final closure.

SECTION II

ACID SPILL IMPOUNDMENT POST-CLOSURE CARE PLAN

1.0 INTRODUCTION

The acid spill impoundment will be closed as a disposal impoundment. The closure plan specifies the removal of all waste liquid and sludges from the impoundment. The ground water monitoring program indicates, however, that waste residuals which were present in the impoundment will remain in the ground water (see Section V. Ground Water Monitoring Report of Air Products Part B permit application). It would be infeasible to remove water and soil to a depth of at least 40 feet in a wide radius around the impoundment. The closure plan and this post-closure care plan address the situation in which some waste residues remain in the disposal site after closure.

In addition to the hazardous waste components, the acid spill impoundment has received the rainfall runoff from approximately 8.9 acres of the plant site. Approximately 1.3 acres of this area is the tank farm located north of the impoundment. After closure, runoff from the tank farm will be routed directly to the plant wastewater system via the new sump. Runoff from the remaining area cannot be conveniently routed to any location other than that of the proposed impoundment.

The closure plan for the acid spill impoundment specifies a closure procedure which includes installation of a double liner and leak detection system for an impoundment located over the disposal site of the existing acid spill impoundment. Design drawings for all components of the new impoundment are detailed in Appendix A. Proper operation and maintenance of the nonhazardous impoundment with a double liner and leak detection system will meet all of the regulatory requirements for closure of a disposal system. In addition to the normal post-closure care specifications, this plan includes those specifications for operation and maintenance of the impoundment which are necessary to assure protection of the disposal site below. Air Products proposes that those aspects of the operation and maintenance that are relevant to the underlying disposal site and would not ordinarily be specified in a permit for an impoundment containing only uncontaminated storm water be included in the post-closure care plan for the closed disposal site.

2.0 POST-CLOSURE USE OF THE IMPOUNDMENT SITE

As part of the closure procedure, all waste liquids and solids will be removed from the impoundment. An additional 2 feet of clay liner soils below the impoundment will also be removed.

Any waste residuals in the soil and ground water beneath the site will be recovered, over time, through a well recovery system. No waste material will be exposed at the surface to present a health threat to the public, livestock, or Air Products employees.

Once the site is closed, it will be covered by the double synthetic liner system which comprises the proposed rainwater impoundment. The presence of this impoundment will protect the underlying disposal site from disturbances of traffic or construction, and it will limit access to the disposal site.

Air Products plans to maintain the impoundment over the disposal site indefinitely. If a decision is made in the future that the impoundment is no longer necessary to handle process material from a tank rupture and rainwater runoff, Air Products will petition the TWC to amend the post-closure care plans.

3.0 OPERATION OF THE RAINWATER IMPOUNDMENT

The operation of the rainwater impoundment is specified as part of the post-closure care plans to the extent to which the operation will potentially affect the underlying disposal site. The aspects of operation and maintenance which are relevant to the disposal site are those which will affect migration of liquids through the closed impoundment, and drainage and erosion or abrasion of the final cover.

3.1 PUMPING SCHEDULE

The rainwater impoundment will collect runoff from 7.6 acres. The runoff from this area will be approximately 73,000 gallons per inch of rainfall received. Since the impoundment capacity is 437,300 gallons, runoff from 6 inches of rainfall can be collected.

To prevent overfilling the impoundment, runoff will be diverted. The valves shown in Appendix A will be used to route runoff directly to the south ditch.

The 200 gpm impoundment pump will be automatically started by a level switch and begin transferring rainwater to the plant wastewater system. The pump is capable of emptying the full impoundment in 32 hours. The impoundment will be empty except during and within 32 hours following rainfall.

3.2 SOLIDS GENERATION AND HANDLING

As a result of receiving rainwater runoff, the impoundment will accumulate soil and silt during operation. The solids will be periodically removed to maintain the capacity of the impoundment. The protective clay liner will be re-groomed following solids removal to prevent erosion or abrasion of the liners. These uncontaminated solids will be disposed of on the Air Products Manufacturing Corporation site.

3.3 LINER LEAK DETECTION PROGRAM

The objective of the leak detection program is to detect a leak in either the top or bottom liner of the impoundment before a significant amount of liquid from the impoundment could migrate into the subsurface environment. From the impoundment discussed here, the only water which would normally be in the impoundment to leak into the subsurface would be rainwater.

Air Products proposes visual inspection of the leak detection system weekly for liquid. If the system contains liquid, TWC will be notified in writing within ten days.

4.0 POST-CLOSURE GROUND WATER MONITORING

Waste residuals which contain hazardous constituents have been detected in the ground water near the acid spill impoundment. Air Products has submitted a Compliance Monitoring Program and Corrective Action Program Permit Application for the ground water. These programs will be in place during the entire post-closure care period. If the corrective action program is completed, as specified in the permit, the Compliance Monitoring Program will be continued. Other than these programs, no ground water monitoring program will be implemented during the post-closure care period.

If the results of the Corrective Action program demonstrate that no waste residual material remains below the impoundment site, Air Products will petition the TWC to close the disposal facility under the specifications of TAC Section 335.169 (1). The post-closure care period and the ground water monitoring program would be terminated when and if this petition were granted.

5.0 POST-CLOSURE CARE INSPECTION AND MAINTENANCE

The discussion below specifies the routine inspection and maintenance for the disposal site during the post-closure care period.

5.1 MONITOR/RECOVERY WELLS

Monitor and/or recovery wells will be maintained as part of the Compliance Monitoring and Corrective Action Programs. If, for any reason, the wells specified as part of these programs become defective or inoperable, they will be repaired or replaced. Table 4 presents a list of possible malfunctions and their remedies.

5.2 SECURITY SYSTEM

After the impoundment is closed, Air Products plans to continue operating the production facility throughout the post-closure care period. As long as the production facility is operating, Air Products will maintain a fence around the entire production facility, which encompasses the impoundment disposal site. Gates to the area are guarded and access is restricted.

If Air Products closes the production facility during the post-closure care period, either the fences around the entire production facility or a smaller fence around the impoundment will be maintained. During the entire post-closure care period, the fence will be inspected weekly by walking or driving the perimeter. Any deterioration or breaks in the fence will be noted and repaired.

5.3 RAINWATER IMPOUNDMENT

The impoundment will be inspected weekly to verify that it is kept dry, and it will be pumped dry immediately after rainfall events.

5.4 FACILITY CONTACT PERSON

Plant Manager
Air Products Manufacturing Corporation
P. O. Box 3326
Pasadena, Texas 77501

This position is currently held by Frank C. Rydzewski.

TABLE 4

ACID SPILL IMPOUNDMENT POST-CLOSURE
INSPECTION AND MAINTENANCE SCHEDULE

SYSTEM	ITEM	FREQUENCY	POTENTIAL DEFECT	RESPONSE
Ground water	Wells	Quarterly	Lock Missing Clogged well screen Defective surface casing	Replace lock Jet or surge well Replace casing or, if necessary, replace well
Security	Fences	Weekly	Holes, cut, or down	Replace defective section
	Gates	Weekly	Lock Missing	Replace lock
Impoundment	Bottom	Weekly	Clay Cover missing or disturbed	Replace or regrade cover
	Leak Detection System	Weekly	Fluid in sump	Pump dry, notify TWC

6.0 POST-CLOSURE CARE PERIOD

The post-closure care period will extend 30 years from completion of the final step of interim closure or until the final closure of the Rainwater Impoundment, whichever occurs later. The anticipated date of interim closure completion is on or before May 30, 1987. Based on this date, the post-closure care period will end on May 30, 2018.

Air Products will operate a ground water Compliance Monitoring Program and recovery system at the impoundment site during the post-closure care period. The objective of the recovery system will be to recover those waste residuals from the impoundment which remain in the subsurface environment. If a determination can be made that all of the waste residuals from the impoundment have been recovered, Air Products anticipates petitioning the TWC for an amendment to the closure plans to close under paragraph (1) of TAC Section 335.169. Under this closure option, the impoundment site will no longer be a disposal site. The post-closure care and ground water monitoring system would be terminated when and if this petition were granted.

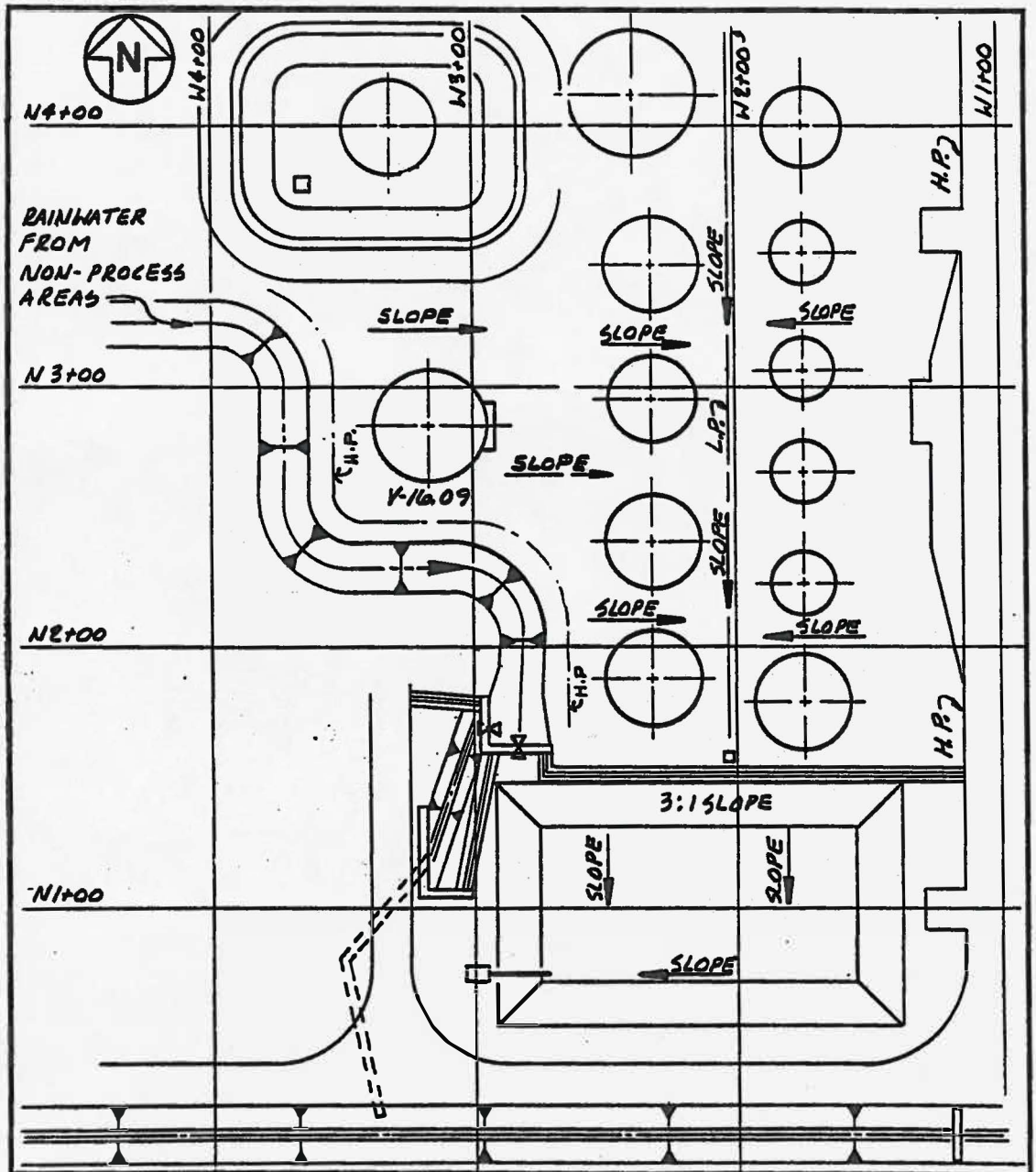
APPENDIX A
DESIGN DRAWINGS FOR NONHAZARDOUS RAINWATER/EMERGENCY IMPOUNDMENT

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DRAWING NUMBER 446079-A-1

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			SCALE 1"=50'	APP'D Mike Hall

TITLE FIGURE A-1

DOUBLE LINED RAINWATER POND PLOT PLAN

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

Reference: Original drawing adapted from Air Products, figure dated 6/4/85

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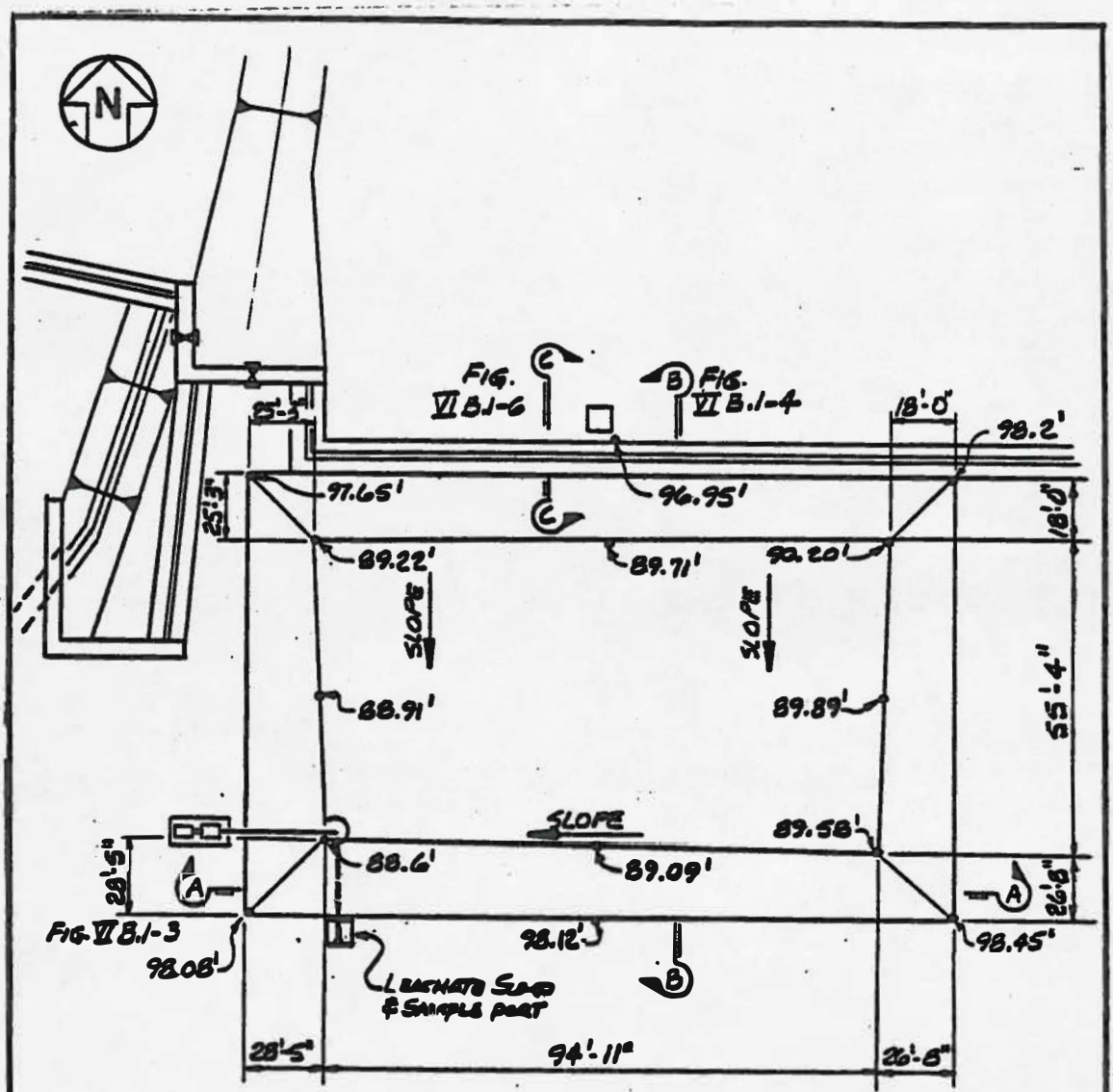
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			TITLE FIGURE A-2	
			DOUBLE LINED RAINWATER POND	
			POND LAYOUT	

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT	SPEC. NO.
DRAWING NO.	SIZE A	REV.	

Refrence: Original drawing adapted from Air Products, figure dated 6/4/85

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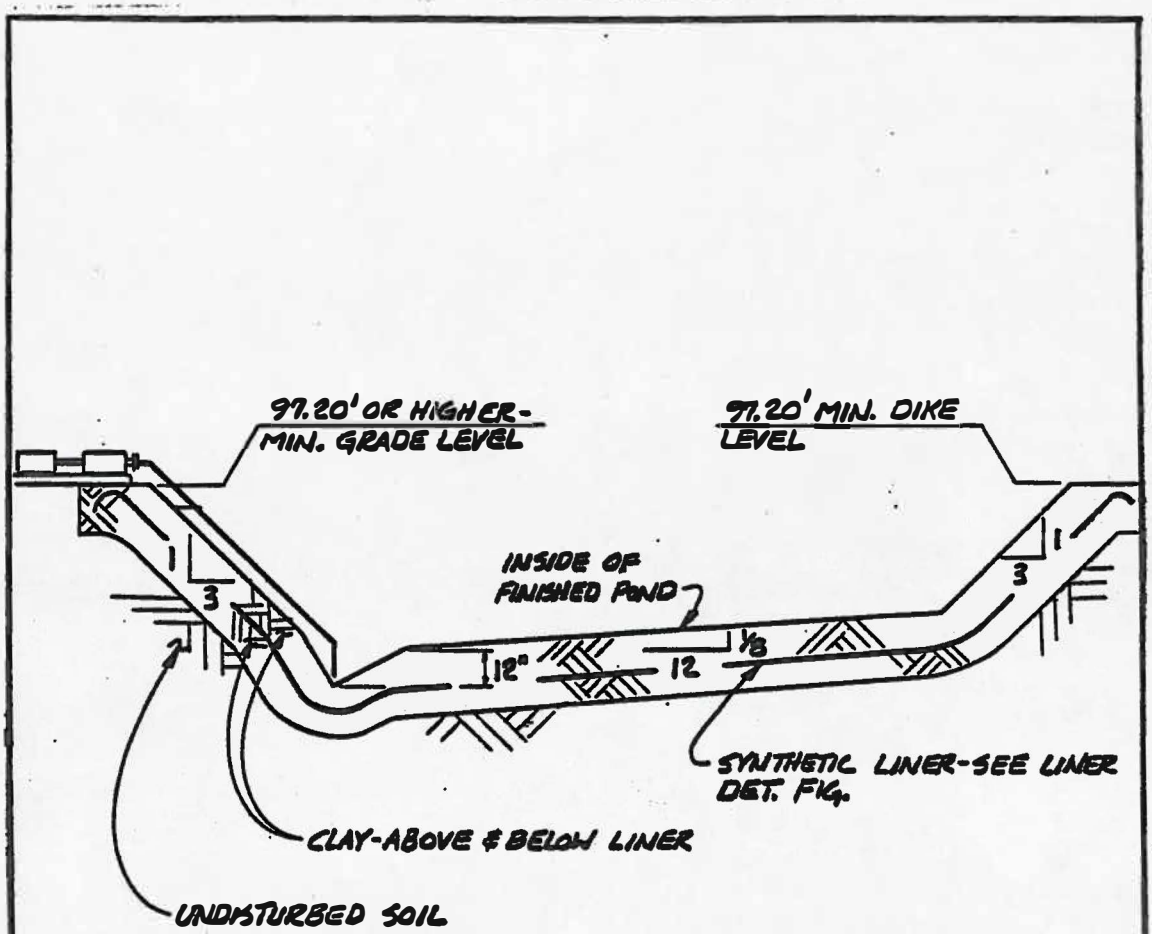
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DATE 1-30-87

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B.	12/1/87			446076



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			SCALE NONE	APP'D
			TITLE FIGURE A-3	
			DOUBLE LINED RAINWATER POND	
			SECTION A-A	

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

FORM 9031-1

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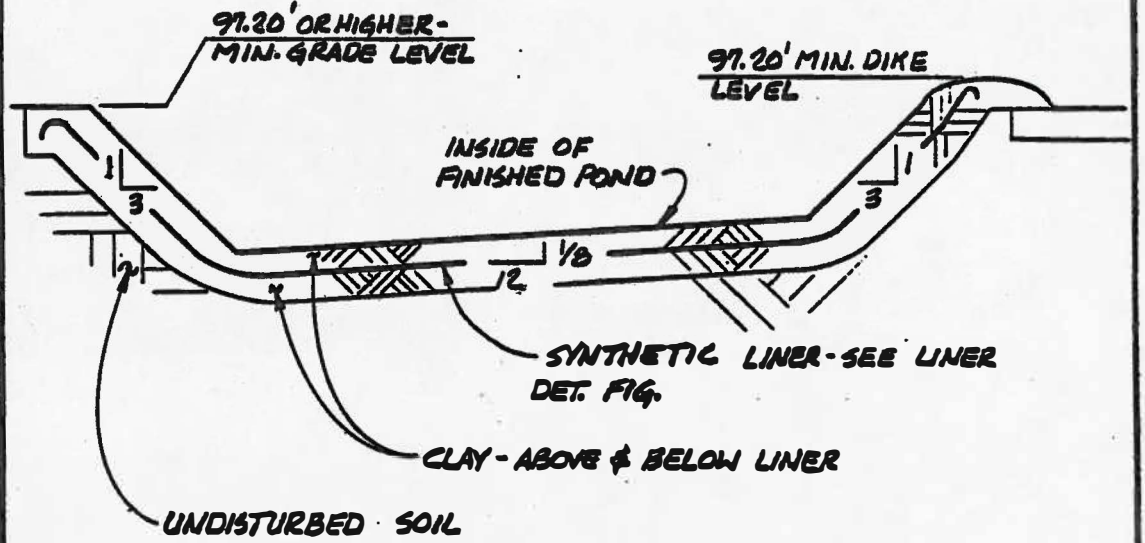
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			SCALE NONE	APP'D Mike Hall
			TITLE FIGURE A-4 DOUBLE LINED RAINWATER POND SECTION B-B	

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ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

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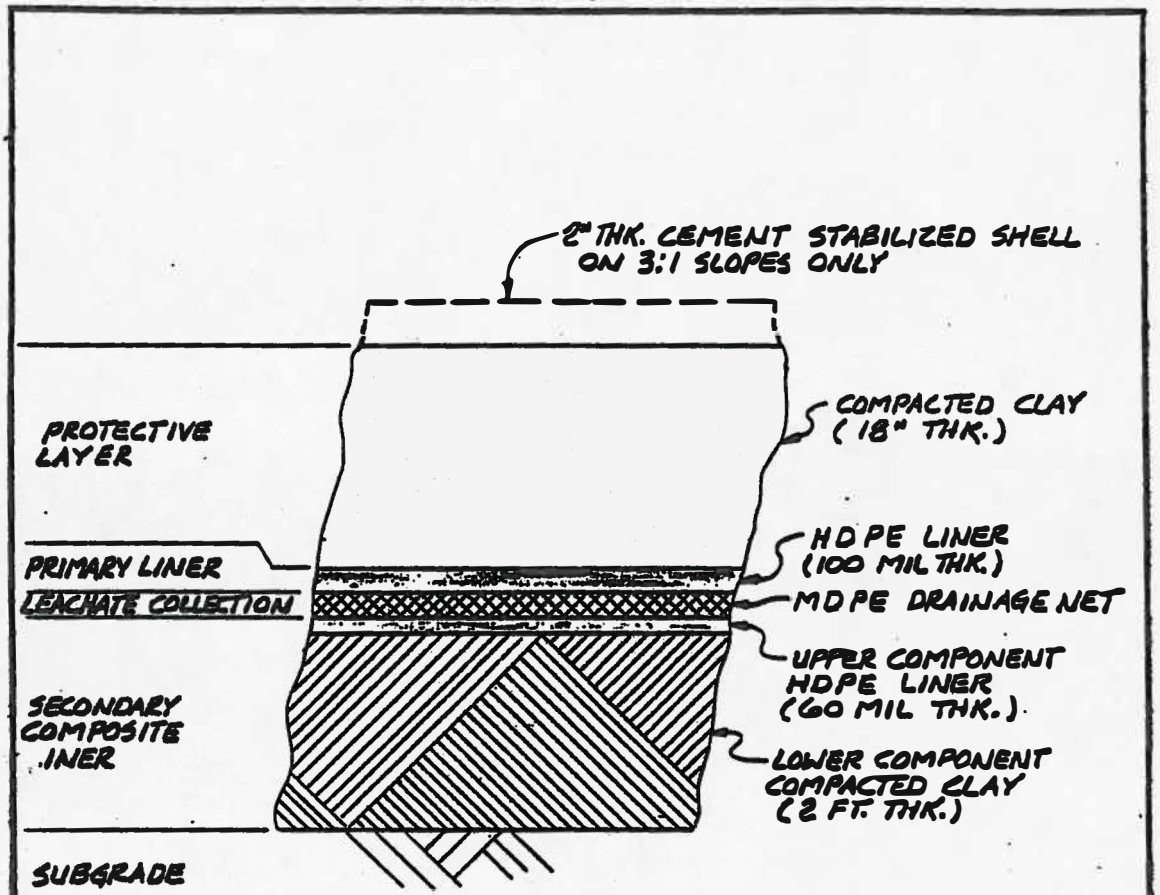
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			SCALE NONE	APP'D Mike Hulley

TITLE **FIGURE A-5**
DOUBLE LINED RAINWATER POND LINER DETAIL

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT	SPEC. NO.
DRAWING NO.	SIZE A	REV.	

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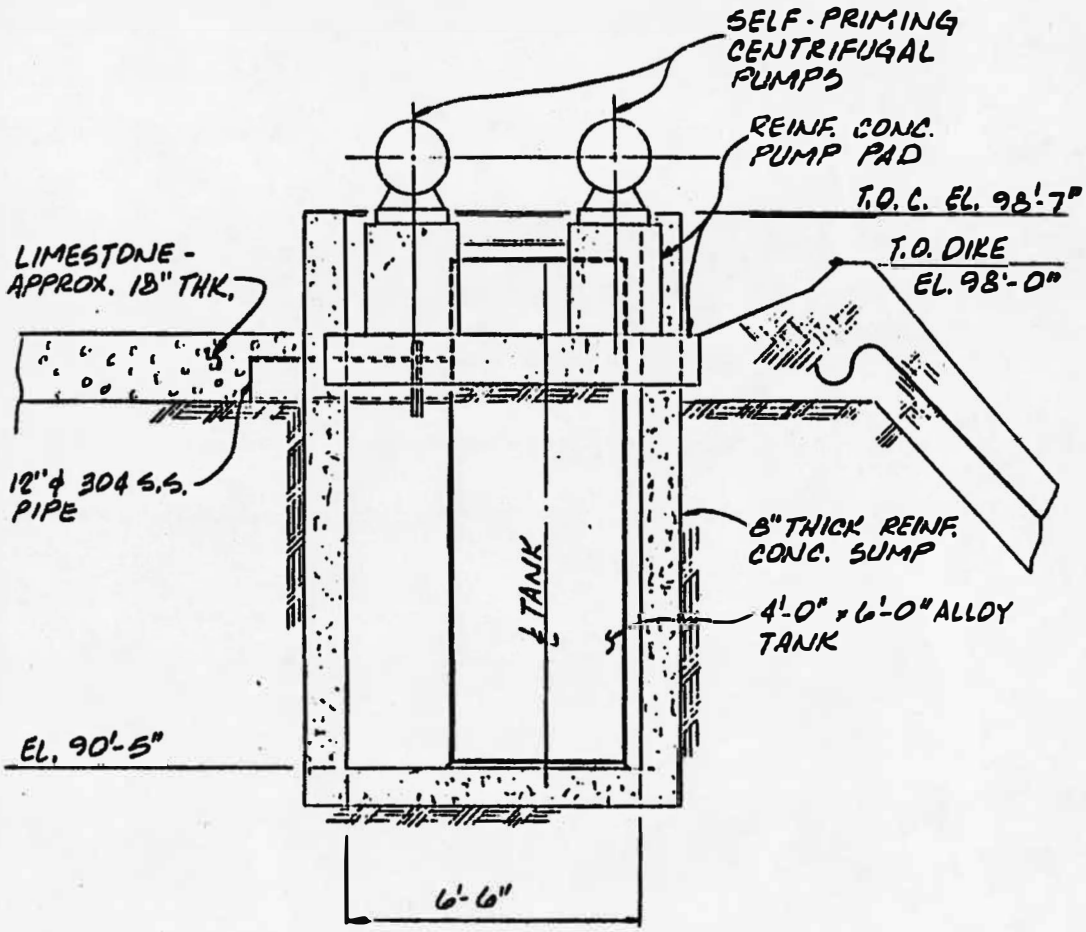
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			SCALE NONE	APP'D
			TITLE	

DOUBLE LINED RAINWATER POND
SECTION "C-C"

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

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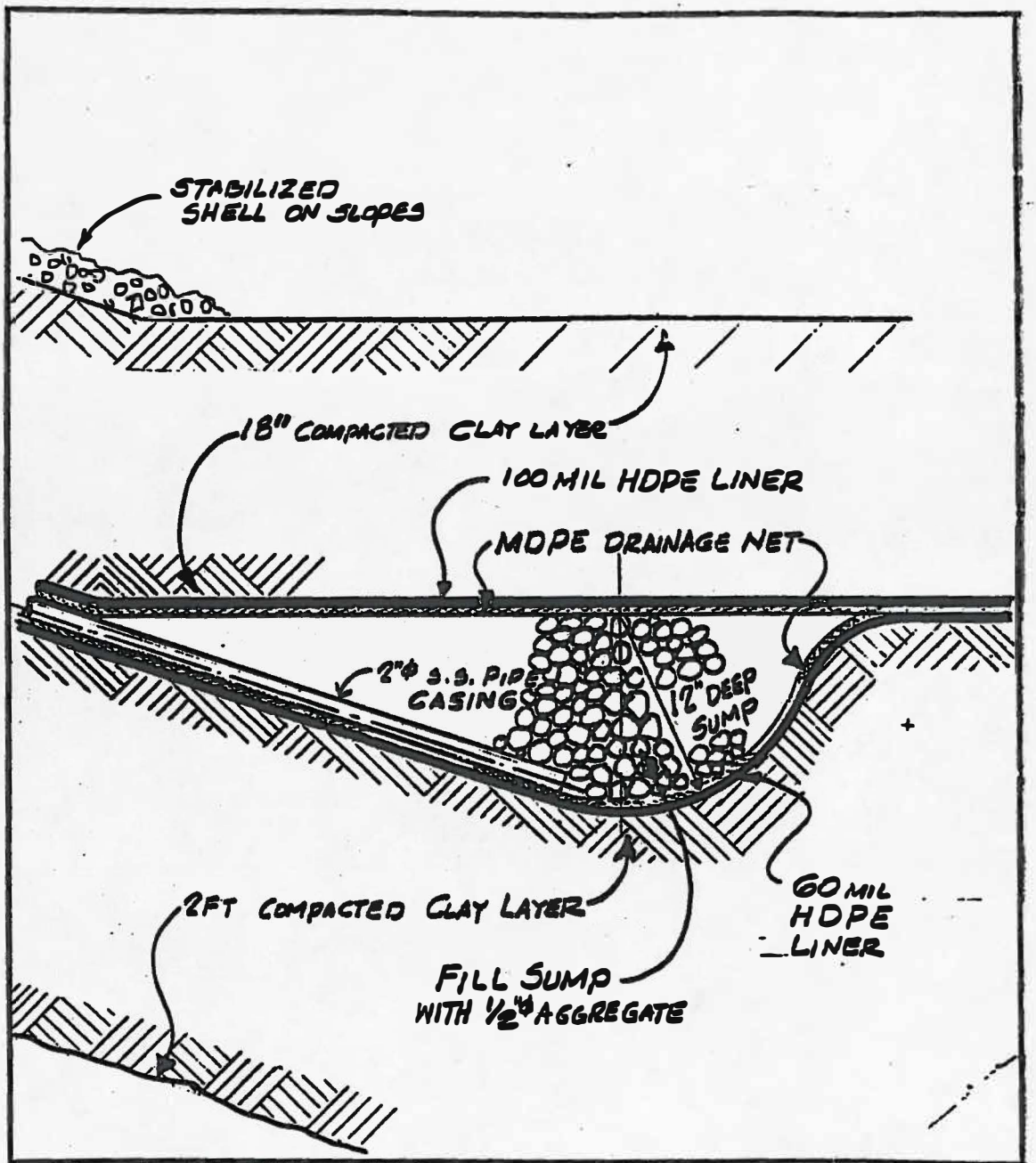
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			SCALE	APP'D
			TITLE FIGURE A-7 DOUBLE LINED RAINWATER POND LEACHATE COLLECTION SUMP	

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT	SPEC. NO.
DRAWING NO.	SIZE A	REV.	

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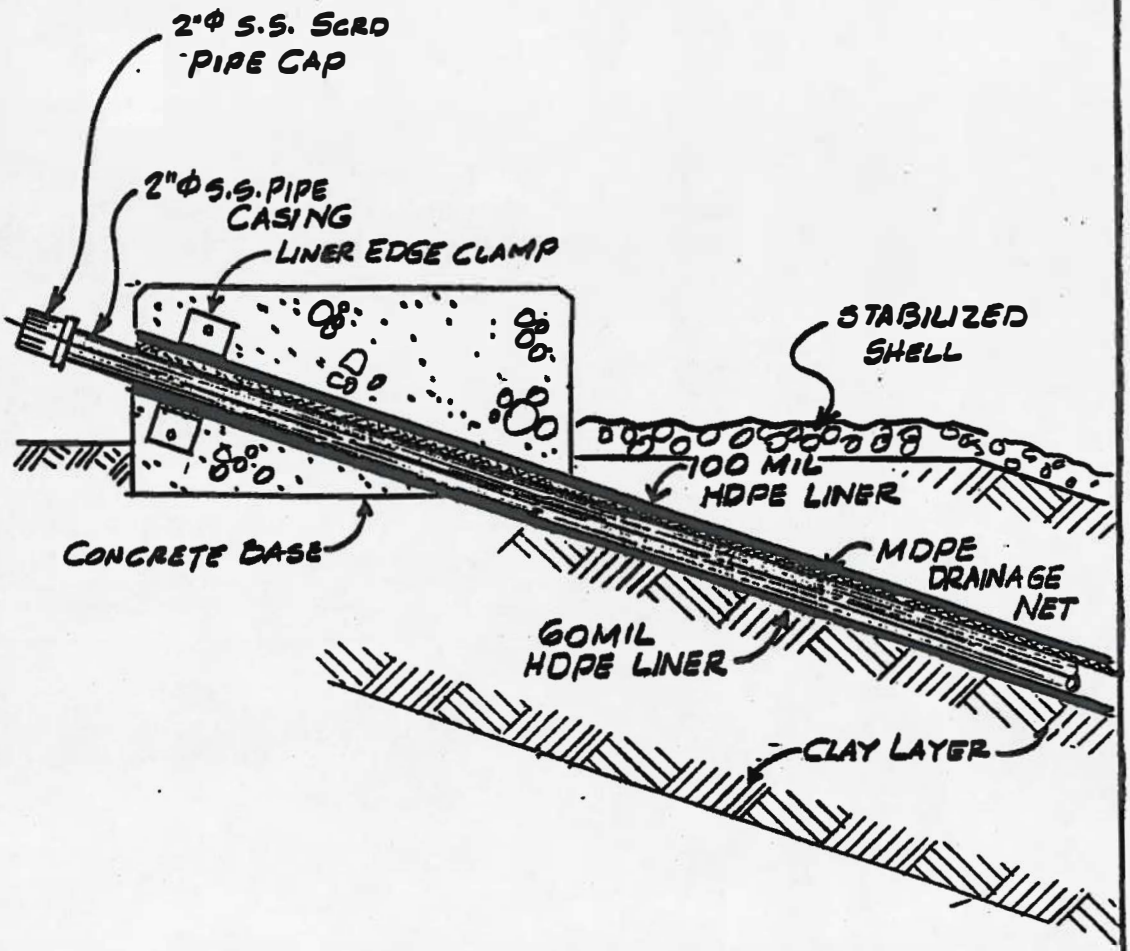
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			SCALE	APP'D

TITLE FIGURE A-8
DOUBLE LINED RAINWATER POND LEACHATE SUMP SAMPLE PORT

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

FORM 9231-1

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1. LINER SHALL CONFORM TO THE NATIONAL SANITATION FOUNDATION (NSF) FACTORY SEAM REQUIREMENTS IN THEIR STANDARD Nº 54 FOR FLEXIBLE MEMBRANE LINERS, NOV. 1983.
2. LINER SHALL BE FREE OF PINHOLES, BLISTERS, HOLES, AND CONTAINMENTS WHICH INCLUDE, BUT ARE NOT LIMITED TO WOOD, PAPER, METAL, AND NONDISPERSED INGREDIENTS.
3. THE COMPOUNDING INGREDIENTS USED IN PRODUCING SYNTHETIC LINERS SHALL BE FIRST QUALITY, VIRGIN MATERIALS PROVIDING DURABLE AND EFFECTIVE FORMULATIONS FOR LINER APPLICATIONS. CLEAN REWORK MATERIALS CONTAINING ENCAPSULATED SCRIM OR OTHER FIBROUS MATERIALS SHALL NOT BE USED IN THE MANUFACTURE OF FLEXIBLE MEMBRANE LINERS USED FOR HAZARDOUS WASTE CONTAINMENT. CLEAN REWORK MATERIALS OF THE SAME VIRGIN INGREDIENTS GENERATED FROM THE MANUFACTURER'S OWN PRODUCTION MAY BE USED BY THE SAME MANUFACTURER, PROVIDED THAT THE FINISHED PRODUCTS MEET THE MATERIAL SPECIFICATION REQUIREMENTS
4. THE EARTH SUBGRADES AND BASE MATERIALS SHALL BE MAINTAINED IN A SMOOTH, UNIFORM, AND COMPACTED CONDITION DURING INSTALLATION OF EACH LINER.
5. THE TEMPERATURE RANGE FOR MEMBRANE INSTALLATION SHALL BE 5°C TO 40°C (41°F TO 104°F)
6. WHEN MEMBRANE LINER FIELD SEAMING IS ADVERSELY AFFECTED BY MOISTURE, PORTABLE PROTECTIVE STRUCTURES AND/OR OTHER METHODS MUST BE USED TO MAINTAIN A DRY SEALING SURFACE.
7. MEMBRANE LINER INSTALLATION SHALL BE TERMINATED WHEN WINDS ADVERSELY AFFECT LINER INSTALLATION, CAUSING INTERFERENCE WITH LINER PLACEMENT, ALIGNMENT OF SEAMS, AND CLEANLINESS OF SEAM AREA.
8. FIELD MEMBRANE LINER SEAMING SHALL BE PERFORMED WHEN WEATHER CONDITIONS ARE FAVORABLE. THE CONTACT SURFACES OF THE MATERIALS SHALL BE FREE OF DIRT, DUST, MOISTURE AND BONDED IN ACCORDANCE WITH THE SUPPLIER'S RECOMMENDED PROCEDURES. ALL SEAMS SHALL BE INSPECTED BY NONDESTRUCTIVE TESTING TECHNIQUES TO VERIFY THEIR INTEGRITY. SEAM SAMPLES SHALL BE TAKEN AND EVALUATED TO VERIFY SEAM INTEGRITY, AND ON-SITE NON-DESTRUCTIVE SEAM SAMPLES SHALL BE MADE AND EVALUATED WITH IDENTICAL LINER MATERIAL, ADHESIVE, AND TECHNIQUE, PRIOR TO ACTUAL FIELD SEAMING EACH DAY, OR WHEN CONDITIONS CHANGE.

REV.	DATE	APP'D	DATE 6-7-85	MADE BY T. JONES
			SCALE	APP'D Mike Hill
			TITLE FIGURE A-9 DOUBLE LINED RAINWATER POND SYNTHETIC LINER NOTES	

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

FORM 8031-1

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	1-30-87	

1. LOWER COMPONENT OF SECONDARY COMPOSITE LINER SHALL HAVE AN IN-PLACE SATURATED HYDRAULIC CONDUCTIVITY NOT MORE THAN 1×10^{-7} CM/SEC. THE SOIL MATERIAL MUST BE FREE OF ROCK, FRACTURED STONE, DEBRIS, COBBLES, RUBBISH AND ROOTS

2. THE SOIL LOWER COMPONENT OF THE COMPOSITE LINER SHALL :
   (A) HAVE NO LENSES, CRACKS, CHANNELS, ROOT HOLES, OR OTHER STRUCTURAL NONUNIFORMITIES THAT CAN INCREASE THE NOMINAL IN-PLACE SATURATED HYDRAULIC CONDUCTIVITY OF THE LINER ABOVE 1×10^{-7} CM/SEC.
   (B) BE PLACED IN LIFTS NOT EXCEEDING 15 CENTIMETERS (6 INCHES) BEFORE COMPACTION TO MAXIMIZE THE EFFECTIVENESS OF COMPACTION.
   (C) BE BROKEN UP AND HOMOGENIZED FOLLOWING PLACEMENT OF EACH LIFT, USING DISK HARROWS, ROTARY TILLERS, OR A HIGH-SPEED MIXER. CLODS SHALL BE REDUCED IN SIZE TO FACILITATE MOISTURE-CONTROL OPERATIONS, COMPACTION, AND REDUCE HETEROGENEITY OF THE COMPACTED SOIL MASS
   (D) HAVE ADDED MOISTURE THOROUGHLY MIXED INTO IT USING MIXING DEVICES SUCH AS DISC HARROWS OR ROTARY TILLERS.
   (E) BE CONSTRUCTED ALLOWING ADEQUATE TIME BETWEEN MOISTURE ADDITION AND COMPACTION TO INSURE MOISTURE PENETRATION OF ALL SOIL MATERIAL.
   (F) BE INSTALLED SO THAT THE MOISTURE CONTENT OF THE SOIL LINER DURING INACTIVE CONSTRUCTION PERIODS IS CONTROLLED. DESICCATION CRACKING MUST BE MINIMIZED.
   (G) BE CONSTRUCTED SO THAT THE LAST LIFT IS SEAL-ROLLED TO PRODUCE A SMOOTH SURFACE PRIOR TO PLACEMENT OF THE SYNTHETIC LINER.

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			SCALE ~	APP'D
			TITLE FIGURE A-10	
			DOUBLE LINED RAINWATER POND	
			LOWER COMPONENT CLAY NOTES	

Air Products
ALLENTOWN, PA.

PROJECT/C.E. NO.	FACILITY	PLANT
DRAWING NO.	SIZE A	REV.

SPEC. NO.

FORM 9831-1

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VIII. Financial Assurance

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

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)

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 waste [30 TAC Section 37.31(a)]. 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 a financial mechanism has been obtained, provide a copy of the mechanism.

   For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

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 waste [30 TAC Section 37.31(a)]. 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 a financial mechanism has been obtained, provide a copy of the mechanism.

   For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

3. Financial Assurance for Corrective Action

   An owner or operator must establish financial assurance for corrective action of the facility no later than 60 days after the permit or order requiring the corrective action financial assurance is signed by the executive director or commission [30 TAC Section 37.31(b)]. 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 and indicate below the type of financial assurance mechanism to cover corrective action for the

facility.

If a financial mechanism has been obtained, provide a copy of the mechanism.

For applications involving permit transfers, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

4. 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 waste [30 TAC Section 37.31(a)]. 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 a financial mechanism has been obtained, provide a copy of the mechanism.

For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

B. Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal (30 TAC 305.50(a)(4))

Refer to the Supplemental Technical Information Guidance for Applicants Subject to Financial Capability Requirements, included in Section VIII.B., and the requirements listed below as you complete this section.

1. Provide information required in 30 TAC 305.50(a)(4), as applicable to the application request.

2. Complete Table VIII.B. if requesting capacity expansion or new construction.

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).

4. For renewal applications with no capacity expansion, please complete and submit the attached Financial Disclosure Letter.

Information for Applicants Subject to Financial Capability Requirements

Certain applications involving Hazardous Waste facilities are subject to review of the applicant's financial ability to construct, operate, and/or close the facility, perform post-closure care and corrective action at the facility in accordance with State law as specified in

Section 361.085 of the Texas Health and Safety Code. TCEQ refers to these reviews as financial capability reviews. This document summarizes and clarifies the information required in an application to meet the TCEQ requirements of 30 Texas Administrative Code (TAC) 305.50.

Information requirements vary depending on the type of financial information available to applicants, primarily whether audited financial statements are available as well as the type of application submitted. For each scenario described below, financial information must be provided for the specific applicant.

I. New Facilities, Facility Expansions and Permit Transfers

A. Publicly traded Entities

1. Securities and Exchange Commission (SEC) Form 10-Ks

   This portion of the requirement calls for the two most recent 10-K reports filed.

2. SEC Form 10-Q

   This portion of the requirement calls for a copy of the most recent quarterly report.

3. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure care, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met. (ie. which financial assurance mechanism is or will be used).

4. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

B. Privately held entities with audited financial statements

1. Audited financial statements

   This portion of the requirement calls for complete copies of the audited financial statements for each of the most recent two fiscal years. If an audit has not been completed for one of the previous two years, a complete copy of the fiscal year end financial statement and federal tax return may be substituted in lieu of the audit not performed. The tax return must be certified by original signature of an authorized signatory as being a "true and correct copy of the return filed with the Internal Revenue Service." Financial statements must be prepared consistent with generally accepted accounting principles and include a balance sheet, income statement, cash flow statement, notes to the financial statement, and an accountant's opinion letter.

2. Quarterly financial statement

   This portion of the requirement calls for a complete copy of the most current quarterly financial statement prepared consistent with generally accepted accounting principles. Internally prepared statements are satisfactory.

3. Supplementary information statement

   This portion of the requirement calls for a written statement detailing the information that would normally be found in SEC's Form 10-K including descriptions of the business and its operations; identification of any affiliated relationships; credit agreements and terms; any legal proceedings involving the applicant; contingent liabilities; and significant accounting policies.

4. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

5. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure care, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

C. Entities without audited financial statements or entities choosing not to provide the information listed above

1. Financial Plan

   This portion of the requirement calls for a financial plan (including balance sheets listing assets, liabilities and capital accounts) sufficiently detailed to clearly demonstrate that the applicant will be in a position to readily secure financing for construction, operation, and closure, post-closure, and corrective action if the permit is issued. At least 3 balance sheets should be included as of: a) approximately the date of the permit application, b) 12 months after any construction is completed (or assumption of operational control for a permit transfer), and c) 24 months after any construction is completed (or assumption of operational control for a permit transfer).

2. Letters of opinion

   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. If the permit action sought involves construction of a new facility or expansion of an existing facility, the opinion letters must certify that financing is obtainable within 180 days of permit approval and include the time schedule contingent upon permit finality for securing the financing as well as certify the financial plan is reasonable. Even if the application does not involve a facility or capacity expansion, the opinion letters must certify that the financial plan is reasonable. 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.

   Letters of opinion are usually issued by investment or commercial bankers but there could be additional sources. Applicants are encouraged to verify the adequacy of the credentials of their chosen financial expert with TCEQ's financial assurance unit prior to a formal engagement. Financial experts should describe their qualifications and disclose their independence from the applicant and/or any entity or person affiliated with the applicant.

3. Operating and cash flow statement

   This portion of the requirement calls for 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 provide financial assurance for closure, post-closure care, and liability coverage requirements. A list of the assumptions made to forecast cash flow must also be provided.

4. Explanation statement

   This portion of the requirement calls for a statement addressing how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

5. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

D. Entities with a resolution from a governing body approving or agreeing to approve the issuance of bonds to satisfy financial assurance requirements (e.g. a city or county)

1. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC30 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage

financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

2. Certified copy of the resolution from the governing body.

3. Certification by the governing body of passage of the resolution.

II. Permit Renewals

Complete the **Financial Disclosure Letter** letter with applicable information inserted into the parentheses. *Note that additional information must be provided if requested by TCEQ.*

APPENDIX VIII

Financial Assurance

VIII Financial Assurance Response

This Part B application is for a compliance plan and post-closure care of two permitted units at the Air Products LLC (APLLC) Pasadena, TX Facility, i.e., Unit 01 Effluent Impoundment and Unit 002 Acid Spill Impoundment which were closed on 7/14/1989 and 9/1/1987, respectively. The closure cost estimates were most recently revised with the Class 1ED modification and permit HW50134 was issued July 2, 2018.

All permitted units at the facility are closed. No new units are proposed. Closure costs do not apply. APLLC's response to the Section VIII requirements are shown in the table below per the Format of Hazardous Waste permit Application and Instructions.

Paragraph			**Response**
A.	1	Financial Assurance for Closure	Reserved
	2	Financial Assurance for Post-Closure Care	Financial Assurance instrument to be provided within 60-days of issuance of initial draft permit.
	3	Financial Assurance for Corrective Action	Financial Assurance instrument to be provided within 60-days of issuance of initial draft permit.
	4	Liability Requirements	RESERVED - Not Required for post-closure care.
B	1		RESERVED
	2		RESERVED
	3		RESERVED
	4		See Appendix VIII, Draft Closure Letter
II		Permit Renewals	See Appendix VIII, Draft Closure Letter

Table VIII.B. - Estimated Capital Costs

Task	Cost
Site preparation, fencing, paving, curbing, lighting, roadways	RESERVED
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 Cost	

October 30, 2025

Mr. Martin Torres, Manager
Industrial and Hazardous Waste Permits Section
Texas Commission on Environmental Quality
Building F, MC 130
12100 Park 35 Circle
Austin, Texas 78753

Re: Financial Disclosure Letter for Air Products LLC
Permit Renewal
Hazardous Waste Permit No. / Compliance Plan No. 50134
Industrial Solid Waste Registration No. 30317
EPA ID No. TXD990757486
RN 100221324 ; CN 602299257

Dear Mr. Torres:

This letter is furnished to you in response to financial disclosure requirements as applicable under Texas Health and Safety Code Section 361.085 and Title 30, Texas Administrative Code (30 TAC), Section 305.50 to provide assurance that Air Products LLC has sufficient financial resources.

In keeping with the above law and rule requirements I hereby certify that Air Products LLC is adequately capitalized and has sufficient financial resources to operate, close, provide post-closure care for and perform corrective action for the above-referenced facility in a safe manner, and in compliance with the permit and all applicable rules.

Air Products LLC currently provides a corporate guarantee under the parent company Air Products and Chemicals, Inc (APCI) as the financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet Air Products LLC's financial assurance obligations.

I am authorized to make these statements on behalf of Air Products LLC. I understand that the TCEQ may request additional information as part of their review.

Sincerely,

Enrique Millan
Vice President
US Hyco

IX. Releases from Solid Waste Units and Corrective Action

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

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[2]. 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). 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.

[2]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).

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.

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 Applications for a New Hazardous Waste Permit:

- For all facility Solid Waste Management Units (SWMUs) and/or Areas of Concern (AOCs), complete the accompanying forms entitled "Preliminary Review Facility Checklist" and "Preliminary Review Unit Checklist". Make additional copies as necessary.

For Applications for a Renewal/Amendment/Modification of an Existing Hazardous Waste Permit:

- Update the Preliminary Review Facility Checklist to include any newly identified SWMUs and/or AOCs that were not incorporated into the previous permit issuance (new, amendment, modification, or renewal), and to update the status of all previously identified SWMUs or AOCs which are incorporated into the existing permit under either Section IX - Corrective Action for Solid Waste Management Units, or Section XI - Compliance Plan. Status updates should include notes regarding whether the SWMU or AOC has been incorporated into a compliance plan, has received approval of no further action (NFA), has had changes in its corrective action status, or has had other determinations issued by the TCEQ. Include the date of the status change in the updated checklist;
- Complete the Preliminary Review Unit Checklists for any newly identified SWMUs or AOCs that were not incorporated into the previous permit issuance (new, amendment, modification, or renewal);
- Update the status on the Preliminary Review Unit Checklists for all previously identified SWMUs or AOCs that had not yet received TCEQ approval of NFA at the time of the previous permit issuance;
- Provide copies of the letters from the TCEQ approving NFA or other determinations that were issued since the previous permit issuance;
- For previously identified SWMUs and/or AOCs which are incorporated into the existing permit and are included in Section XI - Compliance Plan of this application, you may forego filling out the Preliminary Review Unit Checklists for these units. Briefly note on the Preliminary Review Facility Checklist that the SWMUs or AOCs are addressed in

Section XI. Provide the location where the SWMU's and addressed in Section XI. ; or

- If all previously identified SWMUs and/or AOCs reached NFA status at or before the last permit issuance you may forego filling out the Preliminary Review Unit Checklists, indicate Not Applicable, and provide a brief explanation of the facts.

Complete Preliminary Review Facility Checklist (located in attachments)

Instructions for Preliminary Review Unit Checklist

Preliminary Review Facility Checklist

Preliminary Review Unit Checklist

PART B - SECTION IX

RELEASES FROM SOLID WASTE UNITS AND CORRECTIVE ACTION

IX Releases From Solid Waste Units And Corrective Action Response

This Part B application is for renewal of HW50134 which was most recently modified and issued on July 2, 2018. The Part B application for the modification included an up-to-date Preliminary Review Unit Checklist (PRUC) for all Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). No new SWMUs or AOCs were identified after the issuance of the current permit. The Section IX information from the prior permit modification application is included for ease of access.

The Section XI Compliance Plan addresses the Corrective Action program for releases from the SWMUs and AOCs.

Paragraph			Response
A.	New Permit		Reserved
	Renewal Permit		
		New SWMUs/AOCs	Reserved – all SWMUs/AOCs in current permit
		New PRUC	Reserved - all SWMUs/AOCs in current permit
		PRUC status update	Reserved - all SWMUs/AOCs in current permit
		NFA letters	Reserved – no updates
		Section XI SWMUs/AOCs	Reserved – PRUCs in prior permit application. See Section XI for Corrective 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
The regional location of the APLLC facility is shown on Figure I.1 of Appendix I of the Preliminary Review Submittal Report.

– Site Location Map
The site location of the APLLC facility is shown on Figure I.1 of Appendix I of the Preliminary Review Submittal Report.

– 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.
A map identifying the locations of existing SWMUs and AOCs at the facility is provided in Figure I.2 of Appendix I of the Preliminary Review Submittal Report.

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.
Documentation of wastes managed, hazardous constituents and pertinent health, safety, and risk data is provided in Appendix II of the Preliminary Review Submittal Report.

Appendix III. EVIDENCE of RELEASE

– Provide any applicable documentation on a release. Provide a map of release locations, SWMU identification, and paths traveled.
Documentation of releases is provided in Appendix III of the Preliminary Review Submittal Report.

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.).
Supporting information documenting pollutant dispersal pathways are provided in Appendix IV of the Preliminary Review Submittal Report.

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.

A Preliminary Review Submittal Report is attached and provides the updated facility checklist and unit checklists.

SECTION IX

PRELIMINARY REVIEW OF SOLID WASTE UNITS AND CORRECTIVE ACTION

AIR PRODUCTS LLC
PASADENA, TEXAS

Prepared
by

WSP USA Inc.
San Antonio, Texas

October 2025

Revision No. 1
Revision Date Oct 30, 2025

PRELIMINARY REVIEW OF SOLID WASTE MANAGEMENT UNITS
PART B - SECTION IX

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APPENDIX IV. Pollutant Dispersal Pathways

PRELIMINARY REVIEW FACILITY CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Units:

1. RCRA Regulated Units:

NOR No.	Description	**Status**
001	Effluent Impoundment	Post Closure
002	Acid Spill Impoundment	Post Closure
003	Container Storage Area	Closed
005	TDA Byproducts Tank	Closed

2. Solid Waste Management Units:

NOR No.	Description	**Status**
004	Used Oil Storage Tank	Closed
006	15.20 Boiler	Closed
007	15.30 Boiler	Closed
008	Non-Haz Storage Bins	Active
009	Haz Storage Bins (<90-day)	Active
010	15.60 Boiler	Closed
011	TDA Wastewater Surge Tank	Closed
012	Total Plant Wastewater Tank	Closed
013	Parts Cleaner	Never Built
014	Spent Carbon Storage Tank (V-8)	Closed
015	Spent Carbon Pulse Tank (V-4)	Closed
016	Nitric Acid Truck Loading Area	Closed
017	Nitric Acid Sump	Closed
018	MEA and Carbonate Truck Unloading Area	Closed

019	MEA/Sodium Carbonate Sump or “Toluene Sump	Closed
020	DNT Wastewater/Red Water Sump	Closed
021	Ammonia Spill Sump	Closed
022	DNT Tank Car Loading Area	Closed
023	DNT Truck Loading Area	Closed
024	DNT Spill Load-Off Pond	Closed
025	TDA Tank Car Loading Area	Closed
026	TDA Truck Loading Area	Closed
027	Neutralization Pit	Closed
028	Distillation/Solvent Recovery Unit	Closed
029	Hazardous Waste Bins	Closed
030	PVOH Equalization Tank	Closed
031	Neutralization Tank (V-16.155)	Closed
032	Contaminated Wastewater Tank (V-16.153)	Closed
033	Pulsed Bed Adsorber (V-1)	Closed
034	Pulsed Bed Adsorber (V-2)	Closed
035	Contaminated Wastewater Adsorber (V-3)	Closed
036	Contaminated Wastewater Surge Adsorber	Closed
037	Carbon Filter (V-9)	Closed
038	Collection Container for Medical Waste	Closed
039	Collection Area for Used Batteries	Closed
040	Pilot Wastewater Bioremediation Unit	Closed
041	PMD Organic Waste Tank	Closed
042	Construction Project Stockpile of Soils	Active
043	Container Storage Area	Inactive
AOC 1	DNT Product Storage Area	Inactive/ Corrective Action
AOC 2	Northwest Storage Area	Inactive/ Corrective Action
AOC 3	DNT Manufacturing Area	Inactive/ Corrective Action

B. Reviewed Documents:

1. RCRA: Part A x

Part B x Part B Permit application, IT Corporation, June, 1985.
Compliance Plan Application, October, 1985.
BIF Class 3 Permit Modification, Radian Corporation, February 17, 1992; July 30, 1993 and May 22 1998 CP modifications; Class 3 CP modification dated September 14, 2011; Part B Permit Application, Amec, May 3, 2012; Class 1 ED Modification Application, Amec Foster Wheeler, April 13, 2018.

Permit x Class 1 ED Permit Modification, dated July 2, 2018
Permit HW 50134, issued January 7, 2016;
Permit/Compliance Plan HW/CP-50134, dated November 13, 2002; Permit HW-50134 dated November 10, 1993;
Permit/Compliance Plan issued September 17, 1990

2. CERCLA: Not Applicable

3. Inspection Reports: On file at the Texas Commission on Environmental Quality

4. Enforcement Actions: None

5. Exposure Information: RCRA Facility Assessment, TWC, January 25, 1990.

6. Other Information:

Notice of Registration dated March 3, 2025.
Compliance Plan Annual Reports (2016-2025).
Compliance Plan Semiannual Reports (2007-2015).
Class 3 Compliance Plan Modification, issued September 14, 2011.
Class 3 Compliance Plan Modification Application, dated March 29, 2010.
Draft Response Action Plan, DNT Manufacturing Area, February 2008.
Affected Property Assessment Report, DNT Manufacturing Area, December 2007.
Draft Response Action Plan, Former Acid Spill Impoundment, November 2006.
Affected Property Assessment Report, Former Acid Spill Impoundment, January 2006.
Compliance Plan dated November 13, 2002.
APAR/RFI at the TDA Loading Area, Compliance Plan Renewal, January 2001.
APAR/RFI Addendum for Soils at DNT Loading Area Neutralization Pit, DNT Storage Area, and Northwest Storage Area, Compliance Plan Renewal, January 2001.
RCRA Facility Investigation Report, DNT Loading Area and Neutralization Pit, Geomatrix Consultants, Inc., September, 1998.
Compliance Plan dated September 17, 1990.
Major Amendment Application to the Compliance Plan dated June 1997.
RCRA Facility Investigation Report, TDA Loading Areas, IT Corporation, February, 1997.
RCRA Facility Investigation, IT Corporation, July, 1992.

RCRA Facility Assessment, DNT Product Storage Area, October, 1999.
RCRA Facility Assessment, Texas Water Commission, January 25, 1990.
Container Storage Area Certification of Closure, IT Corporation, April, 1990.
Effluent Impoundment Closure and Post-Closure Plans, IT Corporation, August, 1987.
Acid Spill Impoundment Closure and Post-Closure Plans, IT Corporation, August, 1987.
Closure Certification Effluent Impoundment Pond, IT Corporation, July, 1988.
Closure Certification Acid Spill Pond, IT Corporation, November, 1988.

C. Summary:

A total of 43 solid waste management units and three Areas of Concern (AOC) are included in this Preliminary Review (PR) prepared for the Air Products LLC Pasadena (APLLC) Facility. For each unit or area a PR was prepared which includes a summary of the wastes managed and their hazardous constituents, a description of the evidences of releases, a summary of the construction and operation, and a statement of current and recommended actions.

D. Recommended Action:

RCRA Facility Investigations (RFIs) have previously been conducted pursuant to 30 TAC 335.167 at the following solid waste management units (SWMUs) and Areas of Concern (AOC) at the APLLC facility under the terms of the facilities existing Compliance Plan CP 50134 (CP):

1. TDA Tank Car Loading Area (NOR No. 25);
2. DNT Storage Area (AOC1);
3. Northwest Storage Area (AOC2);
4. DNT Loading Area (NOR Nos. 022, 023, and 024);
5. Former Neutralization Pit (NOR No. 027);
6. Former MEA and Sodium Carbonate Sump (NOR 019);
7. Former DNT Wastewater "Red Water" Sumps (NOR 020); and,
8. DNT Manufacturing Area (AOC3).

RFI Units/AOCs listed in 1-8 (above) have been captured in CP Table II of Section XI of the renewal application.

A site-wide groundwater corrective action program (30 TAC 335 .166 and/or 30 TAC 335.167) is also currently in place at the APLLC facility under the terms of the facility's existing Compliance Plan CP 50134 (CP) to address releases from the following SWMUs and AOCs:

1. Waste Management Area 1 (consisting of the following 5 SWMUs and AOCs):
   a. Former Effluent Impoundment (NOR 001);
   b. Former Neutralization Pit (NOR No. 027);
   c. DNT Loading Area [consisting of the DNT Tank Car Loading Area (NOR No. 022), DNT Truck Loading Area (NOR 023), DNT Spill-Off Pond (NOR No. 024)];
   d. DNT Storage Area (AOC1); and
   e. Northwest Storage Area (AOC2).

2. Waste Management Area 2 (consisting of the following 2 SWMUs and AOCs):

a. Former Acid Spill Impoundment (NOR 002); and
b. DNT Manufacturing Area (AOC3).

3. TDA Tank Car Loading Area (NOR No. 025).

Final response actions to address impacts to soil and groundwater from the SWMUs and AOCs in WMA1, WMA2, and the TDA Tank Car Loading Area are currently being conducted in accordance with 30 TAC 350. Corrective Actions for the facility consist of the use of groundwater recovery/control to manage affected groundwater, primarily within the established Plume Management Zones (PMZs) to address releases from Waste Management Area No. 1, Waste Management Area No. 2, and groundwater monitoring at the TDA Tank Car Loading Area. These units/areas have been captured in CP Table I.A and I.C. of Section XI of the renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring).

APLLC will continue to conduct response actions to address releases from existing SWMUs and AOCs in WMA1, WMA2 and the TDA Tank Car Loading Area in accordance with the Corrective Action Program requirements stipulated in the Compliance Plan. No additional RCRA Facility Investigations are recommended for units or areas in this current renewal application based on one or more of the following factors:

- the absence of any newly suspected sources of releases based upon a visual inspection of units, the construction and operation of the units and/or the types of wastes managed;

- the implementation of on-going, site-wide remedial corrective action to address existing releases to soils and groundwater discovered as a result of the previous site investigations and RCRA Facility Investigations (RFIs) previously conducted by APLLC.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Former Effluent Impoundment

B. NOR No: 001

C. Description: Surface Impoundment - Storage (S04)
Surface Impoundment – Disposal (D83)

D. Dates of Operation: 1972 - Active
1986 - Inactive
1988 – Closed
1988 to present - Post Closure Care

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	Texas Waste Code No.	EPA Waste Code	EPA Hazard Code
Mixed Acid	0020105H	D002, D030	C R
DNT Wastewater	0190105H	K111	C,T
Monoethanolamine in Water	03801021	None	None
TDA Wastewater	0580102H	K112	T

F. Evidence of Release:

Releases to soils were identified in soils collected from the overexcavated base of the impoundment during closure of the unit in 1987. Concentrations of 2,4-DNT were measured at 190 to 1,800 mg/kg. Concentrations of 2,6-DNT were detected at 370 to 5,700 mg/kg. Isomers of mononitrotoluene (MNT) ranged from <1.0 to 130 mg/kg.

Monitoring wells were installed at the perimeter of the unit in 1981. The TWC agency (predecessor to TCEQ) noted impacts to monitoring wells down gradient of the unit in its RFA dated January 25, 1990. Groundwater has historically been pumped from a 10-well system (RW-11 through RW-20) completed in the Upper Shallow Zone at

the perimeter of the impoundment since January 1991. Recovery from the Lower Shallow was begun in October 1993. Recovery from the Intermediate Zone was begun in September 1998. A summary of the groundwater analyses for WMA1 (including the Former Effluent Impoundment) are included in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The RCRA-regulated, effluent impoundment consisted of a below-grade earthen impoundment that was used from approximately 1972 to 1986 for storage of the plant wastewaters prior to treatment off-site at the Washburn Tunnel Facility. The primary purpose of the impoundment was to collect organic precipitate from the DNT wastewater formed when mixed with the alkaline washwaters. The effluent impoundment was also used to store TDA wastewaters during TDA process upsets. The original dimensions of the unit were 175 feet by 139.5 feet, and 8 feet deep, with an operating capacity of 730,000 gallons. The impoundment was originally constructed to a depth of approximately 6 feet below natural grade. Dikes were constructed at the perimeter of the impoundment to a height of approximately 2 feet above grade. A four percent lime material was placed on the lower inside section of the dikes and the edge of the bottom of the impoundment to stabilize these surfaces. A dike constructed of lime-stabilized earth was constructed through the middle of the impoundment in 1973 and subsequently removed.

The impoundment was closed in accordance with state and federal regulation governing closure of hazardous waste surface impoundments. Waters previously managed in the impoundment are now managed in tanks including the Total Plant Wastewater Tank (Facility 012). The closure activities were initiated in January, 1987 and completed in February, 1988. The impoundment was certified closed on July 14, 1988. As part of the closure, the liquid and sludge waste materials were removed from the impoundment. Solids which precipitated in the impoundment were removed to the level of the natural clay liner below the impoundment. In addition, the clay liner and underlying clay were removed from the impoundment and disposed off-site. Eight soil samples were collected from the excavated base of the impoundment. The impoundment was backfilled with a clean clay fill material placed in maximum 9-inch lifts. A three-foot compacted clay liner was constructed over the fill material. A 12-inch thick sand drainage layer was placed over the clay liner. The sand drainage layer was overlain by 18-inches of topsoil. The surface of the impoundment was seeded with Bermuda grass. The side slopes of the capped impoundment were covered with a 0.5-foot thick layer of gravel to minimize long term maintenance and for erosion control.

I. Recommended Action:

Releases associated with the former Effluent Impoundment (NOR No. 1), DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 22), DNT Truck Loading Area (NOR Unit No. 23), and DNT Spill-Off Pond (NOR Unit No. 24)],

Former Neutralization Pit (NOR Unit No. 027), DNT Storage Area (AOC1), and Northwest Storage Area (AOC2) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the vicinity of the Former Effluent Impoundment has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to this RCRA-regulated unit) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring).

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Former Acid Spill Impoundment

B. NOR No: 002

C. Description: Surface Impoundment - Disposal (D83)
Surface Impoundment – Storage (S04)

D. Dates of Operation: 1972 - Active
1986 - Inactive
1988 – Closed
1988 to present - Post Closure Care

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	Texas Waste Code No.	EPA Waste Code	EPA Hazard Code
Mixed Acid	0020105H	D002, D030	C T

F. Evidence of Release:

Releases to soils were identified in soils collected from the overexcavated base of the RCRA-regulated impoundment during closure of the unit in 1988. Concentrations of 2,4-DNT were measured at 24 mg/kg in one of eight samples collected from the base of the unit. Concentrations of 2,6-DNT ranged from <10 to 71 mg/kg in the eight bottom samples. Concentrations of MNT isomers were measured at <2 to 104 mg/kg.

Due to the residual impacts to soils monitoring wells were installed at the perimeter of the unit in 1981. The TWC (predecessor agency to the TCEQ) noted impacts to monitor wells down-gradient of the unit in its RFA dated January 25, 1990 and recommended continued implementation of the Corrective Action Pilot Plan in its RFA dated January 25, 1990. The Corrective Action Pilot Plan was approved in December, 1987. Groundwater has been pumped from a 10-well system (RW-1 through RW-10) completed in the Upper Shallow Zone (SZ) at the perimeter of the

impoundment since October 1988, recovery from the Intermediate Zone (IZ) was begun in October 1993. Concentrations in monitoring wells in this area have decreased as a result of pumping. In the late 1990's constituents believed to originate from the Acid Spill Impoundment were detected in monitoring well MW-25 located east of the impoundment. These results promoted an investigation of the Lower Shallow Zone in the area east of the Acid Spill Impoundment. Results of the additional groundwater assessment were provided in an APAR for the Acid Spill Impoundment (ASI) dated January 2006. A RAP dated November 2006 was subsequently developed to address impacts to the SZ and IZ. A summary of the groundwater analyses for WMA2 (including the Former Acid Spill Impoundment) are included in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The acid spill impoundment was used to contain mixed acid waste in the case of a rupture in one or more acid storage tanks located north of the impoundment. The impoundment received rainfall runoff from the Acid Tank Farm, runoff from other nonprocess plant areas, and occasional leakage from the pumps, tanks and piping within the acid tank farm. Collected waters were pumped to the neutralization sump which drained by gravity flow to the on-site Washburn Tunnel POTW collection pumps.

A 1984 survey of the impoundment showed the outer dimensions of the pond as 90 feet by 152 feet. Construction drawings from 1972 show the design depth to have been approximately 6 feet. In 1977, the impoundment was excavated to a depth of approximately 8 feet to provide additional capacity. Final capacity of the impoundment was approximately 335,000 gallons. Rainfall events that exceeded the capacity of the impoundment were diverted by headwalls and a dike located north of the impoundment. The diverted run-on flowed to the plant's south ditch, which flowed east then north to Cotton Patch Bayou and into Buffalo Bayou.

The impoundment was closed in 1987 in accordance with state and federal regulation governing closure of hazardous waste surface impoundments. Waters previously managed in the impoundment are now routed directly to the plant's wastewater treatment system. Since closure and lining of the unit, the impoundment is used to manage materials from a tank rupture and uncontaminated stormwater runoff.

Closure activities were initiated in October, 1987 and completed in June, 1988. The impoundment was certified closed on November 18, 1988. Liquids and solids were removed from the impoundment as part of closure. In addition, the 2-foot thick clay liner was removed from the four sides and base of the unit. An additional 1 to 2 feet of soil was removed from the base of the unit and disposed off-site. Soil samples were taken from the base of the impoundment. A 2-foot thick layer of compacted clay was placed over the bottom and sidewalls of the excavated acid spill impoundment. A double liner and leak detection system was placed over the

compacted clay liner. Components of the liner system included a 60 mil HDPE secondary liner, a synthetic drainage net, and a 100 mil HDPE primary liner.

I. Recommended Action:

Releases associated with the former Acid Spill Impoundment (ASI), and DNT Manufacturing Area (AOC3) have previously been incorporated into the site-wide groundwater corrective action program for WMA2 established under the terms of the facility's existing Compliance Plan CP 50134. WMA2 generally encompasses the eastern portion of the Plant. The area contains the former ASI, located near the east property line of the Plant in the eastern part of PMZ1, and AOC3 located in the north-central part of the Plant. Groundwater conditions in this area were described in an Affected Property Assessment Report (APAR), in January 2006, and a remedy was detailed in a Response Action Report (RAP), in November 2006. PMZ1 in WMA2 was previously controlled by a system of 10 recovery wells (RW1 through RW10), collectively referred to as RWC1, which was activated in 1988, and operated until January 2010. In early 2010, recovery well RW27 was installed and activated near the southeast corner of the former ASI to control the SZ PCLE Zone, and RWC1 was inactivated. From 1993 to 2008, groundwater having PCL exceedances in the IZ was controlled by recovery well RW22. However, RW22 was removed in July 2008 due to construction of a new facility structure. Following construction, this well was replaced by RW28, which was activated in April 2010. RW28 is currently the only IZ well in the former ASI area where PCL exceedances are observed. As such, a PMZ has not been established in the IZ for this area. Final response actions for WMA2 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA2 (including reference to AOC3) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring).

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	November 21, 2017
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Container Storage Area

B. NOR No: 003

C. Description: Container - Storage (S01)

D. Dates of Operation: 1980 – Active
2015 - Closed

E. Wastes Managed: (hazardous constituents listed in Appendix II)

Waste Name	Texas Waste Code No.	EPA Waste Code	EPA Hazard Code
Spent Carbon from Common Oil Adsorber	00013101	None	None
Acetic Acid Cation Exchange Resin	00104031	None	None
Asbestos Insulation	00603111	None	None
Brinks Filters	0080310H	D007	E
Chloride Removal Anion Exchange Resin	01104031	None	None
Chromium Oxide Catalyst	0120393H	D007	E
Demin Ion Exchange Resin	01404031	None	None
Diesel Waste	0150219H	D001	I
DNT Contaminated Debris	0160319H	D030	E
DNT Contaminated Soil	0170301H	D030	E
Parts Cleaner/Spent Solvent	0172211H	D030	E
DNT Filters	0180310H	D030	E
DNT Wastewater Contaminated Debris	0200319H	K111	C,T

DNT Wastewater Contaminated Soils	0210301H	K111	C,T
DNT Wastewater Spent Carbon Contaminated Debris	0230404H	K111	C,T
Dryer Dessicant	02403101	None	None
Industrial Waste	02713191	None	None
Lab Packs	0280001H	D001, D002, D004 - D011, D018, D030, F001 - F005, U221	I, C, E, E, I,T, T
Lead Tetracetate	0300316H	_____	_____
Lube Oil Contaminated Debris	03103191	None	None
Used Lube Oil Filters	03203101	None	None
Used Lubricating Oil	03302061	None	None
Methanol/Vinyl Acetate	0370219H	D001	I
Rechargeable Ni Cd Batteries	0382309H	D006	E
Rechargeable Ni C Batteries	03833091	None	None
Paint Solvent Waste	0400211H	D001, D035, F003	I, E, I
Precious Metals Recovery Material	04513931	None	None
Debris Contaminated w/PVOH Lab Reagents	0453319H	D004, D008, D011	E, E, E
PVOH Analytical Test Reagents	0456219H	D002, D004, D008, D011	C, E, E, E
Polyvinyl Alcohol Wastewater Tank Sludge Filter Cake	04633191	None	None
Spent Nickel Catalyst	05203931	None	None

TDA By-Products	0530409H	K113, K114, K115	T, T, T
TDA Contaminated Debris	0550319H	U221	T
Toluenediamines	0573219H	K113, K114	T, T
TDA Wastewater Contaminated Debris	0590409H	K112	T
Toluene Contaminated Debris	0600319H	U220	T
Toluene Contaminated Soils	0601301H	U220	T
Toluene Lab Waste	0610409H	D001, D009, D018, D030, F002, F005	I, E, E, T, I,T
Filters Used to Filter Toluene Product	0613310H	D001 U220	I, T
Total Plant Effluent Contaminated Debris	0620409H	K111, K112	C,T, T
Total Plant Effluent Contaminated Soils	0630301H	K111, K112	C,T, T
Vinyl Recovery Still Bottoms	06506021	None	None
Boiler Ash	0072303H	K113, K114, K115	T, T, T
DNT Wastewater	0190105H	K111	C,T
TDA Lab Waste	0290409H	D008	E
Mercury Contaminated Solids	0350117H	D009	E
Orthodichlorobenzene	0390219H	U070	T
TDA Wastewater	0580102H	K112	T
TDA contaminated debris/materials	0550319H	K113 K114 K115	T, T, T
Medical Waste/materials	03419992	None	None

Sludge accumulated on the bottom of the DNT Wastewater Tank	0232609H	D030, K111	T, C,T
Pyrophoric catalysts	0148393H	D001	I
Hi Glow cleaner	06792191	None	None
Miscellaneous obsolete electronic equipment	06843192	None	None
Chemically contaminated containers	01003081	None	None
Polyvinyl acetate/polyvinyl	04404031	None	None
Railroad ties/wood slabs	04704881	None	None
TDA by-products	0540319H	K113 K114 K115	T, T, T
TDA product waste/TDA	0570219H	U221	T
Activated Nickel Catalyst	0485393H	D001	I
Condensed liquid light ends from TDA purification	0614219H	K113	T
Soils excavated due to	02753011	None	None
Debris, rock, wood, sand, clothing, insulation, other materials contaminated with DNT, TDA	0680319H	D030 K111 K112 K113 K114 K115 U221	T, C,T T T T T T
Used or expired cylinders	0687701H	D001	I
Spent alumina	05003931	None	None
Solids and debris generated	0402319H	D007 D008 D030	E, E, T
Spent Floor Sealer used to	0677210H	D001	I
Non-friable asbestos from	06813112	None	None

Used or expired cylinders	06887011	None	None
Containers, chemical	0130308H	U105	T
		U106	
		U221	
Ash Generated from combustion	0072303H	K113	T
		K114	T
		K115	T
Used Zinc Oxide Catalysts	00423931	None	None
Ignitable used and reduced copper zinc catalyst	0043393H	D001	I
Citrus Solv floor cleaner-excess	0678203H	D001	I
Miscellaneous electrical that may contain mineral oil	06832191	None	None
Methanol contaminated soils	0360301H	U154	T
Spent fluorescent light bulbs	0263319H	D009	E

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) noted only small spot staining on the concrete pad of the storage area during its VSI completed on August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 9, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit. The unit was decontaminated and received TCEQ closure on December 23, 2015.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Container Storage was used from approximately 1980 through 2015, to store drummed and containerized wastes prior to off-site treatment and/or disposal. Until 2015, wastes were stored on pallets in metal or fiber drums with capacities of typically 30- to 55-gallons. Wastes were segregated for storage by type. No incompatible wastes were stored in the area.

The storage area is constructed with an approximate 54-foot by 74-foot concrete slab. A polyethylene vapor barrier is installed between the concrete and the subgrade. The slab is constructed with a 6-inch perimeter concrete curb for run-on and run-off control. The slab is sloped to drain liquids to a epoxy-coated collection trench inside the curbed area. The entire pad is chemical-resistant epoxy coated. Collected fluids drained to a sump at the east end of the collection trench. During the unit's active status period, fluids were pumped from the sump to the Total Plant

Wastewater Tank for storage prior to treatment and disposal. The capacity of the sump was sufficient to contain 10 percent of all containers stored.

Drums and containers were stored on wooden pallets in the Container Storage Area. A ramp provides forklift access to the storage area. The Container Storage Area was closed as a permitted facility in 1990 (closure certification dated May 3, 1990) in order to operate the unit as a less-than-90 day accumulation facility. As part of this closure, the storage pad was pressure washed and rinsed. Analysis of the pad final rinsate water showed constituents of concern to be below background, allowing clean closure of the Container Storage Area. APLLC reopened the area as a permitted facility in 1993 in order to allow for longer storage periods of hazardous wastes. As of 2015, the Container Storage no longer manages waste, and decontamination and closure of the unit was completed in December 2015.

I. Recommended Action:

No further action had previously been recommended by the TWC in its RFA dated January 25, 1990, based upon the construction and operation of the unit, and the absence of visual evidence of releases beyond the pad.

Based upon the construction and operation of the unit, review of current and historic inspection records, no reportable spills from the unit, and based upon the clean closure results from 1990, no releases to soils are anticipated from the unit. APLLC also continues to conduct regular inspections of the unit. No further action with respect to the current RFA evaluation for the unit is recommended by APLLC.

As described above, the unit has been decontaminated, and received TCEQ closure on December 23, 2015.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Used Oil Storage Tank

B. NOR No: 004

C. Description: Tank - Storage (S02)

D. Dates of Operation: 1983 - Active
2003 – Inactive
2015 – Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Lubricating Oil	03302061	None	None

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) identified minor stains of the concrete pad underlying the unit as a result of the VSI completed on August 30, 1989. The TWC noted that it appeared that any spills were cleaned up in a timely manner, and that there was no visual evidence of spills beyond the concrete pad. No further action was recommended at the time. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. As the unit manages only used oil that is to be recycled, the unit was inactived on the Notice of Registration list in 2003 (per the 30TAC Chapter 324 regulations for used oil), and modified to "Not Required" status in 2015. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Used Oil Storage Tank consists of a closed top, carbon steel vertical tank used to store waste lubricating oils from motor vehicles, compressors, and pumps and other internal combustion engines, prior to transfer off-site for recycling. Capacity of the tank is approximately 500 gallons. The tank is operated at atmospheric pressure. Dimensions of the tank are approximately 4 feet in diameter by 6 feet tall. The tank is raised aboveground on steel supports. A concrete containment pad underlies the tank. The pad provides secondary containment for the tank, with a volume capacity of 1100 gallons.

I. Recommended Action:

In its RFA dated January 25, 1990, the TWC had previously recommended no further action for this unit due to the presence of the containment pad. Based upon the construction of the tank and operation of the tank, review of current and historic inspection records, and the absence of reportable spills, no further action with respect to the current RFA evaluation for the unit is recommended by APLLC.

This unit received TCEQ closure on February 6, 2015.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	March 26, 2015
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Toluenediamine By-Products Storage Tank

B. NOR No: 005

C. Description: Tank - Storage (S02)

D. Dates of Operation: 1976 - Active
2015 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
TDA By-Products/TDA Distillation Residue	0530409H	K113	T
		K114	T
		K115	T

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) noted that there was no visual evidence of spills beyond the containment pad during its VSI completed on August 30, 1989. The TWC noted that it appeared that spills were cleaned up in a timely manner at the time. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Toluenediamine (TDA) By-Products Storage Tank, now removed and disposed, and has received TCEQ closure on November 6, 2015. The unit was formerly used to store by-product tars from the distillation of toluenediamine. The TDA Tars were transferred from the tank to vehicles for transportation off site for disposal. The above grade tank consisted of a closed top, vertical, carbon steel jacketed tank.

Dimensions of the tank were 12-foot diameter and 17-feet tangent-to-tangent. Approximate total volume of the tank was 17,680 gallons. Maximum operating capacity was 16,600 gallons. The tank was operated at atmospheric pressure. The tank was vented through a scrubber to the atmosphere.

Secondary containment for the tank was constructed in July 1992. The secondary containment consists of epoxy-sealed concrete walls and base surrounding the tank. The containment area measures approximately 35 feet by 28 feet, with perimeter walls approximately 3.5 feet high. The containment system provides sufficient volume to contain the volume of the tank and the precipitation from a 24-hour, 25-year rainfall event. The concrete base is sloped in order to facilitate draining of liquids. Precipitation from the secondary containment area is piped to the Total Wastewater Tank for storage prior to being piped off-site for treatment at the Washburn Tunnel POTW.

All ancillary equipment to the tank, now removed and disposed, was located above-ground and was inspected daily. The feed system piping to the tank was equipped with fail-safe control valves and standard cut off valves to prevent overfill of the tank. In addition, the tank itself was equipped with a high level alarm to prevent overfilling.

In 1998 a truck loading pad was constructed. The truck loading pad is constructed of epoxy coated concrete. A 4,700 gallon capacity containment structure is designed to contain spills.

APLLC has removed and disposed the tank and ancillary equipment. Prior to closure, the Executive Director was notified at least 45 days prior to the initiation of the closure plan. Closure of this unit has been completed, with TCEQ closure received on November 6, 2015.

I. Recommended Action:

The TWC had previously recommended no further action for this unit in its RFA dated January 25, 1990. The tank has been exclusively used to store TDA by-product tars which solidify upon cooling. No spills or overfills have been known to occur from the tank aside from minor spills to the containment pad. Based upon the construction of the tank, review of current and historic inspection records, the absence of reportable spills and the solid nature of the waste material, releases associated with the tank are considered unlikely. No further action with respect to the current RFA evaluation for the unit is recommended by APLLC.

As described above, this unit received TCEQ closure on November 6, 2015.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: 15.20 Boiler

B. NOR No: 006

C. Description: Boiler (T80)

D. Dates of Operation: 1973 - Active
1998 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Toluenediamine Residues	0530409H	K113	T,
		K114	T,
		K115	T

F. Evidence of Release:

None. The TWC (predecessor agency to the TCEQ) indicated that there were no reports of spills and no evidence of a spill in its VSI on August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of records indicates no reportable spills or other outstanding environmental issues associated with the unit while in operation.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

Boiler 15.20 consists of a natural gas-fired steam boiler used to generate steam for the APLLC Facility. The steam generated by this boiler, along with Boiler 15.60, is used for heating process equipment. The boiler is 3.5 feet in diameter and 40 feet high. The boiler was used from 1976 to 1995 to burn toluenediamine distillation

residues. The distillation residues were transferred by pump from the TDA By-Products Storage Tank via 2-inch diameter piping encased in a 3-inch diameter steam jacketing. The waste fuel feed system was controlled by an automatic cutoff. Actuators for the control valves were tested weekly to ensure proper operation.

APLLC originally intended to permit the boiler for operation as a hazardous waste boiler. In August 1991, APLLC submitted certification of precompliance with 40 CFR 266.103(b). Because of a change in the company's plans, the boilers were not permitted. The boiler was subsequently clean closed to RRS No. 1 as a hazardous waste management unit in 1998.

I. Recommended Action:

No further action had previously been recommended by the TWC in its RFA dated January 25, 1990. Based upon the limited use of the boilers for burning waste, the controlled method of transfer of the wastes to the boiler, the absence of spills, and achievement of RRS No. 1 closure, no further action with respect to the current RFA evaluation for the unit is recommended by APLLC.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: 15.30 Boiler

B. NOR No: 007

C. Description: Boiler (T80)

D. Dates of Operation: 1973 - Active
1986 - Inactive
1989 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
TDA By-Products/TDA Distillation Residue	0530409H	K113, K114, K115	T, T, T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection completed on March 7, 2000 of the area where the boiler was located to support the prior renewal. A review of records indicates no reportable spills or other outstanding environmental issues associated with the unit while in operation.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

Boiler 15.30 was used as a backup boiler to Boiler 15.20. The design of the unit is identical to Boiler 15.20. The boiler was shut down in 1986 due to age. In September 1989 the boiler was physically demolished and removed. As part of the closure the boiler was emptied of wastes and steam cleaned.

I. Recommended Action:

No further action with respect to the current RFA evaluation for the former boiler unit is recommended by APLLC based upon the absence of spills or evidence of spills.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 23, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Non-Hazardous Waste Storage Bins

B. NOR No: 008

C. Description: Paved surface area used for staging of waste storage bins. Located adjacent to Steam Methane Reformer Facility.

D. Dates of Operation: 1986 - Active

E. Wastes Managed: (constituents are listed in current Notice of Registration document)

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its routine facility inspections. A review of records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

Active non-hazardous waste bin staging area. There have never been reported releases associated with this unit.

I. Recommended Action:

No further action is recommended by APLLC based upon the absence of evidence of spills.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 23, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Hazardous Waste Storage Bins (Less than 90-day storage)

B. NOR No: 009

C. Description: Paved surface used for staging of waste storage bins, located adjacent to Steam Methane Reformer Facility

D. Dates of Operation: 1973 - Active

E. Wastes Managed: (constituents are listed in current Notice of Registration document)

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its routine facility inspections. A review of records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

Active hazardous waste bin staging area (less than 90-day storage). There have never been reported releases associated with this unit.

I. Recommended Action:

No further action is recommended by APLLC based upon the absence of evidence of spills.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: 15.60 Boiler

B. NOR No: 010

C. Description: Boiler (T80)

D. Dates of Operation: 1977 - Active
1998 - Closure as Waste Unit (Clean Closure)

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Toluenediamine Residues	0530409H	K113	T,
		K114	T,
		K115	T

F. Evidence of Release:

None. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of records indicates no reportable spills or other outstanding environmental issues associated with the unit while in operation.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

Boiler 15.60 consists of a natural gas-fired steam boiler used to generate steam for the APLLC Facility. The steam generated by this boiler is used for heating process equipment. The boiler is 4 feet in diameter and 45 feet high. The boiler has been in operation as a stand-by, natural gas-fired boiler since 1977. Beginning in 1977, the boiler was used to occasionally burn toluenediamine distillation residues. The distillation residues were transferred by pump from the TDA By-Products Storage Tank via 2-inch diameter piping encased in a 3-inch diameter steam jacketing. The

waste fuel feed system was controlled by an automatic cutoff. Actuators for the control valves were tested weekly to ensure proper operation.

APLLC originally intended to permit the boiler for operation as a hazardous waste boiler. In August 1991, APLLC submitted certification of precompliance with 40 CFR 266.103(b). Because of a change in the company's plan the boilers were not permitted. The boiler was subsequently closed to RRS No. 1 as a hazardous waste management unit in 1998.

I. Recommended Action:

Based upon the limited use of the boilers for burning hazardous waste, the controlled method of transfer of the wastes to the boiler, the absence of spills, and achievement of RRS No. 1 closure, no further action with respect to the current RFA is recommended for the former boiler unit by APLLC.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: TDA Wastewater Surge Tank

B. NOR No: 011

C. Description: Tank - Storage (S02)

D. Dates of Operation: 1986 - Active
2017 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
TDA Wastewater	0580102H	K112	T
Toluenediamine wastewater tank sludge	0595319H	K112	T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 9, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit. The unit was decontaminated, and received TCEQ closure on July 28, 2017.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The TDA Wastewater Tank consists of a 140,000-gallon, vertical carbon steel tank used to manage TDA wastewater prior to transfer to the Total Plant Wastewater Tank (Facility 012). Wastewaters are transferred to the tank via overhead pipeline. Secondary containment is provided for the tank by a concrete containment pad. The tank is operated as component of a POTW.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of inspection and spill reporting records, and the construction and operation of the unit. As discussed above, the unit was decontaminated, and received TCEQ closure on July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Total Plant Wastewater Tank

B. NOR No: 012

C. Description: Tank - Storage (S02)

D. Dates of Operation: 1986 – Active
2017 - Unit was transferred to SWR 96611, and is a component of the RCRA Part-B Permit-Exempt Wastewater Treatment System.
2019 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Mixed Acid	0020105H	D002 D030	C, E
Acid Spill Pit Contaminated Groundwater	0030116H	D030	E
Water and ammonia from ammonia spill sump	00551191	None	None
Water/Dinitrotoluene Mixture from loading spills	0175102H	D030	E
DNT Wastewater	0190105H	K111	C,T
Effluent Impoundment Contaminated Groundwater	0250116H	K111 K112	C,T T
Nitric Acid and water	0385105H	D002	C
Wastewater from the manufacturing process of polyvinyl alcohol and acetic acid	04601021	None	None

Mixture of settled solids contaminated with toluenediamine and dinitrotoluene	0525609H	D030 U221	E
TDA Wastewater/Distillation Washwater	0580102H	K112	T
Wastewater mixture of total plant units effluents including dinitrotoluene	0615105H	D030 K111 K112	E, C,T T
Wastewater generated by the drainage of process water from utility units	06351141	None	None
Monoethanolomine in water	03801021	None	None
Spent solvent from parts cleaner	05222031	None	None

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 9, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Total Plant Wastewater Tank consists of a 20,000-gallon horizontal, closed stainless steel tank used to manage wastewater from process units prior to transfer to the Washburn Tunnel POTW. Specific process wastewaters received by the tank include waters from the DNT process unit, the PVOH unit, and the TDA process unit. The tank is raised aboveground by supports consisting of concrete saddles. Secondary containment is provided by the concrete containment pad that underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of inspection and spill reporting records, and the construction and operation of the tank. The Unit was transferred to SWR 96611, and is a component of the RCRA Part-B Permit –exempt Wastewater Treatment System.

This unit received TCEQ closure on September 5, 2019.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Maintenance Solvent Degreaser Unit

B. NOR No: 013

C. Description: Container - Storage (S01)

D. Dates of Operation: 1984 to 2003 - Active
2003 to present – Inactive/Never Built (not fully constructed as a unit)

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Parts Cleaner	0172211H	D030	E
Spent Naphtha	0510203H	D001	I
		D018	E
		D039	E
		F005	I,T
Spent Solvent	05222031	None	None

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. The unit was never fully constructed.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Parts Cleaner has been removed from service (inactive status) since 2003. While in operation, the Parts Cleaner consisted of two 80-gallon steel drums containing degreasing solvent used during maintenance operations. The spent solvent was

replaced with fresh solvent approximately every two weeks by Service Contractor. The spent solvent was recycled off site. The final construction of the unit was never completed.

I. Recommended Action:

No further action with respect to the current RFA evaluation for the unit is recommended by APLLC based upon the method of waste management, and review of current and historic inspection records, and no reportable spills from the unit, which was never fully constructed.

This unit received TCEQ acknowledgement as 'Never Built' on April 14, 2014.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	March 26, 2015
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Spent Carbon Storage Tank (V-8)

B. NOR No: 014

C. Description: Container - Storage (S01)

D. Dates of Operation: 1992 - Active
2015 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater	0220404H	K111	C,T
Spent solvent from parts cleaner	05222031	None	None

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 9, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Spent Carbon Storage Tank consisted of an aboveground stainless steel tank used for the temporary storage of spent carbon generated from the carbon treatment of DNT wastewaters. Dimensions of the tank were approximately 11.5 feet in diameter by 13 feet high. A epoxy coated concrete containment pad underlay the

tank. The tank was operated as a less-than-90-day accumulation tank. The tank system was inspected daily.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of inspection and spill reporting records, and the construction and operation of the tank. The tank contents have been evacuated and the unit received Closure status on February 6, 2015.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	March 26, 2015
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Spent Carbon Pulse Tank (V-4)

B. NOR No: 015

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 - Active
2015 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater	0220404H	K111	C,T
DNT Wastewater	0190105H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 9, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Spent Carbon Pulse Tank consisted of an aboveground stainless steel cylindrical tank used to manage spent carbon slurry transferred from the Pulsed Bed Adsorbers (Facility 033, 034). The spent carbon was rinsed with utility water or treated wastewater to remove salts. The drained water was transferred to the Contaminated Wastewater Tank (Facility 032), and the spent carbon was transferred to the Spent Carbon Storage Tank (Facility 014). Dimensions of the tank were approximately 5 feet in diameter and 12 feet in height. Operating capacity of the tank was 5,000 lbs. A epoxy coated concrete containment pad

underlaid the tank. The tank was operated as a less-than-90-day accumulation unit. The tank was inspected on a twice daily basis.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of inspection and spill reporting records, and the construction and operation of the tank. The tank contents have been evacuated and the unit received Closure status on February 6, 2015.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Nitric Acid Truck Loading Area

B. NOR No: 016

C. Description: Other Storage S99 - Sump (Product Loading Area)

D. Dates of Operation: 1972 - Active
2015 – Inactive
2019 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Nitric Acid/Nitric Acid Wastewater	0385105H	D002	C

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously noted no evidence of spills from the area during its VSI completed on August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Nitric Acid Truck Loading Area is used to off-load nitric acid from incoming transport vehicles. Vehicles are rinsed at the loading area prior to leaving the site. The base of the loading area is constructed of concrete and covered with acid brick. In addition, the concrete base is coated with an acid resistant asphalt coating. A concrete curb surrounding the loading area serves to contain liquids from the loading area. The sloping of the concrete surface allows immediate drainage of the

liquids to a stainless steel basin. Fluids in the Truck Loading Area basin drain to the Nitric Acid Sump (Facility 017).

I. Recommended Action:

In its RFA dated January 25, 1990, the TWC had previously recommended no further action for this unit based upon the absence of spills or reports of spills. No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills from the area, and construction and operation of the unit. The unit was removed during facility infrastructure modifications in 2015.

This unit received TCEQ closure on May 15, 2019.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2015
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Nitric Acid Sump

B. NOR No: 017

C. Description: Other Storage (S99)

D. Dates of Operation: 1972 - Active
2015 – Inactive
2019 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Nitric Acid/Nitric Acid Wastewater	0385105H	D002	C

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously noted no evidence of releases during its VSI dated August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Nitric Acid Sump is a concrete-lined, below-grade sump used to collected fluids from the Nitric Acid Loading Area (Facility 016). The concrete surface is coated with an acid resistant asphalt and overlain by acid bricks. Acids collected in the sump

are transferred to the Facility's wastewater treatment system for processing prior to off-site disposal.

I. Recommended Action:

In its RFA dated January 25, 1990, the TWC had previously recommended no further action for this sump based upon the absence of spills or reports of spills. No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit. The unit was removed during facility infrastructure modifications in 2015.

This unit received TCEQ closure on May 15, 2019.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: MEA and Carbonate Truck Unloading Area

B. NOR No: 018

C. Description: Materials Loading Area

D. Dates of Operation: 1972 - Active
2015 – Inactive
2019 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Monoethanolamine in water/wastewater contaminated with MEA	03801021	None	None

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously noted no evidence of releases during its VSI dated August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The MEA and Carbonate Truck Unloading Area is used to off load monoethanolamine and carbonate. The unloading area is covered with concrete. The area is constructed with perimeter curbs to collect minor spills that may occur within the unloading area. The concrete pad is sloped to allow drainage to the MEA and Sodium Carbonate Sump.

I. Recommended Action:

In its RFA dated January 25, 1990, the TWC had previously recommended no further action for this sump based upon the absence of spills or reports of spills. No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit. The unit was removed during facility infrastructure modifications in 2015.

This unit received TCEQ closure on May 15, 2019.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: MEA/Sodium Carbonate Sump or Toluene Sump

B. NOR No: 019

C. Description: Other Storage (S99)

D. Dates of Operation: 1972 - Active
2003 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Monoethanolamine in water/wastewater contaminated with MEA Toluene	03801021	None	None

F. Evidence of Release:

In its RFA dated January 25, 1990, the TWC (predecessor agency to the TCEQ) had previously recommended a RCRA Facility Investigation be completed for this unit due to the possibility of toluene once having been managed in this sump, and due to presence of liquids in the sump during the TWC VSI. Soil and groundwater screening samples were collected in December 1991 as part of the RCRA Facility Investigation required for this unit. Four soil borings were completed underneath the sump by drilling at an angle of 75 degrees at the perimeter. A fifth sample was collected at the center of the sump. Soil samples were collected at 2.5, 5, 6, 7.5 and 10-foot depth intervals. Collected samples were analyzed for toluene. Of the twenty-one soil samples collected, toluene was detected in one boring at the 2.5- and 5-foot depth intervals only. No detectable levels (<1.0 μg/kg) of toluene were detected at low concentrations (<6μg/kg) in the 6-, 7.5- or 10-foot depth intervals at this soil core, or in the three groundwater samples collected at points hydraulically down-gradient from the unit. Soil results are summarized in Appendix III (Evidence of Release).

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The MEA and Sodium Carbonate Sump was used from 1972 to 1992 to collect fluids from the MEA and Carbonate truck unloading area (Facility 018) prior to pumping to the Washburn Tunnel POTW. From approximately 1972 to 1992 the sump was also used as an overflow for the toluene tank unloading spill sump. The sump was taken out of service in 1992 due to the lack of loading/unloading toluene and MEA trucks.

The sump was 25 feet long by 25 feet wide and approximately 3 to 4 feet deep. The base and side walls were constructed with 6-inch thick concrete. A 4-mil polyethylene vapor barrier separated the concrete base and the soil subgrade.

The MEA sump was closed in 1992. As part of closure the sump was removed, underlying soils were excavated, and the area backfilled with clean soils.

I. Recommended Action:

Based upon the detection of only minor concentrations of toluene at one soil boring location during the Phase 1 RFI, no further action was recommended by APLLC. The decision for no further action was agreed upon with the TNRCC (predecessor agency to the TCEQ) in a letter dated February 26, 1998 based upon the concentrations of toluene (5.5 ug/kg) detected in the boring being statistically equivalent to the PQL (5 ug/kg). Formal approval of the decision of no further action (NFA) for the unit by the TCEQ remains contingent on public notice of the proposed NFA determination by APLLC.

This unit received TCEQ closure on July 23, 2003.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	March 26, 2015
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: DNT Wastewater/Red Water Sump

B. NOR No: 020

C. Description: Other Storage (S99)

D. Dates of Operation: 1972 - Active
2015 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/dinitrotoluene mixture	0175102H	D030	E
Boiler/Cooling Tower Wastewater	06351141	None	None
DNT Wastewater	0190105H	K111	C,T

F. Evidence of Release:

Because the sump once managed DNT wastewater, a RCRA Facility Investigation was recommended by the TWC (predecessor agency to the TCEQ) as a result of its January 25, 1990 RFA. The RCRA Facility Investigation was initiated in December, 1991. As part of the RFI, two soil cores were completed to a depth of 20 feet at the perimeter of the unit. The soil samples were collected at 4, 5.5, 6, 9, 10, 12, 15, 16, 19 and 20 feet. Collected samples were analyzed for 2,4-DNT, 2,6-DNT, o-MNT, m-MNT, p-MNT and 4,6-DNOC. None of the constituents of concern were detected (<0.33 mg/kg for NT species, <1.7 mg/kg for 4,6-DNOC). Soil results for the Former DNT Wastewater "Red Water" Sumps are summarized in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The DNT Wastewater Sumps, also referred to as the "Red Water" Sumps were used from approximately 1972 to 1986 to collect wastewater generated from the DNT process area. Since 1986, the sumps had been used to collected rainfall runoff from the DNT process area, and utility line wastewaters, prior to transfer off site for treatment at the Washburn Tunnel POTW. Each of the two sumps consisted of a stainless steel box within a below-grade concrete vault. A 2-inch annular space between the concrete and the stainless steel box was filled with clean sand. Each sump had an operating capacity of approximately 3,560 gallons.

I. Recommended Action:

Based upon the absence of detectable levels of the constituents of concern in the soil samples collected during the Phase 1 RFI, no further action was recommended by APLLC. The conclusion of no further action was agreed upon with the TNRCC (predecessor agency to the TCEQ) in correspondence dated January 18, 1995. Formal approval of the decision of no further action (NFA) for the unit by the TCEQ remains contingent on public notice of the proposed NFA determination by APLLC.

Soils adjacent to the unit were sampled and analyzed in 2014, following termination of use of the unit. The TCEQ approved closure of this unit on January 29, 2015.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Ammonia Spill Sump

B. NOR No: 021

C. Description: Other Storage (S99)

D. Dates of Operation: 1972 - Active
2017 – Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water and ammonia	00551191	None	None

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously noted no evidence of releases during its VSI dated August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Ammonia Spill Sump was used to collect spills from the adjacent ammonia equipment. Collected fluids were transferred to the Total Plant Wastewater Tank (Facility 012) where they are mixed with other site wastewaters prior to transfer off-site for treatment and disposal at the Washburn Tunnel POTW. The sump has an operating capacity of approximately 3,560 gallons and is constructed with a 10-inch thick concrete base and any eight-inch thick sidewalls. The sump was equipped with

an automatic foam suppressant system to control vapors from ammonia captured by the sump.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and type of waste managed. The unit was decontaminated, and received TCEQ closure on July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: DNT Tank Car Loading Area and Sump

B. NOR No: 022

C. Description: Other Storage (S99)-Product Loading Area Sump

D. Dates of Operation: 1972 - Active
2017 – Unit transferred to SWR 96611, and is a component of RCRA Part B Permit-Exempt Wastewater Treatment System.
2018 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/dinitrotoluene mixture	0175102H	D030	E

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously noted impact to Well MW6 located down-gradient of the DNT Loading Area, during its RFA completed January 25, 1990. Due to this impact an RFI was recommended by the Agency for the loading area. For the purpose of the RFI, the DNT Tank Car Loading Area, the DNT Truck Loading Areas (Facility 023) and the DNT Spill-off Pond (Facility 024) were lumped together and investigated as a single unit. The RFI was initiated in December, 1991. Six soil cores (AP6, AP7, AP8, AP9, MW60, and SB-X) were completed and Three screening groundwater samples (HP4, HP5 and HP12) were collected near the Tank Car Loading Area. Based upon the groundwater screening results, two monitoring wells (MW58 and MW59) were installed at the southeast corner of the loading area pad. Soil samples were collected from the borings at approximate two-foot depth intervals to depths of eight feet. Collected samples were analyzed for 2,4-DNT and 2,6-DNT. The two DNT isomers were detected in all but four of the soil samples, at concentrations ranging from 0.33 to 7,200 mg/kg. Analysis of the three screening groundwater samples collected during the RFI identified impacts to groundwater, with detected concentrations of 2,6-DNT measured at 280 to 2,400 μg/l, and concentrations of 2,4-DNT measured at 12 to 1,600 μg/l. Largest concentrations of the e,4 and 2-6 DNT isomers measured in

samples collected from the completed monitoring wells were at 500 and 1,100 μg/l, respectively, in the Upper Shallow Zone (MW59) and 9,700 and 23,000 μg/l, respectively, in the lower shallow zone (MW58).

Due to the apparent impacts to soils and groundwater, a Phase II RFI was conducted in 1998 to define the extent of the release to soils and groundwater. Under the Phase II RFI, five shallow soil samples (APL21, APL22, APL23, APL25, and APL26) were collected at 1.5 feet below grade near the perimeter of the Tank Car Loading Area. Three groundwater samples were collected (HP15, HP16, HP20) at points within and immediately down-gradient from the area. Soil and groundwater samples confirmed the loading area as a source of impacts. Soil and groundwater results are summarized in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The DNT Tank Car Loading Area was used to load product in rail tanker cars for delivery off-site until September 2005. The base of the loading area is covered with a concrete pad. The concrete pad was extended northward in 1995 in order to create a second loading area of the pad extension, 40 yards of soil were excavated and disposed of at a permitted facility the loading area. Six-inch high curbs surround the pad and serve to catch and direct minor volumes of spilled product to the sump located beneath the western part of the loading area. Fluids in the sump are pumped to the Total Plant Wastewater Tank (Facility 012) where they are mixed with other facility wastewaters prior to transfer off-site to the Washburn Tunnel POTW.

I. Recommended Action:

Releases associated with the former DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 22), DNT Truck Loading Area (NOR Unit No. 23), and DNT Spill-Off Pond (NOR Unit No. 24)], Former Effluent Impoundment (NOR No. 1), Former Neutralization Pit (NOR Unit No. 027), DNT Storage Area (AOC1), and Northwest Storage Area (AOC2) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the vicinity of the DNT Loading Area has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going

and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to this unit) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring). The DNT Loading Area (including NOR Unit Nos. 22, 23, and 24) are also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective Action program requirements to address releases from the units pursuant to 30 TAC 335.167 remains on-going.

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon the implementation and continuation of the Corrective Action and Compliance Monitoring Program. The unit has been transferred to SWR96611, and is a component of the RCRA Part-B Permit-Exempt facility.

This unit received TCEQ administrative closure on September 21, 2018.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: DNT Truck Loading Area

B. NOR No: 023

C. Description: Other Storage (S99) - Product Loading Area

D. Dates of Operation: 1972 - Active
2017 – Unit transferred to SWR 96611, and is a component of RCRA Part B Permit-Exempt Wastewater Treatment System.
2018 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/dinitrotoluene mixture	0175102H	D030	E

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously noted impact to Well MW6 located down-gradient of this unit, during its RFA completed January 25, 1990. Due to this impact, an RFI was recommended by the Agency for the loading area. The RFI was initiated in December, 1991. Three soil cores (AP4, AP5 and MW52) were completed in the vicinity of the Truck Loading Area. In addition, three groundwater monitoring wells (MW52, MW55, and MW56) were installed and sampled. Soil samples were collected from the borings at one to two-foot depth intervals to total depths of nine feet. Collected samples were analyzed for 2,4-DNT and 2,6-DNT. The two DNT isomers were detected in the uppermost depth interval (1.5 feet) and at 6.0 feet in one of the borings only. Groundwater samples from the three monitoring wells installed down-gradient of the truck loading area showed concentrations of 2,4-DNT and 2,6-DNT at 4,500 and 4,600 μg/l, respectively, in the Upper Shallow Zone (MW56). Minor impacts from NT isomers (11 to 21 μg/l) were detected in the lower shallow zone (MW52, MW55).

The DNT Truck Loading Area was included in a Phase II RFI initiated in 1998 to define the extent of the release to soils and groundwater in conjunction with the

other Facility's (NOR Unit Nos. 022 and 024) located in the immediate vicinity of the DNT Truck Loading Area. Soil and groundwater results for the DNT Loading Area (incorporating DNT Truck Loading Area) are summarized in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The DNT Truck Loading Area was used until September 2005 to load finished product into transport vehicles prior to delivery off-site. The base of the loading area is covered with a concrete pad. Six-inch high curbs surround the pad and serve to catch and direct minor volumes of spilled product to an adjacent concrete trench. The fluids in the trench drain to the DNT Spill Load-Off Pond (Facility 024) which empties into to the Tank Car Loading Area Sump. Fluids collected in the Tank Car Loading Area sump are pumped to the Total Plant Wastewater Tank (Facility 012) where they are mixed with other wastewaters prior to transfer off-site to the Washburn Tunnel POTW.

I. Recommended Action:

Releases associated with the DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 22), DNT Truck Loading Area (NOR Unit No. 23), and DNT Spill-Off Pond (NOR Unit No. 24)], Former Effluent Impoundment (NOR No. 1), Former Neutralization Pit (NOR Unit No. 027), DNT Storage Area (AOC1), and Northwest Storage Area (AOC2) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the vicinity of the DNT Loading Area has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to this unit) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring). The DNT Loading Area (including NOR Unit Nos. 22, 23, and 24) are also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective

Action program requirements to address releases from the units pursuant to 30 TAC 335.167 remains on-going.

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon the implementation and continuation of the Corrective Action and Compliance Monitoring Program. The unit has been transferred to SWR96611, and is a component of the RCRA Part-B Permit-Exempt facility. Administrative Closure pending.

This unit received TCEQ administrative closure on September 21, 2018.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: DNT Spill Off Pond

B. NOR No: 024

C. Description: Other Storage (S99)

D. Dates of Operation: 1972 - Active
2017 – Unit transferred to SWR 96611, and is a component of RCRA Part B Permit-Exempt Wastewater Treatment System.
2018 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/Dinitrotoluene Mixture	0175102H	D030	E

F. Evidence of Release:

Due to impact to Well MW6 located down-gradient of this unit noted by the Agency during its RFA completed January 25, 1990, an RFI was recommended by the Agency for the Spill-Off Pond. The RFI was initiated in December, 1991. Four soil cores (AP1, AP2, AP3 and MW-51) were completed at the perimeter of the pond. Three monitoring wells (MW51, MW53, MW54) were installed in the immediate vicinity of the Pond. Soil samples were collected from the borings at approximate two-foot depth intervals to total depths of nine to twelve feet. Collected samples were analyzed for 2,4-DNT and 2,6-DNT. The two DNT isomers were detected in two of the four borings, at concentrations ranging from 0.35 to 51 mg/kg. Analysis of groundwater samples indicated maximum concentrations of 2,4-DNT and 2,6-DNT in the upper shallow zone (MW54) at 1,800 and 4,500 μg/l, respectively, and in the lower shallow zone (MW53) at 1,600 and 3,700 μg/l, respectively.

A Phase II RFI was conducted in 1998 to define the extent of the release to soils and groundwater in the DNT Loading Area. Under the Phase II RFI, additional soil samples (APL27, APL28, APL37) were collected at the perimeter and in the immediate vicinity of the Spill Off Pond. In addition the three monitoring wells installed during Phase I of the RFI were sampled. Samples were analyzed for DNT

and MNT isomers. 2,6-DNT was detected in one of the soil samples from APL28 at 1.5 feet only. None of the other individual isomers were detected (<0.33 mg/kg) in soil. Groundwater samples collected from wells completed during the Phase I RFI showed increased concentrations of 2,4-DNT and 2,6-DNT in the upper shallow zone (MW54) and in the lower shallow zone at MW51 and MW53. Soil and groundwater results for the DNT Loading Area (incorporating the DNT Spill-Off Pond) are summarized in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Spill-Off Pond is used to contain spill material from the DNT Truck Loading Area prior to transferring to the facility's wastewater treatment system. The pond is approximately 2 feet deep and has an operating capacity of approximately 6,000 gallons. The Pond empties by gravity flow into the DNT Tank Car Loading Area sump. Fluids collected in the Tank Car Loading Area sump are pumped to the Total Plant Wastewater Tank (NOR Unit No. 012) where they are mixed with other wastewaters prior to transfer off-site to the Washburn Tunnel POTW.

I. Recommended Action:

Releases associated with the DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 022), DNT Truck Loading Area (NOR Unit No. 023), and DNT Spill-Off Pond (NOR Unit No. 024)], Former Effluent Impoundment (NOR No. 001), Former Neutralization Pit (NOR Unit No. 027), DNT Storage Area (AOC1), and Northwest Storage Area (AOC2) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the vicinity of the DNT Loading Area has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to this unit) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring).

The DNT Loading Area (including NOR Unit Nos. 22, 23, and 24) are also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective Action program requirements to address releases from the units pursuant to 30 TAC 335.167 remains on-going.

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon the implementation and continuation of the Corrective Action and Compliance Monitoring Program. The unit has been transferred to SWR96611, and is a component of the RCRA Part-B Permit-Exempt facility.

This unit received TCEQ administrative closure on September 21, 2018.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: TDA Tank Car Loading Area

B. NOR No: 025

C. Description: Other Storage (S99)-Product Loading Area Sump

D. Dates of Operation: 1976 - Active
2017 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Mixture of settled solids contaminated with toluenediamine and dinitrotoluene	0525609H	D030 U221	E T
TDA Product Waste	0570219H	U221	T

F. Evidence of Release:

On June 19, 1992, discolored soil and water were observed in a shallow excavation at the Tank Car Loading Area. In October, 1992 an RFI Work Plan was prepared for a subsurface investigation to determine the nature and extent of the apparent release. The RFI was performed in a phased approach with sampling events in May, August, October and December 1996. Soils were tested for isomers of toluenediamine (TDA) and o-toluidine. A total of seventy-six samples were collected at the TDA Tank Car Loading Area including twenty samples collected below a depth of seven feet. TDA was not detected in soils deeper than two feet except at Boring AP31 where TDA was detected (9.2 to 25 mg/kg) as deep as the 5.5-foot depth but not at the 9-foot depth. The RFI report delineated the area of affected soils at this unit (IT, 1997). After review of the RFI report, TCEQ requested that additional investigation be performed to determine if COCs were present in groundwater beneath the unit. An additional investigation was performed in 2000, including installation of two new wells in the upper part of the SZ (MW65 and MW66). The results of the additional investigation are described in Geomatrix (2001a). Although it was determined that COCs had been released to the

groundwater, concentrations of the COCs were below their GWPS for residential groundwater ingestion (i.e, Tier 1 Residential PCLs). No affected groundwater has been confirmed in this area. Soil and groundwater results for the TDA Tank Car Loading Area are summarized in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The TDA Tank Car Loading Area consists of two rail car loading pads. Molten TDA product wass delivered to these areas through an overhead piping system. The product wass transferred to rail tank cars parked over the pads. The pads are constructed of concrete with six-inch high curbing. Wash waters generated from steam cleaning the tank interiors and any spillage during loading operations were drained through metal grating within the pad to one of two sumps located at the southeast corner of each pad. Water from the sumps wass transferred to the plant wastewater treatment system prior to routing to the Washburn Tunnel POTW.

I. Recommended Action:

Although no affected groundwater has been confirmed in the area of the TDA Tank Car Loading Area, the unit is retained in the groundwater Corrective Action Program (CAP) currently in place at the APLLC facility under the terms of the facility's existing Compliance Plan CP-50134 (CP) issued November 13, 2002. Final response actions for the TDA Tank Car Loading Area include on-going groundwater monitoring to verify compliance with existing Groundwater Protection Standards (GWPS) based on Tier 1 Residential Protective Concentration (PCLs) associated with 30 TAC 350 (Texas Risk Reduction Program Rule). Two Shallow Zone (SZ) wells, MW65 and MW66, are currently monitored on a semi-annual basis in the TDA Tank Car Loading Area pursuant to the CAP requirements. Concentrations of COCs in these wells are very low, and the groundwater has been in compliance with the GWPS for several groundwater monitoring events [i.e., there is no groundwater Protective Concentration Level Exceedance (PCLE) Zone]. Although the groundwater is not considered affected at this time, analysis of groundwater samples collected from MW65 and MW66 have identified detections of some of the COCs. APLLC will continue to monitor wells within the TDA Tank Car Loading Area on a semi-annual basis in accordance with CAP requirements.

The TDA Tank Car Loading Area has been retained in CP Table I.A (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring) and CP Table III (SWMUs and AOCs for which Corrective Action applies pursuant to 30 TAC 335.167) of Section XI of the current renewal application as response actions for the area are on-going.

The unit itself has been decontaminated, and closed as of July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: TDA Truck Loading Area

B. NOR No: 026

C. Description: Other Storage (S99) - Product Loading Area Sump

D. Dates of Operation: 1976 - Active
2017 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
TDA Product Waste	0570219H	U221	T

F. Evidence of Release:

The TWC (predecessor agency to the TCEQ) had previously indicated that there were no reports of spills and no evidence of a spill during its VSI completed on August 30, 1989. No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The TDA Truck Loading Area was a pad used to collect minor spillage that may occur during filling trucks with TDA. The base of the loading area is an engineered concrete pad. Six-inch high perimeter curbs served to collect spill material or washwaters. The concrete pad is sloped to promote drainage of the fluids to a concrete-lined sump. Waters are pumped from the sump to the wastewater treatment system prior to transfer off-site to the Washburn Tunnel POTW.

I. Recommended Action:

In its RFA dated January 25, 1990, the TWC recommended no further action for this sump based upon the absence of spills or reports of spills. No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit.

The unit itself has been decontaminated, and closed as of July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Neutralization Pit

B. NOR No: 027

C. Description: Other Storage (S99)

D. Dates of Operation: 1972 - Active
1986 - Inactive/Post Closure
2021 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Waste Water	0190105H	K111	CT
TDA Waste Water	0580102H	K112	T
Mixed Acid	0020105H	D002 D030	C E

F. Evidence of Release:

APLLC initiated an RFI for the Former Neutralization Sump in conjunction with the RFI performed at the DNT Loading Area. The RFI was initiated in December, 1991. Five soil cores (AP17, AP18, AP19, MW48, and MW50) were completed at the perimeter or in the immediate vicinity of the pit. Three monitoring wells (MW4B, MW50, and MW61) were installed at the perimeter and in the immediate vicinity of the pit. Two monitoring wells (MW48, MW49) were installed at points southwest of the pit. Soil samples were collected from the borings at approximate two-foot depth intervals to total depths of eleven feet. Collected samples were analyzed for 2,4-DNT and 2,6-DNT, 4,6-dinitro-ortho-cresol (4,6 DNOC) o-,m-,p-MNT and o-toluidine. The two DNT isomers were detected at each depth interval sampled from boring AP17, at concentrations ranging from 56 to 880 mg/kg. Lesser concentrations (0.37 to 19 mg/kg) were detected at some depth intervals in boring AP18 and AP19. None of the other compounds were detected except for the one isolated detection of o-toluidine at 0.66 mg/kg in Boring AP18. No constituents were detected in the soil samples collected from the borings from MW48 and

MW50. Impacts to groundwater from the neutralization pit were detected in samples collected from monitoring wells. Samples from MW61, screened in the Upper Shallow Zone and located at the southeast corner of the pit contained 2,4-DNT and 2,6-DNT at 130,000 and 110,000 μg/l, respectively. Samples from MW4B, also screened in the Upper Shallow Zone and located within approximately 40 feet of MW61 showed 2,4-DNT and 2,6-DNT at 48,000 and 55,000 μg/l, respectively. Impacts to the Lower Shallow Zone were also detected (590 μg/l, 1,000 μg/l) at MW50, located adjacent to MW61.

A Phase II RFI was conducted in 1998 to define the extent of the release to soils and groundwater at the Former Neutralization Pit. Under the Phase II RFI, additional soil cores (APN35, APN36, APN39, APN40, APN41) were collected in the immediate vicinity of the Neutralization Pit. Additional screening groundwater samples (HP31, PH32, HP33, HP34, HP35, HP36, HP37, HP38, HP39, HP42) were collected out from the Former Neutralization Pit. In addition, the existing monitoring wells installed during Phase I of the RFI were sampled. Samples were analyzed for DNT and MNT isomers, as well as 4,6-DNOC, and o-toluidine. Impacts to soils were largely confined to one boring, APN 39 located north of the neutralization pit. Concentrations of 2,4-DNT and 2,6-DNT were detected in two of the screening groundwater samples (HP33, HP37) at concentrations ranging from 22 to 140 μg/l. Groundwater samples collected from wells completed during the Phase I RFI showed concentrations of 2,4-DNT and 2,6-DNT had decreased (to 45,000 and 453000 μg/l respectively) in the Upper Shallow Zone at points closest to the Neutralization Pit (MW61) and increases (to 3,900 and 5,000 μg/l respectively) at a distance of 40 ft (MW4B) from the pit. Concentrations of the DNT isomers exhibited decreases in the Lower Shallow Zone at MW48 and MW50. Soil and groundwater results for the Former Neutralization Pit are summarized in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Neutralization Pit was used until 1986 to manage DNT and TM Waste Water. The pit was concrete lined with dimensions of approximately 7-foot by 14-foot by 6 -feet deep. In 1986 the pit was closed. As part of closure the pit was hydroblasted, filled with sand and covered with a concrete cap.

I. Recommended Action:

Releases associated with the Former Neutralization Pit (NOR Unit No. 027), DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 22), DNT Truck Loading Area (NOR Unit No. 23), and DNT Spill-Off Pond (NOR Unit No. 24)], Former Effluent Impoundment (NOR No. 1), DNT Storage Area (AOC1), and Northwest Storage Area (AOC2) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the

vicinity of the former Neutralization Pit has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to this unit) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring). The Former Neutralization Pit is also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective Action program requirements to address releases from the unit pursuant to 30 TAC 335.167 remains on-going.

This unit received TCEQ administrative closure on August 31, 2021.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Distillation/Solvent Recovery Unit

B. NOR No: 028

C. Description: Tank (80-gallon capacity)

D. Dates of Operation: 1991- Active
2000 – Transferred to Celanese Chemicals L.P.
2019 – Closed on Notice of Registration

E. Wastes Managed: (constituents are listed in current Notice of Registration document)

F. Evidence of Release:

No indications of spills were noted by APLLC. A review of historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Distillation/Solvent Recovery Unit was transferred to Celanese Chemicals L.P. on 10/01/2000.

I. Recommended Action:

No further action is recommended by APLLC based upon review of current and historic inspection records, given no reportable spills, and construction and operation of the unit.

As described above, the Distillation/Solvent Recovery Unit was transferred to Celanese Chemicals L.P. on 10/01/2000.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Hazardous Waste Materials Bins

B. NOR No: 029

C. Description: Storage (S01)

D. Dates of Operation: 1991 - Active
2020 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
TDA Contaminated Debris	0550319H	U221	T
Total Plant Effluent Contaminated Debris	0620409H	K111, K112	C,T T
Total Plant Effluent Contaminated Soils	0630301H	K111, K112	C,T T
TDA Contaminated Soils	0551301H	U221	T
DNT Contaminated Soil	0170301H	D030	E
DNT Contaminated Debris	0160319H	D030	E
Toluenediamine Wastewater Tank Sludge	0595319H	K112	T
Water and Associated Sludge	0165519H	D007	E
DNT and Water Contaminated with DNT	0167207H	D030	E

Solids and Debris Generated from Stripping Coatings on Product Tanks	0402319H	D007, D008, D030	E, E, E
Pyrophoric Catalysts	0148393H	D001	I
Debris Contaminated with DNT, TDA, and Toluidines	0680319H	D030, K111, K112, K113, K114, K115, U221	E C,T T, T, T, T, T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The hazardous materials bins (NOR Unit No. 9) are 25 cubic yards each and located south of the container accumulation area (NOR Unit No. 2).

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit.

This unit received TCEQ closure on January 31, 2020.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: PVOH Equalization Tank

B. NOR No: 030

C. Description: Tank (TK-60.01)(500,000-gallon capacity)

D. Dates of Operation: 1991 - Active
2000 – Transferred to Celanese Chemicals L.P.
2019 – Closed on Notice of Registration

E. Wastes Managed: (constituents are listed in current Notice of Registration document)

F. Evidence of Release:

No indications of spills were noted by APLLC. A review of historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The PVOH Equalization Tank was transferred to Celanese Chemicals L.P. on 10/01/2000.

I. Recommended Action:

No further action is recommended by APLLC based upon review of current and historic inspection records, given no reportable spills, and construction and operation of the unit.

As described above, the PVOH Equalization Tank was transferred to Celanese Chemicals L.P. on 10/01/2000.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Neutralization Tank (V-16.155)

B. NOR No: 031

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 - Active
2017 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater	0190105H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Neutralization Tank consists of a 13,000-gallon aboveground stainless steel tank formerly used to manage wastewaters from the dinitrotoluene (DNT) process unit prior to carbon treatment. The DNT wastewaters were neutralized with sodium carbonate to a pH ranging from 5 to 7. Dimensions of the tank are 10.5 feet in diameter, and 20 feet in height. An epoxy coated concrete containment pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit.

The unit has been decontaminated, and closed as of July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Contaminated Wastewater Tank (V-16.153)

B. NOR No: 032

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 - Active
2017 – Inactive
2021 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/dinitrotoluene mixture from loading spills	0175102H	D030	E

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Contaminated Wastewater Tank consists of a 56,000-gallon stainless steel tank used to manage DNT wastewaters prior to carbon treatment. Dimensions of the tank are 20 feet in diameter, and 24 feet in height. The wastewater is neutralized to a pH of 5 if necessary. A epoxy coated concrete containment pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit.

This unit received TCEQ closure on May 27, 2021.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Pulsed Bed Adsorber (V-1)

B. NOR No: 033

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 to 2017 - Active
2017 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater Containing PPM levels of DNT	0190105H	K111	C,T
DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Pulsed Bed Adsorber (V-1) consists of an aboveground stainless steel cylindrical vessel used for the carbon treatment of DNT Wastewaters prior to transfer to the

carbon filter (Facility 037) for further carbon treatment. Dimensions of the tank are approximately 10 feet in diameter and 50 feet in height. The adsorber has a capacity of 30,000 gallons of wastewater. A epoxy coated concrete pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit.

The unit has been decontaminated, and closed as of July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Pulsed Bed Adsorber (V-2)

B. NOR No: 034

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 to 2017 - Active
2017 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater Containing PPM Levels of DNT	0190105H	K111	C,T
DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Pulsed Bed Adsorber (V-2) consists of an aboveground stainless steel cylindrical vessel formerly used for the carbon treatment of DNT Wastewaters prior to transfer

to the carbon filter (Facility 037) for further carbon treatment. Dimensions of the tank are approximately 10 feet in diameter and 50 feet in height. The adsorber has a capacity of 30,000 gallons of wastewater. An epoxy coated concrete pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the unit.

The unit has been decontaminated, and closed as of July 28, 2017.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Contaminated Wastewater Adsorber (V-3)

B. NOR No: 035

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 - Active
2017 – Inactive
2021 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater	0190105H	K111	C,T
DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the tank.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Contaminated Wastewater Adsorber (V-3) consists of an aboveground stainless steel cylindrical vessel used for the carbon treatment of DNT Wastewaters prior to

transfer to the carbon filter (Facility 037) to remove carbon fines. Dimensions of the tank are approximately 6.5 feet in diameter and 30 feet in height. The adsorber has a capacity of 7,500 gallons of wastewater. An epoxy coated concrete pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the tank.

This unit received TCEQ closure on May 27, 2021.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Contaminated Wastewater Surge Adsorber (V-10)

B. NOR No: 036

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 - Active
2017 – Inactive
2021 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/dinitrotoluene mixture from loading spills	0175102H	D030	E
DNT Wastewater	0190105H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the tank.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Contaminated Wastewater Surge Adsorber is used to carbon treat DNT Wastewaters prior to transfer to the Total Plant Wastewater Tank (Facility 012). The above grade tank is a stainless steel cylindrical vessel with an internal cone nose bottom. Spent carbon is removed from the bottom of the unit and fresh carbon is

added at the top of the unit. Dimensions of the tank are approximately 10 feet in diameter and 10 feet in height. The adsorber has a capacity of 800 gallons of wastewater. An epoxy coated concrete pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the tank.

This unit received TCEQ closure on May 27, 2021.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Carbon Filter (V-9)

B. NOR No: 037

C. Description: Tank - Treatment (T01)

D. Dates of Operation: 1992 - Active
2017 – Inactive
2021 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater	0190105H	K111	C,T
DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the tank.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Carbon Filter is used to carbon treat DNT Wastewaters prior to transfer to the Total Plant Wastewater Tank (Facility 012). The tank is a stainless steel cylindrical vessel with an internal cone nose bottom. Spent carbon is removed from the bottom

of the unit and fresh carbon is added at the top of the unit. Dimensions of the tank are approximately 10 feet in diameter and 10 feet in height. The adsorber has a capacity of 800 gallons of wastewater. The tank is raised aboveground, supported by a steel structure. An epoxy coated concrete pad underlies the tank.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, and construction and operation of the tank.

This unit received TCEQ closure on May 27, 2021.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Collection Container for Medical Waste

B. NOR No: 038

C. Description: Misc. Storage Container

D. Dates of Operation: 1993 - Active
2016 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Medical Waste	03419992	None	None
Medical Waste	03409032	None	None

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of current and historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

This was a container situated at main entrance gate to collect medicine waste prior to transporting off site for treatment.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, and no reportable spills.

The unit is no longer present and was closed on February 6, 2016.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: Air Products LLC
City: Pasadena, Texas
ISW Reg No: 30317
Date: October 21, 2025
Permit No: HW-50134
Reviewer: Owner
EPA ID No: TXD 990757486

A. Waste Management Unit: Collection Area for Used Batteries

B. NOR No: 039

C. Description: Misc. Storage Container

D. Dates of Operation: 1993 - Active
2003 - Inactive
2016 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Batteries, Automotive	00703091	None	None
Batteries, Automotive	0071309H	D002, D008	C, E
Batteries, Rechargeable	03833091	None	None

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the collection area.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The battery collection area was used until 2003 as an accumulation point where batteries resided until they were transported offsite for recycling.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of current and historic inspection records, no reportable spills, or other outstanding environmental issues associated with the collection area.

The unit is no longer present and was closed on February 6, 2016.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	March 26, 2015
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Pilot Wastewater Bioremediation Unit

B. NOR No: 040

C. Description: Tank (surface)

D. Dates of Operation: 1998 - Active
2000 - Inactive
2003 - Closed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Water/DNT Mixture	0175102H	D030	E
DNT Waste Water	0190105H	K111	C,T
TDA Waste Water	0580102H	K112	T

F. Evidence of Release:

No indications of spills were noted by APLLC as part of its inspection of the unit completed on March 7, 2000 to support the prior renewal. A review of past inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

A scale model of a bioremediation unit was used in 1998-2000 to perform studies on plant waste water treatability consisted of three poly 55-gallon drums in series. Once processing was complete, wastewater was reintroduced into waste water system POTW. The unit has been dismantled and closed.

I. Recommended Action:

No further action is recommended with respect to the current RFA evaluation for the unit by APLLC based upon review of inspection records, brief operation period and no reportable spills or other outstanding environmental issues associated with the unit.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Organic Waste Tank

B. NOR No: 041

C. Description: PMD Organic Waste Tank (T-880)

D. Dates of Operation:

2017 – Inactive, decontaminated and transferred to Evonik
2019 – Closed on Notice of Registration

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
DNT Wastewater	0699219H	K111	C,T

F. Evidence of Release:

No indications of spills were noted by APLLC. A review of historic inspection and spill records indicates no reportable spills or other outstanding environmental issues associated with the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The PMD Organic Waste Tank was decontaminated and transferred to Evonik in 2017. The Unit is now listed on Evonik's NOR as *NOR-002 PMD Organic Waste Tank(UT1-T880) Active*. The Unit has been closed on the APLLC NOR.

I. Recommended Action:

No further action is recommended by APLLC based upon review of current and historic

inspection records, given no reportable spills, and construction and operation of the unit.

The PMD Organic Waste Tank was decontaminated and transferred to Evonik in 2017. The Unit is now listed on Evonik's NOR as *NOR-002 PMD Organic Waste Tank (UT1-T880) Active*. The Unit has been closed on the APLLC NOR.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Waste Pile

B. NOR No: 042

C. Description: Construction Project Stockpile of Soils

D. Dates of Operation: 2018 - Active

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Soils excavated due to construction activities	02753011		

F. Evidence of Release:

No indications of spills have been observed by APLLC as part of routine inspection of the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The construction stockpile of soils was generated during decommissioning and dismantling of the former dinitrotoluene and toluidinediamine manufacturing areas. The stockpile is intended for use in future on-site construction projects.

I. Recommended Action:

Continue routine inspections of unit to verify stabilized vegetative cover and integrity of silt fencing.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: Container Storage Area

B. NOR No: 043

C. Description: Storage area for staging and transfer of materials for recycling or off-site disposal.

D. Dates of Operation: 2018 - Active
2025 - Inactive

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Residual containerized wastes	0698203H		

F. Evidence of Release:

No indications of spills have been observed by APLLC as part of routine inspection of the unit.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The unit manages residual material collected from punctured aerosol cans including paints, lubricants, and other miscellaneous products.

I. Recommended Action:

Continue routine inspections of unit to verify stabilized vegetative cover and integrity of silt fencing.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility:	Air Products LLC	City:	Pasadena, Texas
ISW Reg No:	30317	Date:	October 21, 2025
Permit No:	HW-50134	Reviewer:	Owner
EPA ID No:	TXD 990757486		

A. Waste Management Unit: DNT Product Storage Area (AOC1)

B. NOR No: None (Area of Concern 1)

C. Description: Product Storage Area

D. Dates of Operation: 1972 - Active
2013 – Inactive and removed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Not Applicable	Not Applicable	Not Applicable	Not Applicable

F. Evidence of Release:

Some spills are known to have occurred from the product storage area. An inspection of the storage area was completed on October 12, 1999. No visual evidence of a release to the gunite/soils at the bottom of the secondary containment area was present. No evidence of leakage was observed along tank seams, valves or piping connections. The secondary containment appeared in good condition with moderate cracking of the gunite earthen berms and floor noted in some areas.

Releases to groundwater have been noted in two monitoring wells located in the immediate vicinity of the DNT Storage Area. Decreasing concentrations of 2,4-DNT, 2,6-DNT, have been monitored at MW6 since January, 1985. Current concentrations of the two isomers are 17 and 11 ug/l, respectively. 2,6-DNT was recently detected at 27 ug/l in Well MW64 in May 1998. The well is located at the immediate southern perimeter of the storage tanks. A summary of the groundwater analyses for the DNT Storage Area (AOC1) are included in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The DNT Storage Area (now removed) consisted of five horizontal 50,000-gallon carbon steel tanks elevated aboveground on cradles within an earthen berm covered with gunite. The unit served as storage for DNT product since its construction. The pure DNT is a solid at standard temperature and pressure. Therefore, it was transferred between process units and storage and transportation facilities by heating the material to a temperature above its melting point (160° F).

I. Recommended Action:

Releases associated with the DNT Storage Area (AOC1), Former Neutralization Pit (NOR Unit No. 027), DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 22), DNT Truck Loading Area (NOR Unit No. 23), and DNT Spill-Off Pond (NOR Unit No. 24)], Former Effluent Impoundment (NOR No. 1), and Northwest Storage Area (AOC2) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the vicinity of the former DNT Storage Area (AOC1) has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to AOC1) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring). The DNT Storage Area (AOC1) is also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective Action program requirements to address releases from the area pursuant to 30 TAC 335.167 remains on-going.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: Air Products LLC City: Pasadena, Texas

ISW Reg No: 30317 Date: March 26, 2015

Permit No: HW-50134 Reviewer: Owner

EPA ID No: TXD 990757486

A. Waste Management Unit: Northwest Storage Area (AOC2)

B. NOR No: None (Area of Concern 2)

C. Description: Northwest Storage Area

D. Dates of Operation: Unknown (Inactive)

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Unknown	Not Applicable	Not Applicable	Not Applicable

F. Evidence of Release:

This unit is located near the southeast corner of the TDA Storage Tanks, which are within a containment structure northwest of the former Effluent Impoundment (Unit 001). Releases to groundwater likely attributable to AOC2 in have been found at sampling locations where temporary push-in sampling devices have been deployed, as reported in the previous three Semiannual Reports submitted under Compliance Plan CP-50134. Concentrations of 2,4-DNT and 2,6-DNT in groundwater were found to increase to the northwest in the area, then abruptly decline to the northwest of the area around the southeast corner of the containment surrounding the TDA Storage Tanks. A summary of groundwater analyses for the Northwest Storage Area (AOC2) are included in Appendix III.

There is no available information concerning waste management activities in this area. An inspection of the storage area was completed on November 27, 2000. No visual evidence of a release to the soils in this area was observed. A review of aerial photographs and interviews with long-term employees indicated that miscellaneous containers were temporarily stored in different parts of this area early in the facility's history. It is possible that some of these containers may have contained waste constituents which were accidentally released to the environment.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

The Northwest Storage Area consists of suspected contaminated soils located in the vicinity of the southeast corner of the containment structure for the TDA Storage Tanks, which are located northwest of ongoing corrective actions at the former Effluent Impoundment (Unit 001). There is no record of waste management activities in this area. The suspected area of contaminated soils was located by sampling of groundwater in the area. Groundwater flows to the southeast in this area, away from the TDA Storage Tanks and toward the former Effluent Impoundment.

I. Recommended Action:

Releases associated with the Northwest Storage Area (AOC2), DNT Storage Area (AOC1), Former Neutralization Pit (NOR Unit No. 027), DNT Loading Area [i.e., DNT Tank Car Loading Area (NOR Unit No. 22), DNT Truck Loading Area (NOR Unit No. 23), and DNT Spill-Off Pond (NOR Unit No. 24)], and Former Effluent Impoundment (NOR No. 1) have previously been incorporated into the site-wide groundwater corrective action program for WMA1 established under the terms of the facility's existing Compliance Plan CP 50134. Affected groundwater in the vicinity of the Northwest Storage Area (AOC2) has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). Groundwater Protective Concentration Level Exceedance (PCLE) Zones located within WMA1 include portions of two PMZs, designated as PMZ1 for the SZ and PMZ2 for the IZ, respectively. From 1991 to 2008, PMZ1 was hydraulically controlled by a system of 10 recovery wells (RW11 through RW20), collectively referred to as RWC2, and four additional wells; RW21, RW25, MW48, and MW49. The RWC2 system was deactivated in April 2008, and currently PMZ1 is controlled by RW21, RW25, and MW49. PMZ2 is controlled by CAS well RW26, which was activated in 1996. Proper control of the groundwater in PCLE Zones in WMA1 (i.e., PMZs 1 and 2) is, in part, assessed by measuring water levels and sampling groundwater in an array of monitoring wells completed in the SZ and IZ on a semi-annual basis. Final response actions for WMA1 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA1 (including reference to AOC2) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring). The Northwest Storage Area (AOC2) is also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective Action program requirements to address releases from the area pursuant to 30 TAC 335.167 remains on-going.

PRELIMINARY REVIEW UNIT CHECKLIST

Facility: Air Products LLC City: Pasadena, Texas

ISW Reg No: 30317 Date: March 26, 2015

Permit No: HW-50134 Reviewer: Owner

EPA ID No: TXD 990757486

A. Waste Management Unit: DNT Manufacturing Area (AOC3)

B. NOR No: None (Area of Concern 3)

C. Description: DNT Manufacturing Area

D. Dates of Operation: 1972 - Active
2013 – Inactive and removed

E. Wastes Managed: *(hazardous constituents listed in Appendix II)*

Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code
Unknown	Not Applicable	Not Applicable	Not Applicable

F. Evidence of Release:

The DNT Manufacturing Area (AOC 3) (now removed) consisted of two separate but adjacent manufacturing units, DNT Unit No. 1 (east unit) and DNT Unit No. 2 (west unit). During construction of two new pad extensions in August 2003 for new acid tanks, discolored water was observed seeping into the excavations. The apparent release was reported to TCEQ by letter dated September 11, 2003. Although the releases were detected in 2003, the initial date of the release is not known.

The extent of affected soil and groundwater was described in the APAR for the DNT Manufacturing Area (Geomatrix, 2007). The combined manufacturing units were assessed together as a single source area in the APAR. The results of the APAR documented impacts to soil and groundwater of organics (i.e., volatile and semivolatile organics). The horizontal extent of affected soils at each unit was found to be contained within the perimeter of its associated French drain system surrounding each individual manufacturing unit. Groundwater contamination has been identified in the Shallow Zone (SZ) and the Intermediate Zone (IZ). A summary of the soil and groundwater analyses for the DNT Manufacturing Area (AOC3) are included in Appendix III.

G. Pollutant Dispersal Pathways:

Refer to Appendix IV.

H. Summary:

Releases to soil and groundwater identified in the DNT Manufacturing Area have been designated an Area of Concern (AOC) in the RCRA CA program (RFI). AOC3 includes DNT Production Units No. 1 (east unit) and No. 2 (west unit). The units were constructed in 1972 and production of DNT began that year. The units were covered with metal roofs and did not have walls. Originally, the units had earthen floors. When spills occurred, the DNT material (which freezes to a solid at ambient temperatures) and a small amount of the underlying soil were removed. Later, the plant constructed concrete floors or pads beneath the units. The concrete was covered with an artificial membrane and finished with an upper surface of acid-resistant brick. The edge of each pad had a curb to impede liquids from moving off the floor onto the surrounding soils.

In recent use (terminated in 2013, and removed in 2015) in the event that spills of product onto the bricked floor occurred, the solidified material was removed and any residue was rinsed off the brick with hot water and collected by floor drains. The drains were connected to the associated DNT Unit No. 1 Pad Sump or the DNT Unit No. 2 Pad Sump. Water routed to the Pad Sumps was pumped to the Total Plant Wastewater Tank (NOR 012) to await treatment with activated carbon and routing to the Washburn Tunnel Facility of the Gulf Coast Waste Disposal Authority, a publicly owned treatment works (POTW).

I. Recommended Action:

Releases associated with the former DNT Manufacturing Area (AOC3), and Acid Spill Impoundment (ASI) have previously been incorporated into the site-wide groundwater corrective action program for WMA2 established under the terms of the facility's existing Compliance Plan CP 50134. WMA2 generally encompasses the eastern portion of the Plant. The area contains the former ASI, located near the east property line of the Plant in the eastern part of PMZ1, and AOC3 located in the north-central part of the Plant. Groundwater conditions in this area were described in an Affected Property Assessment Report (APAR), in January 2006, and a remedy was detailed in a Response Action Report (RAP), in November 2006. PMZ1 in WMA2 was previously controlled by a system of 10 recovery wells (RW1 through RW10), collectively referred to as RWC1, which was activated in 1988, and operated until January 2010. In early 2010, recovery well RW27 was installed and activated near the southeast corner of the former ASI to control the SZ PCLE Zone, and RWC1 was inactivated. From 1993 to 2008, groundwater having PCL exceedances in the IZ was controlled by recovery well RW22. However, RW22 was removed in July 2008 due to construction of a new facility structure. Following construction, this well was replaced by RW28, which was activated in April 2010. RW28 is currently the only IZ well in the former ASI area where PCL exceedances are observed. As

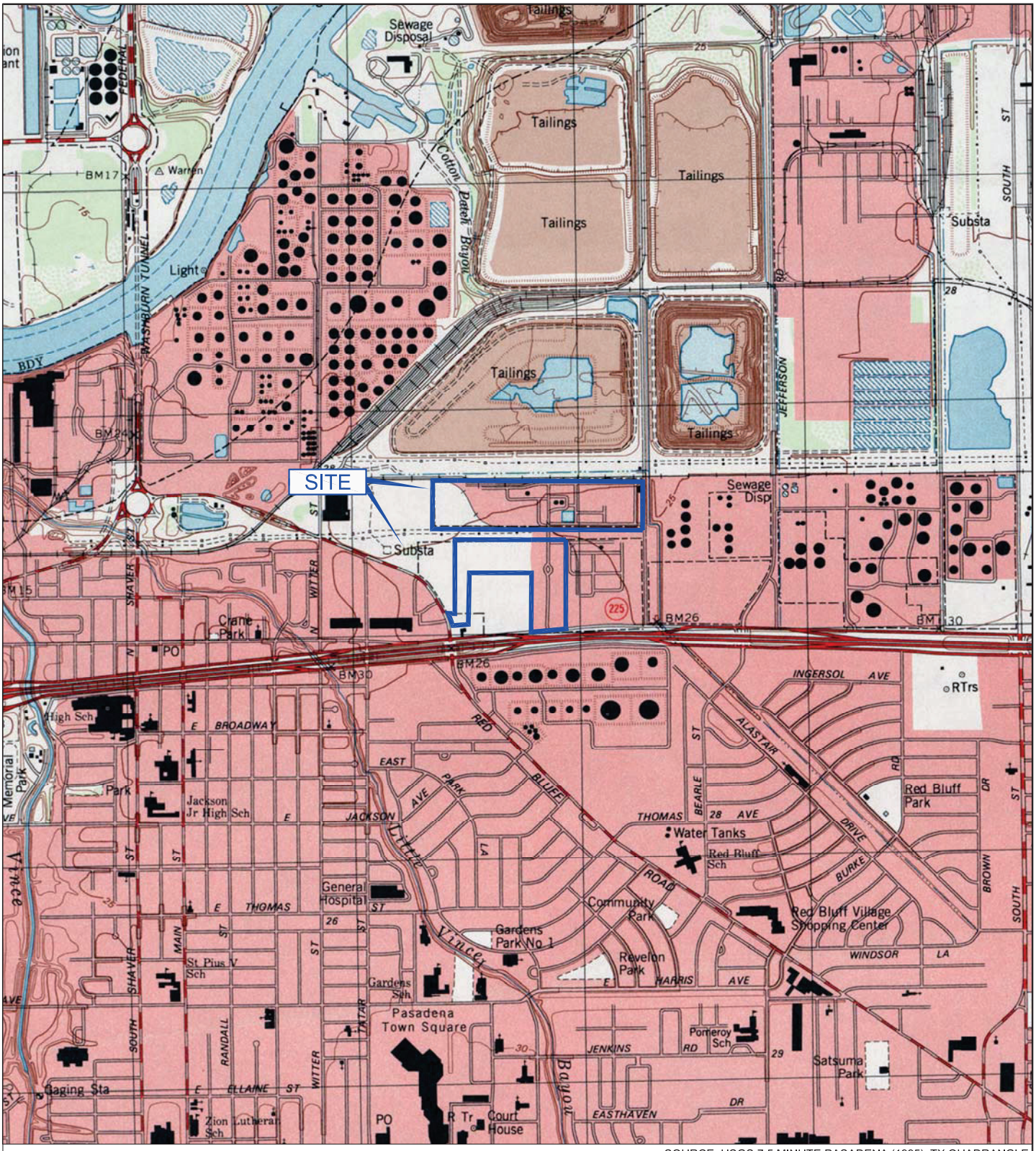
such, a PMZ has not been established in the IZ for this area. Final response actions for WMA2 are on-going and will continue to be conducted in accordance with 30 TAC 350 (Texas Risk Reduction Program Rule) and 30 TAC 335.166 (Groundwater Corrective Action Program).

WMA2 (including reference to AOC3) has been captured in CP Table I.A of Section XI of the current renewal application (Waste Management Units and Areas of Concern Subject to Groundwater Corrective Action and Compliance Monitoring). The DNT Manufacturing Area (AOC3) is also retained in CP Table III of Section XI of the renewal application as the RCRA Corrective Action program requirements to address releases from the area pursuant to 30 TAC 335.167 remains on-going.

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APPENDIX I

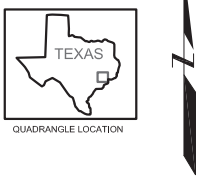
FACILITY AND SOLID WASTE MANAGEMENT UNIT LOCATION MAPS

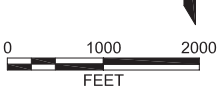


SOURCE: USGS 7.5 MINUTE PASADENA (1995), TX QUADRANGLE

EXPLANATION

SITE BOUNDARY





APPROXIMATE SCALE IN FEET

amec foster wheeler

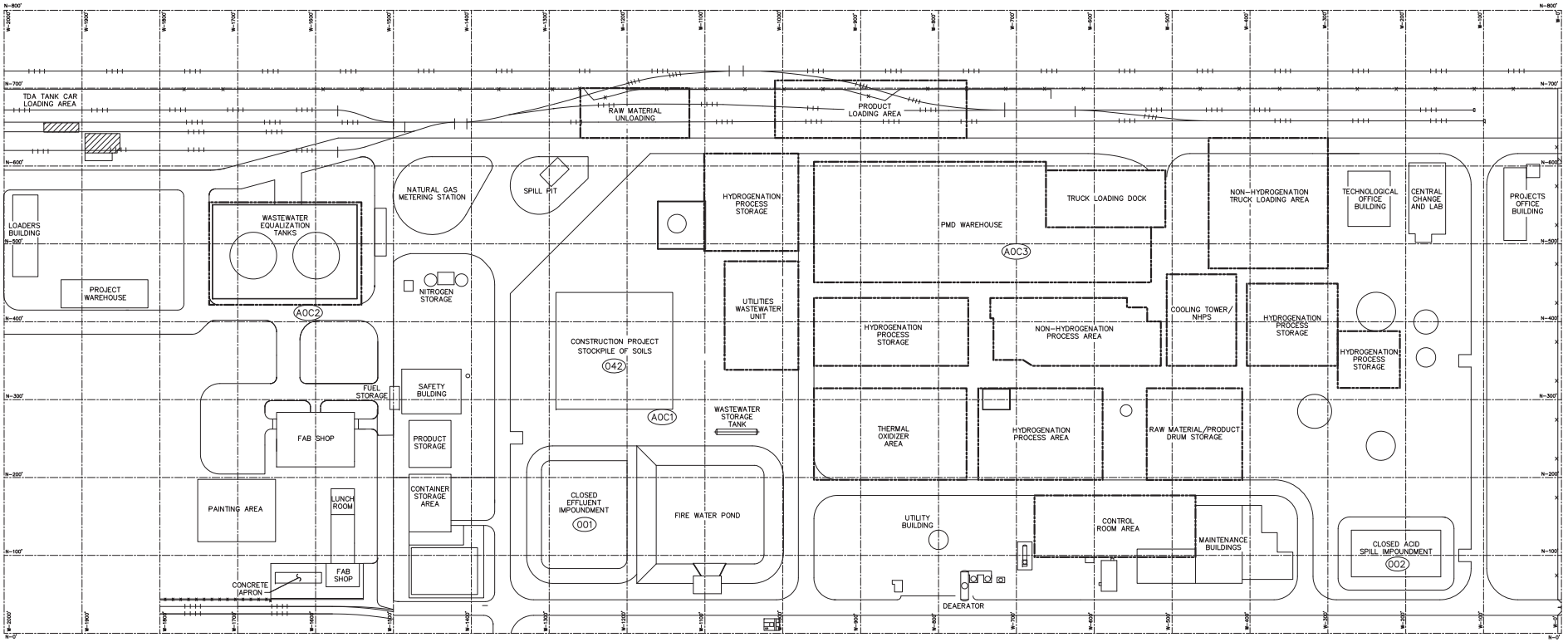
REGIONAL LOCATION MAP

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 004487
Date: 03/19/2015
By: BAL

Figure I.1



NOR UNIT	UNIT TYPE	DESCRIPTION	STATUS
001	EFFLUENT IMPOUNDMENT	SURFACE IMPOUNDMENT	POST CLOSURE CARE
002	ACID SPILL IMPOUNDMENT	SURFACE IMPOUNDMENT	POST CLOSURE CARE
003	CONTAINER STORAGE AREA	CONTAINER STORAGE AREA	CLOSED (NOT SHOWN)
004	USED OIL STORAGE TANK	SURFACE TANK	CLOSED (NOT SHOWN)
005	TDA BYPRODUCTS TANK	SURFACE TANK	CLOSED (NOT SHOWN)
006	15.20 BOILER	BOILER	CLOSED (NOT SHOWN)
007	15.30 BOILER	BOILER	CLOSED (NOT SHOWN)
008	MISCELLANEUOS	STORAGE CONTAINERS	ACTIVE (NOT SHOWN)
009	MISCELLANEOUS	STORAGE CONTAINERS	ACTIVE (NOT SHOWN)
010	15.60 BOILER	BOILER	CLOSED (NOT SHOWN)
011	TDA WASTEWATER SURGE TANK	WASTE TREATMENT UNIT	CLOSED (NOT SHOWN)
012	TOTAL WASTEWATER PLANT TANK	SURFACE TANK	CLOSED (NOT SHOWN)
013	PARTS CLEANER	WASTE TREATMENT UNIT	NEVER BUILT (NOT SHOWN)
014	SPENT CARBON STORAGE TANK (V8)	SURFACE TANK	CLOSED (NOT SHOWN)
015	SPENT CARBON PULSE TANK (V4)	SURFACE TANK	CLOSED (NOT SHOWN)

ABBREVIATIONS
AST ABOVEGROUND STORAGE TANK
NHPS NON-HYDROGENATION PROCESS STORAGE

NOR UNIT	UNIT TYPE	DESCRIPTION	STATUS
016	NITRIC ACID TRUCK LOADING AND RINSE AREA	SUMP	CLOSED (NOT SHOWN)
017	NITRIC ACID SUMP	SUMP	CLOSED (NOT SHOWN)
018	CARBONATE TRUCK UNLOADING AREA	SUMP	CLOSED (NOT SHOWN)
019	MEA/SODIUM CARBONATE SUMP OR TOLUENE SUMP	SUMP	CLOSED (NOT SHOWN)
020	DNT WASTEWATER/RED WATER SUMP	SUMP	CLOSED (NOT SHOWN)
021	AMMONIA SPILL SUMP	SUMP	CLOSED (NOT SHOWN)
022	DNT TANK CAR LOADING AREA	SUMP	CLOSED (NOT SHOWN)
023	DNT TRUCK LOADING AREA	SUMP	CLOSED (NOT SHOWN)
024	DNT SPILL OFF POND	SUMP	CLOSED (NOT SHOWN)
025	TDA TANK CAR LOADING AREA	SUMP	CLOSED (NOT SHOWN)
026	TDA TRUCK LOADING AREA	SUMP	CLOSED (NOT SHOWN)
027	NEUTRALIZATION PIT	SUMP	CLOSED (NOT SHOWN)
028	DISTILLATION/SOLVENT RECOVERY UNIT	SURFACE UNIT	CLOSED (NOT SHOWN)
029	HAZARDOUS WASTE BINS (RCRA PERMIT EXEMPT)	MISC STORE CONTAINER	CLOSED (NOT SHOWN)
030	PVOH EQUALIZATION TANK	AST	CLOSED (NOT SHOWN)

NOR UNIT	UNIT TYPE	DESCRIPTION	STATUS
031	NEUTRALIZATION TANK (V-16.155)	SURFACE TANK	CLOSED (NOT SHOWN)
032	CONTAMINATE WASTEWATER TANK (V-16.153)	SURFACE TANK	CLOSED (NOT SHOWN)
033	PULSE BED ADSORBER (V-1)	SURFACE TANK	CLOSED (NOT SHOWN)
034	PULSE BED ADSORBER (V-2)	SURFACE TANK	CLOSED (NOT SHOWN)
035	CONTAMINATED WASTEWATER ADSORBER (V-3)	SURFACE TANK	CLOSED (NOT SHOWN)
036	CONTAMINATED WASTEWATER SURGE ADSORBER	SURFACE TANK	CLOSED (NOT SHOWN)
037	CARBON FILTER (V-9)	SURFACE TANK	CLOSED (NOT SHOWN)
038	MEDICAL WASTE CONTAINER	STEEL CONTAINER	CLOSED (NOT SHOWN)
039	USED BATTERY STORAGE AREA	OPEN STORAGE AREA	CLOSED (NOT SHOWN)
040	PILOT WASTEWATER BIOREMEDIATION UNIT	AST	CLOSED (NOT SHOWN)
041	PMD ORGANIC WASTE TANK	SURFACE TANK	CLOSED (NOT SHOWN)
042	CONSTRUCTION PROJECT STOCKPILE OF SOILS	STOCKPILE	ACTIVE
043	CONTAINER STORAGE AREA	MISC STORAGE CONTAINER	INACTIVE (NOT SHOWN)
A0C1	FORMER DNT STORAGE AREA	(NA)	
A0C2	FORMER NORTHWEST STORAGE AREA	(NA)	
A0C3	FORMER DNT MANUFACTURING AREA	(NA)	

0 50' 100'

NORTH

APPROVED FOR CONSTRUCTION

PROJ MANAGER

DATE

NOTES:

REV	DATE	BY	DESCRIPTION	CHK	ENGR	APPR	CLIENT

OVERALL SITE PLOT PLAN
PROJECT EN 13-1484

PROJECT NO:

DESIGNED BY:

DRAWN BY:

CHECKED BY:

APPROVED BY:

SCALE: SEE MAP SCALE

DATE

AIR PRODUCTS

PASADENA, TEXAS

FIGURE I.2
SOLID WASTE MANAGEMENT UNIT
LOCATION MAP

DRAWING NO: DOC0000728006

REV: C

BASED ON DWG-ENG-1104 REV 3

Revision No. 2

Revision Date Nov 17, 2025

APPENDIX II

WASTE MANAGED

Air Products, LLC
Pasadena Facility

Appendix II. Wastes Managed

SWMU No.	Waste Name	TCEQ Waste Code No.	EPA Waste Code	EPA Hazard Code	Hazardous Constituents
001	Mixed Acid	0020105H	D002, D030	C E	List D*, nitric acid, sulfuric acid
	DNT Wastewater	0190105H	K111	C, T	List D
	Monoethanolamine in Water	03801021	None	None	None
	TDA Wastewater	0580102H	K112	T	List T1*
002	Mixed Acid	0020105H	D002, D030	C E	List D, nitric acid, sulfuric acid
003	See PR	See PR	See PR	See PR	List D, List T2*, vinyl acetate, nitric acid, sulfuric acid, methyl ethyl ketone, nitrophenols
004	Lubricating Oil	03302061	None	None	None
005	TDA By-Products/ TDA Distillation Residue	0530409H	K113 K114 K115	T T T	List T2
006	TDA By-Products/ TDA Distillation Residue	0530409H	K113, K114, K115	T T T	List T2
007	TDA By-Products/ TDA Distillation Residue	0530409H	K113, K114, K115	T T T	List T2
010	TDA By-Products/ TDA Distillation Residue	0530409H	K113, K114, K115	T T T	List T2
011	TDA Wastewater TDA Wastewater Tank Sludge	0580102H 0595319H	K112 K112	T T	List T1
012	See PR	See PR	D002, D030, K111, K112, U221	C E C,T T T	List D, List T2, nitric acid, sulfuric acid

013	Spent Naphtha/Tool Cleaning Solvent	0172211H 0510203H	D030 D001, D018, D039, F005	E I E E I,T	2,4-dinitrotoluene, 2,6-dinitrotoluene, benzene,tetrachloroethylene
		05222031	None	None	None
014	DNT Wastewater Spent Carbon	0220404H	K111	C,T	List D
	Spent solvent from parts cleaner	05222031	None	None	None
015	DNT Wastewater Spent Carbon	0220404H	K111	C,T	List D
	DNT Wastewater	0190105H	K111	C,T	List D
016	Nitric Acid/Nitric Acid Wastewater	0385105H	D002	C	nitric acid
017	Nitric Acid/Nitric Acid Wastewater	0385105H	D002	C	nitric acid
018	Monoethanolamine in water/wastewater contaminated with MEA	03801021	None	None	None
019	Monoethanolamine in water/wastewater contaminated with MEA	03801021 NA	None NA	None NA	None toluene
020	DNT Wastewater	0190105H	K111	C,T	List D
	Boiler/Cooling Tower Wastewater	06351141	None	None	None
	Water/dinitrotoluene mixture	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene
021	Water and ammonia	00551191	None	None	None
022	Water/dinitrotoluene mixture	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene
023	Water/dinitrotoluene mixture	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene
024	Water/dinitrotoluene mixture	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene

025	Mixture of settled solids contaminated with toluenediamine and dinitrotoluene	0525609H	D030 U221	E T	2,4-dinitrotoluene, 2,6-dinitrotoluene, and 2,4-, 2,6-, 3,4-toluenediamine
	TDA Product Waste	0570219H	U221	T	2,4-, 2,6-, 3,4-toluenediamine
026	TDA Product Waste	0570219H	U221	T	2,4-, 2,6-, 3,4-toluenediamine
027	Mixed Acid	0020105H	D002, D030	C E	List D, nitric acid, sulfuric acid
	DNT Wastewater	0190105H	K111	C, T	List D
	TDA Wastewater	0580102H	K112	T	List T1
029	See PR	See PR	See PR	See PR	List D, List T2, vinyl acetate, nitric acid, sulfuric acid, methyl ethyl ketone, nitrophenols
031	DNT Wastewater	0190105H	K111	C,T	List D
032	Water/dinitrotoluene mixture from loading spills	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene
033	DNT Wastewater Containing PPM Levels of DNT	0190105H	K111	C,T	List D
	DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T	List D
034	DNT Wastewater Containing PPM Levels of DNT	0190105H	K111	C,T	List D
	DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T	List D
035	DNT Wastewater	0190105H	K111	C,T	List D
	DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T	List D

036	Water/dinitrotoluene mixture from loading spills	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene
	DNT Wastewater	0190105H	K111	C,T	List D
037	DNT Wastewater	0190105H	K111	C,T	List D
	DNT Wastewater Spent Carbon/Carbon Adsorption Unit	0220404H	K111	C,T	List D
038	Medical waste	03419992	None	None	None
	Medical Waste	03409032	None	None	None
039	Batteries, Automotive	00703091	None	None	None
	Batteries, Automotive	0071309H	D002, D008	C, E	Lead
	Batteries, Rechargeable	03833091	None	None	None
040	Water/DNT Mixture	0175102H	D030	E	2,4-dinitrotoluene, 2,6-dinitrotoluene
	DNT Waste Water	0190105H	K111	C,T	List D
	TDA Waste Water	0580102H	K112	T	List T1
AOC1	DNT Product Storage Area	NA	NA	NA	2,4-dinitrotoluene, 2,6-dinitrotoluene
AOC2	Northwest Storage Area	UN	NA	NA	2,4-dinitrotoluene, 2,6-dinitrotoluene
AOC3	DNT Manufacturing Area	UN	NA	NA	2,4-dinitrotoluene, 2,6-dinitrotoluene, meta-nitrotoluene, ortho-nitrotoluene, para-nitrotoluene

*Notes:

List D: 2,4-dinitrotoluene, 2,6-dinitrotoluene, meta-nitrotoluene, ortho-nitrotoluene, para-nitrotoluene, 4,6-dinitro-ortho-cresol, toluene, phenol

List T1: nickel, o & p toluidine, 2,4-, 2,6-, 3,4-toluenediamine

List T2: cadmium, chromium, nickel, aniline, o & p toluidine, 2,4-, 2,6-, 3,4-toluenediamine

NA – Not Applicable
UN – Unknown

Pertinent health, safety, and risk data for constituents of concern are attached to Appendix II

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.8
Revision Date 03.01.2024
Print Date 27.10.2025
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : 2,4-Dinitrotoluene

Product Number : 101397
Brand : Aldrich
Index-No. : 609-007-00-9
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No. : 121-14-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scientific research and development

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Acute toxicity, (Category 3) H301: Toxic if swallowed.

Acute toxicity, (Category 3) H311: Toxic in contact with skin.

The life science business of Merck operates as MilliporeSigma in the US and Canada

Germ cell mutagenicity, (Category 2)	H341: Suspected of causing genetic defects.
Carcinogenicity, (Category 1B)	H350: May cause cancer.
Reproductive toxicity, (Category 2)	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - repeated exposure, (Category 2)	H373: May cause damage to organs through prolonged or repeated exposure.
Short-term (acute) aquatic hazard, (Category 1)	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, (Category 1)	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal Word	Danger
Hazard Statements	
H301 + H311	Toxic if swallowed or in contact with skin.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary Statements	
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
Supplemental Hazard Statements	none
	Restricted to professional users.

Reduced Labeling (<= 125 ml)

The life science business of Merck operates as MilliporeSigma in the US and Canada

Pictogram	
Signal Word	Danger

Hazard Statements

H341	Suspected of causing genetic defects.
H350	May cause cancer.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H301 + H311	Toxic if swallowed or in contact with skin.

Precautionary Statements

P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_7H_6N_2O_4$
Molecular weight	:	182,13 g/mol
CAS-No.	:	121-14-2
EC-No.	:	204-450-0
Index-No.	:	609-007-00-9

Component		Classification	Concentration
2,4-dinitrotoluene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)			
CAS-No. EC-No. Index-No.	121-14-2 204-450-0 609-007-00-9	Acute Tox. 3; Muta. 2; Carc. 1B; Repr. 2; STOT RE 2; Aquatic Acute 1;	<= 100 %

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	Aquatic Chronic 1; H301, H311, H341, H350, H361fd, H373, H400, H410	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.For this substance/mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture

Carbon oxides
Nitrogen oxides (NOx)
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Avoid formation of dust and aerosols.Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

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Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type P3

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure
Do not let product enter drains.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Physical state	crystalline
b)	Color	light yellowdark yellow
c)	Odor	aromatic
d)	Melting point/freezing point	Melting point/range: 67 - 70 °C
e)	Initial boiling point and boiling range	300 °C - (decomposition)
f)	Flammability (solid, gas)	No data available
g)	Upper/lower flammability or explosive limits	No data available
h)	Flash point	155,0 °C - closed cup
i)	Autoignition temperature	No data available
j)	Decomposition temperature	> 250 °C
k)	pH	No data available
l)	Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
m)	Water solubility	0,3 g/l at 20 °C
n)	Partition coefficient: n-octanol/water	log Pow: 1,98 - Bioaccumulation is not expected., (IUCLID)
o)	Vapor pressure	133,3 hPa at 157,7 °C 1,3 hPa at 102,7 °C
p)	Density	1,52 g/cm3 at 20 °C
	Relative density	No data available
q)	Relative vapor density	No data available
r)	Particle characteristics	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	none

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9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Oxidizing agents
Reducing agents
Strong bases
Metals

10.4 Conditions to avoid
Strong heating.

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 268,0 mg/kg
Remarks: (RTECS)
Acute toxicity estimate Oral - 268 mg/kg
(Calculation method)
Acute toxicity estimate Inhalation - 4 h - 0,51 mg/l - dust/mist

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Acute toxicity estimate Dermal - 300,1 mg/kg
(Expert judgment)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
Remarks: (RTECS)

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Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
Remarks: (IUCLID)

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Suspected of causing genetic defects.
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Result: positive
Remarks: (National Toxicology Program)
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: Positive results were obtained in some in vitro tests.
Remarks: (National Toxicology Program)

Carcinogenicity
Presumed to have carcinogenic potential for humans

Reproductive toxicity
Suspected of damaging the unborn child.
Suspected of damaging fertility.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
May cause damage to organs through prolonged or repeated exposure.
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: XT1575000
Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

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Dizziness
Unconsciousness

Effect potentiated by: ethanol

Damage to:

Liver
Kidney

The following applies to aromatic nitro compounds in general: systemic effect: methaemoglobinaemia with headache, cardiac dysrhythmias, drop in blood pressure, dyspnoea, and spasms; principal sign: cyanosis (blue discolouration of the blood).

This substance should be handled with particular care.

Heart -

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 24,3 mg/l - 96 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 26,2 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to algae	static test EC50 - Pseudokirchneriella subcapitata (green algae) - 1,6 mg/l - 96 h Remarks: (ECOTOX Database)
Toxicity to fish(Chronic toxicity)	NOEC - Oryzias latipes (Orange-red killifish) - 1 mg/l - 28 d Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	static test NOEC - Daphnia magna (Water flea) - 3,2 mg/l - 21 d Remarks: (ECOTOX Database)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 0 % - Not biodegradable (OECD Test Guideline 301C) Remarks: (Lit.)

12.3 Bioaccumulative potential

No data available

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12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties
Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
No data available

SECTION 14: Transport information

14.1 UN number

ADR/RID: 3454	IMDG: 3454	IATA: 3454

14.2 UN proper shipping name

ADR/RID:	DINITROTOLUENES, SOLID
IMDG:	DINITROTOLUENES, SOLID
IATA:	Dinitrotoluenes, solid

14.3 Transport hazard class(es)

ADR/RID: 6.1	IMDG: 6.1	IATA: 6.1

14.4 Packaging group

ADR/RID: II	IMDG: II	IATA: II

14.5 Environmental hazards

ADR/RID: yes	IMDG Marine pollutant: yes	IATA: no

14.6 Special precautions for user

Tunnel restriction code	:	(D/E)
Further information	:	No data available

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : 2,4-dinitrotoluene

This product contains a substance listed on Annex XIV of the REACH Regulation (EC) Nr. 1907/2006.

Listed substance / Sunset Date : 2,4-dinitrotoluene / 21.08.2015

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : 2,4-dinitrotoluene

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E1	ENVIRONMENTAL HAZARDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements

H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Revision Date 29-Mar-2024 **Revision Number** 3

1. Identification

Product Name **2,6-Dinitrotoluene**

Cat No. : **L00856**

CAS No 606-20-2
Synonyms 2,6-DNT.

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 3
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 2

Target Organs - Liver, Eyes, Central nervous system (CNS), Cardiovascular system.

Label Elements

Signal Word
Danger

Hazard Statements
Suspected of causing genetic defects
May cause cancer
Suspected of damaging fertility
May cause damage to organs through prolonged or repeated exposure
Toxic if swallowed, in contact with skin or if inhaled



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician
Skin
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
Remove/Take off immediately all contaminated clothing
Wash contaminated clothing before reuse
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects
WARNING. Cancer and Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
2,6-Dinitrotoluene	606-20-2	<= 100

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact In the case of contact with eyes, rinse immediately with plenty of water and seek medical

	advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Most important symptoms and effects	None reasonably foreseeable.
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media	No information available
Flash Point	207 °C / 404.6 °F
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Nitrogen oxides (NOx).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	3	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
Environmental Precautions	Should not be released into the environment. Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe (dust,

vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Oxidizing agent.

8. Exposure controls / personal protection

Exposure Guidelines

Legend

ACGIH *- American Conference of Governmental Industrial Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH: *NIOSH - National Institute for Occupational Safety and Health*

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Light yellow
Odor	Odorless
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	64 - 70 °C / 147.2 - 158 °F
Boiling Point/Range	250 °C / 482 °F
Flash Point	207 °C / 404.6 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 20 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C7H6N2O4
Molecular Weight	182.14

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agent

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Nitrogen oxides (NOx)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2,6-Dinitrotoluene	LD50 = 177 mg/kg (Rat)	Not listed	LC50 = 360 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
2,6-Dinitrotoluene	606-20-2	Group 2B	Not listed	Not listed	X	Not listed

IARC (International Agency for Research on Cancer)

ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure Liver Eyes Central nervous system (CNS) Cardiovascular system

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

Component	log Pow
2,6-Dinitrotoluene	2.05

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
2,6-Dinitrotoluene - 606-20-2	U106	-

14. Transport information

DOT

UN-No UN3454
Proper Shipping Name DINITROTOLUENES, SOLID
Hazard Class 6.1
Packing Group II

TDG

UN-No UN3454
Proper Shipping Name DINITROTOLUENES, SOLID
Hazard Class 6.1
Packing Group II

IATA

UN-No UN3454
Proper Shipping Name DINITROTOLUENES, SOLID
Hazard Class 6.1
Packing Group II

IMDG/IMO

UN-No UN3454
Proper Shipping Name DINITROTOLUENES, SOLID
Hazard Class 6.1
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags

2,6-Dinitrotoluene	606-20-2	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
2,6-Dinitrotoluene	606-20-2	X	-	210-106-0	-	X	X	X	X	KE-23777

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
2,6-Dinitrotoluene	606-20-2	<= 100	0.1 %	-

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
2,6-Dinitrotoluene	X	-	-	X

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
2,6-Dinitrotoluene	100 lb	-	100 lb 45.4 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
2,6-Dinitrotoluene	606-20-2	Carcinogen	-	Carcinogen

		Male Reproductive		

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
2,6-Dinitrotoluene	X	X	X	X	-

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
2,6-Dinitrotoluene	606-20-2	-	Use restricted. See item 28. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
2,6-Dinitrotoluene	606-20-2	Not applicable	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
2,6-Dinitrotoluene	606-20-2	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By	Health, Safety and Environmental Department Email: [redacted] www.thermofisher.com
Revision Date	29-Mar-2024
Print Date	29-Mar-2024
Revision Summary	New emergency telephone response service provider.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 24-Dec-2021 **Revision Number** 4

1. Identification

Product Name **2,4-Diaminotoluene**

Cat No. : **AC146600000; AC146600010; AC146600250; AC146602500**

CAS No 95-80-7
Synonyms 2,4-Toluenediamine

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 4
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Reproductive Toxicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney.	

Label Elements

Signal Word
Danger

Hazard Statements
Toxic if swallowed
Harmful in contact with skin
May cause an allergic skin reaction
Suspected of causing genetic defects
May cause cancer
Suspected of damaging fertility
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Toluene 2,4-diamine	95-80-7	98

4. First-aid measures

Eye Contact Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Immediate medical attention is required.
Ingestion	Call a physician immediately. Clean mouth with water.
Most important symptoms and effects	May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam.
Unsuitable Extinguishing Media	No information available
Flash Point	149 °C / 300.2 °F
Method -	No information available
Autoignition Temperature	520 °C / 968 °F

Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling	Do not breathe dust. Do not get in eyes, on skin, or on clothing. Handle product only in closed system or provide appropriate exhaust ventilation.
Storage.	Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Brown
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	97 - 101 °C / 206.6 - 213.8 °F
Boiling Point/Range	283 - 285 °C / 541.4 - 545 °F
Flash Point	149 °C / 300.2 °F
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 hPa @ 106 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	520 °C / 968 °F
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C7 H10 N2
Molecular Weight	122.17

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Toluene 2,4-diamine	LD50 = 73 mg/kg (Rat)	LD50 = 650 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Toluene 2,4-diamine	95-80-7	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

Mutagenic Effects Ames test: positive.

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Liver Kidney

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Toluene 2,4-diamine	Not listed	LC50: 797 - 1040 mg/L, 96h flow-through (Oryzias latipes) LC50: = 1420 mg/L, 96h flow-through (Pimephales promelas)	EC50 = 102 mg/L 30 min EC50 = 106 mg/L 5 min EC50 = 97.0 mg/L 15 min	Not listed

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1709
Hazard Class	6.1
Packing Group	III

TDG

UN-No	UN1709
Hazard Class	6.1
Packing Group	III

IATA

UN-No	UN1709
Proper Shipping Name	2,4-TOLUYLENEDIAMINE, SOLID
Hazard Class	6.1
Packing Group	III

IMDG/IMO

UN-No	UN1709
Proper Shipping Name	2,4-TOLUYLENEDIAMINE, SOLID
Hazard Class	6.1
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Toluene 2,4-diamine	95-80-7	X	ACTIVE	TP

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
TP - Indicates a substance that is the subject of a proposed TSCA Section 4 test rule

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Toluene 2,4-diamine	95-80-7	X	-	202-453-1	X	X	X	X	X	KE-23455

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Component	CAS No	Weight %	SARA 313 - Threshold Values %
Toluene 2,4-diamine	95-80-7	98	0.1

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Toluene 2,4-diamine	X		-

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Toluene 2,4-diamine	10 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Toluene 2,4-diamine	95-80-7	Carcinogen	0.2 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Toluene 2,4-diamine	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Toluene 2,4-diamine	-	Use restricted. See item 28. (see link for restriction details) Use restricted. See item 43. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	SVHC Candidate list - Carcinogenic (Article 57a)

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Toluene 2,4-diamine	95-80-7	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Toluene 2,4-diamine	95-80-7	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: [redacted]

Revision Date 24-Dec-2021
Print Date 24-Dec-2021
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

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End of SDS

SAFETY DATA SHEET

Revision Date 29-Mar-2024 **Revision Number** 5

1. Identification

Product Name **2,6-Diaminotoluene**

Cat No. : **L04278**

CAS No 823-40-5
Synonyms 2,6-Toluenediamine

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Acute dermal toxicity	Category 4
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2

Label Elements

Signal Word
Warning

Hazard Statements
May cause an allergic skin reaction
Suspected of causing genetic defects

Harmful if swallowed or in contact with skin



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
2,6-Diaminotoluene	823-40-5	<= 100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

Inhalation Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms and effects May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest

pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required.
Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Avoid dust formation. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust.

Storage. Keep container tightly closed in a dry and well-ventilated place. To maintain product quality: Keep refrigerated. Incompatible Materials. Strong oxidizing agents. Strong acids.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limitsestablished by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard

EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Dark grey
Odor	No information available
Odor Threshold	No information available
pH	10 6% aq. sol
Melting Point/Range	102 - 107 °C / 215.6 - 224.6 °F
Boiling Point/Range	289 °C / 552.2 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	<1 mbar @ 50 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	C7 H10 N2
Molecular Weight	122.17

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under recommended storage conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents, Strong acids

Hazardous Decomposition Products Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation

2,6-Diaminotoluene	LD50 = 3000 mg/kg (Rat) LD50 = 1000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
2,6-Diaminotoluene	823-40-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects .

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
2,6-Diaminotoluene	Not listed	Not listed	EC50 = 102 mg/L 60 min EC50 = 95 mg/L 30 min	Not listed

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s.
Technical Name 2,6-Diaminotoluene

Hazard Class	9
Packing Group	III

TDG

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substances, solid, n.o.s.
Hazard Class	9
Packing Group	III

IATA

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substances, solid, n.o.s.
Hazard Class	9
Packing Group	III

IMDG/IMO

UN-No	UN3077
Proper Shipping Name	Environmentally hazardous substances, solid, n.o.s.
Hazard Class	9
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
2,6-Diaminotoluene	823-40-5	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
2,6-Diaminotoluene	823-40-5	X	-	212-513-9	X	X	X	X	X	KE-23452

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Not applicable

Health Administration

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
2,6-Diaminotoluene	10 lb	-	10 lb 4.54 kg

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
2,6-Diaminotoluene	X	-	X	-	-

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
2,6-Diaminotoluene	823-40-5	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
2,6-Diaminotoluene	823-40-5	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
2,6-Diaminotoluene	823-40-5	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Health, Safety and Environmental Department
Email: [redacted]
www.thermofisher.com

Revision Date 29-Mar-2024
Print Date 29-Mar-2024
Revision Summary New emergency telephone response service provider.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Revision Date 29-Mar-2024 **Revision Number** 4

1. Identification

Product Name **o-Toluidine**

Cat No. : **A13602**

CAS No 95-53-4
Synonyms 2-Aminotoluene; 2-Methylaniline

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Emergency Telephone Number
For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 4
Acute oral toxicity	Category 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1A

Label Elements

Signal Word
Danger

Hazard Statements

Combustible liquid
Harmful in contact with skin
Causes skin irritation
Causes serious eye damage
Suspected of causing genetic defects
May cause cancer
Toxic if swallowed or if inhaled



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician
Skin
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor/physician if you feel unwell
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life
WARNING. Cancer - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
o-Toluidine	95-53-4	<= 100

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects Difficulty in breathing. Causes eye burns. Causes severe eye damage. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Chemical foam. Water mist may be used to cool closed containers.

Unsuitable Extinguishing Media No information available

Flash Point 85 °C / 185 °F

Method - No information available

Autoignition Temperature 480 °C / 896 °F

Explosion Limits

Upper	7.50%
Lower	1.50%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Combustible material. Flammable. Containers may explode when heated. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	2	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. Keep people

away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Remove all sources of ignition.

7. Handling and storage

Handling Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition.

Storage. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Protect from direct sunlight. Keep locked up. Keep under nitrogen. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible Materials. Strong oxidizing agents. Strong acids.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
o-Toluidine	TWA: 2 ppm Skin	(Vacated) TWA: 5 ppm (Vacated) TWA: 22 mg/m^3 Skin TWA: 5 ppm TWA: 22 mg/m^3	IDLH: 50 ppm	TWA: 2 ppm

Legend

ACGIH *- American Conference of Governmental Industrial Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH: *NIOSH - National Institute for Occupational Safety and Health*

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particulates filter conforming to EN 143. Ammonia and organic ammonia derivatives filter. Type K. Green. conforming to EN14387.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State Liquid

Appearance	Light yellow
Odor	Rotten-egg like
Odor Threshold	No information available
pH	7.5 8 g/l aq. sol
Melting Point/Range	-23 °C / -9.4 °F
Boiling Point/Range	199 - 200 °C / 390.2 - 392 °F
Flash Point	85 °C / 185 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	7.50%
Lower	1.50%
Vapor Pressure	0.3 mbar @ 20 °C
Vapor Density	3.7 (Air = 1.0)
Specific Gravity	1.000
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	480 °C / 896 °F
Decomposition Temperature	> 200°C
Viscosity	No information available
Molecular Formula	C7 H9 N
Molecular Weight	107.15

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions. Light sensitive. Air sensitive.

Conditions to Avoid Exposure to air. Exposure to light. Incompatible products. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Strong acids

Hazardous Decomposition Products Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
o-Toluidine	LD50 = 670 mg/kg (Rat)	LD50 = 3235 mg/kg (Rabbit)	LC50 = 862 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
o-Toluidine	95-53-4	Group 1	Known	A3	X	A3

IARC (International Agency for Research on Cancer)	*IARC (International Agency for Research on Cancer)* *Group 1 - Carcinogenic to Humans* *Group 2A - Probably Carcinogenic to Humans* *Group 2B - Possibly Carcinogenic to Humans*
NTP: (National Toxicity Program)	*NTP: (National Toxicity Program)* *Known - Known Carcinogen* *Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*
ACGIH: (American Conference of Governmental Industrial Hygienists)	*A1 - Known Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Animal Carcinogen* *ACGIH: (American Conference of Governmental Industrial Hygienists)*
Mexico - Occupational Exposure Limits - Carcinogens	*Mexico - Occupational Exposure Limits - Carcinogens* *A1 - Confirmed Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Confirmed Animal Carcinogen* *A4 - Not Classifiable as a Human Carcinogen* *A5 - Not Suspected as a Human Carcinogen*

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
o-Toluidine	EC50: = 3.7 mg/L, 96h static (Desmodesmus subspicatus) EC50: = 3.9 mg/L, 72h (Desmodesmus subspicatus)	Not listed	EC50 = 13.2 mg/L 30 min	Not listed

Persistence and Degradability Persistence is unlikely

Bioaccumulation/ Accumulation No information available.

Mobility . Will likely be mobile in the environment due to its water solubility.

Component	log Pow
o-Toluidine	1.4

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and

national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
o-Toluidine - 95-53-4	U328	-

14. Transport information

DOT

UN-No	UN1708
Hazard Class	6.1
Packing Group	II

TDG

UN-No	UN1708
Hazard Class	6.1
Packing Group	II

IATA

UN-No	UN1708
Proper Shipping Name	TOLUIDINES, LIQUID
Hazard Class	6.1
Packing Group	II

IMDG/IMO

UN-No	UN1708
Proper Shipping Name	TOLUIDINES, LIQUID
Hazard Class	6.1
Packing Group	II

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
o-Toluidine	95-53-4	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
o-Toluidine	95-53-4	X	-	202-429-0	X	X	X	X	X	KE-23446

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds

o-Toluidine	95-53-4	<= 100	0.1 %	-

SARA 311/312 Hazard Categories
Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
o-Toluidine	X		-

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
o-Toluidine	100 lb	-	100 lb 45.4 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
o-Toluidine	95-53-4	Carcinogen	4 µg/day	Carcinogen

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
o-Toluidine	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
o-Toluidine	95-53-4	-	Use restricted. See item 28. (see link for restriction details) Use restricted. See item	SVHC Candidate list - Carcinogenic (Article 57a)

			43. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	

After the sunset date the use of this substance requires either an authorization or can only be used for exempted uses, e.g. use in scientific research and development which includes routine analytics or use as intermediate.

REACH links
https://echa.europa.eu/authorisation-list
https://echa.europa.eu/substances-restricted-under-reach
https://echa.europa.eu/candidate-list-table

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
o-Toluidine	95-53-4	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
o-Toluidine	95-53-4	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By Health, Safety and Environmental Department
Email: [redacted]
www.thermofisher.com

Revision Date 29-Mar-2024
Print Date 29-Mar-2024
Revision Summary New emergency telephone response service provider.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Version 6.29
Revision Date 07/08/2025
Print Date 07/09/2025

SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : Toluene

Product Number : 244511
Brand : Sigma-Aldrich
Index-No. : 601-021-00-3
CAS-No. : 108-88-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 2

Skin irritation : Category 2

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Reproductive toxicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure (Inhalation)	:	Category 2 (Central nervous system)
Aspiration hazard	:	Category 1
Short-term (acute) aquatic hazard	:	Category 2
Long-term (chronic) aquatic hazard	:	Category 3

Other hazards

None known.

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements :
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.
H401 Toxic to aquatic life.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting

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equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Toluene	108-88-3*	>= 80 - <= 100	TSC

* Indicates that the identifier is a CAS No.
TSC- the actual concentration or concentration range is withheld as a trade secret

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SECTION 4. FIRST AID MEASURES

General advice	:	Show this safety data sheet to the doctor in attendance.
If inhaled	:	After inhalation: fresh air. Call in physician.
In case of skin contact	:	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.
In case of eye contact	:	After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.
If swallowed	:	After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.
Most important symptoms and effects, both acute and delayed	:	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Protection of first-aiders	:	For personal protection see section 8.
Notes to physician	:	No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Foam Carbon dioxide (CO2) Dry powder
Unsuitable extinguishing media	:	For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	:	Combustible. Pay attention to flashback. Vapours are heavier than air and may spread along floors. Development of hazardous combustion gases or

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vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

Hazardous combustion products	:	Carbon oxides
Specific extinguishing methods	:	No data available
Further information	:	Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	:	Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. Advice for emergency responders: For personal protection see section 8.
Environmental precautions	:	Do not let product enter drains. Risk of explosion.
Methods and materials for containment and cleaning up	:	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

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Advice on protection against fire and explosion	:	Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
Advice on safe handling	:	Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.
Further information on storage conditions	:	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.
Storage class	:	3, Flammable liquids
Recommended storage temperature	:	Recommended storage temperature see product label.
Further information on storage stability	:	Handle and store under inert gas.
Packaging material	:	Suitable material: Mild Steel Drum

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Toluene	108-88-3	TWA	100 ppm 375 mg/m3	OSHA P0
		STEL	150 ppm 560 mg/m3	OSHA P0
		TWA	200 ppm	OSHA Z-2
		CEIL	300 ppm	OSHA Z-2
		Peak	500 ppm	OSHA Z-2
		TWA	20 ppm	ACGIH
		TWA	100 ppm 375 mg/m3	NIOSH REL
		ST	150 ppm 560 mg/m3	NIOSH REL

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of workwe	0.02 mg/l	ACGIH BEI

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				ek		
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g creatinine	ACGIH BEI

Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material	:	Viton®
Break through time	:	480 min
Glove thickness	:	0.7 mm
Protective index	:	Full contact
Manufacturer	:	Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Material	:	Viton®
Break through time	:	480 min
Glove thickness	:	0.7 mm
Protective index	:	Splash contact

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Manufacturer	:	Vitoject® (KCL 890 / Aldrich Z677698, Size M)
Remarks	:	This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Eye protection	:	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses
Skin and body protection	:	Flame retardant antistatic protective clothing.
Hygiene measures	:	Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	No data available
Odor	:	benzene-like
Odor Threshold	:	0.2 ppm
pH	:	Not applicable
Melting point/ range	:	-135 °F / -93 °C
Boiling point/boiling range	:	230 - 232 °F / 110 - 111 °C
Flash point	:	39.9 °F / 4.4 °C (1,013 hPa) Method: closed cup, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	No data available

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Burning rate	:	No data available
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 7.1 %(V)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 1.2 %(V)
Vapor pressure	:	30.88 hPa (70.0 °F / 21.1 °C)
Relative vapour density	:	3.18
Relative density	:	No data available
Density	:	0.865 g/mL (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	0.58 g/l partly soluble (77 °F / 25 °C) pH: 7
Partition coefficient: n-octanol/water	:	log Pow: 2.73 (68 °F / 20 °C) pH: 7 Bioaccumulation is not expected.
Autoignition temperature	:	896 °F / 480 °C (1,013.25 hPa)
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	0.56 mPa.s (77 °F / 25 °C)
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Explosive properties	:	Not classified as explosive.
Oxidizing properties	:	none
Surface tension	:	27.73 mN/m, 0.516 g/l, 77 °F / 25 °C
Conductivity	:	< 0.01 µS/cm
Molecular weight	:	92.14 g/mol
Particle characteristics		
Particle size	:	No data available

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SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Vapours may form explosive mixture with air. Vapours may form explosive mixture with air.
Chemical stability	:	The product is chemically stable under standard ambient conditions (room temperature) . The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	:	Risk of explosion with: fuming sulfuric acid Nitric acid silver perchlorates nitrogen dioxide nonmetallic halides halogen-halogen compounds uranium hexafluoride organic nitro compounds Violent reactions possible with: Strong acids Strong oxidizing agents sulfur with Heat
Conditions to avoid	:	Warming. Warming.
Incompatible materials	:	No data available
Hazardous decomposition products	:	In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 5,580 mg/kg
(Directive 67/548/EEC, Annex V, B.1.)
LC50 Inhalation - Rat - male - 4 h - 25.7 mg/l - vapour

(OECD Test Guideline 403)
LD50 Dermal - Rabbit - male - > 5,000 mg/kg
Remarks: (ECHA)

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Skin corrosion/irritation
Skin - Rabbit
Result: irritating - 4 h
(Regulation (EC) No. 440/2008, Annex, B.4)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximisation Test - Guinea pig
Result: negative
(Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity
Test Type: In vitro mammalian cell gene mutation test
Test system: Mouse lymphoma test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
Test Type: Ames test
Test system: S. typhimurium
Metabolic activation: with and without metabolic activation
Method: Regulation (EC) No. 440/2008, Annex, B.13/14 (Ames test)
Result: negative

Test Type: Chromosome aberration test
Species: Rat
Cell type: Bone marrow
Application Route: Intraperitoneal

Result: negative
Remarks: (ECHA)

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure
Inhalation - May cause drowsiness or dizziness. - Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
Inhalation - May cause damage to organs through prolonged or repeated exposure.
- Central nervous system
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

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Aspiration hazard
Aspiration may cause pulmonary oedema and pneumonitis.

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - No observed adverse effect level - 625 mg/kg - Lowest observed adverse effect level - 1,250 mg/kg

RTECS: XS5250000
Stomach - Irregularities - Based on Human Evidence

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Toluene:

Toxicity to fish	:	LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l End point: mortality Exposure time: 48 h Analytical monitoring: yes Method: US-EPA
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus kisutch (coho salmon)): 1.39 mg/l End point: Growth inhibition Exposure time: 40 d Test Type: flow-through test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Ceriodaphnia dubia (water flea)): 0.74 mg/l End point: reproduction rate Exposure time: 7 d Analytical monitoring: yes Method: US-EPA
Toxicity to microorganisms	:	EC50 (Bacteria): 84 mg/l Exposure time: 24 h Test Type: static test Remarks: (ECHA)

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Persistence and degradability

Components:

Toluene:

Biodegradability	:	aerobic Result: Readily biodegradable. Biodegradation: 86 % Exposure time: 20 d Remarks: (IUCLID)

Bioaccumulative potential

Components:

Toluene:

Bioaccumulation	:	Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 90 Exposure time: 3 d Concentration: 0.05 mg/l
Partition coefficient: n-octanol/water	:	log Pow: 2.73 (68 °F / 20 °C) pH: 7 Remarks: Bioaccumulation is not expected.

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

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IATA-DGR

UN/ID No.	:	UN 1294
Proper shipping name	:	Toluene
Class	:	3
Packing group	:	II
Labels	:	Class 3 - Flammable liquids
Packing instruction (cargo aircraft)	:	364
Packing instruction (passenger aircraft)	:	353

IMDG-Code

UN number	:	UN 1294
Proper shipping name	:	TOLUENE
Class	:	3
Packing group	:	II
Labels	:	3
EmS Code	:	F-E, S-D
Marine pollutant	:	no

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR Road

UN/ID/NA number	:	UN 1294
Proper shipping name	:	Toluene
Class	:	3
Packing group	:	II
Labels	:	Class 3 - Flammable liquids
ERG Code	:	130
Marine pollutant	:	no
Poison Inhalation Hazard	:	No

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Toluene	108-88-3	1000	1000

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SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Toluene	108-88-3	>= 90 - <= 100 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Toluene	108-88-3	>= 90 - <= 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

Toluene	108-88-3	>= 90 - <= 100 %

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Toluene	108-88-3	>= 90 - <= 100 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Toluene	108-88-3	>= 90 - <= 100 %

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

Toluene	108-88-3	>= 90 - <= 100 %

This product contains the following priority pollutants related to the U.S. Clean Water Act:

Toluene	108-88-3	>= 90 - <= 100 %

US State Regulations

Massachusetts Right To Know

Toluene	108-88-3

Pennsylvania Right To Know

Toluene	108-88-3

Maine Chemicals of High Concern

Toluene	108-88-3

Vermont Chemicals of High Concern

Toluene	108-88-3

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Washington Chemicals of High Concern

Toluene	108-88-3

California Prop. 65

WARNING: This product can expose you to chemicals including Toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA	:	All substances listed as active on the TSCA inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-2	:	USA. Occupational Exposure Limits (OSHA) - Table Z-2
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	:	STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA P0 / TWA	:	8-hour time weighted average
OSHA P0 / STEL	:	Short-term exposure limit
OSHA Z-2 / TWA	:	8-hour time weighted average
OSHA Z-2 / CEIL	:	Acceptable ceiling concentration
OSHA Z-2 / Peak	:	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and

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Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.
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APPENDIX III

EVIDENCE OF RELEASE

Air Products, L.P.
Pasadena Facility
Appendix III. Evidence of Releases

Air Products submitted an initial application for a RCRA Part B Permit in June 1985 and an application for a RCRA Compliance Plan in October 1985. All remedial response action activities to address releases at the Air Products facility are governed by the CP. The Texas Water Commission (TWC), predecessor agency of the current Texas Commission on Environmental Quality (TCEQ), issued RCRA Part B Permit HW-50134 and Compliance Plan CP-50134 (CP) in September 1990. RCRA Facility Investigations (RFIs) have been previously implemented for the Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) listed in CP Table II of Section XI of the current renewal application:

1. TDA Tank Car Loading Area;
2. DNT Storage Area (AOC1);
3. Northwest Storage Area (AOC2);
4. DNT Loading Area [consisting of the DNT Tank Car Loading Area (NOR Unit No. 022), DNT Truck Loading Area (NOR Unit No. 023), DNT Spill-Off Pond (NOR Unit NO. 024)];
5. Former Neutralization Pit;
6. Former MEA and Sodium Carbonate Sump;
7. Former DNT Wastewater "Red Water" Sumps; and,
8. DNT Manufacturing Area (AOC3).

An initial RFI was conducted in the early 1990's following the issuance of Hazardous Waste Management Permit No. HW-50134 at the Former MEA Carbonate Sump, DNT "Red Water" Sumps (2), DNT Tank Car Loading Area, DNT Truck Loading Area, DNT Spill-Off Pond, and Former Neutralization Pit. Additional investigation was conducted to evaluate the nature and extent of PCLE Zones in the vicinity of the Former DNT Loading Area and the former Neutralization Pit. The results of the additional RFIs for these units, plus two units with no further action required (MEA Carbonate Sump, NOR 019, and DNT Red-Water Sumps, NOR 020) are included in an RFI Report (Geomatrix, 1998). The assessments of the DNT Storage Area and the Northwest Storage Area (AOC2) were provided in the prior Application for Renewal of the Compliance Plan (Geomatrix, 2001). The assessments of the ASI and the DNT Manufacturing Area were included in APARs (Geomatrix 2006a and 2007, respectively). The assessment of the TDA Tank Car Loading Area (no confirmed groundwater PCLE zone) is included in an APAR (Geomatrix, 2001a). **At present, no new or additional SWMUs or AOCs have been identified at the facility.**

A groundwater corrective action program is currently established in the Compliance Plan to address releases from the following SWMUs and AOCs (refer to CP Table I of the Section XI of the application):

1. Waste Management Area 1 (consisting of the following 5 Units and AOCs):
   a. Former Effluent Impoundment (NOR Unit No. 001);
   b. Former Neutralization Pit (NOR Unit No. 027);
   c. DNT Loading Area [consisting of the DNT Tank Car Loading Area (NOR Unit No. 022), DNT Truck Loading Area (NOR Unit No. 023), DNT Spill-Off Pond (NOR Unit NO. 024)];
   d. DNT Storage Area (AOC1); and,

e. Northwest Storage Area (AOC2).

2. Waste Management Area 2 (consisting of the following 2 units and AOCs):
   a. Former Acid Spill Impoundment (NOR Unit No. 002); and,
   b. DNT Manufacturing Area (AOC3).

3. TDA Tank Car Loading Area (NOR Unit No. 025).

Groundwater Protective Concentration Level Exceedence (PCLE) Zones have been identified in the Shallow Zone (SZ), and in some cases the Intermediate Zone (IZ) also, in the vicinity of seven plant areas where hazardous materials are handled now or were handled in the past: the closed former Acid Spill Impoundment (ASI), the closed former Effluent Impoundment (EI), the Dinitrotoluene (DNT) Loading Area, the former Neutralization Pit (NP), the DNT Storage Area (AOC1), the Northwest Storage Area (AOC2), and the DNT Manufacturing Area (AOC3). The Toluenediamine (TDA) Tank Car Loading Area has had a release to soil but no PCLE Zone in groundwater has been confirmed. The former ASI (NOR 002), the former EI (NOR 001), the former NP (NOR 027), and the former Northwest Storage Area (AOC2) are no longer in operation. The DNT Loading Area (NOR 022, 023, and 024), the DNT Storage Area (AOC1), the DNT Manufacturing Area (AOC3), and the TDA Tank Car Loading Area (NOR 025) are active.

The PCLE zones have been affected by several Chemicals of Concern (COC). The constituents in greatest abundance are nitrotoluene (NT) compounds and these have been adopted as indicator parameters. They include: 2,4-Dinitrotoluene (2,4-DNT), 2,6-Dinitrotoluene (2,6-DNT), o-Mononitrotoluene (o-MNT), m-Mononitrotoluene (m-MNT), p-Mononitrotoluene (p-MNT), o-Toluidine, p-Toluidine, 5-Nitro-o-toluidine (5-N-o-T), 2,4-Toluenediamine (2,4-TDA) and 2,6-Toluenediamine (2,6-TDA). Other indicator parameters include COCs analyzable by EPA Method 8270: Nitrobenzene (NB) and 1,3-Dichlorobenzene (1,3-DCB). Additional constituents have been identified at relatively low concentrations in several areas. Refer to Section XI.B of the application for the full list of COCs.

Detailed discussion of the existing groundwater PCLE Zones associated with WMA1, WMA2 and the TDA Tank Car Loading Area are provided in Section XI of the application, specifically in Section 2.0 (Releases to Groundwater) of Attachment XI.A.4 Site Geology Report.

Supporting documentation of existing releases to soil and groundwater associated with SWMUs and and AOCs associated with WMA1, WMA2 and the TDA Tank Car Loading Area are provided in the soil and groundwater data summaries attached to Section IX.Appendix III (Evidence of Release). Supporting documentation of existing lateral/vertical pathways and movements of releases are depicted on the potentiometric flow maps, cross-sections depicting existing PCLE zones provided in the attachments associated with Section IX.Appendix IV (Pollutant Dispersal Pathways).

Soil Data Summary

Former MEA and Sodium Carbonate Sump
(SWMU No. 019)

Table 5-1
Soil Sample Analytical Results
Investigative Unit 4 - MEA Carbonate Sump
RFI Investigation
Air Products Manufacturing Corporation
Pasadena, Texas

Boring Number	Sample Depth (feet)	Date Collected	Toluene (ug/kg)
AP-13	2.5	12/9/91	5.5
AP-13	5.0	12/9/91	4.9
AP-13	6.0	12/9/91	<1.0
AP-13	7.5	12/9/91	<1.0
AP-13	10.0	12/9/91	<1.0
AP-14	2.5	12/9/91	<1.0
AP-14	5.0	12/9/91	<1.0
AP-14	6.0	12/9/91	<1.0
AP-14	7.5	12/9/91	<1.0
AP-14	10.0	12/9/91	<1.0
AP-15	2.5	12/12/91	<1.0
AP-15	5.0	12/12/91	<1.0
AP-15	6.0	12/12/91	<1.0
AP-15	7.5	12/12/91	<1.0
AP-15	10	12/12/91	<1.0
AP-16	2.5	12/12/91	<1.0
AP-16	5.0	12/12/91	<1.0
AP-16	6.0	12/12/91	<1.0
AP-16	7.5	12/12/91	<1.0
AP-16	10.0	12/12/91	<1.0
AP-20	1.5	4/27/92	<1.0
Concrete from Floor of Sump	NA	4/27/92	2.2

Note: Numbers preceded by "<" indicate that the constituent was not detected at the indicated detection limit.

Soil Data Summary

Former DNT Wastewater "Red Water" Sumps
(SWMU No. 020)

Soil Analytical Results
Investigative Unit 3 - DNT "Red Water" Sumps
RFI Investigation
Air Products Manufacturing Company
Pasadena, Texas

Boring Number	Sample Depth (feet)	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	4,6-Dinitro-2-Methylphenol (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)
AP-10	4.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	5.5	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	6.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	9.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	10.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	12.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	15.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	16.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	19.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-10	20.0	12/4/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-11	3.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-11	6.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-11	7.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-11	9.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-11	10.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-11	12.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-12	3.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-12	6.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-12	7.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-12	9.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-12	10.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33
AP-12	12.0	12/6/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33

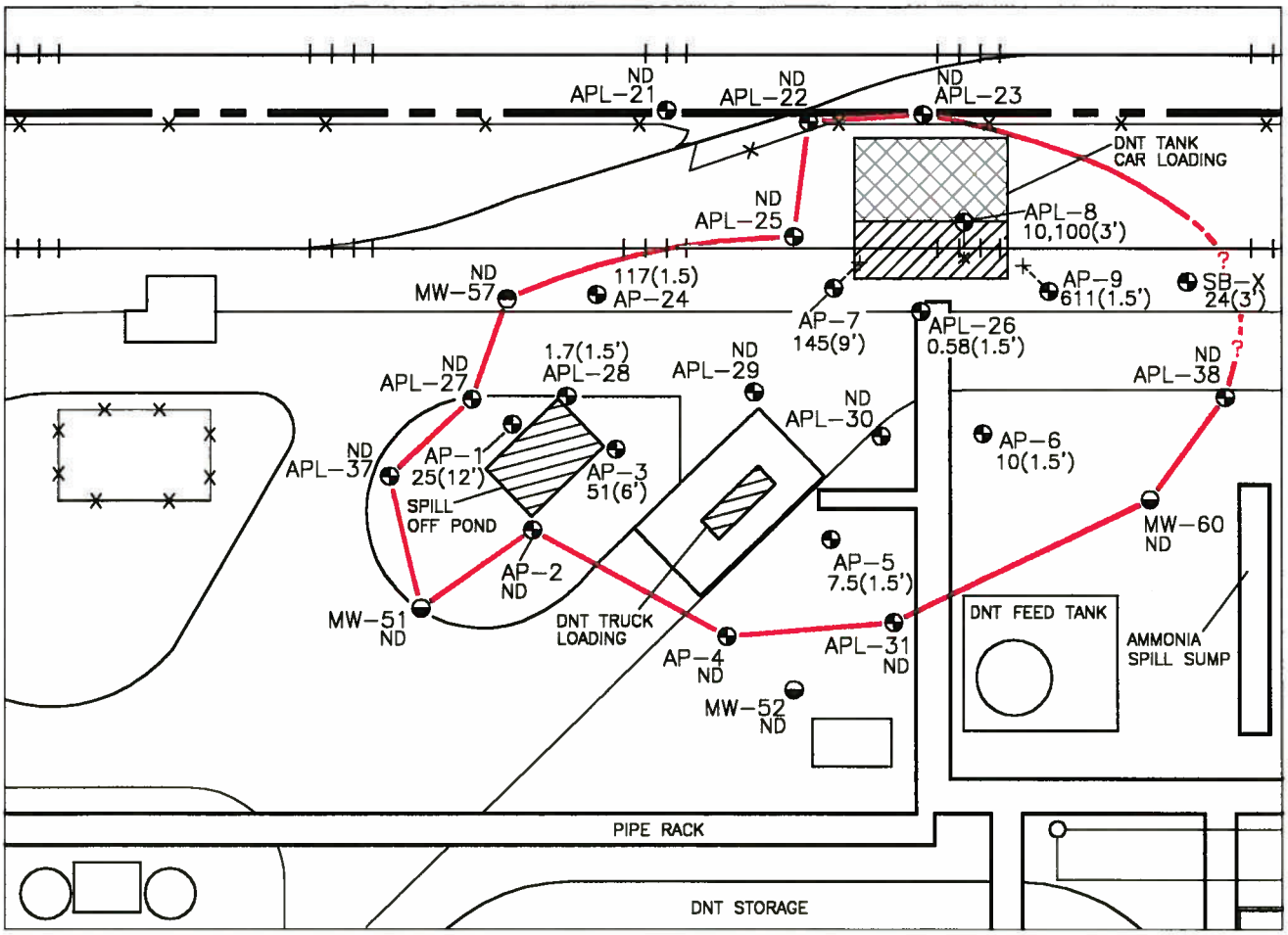
Note: Numbers preceded by "<" indicate that the constituent was not detected at the indicated detection limit.

INTERNATIONAL TECHNOLOGY CORPORATION

Soil Data Summary

DNT Loading Area
(SWMU No. 022, 023, 024)

DRAFT BY	RPS 2/12/00	PROJ. CHK	ERM 4/17/00	APPRV. BY	MEB 4/17/00



EXPLANATION

- AP-9 — SOIL SAMPLE LOCATION (SOME BORINGS SLANTED–APPROXIMATE BOTTOM–HOLE LOCATION INDICATED)
- MW-52 — LOWER SHALLOW MONITORING WELL BORING USED FOR SOIL SAMPLING
- MW-57 — UPPER SHALLOW MONITORING WELL BORING USED FOR SOIL SAMPLING
- 611(1.5') — MAXIMUM CONCENTRATION OF TOTAL NITROTOLUENE ISOMERS AT LOCATION (mg/kg) (SAMPLE DEPTH OF MAXIMUM CONCENTRATION, FEET BELOW GROUND LEVEL)
- ND — NOT DETECTED
- HORIZONTAL EXTENT OF AFFECTED SOILS (DASHED WHERE INFERRED)
- SOLID WASTE MANAGEMENT UNIT
- EXTENSION OF LOADING PAD CONSTRUCTED IN 1992
- AIR PRODUCTS PROPERTY LINE
- RAIL LINE
- FENCE

-N-

0 60

APPROXIMATE SCALE (FEET)

GEOMATRIX

DNT LOADING AREA
SOIL SAMPLING LOCATIONS AND RESULTS

PREPARED FOR

AIR PRODUCTS, L.P. – PASADENA, TEXAS

Project No. A4487

Figure No. III.4

4487A43.DWG

TABLE 4-3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE I AND II RFIs
DNT LOADING AREA
Air Products Incorporated
Pasadena, Texas

Sample Identification	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)	Total NT (mg/kg)
PHASE I							
AP-1-1.5	12/4/94	0.93	0.39	NS	NS	NS	1.32
AP-1-3.0	12/4/91	0.86	0.36	NS	NS	NS	1.22
AP-1-5.0	12/4/91	0.35	<0.33	NS	NS	NS	0.35
AP-1-8.0	12/4/91	8.4	11	NS	NS	NS	19.4
AP-1-12.0	12/4/91	12	13	NS	NS	NS	25
AP-2-1.5	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-2-3.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-2-5.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-2-6.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-2-7.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-2-9.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-3-1.5	12/5/91	8	3.0	NS	NS	NS	11
AP-3-3.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-3-5.0	12/5/91	0.65	<0.33	NS	NS	NS	0.65
AP-3-6.0	12/5/91	51	0.44	NS	NS	NS	51.44
AP-3-7.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-3-9.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-4-1.5	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-4-3.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-4-5.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-4-6.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-4-7.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-4-9.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-5-1.5	12/5/91	4.3	3.2	NS	NS	NS	7.5
AP-5-3.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-5-5.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-5-6.0	12/5/91	1.0	<0.33	NS	NS	NS	1
AP-5-7.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-5-9.0	12/5/91	<0.33	<0.33	NS	NS	NS	0
AP-6-1.5	12/6/91	6.8	3.2	NS	NS	NS	10
AP-6-3.0	12/6/91	<0.33	<0.33	NS	NS	NS	0
AP-6-5.0	12/6/91	<0.33	<0.33	NS	NS	NS	0
AP-6-6.0	12/6/91	<0.33	<0.33	NS	NS	NS	0
AP-6-7.0	12/6/91	<0.33	<0.33	NS	NS	NS	0
AP-6-9.0	12/6/91	<0.33	<0.33	NS	NS	NS	0
AP-7-2.5	12/12/91	6.3	4.8	NS	NS	NS	11.1
AP-7-5.0	12/12/91	39	41	NS	NS	NS	80
AP-7-6.0	12/12/91	8.9	14	NS	NS	NS	22.9
AP-7-7.0	12/12/91	4.5	6.5	NS	NS	NS	11
AP-7-9.0	12/12/91	55	90	NS	NS	NS	145
AP-8-1.5	12/11/91	0.82	<0.33	NS	NS	NS	0.82

TABLE 4-3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE I AND II RFIs
DNT LOADING AREA
Air Products Incorporated
Pasadena, Texas

Sample Identification	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)	Total NT (mg/kg)
AP-8-3.0	12/11/91	7200	2900	NS	NS	NS	10,100
AP-8-5.0	12/11/91	4.3	14	NS	NS	NS	18.3
AP-8-6.0	12/11/91	0.33	<0.33	NS	NS	NS	0.33
AP-8-8.0	12/11/91	<0.33	<0.33	NS	NS	NS	0
AP-9-1.5	12/11/91	540	71	NS	NS	NS	611
AP-9-3.0	12/11/91	50	40	NS	NS	NS	90
AP-9-5.0	12/11/91	9.2	5.1	NS	NS	NS	14.3
AP-9-6.0	12/11/91	46	29	NS	NS	NS	75
AP-9-8.0	12/11/91	13	9.1	NS	NS	NS	22.1
MW-51-1.5	4/22/92	<0.33	<0.33	NS	NS	NS	0
MW-51-3.0	4/22/92	<0.33	<0.33	NS	NS	NS	0
MW-51-5.0	4/22/92	<0.33	<0.33	NS	NS	NS	0
MW-51-6.0	4/22/92	<0.33	<0.33	NS	NS	NS	0
MW-51-7.0	4/22/92	<0.33	<0.33	NS	NS	NS	0
MW-51-9.0	4/22/92	<0.33	<0.33	NS	NS	NS	0
MW-52-1.5	4/28/92	<0.3	<0.3	NS	NS	NS	0
MW-52-3.5	4/28/92	<0.3	<0.3	NS	NS	NS	0
MW-52-5.0	4/28/92	<0.3	<0.3	NS	NS	NS	0
MW-52-6.0	4/28/92	<0.3	<0.3	NS	NS	NS	0
MW-52-7.0	4/28/92	<0.3	<0.3	NS	NS	NS	0
MW-52-9.0	4/28/92	<0.33	<0.33	NS	NS	NS	0
MW-57-1.5	5/5/92	<0.3	<0.3	NS	NS	NS	0
MW-57-3.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
MW-57-5.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
MW-57-7.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
MW-57-9.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
MW-60-1.5	5/11/92	<0.3	<0.3	NS	NS	NS	0
MW-60-3.5	5/11/92	<0.3	<0.3	NS	NS	NS	0
MW-60-5.0	5/11/92	<0.3	<0.3	NS	NS	NS	0
SB-X-1.5	5/5/92	5.6	6.3	NS	NS	NS	11.9
SB-X-3.0	5/5/92	24.0	<0.3	NS	NS	NS	24
SB-X-5.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
SB-X-6.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
SB-X-7.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
SB-X-9.0	5/5/92	<0.3	<0.3	NS	NS	NS	0
PHASE II							
APL-21-1.5	5/21/98	<1.6	<1.6	<1.6	<1.6	<1.6	0
APL-22-1.5	5/21/98	<1.6	<1.6	<1.6	<1.6	<1.6	0
APL-23-1.5	5/21/98	<0.5	<0.5	<0.5	<0.5	<0.5	0
APL-24-1.5	5/21/98	77 D	40 D	<0.33	<0.33	<0.33	117
APL-25-1.5	5/21/98	<0.5	<0.5	<0.5	<0.5	<0.5	0
APL-26-1.5	5/21/98	0.58	<0.5	<0.5	<0.5	<0.5	0.58

TABLE 4-3
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE I AND II RFIs
DNT LOADING AREA
Air Products Incorporated
Pasadena, Texas

Sample Identification	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)	Total NT (mg/kg)
APL-27-1.5	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-27-3	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-27-5	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-27-6	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-27-7	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-27-9	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-28-1.5	5/21/98	<1.6	1.7	<1.6	<1.6	<1.6	1.7
APL-29-1.5	5/21/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-30-2.5	5/21/98	<1.6	<1.6	<1.6	<1.6	<1.6	0
APL-31-1.5	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-31-3	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-31-5	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-31-6	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-31-8	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-31-9	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-37-1.5	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-37-3	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-37-5	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-37-6	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-37-8	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-37-9	5/13/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-38-1.5	5/14/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-38-3	5/14/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-38-5	5/15/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-38-6	5/14/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-38-7	5/14/98	<0.33	<0.33	<0.33	<0.33	<0.33	0
APL-38-9	5/14/98	<0.33	<0.33	<0.33	<0.33	<0.33	0

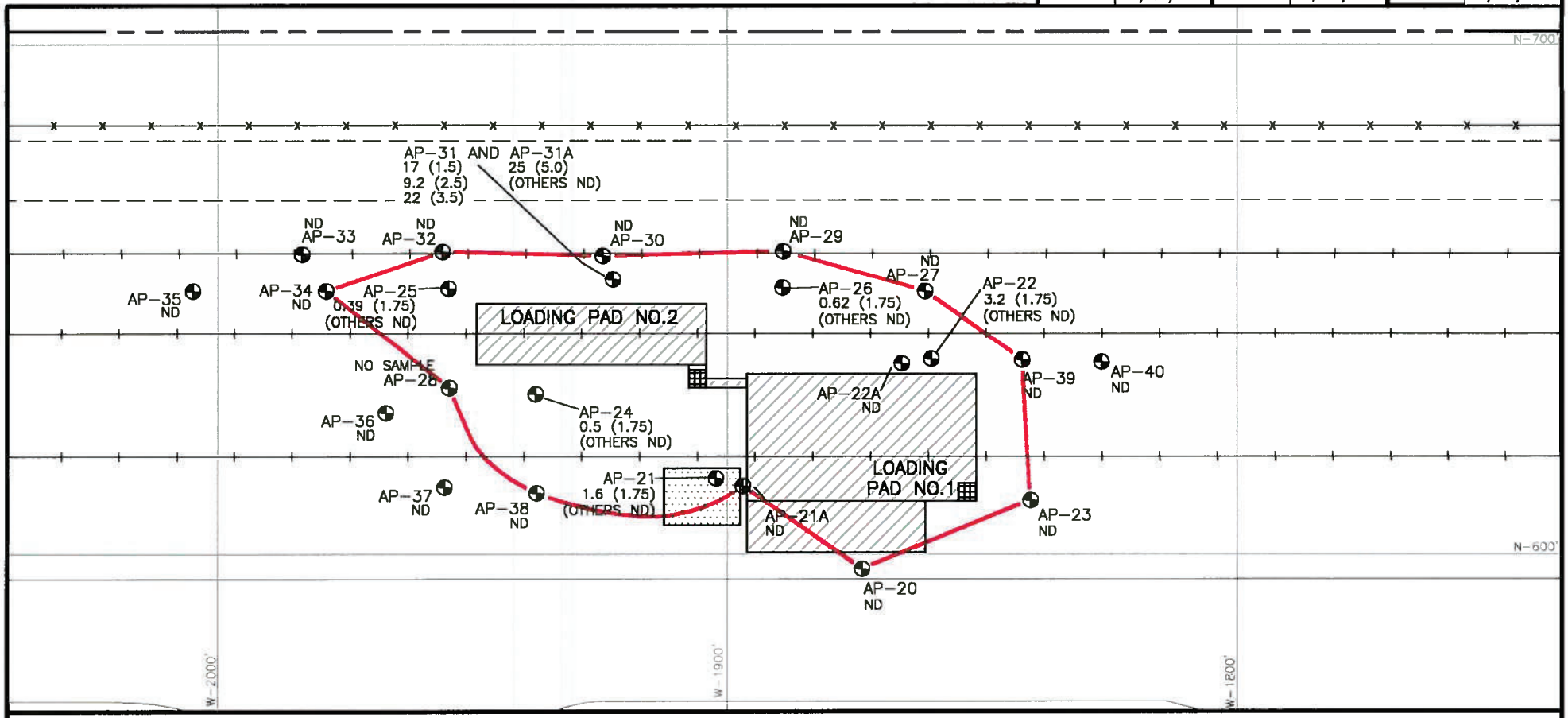
Notes:

1. NS - Not sampled
2. D - Indicates sample diluted and rerun in laboratory due to initial result exceeding calibration curve.
3. DNT - Dinitrotoluene
4. MNT - Mononitrotoluene
5. Total NT - Total Nitrotoluenes - Sum of concentrations of 2,4-DNT, 2,6-DNT, o-MNT, m-MNT, and p-MNT.
6. Numbers preceded by "<" indicate that the constituent was not detected at the indicated detection limit.
7. mg/kg - milligrams per kilogram

Soil Data Summary

TDA Tank Car Loading Area
(SWMU No. 025)

DRAFT BY	RPS 2/12/00	PROJ. CHK	ERM 4/17/00	APPRV. BY	MEB 4/17/00



EXPLANATION

AP-26 ⊕ 0.62 (1.75) — SOIL BORING/PROBE HOLE LOCATION AND IDENTIFICATION NUMBER TDA SOIL CONCENTRATIONS (mg/kg) (DEPTH OF SAMPLE (ft))

ND — NO TDA DETECTED IN ANY SAMPLE AT THIS LOCATION

(OTHERS ND) — NO TDA DETECTED IN DEEPER SAMPLE(S) AT THIS LOCATION

SUMP

LOCATION OF EXCAVATION (7/1/92)

SOLID WASTE MANAGEMENT UNIT

HORIZONTAL EXTENT OF AFFECTED SOILS (DASHED WHERE INFERRED)

RAIL LINE

FENCE

RAIL ROADBED UNDER CONSTRUCTION

PROPERTY BOUNDARY

0 30 APPROXIMATE SCALE (FEET)

-N-

GEOMATRIX

CONCENTRATIONS OF TDA IN SOIL SAMPLES

PREPARED FOR

AIR PRODUCTS, L.P. – PASADENA, TEXAS

Project No. A4487

Figure No. III.6

4487A45.DWG

TABLE 4-1
SOIL ANALYTICAL DATA AND CRITICAL PCLS
TDA LOADING AREA
Air Products, L.P.
Pasadena, Texas

			TDA (mg/kg)	o-Toluidine (mg/kg)
Tier 1 Critical PCL - Surface Soil [1]			6 [3]	10 [4]
Tier 1 Critical PCL - Subsurface Soil [2]			11000 [3]	10 [4]
Sample Identification	**Sample Interval (ft. bgs)**	**Date Collected**		
AP-20-1.75	1.75 - 2.0	5/14/1996	<1.7	<3.3
AP-20-3.5	3.50 - 3.75	5/14/1996	<0.33	<0.66
AP-20-5.5	5.5 - 5.75	5/14/1996	<0.33	<0.66
AP-20-7.5	7.25 - 7.50	5/14/1996	<0.33	<0.66
AP-20-9.5	9.5 - 9.75	5/14/1996	<0.33	<0.66
AP-21-1.75	1.75 - 2.0	5/15/1996	1.6	<0.66
AP-21A-2.5	2.25 - 2.50	10/9/1996	<0.33	<0.66
AP-21-3.5	3.50 - 3.70	5/15/1996	<0.33	<0.66
AP-21-5.5	5.50 - 7.70	5/15/1996	<0.33	<0.66
AP-21-7.5	7.5 - 7.70	5/15/1996	<0.33	<0.66
AP-21-9.5	9.5 - 9.20	5/15/1996	<0.33	<0.66
AP-22-1.75	1.75 - 2.0	5/15/1996	3.2	<0.66
AP-22A-2.5	2.25 - 2.50	10/9/1996	<0.33	<0.66
AP-22-3.5	3.5 - 3.75	5/15/1996	<0.33	<0.66
AP-22-5.5	5.5 - 5.75	5/15/1996	<0.33	<0.66
AP-22-5.5-DUP	5.5 - 5.75	5/15/1996	<0.33	<0.66
AP-22-7.5	7.5 - 7.75	5/15/1996	<0.33	<0.66
AP-22-9.5	9.5 - 9.75	5/15/1996	<0.33	<0.66
AP-23-1.75	1.75 - 2.0	5/14/1996	<0.33	<0.66
AP-23-3.5	3.5 - 3.75	5/14/1996	<0.33	<0.66
AP-23-5.5	5.5 - 5.75	5/14/1996	<0.33	<0.66
AP-23-7.5	7.5 - 7.75	5/14/1996	<0.33	<0.66
AP-23-9.5	9.5 - 9.75	5/14/1996	<0.33	<0.66
AP-24-1.75	1.75 - 2.0	8/27/1996	0.5	<0.66
AP-24-3.5	3.5 - 3.75	8/27/1996	<0.33	<0.66
AP-24-3.5-DUP	3.5 - 3.75	8/27/1996	<0.33	<0.66
AP-24-5.5	5.5 - 5.75	8/27/1996	<0.33	<0.66
AP-24-7.5	7.5 - 7.75	8/27/1996	<0.33	<0.66
AP-24-9.5	9.5 - 9.75	8/27/1996	<0.33	<0.66
AP-25-1.75	1.75 - 2.0	8/27/1996	0.39	<0.66
AP-25-3.5	3.5 - 3.75	8/27/1996	<0.33	<0.66
AP-25-5.5	5.5 - 5.75	8/27/1996	<0.33	<0.66

TABLE 4-1
SOIL ANALYTICAL DATA AND CRITICAL PCLS
TDA LOADING AREA
Air Products, L.P.
Pasadena, Texas

			TDA (mg/kg)	o-Toluidine (mg/kg)
Tier 1 Critical PCL - Surface Soil [1]			6 [3]	10 [4]
Tier 1 Critical PCL - Subsurface Soil [2]			11000 [3]	10 [4]
Sample Identification	**Sample Interval (ft. bgs)**	**Date Collected**		
AP-25-7.5	7.5 - 7.75	8/27/1996	<0.33	<0.66
AP-25-9.5	9.5 - 9.75	8/27/1996	<0.33	<0.66
AP-26-1.75	1.75 - 2.0	8/27/1996	0.62	<0.66
AP-26-3.5	3.5 - 3.75	8/27/1996	<0.33	<0.66
AP-26-5.5	5.5 - 5.75	8/27/1996	<0.33	<0.66
AP-26-7.5	7.5 - 7.75	8/27/1996	<0.33	<0.66
AP-26-9.5	9.5 - 9.75	8/27/1996	<0.33	<0.66
AP-27-1.75	1.75 - 2.0	8/27/1996	<0.33	<0.66
AP-27-3.5	3.5 - 3.75	8/27/1996	<0.33	<0.66
AP-27-5.5	5.5 - 5.75	8/27/1996	<0.33	<0.66
AP-27-7.5	7.5 - 7.75	8/27/1996	<0.33	<0.66
AP-27-9.5	9.5 - 9.75	8/27/1996	<0.33	<0.66
AP-28	NO RECOVERY	8/27/1996	NO RECOVERY	
AP-29-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-30-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-31-1.5	1.5 - 1.75	10/8/1996	**17D**	<0.66
AP-31-2.5	2.5 - 2.75	10/8/1996	**9.2D**	<0.66
AP-31-3.5	3.5 - 3.75	10/8/1996	**22**	<6.6
AP-31A-5	5.0 - 5.5	12/4/1996	**25**	<13.0
AP-31A-9	9.0 - 9.5	12/4/1996	<0.33	<0.66
AP-31A-12	11.5 - 12	12/4/1996	<0.33	<0.66
AP-31A-14	13.5 - 14	12/4/1996	<0.33	<0.66
AP-31A-16	15.5 - 16	12/4/1996	<0.33	<0.66
AP-32-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-33-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-34-1.5	1.5 - 1.75	10/8/1996	<0.33	<0.66
AP-34-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-34-3.5	3.5 - 3.75	10/8/1996	NA	NA
AP-35-1.5	1.5 - 1.75	10/8/1996	<0.33	<0.66
AP-35-2.5	2.5 - 2.75	10/8/1996	NA	NA
AP-35-3.5	3.5 - 3.75	10/8/1996	NA	NA
AP-36-1.5	1.5 - 1.75	10/8/1996	<0.33	<0.66

TABLE 4-1
SOIL ANALYTICAL DATA AND CRITICAL PCLS
TDA LOADING AREA
Air Products, L.P.
Pasadena, Texas

			TDA (mg/kg)	o-Toluidine (mg/kg)
Tier 1 Critical PCL - Surface Soil [1]			6 [3]	10 [4]
Tier 1 Critical PCL - Subsurface Soil [2]			11000 [3]	10 [4]
Sample Identification	**Sample Interval (ft. bgs)**	**Date Collected**		
AP-36-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-36-3.5	3.5 - 3.75	10/8/1996	NA	NA
AP-37-1.5	1.5 - 1.75	10/8/1996	<0.33	<0.66
AP-37-2.5	2.5 - 2.75	10/8/1996	<0.33	<0.66
AP-37-3.5	3.5 - 3.75	10/8/1996	NA	NA
AP-38-1.5	1.5 - 1.75	10/9/1996	<0.33	<0.66
AP-38-1.5-DUP	1.5 - 1.75	10/9/1996	<0.33	<0.66
AP-38-2.5	2.5 - 2.75	10/9/1996	<0.33	<0.66
AP-38-3.5	3.5 - 3.75	10/9/1996	NA	NA
AP-39-1.5	1.5 - 1.75	10/9/1996	<0.33	<0.66
AP-39-2.5	2.5 - 2.75	10/9/1996	<0.33	<0.66
AP-39-3.5	3.5 - 3.75	10/9/1996	NA	NA
AP-40-1.5	1.5 - 1.75	10/9/1996	<0.33	<0.66

Bold indicates concentrations exceeds applicable Tier 1 Critical PCL

1 Tier 1 Critical PCL - Surface Soil = $^{Tot}SOIL_{Comb}$, Table 2 Tier 1 Com./Ind.Soil PCLs, 0.5 acre, < or = 5 feet bgs

2 Tier 1 Critical PCL - Subsurface Soil = $^{Air}SOIL_{Inh-V}$, Table 2 Tier 1 Com./Ind.Soil PCLs, 0.5 acre, > 5 feet bgs

3 The critical PCL was determined by the lower of the given values for either 2,4-TDA or 2,6-TDA. For both surface and subsurface soils, the 2,4-TDA PCLs are lower.

4 Region 9 PRG based on Industrial Land Use - ingestion, inhalation and dermal exposure

TDA = Total Toluenediamine, 2,4-TDA and 2,6-TDA

D = Result was obtained from the analyses of a dilution.

DUP = Duplicate

NA = Not analyzed

< = Less than detection level

Table 1

Summary of Analytical Data
RCRA Facility Investigation Report - TDA Loading Areas
Air Products Incorporated, Pasadena, Texas

Sample Identification	Sample Interval (ft. bgs)	Date Collected	Toluene diamine (mg/kg)	o-Toluidine (mg/kg)
AP-20-1.75	1.75 - 2.0	5/14/96	<1.7	<3.3
AP-20-3.5	3.50 - 3.75	5/14/96	<0.33	<0.66
AP-20-5.5	5.5 - 5.75	5/14/96	<0.33	<0.66
AP-20-7.5	7.25 - 7.50	5/14/96	<0.33	<0.66
AP-20-9.5	9.5 - 9.75	5/14/96	<0.33	<0.66
AP-21-1.75	1.75 - 2.0	5/15/96	1.6	<0.66
AP-21A-2.5	2.25 - 2.50	10/9/96	<0.33	<0.66
AP-21-3.5	3.50 - 3.70	5/15/96	<0.33	<0.66
AP-21-5.5	5.50 - 7.70	5/15/96	<0.33	<0.66
AP-21-7.5	7.5 - 7.70	5/15/96	<0.33	<0.66
AP-21-9.5	9.5 - 9.20	5/15/96	<0.33	<0.66
AP-22-1.75	1.75 - 2.0	5/15/96	3.2	<0.66
AP-22A-2.5	2.25 - 2.50	10/9/96	<0.33	<0.66
AP-22-3.5	3.5 - 3.75	5/15/96	<0.33	<0.66
AP-22-5.5	5.5 - 5.75	5/15/96	<0.33	<0.66
AP-22-5.5-DUP	5.5 - 5.75	5/15/96	<0.33	<0.66
AP-22-7.5	7.5 - 7.75	5/15/96	<0.33	<0.66
AP-22-9.5	9.5 - 9.75	5/15/96	<0.33	<0.66
AP-23-1.75	1.75 - 2.0	5/14/96	<0.33	<0.66
AP-23-3.5	3.5 - 3.75	5/14/96	<0.33	<0.66
AP-23-5.5	5.5 - 5.75	5/14/96	<0.33	<0.66
AP-23-7.5	7.5 - 7.75	5/14/96	<0.33	<0.66
AP-23-9.5	9.5 - 9.75	5/14/96	<0.33	<0.66
AP-24-1.75	1.75 - 2.0	8/27/96	0.5	<0.66
AP-24-3.5	3.5 - 3.75	8/27/96	<0.33	<0.66
AP-24-3.5-DUP	3.5 - 3.75	8/27/96	<0.33	<0.66
AP-24-5.5	5.5 - 5.75	8/27/96	<0.33	<0.66
AP-24-7.5	7.5 - 7.75	8/27/96	<0.33	<0.66
AP-24-9.5	9.5 - 9.75	8/27/96	<0.33	<0.66
AP-25-1.75	1.75 - 2.0	8/27/96	0.39	<0.66
AP-25-3.5	3.5 - 3.75	8/27/96	<0.33	<0.66
AP-25-5.5	5.5 - 5.75	8/27/96	<0.33	<0.66
AP-25-7.5	7.5 - 7.75	8/27/96	<0.33	<0.66
AP-25-9.5	9.5 - 9.75	8/27/96	<0.33	<0.66
AP-26-1.75	1.75 - 2.0	8/27/96	0.62	<0.66
AP-26-3.5	3.5 - 3.75	8/27/96	<0.33	<0.66
AP-26-5.5	5.5 - 5.75	8/27/96	<0.33	<0.66
AP-26-7.5	7.5 - 7.75	8/27/96	<0.33	<0.66
AP-26-9.5	9.5 - 9.75	8/27/96	<0.33	<0.66
AP-27-1.75	1.75 - 2.0	8/27/96	<0.33	<0.66
AP-27-3.5	3.5 - 3.75	8/27/96	<0.33	<0.66
AP-27-5.5	5.5 - 5.75	8/27/96	<0.33	<0.66

Table 1

Summary of Analytical Data
RCRA Facility Investigation Report - TDA Loading Areas
Air Products Incorporated, Pasadena, Texas

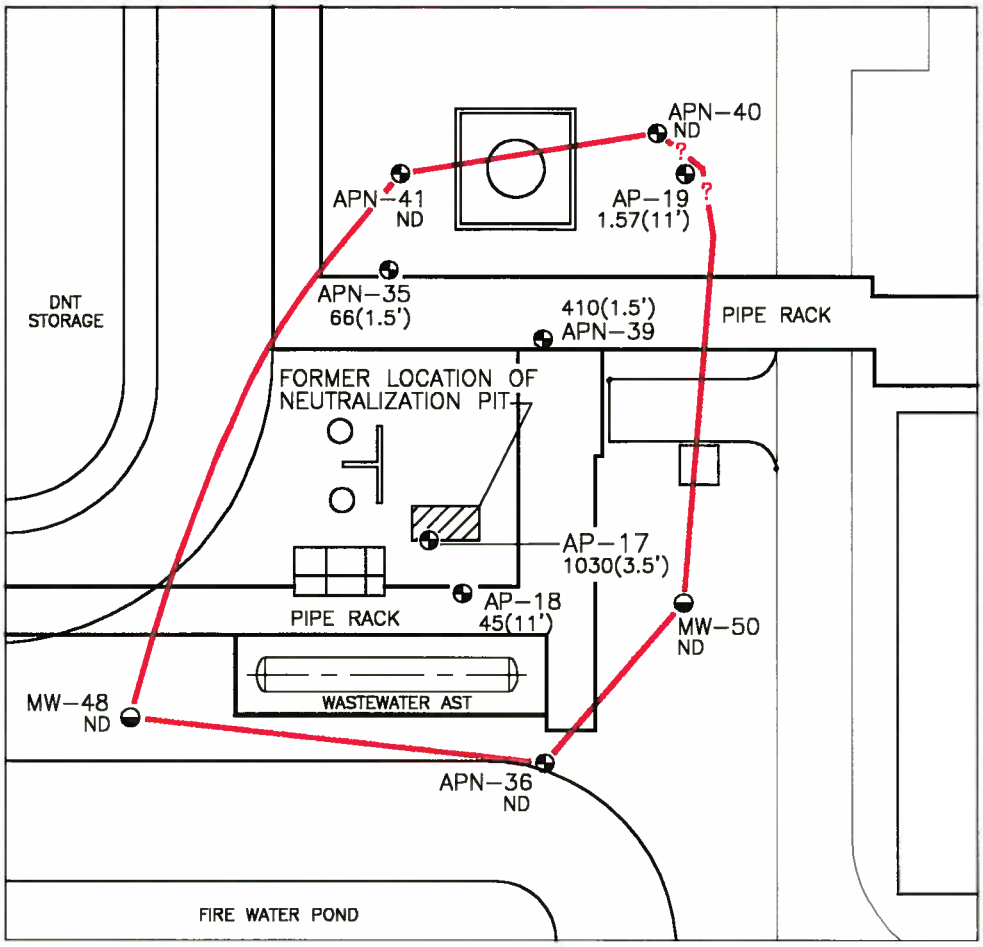
Sample Identification	Sample Interval (ft. bgs)	Date Collected	Toluene diamine (mg/kg)	o-Toluidine (mg/kg)
AP-27-7.5	7.5 - 7.75	8/27/96	<0.33	<0.66
AP-27-9.5	9.5 - 9.75	8/27/96	<0.33	<0.66
AP-28	NO RECOVERY	8/27/96	NO RECOVERY	
AP-29-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-30-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-31-1.5	1.5 - 1.75	10/8/96	17D	<0.66
AP-31-2.5	2.5 - 2.75	10/8/96	9.2D	<0.66
AP-31-3.5	3.5 - 3.75	10/8/96	22	<6.6
AP-31A-5	5.0 - 5.5	12/4/96	25	<33.0
AP-31A-9	9.0 - 9.5	12/4/96	<0.33	<0.66
AP-31A-12	11.5 - 12	12/4/96	<0.33	<0.66
AP-31A-14	13.5 - 14	12/4/96	<0.33	<0.66
AP-31A-16	15.5 - 16	12/4/96	<0.33	<0.66
AP-32-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-33-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-34-1.5	1.5 - 1.75	10/8/96	<0.33	<0.66
AP-34-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-34-3.5	3.5 - 3.75	10/8/96	NA	NA
AP-35-1.5	1.5 - 1.75	10/8/96	<0.33	<0.66
AP-35-2.5	2.5 - 2.75	10/8/96	NA	NA
AP-35-3.5	3.5 - 3.75	10/8/96	NA	NA
AP-36-1.5	1.5 - 1.75	10/8/96	<0.33	<0.66
AP-36-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-36-3.5	3.5 - 3.75	10/8/96	NA	NA
AP-37-1.5	1.5 - 1.75	10/8/96	<0.33	<0.66
AP-37-2.5	2.5 - 2.75	10/8/96	<0.33	<0.66
AP-37-3.5	3.5 - 3.75	10/8/96	NA	NA
AP-38-1.5	1.5 - 1.75	10/9/96	<0.33	<0.66
AP-38-1.5-DUP	1.5 - 1.75	10/9/96	<0.33	<0.66
AP-38-2.5	2.5 - 2.75	10/9/96	<0.33	<0.66
AP-38-3.5	3.5 - 3.75	10/9/96	NA	NA
AP-39-1.5	1.5 - 1.75	10/9/96	<0.33	<0.66
AP-39-2.5	2.5 - 2.75	10/9/96	<0.33	<0.66
AP-39-3.5	3.5 - 3.75	10/9/96	NA	NA
AP-40-1.5	1.5 - 1.75	10/9/96	<0.33	<0.66

D = Result was obtained from the analyses of a dilution.
DUP = Duplicate
NA = Not analyzed
< = Less than detection level

Soil Data Summary

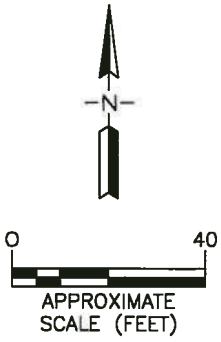
Former Neutralization Pit
(SWMU No. 027)

DRAFT BY	RPS	2/12/00
PROJ. CHK		
ERM		4/17/00
APPRV. BY		
	MEB	4/17/00



EXPLANATION

AP–17 ⊕	SOIL SAMPLE LOCATION
MW–48 ◒	LOWER SHALLOW MONITORING WELL BORING USED FOR SOIL SAMPLING
1030(3.5')	MAXIMUM CONCENTRATION OF TOTAL NITROTOLUENE ISOMERS AT LOCATION (mg/kg) (SAMPLE DEPTH OF MAXIMUM CONCENTRATION, FEET BELOW GROUND LEVEL)
ND	NOT DETECTED
———	HORIZONTAL EXTENT OF AFFECTED SOILS (DASHED WHERE INFERRED)
▨	FORMER LOCATION OF SOLID WASTE MANAGEMENT UNIT



GEOMATRIX

FORMER NEUTRALIZATION PIT
SOIL SAMPLING LOCATIONS AND RESULTS

PREPARED FOR

AIR PRODUCTS, L.P. – PASADENA, TEXAS

Project No. A4487

Figure No. III.5

4487A44.DWG

TABLE 4-1
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE I AND II RFIs FORMER NEUTRALIZATION PIT
Air Products Incorporated

Pasadena, Texas

Sample Identification	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	4,6-DNOC (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)	o-Toluidine (mg/kg)	Total NT (mg/kg)
PHASE I									
AP-17-3.5	12/10/91	880	150	<170	<33	<33	<33	<33	1030
AP-17-7.0	12/10/91	370	340	<170	<33	<33	<33	<33	710
AP-17-8.5	12/10/91	260	200	<170	<33	<33	<33	<33	460
AP-17-11.0	12/10/91	90	56	<42	<8.3	<8.3	<8.3	<8.3	146
AP-18-3.5	12/10/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33	0.66	0
AP-18-7.0	12/10/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33	<0.33	0
AP-18-8.5	12/10/91	0.37	<0.33	<1.7	<0.33	<0.33	<0.33	<0.33	0.37
AP-18-11.0	12/10/91	26	19	<1.7	<0.33	<0.33	<0.33	<0.33	45
AP-19-7.0	12/10/91	0.53	0.43	<1.7	<0.33	<0.33	<0.33	<0.33	0.96
AP-19-8.5	12/10/91	<0.33	<0.33	<1.7	<0.33	<0.33	<0.33	<0.33	0
AP-19-11.0	12/10/91	0.96	0.61	<1.7	<0.33	<0.33	<0.33	<0.33	1.57
MW-48-3.5	5/14/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-48-7.0	5/14/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-48-8.5	5/14/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-48-11.0	5/14/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-50-3.5	5/26/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-50-7.0	5/26/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-50-8.5	5/26/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
MW-50-11.0	5/26/92	<0.3	<0.3	<2.0	<0.33	<0.33	<0.33	<0.33	0
PHASE II									
APN-35-1.5	5/15/98	66 D	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	66
APN-35-3.5	5/15/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-35-7	5/15/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-35-8.5	5/15/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-35-11	5/15/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-36-1.5	5/14/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-36-3.5	5/14/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0

TABLE 4-1
SUMMARY OF SOIL ANALYTICAL RESULTS
PHASE I AND II RFIs FORMER NEUTRALIZATION PIT
Air Products Incorporated
Pasadena, Texas

Sample Identification	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	4,6-DNOC (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)	o-Toluidine (mg/kg)	Total NT (mg/kg)
APN-36-7	5/14/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-36-8.5	5/14/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-36-11	5/14/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-39-1.5	5/15/98	240 D	170 D	<2.4	<0.5	<0.5	<0.5	<0.99	410
APN-39-3.5	5/15/98	30 D	21 D	<1.6	<0.33	<0.33	<0.33	<0.66	51
APN-39-7	5/15/98	17 D	9.4 D	<1.6	<0.33	<0.33	<0.33	<0.66	26.4
APN-39-8.5	5/15/98	110 D	90 D	<1.6	<0.33	<0.33	<0.33	<0.66	200
APN-39-11	5/15/98	55 D	46 D	<1.6	<0.33	<0.33	<0.33	<0.66	101
APN-40-1.5	7/23/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0
APN-41-1.5	7/23/98	<0.33	<0.33	<1.6	<0.33	<0.33	<0.33	<0.66	0

Notes:

1. D - Indicates sample diluted and rerun in laboratory due to initial result exceeding calibration curve.
2. DNT - Dinitrotoluene
3. DNOC - Dinitro-o-cresol
4. MNT - Mononitrotoluene
5. Total NT - Total Nitrotoluenes - Obtained by adding concentrations of 2,4-DNT, 2,6-DNT, o-MNT, m-MNT, and p-MNT.
6. No sample was recovered in the run at 3.5 feet in AP-19.
7. Numbers preceded by "<" indicate that the constituent was not detected at the indicated detection limit.
8. Mg/kg - milligrams per kilogram

TABLE 4-2
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
PHASE I AND II RFIs FORMER NEUTRALIZATION PIT
Air Products Incorporated
Pasadena, Texas

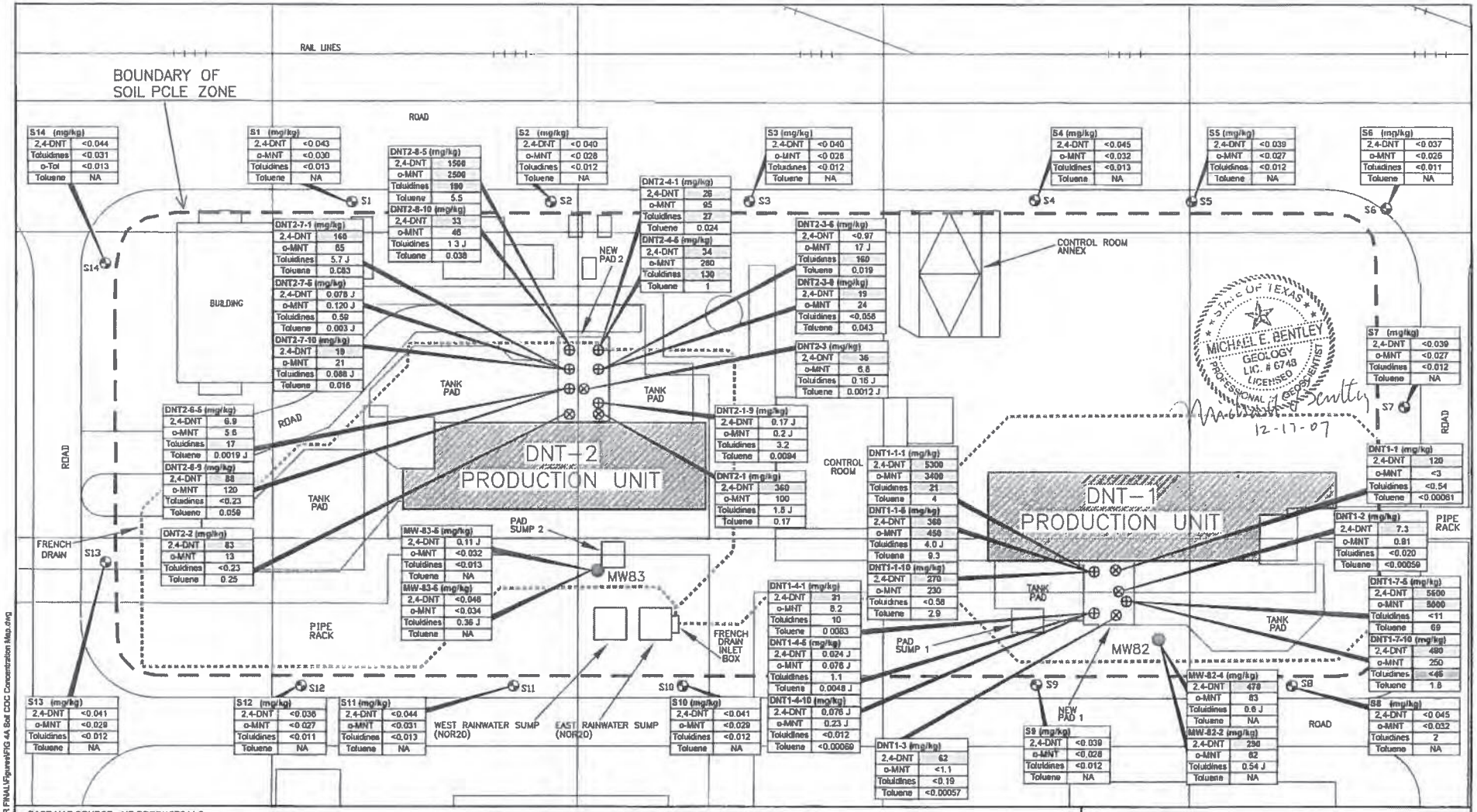
Well/Sample Number	Zone Sampled	Date Collected	2,4-DNT (µg/l)	2,6-DNT (µg/l)	4,6-DNOC (µg/l)	o-MNT (µg/l)	m-MNT (µg/l)	p-MNT (µg/l)	o-Toluidine (µg/l)	Total NT (µg/l)
HP-33	IZ	5/20/98	140	22	<50	<10	<10	<10	<20	162
HP-34	IZ	5/20/98	<12	<12	<59	<12	<12	<12	<24	NA
HP-35	USZ	5/20/98	<10	<10	<50	<10	<10	<10	<20	NA
HP-36	LSZ	5/20/98	<10	<10	<50	<10	<10	<10	<20	NA
HP-36 Dup	LSZ	5/20/98	<13	<13	<66	<13	<13	<13	<27	NA
HP-37	IZ	5/20/98	25	<10	<50	<10	<10	<10	<20	25
HP-38	USZ	5/19/98	<14	<14	<68	<14	<14	<14	<27	NA
HP-39	LSZ	5/18/98	<10	<10	<50	<10	<10	<10	<20	NA
HP-42	IZ	5/18/98	<15	<15	<74	<15	<15	<15	<29	NA

Notes:

1. DNT - Dinitrotoluene
2. DNOC - Dinitro-o-cresol
3. MNT - Mononitrotoluene
4. Total NT - Total Nitrotoluenes - Obtained by adding concentrations of 2,4-DNT, 2,6-DNT, o, m, p-MNT
5. ND - Concentration below reporting limit, reporting limits not available.
6. NA - Not analyzed
7. Numbers preceded by "<" indicate that the constituent was not detected at the indicated detection limit.
8. Dup - Field Duplicate Sample
9. D - Indicates diluted sample rerun in laboratory due to initital result exceeding calibration curve.
10. µg/l - micrograms per liter

Soil Data Summary

DNT Manufacturing Area
(AOC3)



BASE MAP SOURCE: AIR PRODUCTS LLC

EXPLANATION

- S12 ⊕ SURFACE SOIL SAMPLING LOCATION (NOVEMBER 2005)
- MW83 ⊕ SHALLOW ZONE MONITORING WELL BORING SOIL SAMPLE
- DNT2-6-5 ⊕ LOCATION OF SOIL BORING SAMPLE DNT-2 PROCESS UNIT, BORING NO.6, 5=DEPTH (FT) BELOW EXCAVATION BOTTOM (AUGUST - SEPTEMBER 2003)
- DNT2-2 ⊗ LOCATION OF EXCAVATION BOTTOM SAMPLE (1 FT. BELOW GRADE) (AUGUST - SEPTEMBER 2003)
- FRENCH DRAIN

RAL = RESIDENTIAL ASSESSMENT LEVEL = CRITICAL PCL = RESIDENTIAL 30-ACRE $^{Tot}Soil_{Comb}$
NA = NOT ANALYZED
J = ESTIMATED RESULT. RESULT IS LESS THAN THE SAMPLE-SPECIFIC QUANTITATION LIMIT
DNT = DINITROTOLUENE
MNT = MONONITROTOLUENE
mg/kg = MILLIGRAMS PER KILOGRAM
BOLD FACE INDICATES CONCENTRATION VALUE THAT EXCEEDS RAL
YELLOW SHADING = MEASURED CONCENTRATION ABOVE RAL
ORANGE SHADING = SAMPLE-SPECIFIC DETECTION LIMIT ABOVE RAL

0 30
APPROXIMATE SCALE (FEET)

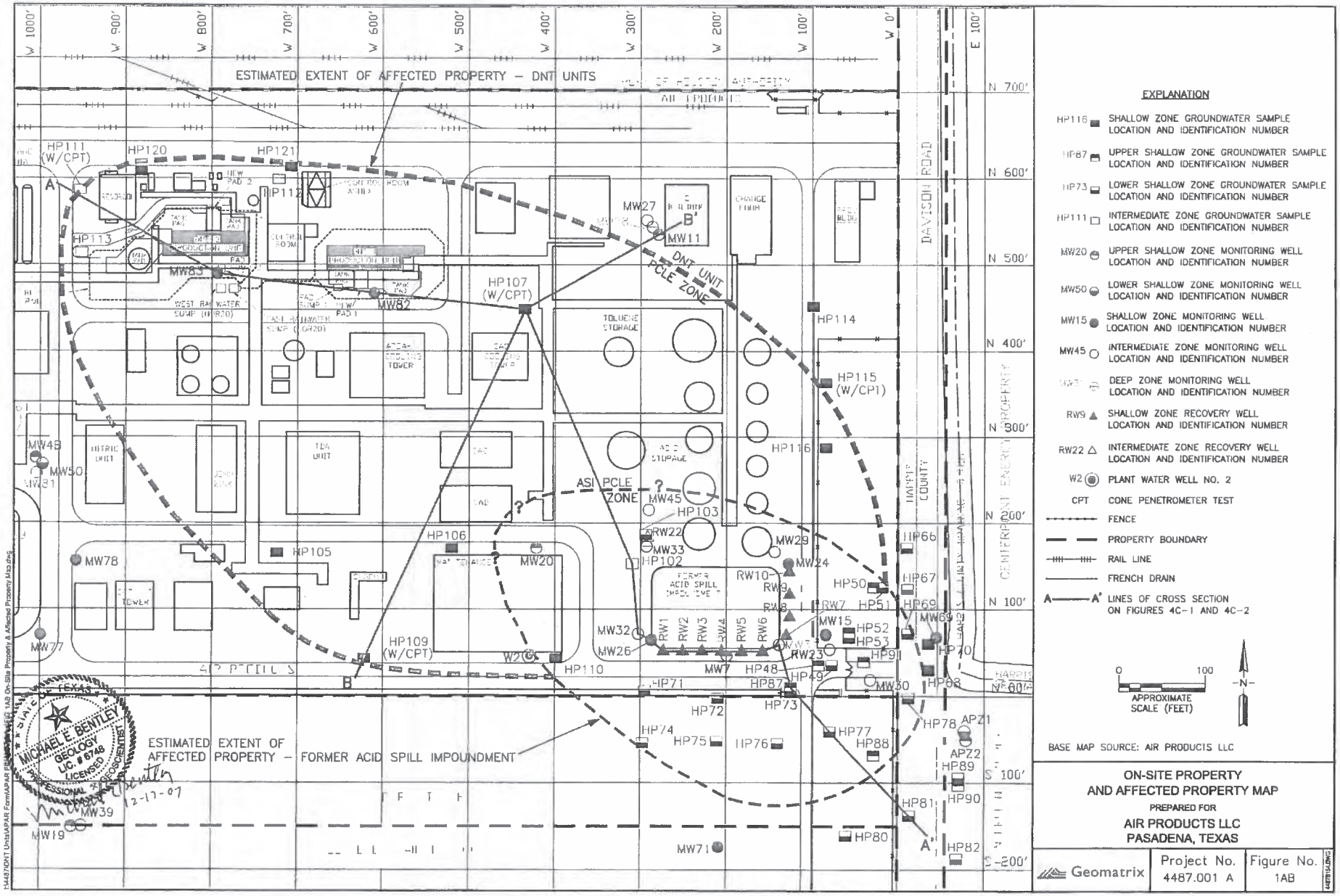
SOIL COC CONCENTRATION MAP

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

Geomatrix | Project No. 4487.001 A | Figure No. 4A

I:\4487\DNT Units\APAR Form\APAR FINAL\Figures\FIG 4A Soil COC Concentration Map.dwg



ON-SITE PROPERTY
AND AFFECTED PROPERTY MAP
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Geomatrix	Project No. 4487.001 A	Figure No. 1AB

I:\4487\DNT Units\APAR Form\APAR Figures\4487 1AB On-Site Property & Affected Property Map.dwg

Table 6-1
SOIL ANALYTICAL DATA SUMMARY
DNT PRODUCTION UNITS
Air Products, LP
Pasadena, Texas
(all concentrations in mg/kg)

Well ID	Sample Depth (feet)	Date	2,4-Dinitrotoluene	2,6-Dinitrotoluene	o- Nitrotoluene	m- Nitrotoluene	p- Nitrotoluene	o-Toluidine	5-Nitro-o-Toluidine	Strontium	Zinc
MW-82	2 - 2.5	10/17/2005	**290**	**120**	**82**	**7.3**	**62**	**0.54 J**	**20**	**48.4**	**30.7 J**
MW-82	3 - 4	10/17/2005	**470**	**100**	**63**	**5.5**	**46**	**0.6 J**	**18**	**112**	**23.7 J**
MW-83	5	10/18/2005	**0.11 J**	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	**283**	**736 J**
MW-83	6 - 6.5	10/18/2005	<0.51	<0.51	<0.51	<0.51	<0.51	**0.36**	<0.51	**87.5 J**	**52.3 J**
S1	3	11/8/2005	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	--	--
S2	2	11/8/2005	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	--	--
S3	2	11/8/2005	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	--
S4	0.5	11/8/2005	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	--	--
S5	2.5	11/8/2005	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	--	--
S6	3.5	11/8/2005	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	--	--
S7	2	11/8/2005	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	--	--
S8	2	11/8/2005	<0.48	<0.48	<0.48	<0.48	<0.48	**2.0**	<0.48	--	--
S9	2	11/8/2005	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	--	--
S10	2	11/8/2005	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	--	--
S11	3	11/8/2005	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	<0.47	--	--
S12	2	11/8/2005	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	--	--
S13	2	11/8/2005	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	--	--
S14	3	11/8/2005	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	--	--
TRRP Tier 1 Soil PCL for 0.5-acre Commercial/Industrial $^{Tot}Soil_{Comb}$			28	28	1,100	1,000	1,000	59	580	490,000	250,000

Notes:
1. Detections indicated in **bold**.
2. Analytes exceeding Commercial/Industrial PCLs are indicated with blue shading.
3. '<' indicates analyte concentration is below indicated sample-specific Method Quantitation Limit (Reporting Limit).
4. 'J' indicates concentration is below Reporting Limit but above Method Detection Limit.
5. '-' indicates analysis not performed since "maximum concentrations" (MW82 and MW83 soils) have levels below PCL
6. PCL: Protective Concentration Level

TABLE 7-2
SOIL ANALYTICAL RESULTS - VOLATILES
DNT Production Units
SEMIANNUAL REPORT - January 2004
Air Products, L.P.
Pasadena, Texas

Sample Identification	Date Collected	Benzene (mg/kg)	Toluene (mg/kg)	o-Xylene (mg/kg)	m-Xylene & p-Xylene	p-Isopropyltoluene (mg/kg)	1,2,4-Trimethylbenzene (mg/kg)	1,2-Dichlorobenzene (mg/kg)	1,2-Dichloroethane (mg/kg)	Naphthalene (mg/kg)	Methyl Ethyl Ketone (mg/kg)	Methylene Chloride (mg/kg)
DNT1-1	8/29/2003	<0.0061	0.001	<0.0061	<0.0061	<0.0061	<0.0061	<0.0061	0.0017	<0.0061	0.0022	<0.0061
DNT1-2	8/29/2003	<0.0059	0.001	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.012	<0.0059
DNT1-3	8/29/2003	<0.0057	0.001	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	0.00058	<0.0057	<0.011	<0.0057
DNT1-1-1	8/29/2003	<0.31	4	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.31	<0.61	<0.31
DNT1-1-5	9/5/2003	<0.33	9.3	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	0.17	<0.33
DNT1-1-10	9/5/2003	<0.34	2.9	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	0.13	<0.34
DNT1-4-1	9/5/2003	<0.0072	0.0083	<0.0072	<0.0072	<0.0072	<0.0072	<0.0072	<0.0072	<0.0072	<0.014	<0.0072
DNT1-4-5	9/5/2003	<0.0071	0.0048	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	0.0055	<0.0071
DNT1-4-10	9/5/2003	<0.0069	0.001	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	0.00097	<0.0069	<0.014	<0.0069
DNT1-7-5	9/5/2003	<3	69	<3	<3	<3	<3	<3	<3	<3	<6.1	<3
DNT1-7-10	9/5/2003	<0.34	1.8	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34
DNT2-1	8/29/2003	<0.011	0.17	<0.011	<0.011	<0.011	<0.011	0.0017	0.001	0.011	<0.022	0.016
DNT2-2	8/29/2003	<0.013	0.25	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.026	0.025
DNT2-3	8/29/2003	<0.0061	0.0012	<0.0061	<0.0061	<0.0061	<0.0061	0.0011	0.0011	<0.0061	<0.012	0.003
DNT2-1-9	9/4/2003	<0.013	0.0094	<0.007	<0.007	<0.007	<0.007	<0.013	0.0014	<0.013	0.006	0.0088
DNT2-3-6	9/4/2003	<0.035	0.019	<0.007	<0.007	<0.007	<0.007	<0.035	0.0027	0.0098	0.0055	0.0027
DNT2-3-9	9/7/2003	<0.035	0.043	<0.013	<0.013	<0.013	<0.013	<0.035	0.0018	<0.035	0.11	0.0061
DNT2-4-1	9/4/2003	<0.035	0.024	<0.0057	<0.0057	<0.0057	<0.0057	<0.035	0.0017	<0.035	0.031	0.0023
DNT2-4-5	9/4/2003	0.0035	1	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.078	<0.035
DNT2-4-10	9/4/2003	<0.0069	0.7	<0.0069	<0.0069	<0.0069	<0.0069	<0.0069	0.0012	<0.0069	0.16	0.0046
DNT2-6-5	9/4/2003	<0.0072	0.0019	<0.0072	<0.0072	<0.0072	<0.0072	<0.0072	0.0022	<0.0072	0.0095	0.0029
DNT2-6-9	9/4/2003	<0.0066	0.059	<0.0066	<0.0066	<0.0066	<0.0066	<0.0066	0.0025	<0.0066	0.029	0.0024
DNT2-7-1	9/4/2003	<0.0058	0.063	0.0009	0.0019	0.0025	0.00076	<0.0058	0.001	0.0059	0.0041	<0.0058
DNT2-7-5	9/4/2003	<0.007	0.003	<0.007	<0.007	<0.007	<0.007	<0.007	0.0023	<0.007	0.0045	0.0039
DNT2-7-10	9/4/2003	<0.0067	0.016	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	<0.0067	0.0059	0.01	<0.0067
DNT2-8-5	9/4/2003	<0.64	5.5	<0.64	<0.64	<0.64	<0.64	<0.64	<0.64	0.76	<1.3	<0.64
DNT2-8-10	9/4/2003	<0.0068	0.038	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	0.0066	0.0024	<0.0068

Notes:
J qualifiers for some concentrations are not shown
Shading indicates result below quantitation limit shown

Key to soil sample identification:
DNT 2-6-9: DNT-2 process unit, pier hole No. 6, depth 9 feet below base of excavation
DNT 1-3: DNT-1 process unit, bottom surface of excavation, location No. 3.

TABLE 7-1
SOIL ANALYTICAL RESULTS - SEMIVOLATILES
DNT Production Units
SEMIANNUAL REPORT - January 2004
Air Products, L.P.
Pasadena, Texas

Sample Identification	Date Collected	2,4-DNT (mg/kg)	2,6-DNT (mg/kg)	4,6-DNOC (mg/kg)	o-MNT (mg/kg)	m-MNT (mg/kg)	p-MNT (mg/kg)	1,3-Dichloro-benzene (mg/kg)	Nitro-benzene (mg/kg)	5-Nitro-o-toluidine (mg/kg)	o-Toluidine (mg/kg)	2,4-TDA (mg/kg)	2,6-TDA (mg/kg)
DNT1-1	8/29/2003	120	25	<100	<21	<21	<21	<21	<21	<21	<21	<21	<21
DNT1-2	8/29/2003	7.3	2.9	<3.7	0.91	0.001	0.97	<0.0059	<0.77	0.13	<0.77	<0.77	<0.77
DNT1-3	8/29/2003	62	10	<36	<7.4	<7.4	<7.4	<7.4	<7.4	0.37	<7.4	<7.4	<7.4
DNT1-1-1	8/29/2003	5,300	850	<40	3,400	260	2,300	<8.2	0.9	20	21	<8.2	<8.2
DNT1-1-5	9/5/2003	360	130	<210	450	39	310	<44	<44	7.1	4.0	<44	<44
DNT1-1-10	9/5/2003	270	56	<110	230	20	170	<22	<22	2.7	<22	<22	<22
DNT1-4-1	9/5/2003	31	13	<12	8.2	0.77	7.3	<2.4	<2.4	3.4	10	1.4	<2.4
DNT1-4-5	9/5/2003	0.02	<0.47	<2.3	0.08	<0.47	<0.47	<0.47	<0.47	0.05	1.1	<0.47	<0.47
DNT1-4-10	9/5/2003	0.08	0.1	<2.2	0.23	<0.46	0.16	<0.46	<0.46	0.04	<0.46	<0.46	<0.46
DNT1-7-5	9/5/2003	5,500	2,100	<1900	5,000	490	3,600	<400	<400	29	<400	<400	<400
DNT1-7-10	9/5/2003	480	200	<220	250	21	190	<45	<45	4.8	<45	<45	<45
DNT2-1	8/29/2003	360	93	<180	100	11	91	<37	<37	1.5	1.5	<37	<37
DNT2-2	8/29/2003	83	27	<42	13	<8.7	10	<0.013	<8.7	0.53	<8.7	<8.7	<8.7
DNT2-3	8/29/2003	36	15	<20	6.8	0.72	5.6	<4	<4	0.55	0.16	<4	<4
DNT2-1-9	9/4/2003	0.17	<0.46	<2.2	0.2	<0.46	0.26	<0.46	<0.46	0.81	3.2	<0.46	<0.46
DNT2-3-6	9/4/2003	<23	<23	<110	17	<23	25	<23	<23	5.8	160	<23	<23
DNT2-3-9	9/7/2003	19	3.20	<11	22	2.2	22	<2.2	<2.2	2.3	<2.2	<2.2	<2.2
DNT2-4-1	9/4/2003	26	7.0	<91	83	10	83	<19	<19	8.6	27	<19	<19
DNT2-4-5	9/4/2003	34	20	<110	280	33	250	<23	<23	33	130	<23	<23
DNT2-4-10	9/4/2003	160	43	<110	300	33	240	<22	<22	9.3	3.1	<22	<22
DNT2-6-5	9/4/2003	6.9	1.1	<12	5.6	0.52	5.1	<2.4	<2.4	2.7	17	<2.4	<2.4
DNT2-6-9	9/4/2003	88	37	<43	120	13	93	<8.9	<8.9	4.2	<8.9	<8.9	<8.9
DNT2-7-1	9/4/2003	160	63	<93	65	6	49	<19	<19	5.6	5.7	<19	<19
DNT2-7-5	9/4/2003	0.1	<0.46	<2.2	0.12	-	0.09	<0.46	<0.46	0.031	0.59	0.34	<0.46
DNT2-7-10	9/4/2003	19	7.5	<11	21	2	19	<2.2	<2.2	2.6	0.09	<2.2	<2.2
DNT2-8-5	9/4/2003	1,500	410	<210	2,500	210	1,700	<42	<42	87	190	<42	<42
DNT2-8-10	9/4/2003	33	7.8	<22	46	5.1	41	<4.5	<4.5	3.2	1.3	<4.5	<4.5

Notes:
DNT - Dinitrotoluene
MNT - Mononitrotoluene
TDA - Toluenediamine
DNOC - Dinitro-o-cresol
o-Toluidine includes both o- and p-Toluidine
J qualifiers for some concentrations are not shown
Shading indicates result below quantitation limit shown

Key to soil sample identification:
DNT 2-6-9: DNT-2 process unit, pier hole No. 6, depth 9 feet below base of excavation
DNT 1-3: DNT-1 process unit, bottom surface of excavation, location No. 3.

TABLE 7-4
SUMMARY OF ANALYTICAL RESULTS
TDA CHECK TANK PAD
Air Products LLC
Pasadena, Texas

SAMPLE IDENTIFICATION	Sampled Depth (ft bgl)	SEMIVOLATILE ORGANICS										
		1,3-DCB	2,4-DNT	2,6-DNT	46DN2MPH	m-MNT	o-MNT	p-MNT	NB	5-N-o-T	*TDAs	**Toluidines
0.5 acre RES $^{Tot}Soil_{Comb}$		120	6.9	6.9	6.7	670	21	270	66	520	1.5	47
0.5 acre RES $^{GW}Soil_{Ing}$		6.7	0.0053	0.0048	0.0047	1.8	0.031	0.43	0.35	0.52	0.015	0.089
0.5 acre C/I $^{Tot}Soil_{Comb}$		170	28	28	68	6800	87	1200	110	2100	6	110
0.5 acre C/I $^{GW}Soil_{Ing}$		20	0.012	0.011	0.014	5.5	0.07	0.96	1	12	0.034	0.2
Texas-Specific Background		-	-	-	-	-	-	-	-	-	-	-
TDA CTP-1	**1.5**	<0.0019	<0.0044	<0.0036	<0.0061	<0.00069	<0.0016	<0.0014	<0.0036	<0.0028	**5.7**	**0.026**
TDA CTP-2	**1.5**	<0.0022	<0.0052	<0.0043	<0.0072	<0.00082	<0.0019	<0.0017	<0.0043	<0.0033	<0.0018	<0.020
TDA CTP-3	**1.5**	<0.0018	<0.0043	<0.0035	<0.0059	<0.00068	<0.0016	<0.0014	<0.0035	<0.0027	**0.22**	<0.017
TDA CTP-4	**1.5**	**0.0092J**	<0.0048	<0.0039	<0.0066	<0.00075	<0.0018	<0.0015	<0.0039	<0.0030	**2.9**	**0.059**
TDA CTP-5	**1.5**	<0.0018	<0.0043	<0.0035	<0.0059	<0.00067	<0.0016	<0.0014	<0.0035	<0.0027	<0.0015	**0.062**
TDA CTP-6	**1.5**	<0.0019	<0.0044	<0.0036	<0.0061	<0.00070	<0.0016	<0.0014	<0.0036	<0.0028	**0.19**	<0.017

Notes:

All concentrations reported in mg/kg (milligrams/kilogram)

" < " = concentration is less than the sample-specific Method Detection Limit shown.

J = Estimated concentration. Analyte was detected at a level less than the Reporting Limit, and greater than or equal to the Method Detection Limit

* 2,4-TDA and 2,6-TDA isomers are combined since analytical method cannot cleary distinguish the two isomers. PCLs listed are for 2,4-TDA, the most conservative PCLs between the two compounds.

** o-Toluidine and p-Toluidine isomers are combined since analytical method cannot clearly disinguish p- Toluidine. PCLs listed are the most conservative between the two compounds.

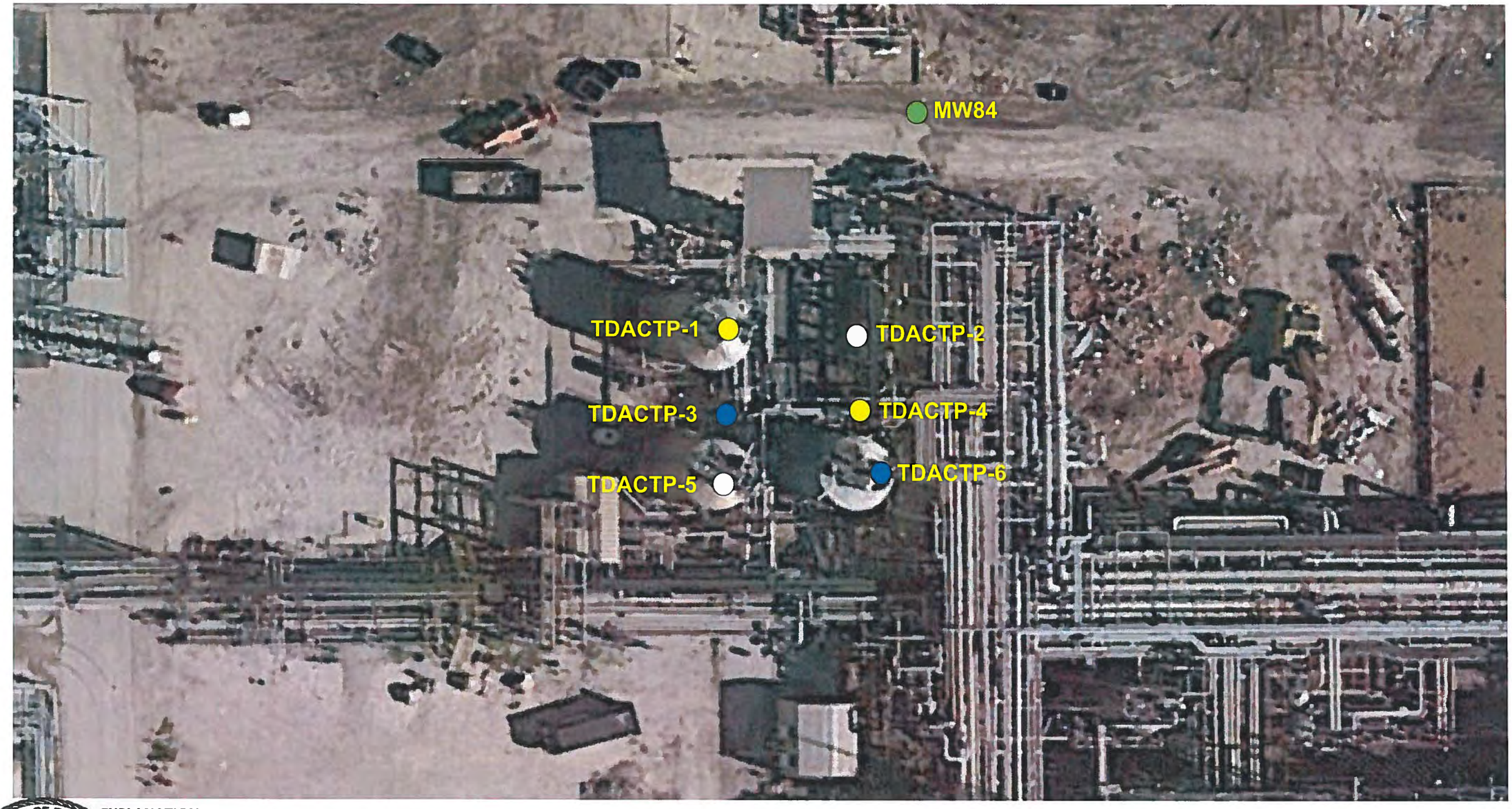
1,3-DCB = 1,3 Dichlorobenzene
2,4-DNT = 2,4 Dinitrotoluene
2,6-DNT = 2,6 Dinitrotoluene
46DN2MPH = 4,6-Dinitro-2-methylphenol
m-MNT = m-Nitrotoluene, also known as m-Mononitrotoluene
o-MNT = o-Nitrotoluene, also known as o-Mononitrotoluene
p-MNT = p-Nitrotoluene, also known as p-Mononitrotoluene

NB = Nitrobenzene
5-N-o-T = 5-Nitro-o-Toluidine
TDAs = 2,4- and 2,6 Toluenediamine
Toluidines = o-, and p- Toluidine
TCE = Trichloroethylene
PCBs = Polychlorinated biphenyls, including Aroclor 1242

Cell Color Codes

Concentration exceeds Residential, and Commercial-Industrial Groundwater Protection PCL

Concentration exceeds the Groundwater Protection PCLs and Residential Total Soil Combined PCL



EXPLANATION

- GROUNDWATER PROTECTIVE CONCENTRATION LEVEL EXCEEDED IN SOIL
- GROUNDWATER AND TOTAL SOIL COMBINED PROTECTIVE CONCENTRATION LEVELS EXCEEDED IN SOIL
- NO PROTECTIVE CONCENTRATION LEVELS EXCEEDED
- GROUNDWATER MONITORING WELL

STATE OF TEXAS
CRAIG C. MACON
Geology
1301
LICENSED
PROFESSIONAL GEOSCIENTIST

1/20/15

AERIAL IMAGE PROVIDED BY GOOGLE EARTH
IMAGE DATE: APRIL 8, 2014

0 25
APPROXIMATE SCALE IN FEET

FORMER TDA CHECK TANK PAD ASSESSMENT SOIL SAMPLING

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

By: SLB	Date: 1/20/2015	Project No. 4487
amec		Figure 7-1

TABLE 7-5
SUMMARY OF ANALYTICAL RESULTS
DNT MANUFACTURING AREA ASSESSMENT
Air Products LLC
Pasadena, Texas

SAMPLE IDENTIFICATION	Sampled Interval (ft bgl)	SEMIVOLATILE ORGANICS											VOLATILE ORGANICS				PCBs	METALS												
		1,3-DCB	2,4-DNT	2,6-DNT	46DN2MPH	m-MNT	o-MNT	p-MNT	NB	5-N-o-T	*TDAs	**Toluidines	2-Butanone	Chloroform	Toluene	TCE	Aroclor 1242	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Lead	Mercury***	Nickel	Selenium	Silver	Strontium	Zinc
0.5 acre RES $^{Tot}Soil_{Comb}$		120	6.9	6.9	6.7	670	21	270	66	520	1.5	47	40000	16	5900	18	1.1	15	20	8100	38	52	33000	500	8.3	840	310	97	44000	9900
0.5 acre RES $^{GW}Soil_{Ing}$		6.7	0.0053	0.0048	0.0047	1.8	0.031	0.43	0.35	0.52	0.015	0.089	29	1	8.2	0.034	11	5.4	5	440	1.8	1.5	2400	3	2.1	160	2.3	0.48	610	2400
0.5 acre C/I $^{Tot}Soil_{Comb}$		170	28	28	68	6800	87	1200	110	2100	6	110	190000	26	42000	40	7.7	310	200	120000	250	2600	120000	1600	19	8800	4900	2300	490000	250000
0.5 acre C/I $^{GW}Soil_{Ing}$		20	0.012	0.011	0.014	5.5	0.07	0.96	1	12	0.034	0.2	87	3	8.2	0.034	11	5.4	5.0	440	1.8	1.5	2400	3	2.1	470	2.3	1.4	1800	7600
Texas-Specific Background		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5.9	300	1.5	-	30	15	0.04	10	0.3	-	100	30
B1	2-3	<0.0021	<0.0049	<0.0040	<0.0067	<0.00076	0.080	0.097	<0.0040	<0.0031	<0.0017	<0.019	<0.0026	<0.00089	<0.0019	<0.0019	<0.0017	<0.29	3.2	180	0.76	0.038J	10	9.8	0.0088J	11	<0.33	<0.15	260	30
B2	2-3	<0.0022	0.062	<0.0042	<0.0071	<0.00081	0.11	0.12	<0.0042	<0.0032	<0.0018	<0.020	<0.0027	<0.00094	<0.0020	<0.0020	<0.0018	<0.31	7.8	190	1.5	<0.034	21	18	<0.0051	21	<0.35	<0.16	35	34
B3	3-4	<0.0021	2.0	<0.0040	<0.0067	0.12	0.19	0.13	<0.0040	0.31	<0.0017	4.8	0.012J	<0.00090	0.014	<0.0019	<0.0017	<0.30	7.1	270	1.6	0.039J	22	18	0.010J	18	<0.34	<0.16	33	35
B6	2-3	<0.0020	0.038	0.023	<0.0064	0.095	0.34	0.27	<0.0038	<0.0029	<0.0016	0.40	<0.0024	<0.00085	<0.0018	<0.0018	<0.0016	<0.28	4.6	380	0.95	<0.031	12	19	<0.0045	15	<0.32	<0.15	45	25
B9	3-4	0.0039J	30	9.1	<0.0065	1.4	15	15	<0.0039	2.0	<0.0017	1.5	<0.0025	<0.00087	0.0055J	<0.0019	<0.0016	<0.29	4.1	230	0.91	0.056J	15	11	0.029	22	<0.32	<0.15	100	36
B13	2-3	<0.0021	0.057	0.047	<0.0067	<0.00076	0.16	0.14	<0.0040	<0.0031	<0.0017	0.058	<0.0026	<0.00090	<0.0019	<0.0019	<0.0017	<0.29	4.2	150	0.73	0.070J	12	11	<0.0046	13	<0.33	<0.15	230	34
B14	3-4	<0.0023	<0.0053	<0.0043	<0.0073	<0.00083	0.12	0.12	<0.0044	<0.0034	<0.0019	0.026	0.012J	<0.00098	<0.0020	<0.0021	<0.0018	<0.33	4.5	250	1.4	0.070J	18	22	0.0070J	16	<0.36	<0.17	35	32
B15	3-4	<0.0018	11	0.40	<0.0058	0.43	2.8	2.9	<0.0035	2.9	<0.0015	14	<0.0023	<0.00078	0.0052J	<0.0017	<0.0015	<0.25	4.4	150	0.70	0.054J	11	14	0.036	12	<0.28	<0.13	210	30
B17	3-4	<2.1	2600	770	<6.6	350	3800	2500	<3.9	<3.0	<1.7	<19	<0.0026	<0.00089	190000	<0.0019	<0.0017	<0.29	3.3	76	0.25J	<0.032	14	18	0.044	6.1	<0.32	<0.15	40	29
B18	3-4	<0.97	240	50	<3.1	81	660	480	<1.9	52	<0.80	150	0.0038J	<0.00083	4400	<0.0018	<0.0016	<0.27	3.8	210	0.64	0.14J	10	16	0.0090J	10	<0.30	<0.14	98	50
B19	3-4	<0.0018	0.28	0.088	<0.0059	0.087	0.20	0.19	<0.0035	0.097	<0.0015	0.36	<0.0023	<0.00079	0.0033J	<0.0017	<0.0015	<0.27	4.4	170	0.80	0.26J	17	58	0.023	36	<0.30	<0.14	160	5800
B21	3-4	<0.0020	<0.0047	<0.0038	<0.0065	<0.00073	0.066	0.079	<0.0038	<0.0030	<0.0016	<0.018	0.0065J	<0.00086	<0.0018	<0.0018	<0.0016	<029	4.0	180	0.72	0.10J	10	15	0.017J	11	<0.32	<0.15	58	30
B25	3-4	<0.0016	0.084	0.062	<0.0053	0.079	0.064	0.077	<0.0032	0.030	<0.0013	0.026	<0.0020	<0.00070	0.0016J	<0.0015	<0.0013	<0.24	1.8	20	0.11J	0.26	8.6	<2.2	0.14	25	<0.27	<0.12	180	120
B28	3-4	<0.0020	<0.0046	<0.0037	<0.0063	<0.00072	0.076	0.081	<0.0038	<0.0029	<0.0016	<0.018	<0.0024	<0.00084	<0.0018	<0.0018	<0.0016	<0.28	3.7	200	0.81	0.078J	11	11	0.015J	10	<0.31	<0.14	35	22
B30	3-4	<0.0020	<0.0046	<0.0038	<0.0063	<0.00072	<0.0017	<0.0015	<0.0038	<0.0029	<0.0016	0.025	<0.0024	<0.00084	<0.0018	<0.0018	<0.0016	<0.29	3.6	210	0.86	<0.032	12	10	<0.0045	9.2	<0.32	<0.15	30	20
B37	1-2	<0.0092	8.6	7.8	<0.030	0.46	2.0	1.6	<0.018	1.1	<0.0076	0.17	0.0048J	<0.00079	0.0018J	<0.0017	<0.0015	<0.27	3.0	120	0.15J	0.28J	11	8.5	0.092	15	<0.30	<0.14	160	410
B38	3-4	<0.0021	0.17	0.034	<0.0068	0.11	0.36	0.40	<0.0040	<0.0031	<0.0017	5.3	0.0041J	<0.00090	0.024	<0.0019	<0.0017	<0.31	5.2	220	0.84	0.074J	15	15	<0.0048	13	<0.35	<0.16	220	43
B39	3-4	<0.0022	<0.0052	<0.0043	<0.0072	<0.00082	0.060	0.10	<0.0043	<0.0033	<0.0018	<0.020	0.0036J	<0.00096	<0.0020	<0.0020	<0.0018	<0.31	7.4	130	0.69	0.087J	17	15	0.0062J	13	<0.35	<0.16	67	35
B40	3-4	<0.0018	1.9	0.34	<0.0057	0.29	2.6	2.0	<0.0034	1.7	<0.0014	1.6	<0.0022	0.0032J	0.038	<0.0016	<0.0014	<0.26	4.0	92	0.58	0.16J	12	7.5	0.012J	44	<0.29	<0.13	110	120
B41	3-4	<0.017	0.26	<0.033	<0.055	<0.0063	0.49	0.64	<0.033	<0.025	<0.014	<0.15	<0.0021	<0.00073	<0.0015	<0.0016	<0.0014	<0.25	4.6	160	0.47	0.13J	8.8	8.2	0.0068J	42	<0.28	<0.13	510	50

Notes:
All concentrations reported in mg/kg (milligrams/kilogram)
" < " = concentration is less than the sample-specific Method Detection Limit shown.
J = Estimated concentration. Analyte was detected at a level less than the Reporting Limit, and greater than or equal to the Method Detection Limit
* 2,4-TDA and 2,6-TDA isomers are combined since analytical method cannot cleary distinguish the two isomers.
** o-Toluidine and p-Toluidine isomers are combined since analytical method cannot clearly disinguish p- Toluidine
*** Assumes pH is 6.8

Cell Color Codes
- Concentration exceeds Residential Groundwater Protection PCL and Texas-Specific Background
- Concentration exceeds Residential, Commercial-Industrial Groundwater Protection PCL, and Texas-Specific Background
- Concentration exceeds the Residential Total Soil Combined PCL
- Concentration exceeds the Residential and the Commercial-Industrial Total Soil Combined PCL

1,3-DCB = 1,3 Dichlorobenzene
2,4-DNT = 2,4 Dinitrotoluene
2,6-DNT = 2,6 Dinitrotoluene
46DN2MPH = 4,6-Dinitro-2-methylphenol
m-MNT = m-Nitrotoluene, also known as m-Mononitrotoluene
o-MNT = o-Nitrotoluene, also known as o-Mononitrotoluene
p-MNT = p-Nitrotoluene, also known as p-Mononitrotoluene

NB = Nitrobenzene
5-N-o-T = 5-Nitro-o-Toluidine
TDAs = 2,4- and 2,6 Toluenediamine
Toluidines = o-, and p- Toluidine
TCE = Trichloroethylene
PCBs = Polychlorinated biphenyls, including Aroclor 1242



EXPLANATION

- GROUNDWATER PROTECTIVE CONCENTRATION LEVEL EXCEEDED IN SOIL
- GROUNDWATER AND TOTAL SOIL COMBINED PROTECTIVE CONCENTRATION LEVELS EXCEEDED IN SOIL
- SAMPLE NOT ANALYZED, BUT NO SIGNIFICANT FIELD INDICATIONS OF IMPACT
- DRILLING REFUSAL ON CONCRETE
- GROUNDWATER MONITORING WELL

AERIAL IMAGE PROVIDED BY GOOGLE EARTH
IMAGE DATE: APRIL 8, 2014

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APPROXIMATE SCALE IN FEET

STATE OF TEXAS
CRAIG C. MACON
Geology
1301
LICENSED
PROFESSIONAL GEOSCIENTIST
1/20/15

FORMER DNT MANUFACTURING AREA ASSESSMENT SOIL SAMPLING RESULTS

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

By: SLB	Date: 1/20/2015	Project No. 4487
amec		Figure 7-2

Groundwater Data Summary

SWMUs and AOCs Subject to Groundwater Corrective Action

Waste Management Area 1 (consisting of the following 5 SWMUs and AOCs):

Former Effluent Impoundment (NOR 001);
Former Neutralization Pit (NOR No. 027);
DNT Loading Area [consisting of the DNT Tank Car Loading Area (NOR No. 022), DNT Truck Loading Area (NOR 023), DNT Spill-Off Pond (NOR No. 024)];
DNT Storage Area (AOC1); and
Northwest Storage Area (AOC2).

Waste Management Area 2 (consisting of the following 2 SWMUs and AOCs):

Former Acid Spill Impoundment (NOR 002); and
DNT Manufacturing Area (AOC3).

TDA Tank Car Loading Area (NOR No. 025).

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
APZ-1	ASI	LSZ	10/21/2004	0.99	0.26 J	<9.5	<9.5	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
APZ-1	ASI	LSZ	4/6/2005	0.19 J	0.097 J	<0.26	<0.26	<0.26	--	--	--	--	--	<0.26	<0.52	<0.26	<0.26	<2.1	~
APZ-1	ASI	LSZ	10/25/2005	0.26	2.8	<0.25	<0.25	<0.25	--	--	--	--	--	<0.25	<0.5	<0.25	<0.25	<2	Exceed
APZ-1	ASI	LSZ	4/20/2006	<0.97	0.095 J	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
APZ-1	ASI	LSZ	11/1/2006	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	<5	~
APZ-1	ASI	LSZ	4/20/2007	<0.97	4.4	<0.97	<0.97	<0.97	--	--	--	<4.8	<4.8	<0.97	<0.97	<0.97	<0.97	--	Exceed
APZ-1	ASI	LSZ	10/12/2007	<0.057	<0.083	<0.085	<0.067	<0.075	--	--	--	<1.7	<1.7	<0.069	<0.10	<0.053	<0.096	--	~
APZ-1	ASI	LSZ	4/9/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	--	--	<0.070	<0.11	<0.054	<0.098	<1.8	~
APZ-1	ASI	LSZ	10/17/2008	<0.062	<0.089	<0.091	<0.071	<0.081	--	--	--	<1.9	<1.9	<0.073	<0.11	<0.057	<0.10	--	~
APZ-1	ASI	LSZ	4/22/2009	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	<1.77	<1.77	<0.0699	<0.105	<0.0544	<0.0984	--	~
APZ-2	ASI	SZ	10/21/2004	0.17 J	<1.2	<12	<12	<12	<47	--	--	--	--	<12	<1.2	<12	<1.2	<2.4	~
APZ-2	ASI	SZ	4/6/2005	0.23 J	0.11 J	<0.25	<0.25	<0.25	--	--	--	--	--	0.036 J	<0.5	<0.25	<0.25	<2	~
APZ-2	ASI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
APZ-2	ASI	SZ	4/20/2006	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	<5	~
APZ-2	ASI	SZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
APZ-2	ASI	SZ	4/20/2007	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	<5	<5	<0.99	<0.99	<0.99	<0.99	--	~
APZ-2	ASI	SZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
APZ-2	ASI	SZ	4/9/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
APZ-2	ASI	SZ	10/17/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	<1.8	<1.8	<0.070	<0.11	<0.054	<0.098	--	~
APZ-2	ASI	SZ	4/22/2009	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	<1.77	<1.77	<0.0699	<0.105	<0.0544	<0.0984	--	~
APZ-2	ASI	SZ	10/27/2009	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	<1.76 !	<1.76 !	<0.0692	<0.104	<0.0539	<0.0974	--	~
APZ-2	ASI	SZ	4/8/2010	0.17 J	<0.0848	<0.0865	0.331 J	<0.0767	--	--	--	<1.77	<1.77	<0.0699	<0.105	<0.0544	<0.0984	--	~
DNT1FD	EI	SZ	2/17/2004	4800	1600	130 J	1400	1100	<2500	--	--	<1000	<1000	<500	<1000	<500	<1000	--	Exceed
DNT2FD	EI	SZ	2/17/2004	1900	540	100 J	1200	860	<2500	--	--	<1000	<1000	<500	<1000	<500	<1000	--	Exceed
MW-1	EI	SZ	1/29/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	2/20/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	6/18/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	8/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	7/27/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	1/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	4/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/3/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	5/8/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	8/3/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	1/29/1985	1800	3770	205	2470	1590	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	2/20/1985	1200	2380	134	1620	1040	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/23/1985	3820	6860	254	3420	2240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	12/19/1985	1060	2210	135	1670	928	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	3/25/1986	2230	4420	126	1750	618	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/12/1986	1860	2870	620	730	506	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	8/19/1986	5300	6880	161	2240	1680	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/21/1986	2300	2290	81.5	887	419	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	1/29/1987	4800	5700	84.8	1140	616	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/2/1987	1370	1780	53.7	420	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/24/1987	337	1540	36.3	317	256	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/29/1987	3980	4950	102	1430	949	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	1/27/1988	2360	2740	1040	97	898	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/29/1988	1580	3440	133	716	514	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/27/1988	6060	8640	117	1650	904	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/3/1988	14100	13800	275	3030	2010	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	2/9/1989	9400	12000	270	2800	2300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	5/8/1989	18000	21000	<0	4400	3600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/31/1989	6100	6600	110	1200	890	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/17/1989	6600	7900	160	1600	1300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	1/26/1990	5500	5700	<0	1100	870	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/19/1990	3500	3500	<0	700	500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/9/1990	8600	8800	180	2000	1400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/5/1990	13000	13000	300	2800	1900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	5/1/1991	110	68	<0	26	23	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	8/15/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	10/3/1991	14	<0	<0	13	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/31/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	5/5/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	7/24/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	11/9/1993	67	32	<0	<0	<0	<0	0.41	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.39	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	10/25/1994	14	41	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/22/1995	<0	<0	<0	<0	<0	<0	0.54	0.052	--	--	--	--	--	--	--	~
MW-2	EI	SZ	11/10/1995	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	5/4/1996	<0	<0	<0	<0	<0	<0	0.37	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	11/13/1996	<10	<10	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	5/4/1997	<10	42	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/26/1997	<10	15	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/14/1998	<10	40	<10	<10	<10	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/28/1998	<10	52	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/17/1999	33	46	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/23/1999	<50	570	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	6/6/2000	<10	210 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/11/2000	<100	980	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/6/2001	1.1 J	640 D	0.62 J	1.9 J	1.2 J	<50	--	--	<20	<20	<10	<20	<10	13 J	--	Exceed
MW-2	EI	SZ	10/24/2001	<50	6000 D	2.6 J	14 J	12 J	<250	--	--	<100	<100	<50	<100	<50	140	--	Exceed
MW-2	EI	SZ	4/22/2002	<10	360 D	0.55 J	2.1 J	1.5 J	<52	--	--	<21	<21	<10	<21	<10	8.3 J	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-2	EI	SZ	10/10/2002	6.4 J	1200 D	2.2 J	5.4 J	4 J	<50	--	--	<20	<20	<10	<20	<10	34	--	Exceed
MW-3	EI	SZ	1/29/1985	17	24	1	13	14	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	2/20/1985	8	20	<0	4	6	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/23/1985	23	106	<0	4	6	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	12/19/1985	64.6	1050	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	3/25/1986	234	1650	<0	32.2	23.2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	6/12/1986	257	1890	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	8/19/1986	319	3140	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/24/1986	800	3000	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/29/1987	318	2360	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/2/1987	161	1510	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/24/1987	131	1100	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-3	EI	SZ	1/27/1988	593	2690	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/29/1988	502	1130	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/29/1988	<0	4040	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/3/1988	1260	4520	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	2/14/1989	1700	14000	<0	18	22	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/10/1989	1100	7300	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/31/1989	1100	6300	<0	11	12	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/19/1989	900	4800	<0	11	12	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/22/1990	7200	1500	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/19/1990	600	4300	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/12/1990	540	3700	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/3/1990	720	4400	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/22/1991	99	930	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/1/1991	18	200	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/24/1991	<0	140	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/3/1991	82	720	<0	28	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	2/9/1992	1600	5900	<0	44	38	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/5/1992	1800	6800	<0	61	65	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	8/28/1992	3000	8200	<0	48	51	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/28/1992	4300	13000	<0	58	55	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/28/1993	2500	9100	10	55	55	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/18/1993	4400	9900	<0	38	41	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/20/1993	2200	9500	<0	32	38	<0	0.43	0.097	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	11/5/1993	3900	7900	<0	20	29	<0	0.55	0.05	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/15/1994	2100	5600	<0	11	20	<0	0.39	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/25/1994	1200	3300	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/26/1995	1200	2800	<0	<0	<0	<0	0.54	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	11/12/1995	710	1300	<0	<0	<0	<0	0.16	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/4/1996	740	2400	<0	<0	<0	<0	0.37	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	11/13/1996	1100 D	2800 D	<10	<10	<10	--	0.24	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/4/1997	580 D	770 D	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/26/1997	380 D	580 D	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/13/1998	--	--	--	--	--	--	0.43	<0	--	--	--	--	--	--	--	~
MW-3	EI	SZ	5/27/1998	260 D	330 D	<10	<10	<10	--	0.54	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/28/1998	160 D	180 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/17/1999	120	120	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/23/1999	610	1700	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	6/6/2000	1000 D	2700 D	<10	6.3 J	7.5 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/11/2000	2100 D	7400 D	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/6/2001	3600 D	8200 D	<200	<200	<200	<1000	--	--	<400	<400	<200	<400	<200	310 J	--	Exceed
MW-3	EI	SZ	10/24/2001	2500 D	3300 D	<100	<100	<100	<500	--	--	<200	<200	<100	<200	<100	170 J	--	Exceed
MW-3	EI	SZ	4/22/2002	1300 D	1600 D	1.1 J	2.9 J	3.8 J	<260	--	--	<100	<100	<51	<100	<51	97 J	--	Exceed
MW-3	EI	SZ	10/10/2002	3200 D	3400 D	1.9 J	5.3 J	7.8 J	<48	--	--	<19	<19	<9	<19	<9	140	--	Exceed
MW-4	Neut	SZ	1/29/1985	98	356	9	14	56	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	2/20/1985	44	235	3	44	21	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	7/23/1985	37	199	3	42	19	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	12/19/1985	6.05	98.3	<0	50.1	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	3/25/1986	28.1	372	<0	157	63.2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	1/29/1987	739	1310	79.1	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/2/1987	649	1260	83.5	<0	28	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/23/1987	15.3	1070	<0	84.6	42.9	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/28/1987	614	785	<0	50.8	29.3	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	1/27/1988	425	607	42	<0	21	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/27/1988	659	946	<0	33	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/28/1988	<0	428	<0	<0	21	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/3/1988	280	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	2/9/1989	240	205	<0	14	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	5/5/1989	320	290	<0	24	17	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/31/1989	330	240	<0	13	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/17/1989	620	660	<0	47	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	1/24/1990	1900	1300	28	300	170	<250	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/24/1990	1800	4100	<0	470	270	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/10/1990	3900	7400	83	860	650	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/2/1990	3200	5100	67	770	530	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-4B	Neut	SZ	6/8/1992	48000	55000	31	190	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	5/27/1998	5000 D	3900 D	<10	24	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/10/2003	2300 D	2500 D	<97	9.7 J	8.4 J	<490	--	--	<190	<190	<97	<190	<97	140 J	--	Exceed
MW-4B	Neut	SZ	10/6/2003	2100	2400	<490	<490	<490	<2400	--	--	<970	<970	<490	<970	<490	130 J	--	Exceed
MW-4B	Neut	SZ	4/19/2004	1100	1600	3.7 J	8 J	8.8 J	<49	--	--	<20	<20	<9.8	<20	<9.8	94	--	Exceed
MW-4B	Neut	SZ	10/12/2004	1500	1400	1.8 J	6.6 J	7.6 J	<47	--	--	<19	<19	<9.4	<19	<9.4	83	--	Exceed
MW-4B	Neut	SZ	4/18/2005	760	850	<96	<96	<96	--	--	--	<190	<190	<96	<96	<96	68 J	--	Exceed
MW-4B	Neut	SZ	10/19/2005	690	730	<96	<96	<96	--	--	--	<190	<190	<96	<96	<96	50 J	--	Exceed
MW-4B	Neut	SZ	4/18/2006	470	530	<9.6	2.8 J	2.4 J	--	--	--	<19	<19	<9.6	<9.6	<9.6	60	--	Exceed
MW-4B	Neut	SZ	11/3/2006	570	580	<95	9.9 J	<95	--	--	--	<190	<190	<95	<95	<95	<95	--	Exceed
MW-4B	Neut	SZ	4/17/2007	430	450	<9.5	2.7 J	1.5 J	--	--	--	<19	<19	<9.5	<9.5	<9.5	64	--	Exceed
MW-4B	Neut	SZ	10/3/2007	550	610	<1.0	5.3 J	2.8 J	--	--	--	<7.0	<5.1	<1.3	<0.62	<1.0	38	--	Exceed
MW-4B	Neut	SZ	4/10/2008	490	590	<1.0	7.7 J	2.9 J	--	--	--	<1.6	<1.5	<0.95	<1.5	<1.1	43	--	Exceed
MW-4B	Neut	SZ	10/20/2008	530	500	1.1 J	20	5.4 J	--	--	--	<1.6	<1.5	<0.95	<1.5	<1.1	36	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-4B	Neut	SZ	4/16/2009	209	226	<1.01	13.2	4.27 J	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	30.1	--	Exceed
MW-4B	Neut	SZ	10/15/2009	492 J	829 J	<0.998 J	9.35 J	4.3 J	--	--	--	<1.62 J	<1.54 J	<0.956 J	<1.54 J	<1.08 J	41.4 J	--	Exceed
MW-4B	Neut	SZ	4/15/2010	887	1240	1.38 J	14.8	7.78 J	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	49.7	--	Exceed
MW-4B	Neut	SZ	10/18/2010	460	616	<1.04	11.1	4.29 J	--	--	--	<1.68 J	<1.60 J	<0.994	<1.60	<1.12	31.8	--	Exceed
MW-4B	Neut	SZ	4/27/2011	944	1300	6.73 J	13.9	10	--	--	--	--	--	<1.10	<4.80	<1.44	68	<3.11 J	Exceed
MW-4B	Neut	SZ	4/25/2012	698	951	1.53 J	26.4	8.5 J	--	--	--	<6.40	<5.86	<1.11	<4.85	<1.46	48.5	--	Exceed
MW-4B	Neut	SZ	4/17/2014	480	800	4.9 J	49	22	--	--	--	--	--	<1.1	<1.3	<1.1	27	<4.0	Exceed
MW-4B	Neut	SZ	4/22/2016	996	1200	13.1 X7	272 X7	59.3 X7	--	--	--	--	--	<1.26	<1.44	<1.30	40.1	<4.57 X7	Exceed
MW-4B	Neut	USZ	4/16/2018	679	804	26.2 LX7	651 LX7	104 LX7	--	--	--	--	--	<1.29	<1.47 L	<1.33	19.1 L	<4.67 LX7	Exceed
MW-4B	Neut	USZ	4/28/2020	545	726	57.8 X7	802 X7	189 J X7	--	--	--	--	--	<1.19	<1.35	<1.22	55.1	<4.29 X7	Exceed
MW-4B	Neut	USZ	4/27/2022	327	553	94.8 X7	2670 X7	717 X7	--	--	--	--	--	<0.480	<6.13	0.900 J	6.36 J	<0.726 X7	Exceed
MW-4B	Neut	USZ	4/4/2024	275	408	73.9	1640	316	--	--	--	--	--	<4.52 U	<9.04 U*	<5.45 U	15.4	<11.5 U*	Exceed
MW-5	ASI	SZ	1/29/1985	1	3	2930	24100	19400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	2/20/1985	8360	3240	1680	1650	10400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/23/1985	4440	2250	1050	12290	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	12/18/1985	4950	2630	1760	10100	4290	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	3/24/1986	10800	3800	1860	22700	14400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	6/11/1986	11000	3290	1970	23300	11600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	8/11/1986	4530	1930	1640	16700	8890	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/20/1986	6120	1940	624	6750	4690	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/28/1987	19600	5580	1780	18300	12000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	3/31/1987	6350	2010	808	6970	3850	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/23/1987	4980	2590	1180	10200	1920	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/28/1987	8560	2850	1340	11800	6610	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/27/1988	4620	1660	7180	891	3910	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/28/1988	4250	1910	1220	11200	4000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/29/1988	4620	1660	381	1700	730	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/3/1988	1980	727	304	3290	1840	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	2/10/1989	780	<0	120	200	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/5/1989	910	330	200	2000	1300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	8/9/1989	440	190	88	680	500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/17/1989	180	69	26	190	170	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/25/1990	74	210	34	290	220	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/26/1990	430	150	50	530	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/11/1990	230	90	21	190	140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/3/1990	120	37	18	170	130	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/22/1991	170	56	28	210	190	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/1/1991	260	93	37	310	190	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/24/1991	240	87	27	280	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/3/1991	12000	450	300	4300	4100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	2/9/1992	1300	430	180	2300	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/4/1992	1100	520	240	2500	2100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	8/28/1992	2700	1000	420	4700	3400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/28/1992	2800	1000	410	4800	3700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/28/1993	7100	2800	13000	14000	800	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/8/1993	1900	700	270	2600	2000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/20/1993	6300	3100	1100	9300	7900	<0	0.64	0.17	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	11/5/1993	3000	1100	480	4000	3400	<0	0.62	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/14/1994	100	490	150	1900	1200	<0	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/11/1994	2600	960	430	5200	2600	<0	0.72	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/22/1995	1200	470	260	2200	1900	<0	0.73	0.067	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	11/12/1995	1000	560	250	2700	1800	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/11/1996	700	480	220	2400	1600	<0	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	11/15/1996	430	160	130	1500 D	1200 D	--	0.52	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/9/1997	420 D	190	85	1000 D	740 D	--	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/26/1997	300 D	200 D	96	1200 D	890 D	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/22/1998	380	190	82	1200 D	740 D	--	0.74	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/23/1998	390 D	180 D	81	1200 D	720 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/20/1999	280	120	48	540 D	340 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/23/1999	140	<100	<100	730	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	6/9/2000	170 D	96	44	450 D	310 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/12/2000	150	64	37 J	410	270	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/6/2001	200 D	110	55	680 D	340 D	<50	--	--	<20	31	<10	9.6 J	<10	7 J	--	Exceed
MW-5	ASI	SZ	10/25/2001	140	73	43	570 D	340 D	<50	--	--	<20	<20	<10	36	<10	6.4 J	--	Exceed
MW-5	ASI	SZ	4/24/2002	84	56	35	380 D	250 D	<50	--	--	24	24	<10	33	<10	3.6 J	--	Exceed
MW-5	ASI	SZ	10/10/2002	<10	<10	<10	<10	0.62 J	<50	--	--	70	72	<10	23	<10	<20	--	Exceed
MW-6	AOC1	SZ	1/29/1985	306	188	<0	2	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	2/20/1985	215	141	<0	1	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/23/1985	268	155	<0	2	2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-6	AOC1	SZ	3/24/1986	194	131	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	6/12/1986	236	142	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	8/19/1986	148	141	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/20/1986	67.3	156	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	1/28/1987	128	125	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/1/1987	128	112	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/23/1987	<0	107	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/28/1987	149	99.8	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	1/26/1988	50	54	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/27/1988	75	78	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/27/1988	<0	75.8	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/5/1988	151	71	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	2/16/1989	<0	37	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	5/8/1989	91	59	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/27/1989	68	39	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/19/1989	93	54	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	1/24/1990	67	110	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/24/1990	98	69	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/10/1990	140	94	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/2/1990	79	56	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-6	AOC1	SZ	6/25/1992	45	27	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-6	AOC1	SZ	5/27/1998	17	11	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/10/2003	<190	76 J	<190	<190	<190	<950	--	--	<380	<380	<190	<380	<190	<380	--	Exceed
MW-6	AOC1	SZ	10/6/2003	<97	14 J	<97	<97	<97	<490	--	--	<190	<190	<97	<190	<97	<190	--	Exceed
MW-6	AOC1	SZ	4/19/2004	10	24	<9.7	2.9 J	<9.7	<48	--	--	<19	<19	<9.7	<19	<9.7	4.4 J	--	Exceed
MW-6	AOC1	SZ	10/12/2004	42 J	190	<96	<96	<96	<480	--	--	<190	<190	<96	<190	<96	<190	--	Exceed
MW-6	AOC1	SZ	4/18/2005	5 J	11	<9.8	<9.8	<9.8	--	--	--	21	95	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-6	AOC1	SZ	10/19/2005	94	24	<9.6	<9.6	<9.6	--	--	--	<19	22	<9.6	0.97 J	<9.6	7.1 J	--	Exceed
MW-6	AOC1	SZ	4/18/2006	7.5 J	42	<9.6	<9.6	<9.6	--	--	--	<19	7.5 J	<9.6	0.93 J	1.2 J	17	--	Exceed
MW-6	AOC1	SZ	11/7/2006	6.3 J	32	<9.6	<9.6	<9.6	--	--	--	<19	25	<9.6	0.79 J	<9.6	<9.6	--	Exceed
MW-6	AOC1	SZ	4/18/2007	29	120	<9.5	<9.5	<9.5	--	--	--	<19	24	<9.5	0.7 J	<9.5	25	--	Exceed
MW-6	AOC1	SZ	10/3/2007	32	84	<1.0	<0.89	<0.97	--	--	--	<7.2	130	<1.3	1.5 J	<1.0	15	--	Exceed
MW-6	AOC1	SZ	4/14/2008	420	1100	1.2 J	7.4 J	6.3 J	--	--	--	210 J	650	<0.96	6.4 J	<1.1	300	--	Exceed
MW-6	AOC1	SZ	10/20/2008	380	1000	<1.0	6 J	5.8 J	--	--	--	340	1300	<0.99	9.4 J	<1.1	200	--	Exceed
MW-6	AOC1	SZ	4/16/2009	145	341	<0.998	<1.02	1.57 J	--	--	--	119 J	347	<0.956	5.34 J	<1.08	64.7	--	Exceed
MW-6	AOC1	SZ	10/15/2009	6.47 J	13.7	<0.989	<1.01	<1.42	--	--	--	421	335	<0.947	7.56 J	<1.07	<0.833	--	Exceed
MW-6	AOC1	SZ	4/15/2010	513	1170	1.42 J	5.11 J	4.31 J	--	--	--	138	89.9	<0.956	2.6 J	<1.08	166	--	Exceed
MW-6	AOC1	SZ	10/18/2010	<2.85	2.47 J	<1.03	<1.05	<1.48	--	--	--	<1.67 J	117 J	<0.984	3.63 J	<1.11	<0.866	--	Exceed
MW-6	AOC1	SZ	4/27/2011	168	536	<1.03	1.61 J	6.84 J	--	--	--	--	--	<1.13	<4.94	<1.49	66.8	69.4 J	Exceed
MW-6	AOC1	SZ	4/26/2012	28.1	68.9	<0.998	<1.02	<1.44	--	--	--	15 J	26.2	<1.10	<4.80	<1.44	14	--	Exceed
MW-6	AOC1	SZ	4/17/2014	22	44	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	Exceed
MW-6	AOC1	SZ	4/22/2016	417	762	<0.587 X7	3.57 J X7	3.4 J X7	--	--	--	--	--	<1.11	2.06 J	<1.13	94.6	210 X7	Exceed
MW-6	AOC1	USZ	4/24/2018	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-6	DNTU-AOC1	USZ	4/29/2020	<0.990	<0.667	<0.635 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-6	DNTU-AOC1	USZ	4/27/2022	3.19	3.16	2.85 J X7	41.5 X7	23.2 X7	--	--	--	--	--	<0.481	<6.14	<0.563	<3.07	<7.27 X7	Exceed
MW-6	DNTU-AOC1	USZ	4/4/2024	0.125	<0.0395 U	<1.15 U	<0.777 U	<0.840 U	--	--	--	--	--	<4.09 U	<8.19 U*	<4.93 U	<1.26 U	<10.4 U*	~
MW-7	ASI	SZ	1/29/1985	11	83	96	1270	528	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	2/20/1985	13	60	63	843	312	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/23/1985	16	112	108	1480	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	12/18/1985	<0	59.3	<0	1310	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	3/24/1986	15.7	111	82.2	1130	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	6/11/1986	<0	94	81.6	982	363	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	8/11/1986	<0	148	102	1310	108	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/20/1986	<0	119	80.3	963	309	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/28/1987	<0	149	104	1240	310	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	3/31/1987	13	119	95.4	1010	307	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/23/1987	<0	64	52.7	668	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/28/1987	23.4	191	202	2600	292	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/26/1988	<0	24	200	16	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/28/1988	<0	24	<0	218	51	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/27/1988	40	28	13	184	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/5/1988	295	<0	83	957	483	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	2/10/1989	<0	<0	<0	50	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/5/1989	<0	<0	<0	23	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	8/3/1989	<0	<0	<0	37	22	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/17/1989	<0	<0	<0	51	37	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/25/1990	<0	9.2	<0	46	30	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/23/1990	<0	<0	<0	29	20	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/11/1990	<0	<0	<0	17	13	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/2/1990	<0	<0	<0	17	11	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/22/1991	20	<0	<0	80	67	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/1/1991	27	<0	<0	74	27	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/24/1991	29	10	<0	90	50	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/3/1991	61	25	25	350	250	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	2/9/1992	46	20	13	190	100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/4/1992	36	17	12	150	99	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/24/1992	<0	<0	<0	65	40	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/28/1992	16	<0	<0	84	45	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/28/1993	<0	<0	<0	38	17	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/7/1993	<0	<0	<0	66	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/20/1993	10	<0	<0	45	31	<0	0.57	0.13	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	11/5/1993	18	<0	<0	66	49	<0	0.69	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/14/1994	16	12	<0	62	38	<0	0.6	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/11/1994	<0	<0	<0	31	13	<0	0.72	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/22/1995	19	<0	<0	56	36	<0	0.63	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	11/12/1995	18	<0	<0	63	30	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/11/1996	<0	<0	<0	30	<0	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	11/15/1996	270 D	130 D	49	510 D	210 D	--	0.45	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/9/1997	48	24	13	170 D	51	--	0.6	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/18/1997	99	48	22	220 D	130 D	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/13/1998	--	--	--	--	--	--	0.5	<0	--	--	--	--	--	--	--	~
MW-7	ASI	SZ	5/28/1998	82	36	15	180 D	<10	--	0.69	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/23/1998	130	57	25	360 D	220 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/20/1999	170 D	72	35	400 D	280 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/23/1999	28	13	<10	110	64	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	6/12/2000	76	56	24	200 D	120	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/12/2000	150	59	30 J	330	230	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/8/2001	22	8.6 J	4.3 J	62	23	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-7	ASI	SZ	10/25/2001	14	6.1 J	3.9 J	48	25	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-7	ASI	SZ	4/24/2002	30	15	6.6 J	65	27	<52	--	--	<21	<21	<10	<21	<10	0.61 J	--	Exceed
MW-7	ASI	SZ	10/10/2002	360 D	97	51	470 D	360 D	<48	--	--	<19	<19	<9	3.2 J	<9	11 J	--	Exceed
MW-7	ASI	SZ	4/11/2003	24	8.5 J	3.8 J	41	22	<48	--	--	<19	<19	<9	<19	<9	<19	--	Exceed
MW-7	ASI	SZ	10/6/2003	13	6.4 J	2.5 J	28	<9.7	<48	--	--	<19	<19	<9.7	0.67 J	<9.7	0.27 J	--	Exceed
MW-7	ASI	SZ	4/19/2004	13	5.1 J	1.9 J	15	8.3 J	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	Exceed
MW-7	ASI	SZ	10/12/2004	11	4.3 J	2 J	22	15	<48	--	--	<19	<19	<9.6	0.48 J	<9.6	<19	--	Exceed
MW-7	ASI	SZ	4/18/2005	16	7.2 J	3.4 J	33	1.5 J	--	--	--	<20	<20	<9.8	0.8 J	<9.8	<9.8	--	Exceed
MW-7	ASI	SZ	10/19/2005	17	6.1 J	2.9 J	32	22	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-7	ASI	SZ	4/19/2006	10	3.9 J	1.7 J	19	5.1 J	--	--	--	<19	<19	<9.5	0.99 J	<9.5	<9.5	--	Exceed
MW-7	ASI	SZ	11/3/2006	18	5 J	2.3 J	26	20	--	--	--	<20	<20	<10	<10	<10	<10	--	Exceed
MW-7	ASI	SZ	4/18/2007	15	4.4 J	3 J	34	15	--	--	--	<19	<19	<9.6	0.65 J	<9.6	<9.6	--	Exceed
MW-7	ASI	SZ	10/3/2007	11	3.2 J	2.1 J	22	15	--	--	--	<7.1	<5.2	<1.3	<0.63	<1.0	<4.2	--	Exceed
MW-7	ASI	SZ	4/15/2008	<2.8	1.9 J	1 J	14	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-7	ASI	SZ	10/20/2008	3.6 J	1.3 J	<1.0	10	6.7 J	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-7	ASI	SZ	4/16/2009	6.92 J	3.45 J	2.33 J	10.9	2.61 J	--	--	--	<1.67	<1.58	<0.984	<1.59	<1.11	<0.866	--	Exceed
MW-7	ASI	SZ	10/15/2009	<2.74	<0.977	29.5	2.08 J	1.71 J	--	--	--	<1.60	<1.52	<0.947	<1.53	<1.07	<0.833	--	~
MW-7	ASI	SZ	4/15/2010	<2.77	<0.987	<0.998	3.28 J	2 J	--	--	--	<1.62	7.28 J	<0.956	<1.54	<1.08	<0.841	--	~
MW-7	ASI	SZ	10/19/2010	<2.85	<1.02	1.09 J	16.7	8.1 J	--	--	--	<1.67 J	<1.58 J	<0.984	<1.59	<1.11	<0.866	--	Exceed
MW-7	ASI	SZ	4/27/2011	10.3	8.45 J	8.51 J	32.9	21.1	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-7	ASI	SZ	4/26/2012	9.28 J	11.5	9.86	110	50.6	--	--	--	<6.34 J	<5.81	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-7	ASI	SZ	4/17/2014	34	29	24	220	150	--	--	--	--	--	<1.1	17	<1.2	1.7 J	<4.1	Exceed
MW-7	ASI	SZ	4/15/2016	181	54.6	26.2 X7	285 X7	189 X7	--	--	--	--	--	<1.11	<1.26	<1.13	4.41 J	<4.00 X7	Exceed
MW-7	ASI	USZ	4/24/2018	<1.01	<0.681	<0.649 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<1.22	<1.39	<1.26	<0.734	<4.43 X7	~
MW-7	ASI	USZ	4/28/2020	<0.979	<0.66	<0.629 X7	<1.10 X7	3.51 J X7	--	--	--	--	--	<1.19	1.82 J	<1.22	<0.711	<4.29 X7	~
MW-7	ASI	USZ	4/28/2022	1.00	0.959	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	~
MW-7	ASI	USZ	4/5/2024	1.22	0.815	<1.10 U	2.06 J b	1.50 J	--	--	--	--	--	<3.90 U	<7.80 U	<4.70 U	<1.20 U	<9.90 U*	~
MW-8	EI	SZ	1/29/1985	50	356	24	287	143	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	2/20/1985	42	302	20	231	40	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/23/1985	64	437	30	342	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	12/19/1985	56.1	417	48.5	299	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	3/25/1986	81.1	689	62.4	696	391	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	6/12/1986	95.9	746	91.9	956	497	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	8/19/1986	78	988	80.7	849	348	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/21/1986	67.4	474	31.3	348	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/29/1987	74.8	911	39.4	390	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/2/1987	55	716	40.7	339	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/24/1987	108	654	48.2	470	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/29/1987	63.7	567	33.5	372	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/28/1988	118	695	289	39	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/29/1988	78	879	46	475	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/28/1988	<0	804	42	454	186	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/5/1988	130	1190	86	1010	381	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	2/10/1989	130	1100	140	880	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	5/10/1989	<0	960	100	1000	350	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	8/3/1989	<0	440	<0	320	200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/24/1989	50	690	62	620	350	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/26/1990	420	30	47	430	180	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/19/1990	<0	560	<0	460	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/10/1990	32	500	49	570	250	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/11/1990	31	620	53	670	360	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/22/1991	32	160	<0	69	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	7/24/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	2/9/1992	<0	<0	<0	<0	10	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	5/5/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	7/23/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/29/1992	50	45	<0	15	12	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/28/1993	11	11	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/8/1993	100	80	<0	27	26	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/20/1993	21	<0	<0	17	12	<0	0.36	0.13	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	11/7/1993	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/25/1994	<0	<0	<0	<0	<0	<0	--	0.28	--	--	--	--	--	--	--	~
MW-8	EI	SZ	4/22/1995	<0	<0	<0	<0	<0	<0	0.49	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	11/10/1995	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	5/4/1996	<0	<0	<0	<0	<0	<0	0.19	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	11/13/1996	<10	<10	<10	<10	<10	--	0.31	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	5/16/1997	<10	<10	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/18/1997	<10	<10	<10	<10	<10	--	0.31	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	4/14/1998	<10	<10	<10	<10	<10	--	0.52	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/26/1998	10	11	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/17/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/30/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-8	EI	SZ	6/7/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/11/2000	10	25	<10	7.9 J	5.6 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/8/2001	1.5 J	1.3 J	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-8	EI	SZ	10/24/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-8	EI	SZ	4/24/2002	<10	<10	<10	<10	<10	<51	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-8	EI	SZ	10/10/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-8	EI	SZ	4/10/2003	11	5.9 J	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	Exceed
MW-8	EI	SZ	10/6/2003	9.1 J	8.2 J	<9.6	3.4 J	2.9 J	<48	--	--	<19	<19	<9.6	<19	<9.6	1.2 J	--	Exceed
MW-8	EI	SZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-8	EI	SZ	4/19/2004	0.32 J	0.32 J	<9.5	<9.5	0.076 J	3.3 J	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	Exceed
MW-8	EI	SZ	10/15/2004	0.16 J	0.17 J	<9.8	<9.8	<9.8	<39	--	--	--	--	<9.8	<0.98	0.05 J	<0.98	<2	~
MW-8	EI	SZ	4/5/2005	0.47	0.28	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	0.08 J	<1.9	~
MW-8	EI	SZ	10/25/2005	0.64	0.45	<0.24	0.033 J	0.064 J	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-8	EI	SZ	4/19/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-8	EI	SZ	11/1/2006	<0.98	<0.98	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	<4.9	~
MW-8	EI	SZ	4/20/2007	0.12 J	0.11 J	<0.96	<0.96	<0.96	--	--	--	<4.8	<4.8	<0.96	<0.96	<0.96	<0.96	--	~
MW-8	EI	SZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
MW-8	EI	SZ	4/8/2008	<0.058	<0.084	<0.086	<0.067	<0.076	--	--	--	--	--	<0.069	<0.10	<0.054	<0.097	<1.8	~
MW-8	EI	SZ	10/17/2008	3.2	2.8	0.14 J	1.3	1.2	--	--	--	<1.7	<1.7	<0.068	<0.10	<0.053	<0.095	--	Exceed
MW-8	EI	SZ	4/22/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71	<1.71	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-8	EI	SZ	10/28/2009	5.78	5.34	0.174 J	1.48	1.56	--	--	--	<1.76 !	<1.76 !	<0.0692	<0.104	<0.0539	<0.0974	--	Exceed
MW-8	EI	SZ	4/8/2010	118	92.1	3.29	25.4	19.4	--	--	--	<1.76	<1.76	<0.0692	<0.104	<0.0539	0.271 J	--	Exceed
MW-8	EI	SZ	10/14/2010	702 J	458 J	10.7	106 J	113 J	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	0.797 J	<1.72	Exceed
MW-8	EI	SZ	4/15/2011	364 J	223 J	6.79	35.5 J	54.5 J	--	--	--	--	--	<0.0692	<0.104	0.158 J	0.738 J	<1.76 J	Exceed
MW-8	EI	SZ	10/20/2011	604	616	40.4	173	158	--	--	--	--	--	<1.34	5.02 J	334	<1.89	<34.1 J	Exceed
MW-8	EI	SZ	4/12/2012	110 J	54 J	1.23	9.84	9.03	--	--	--	<1.71	<1.71	<0.0672 J	<0.101	<0.0523	0.192 J	--	Exceed
MW-8	EI	SZ	10/30/2012	171	71.1	1.69	15.9	13.7	--	--	--	--	--	<0.0685	<0.103	<0.0533	0.339 J	<1.74	Exceed
MW-8	EI	SZ	4/12/2013	14.2	3.35	<0.0832	0.351 J	0.311 J	--	--	--	--	--	<0.0672	<0.101	<0.0523	1.67	<1.71	Exceed
MW-8	EI	SZ	10/21/2013	39	7.7	<0.75	1.6 J	1.9 J	--	--	--	--	--	<0.21	<0.16	<0.13	<0.16	<4.9	Exceed
MW-8	EI	SZ	4/8/2014	110	46	<1.2	9.8 J	9.9 J	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	Exceed
MW-8	EI	SZ	10/24/2014	280	92	3.2 J	19	21	--	--	--	--	--	<0.17 L	<0.13	<0.11	0.29 J	<4.0	Exceed
MW-8	EI	SZ	4/15/2015	110	31	1.8 J	8.2	8.7	--	--	--	--	--	<0.16	<0.13	<0.11	1.6 J	<3.9	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-8	EI	SZ	10/13/2015	0.190 J	0.336 J	<0.65	<1.14	<1.13	--	--	--	--	--	<0.181	<0.138 *	<0.117	<0.138	<4.27	~
MW-8	EI	SZ	4/7/2016	58.4	13.9	<0.588 X7	2.59 J X7	2.54 J X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.276 J	<3.86 X7	Exceed
MW-8	EI	SZ	4/17/2017	2.60	0.558 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.13	<0.11	<0.13	<4.01 LX7	Exceed
MW-8	EI	SZ	10/17/2017	9.08	2.54	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	Exceed
MW-8	EI	USZ	4/16/2018	<0.127	<0.0784	<0.599 LX7	<1.05 LX7	<1.04 LX7	--	--	--	--	--	<0.167	<0.127 L	<0.108	<0.127 L	<3.93 LX7	~
MW-8	EI	USZ	10/25/2018	<0.151	<0.093	<0.710 LX7	<1.24 X7	<1.23 X7	--	--	--	--	--	<0.198	<0.151	<0.128	<0.151	<4.66 X7	~
MW-8	EI	USZ	4/12/2019	1.61 L	0.860 L	<0.588 LX7	<1.03 LX7	<1.02LX7	--	--	--	--	--	<0.163 L	<0.125 L	<0.106 L	<0.125 L	<3.86 LX7	Exceed
MW-8	EI	USZ	10/23/2019	<0.135	<0.0833	<0.636 X7	<1.11 LX7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135 L	<4.18 LX7	~
MW-8	EI	USZ	4/17/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-8	EI	USZ	10/20/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-8	EI	USZ	4/22/2021	<0.0614	<0.0403	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.496	<6.33	<0.580	<3.16	<7.49 X7	~
MW-8	EI	USZ	10/6/2021	2.37	1.55	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.533	<3.02	<7.14 X7	Exceed
MW-8	EI	USZ	4/12/2022	<0.0598	<0.0392	<1.17 X7	<0.769 X7	<0.831 X7	--	--	--	--	--	<0.488	<6.23	<0.571	<3.12	<7.38 X7	~
MW-8	EI	USZ	10/12/2022	<0.0602	<0.0395	<1.18 X7	<0.774 X7	<0.837 X7	--	--	--	--	--	<0.492	<6.27	<0.575	<3.14	<7.43 X7	~
MW-8	EI	USZ	4/12/2023	<0.0600	<0.0393	<1.13	<0.737	1.41 J	--	--	--	--	--	<0.468	<5.97	<0.548	<2.99	<7.07	~
MW-8	EI	USZ	10/12/2023	0.219	0.0952	<1.15 U	<0.774 U	<0.837 U	--	--	--	--	--	<4.08 U	<8.16 U	<4.92 U	<1.26 U	<10.4 U*	~
MW-8	EI	USZ	4/4/2024	0.146	<0.0408 U	<1.22 U	1.74 J	<0.886 U	--	--	--	--	--	<4.32 U	<8.64 U*	<5.20 U	<1.33 U	<11.0 U*	~
MW-8	EI	USZ	10/22/2024	<0.0618 UH	<0.0405 UH	<1.06 U	<0.710 U	<0.767 U	--	--	--	--	--	<3.74 U	<7.48 U	<4.51 U	<1.15 U	<9.50 U*	~
MW-8	EI	USZ	05/09/25	<0.0633 U	<0.0415 U	<1.16 U	<0.778 U	<0.841 U	--	--	--	--	--	<4.10 U	<8.20 U	<4.94 U	<1.26 U	<10.4 U*	~
MW-9	EI	SZ	1/29/1985	4	50	4	37	24	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	2/20/1985	3	44	3	35	23	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/23/1985	3	62	4	41	29	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	12/19/1985	<0	823	37	62	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	3/25/1986	14.7	109	<0	45.1	32.1	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	6/18/1986	<0	54.5	<0	24.3	23.3	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	8/12/1986	25	77	<0	30.1	28.2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/20/1986	<0	41.2	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	1/29/1987	<0	48.7	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	4/2/1987	<0	53.8	<0	22.5	20.7	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/27/1987	12.2	46	<0	19.4	16.7	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/30/1987	<0	59.4	<0	23.1	20.1	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	1/28/1988	<0	<0	13	<0	15	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/29/1988	<0	20	<0	12	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/28/1988	<0	36	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/5/1988	<0	29	<0	11	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	2/14/1989	<0	11	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	5/10/1989	<0	18	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/31/1989	<0	11	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/20/1989	<0	12	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	1/30/1990	<0	6.6	<0	14	9.5	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/12/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/3/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	1/22/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/24/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	2/9/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/6/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/23/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	1/28/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/8/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/20/1993	<0	<0	<0	<0	<0	<0	0.5	0.17	--	--	--	--	--	--	--	~
MW-9	EI	SZ	11/5/1993	<0	<0	<0	<0	<0	<0	0.41	0.05	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/14/1994	<0	<0	<0	<0	<0	<0	0.39	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/27/1994	<0	<0	<0	<0	<0	<0	0.68	0.076	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/22/1995	<0	<0	<0	<0	<0	<0	0.63	0.16	--	--	--	--	--	--	--	~
MW-9	EI	SZ	11/14/1995	<0	<0	<0	<0	<0	<0	0.16	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/11/1996	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	11/13/1996	<10	<10	<10	<10	<10	--	0.24	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/16/1997	<10	<10	<10	<10	<10	--	0.43	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/18/1997	<10	<10	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/14/1998	<10	<10	<10	<10	<10	--	0.52	0.082	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/28/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/20/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/30/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	6/13/2000	3.4 J	3 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/12/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/6/2001	0.22 J	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-9	EI	SZ	10/26/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-9	EI	SZ	4/22/2002	<10	<10	<10	<10	<10	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-9	EI	SZ	10/10/2002	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-10	NA	SZ	1/29/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	2/20/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	8/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	7/23/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	7/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/5/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	5/8/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	8/3/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/16/1989	<0	<0	<0	26	14	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-10	NA	SZ	1/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/19/1990	70	55	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-10	NA	SZ	7/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/4/1990	5000	1400	1000	11000	7600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-10	NA	SZ	5/2/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	6/15/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/20/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-10	NA	SZ	4/22/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-10	NA	SZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-10	NA	SZ	4/17/2017	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-10	BG	USZ	4/12/2019	<0.260	<0.160	<1.22 LX7	<2.14 LX7	<2.12 X7	--	--	--	--	--	<0.340	<0.260	<0.22	<0.260	<8.02 X7	~
MW-10	BG	USZ	4/20/2021	<0.0579	<0.0380	<11.3 X7	<11.3 X7	<11.3 X7	--	--	--	--	--	<0.532	<6.80	<0.623	<3.40	<8.04 X7	Exceed
MW-10	BG	USZ	4/12/2023	<0.0570	<0.0374	<1.15	<0.756	<0.817	--	--	--	--	--	<0.480	<6.13	<0.562	<3.07	<7.26	~
MW-10	BG	USZ	05/13/25	<0.0600 U	<0.0393 U	<1.21 U	<0.811 U	<0.876 U	--	--	--	--	--	<4.27 U	<8.55 U	<5.15 U	<1.31 U	<10.8 U*	~
MW-11	Tech	SZ	1/29/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	2/20/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	8/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/23/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/30/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/11/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	5/8/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/27/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/19/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	1/26/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/4/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/20/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	<4.8	<4.8	<0.96	<0.96	<0.96	<0.96	--	~
MW-11	Tech	SZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
MW-11	Tech	SZ	10/20/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-11	Tech	SZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71 J	<1.71	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-11	Tech	SZ	10/30/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-11	Tech	SZ	4/22/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 L	~
MW-11	Tech	SZ	10/21/2013	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-11	Tech	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-11	Tech	SZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	~
MW-11	Tech	SZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-11	Tech	SZ	10/13/2015	<0.144	<0.0889	<0.679	<1.19	<1.18	--	--	--	--	--	<0.189	<0.144 *	<0.122	<0.144	<4.46	~
MW-11	Tech	SZ	4/7/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-11	Tech	SZ	10/20/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-11	Tech	SZ	4/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-11	Tech	SZ	10/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-11	Tech	USZ	4/17/2018	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-11	Tech	USZ	10/25/2018	<0.140	<0.086	<0.657 LX7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-11	DNT	USZ	4/12/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-11	DNT	USZ	10/23/2019	<0.131	<0.0808	<0.617 X7	<1.08 LX7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131 L	<4.05 LX7	~
MW-11	DNT	USZ	4/17/2020	<0.135	<0.0833	<0.636 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18 LX7	~
MW-11	DNT	USZ	10/20/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-11	DNT	USZ	4/20/2021	<0.0606	<0.0397	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.508	<6.49	<0.595	<3.24	<7.68 X7	~
MW-11	DNT	USZ	10/6/2021	<0.0594	<0.039	<1.08 X7	<0.709 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.75	<0.527	<2.87	<6.8 X7	~
MW-11	DNT	USZ	4/13/2022	<0.0598	<0.0392	<1.20 X7	<0.787 X7	<0.851 X7	--	--	--	--	--	<0.500	<6.38	<0.585	<3.19	<7.55 X7	~
MW-11	DNT	USZ	10/12/2022	<0.0583	<0.0382	<1.08 X7	<0.709 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.527	<2.87	<6.80 X7	~
MW-11	DNT	USZ	4/12/2023	<0.0570	<0.0374	<1.19	<0.778	<0.841	--	--	--	--	--	<0.494	<6.31	<0.578	<3.15	<7.47	~
MW-11	DNT	USZ	10/12/2023	<0.0561 U	<0.0368 U	<1.13 U	<0.762 U	<0.824 U	--	--	--	--	--	<4.02 U	<8.03 U	<4.84 U	<1.24 U	<10.2 U*	~
MW-11	DNT	USZ	4/5/2024	1.93	0.864	<1.19 U	<0.799 U	<0.864 U	--	--	--	--	--	<4.21 U	<8.42 U	<5.07 U	<1.30 U	<10.7 U*	Exceed
MW-11	DNT	USZ	4/5/2024	<0.0606 U	<0.0397 U	<1.04 U	<0.697 U	<0.753 U	--	--	--	--	--	<9.32 U*	<3.67 U	<7.34 U	<4.42 U	<1.13 U	~
MW-11	DNT	USZ	10/16/2024	<0.0606 U	<0.0397 U	<1.04 U	<0.697 U	<0.753 U	--	--	--	--	--	<3.67 U	<7.34 U	<4.42 U	<1.13 U	<9.32 U*	~
MW-11	DNT	USZ	05/08/25	0.21	<0.0396 U	<1.13 U	<0.758 U	<0.819 U	--	--	--	--	--	<3.99 U	<7.99 U	<4.81 U	<1.23 U	<10.1 U*	~
MW-12	ASI	IZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	7/23/1985	4	2	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12	ASI	IZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	3/25/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	6/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	4/2/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	7/27/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	10/30/1987	<0	<0	<0	46	25.5	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12	ASI	IZ	1/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	4/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12B	ASI	IZ	9/13/1988	373	272	148	1020	579	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/11/1988	148	660	419	5160	2910	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	2/16/1989	1100	630	750	6900	5200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	5/12/1989	1400	<0	<0	6500	5600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	8/9/1989	1200	570	250	2400	1800	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/25/1989	830	330	360	4400	3100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	1/23/1990	210	500	320	2900	2200	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-12B	ASI	IZ	4/18/1990	760	300	<0	4200	3700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	7/25/1990	380	110	290	2600	2000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/8/1990	750	210	380	3100	2400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12B	ASI	IZ	5/10/1991	310	89	160	1400	1200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/1/1991	78	28	44	300	220	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/18/1985	55	310	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/23/1985	888	2320	188	2480	1340	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	12/18/1985	417	328	<0	982	717	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	3/25/1986	805	2300	154	2440	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	6/20/1986	1180	2040	166	1620	143	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	8/22/1986	1338	3333	237	2230	835	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/22/1986	2720	5050	294	2690	1780	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/29/1987	11600	19900	419	4710	2410	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/1/1987	11400	16800	358	4250	1430	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/27/1987	15100	25000	586	6900	4560	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/30/1987	11600	19900	419	4710	2410	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/28/1988	6370	19000	4040	335	179	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/27/1988	12700	27800	593	6120	2890	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/29/1988	<0	31900	589	5430	1230	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/11/1988	20200	33000	418	6640	3770	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	2/16/1989	15000	22000	650	6300	3800	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/12/1989	19000	26000	<0	5200	3500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	8/7/1989	20000	27000	400	5100	2500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/25/1989	17000	21000	500	4500	3400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/23/1990	26000	22000	<0	4900	2900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/18/1990	44000	52000	1200	11000	7600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/9/1990	25000	32000	630	7100	4600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/8/1990	31000	38000	620	7300	5600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	5/7/1991	6100	16000	320	2900	750	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/2/1991	850	920	38	250	130	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/1/1992	480	710	19	200	110	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/26/1992	42	23	<0	11	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/9/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	11/4/1993	35	16	<0	<0	<0	<0	0.89	4	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/13/1994	24	16	<0	<0	<0	<0	0.33	0.83	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/26/1994	<0	<0	<0	<0	<0	<0	0.45	2	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	4/19/1995	<0	54	<0	<0	<0	<0	0.26	1.2	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	11/5/1995	37	32	<0	<0	<0	<0	0.24	2.1	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/1/1996	13	12	<0	<0	<0	<0	0.19	1.4	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	11/10/1996	15	41	<10	23	<10	--	0.38	2.9	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/4/1997	88	65	<10	18	11	--	0.43	1.1	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	11/14/1997	22	18	<10	<10	<10	--	0.53	6.7	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/14/1998	14	19	<10	12	<10	--	0.73	3.5	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/21/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	4/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	10/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	6/8/2000	23	39	<10	7.3 J	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/10/2000	4.4 J	6.1 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/5/2001	13	17	0.58 J	8.4 J	6 J	<50	--	--	<20	140	<10	11 J	<10	12 J	--	Exceed
MW-13	EI	LSZ	10/18/2001	11	23	22	3.9 J	4.3 J	<50	--	--	<20	68	<10	8.3 J	<10	9.2 J	--	Exceed
MW-13	EI	LSZ	4/24/2002	4 J	11	<10	4 J	1.3 J	<50	--	--	<20	6 J	<10	<20	<10	0.67 J	--	Exceed
MW-13	EI	LSZ	10/7/2002	4.7 J	5.4 J	<10	1.9 J	2.2 J	<52	--	--	33	380 D	<10	<21	<10	4.4 J	--	Exceed
MW-14	EI	LSZ	5/18/1985	79000	65000	1100	18000	31000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	7/23/1985	48870	39970	1970	18800	14930	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	12/18/1985	71300	65500	1890	21200	17700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	3/25/1986	120000	112000	4150	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	6/20/1986	1020	21400	4670	25400	15000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	8/22/1986	81400	63800	3820	32000	25600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/20/1986	71800	62500	1680	16100	14500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/29/1987	220000	152000	4000	39800	31400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/2/1987	162000	112000	4090	42500	37500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	7/27/1987	164000	114000	6420	56600	53300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/30/1987	147000	130000	43080	38000	38400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/28/1988	113000	76500	14800	1810	16700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/29/1988	55300	63300	1210	13800	11500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	8/1/1988	16800	94600	13600	27200	19300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/3/1988	160000	139000	1690	28600	20400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	2/16/1989	96000	94000	3800	34000	32000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	5/12/1989	92000	76000	<0	36000	39000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	8/7/1989	92000	80000	2400	25000	20000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/25/1989	80000	70000	3000	27000	2500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/29/1990	<0	85000	3100	29000	27000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/18/1990	60000	54000	2900	24000	20000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	7/9/1990	110000	93000	3500	35000	30000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/8/1990	120000	100000	3900	30000	28000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-14	EI	LSZ	5/8/1991	91000	82000	2900	29000	28000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-14	EI	LSZ	10/2/1991	102000	92000	2400	26000	20000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	5/1/1992	83000	82000	2600	26000	22000	15	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/23/1992	110000	100000	<0	35000	25000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/9/1993	98000	110000	3600	30000	26000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/3/1993	62000	59000	1900	17000	16000	<0	0.83	10	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/13/1994	63000	38000	1300	13000	6700	<0	0.44	3.3	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/10/1994	24000	11000	350	3000	1100	<0	0.49	2.2	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/19/1995	10000	8900	190	1000	580	<0	0.49	1.9	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/16/1995	5400	3900	190	1900	1100	<0	<0	6.4	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/30/1996	830	1200	<0	690	<0	<0	0.28	1.6	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/11/1996	3200 D	3300 D	<100	580	350	--	0.38	2.8	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/30/1997	880	940 D	<100	440	140	--	0.32	1.8	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-14	EI	LSZ	11/14/1997	740	430	<100	150	100	--	0.44	4.2	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	5/14/1998	1400 D	970 D	44	370 D	220 D	--	0.5	0.9	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/21/1998	670 D	350 D	38	240 D	190 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/16/1999	990 D	510 D	84	720 D	96	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/16/1999	3800 E D	3100 D	<200 D	1600 D	910 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	6/7/2000	1200 D	1700 D	56	620 D	440 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/10/2000	4100 D	4400 D	250	2300 D	1400	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/5/2001	47000 D	49000 D	1300	17000 D	12000 D	<2500	--	--	<1000	<1000	<500	<1000	<500	<1000	--	Exceed
MW-14	EI	LSZ	10/18/2001	16000 D	15000 D	700	5200	4400	<1000	--	--	<1000	<1000	<200	<1000	<200	50 J	--	Exceed
MW-14	EI	LSZ	4/25/2002	23000 D	22000 D	990	11000 D	8000 D	<510	--	--	<200	<200	<100	81 J	<100	180 J	--	Exceed
MW-14	EI	LSZ	10/8/2002	21000 D	18000 D	680	6700 D	5000 D	<250	--	--	<100	<100	<50	71 J	8.3 J	510	--	Exceed
MW-15	ASI	SZ	5/18/1985	54000	40000	9000	50000	49000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/23/1985	6580	2170	887	12930	639	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	12/18/1985	<0	1760	2050	9550	9040	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	3/25/1986	5770	2340	1540	15600	11600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	6/19/1986	<0	1840	1340	4420	5710	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	8/12/1986	4780	1830	9400	7440	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/21/1986	6380	1910	834	6770	3280	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/28/1987	5020	1750	789	7700	5640	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	3/31/1987	5540	1720	802	7550	5950	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/24/1987	3630	1390	1250	12800	5060	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/28/1987	5110	1870	906	9120	6530	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/27/1988	3610	1380	8000	979	7750	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/28/1988	36200	1230	982	9730	6240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/27/1988	2510	1700	848	8690	3430	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/3/1988	6140	1680	770	8800	5440	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	2/14/1989	1900	4800	1100	11000	8400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/5/1989	2900	1100	750	6900	4200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	8/9/1989	580	310	140	1900	1200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/20/1989	1400	900	600	6400	4200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/26/1990	630	800	530	4900	3000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/25/1990	880	960	550	6800	4100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/24/1990	2100	2100	1600	15000	11000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/5/1990	1500	1700	1200	14000	9200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-15	ASI	SZ	5/8/1991	2300	2200	1100	12000	9900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-15	ASI	SZ	10/3/1991	1700	1100	860	12000	8000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/3/1992	3000	1700	930	1000	8300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/29/1992	4700	2800	1200	14000	9700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/8/1993	4700	2200	1200	11000	9400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	11/9/1993	5500	2500	1200	10000	8800	<0	0.62	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/14/1994	4400	2500	980	10000	7900	<0	0.6	0.069	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/10/1994	2100	2800	610	16000	7900	<0	0.65	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/26/1995	8200	4000	1700	15000	12000	<0	0.63	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	11/12/1995	7700	3700	1400	13000	10000	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/11/1996	11000	3500	2200	28000	18000	<0	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	11/15/1996	8900 D	3600	1400	14000 D	11000 D	--	0.58	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/19/1997	7000 D	4300	1800	12000 D	7800 D	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/26/1997	8300 D	4800	1600	19000 D	15000 D	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/13/1998	--	--	--	--	--	--	0.58	<0	--	--	--	--	--	--	--	~
MW-15	ASI	SZ	5/28/1998	9300 D	3900	1500	19000 D	9200 D	--	0.69	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/23/1998	8900 D	3200 D	1600	20000 D	13000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/20/1999	10000 D	4700	2100	22000 D	16000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/30/1999	6700	2200	<2000	15000	12000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	6/12/2000	6400	3100	1300	10000	7900	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/12/2000	6000	1800	900 J	9900	7200	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/6/2001	5300 D	1500 J D	690 J D	11000 D	6500 D	<10000	--	--	<20	<20	<10	<20	2.7 J	5.6 J	--	Exceed
MW-15	ASI	SZ	10/25/2001	6100 D	1700 D	970 J D	12000 D	8000 D	<50	--	--	<20	<20	<10	<20	2.4 J	<20	--	Exceed
MW-15	ASI	SZ	4/24/2002	3000 D	1300 D	800 D	10000 D	7000 D	<51	--	--	<20	<20	<10	<20	<10	3.1 J	--	Exceed
MW-15	ASI	SZ	10/10/2002	3800 D	1300 D	780 D	7200 D	4700 D	<50	--	--	<20	<20	<10	<20	<10	5.3 J	--	Exceed
MW-15	ASI	SZ	4/11/2003	430 D	140 D	96	920 D	690 D	<48	--	--	<19	<19	<9	14 J	<9	42	--	Exceed
MW-15	ASI	SZ	10/6/2003	590 D	260 D	120	1200 D	2.5 J	<48	--	--	<19	<19	<9.6	<19	<9.6	0.51 J	--	Exceed
MW-15	ASI	SZ	4/19/2004	350	180	68	510	110	<52	--	--	<21	<21	<10	<21	<10	<21	--	Exceed
MW-15	ASI	SZ	10/22/2004	1600	670	320	4300	2400	<48	--	--	<19	<19	<9.6	<19	<9.6	<19	--	Exceed
MW-15	ASI	SZ	4/18/2005	120	410	27 J	<48	150	--	--	--	<96	<96	<48	<48	<48	30 J	--	Exceed
MW-15	ASI	SZ	10/19/2005	1500	540	240	2000	1400	--	--	--	<380	<380	<190	<190	<190	<190	--	Exceed
MW-15	ASI	SZ	4/19/2006	1500	940	400	2900	2100	--	--	--	<200	<200	<100	21 J	<100	55 J	--	Exceed
MW-15	ASI	SZ	11/3/2006	2900	840	420 J	5000	3500	--	--	--	<20	<20	<9.9	18	<9.9	7.1 J	--	Exceed
MW-15	ASI	SZ	4/18/2007	1600	740	460	3300	1800	--	--	--	<98	<98	<49	6.8 J	<49	<49	--	Exceed
MW-15	ASI	SZ	10/3/2007	2400	790	440	4800	3300	--	--	--	<73	<53	<13	<6.4	<11	<43	--	Exceed
MW-15	ASI	SZ	4/17/2008	1700	760	470	3800	2100	--	--	--	79 J	<16	<9.7	68 J	<11	69 J	--	Exceed
MW-15	ASI	SZ	10/20/2008	4400	1400	990	9600	2300	--	--	--	<17	<16	<9.8	56 J	<11	56 J	--	Exceed
MW-15	ASI	SZ	4/16/2009	2680	918	552	5800	<1.49	--	--	--	<1.68	<1.60	<0.994	11.5	<1.12	17.4	--	Exceed
MW-15	ASI	SZ	10/23/2009	9360 J	2740 J	1350 J	15400 J	11200 J	--	--	--	<1.62 J	<1.54 J	<0.956 J	38.4 J	1.53 J	10.1 J	--	Exceed
MW-15	ASI	SZ	4/15/2010	6870	1870	829	7970	5750	--	--	--	<1.62	<1.54	<0.956	56.7	<1.08	13.6	--	Exceed
MW-15	ASI	SZ	10/26/2010	3340	753	339	3540	2760	--	--	--	<42.0 J	<39.9 J	<24.8	<40.0	<28.0	<21.9	--	Exceed
MW-15	ASI	SZ	4/27/2011	7930	2420	1150	8400	5200	--	--	--	--	--	<1.10	56.5	<1.44	10.9	<3.11 J	Exceed
MW-15	ASI	SZ	4/26/2012	2440	913	490	6030	1450	--	--	--	<6.34	<5.81	<1.10	126	<1.44	19.6	--	Exceed
MW-15	ASI	SZ	4/17/2014	5500	1600 E	1500	13000	7200 E	--	--	--	--	--	<1.1	24	<1.1	8.8 J	<4.0	Exceed
MW-15	ASI	SZ	4/15/2016	672	340	167 X7	1600 X7	1160 X7	--	--	--	--	--	<1.11	2.01 J	<1.13	1.53 J	<4.00 X7	Exceed
MW-15	ASI	SZ	4/24/2018	4,760	2,090	522 X7	6,430 X7	<54.6 X7	--	--	--	--	--	<59.3	<67.5	<60.8	<35.6	<214 X7	Exceed
MW-15	ASI	SZ	4/28/2020	7410	3040	1440 X7	12800 X7	10500 X7	--	--	--	--	--	<1.17	1150 J	<1.20	46.5	<424 X7	Exceed
MW-15	ASI	SZ	4/28/2022	3960	2410	1550 X7	14800 X7	8720 X7	--	--	--	--	--	<0.908	159	<1.06	12.9 J	92.5 X7	Exceed
MW-15	***ASI***	***SZ***	***4/5/2024***	**3400**	**1430**	**11.1 J**	**84.8 b**	**74.9**	**--**	**--**	**--**	**--**	**--**	**<4.83 U**	**294**	**<5.82 U**	***4.60 J***	***181 ^***	***Exceed***
MW-15-ReSamp-ReRu	***ASI***	***SZ***	***5/1/2024***	**3880**	**1560**	**603**	**4940**	**3690**	**--**	**--**	**--**	**--**	**--**	**<4.49 U**	**1180**	**<5.41 U**	**20.9**	**220 ***	**Exceed**
MW-16	EI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	8/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-16	EI	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/23/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/3/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	2/13/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	5/10/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	8/7/1989	160	150	<0	52	38	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/19/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/29/1990	<0	<0	<0	11	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/24/1990	<0	10	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	7/25/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/4/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	5/3/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/29/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/21/1993	<0	<0	<0	<0	<0	<0	0.43	0.12	--	--	--	--	--	--	--	~
MW-16	EI	SZ	11/7/1993	<0	<0	<0	<0	<0	<0	0.48	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.44	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/25/1994	<0	<0	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/26/1995	<0	18	<0	<0	<0	<0	0.54	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	11/12/1995	<0	48	<0	<0	<0	<0	0.16	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	5/11/1996	<0	150	<0	<0	<0	<0	0.37	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	11/13/1996	<10	310 D	<10	<10	<10	--	0.47	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	5/4/1997	13	350 D	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/18/1997	<10	720 D	<10	<10	<10	--	0.45	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/14/1998	<10	610 D	<10	<10	<10	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/26/1998	<10	600 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/17/1999	31	800 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/30/1999	92	1700 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	6/8/2000	<50	3900 D	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/11/2000	<100	3900 D	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/8/2001	6.3 J	5400 D	<100	6.3 J	6.9 J	<500	--	--	<200	<200	<100	<200	<100	78 J	--	Exceed
MW-16	EI	SZ	10/24/2001	<50	280	<50	<50	<50	<250	--	--	<100	<100	<50	<100	<50	<100	--	Exceed
MW-16	EI	SZ	4/22/2002	<110	4700 D	9 J	16 J	20 J	<530	--	--	<210	<210	<110	<210	<110	130 J	--	Exceed
MW-16	EI	SZ	10/10/2002	<9	7200 D	6.7 J	15	16	<48	--	--	<19	<19	<9	<19	3.4 J	250 D	--	Exceed
MW-17	EI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	8/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/24/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/6/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/5/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/26/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/25/1990	<0	<0	<0	15	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-17	EI	SZ	10/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/3/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/29/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/21/1993	<0	<0	<0	<0	<0	<0	0.57	0.14	--	--	--	--	--	--	--	~
MW-17	EI	SZ	11/7/1993	<0	<0	<0	<0	<0	<0	0.41	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.33	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/25/1994	<0	<0	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/26/1995	<0	<0	<0	<0	<0	<0	0.45	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	11/10/1995	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/11/1996	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	11/15/1996	<10	<10	<10	<10	<10	--	0.24	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/19/1997	<10	<10	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/18/1997	<10	<10	<10	<10	<10	--	0.45	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/14/1998	<10	<10	<10	<10	<10	--	0.59	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/26/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/17/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/30/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	6/8/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/11/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/8/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-17	EI	SZ	10/24/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-17	EI	SZ	4/22/2002	<10	<10	<10	<10	<10	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-17	EI	SZ	10/10/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-17	EI	SZ	12/19/2003	<1.1	<1.1	<11	<11	<11	<44	--	--	--	--	<11	<1.1	<11	<1.1	<2.2	~
MW-18	ASI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	6/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/24/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/6/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	2/14/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	5/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	1/31/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	4/11/2003	2 J	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	Exceed
MW-19	EI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	3/26/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	6/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/24/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/6/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	2/14/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	5/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	1/31/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/10/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	7/23/1985	4	24	4	53	25	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	12/19/1985	<0	14.7	<0	29	14	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	3/25/1986	<0	17.7	<0	41.8	20.9	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	6/18/1986	<0	11	<0	27.4	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	8/12/1986	<0	17.7	<0	31.8	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/21/1986	<0	8.53	<0	20.8	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	4/2/1987	74.4	134	18.4	<0	11.1	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	7/23/1987	<0	9.17	<0	17.6	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	1/26/1988	<0	28	44	<0	17	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/28/1988	<0	58	<0	39	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	7/27/1988	<0	37.4	<0	40.8	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/3/1988	<0	20	<0	45	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	2/10/1989	<0	74	<0	80	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/8/1989	83	<0	10	95	59	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	8/10/1989	11	66	<0	55	43	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/20/1989	22	100	<0	71	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	1/26/1990	110	37	9.4	74	62	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/24/1990	56	160	<0	50	13	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	7/11/1990	43	90	<0	46	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/3/1990	80	87	<0	50	49	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	5/1/1991	110	100	<0	55	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	10/4/1991	100	62	<0	99	90	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/6/1992	150	86	<0	70	55	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/29/1992	250	120	11	120	110	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/8/1993	210	93	<0	89	80	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	11/9/1993	200	110	13	100	92	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/17/1994	160	150	13	110	97	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/11/1994	<0	<0	<0	<0	<0	<0	0.58	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	4/22/1995	150	120	14	98	100	<0	0.68	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	11/14/1995	140	150	18	160	120	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/4/1996	170	210	<0	170	140	<0	0.59	0.077	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	11/20/1996	110 D	130 D	17	170 D	170 D	--	0.41	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/9/1997	54	68	11	83	72	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/26/1997	110	140	15	120	120	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/14/1998	95	140	14	150	130	--	0.82	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/26/1998	110	130	11	120	100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/20/1999	99	120	12	110	100	--	--	--	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-20	ASI	SZ	10/23/1999	73	100	12	120	110	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	6/6/2000	86	160	19 J	130	120	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/12/2000	100	160	19	150	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/28/2001	280 D	78	140 J D	1800 D	1300 D	<50	--	--	620 D	630 D	<10	2500 D	<10	360 J D	--	Exceed
MW-20	ASI	SZ	10/25/2001	89	120	17	120	120	<50	--	--	<20	<20	<10	<20	<10	15 J	--	Exceed
MW-20	ASI	SZ	4/24/2002	65	120	15	110	110	<50	--	--	<20	<20	<10	<20	<10	20	--	Exceed
MW-20	ASI	SZ	10/10/2002	50	70	8.9 J	63	66	<48	--	--	<19	<19	<9	<19	<9	13 J	--	Exceed
MW-20	ASI	SZ	4/11/2003	96	130	13	94	130	<52	--	--	<21	<21	<10	<21	<10	11 J	--	Exceed
MW-20	ASI	SZ	10/6/2003	51	74	8.1 J	54	50	<48	--	--	<19	<19	<9.7	<19	<9.7	4.8 J	--	Exceed
MW-20	ASI	SZ	4/19/2004	8.8 J	13	1.1 J	8.9 J	10	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	Exceed
MW-20	ASI	SZ	10/12/2004	84	110	9.6 J	73	81	<48	--	--	<19	<19	<9.7	<19	<9.7	33	--	Exceed
MW-20	ASI	SZ	4/18/2005	47	26	2.7 J	20	24	--	--	--	<19	<19	<9.6	1.4 J	<9.6	14	--	Exceed
MW-20	ASI	SZ	10/19/2005	56	70	7.2 J	50	55	--	--	--	<20	<20	<10	<10	<10	39	--	Exceed
MW-20	ASI	SZ	4/19/2006	68	87	6.2 J	48	55	--	--	--	<20	<20	<9.9	<9.9	<9.9	46	--	Exceed
MW-20	ASI	SZ	11/3/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	8.7 J	<9.6	<9.6	<9.6	<9.6	--	~
MW-20	ASI	SZ	4/18/2007	23	23	2.3 J	19	24	--	--	--	7.3 J	22	<9.7	0.83 J	<9.7	20	--	Exceed
MW-20	ASI	SZ	10/3/2007	55	55	5.8 J	46	54	--	--	--	8.5 J	8.2 J	<1.3	3.1 J	<1.0	44	--	Exceed
MW-20	ASI	SZ	4/15/2008	46	46	4.9 J	40	47	--	--	--	10 J	8.2 J	<0.99	<1.6	<1.1	46	--	Exceed
MW-20	ASI	SZ	10/20/2008	<2.8	<1.0	<1.0	2.2 J	2.3 J	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	~
MW-20	ASI	SZ	4/16/2009	43.8	39.9	3.95 J	32.8	39	--	--	--	10.6 J	6.24 J	<0.975	<1.57	<1.10	29.2	--	Exceed
MW-20	ASI	SZ	10/19/2009	58.2	47.4	4.14 J	30.7	37.6	--	--	--	7.31 J	<1.54	<0.956	<1.54	<1.08	42.9	--	Exceed
MW-20	ASI	SZ	4/21/2010	67.2	50.7	4.25 J	32.7	38.8	--	--	--	<1.65	<1.57	<0.975	<1.57	<1.10	46.8	--	Exceed
MW-20	ASI	SZ	10/26/2010	38	26.5	1.89 J	17	22.7	--	--	--	<1.67 J	8.48 J	<0.984	<1.59	<1.11	20.2	--	Exceed
MW-20	ASI	SZ	4/27/2011	45.7	39.7	8.11 J	16.3	23.6	--	--	--	--	--	<1.10	<4.80	<1.44	34.3	3.33 J	Exceed
MW-20	ASI	SZ	4/26/2012	51.1	40.6	3.32 J	27.1	33.6	--	--	--	<6.46 J	<5.92	<1.12	<4.90	<1.47	41.7	--	Exceed
MW-20	ASI	SZ	4/14/2014	47	39	3 J	16	24	--	--	--	--	--	<1.2	<1.3	<1.2	15	<4.2	Exceed
MW-20	ASI	SZ	4/15/2016	60.4	41.6	3.78 J X7	21.5 X7	27.7 X7	--	--	--	--	--	<1.11	<1.26	<1.13	33.6	<4.00 X7	Exceed
MW-20	ASI	USZ	4/24/2018	38.5	29.8	2.76 J X7	<1.11 X7	12.9 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	Exceed
MW-20	ASI	USZ	4/28/2020	48.2	31.3	2.64 J X7	<1.08 X7	21.1 X7	--	--	--	--	--	<1.16	<1.32	<1.19	61.5	<4.20 X7	Exceed
MW-20	ASI	USZ	4/28/2022	40.0	38.5	2.91 J X7	17.7 X7	23.7 X7	--	--	--	--	--	<0.483	<6.16	<0.565	40.4	<7.29 X7	Exceed
MW-20	ASI	USZ	4/5/2024	46.8	35.2	<1.20 U	13.8 b	18.7	--	--	--	--	--	4.26 U	<8.52 U	<5.14 U	36.8	<10.8 U*	Exceed
MW-21	EI	DZ	6/12/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	3/25/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	6/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/27/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/30/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/11/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	2/16/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/12/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	8/7/1989	<0	<0	<0	32	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-21	EI	DZ	10/25/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/23/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/18/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/9/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/8/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/7/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/31/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/7/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/26/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/21/1993	<0	<0	<0	<0	<0	<0	0.5	0.27	--	--	--	--	--	--	--	~
MW-21	EI	DZ	11/4/1993	<0	<0	<0	<0	<0	<0	0.41	0.27	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/13/1994	<0	<0	<0	<0	<0	<0	0.55	0.31	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/10/1994	<0	<0	<0	<0	<0	<0	0.63	2.4	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/19/1995	<0	<0	<0	<0	<0	<0	0.73	0.24	--	--	--	--	--	--	--	~
MW-21	EI	DZ	11/5/1995	<0	<0	<0	<0	<0	<0	0.41	0.75	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/1/1996	<0	<0	<0	<0	<0	<0	0.59	0.51	--	--	--	--	--	--	--	~
MW-21	EI	DZ	11/10/1996	<10	<10	<10	<10	<10	--	0.58	0.4	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/23/1997	<10	<10	<10	<10	<10	--	0.49	0.37	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/12/1997	<10	<10	<10	<10	<10	--	0.52	0.28	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/22/1998	<10	<10	<10	<10	<10	--	0.59	0.27	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/20/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/14/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/7/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/16/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/10/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/5/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-21	EI	DZ	10/18/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-21	EI	DZ	4/24/2002	<10	<10	<10	<10	<10	<51	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-21	EI	DZ	10/7/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-21	EI	DZ	4/2/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-21	EI	DZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-21	EI	DZ	4/26/2004	0.11 J	0.092 J	<9.5	<9.5	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-21	EI	DZ	10/26/2004	<0.96	<0.96	<9.6	<9.6	<9.6	<38	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-21	EI	DZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.49	<0.24	<0.24	<2	~
MW-21	EI	DZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-21	EI	DZ	4/20/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-21	EI	DZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-21	EI	DZ	4/23/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	<4.8	<4.8	<0.96	<0.96	<0.96	<0.96	--	~
MW-21	EI	DZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
MW-21	EI	DZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-21	EI	DZ	10/17/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	<1.8	<1.8	<0.070	<0.11	<0.054	<0.098	--	~
MW-21	EI	DZ	4/22/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	<1.74	<1.74	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-21	EI	DZ	10/27/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71 !	<1.71 !	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-21	EI	DZ	4/6/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71	<1.71	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-21	EI	DZ	10/12/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	<1.74	~
MW-21	EI	DZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-21	EI	DZ	10/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-21	EI	DZ	4/12/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	<1.71	<1.71	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-21	EI	DZ	10/25/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-21	EI	DZ	4/15/2013	<0.0598	<0.0865	<0.0883	<0.0693	<0.0783	--	--	--	--	--	<0.0713	<0.108	<0.0555	<0.100	<1.81	~
MW-21	EI	DZ	10/15/2013	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-21	EI	DZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-21	EI	DZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-21	EI	DZ	4/15/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-21	EI	DZ	10/8/2015	<0.130	<0.08	<0.611	<1.07	<1.06	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01	~
MW-21	EI	DZ	4/5/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-21	EI	DZ	10/26/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-21	EI	DZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-21	EI	DZ	10/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-21	EI	DZ	4/11/2018	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-21	EI	DZ	10/11/2018	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 X7	~
MW-21	EI	DZ	4/15/2019	<0.137	<0.0842	<0.643 LX7	<1.13 LX7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 X7	~
MW-21	EI	DZ	10/16/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 R	~
MW-21	EI	DZ	4/15/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-21	EI	DZ	10/14/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-21	EI	DZ	4/21/2021	<0.0568	<0.0373	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.493	<6.29	<0.577	<3.15	<7.45 X7	~
MW-21	EI	DZ	10/6/2021	<0.0579	<0.0380	<1.08 X7	<0.71 X7	<0.767 X7	--	--	--	--	--	<0.451	<5.75	<0.528	<2.88	<6.81 X7	~
MW-21	EI	DZ	4/13/2021	<0.0610	<0.0400	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.85 X7	~
MW-11	DNT	USZ	4/5/2024	1.93	0.864	<1.19 U	<0.799 U	<0.864 U	--	--	--	--	--	<4.21 U	<8.42 U	<5.07 U	<1.30 U	<10.7 U*	Exceed
MW-21	EI	DZ	10/12/2022	<0.0614	<0.0403	<1.08 X7	<0.709 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.75	<0.527	<2.87	<6.80 X7	~
MW-21	EI	DZ	4/12/2023	<0.0570	<0.0374	<1.23	<0.802	<0.867	--	--	--	--	--	<0.510	<6.50	<0.596	<3.25	<7.70	~
MW-21	EI	DZ	10/12/2023	<0.0563 U	<0.0369 U	<1.30 U	<0.874 U	<0.945 U	--	--	--	--	--	<4.61 U	<9.22 U	<5.55 U	<1.142 U	<11.7 U*	~
MW-21	EI	DZ	4/8/2024	<0.0588 U	<0.0386 U	<1.05 U	<0.703 U	<0.760 U	--	--	--	--	--	<3.71 U	<7.41 U	<4.47 U	<1.14 U	<9.41 U*	~
MW-21	EI	DZ	10/18/2024	<0.0610 U	<0.0400 U	<1.02 U	<0.684 U	<0.739 U	--	--	--	--	--	<3.60 U	<7.21 U	<4.34 U	<1.11 U	<9.15 U*	~
MW-21	EI	DZ	05/05/25	<0.0616 U	<0.0404 U	<1.04 U	<0.698 U	<0.754 U	--	--	--	--	--	<3.68 U	<7.35 U*	<4.43 U	<1.13 U	<9.33 U*	~
MW-22	ASI	SZ	6/12/1985	2	<0	16	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	12/18/1985	6.6	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	3/25/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	6/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	4/2/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	7/24/1987	41	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	1/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	7/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/5/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	2/14/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	5/12/1989	<0	<0	<0	14	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/20/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	1/26/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	4/25/1990	410	430	300	3400	2100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	7/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/5/1990	<0	<0	<0	17	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	5/8/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-23	ASI	IZ	9/13/1988	620	287	323	4070	1140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	10/5/1988	5700	1860	1390	16400	9660	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	2/16/1989	6000	2300	2700	27000	22000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	5/12/1989	<0	<0	1200	15000	11000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	8/10/1989	8500	2300	2000	23000	18000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	10/25/1989	1500	370	520	5200	3900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	1/23/1990	390	2000	650	6200	4600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	4/18/1990	2900	590	1100	10000	7700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	7/25/1990	600	81	210	2300	1700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	10/8/1990	510	84	210	1800	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-23	ASI	IZ	5/10/1991	340	53	140	1300	1300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-23	ASI	IZ	10/1/1991	940	210	400	5600	4400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/21/1988	20100	5490	1880	1520	6300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	2/13/1989	1700	460	260	2600	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/5/1989	1000	240	140	1400	750	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	8/3/1989	<0	40	21	55	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/16/1989	178	47	32	250	140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	1/22/1990	150	120	170	1900	880	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/23/1990	260	320	250	2700	1400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/1/1990	450	370	220	2100	1400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	1/23/1991	1900	530	390	3100	2700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/10/1991	290	150	120	600	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	7/12/1991	460	150	110	1000	840	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/1/1991	560	180	250	2100	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	2/1/1992	680	150	68	720	510	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/28/1992	81	31	20	210	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	7/22/1992	200	60	32	330	190	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/19/1992	52	20	13	130	69	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-24	ASI	SZ	1/26/1993	64	23	13	110	71	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/6/1993	44	22	13	93	60	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	7/22/1993	<0	<0	<0	21	10	<0	0.5	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	11/2/1993	17	<0	<0	34	24	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/12/1994	20	<0	<0	51	41	<0	0.55	0.075	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/24/1994	<0	<0	<0	15	<0	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/11/1995	<0	<0	<0	24	13	<0	0.63	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	11/16/1995	100	28	64	970	77	<0	0.25	0.13	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/31/1996	<0	<0	<0	10	<0	<0	0.65	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	11/4/1996	<10	<10	<10	18	10	--	0.61	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/1/1997	<10	<10	<10	25	14	--	0.6	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/17/1997	<10	<10	<10	16	11	--	0.59	0.078	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/14/1998	10	<10	<10	15	<10	--	0.73	0.063	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-24	ASI	SZ	4/15/1999	11	21	13	180 D	36	--	--	--	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/15/1999	<10	<10	<10	96	48	--	--	--	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/17/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-24	ASI	SZ	10/5/2000	4.5 J	6.7 J	6.2 J	83	42	--	--	--	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/2/2001	3 J	6.9 J	<10	66	26	<50	--	--	<20	<20	<10	130	<10	<20	--	Exceed
MW-24	ASI	SZ	10/17/2001	9.6 J	19	18	280 D	100	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-24	ASI	SZ	4/29/2002	6.3 J	20	4.7 J	54	16	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-24	ASI	SZ	10/9/2002	6.4 J	8.9 J	9.1 J	93	46	<49	--	--	83	67	<9	21	<9	<20	--	Exceed
MW-24	ASI	SZ	4/8/2003	6.7 J	10	7.8 J	100	36	<48	--	--	<19	<19	<9	3.7 J	<9	<19	--	Exceed
MW-24	ASI	SZ	10/10/2003	8.5 J	7.2 J	12 J	150	59	<250	--	--	<100	<100	<50	22 J	<50	<100	--	Exceed
MW-24	ASI	SZ	4/28/2004	9.3 J	19	17	210	64	<48	--	--	<19	<19	<9.5	<19	<9.5	<19	--	Exceed
MW-24	ASI	SZ	10/6/2004	<9.6	<9.6	3.9 J	49	19	<48	--	--	61	52	<9.6	30	<9.6	<19	--	Exceed
MW-24	ASI	SZ	4/13/2005	7 J	27	10	100	37	--	--	--	<19	<19	<9.7	10	<9.7	<9.7	--	Exceed
MW-24	ASI	SZ	10/18/2005	<20	2.8 J	3.1 J	38	15 J	--	--	--	91	91	<20	32	<20	<20	--	Exceed
MW-24	ASI	SZ	4/18/2006	12	31	25	290	98	--	--	--	25	29	<9.6	12	<9.6	<9.6	--	Exceed
MW-24	ASI	SZ	11/8/2006	8.3 J	16	18	200	100	--	--	--	22	26	<9.7	30	<9.7	<9.7	--	Exceed
MW-24	ASI	SZ	4/17/2007	13	41	39	350	140	--	--	--	<19	<19	<9.7	3.8 J	<9.7	<9.7	--	Exceed
MW-24	ASI	SZ	10/10/2007	8.8 J	25	34	370	160	--	--	--	7.6 J	7 J	<1.2	100	<1.0	<4.1	--	Exceed
MW-24	ASI	SZ	4/17/2008	11	35	45	420	130	--	--	--	6.6 J	<1.5	<0.96	7.6 J	<1.1	0.94 J	--	Exceed
MW-24	ASI	SZ	10/23/2008	7.5 J	21	22	170	51	--	--	--	9.1 J	6.2 J	<0.97	2.9 J	<1.1	<0.86	--	Exceed
MW-24	ASI	SZ	4/21/2009	8.58 J	32.6	29.3	235	60.2	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-24	ASI	SZ	10/21/2009	6.6 J	23.2	26.2	246	127	--	--	--	<1.62	<1.54	<0.956	4.71 J	<1.08	1.16 J	--	Exceed
MW-24	ASI	SZ	4/22/2010	5.03 J	10.8	8.36 J	40.9	5.06 J	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-24	ASI	SZ	10/21/2010	4.3 J	8.17 J	7.59 J	26.5	6.33 J	--	--	--	<1.65	<1.57	<0.975	5.74 J	<1.10	<0.858	--	Exceed
MW-24	ASI	SZ	4/26/2011	4.44 J	8.95 J	10.6	11.7	7.35 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-24	ASI	SZ	10/18/2011	3.04 J	4.97 J	3.47 J	5.87 J	2.11 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-24	ASI	SZ	4/27/2012	<2.83 J	2.2 J	<1.02 J	1.85 J	<1.46 J	--	--	--	<6.46 J	<5.92 J	<1.12 J	<4.90 J	<1.47 J	<0.858 J	--	Exceed
MW-24	ASI	SZ	10/30/2012	17.6	6.51	7.23	97.8	62	--	--	--	--	--	<0.0679	380	<0.0528	6	20.3	Exceed
MW-24	ASI	SZ	4/25/2013	216	56	63.5	761	599	--	--	--	--	--	<1.01	3190	<1.24	57.1	--	Exceed
MW-24	ASI	SZ	10/24/2013	5200	1500	990	14000	9500	--	--	--	--	--	<11	8300	<11	270	1700 J	Exceed
MW-24	ASI	SZ	4/21/2014	<0.91	3.5 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-24	ASI	SZ	10/24/2014	<0.95	<0.64	0.84 J	6.3 J	20	--	--	--	--	--	<1.2	2800	<1.2	4.8 J	4800	Exceed
MW-24	ASI	SZ	4/22/2015	8.6 J	2.8 J	1.8 J	21	15	--	--	--	--	--	<1.2	43	<1.3	1.8 J	<4.5	Exceed
MW-24	ASI	SZ	10/20/2015	<1.40	<0.86	<6.57	<11.5	<11.4	--	--	--	--	--	<1.83	35.6	<1.18	<1.40	<43.1	Exceed
MW-24	ASI	SZ	4/13/2016	<9.13	<6.15	<5.87 X7	<10.3 X7	<10.2 X7	--	--	--	--	--	<11.1	1500	<11.3	<6.63	625 J X7	Exceed
MW-24	ASI	SZ	10/28/2016	14.3	4.48 J	3.14 J X7	40.3 X7	22.7 X7	--	--	--	--	--	<1.15	835	<1.18	1.04 J	<4.16 X7	Exceed
MW-24	ASI	SZ	4/19/2017	<0.931	<0.627	<0.598 LX7	<1.05 LX7	<1.04 LX7	--	--	--	--	--	<1.13 L	8.42 L	<1.16 L	<0.676	148 LX7	Exceed
MW-24	ASI	SZ	10/18/2017	2.95 J	2.01 J	0.903 J X7	5.80 J X7	2.08 J X7	--	--	--	--	--	<1.22	<1.39	<1.26	<0.734	<4.43 X7	Exceed
MW-24	ASI	SZ	4/17/2018	<0.950	<0.640	<0.610 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<1.15 L	<1.31 L	<1.18 L	<0.690 L	R	~
MW-24	ASI	SZ	10/26/2018	<0.960	<0.646	<0.616 LX7	<1.08 X7	<1.07 LX7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-24	ASI	SZ	4/18/2019	<0.990	<0.667	<0.635 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-24	ASI	SZ	10/25/2019	1.96 J	1.16 J	<0.616	2.23 J	<1.07	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20	Exceed
MW-24	ASI	SZ	4/22/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 RX7	~
MW-24	ASI	SZ	10/22/2020	1.26 J	0.955 J	<0.605 X7	1.41 J X7	<1.05 X7	--	--	--	--	--	<0.168	3.81	<0.109	<0.129	124 X7	Exceed
MW-24	ASI	SZ	4/27/2021	0.701	0.410	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.496	26.9	<0.581	<3.17	<7.50 X7	~
MW-24	ASI	SZ	10/25/2021	7710	2970	2080 X7	28200 X7	7770 X7	--	--	--	--	--	<2.43	37.9 J	13.3 J	342	36.7 X7	Exceed
MW-24 1st run	***ASI***	***SZ***	***4/18/2022***	**2490**	**1380**	**500 X7**	**264 X7**	**2650 X7**	--	--	--	--	--	**<2.55**	<32.5	**<2.98**	**23.0 J**	**<38.5 X7**	**Exceed**
^MW-24-ReSamp-Run	***ASI***	***SZ***	***5/26/2022***	**2590**	**1160**	**431 X7**	**483 X7**	**3100 X7**	--	--	--	--	--	**<2.32**	**<29.6**	**<2.71**	**18.1 J**	**<35.0**	**Exceed**
MW-24	ASI	SZ	10/13/2022	2960	1700	611 X7	842 X7	3600 X7	--	--	--	--	--	<4.64	<59.2	<5.43	<29.6	<70.1 X7	Exceed
MW-24	ASI	SZ	4/13/2023	2170	1320	535	454	2760	--	--	--	--	--	<2.54	<32.4	<2.97	<16.2	<38.4	Exceed
MW-24	ASI	SZ	10/18/2023	7530	2960	1480	15700	9690	--	--	--	--	--	<5.11 U	19.4	<6.16 U	59.8	<13.0 U*	Exceed
MW-24 1st run	***ASI***	***SZ***	***5/21/2024***	**7030**	**2580**	**1290 H**	**16900 H**	**9610 H**	--	--	--	--	--	**<3.98 U H**	**<7.98 U H**	**<4.60 U H**	**18.3 H**	**<10.1 U H***	**Exceed**
^MW-24-ReSamp-Run	***ASI***	***SZ***	***5/21/2024***	**9800**	**4580**	**732**	**2360**	**7590**	--	--	--	--	--	**<4.15 U**	**<8.30 U**	**<5.00 U**	**53.3**	**<10.5 U***	**Exceed**
MW-24	ASI	SZ	10/23/2024	6540	2360	1380	11500	9980	--	--	--	--	--	<3.88 U	79.6	<4.68 U	31.0	<9.86 U	Exceed
MW-24	ASI	SZ	04/30/25	5990	2310	1110	12,400	3800	--	--	--	--	--	<3.81 U	22.6	<4.60 U	69.4	<9.68 U*	Exceed
MW-25	ASI	SZ	10/21/1988	35300	9180	8720	74700	40900	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	2/13/1989	8400	2800	2300	28000	20000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/8/1989	16000	5100	4200	45000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	8/3/1989	12000	4000	2600	22000	18000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/16/1989	1200	1800	1200	11000	8500	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	1/22/1990	1800	6200	1400	16000	9400	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/23/1990	10000	3300	2400	22000	18000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/1/1990	9100	2800	1600	20000	15000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	1/23/1991	8400	2900	1500	19000	13000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/10/1991	11000	3900	2200	23000	19000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	7/12/1991	12000	4200	2300	26000	19000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/1/1991	13000	4600	3700	56000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	2/1/1992	14000	5200	2900	31000	24000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/29/1992	15000	5400	2600	32000	24000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	7/22/1992	18000	6200	3600	44000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/19/1992	15000	5300	2800	28000	23000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	1/26/1993	13000	5100	2300	28000	21000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/6/1993	24000	9200	3900	46000	39000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	7/22/1993	25000	7000	3300	37000	45000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	11/2/1993	22000	8000	<0	38000	35000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/12/1994	26000	13000	4500	58000	52000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/10/1994	12000	4900	2100	34000	17000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/11/1995	22000	7100	3900	56000	33000	--	--	--	--	--	--	--	--	--	--	Exceed

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SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-25	ASI	SZ	11/1/1995	8800	3100	1700	20000	16000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/25/1996	<0	21000	<0	73000	47000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	11/4/1996	23000 D	7200	3600	51000 D	37000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/1/1997	10000 D	2700	1600	21000 D	15000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/17/1997	14000 D	6200	2400	26000 D	21000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/13/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
MW-25	ASI	SZ	5/28/1998	19000 D	6000	2800	39000 D	26000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/22/1998	29000	9200	4500	67000	45000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/15/1999	20000	6500	3000	37000 D	26000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/15/1999	11000	<5000	<5000	39000	25000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/17/2000	5400	2900	1500	15000 D	12000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/5/2000	23000 D	7800	4000	45000 D	33000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/2/2001	10000 D	4400 J D	2400 J D	37000 D	23000 D	--	--	--	--	--	<10	<20	17	<20	--	Exceed
MW-25	ASI	SZ	10/17/2001	8900 D	3800 D	2100 D	25000 D	17000 D	--	--	--	--	--	<10	<20	8.7 J	2.3 J	--	Exceed
MW-25	ASI	SZ	4/30/2002	8400 D	3800 D	2100 D	22000 D	15000 D	--	--	--	--	--	<9	<20	9.3 J	12 J	--	Exceed
MW-25	ASI	SZ	10/9/2002	12000 D	3900 D	2300 D	21000 D	16000 D	--	--	--	--	--	<7	<14	<7	4.9 J	--	Exceed
MW-25	ASI	SZ	4/8/2003	6700 D	21000 D	3600 J D	44000 D	37000 D	--	--	--	--	--	<95	<190	<95	<190	--	Exceed
MW-25	ASI	SZ	10/10/2003	33000 D	12000 D	6400	62000 D	49000 D	--	--	--	--	--	<500	28 J	<500	66 J	--	Exceed
MW-25	ASI	SZ	4/27/2004	15000	5000	2600	31000	23000	--	--	--	--	--	<480	<19	<480	<950	--	Exceed
MW-25	ASI	SZ	10/6/2004	9700	4100	2100	22000	15000	--	--	--	--	--	<9.6	8 J	<9.6	17 J	--	Exceed
MW-25	ASI	SZ	4/13/2005	7500	2600	1700 J	17000	12000	--	--	--	--	--	<9.7	14	5.9 J	4.9 J	--	Exceed
MW-25	ASI	SZ	10/18/2005	18000	5800	3200	40000	27000	--	--	--	--	--	<490	33 J	<490	<490	--	Exceed
MW-25	ASI	SZ	4/18/2006	19000	7200	3400 J	42000	27000	--	--	--	--	--	<96	8.7 J	<96	<96	--	Exceed
MW-25	ASI	SZ	11/8/2006	15000	4900	2900	34000	24000	--	--	--	--	--	<490	<490	<490	<490	--	Exceed
MW-25	ASI	SZ	10/12/2009	17300	3520	2090	38600	15000	--	--	--	--	--	<9.75	<15.7	20.6 J	22.7 J	--	Exceed
MW-26	ASI	SZ	10/21/1988	17000	8910	2630	19800	9050	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	2/13/1989	11000	5000	3400	37000	28000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/8/1989	56000	18000	11000	120000	94000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	8/9/1989	8000	3100	1200	13000	9300	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/24/1989	6200	2600	1400	13000	9700	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	1/22/1990	2300	6400	1400	13000	9300	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/23/1990	8100	3000	1700	18000	13000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/1/1990	4000	1200	460	5000	4000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	1/23/1991	1100	<0	540	5000	4800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/10/1991	2600	1000	500	2900	3000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	7/16/1991	2300	860	370	2600	2800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/1/1991	2700	650	580	4800	5200	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	2/1/1992	2600	750	320	3200	2800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/29/1992	2200	720	300	2600	1800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	7/22/1992	2100	750	360	3300	2700	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/20/1992	2200	670	300	2800	2500	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	1/26/1993	1900	470	170	1800	1500	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/7/1993	1700	490	310	1400	1200	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	7/22/1993	1500	370	130	820	1000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	11/2/1993	1200	270	<0	20	740	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/12/1994	1100	330	120	1200	1100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/10/1994	1000	150	81	930	540	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/11/1995	1100	200	100	1000	830	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	11/16/1995	1100	140	65	820	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/27/1996	64	120	67	540	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	11/8/1996	520 D	58	460 D	470 D	45	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/1/1997	150 D	13	13	130 D	170 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/17/1997	150	15	11	91	120 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/13/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
MW-26	ASI	SZ	5/28/1998	680 D	110	42	510 D	410 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/22/1998	79	11	<10	65	52	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/15/1999	42	<10	<10	36	30	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/15/1999	64	<10	<10	83	100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/17/2000	53	10	4.9 J	42	39	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/5/2000	16	<10	<10	13	12	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/3/2001	35	4.1 J	<10	30	26	--	--	--	--	--	<10	9.2 J	<10	2.6 J	--	Exceed
MW-26	ASI	SZ	10/18/2001	12	2.7 J	1.2 J	9.7 J	8.5 J	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-26	ASI	SZ	10/9/2002	120	19	9.5 J	82	72	--	--	--	--	--	<9	22	<9	5.7 J	--	Exceed
MW-26	ASI	SZ	4/4/2003	72	9.5 J	4.1 J	44	45	--	--	--	--	--	<9	<19	<9	2.6 J	--	Exceed
MW-26	ASI	SZ	10/10/2003	50	7.1 J	3 J	29	26	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-26	ASI	SZ	4/27/2004	22	<9.5	1.1 J	12	10	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-26	ASI	SZ	10/6/2004	150	20	8.1 J	82	70	--	--	--	--	--	<9.6	<19	<9.6	4.6 J	--	Exceed
MW-26	ASI	SZ	4/13/2005	21	3.9 J	2.1 J	17	13	--	--	--	--	--	<9.7	3.3 J	<9.7	1.5 J	--	Exceed
MW-26	ASI	SZ	10/17/2005	4.6 J	<9.6	<9.6	3.9 J	3.2 J	--	--	--	--	--	<9.6	5 J	<9.6	<9.6	--	Exceed
MW-26	ASI	SZ	4/18/2006	18	2.4 J	<9.6	10	8 J	--	--	--	--	--	<9.6	1.1 J	<9.6	<9.6	--	Exceed
MW-26	ASI	SZ	11/7/2006	9.2 J	0.94 J	<9.8	4.6 J	3.3 J	--	--	--	--	--	<9.8	0.74 J	<9.8	<9.8	--	Exceed
MW-26	ASI	SZ	4/16/2007	2.1 J	<9.6	<9.6	3 J	1.4 J	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-26	ASI	SZ	10/10/2007	5 J	<0.81	<1.0	4.7 J	5 J	--	--	--	--	--	<1.2	7.1 J	<1.0	<4.1	--	Exceed
MW-26	ASI	SZ	4/17/2008	4.3 J	<1.0	<1.0	7.2 J	4.5 J	--	--	--	--	--	<0.98	4.4 J	<1.1	1.4 J	--	Exceed
MW-26	ASI	SZ	10/23/2008	4.4 J	<1.0	<1.0	4.7 J	3.5 J	--	--	--	--	--	<0.97	5 J	<1.1	<0.86	--	Exceed
MW-26	ASI	SZ	4/21/2009	3.58 J	<0.987	<0.998	7.57 J	4.88 J	--	--	--	--	--	<0.956	1.81 J	<1.08	2.82 J	--	Exceed
MW-26	ASI	SZ	10/21/2009	8.59 J	<0.996	<1.01	8.41 J	7.22 J	--	--	--	--	--	<0.965	4.31 J	<1.09	3.26 J	--	Exceed
MW-26	ASI	SZ	4/9/2010	2.98 J	<0.987	<0.998	3.46 J	2.08 J	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-26	ASI	SZ	10/21/2010	<2.77	<0.987	30.5	2.62 J	2.01 J	--	--	--	--	--	<0.956	4.71 J	<1.08	<0.841	--	~
MW-26	ASI	SZ	4/27/2011	5.39 J	<1.01	5.98 J	3.97 J	7.96 J	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	Exceed
MW-26	ASI	SZ	10/18/2011	5.24 J	<0.987	<0.998	4.46 J	3.17 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-26	ASI	SZ	4/27/2012	3.52 J	<0.987	<0.998	3.11 J	2.12 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-26	ASI	SZ	10/17/2012	5.75 J	<0.987	<0.998	6.28 J	3.9 J	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-26	ASI	SZ	4/29/2013	8.73 J	<0.996	<1.01	1.74 J	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	8.51 J	<3.14 L	Exceed
MW-26	ASI	SZ	10/24/2013	4.2 J	<0.65	<0.62	3.4 J	3.1 J	--	--	--	--	--	<1.2	<1.3	<1.2	4.5 J	<13	Exceed
MW-26	ASI	SZ	4/18/2014	2.9 J	1 J	<0.59	1.8 J	1.9 J	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-26	ASI	SZ	10/21/2014	4 J	<0.62	<0.59	3.5 J	3.9 J	--	--	--	--	--	<1.1	<1.3	<1.1	1.3 J	<4.0	Exceed
MW-26	ASI	SZ	4/22/2015	21	3.4 J	1.1 J	13	10 J	--	--	--	--	--	<1.2	<1.4	<1.3	<0.73	<4.4	Exceed
MW-26	ASI	SZ	10/19/2015	2.21	0.295 J	<0.611	2.06 J	1.55 J	--	--	--	--	--	<0.170	1.25	<0.110	0.451 J	<4.01	Exceed
MW-26	ASI	SZ	4/19/2016	2.93 J	<0.615	<0.587 X7	2.69 J X7	2.19 J X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-26	ASI	SZ	10/26/2016	2.13 J	<0.653	<0.622 X7	2.42 J X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	Exceed
MW-26	ASI	SZ	4/20/2017	4.83 J	0.97 J	0.596 J X7	7.19 J X7	3.94 J X7	--	--	--	--	--	<1.12	<1.27	<1.15	<0.67	<4.04 X7	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-26	ASI	SZ	10/19/2017	1.75 J	<0.653	<0.622 X7	1.45 J X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.2	<0.704	<4.24 X7	Exceed
MW-26	ASI	SZ	4/17/2018	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 LX7	~
MW-26	ASI	SZ	10/29/2018	<0.941	<0.634	<0.604 LX7	<1.06 X7	<1.05 LX7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-26	ASI	SZ	4/18/2019	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-26	ASI	SZ	10/25/2019	<0.913	<0.615	<0.587 X7	<1.03X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-26	ASI	SZ	4/22/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-26	ASI	SZ	10/22/2020	1.12 J	<0.450	<0.623 X7	3.75 J X7	2.65 J X7	--	--	--	--	--	<0.173	1.15	<0.112	<0.133	4.77 J X7	Exceed
MW-26	ASI	SZ	4/28/2021	0.304	0.119	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.504	<6.44	<0.590	<3.22	<7.62 X7	Exceed
MW-26	ASI	SZ	10/14/2021	2.1	0.276	<1.09 X7	<0.711 X7	<0.769 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.88	<6.83 X7	Exceed
MW-26	ASI	SZ	4/19/2022	1.96	0.523	<2.19 X7	4.05 J X7	<2.57 J X7	--	--	--	--	--	<0.910	<11.6	<1.07	<5.81	<13.8 X7	Exceed
MW-26	ASI	SZ	10/14/2022	3.85	3.23	1.10 X7	3.96 J	2.68 J	--	--	--	--	--	<0.456	<5.82	<0.533	<2.91	<6.88	Exceed
MW-26	ASI	SZ	4/17/2023	<0.0608	0.263	<1.17	1.65 J	1.34 J	--	--	--	--	--	<0.488	<6.23	<0.571	<3.11	<7.37	~
MW-26	ASI	SZ	10/17/2023	0.918	0.144	<1.13 U	0.804 J	<0.822 U	--	--	--	--	--	<4.01 U	<8.01 U	<4.83 U	<1.23 U	<10.2 U*	~
MW-26	ASI	SZ	4/15/2024	0.240	0.178	<1.12 U	<0.755 U	<0.816 U	--	--	--	--	--	<3.98 U*	<7.96 U*	<4.80 U*	<1.22 U*	<10.1 U*	~
MW-26	ASI	SZ	10/22/2024	0.261	<0.0400 U	<1.06 U	1.12 J	1.42 J	--	--	--	--	--	<3.75 U	<7.51 U	<4.52 U	<1.15 U	<9.53 U*	~
MW-26	ASI	SZ	05/13/25	0.337	<0.403 U	<1.14 U*	<0.765 U*	<0.827 U*	--	--	--	--	--	<4.03 U	<8.06 U	<4.86 U	<1.24 U	<10.2 U*	~
MW-27	Tech	IZ	1/31/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	5/8/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	7/25/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-27	Tech	IZ	4/22/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-27	Tech	IZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-27	Tech	IZ	4/17/2017	<0.143	<0.0879	<0.671 X7	<1.18 X7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 LX7	~
MW-27	Tech	IZ	4/17/2018	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-27	BG	IZ	4/12/2019	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-27	BG	IZ	4/22/2021	<0.0618	<0.0405	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.64 X7	~
MW-27	BG	IZ	4/12/2023	<0.0574	<0.0376	<1.15	<0.750	<0.811	--	--	--	--	--	<0.477	<6.08	<0.558	<3.04	<7.20	~
MW-27	BG	IZ	05/09/25	<0.0606 U	<0.0397 U	<1.11 U	<0.748 U	<0.809 U	--	--	--	--	--	<3.94 U	<7.89 U	<4.75 U	<1.21 U	<10.0 U*	~
MW-28	Tech	DZ	1/31/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	5/8/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	7/24/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	10/25/2011	<2.74	<0.977	<0.989	<1.01	<1.42	--	--	--	--	--	<1.09	<4.76	<1.43	<0.833	<3.08 J	~
MW-28	Tech	DZ	4/22/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 L	~
MW-28	Tech	DZ	4/15/2015	<0.13	<0.081	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-28	Tech	DZ	4/17/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-28	BG	DZ	4/12/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-28	BG	DZ	4/22/2021	<0.0565	<0.0370	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.518	<6.61	<0.606	<3.30	<7.82 X7	Exceed
MW-28	BG	DZ	4/12/2023	<0.0572	<0.0375	<1.29	<0.846	<0.914	--	--	--	--	--	<0.537	<6.86	<0.629	<3.43	<8.12	~
MW-28	ASI	DZ	05/09/25	<0.0592 U	<0.0388 U	<1.11 U	<0.745 U	<0.806 U	--	--	--	--	--	<3.93 U	<7.86 U	<4.73 U	<1.21 U	<9.97 U*	~
MW-29	ASI	IZ	1/24/1991	<0	<0	<0	12	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	7/12/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/28/1992	49	38	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	10/19/1992	<0	<0	<0	13	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	4/6/1993	24	18	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	11/2/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/12/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/24/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	11/1/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/25/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	11/4/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	5/1/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/16/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/28/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	6/15/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/5/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/2/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-29	ASI	IZ	10/17/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-29	ASI	IZ	4/29/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-29	ASI	IZ	10/9/2002	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<20	<9	<20	--	~
MW-29	ASI	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-29	ASI	IZ	10/22/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-29	ASI	IZ	4/28/2004	0.11 J	0.1 J	<9.5	0.11 J	0.11 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-29	ASI	IZ	10/20/2004	<9.7	<9.7	<97	<97	4.9 J	--	--	--	--	--	<97	<9.7	<97	<9.7	<19	~
MW-29	ASI	IZ	4/5/2005	<2.4	<2.4	<2.4	<2.4	5.1	--	--	--	--	--	<2.4	<4.9	<2.4	<2.4	<20	~
MW-29	ASI	IZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-29	ASI	IZ	4/18/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-29	ASI	IZ	11/8/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-29	ASI	IZ	4/17/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-29	ASI	IZ	10/10/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	--	--	<1.3	<0.62	<1.0	<4.1	--	~
MW-29	ASI	IZ	4/17/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	<0.87	--	~
MW-30	ASI	IZ	1/24/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	7/12/1991	<0	<0	<0	22	13	--	--	--	--	--	--	--	--	--	--	Exceed
MW-30	ASI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	4/29/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	10/19/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-30	ASI	IZ	11/4/2003	<0.24	<0.24	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	1.8	<9.5	<0.95	<1.9	~
MW-30	ASI	IZ	4/16/2012	<0.0563	<0.0815	<0.0832	0.183 J	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-30	ASI	IZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-30	ASI	IZ	4/4/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-30	ASI	IZ	5/31/2017	<0.125	<0.0769	<0.588	<1.03	<0.102	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-30	ASI	IZ	4/12/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	0.166 J	<0.106	<0.125	<3.86 LX7	~
MW-30	ASI	IZ	4/17/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-30	ASI	IZ	4/6/2022	0.241	0.278	<1.09 X7	<0.712 X7	<0.769 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.88	<6.83 X7	~
MW-30	ASI	IZ	4/22/2024	<0.0612 U	<0.0401 U	<1.11 U	<0.747 U	<0.808 U	--	--	--	--	--	<3.94 U	<7.88 U	<4.75 U	<1.21 U	<10.0 U*	~
MW-31	ASI	DZ	1/24/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	7/12/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/1/1991	<0	<0	<0	11	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/28/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/19/1992	19	<0	<0	19	12	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	4/6/1993	<0	<0	<0	19	15	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	11/2/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/24/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	11/1/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/25/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	11/4/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	5/1/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/16/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/28/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/27/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	6/15/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/5/2000	7.5 J	2.3 J	<10	16	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	4/2/2001	3.3 J	<10	<10	11	5.8 J	--	--	--	--	--	<10	190 E	<10	<20	--	Exceed
MW-31	ASI	DZ	10/17/2001	<10	<10	<10	1.3 J	0.65 J	--	--	--	--	--	<10	1.1 J	<10	<20	--	~
MW-31	ASI	DZ	4/29/2002	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<20	<9	<20	--	~
MW-31	ASI	DZ	10/9/2002	3.8 J	<9	0.86 J	11	7.4 J	--	--	--	--	--	<9	2.4 J	<9	<19	--	Exceed
MW-31	ASI	DZ	4/8/2003	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-31	ASI	DZ	10/22/2003	<1	<1	<10	<10	<10	--	--	--	--	--	<10	<1	<10	<1	<2	~
MW-31	ASI	DZ	5/6/2004	0.17 J	0.11 J	<9.5	0.12 J	0.11 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-31	ASI	DZ	10/20/2004	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-31	ASI	DZ	4/5/2005	0.082 J	0.052 J	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-31	ASI	DZ	10/25/2005	<0.25	0.084 J	<0.25	0.057 J	0.09 J	--	--	--	--	--	<0.25	<0.5	<0.25	<0.25	<2	~
MW-31	ASI	DZ	4/20/2006	0.47 J	0.12 J	<0.96	0.22 J	0.17 J	--	--	--	--	--	<0.96	0.55 J	<0.96	<0.96	<4.8	~
MW-31	ASI	DZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-31	ASI	DZ	4/23/2007	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	~
MW-31	ASI	DZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	17	<0.052	<0.094	--	~
MW-31	ASI	DZ	4/9/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	13	<0.052	<0.094	<1.7	~
MW-31	ASI	DZ	10/17/2008	<0.058	<0.084	<0.086	0.13 J	<0.076	--	--	--	--	--	<0.069	7.1	<0.054	<0.097	--	~
MW-31	ASI	DZ	4/23/2009	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	1.14	<0.0528	<0.0955	--	~
MW-31	ASI	DZ	10/27/2009	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	2.06	<0.0528	<0.0955	--	~
MW-31	ASI	DZ	4/7/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	0.124 J	<0.0528	<0.0955	--	~
MW-31	ASI	DZ	10/12/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692 J	1.2	<0.0539	<0.0974	<1.76	~
MW-31	ASI	DZ	4/15/2011	<0.0569	<0.0823	<0.0840	0.381 J	1.4	--	--	--	--	--	<0.0679	10.3	<0.0528	<0.0955	<1.72 J	~
MW-31	ASI	DZ	10/20/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-31	ASI	DZ	4/16/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-31	ASI	DZ	10/9/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	0.103 J	<0.0533	<0.0965	<1.74	~
MW-31	ASI	DZ	4/15/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-31	ASI	DZ	10/17/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	0.31 J	<0.11	<0.13	<3.9 L	~
MW-31	ASI	DZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-31	ASI	DZ	10/23/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-31	ASI	DZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	0.30 J	<0.11	<0.13	<3.9	~
MW-31	ASI	DZ	10/9/2015	<0.133	<0.0816	<0.623	<1.09	<1.08	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09	~
MW-31	ASI	DZ	4/4/2016	<0.130	<0.080	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.17	<0.130 L	<0.110	<0.130	<4.01 X7	~
MW-31	ASI	DZ	10/20/2016	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	0.432 J	<0.11	<0.130 L	<4.01 LX7	~
MW-31	ASI	DZ	4/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-31	ASI	DZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	1.11	<0.106	<0.125	<3.86 LX7	~
MW-31	ASI	DZ	4/12/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-31	ASI	DZ	10/11/2018	<0.140	<0.086	<0.657 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.14	<0.118	<0.140	<4.31 X7	~
MW-31	ASI	DZ	4/10/2019	<0.135	<0.0833	<0.636 X7	<1.11 LX7	<1.10 X7	--	--	--	--	--	<0.177	<0.135 L	<0.115	<0.135 L	<4.18 R	~
MW-31	ASI	DZ	10/16/2019	<0.133 L	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173 L	0.551 J	<0.112	<0.133	<4.09 LX7	~
MW-31	ASI	DZ	4/17/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	0.225 J	<0.108	<0.127	<3.93 LX7	~
MW-31	ASI	DZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	0.661 J	<0.108	<0.127	<3.93 X7	~
MW-31	ASI	DZ	4/14/2021	0.127	<0.0403	<11.2 X7	<11.2 X7	<11.2 X7	--	--	--	--	--	<0.527	<6.73	<0.617	<3.37	<7.97 X7	Exceed
MW-31	ASI	DZ	10/6/2021	<0.0551	<0.0361	<1.13 X7	<0.737 X7	<0.797 X7	--	--	--	--	--	<0.468	<5.97	<0.548	<2.99	<7.07 X7	~
MW-31	ASI	DZ	4/7/2022	<0.0614	<0.0403	<1.11 X7	<0.728 X7	<0.787 X7	--	--	--	--	--	<0.462	<5.90	<0.541	<2.95	<6.99 X7	~
MW-31	ASI	DZ	10/6/2022	<0.0541	<0.0355	<1.15 X7	<0.751 X7	<0.812 X7	--	--	--	--	--	<0.477	<6.09	<0.558	<3.05	<7.21	~
MW-31	ASI	DZ	4/5/2023	<0.0588	<0.0386	<1.09	<0.714	<0.772	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.85	~
MW-31	ASI	DZ	10/12/2023	<0.0567 U	<0.0372 U	<1.23 U	<0.828 U	<0.895 U	--	--	--	--	--	<4.36 U	<8.73 U	<5.26 U	<1.34 U	<11.1 U*	~
MW-31	ASI	DZ	4/24/2024	<0.0598 U	<0.0392 U	<1.08 U	<0.728 U	<0.787 U	--	--	--	--	--	<3.84 U	<7.67 U	<4.62 U	<1.18 U	<9.74 U*	~
MW-31 1st Run	***ASI***	***DZ***	***10/21/2024***	**2.18**	**1.07**	**<1.02 U**	**<0.689 U**	**<0.745 U**						**<3.63 U**	**<7.26 U**	**<4.37 U**	**<1.12 U**	**<9.21 U***	***Exceed***
MW-31 Resample	***ASI***	***DZ***	***11/19/2024***	**<0.0602 U**	**<0.0395 U**	--	--	--	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	05/01/25	0.106	<0.0404 U	<1.08 U	<0.726 U	<0.785 U	--	--	--	--	--	<3.83 U	<7.65 U	<4.61 U	<1.18 U	<9.71 U*	~
MW-32	ASI	IZ	1/25/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	4/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-32	ASI	IZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-32	ASI	IZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	0.067 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-32	ASI	IZ	10/19/2004	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-32	ASI	IZ	4/5/2005	<0.24	0.059 J	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-32	ASI	IZ	10/17/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	3.5 J	<9.8	<9.8	--	~
MW-32	ASI	IZ	4/17/2006	<9.6	<9.6	<9.6	<9.6	1.8 J	1.1 J	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-32	ASI	IZ	11/8/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-32	ASI	IZ	4/16/2007	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-32	ASI	IZ	10/10/2007	<0.81	<0.83	<1.0	<0.88	<0.96	--	--	--	--	--	<1.3	<0.63	<1.0	<4.2	--	~
MW-32	ASI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-32	ASI	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-32	ASI	IZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-32	ASI	IZ	10/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	2.94 J	<1.09	<0.850	--	~
MW-32	ASI	IZ	4/9/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-32	ASI	IZ	10/21/2010	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
MW-32	ASI	IZ	4/26/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-32	ASI	IZ	10/18/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-32	ASI	IZ	4/27/2012	<2.83 J	<1.01 J	<1.02 J	<1.04 J	<1.46 J	--	--	--	--	--	<1.12 J	<4.90 J	<1.47 J	<0.858 J	--	~
MW-32	ASI	IZ	10/17/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	~
MW-32	ASI	IZ	4/29/2013	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	<2.91	<3.14 L	~
MW-32	ASI	IZ	10/24/2013	<0.93	<0.63	<0.60	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<12	~
MW-32	ASI	IZ	4/18/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-32	ASI	IZ	10/21/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-32	ASI	IZ	4/22/2015	<1.1	<0.71	<0.68	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.77	<4.6	~
MW-32	ASI	IZ	10/19/2015	<0.130	<0.080	<0.611	<1.07	<1.06	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01	~
MW-32	ASI	IZ	4/19/2016	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-32	ASI	IZ	10/26/2016	<0.96	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-32	ASI	IZ	4/21/2017	<0.950	<0.640	<0.610 X7	6.87 J X7	2.69 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-32	ASI	IZ	10/19/2017	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.2	<0.704	<4.24 X7	~
MW-32	ASI	IZ	4/17/2018	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 LX7	~
MW-32	ASI	IZ	10/29/2018	<0.922	<0.621	<0.592 LX7	<1.04 X7	<1.03 LX7	--	--	--	--	--	<1.12	<1.27	<1.15	<0.670	<4.04X7	~
MW-32	ASI	IZ	4/18/2019	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-32	ASI	IZ	10/28/2019	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-32	ASI	IZ	5/1/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-32	ASI	IZ	10/22/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-32	ASI	IZ	4/28/2021	<0.0583	<0.0382	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.503	<6.42	<0.589	<3.21	<7.60 X7	Exceed
MW-32	ASI	IZ	10/14/2021	<0.0606	<0.0397	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.87	<6.78 X7	~
MW-32	ASI	IZ	4/19/2022	<0.0631	<0.0414	<1.09 X7	<0.711 X7	<0.769 X7	--	--	--	--	--	<0.452	<5.76	<0.528	<2.88	<6.82 X7	~
MW-32	ASI	IZ	10/14/2022	0.0593 J	0.0355 J	<1.09 X7	<0.715 X7	<0.772 X7	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.86 X7	~
MW-32	ASI	IZ	4/17/2023	<0.0583	<0.0382	<1.11	<0.729	<0.788	--	--	--	--	--	<0.463	<5.91	<0.542	<2.96	<6.99	~
MW-32	ASI	IZ	10/17/2023	<0.0577 U	0.123	<1.08 U	<0.728 U	<0.787 U	--	--	--	--	--	<3.84 U	<7.68	<4.63	<1.18 U	<9.74 U*	~
MW-32	ASI	IZ	4/24/2024	<0.0602 U	<0.0395 U	<1.11 U	<0.750 U	<0.810 U	--	--	--	--	--	<3.95 U	<7.90 U	<4.76 U	<1.22 U*	<10.0 U*	~
MW-32	ASI	IZ	10/21/2024	<0.0602 U	<0.0395 U	<1.02 U	<0.689 U	<0.745 U	--	--	--	--	--	<3.63 U	<7.26 U	<4.37 U	<1.12 U	<9.21 U*	~
MW-32	ASI	IZ	05/01/25	0.0791 J p	<0.0408 U	<1.06 U	<0.710 U	<0.768 U	--	--	--	--	--	<3.74 U	<7.49 U	<4.51 U	<1.15 U	<9.50 U*	~
MW-33	ASI	DZ		<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ		<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	5/8/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	7/12/1991	<0	<0	<0	25	17	--	--	--	--	--	--	--	--	--	--	Exceed
MW-33	ASI	DZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/29/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/7/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	11/3/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/12/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/24/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	11/1/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	5/31/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	11/8/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/22/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/12/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/23/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/14/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	5/17/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/5/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/3/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-33	ASI	DZ	10/17/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-33	ASI	DZ	10/8/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-33	ASI	DZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-33	ASI	DZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-33	ASI	DZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-33	ASI	DZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-33	ASI	DZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-33	ASI	DZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.49	<0.24	<0.24	<2	~
MW-33	ASI	DZ	4/20/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-33	ASI	DZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-33	ASI	DZ	4/23/2007	<0.98	<0.98	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	--	~
MW-33	ASI	DZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-33	ASI	DZ	4/9/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-34	AOC2	IZ	1/29/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	7/23/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	12/30/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-35	AOC2	DZ	1/29/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	7/23/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	5/6/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	1/25/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-36	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	4/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-36	EI	IZ	10/20/2011	<0.0563	1.13	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-36	EI	IZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-36	EI	IZ	10/25/2012	<0.0563 J	0.143 J	<0.0832 J	<0.0653 J	<0.0738 J	--	--	--	--	--	<0.0672 J	<0.101 J	<0.0523 J	<0.0946 J	4.75 J	Exceed
MW-36	EI	IZ	4/15/2013	<0.0580	0.608 J	<0.0856	0.427 J	0.232 J	--	--	--	--	--	<0.0692	0.146 J	<0.0539	<0.0974	8.09	Exceed
MW-36	EI	IZ	10/17/2013	<0.13	15	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 L	Exceed
MW-36	EI	IZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-36	EI	IZ	10/23/2014	<0.13	0.41 J	<0.60	<1.1	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-36	EI	IZ	4/15/2015	<0.13	0.64 J	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	0.30 J	<0.11	<0.13	<3.9	~
MW-36	EI	IZ	10/7/2015	0.230 J	1.39	<0.611	<1.07	<1.06	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01	Exceed
MW-36	EI	IZ	4/6/2016	<0.125	0.989	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-36	EI	IZ	10/24/2016	<0.125	0.661 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.442 J	<3.86 LX7	~
MW-36	EI	IZ	4/12/2017	<0.125	1.79	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	0.241 J	<0.106	<0.125	<3.86 LX7	Exceed
MW-36	EI	IZ	10/13/2017	<0.125	1.05	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-36	EI	IZ	4/11/2018	<0.125	0.628 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-36	EI	IZ	10/11/2018	<0.140	0.761 J	<0.657 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.14	<0.118	<0.140	<4.31 X7	~
MW-36	EI	IZ	4/10/2019	1.41 J	18.6	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	Exceed
MW-36	EI	IZ	10/16/2019	<0.131 L	0.875 J	<0.617 X7	<1.08 X7	<1.07 X7	.	--	--	--	--	<0.172 L	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-36	EI	IZ	4/14/2020	<0.125	1.11	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-36	EI	IZ	10/13/2020	.543 J	1.43	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	.407 J	<4.09 X7	Exceed
MW-36	EI	IZ	4/15/2021	0.608	1.79	<10.4 X7	<10.4 X7	<10.4 X7	--	--	--	--	--	<0.487	<6.21	<0.570	<3.11	<7.35 X7	Exceed
MW-36	EI	IZ	10/6/2021	0.387	1.71	<2.18 X7	<1.43 X7	<1.54 X7	--	--	--	--	--	<0.906	<11.6	<1.06	<5.78	<13.7 X7	Exceed
MW-36	EI	IZ	4/6/2022	0.412	1.67	<1.07 X7	<0.703 X7	<0.760 X7	--	--	--	--	--	<0.446	<5.70	<0.522	<2.85	<6.74 X7	Exceed
MW-36	EI	IZ	10/6/2022	<0.0538	1.71	<1.08 X7	<0.710 X7	<0.767 X7	--	--	--	--	--	<0.451	<5.75	<0.527	<2.88	<6.81 X7	Exceed
MW-36	EI	IZ	4/5/2023	0.243	2.40	<1.09	<0.713	<0.771	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84	Exceed
MW-36	EI	IZ	10/12/2023	0.133	2.29	<1.05 U	<0.707 U	<0.765 U	--	--	--	--	--	<3.73 U	<7.45 U	<4.49 U	<1.15 U	<9.46 U	Exceed
MW-36	EI	IZ	4/8/2024	0.235	1.94	<1.09 U	1.22 J	0.910 J b	--	--	--	--	--	<3.88 U	<7.75 U	<4.67 U	<1.19 U	<9.84 U	Exceed
MW-36	EI	IZ	10/22/2024	1.98	5.76	<1.03 U	2.15 J	1.40 J	--	--	--	--	--	<3.67 U	<7.34 U	<4.42 U	3.77 J	<9.31 U*	Exceed
MW-36	EI	IZ	05/05/25	**0.341**	1.46	<1.04 U	<0.701 U	<0.758 U	--	--	--	--	--	<3.69 U	<7.39 U	<4.45 U	<1.14 U	<9.38 U*	Exceed
MW-37	EI	IZ	1/28/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-37	EI	IZ	11/4/2003	<0.24	<0.24	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-37	EI	IZ	4/22/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-37	EI	IZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-37	EI	IZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-37	EI	IZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-37	EI	IZ	4/12/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-37	EI	IZ	11/7/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-37	EI	IZ	4/17/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-37	EI	IZ	10/9/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
MW-37	EI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-37	EI	IZ	10/23/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	<0.87	--	~
MW-37	EI	IZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-37	EI	IZ	10/23/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-37	EI	IZ	4/22/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-37	EI	IZ	10/25/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-37	EI	IZ	4/25/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-37	EI	IZ	4/23/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	--	~
MW-37	EI	IZ	4/21/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-37	EI	IZ	4/20/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-37	EI	IZ	4/17/2018	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 LX7	~
MW-37	EI	IZ	5/19/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-37	EI	IZ	4/19/2022	<0.0618	<0.0405	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.85 X7	~
MW-37	EI	IZ	4/22/2024	<0.0618 U	<0.0405 U	<1.12 U	<0.756 U	<0.818 U	--	--	--	--	--	<3.99 U	<7.97 U	<4.80 U*	<1.23 U	<10.1 U*	Exceed
MW-38	EI	DZ	1/28/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	4/17/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-38	EI	DZ	1/7/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-38	EI	DZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-38	EI	DZ	10/11/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-38	EI	DZ	4/11/2005	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-38	EI	DZ	10/18/2005	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-38	EI	DZ	4/12/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-38	EI	DZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-38	EI	DZ	4/17/2007	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-38	EI	DZ	10/9/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	--	--	<1.3	<0.62	<1.0	<4.1	--	~
MW-38	EI	DZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-38	EI	DZ	10/30/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-38	EI	DZ	4/21/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	10/23/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	4/22/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	10/25/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	4/26/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-38	EI	DZ	4/23/2012	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	--	~
MW-38	EI	DZ	4/21/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-38	EI	DZ	4/21/2016	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-38	EI	DZ	4/17/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 LX7	~
MW-38	EI	DZ	5/19/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-38	EI	DZ	4/20/2022	<0.0579	<0.0380	<1.09 X7	<0.711 X7	<0.768 X7	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82 X7	~
MW-38	EI	DZ	4/22/2024	<0.0604 U	0.0547 J	<1.04 U	<0.698 U	<0.754 U	--	--	--	--	--	<3.68 U	<7.35 U	<4.43 U	<1.13 U	<9.33 U*	~
MW-39	EI	IZ	1/28/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	5/7/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-39	EI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/4/1991	18	12	<0	16	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/29/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/26/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/9/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/5/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/26/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/19/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/5/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	5/1/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/10/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	5/29/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/14/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/23/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/20/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/22/1999	<10	52	<10	46	22	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	10/27/1999	<10	64	<10	58	24	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	5/16/2000	4.2 J	69	4.1 J	52	27	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	10/10/2000	<10	75	<10	61	29	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	4/5/2001	1.1 J	19	1.1 J	22	9 J	--	--	--	--	--	<10	0.85 J	<10	<20	--	Exceed
MW-40	EI	IZ	10/18/2001	<10	4.1 J	<10	5.7 J	2.2 J	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-40	EI	IZ	4/29/2002	<10	1.7 J	<10	3 J	<10	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-40	EI	IZ	10/7/2002	<10	2.9 J	<10	3.8 J	1.5 J	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-40	EI	IZ	4/2/2003	<9	2.8 J	<9	2.9 J	1.3 J	--	--	--	--	--	<9	<19	<9	<19	--	Exceed
MW-40	EI	IZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-40	EI	IZ	4/26/2004	1.9	23	0.067 J	0.88 J	0.33 J	--	--	--	--	--	<9.5	<0.95	<9.5	0.18 J	<1.9	Exceed
MW-40	EI	IZ	10/14/2004	<0.97	4	<9.7	0.16 J	0.052 J	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	Exceed
MW-40	EI	IZ	4/6/2005	0.27	4.5	<0.24	0.12 J	0.086 J	--	--	--	--	--	<0.24	<0.49	<0.24	0.093 J	14	Exceed
MW-40	EI	IZ	10/17/2005	<9.6	21	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-40	EI	IZ	4/12/2006	<9.9	18	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
MW-40	EI	IZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-40	EI	IZ	5/31/2007	0.76 J	11	<0.96	0.5 J	0.14 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	Exceed
MW-40	EI	IZ	10/9/2007	<0.79	6.3 J	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-40	EI	IZ	4/15/2008	<2.8	10	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-40	EI	IZ	10/23/2008	<2.9	13	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	<0.87	--	Exceed
MW-40	EI	IZ	4/20/2009	<2.83	7.62 J	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-40	EI	IZ	10/21/2009	<2.77	8.06 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-40	EI	IZ	4/13/2010	<2.77	9.27 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-40	EI	IZ	10/25/2010	<2.80	7.37 J	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-40	EI	IZ	4/21/2011	<2.77	12.2	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-40	EI	IZ	10/17/2011	<2.77	12.7	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-40	EI	IZ	4/23/2012	2.79 J	16.1 J	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-40	EI	IZ	10/18/2012	<2.77	22.3	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-40	EI	IZ	4/25/2013	6.43 J	38.4	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	<2.91	19.3 J	Exceed
MW-40	EI	IZ	10/22/2013	1.2 J	31	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<12	Exceed
MW-40	EI	IZ	4/18/2014	<0.91	23	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-40	EI	IZ	10/21/2014	<0.95	22	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	Exceed
MW-40	EI	IZ	4/21/2015	<0.99	37	<0.64	<1.1	<1.1	--	--	--	--	--	<1.2	<1.4	<1.2	<0.72	<4.3	Exceed
MW-40	EI	IZ	10/19/2015	2.75	37.2	<0.630	<1.10	<1.09	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13	Exceed
MW-40	EI	IZ	4/21/2016	<0.931	47.8	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	Exceed
MW-40	EI	IZ	10/27/2016	4.30 J	53	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	4/19/2017	5.43 J	69.6	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	Exceed
MW-40	EI	IZ	10/18/2017	7.63 J	65.2	<0.629 X7	<1.1 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	Exceed
MW-40	EI	IZ	4/19/2018	7.88 J	80.3	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	10/26/2018	6.11 J	58.3	<0.587 LX7	<1.03 X7	<1.02 LX7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	4/18/2019	5.20 JH	47.3	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	Exceed
MW-40	EI	IZ	10/28/2019	8.98 J	68.4	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	4/22/2020	15.2	88.0	<0.604 X7	5.47 J X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	**3.14 J**	<4.12 X7	Exceed
MW-40	EI	IZ	10/21/2020	11.2	66.2	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	**.986 J**	11.7 X7	Exceed
MW-40	EI	IZ	4/27/2021	20.1	106.0	<11.4 X7	<11.4 X7	<11.4 X7	--	--	--	--	--	<0.536	<6.84	<0.627	<3.42	<8.10 X7	Exceed
MW-40	EI	IZ	10/14/2021	11.1	90.3	<1.14 X7	<0.746 X7	<0.806 X7	--	--	--	--	--	<0.474	<6.05	<0.554	<3.02	<7.16 X7	Exceed
MW-40	EI	IZ	4/19/2022	11.3	105	<1.09 X7	<0.712 X7	<0.770 X7	--	--	--	--	--	<0.452	<5.78	<0.529	<2.89	<683 X7	Exceed
MW-40	EI	IZ	10/14/2022	19.1	114	<1.10 X7	<0.720 X7	<0.778 X7	--	--	--	--	--	<0.457	<5.84	<0.535	<2.92	<6.91	Exceed
MW-40	EI	IZ	4/17/2023	20.4	115	<2.22	<1.46	<1.57	--	--	--	--	--	<0.925	<11.8	<1.08	<5.90	<14.0	Exceed
MW-40	EI	IZ	10/16/2023	25.3	137	<1.08 U	<0.723 U	<0.782 U	--	--	--	--	--	<3.81 U	<7.62 U	<4.59 U	**3.75 J**	<9.68 U*	Exceed
MW-40	EI	IZ	4/8/2024	29.7	115	<1.11 U	**0.957 J**	<0.809 U	--	--	--	--	--	<3.94 U	<7.89 U	<4.75 U	**2.61 J**	<10.0 U	Exceed
MW-40	EI	IZ	10/22/2024	30.4	130	<1.04 U	<0.701 U	<0.758 U	--	--	--	--	--	<3.69 U	<7.39 U	<4.45 U	**8.61 J**	<9.38 U*	Exceed
MW-40	EI	IZ	05/05/25	48.4	152	<1.13 U	<0.763 U	<0.825 U	--	--	--	--	--	<4.02 U	<8.04 U*	<4.85 U	<1.24 U	<10.2 U*	Exceed
MW-41	EI	IZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	5/1/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	11/3/1993	<0	<0	<0	<0	<0	<0	0.83	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/11/1994	<0	<0	<0	<0	<0	<0	0.77	0.1	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/26/1994	<0	<0	<0	<0	<0	<0	0.97	0.089	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/19/1995	<0	<0	<0	<0	<0	<0	0.91	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	11/5/1995	<0	<0	<0	<0	<0	<0	0.67	0.069	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/30/1996	<0	<0	<0	<0	<0	<0	0.77	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	11/11/1996	<10	<10	<10	<10	<10	--	0.79	0.062	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/30/1997	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/12/1997	<10	<10	<10	<10	<10	--	0.81	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/23/1998	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	12/21/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	6/7/2000	2.7 J	8.1 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-41	EI	IZ	10/10/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/5/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-41	EI	IZ	10/18/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-41	EI	IZ	4/25/2002	<10	<10	<10	<10	<10	<51	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-41	EI	IZ	10/8/2002	<10	1.8 J	<10	0.79 J	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-41	EI	IZ	4/3/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-41	EI	IZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-41	EI	IZ	4/26/2004	0.11 J	0.12 J	<9.5	0.085 J	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	0.1 J	<1.9	~
MW-41	EI	IZ	10/20/2004	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-41	EI	IZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-41	EI	IZ	10/13/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-41	EI	IZ	4/12/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	<19	<19	<9.5	<9.5	<9.5	<9.5	--	~
MW-41	EI	IZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-41	EI	IZ	4/17/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-41	EI	IZ	10/9/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	<7.0	<5.1	<1.3	<0.62	<1.0	<4.1	--	~
MW-41	EI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	~
MW-41	EI	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	~
MW-41	EI	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-41	EI	IZ	10/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	~
MW-41	EI	IZ	4/13/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-41	EI	IZ	10/25/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63 J	<1.55 J	<0.965	<1.56	<1.09	<0.850	--	~
MW-41	EI	IZ	4/26/2011	<2.80 J	<0.996 J	<1.01 J	<1.03 J	<1.45 J	--	--	--	--	--	<1.11 J	<4.85 J	<1.46 J	<0.850 J	<3.14 J	~
MW-41	EI	IZ	10/17/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-41	EI	IZ	4/23/2012	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	<6.46	<5.92	<1.12	<4.90	<1.47	<0.858	--	~
MW-41	EI	IZ	10/18/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<4.85	<1.18	<2.91	--	~
MW-41	EI	IZ	4/25/2013	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	<3.11 L	~
MW-41	EI	IZ	10/24/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13	~
MW-41	EI	IZ	4/18/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-41	EI	IZ	10/21/2014	<1.0	<0.69	<0.66	<1.2	<1.1	--	--	--	--	--	<1.2	<1.4	<1.3	<0.74	<4.5	~
MW-41	EI	IZ	4/22/2015	<1.0	<0.69	<0.66	<1.2	<1.1	--	--	--	--	--	<1.2	<1.4	<1.3	<0.74	<4.5	~
MW-41	EI	IZ	10/20/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-41	EI	IZ	4/12/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-41	EI	IZ	10/27/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-41	EI	IZ	4/21/2017	<0.913	<0.615	<0.587 X7	4.43 J X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-41	EI	IZ	10/19/2017	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-41	EI	IZ	4/19/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-41	EI	IZ	10/29/2018	<0.931	<0.627	<0.598 LX7	<1.05 X7	<1.04 LX7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-41	EI	IZ	4/19/2019	<1.06	<0.711	<0.678 X7	<1.19 X7	<1.18 X7	--	--	--	--	--	<1.28	<1.46	<1.31	<0.767	<4.62 X7	~
MW-41	EI	IZ	10/28/2019	<1.04	<0.703	<0.670 X7	<1.18 X7	<1.16 X7	--	--	--	--	--	<1.26	<1.44	<1.30	<0.758	<4.57 X7	~
MW-41	EI	IZ	4/29/2020	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-41	EI	IZ	10/21/2020	<0.135	<0.0833	<0.636 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.018 X7	~
MW-41	EI	IZ	4/28/2021	<0.0610	<0.0400	<11.5 X7	<11.5 X7	<11.5 X7	--	--	--	--	--	<0.539	<6.89	<0.631	<3.44	<8.15 X7	Exceed
MW-41	EI	IZ	10/26/2021	0.194	<0.0373	<1.08 X7	<0.707 X7	<0.765 X7	--	--	--	--	--	<0.449	<5.73	<0.526	<2.87	<6.79 X7	~
MW-41	EI	IZ	4/27/2022	<0.0590	<0.0390	<1.08 X7	9.97 X7	5.77 J X7	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82 X7	Exceed
MW-41	EI	IZ	10/14/2022	<0.0553	<0.0363	<1.22 X7	1.48 J X7	<0.863	--	--	--	--	--	<0.507	<6.47	<0.593	<3.23	<7.66 X7	~
MW-41	EI	IZ	4/19/2023	<0.0581	<0.0381	<1.18	<0.776	<0.838	--	--	--	--	--	<0.493	<6.29	<0.576	<3.14	<7.44	~
MW-41	EI	IZ	10/18/2023	<0.0577 U	<0.0379 U	<1.15 U	<0.775 U	<0.838 U	--	--	--	--	--	<4.08 U	<8.17 U	<4.92 U	<1.26 U	<10.4 U*	~
MW-41	EI	IZ	4/5/2024	0.357	0.173	<1.25 U	<0.842 U	<0.911 U	--	--	--	--	--	<4.44 U	<8.88 U	<5.35 U	<1.37 U	<11.3 U*	~
MW-41	EI	IZ	10/16/2024	<0.0612 U	<0.0401 U	<1.07 U	<0.718 U	<0.776 U	--	--	--	--	--	<3.78 U	<7.56 U	<4.56 U	<1.16 U	<9.6 U*	~
MW-41	EI	IZ	05/09/25	0.175	<0.0400 U	<1.14 U	<0.770 U	<0.833 U	--	--	--	--	--	<4.06 U	<8.12 U	<4.89 U	<1.25 U	<10.3 U*	~
MW-42	ASI	IZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-42	ASI	IZ	10/4/1991	<0	<0	<0	150	100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-42	ASI	IZ	1/31/1992	<0	<0	<0	110	67	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/22/1992	36	490	44	460	360	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	7/22/1992	34	570	49	680	470	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/27/1992	25	540	36	600	360	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/15/1993	51	680	48	620	370	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/4/1993	42	490	36	410	280	<0	0.83	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/13/1994	78	1000	68	720	480	<0	0.88	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/28/1994	92	1000	58	620	410	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/12/1995	96	1100	66	670	540	<0	1	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/9/1995	77	1200	68	910	540	<0	1	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/3/1996	97	1200	72	800	460	<0	0.91	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/11/1996	140	1400 D	99	1100 D	700 D	--	0.92	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/29/1997	220 D	1400 D	72	1000 D	590 D	--	0.94	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/1/1997	250 D	1600 D	74	1200 D	760 D	--	0.98	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/7/1998	270 D	1400 D	68	1200 D	710 D	--	0.97	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/21/1998	42	640 D	33	520 D	260 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/22/1999	<10	74	<10	70	34	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/20/1999	<10	49	<10	98	59	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/16/2000	2.2 J	40	3.1 J	37	20	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	6/6/2000	<10	21	<10	29	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/6/2000	3 J	41	<10	48	26	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/3/2001	<10	10	<10	14	6.2 J	<50	--	--	<20	21	<10	<20	<10	<20	--	Exceed
MW-43	EI	IZ	10/24/2001	<10	1.9 J	<10	4.2 J	2 J	<50	--	--	<20	11 J	<10	0.65 J	<10	<20	--	Exceed
MW-43	EI	IZ	4/29/2002	<9	<9	<9	1.9 J	<9	<50	--	--	<20	<20	<9	<20	<9	<20	--	~
MW-43	EI	IZ	10/7/2002	<10	2.4 J	<10	4.2 J	2.4 J	<52	--	--	<21	<21	<10	<21	<10	<21	--	Exceed
MW-43	EI	IZ	4/2/2003	<9	<9	<9	2.9 J	1.8 J	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-43	EI	IZ	10/7/2003	<9.8	<9.8	<9.8	0.8 J	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-43	EI	IZ	4/21/2004	<9.5	<9.5	<9.5	<9.5	<9.5	<48	--	--	<19	<19	<9.5	<19	<9.5	<19	--	~
MW-43	EI	IZ	10/7/2004	<9.8	<9.8	<9.8	<9.8	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-43	EI	IZ	4/11/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	<19	<19	<9.7	<9.7	<9.7	<9.7	--	~
MW-43	EI	IZ	10/13/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	~
MW-43	EI	IZ	4/12/2006	<10	<10	<10	<10	<10	--	--	--	<21	<21	<10	<10	<10	<10	--	~
MW-43	EI	IZ	10/16/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	<20	<20	<9.9	<9.9	<9.9	<9.9	--	~
MW-43	EI	IZ	4/9/2007	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	~
MW-43	EI	IZ	10/3/2007	<0.83	<0.85	<1.0	<0.90	<0.98	--	--	--	<7.3	<5.3	<1.3	<0.64	<1.1	<4.3	--	~
MW-43	EI	IZ	4/15/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	~
MW-43	EI	IZ	10/23/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	<1.7	<1.6	<0.98	<1.6	<1.1	<0.87	--	~
MW-43	EI	IZ	4/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	~
MW-43	EI	IZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-43	EI	IZ	4/13/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-43	EI	IZ	10/19/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	<1.65 J	<1.57 J	<0.975	<1.57	<1.10 J	<0.858	--	~
MW-43	EI	IZ	4/20/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-43	EI	IZ	10/17/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-43	EI	IZ	4/23/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<6.34	<5.81	<1.10	<4.80	<1.44	<0.841	--	~
MW-43	EI	IZ	10/17/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<4.80	<1.17	<2.88	--	~
MW-43	EI	IZ	4/25/2013	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	18.4 J	Exceed
MW-43	EI	IZ	10/22/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13	~
MW-43	EI	IZ	4/15/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-43	EI	IZ	10/22/2014	<0.92	<0.62	<0.59 L	<1.0 L	<1.0 L	--	--	--	--	--	<1.1	<1.3 L	<1.1	<0.67	<4.0 L	~
MW-43	EI	IZ	4/21/2015	<1.1	<0.73	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
MW-43	EI	IZ	10/19/2015	<0.135	<0.0833	<0.636	<1.11	<1.10	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18	~
MW-43	EI	IZ	4/11/2016	<0.979	<0.660	<0.629 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	~
MW-43	EI	IZ	10/27/2016	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-43	EI	IZ	4/19/2017	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-43	EI	IZ	10/19/2017	<1	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-43	EI	IZ	4/19/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-43	EI	IZ	10/29/2018	<0.950	<0.640	<0.610 LX7	<1.07 X7	<1.06 LX7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-43	EI	IZ	4/17/2019	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-43	EI	IZ	10/25/2019	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-43	EI	IZ	4/22/2020	<0.960	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-43	EI	IZ	10/21/2020	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 X7	~
MW-43	EI	IZ	4/27/2021	<0.0635	0.0759 J	<11.1 X7	<11.1 X7	<11.1 X7	--	--	--	--	--	<0.520	<6.64	<0.609	<3.32	<7.86 X7	~
MW-43	EI	IZ	10/25/2021	<0.0561	<0.0368	<1.22 X7	<0.797 X7	<0.861 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.64 X7	~
MW-43	EI	IZ	4/20/2022	0.0934 J	0.368	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.85 X7	~
MW-43	EI	IZ	10/14/2022	<0.0535	0.0691 J	<1.11 X7	<0.727 X7	<0.786 X7	--	--	--	--	--	<0.462	<5.90	<0.541	<2.95	<6.98 X7	~
MW-43	EI	IZ	4/18/2023	<0.0568	0.0403 J	<1.20	<0.789	<0.853	--	--	--	--	--	<0.501	<6.40	<0.586	<3.20	<1.11	~
MW-43	EI	IZ	10/17/2023	<0.0577 U	0.0477 J	<1.17 U	<0.788 U	<0.852 U	--	--	--	--	--	<4.15 U	<8.30 U	<5.00 U	<1.28 U	<10.5 U*	~
MW-43	EI	IZ	4/3/2024	2.11	0.916	<1.32 U	<0.889 U	<0.962 U	--	--	--	--	--	<4.69 U	<9.38 U	<5.65 U	<1.44 U	<11.9 U	Exceed
MW-43	EI	IZ	10/21/2024	<0.0600 U	<0.0393 U	<1.08 U	<0.727 U	<0.786 U	--	--	--	--	--	<3.83 U	<7.66 U	<4.62 U	<1.18 U	<9.72 U*	~
MW-43	EI	IZ	04/30/25	0.237	0.144	<1.18 U	0.809 J	<0.858 U	--	--	--	--	--	<4.18 U	<8.36 U	<5.04 U	<1.29 U	<10.6 U*	~
MW-44	EI	IZ	5/22/1992	<0	12	<0	16	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	7/22/1992	<0	35	<0	44	19	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/27/1992	<0	66	<0	120	59	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/15/1993	<0	86	<0	120	59	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/4/1993	<0	<0	<0	<0	<0	<0	0.69	<0	--	--	--	--	--	--	--	~
MW-44	EI	IZ	4/14/1994	12	220	21	240	140	<0	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/28/1994	19	540	40	490	220	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/12/1995	<0	180	16	140	100	<0	0.89	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/9/1995	<0	130	<0	150	65	<0	0.32	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	5/3/1996	<0	31	<0	31	16	<0	0.64	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/11/1996	<50	590 D	53	650 D	310	--	0.92	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/29/1997	29	480 D	29	500 D	270 D	--	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/1/1997	10	350 D	18	290 D	160 D	--	0.89	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	5/7/1998	28	690 D	35	510 D	290 D	--	0.89	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/21/1998	<10	70	<10	110	48	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/22/1999	<10	12	<10	21	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/20/1999	<10	<10	<10	12	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	5/16/2000	<10	9.1 J	<10	15	6.4 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/6/2000	<10	3.1 J	<10	9 J	3.9 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/3/2001	<10	<10	<10	5.6 J	1.5 J	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-44	EI	IZ	10/24/2001	<10	<10	<10	2.3 J	0.64 J	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-44	EI	IZ	4/29/2002	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-44	EI	IZ	10/7/2002	<10	<10	<10	2.1 J	0.84 J	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-44	EI	IZ	4/2/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-44	EI	IZ	10/7/2003	<9.8	<9.8	<9.8	0.64 J	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-44	EI	IZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	<48	--	--	<19	<19	<9.5	<19	<9.5	<19	--	~
MW-44	EI	IZ	10/7/2004	<9.8	<9.8	<9.8	<9.8	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-44	EI	IZ	4/11/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-44	EI	IZ	10/13/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	~
MW-44	EI	IZ	4/12/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	<20	<20	<9.9	<9.9	<9.9	<9.9	--	~
MW-44	EI	IZ	10/16/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	<20	<20	<9.9	<9.9	<9.9	<9.9	--	~
MW-44	EI	IZ	4/9/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-44	EI	IZ	10/3/2007	<0.83	<0.85	<1.0	<0.90	<0.98	--	--	--	<7.3	<5.3	<1.3	<0.64	<1.1	<4.3	--	~
MW-44	EI	IZ	4/16/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	~
MW-44	EI	IZ	10/23/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	~
MW-44	EI	IZ	4/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	~
MW-44	EI	IZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-44	EI	IZ	4/13/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	<1.65	<1.57	<0.975	<1.57	<1.10	<0.858	--	~
MW-44	EI	IZ	10/19/2010	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	<1.68 J	<1.60 J	<0.994	<1.60	<1.12	<0.875	--	~
MW-44	EI	IZ	4/20/2011	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<1.13	<4.94	<1.49	<0.866	<3.20 J	~
MW-44	EI	IZ	10/17/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-44	EI	IZ	4/23/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<6.34	<5.81	<1.10	<4.80	<1.44	<0.841	--	~
MW-44	EI	IZ	10/17/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<4.85	<1.18	<2.91	--	~
MW-44	EI	IZ	4/25/2013	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	<3.11 L	~
MW-44	EI	IZ	10/22/2013	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<12	~
MW-44	EI	IZ	4/15/2014	<1.1	<0.72	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
MW-44	EI	IZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-44	EI	IZ	4/21/2015	<1.0	<0.70	<0.66	<1.2	<1.2	--	--	--	--	--	<1.3	<1.4	<1.3	<0.75	<4.5	~
MW-44	EI	IZ	10/19/2015	<0.140	<0.086	<0.657	<1.15	<1.14	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31	~
MW-44	EI	IZ	4/11/2016	<0.913	1.10 J	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-44	EI	IZ	10/27/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-44	EI	IZ	4/19/2017	<0.931	<0.627	<0.598 X7	1.26 J X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-44	EI	IZ	10/19/2017	<0.979	<0.66	<0.629 X7	<1.1 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	~
MW-44	EI	IZ	4/19/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-44	EI	IZ	10/26/2018	<0.969	<0.653	<0.622 LX7	<1.09 X7	<1.08 LX7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-44	EI	IZ	4/17/2019	1.05 JH	1.18 J	<0.663 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<1.25	<1.42	<1.28	<0.750	<4.52 X7	~
MW-44	EI	IZ	10/28/2019	<0.913	<0.615	<0.587 LX7	<1.03 LX7	<1.02 LX7	--	--	--	--	--	<1.11 L	<1.26 L	<1.13	<0.663 L	<4.00 LX7	~
MW-44	EI	IZ	4/22/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-44	EI	IZ	10/21/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	.166 J	<0.108	<0.127	<3.93 X7	~
MW-44	EI	IZ	4/28/2021	<0.0579	<0.0380	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.503	<6.42	<0.589	<3.21	<7.60 X7	~
MW-44	EI	IZ	10/14/2021	<0.0561	<0.0368	<1.09 X7	<0.716 X7	<0.774 X7	--	--	--	--	--	<0.455	<5.80	<0.532	<2.90	<6.87 X7	~
MW-44	EI	IZ	4/20/2022	<0.0590	0.0519J	<1.09 X7	<0.715 X7	<0.773 X7	--	--	--	--	--	<0.454	<5.80	<0.532	<2.90	<6.86 X7	~
MW-44	EI	IZ	10/14/2022	<0.0530	<0.0348	<1.11 X7	<0.726 X7	<0.785 X7	--	--	--	--	--	<0.461	<5.88	<0.539	<2.94	<6.96 X7	~
MW-44	EI	IZ	4/18/2023	<0.0574	<0.0376	<1.11	<1.11	<1.11	--	--	--	--	--	<0.460	<1.11	<1.11	<2.94	TDA	~
MW-44	EI	IZ	10/17/2023	<0.0577 U	<0.0379 U	<1.08 U	<0.725 U	<0.784 U	--	--	--	--	--	<3.82 U	<7.65 U	<4.61 U	<1.18 U	<9.71 U*	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-44	EI	IZ	4/3/2024	0.272	0.0629 J	<1.19 U	<0.803 U	<0.868 U	--	--	--	--	--	<4.23 U	<8.46 U	<5.10 U	<1.30 U	<10.7 U*	~
MW-44	EI	IZ	10/21/2024	<0.0602 U	<0.0395 U	<1.07 U	<0.716 U	<0.775 U	--	--	--	--	--	<3.78 U	<7.55 U	<4.55 U	<1.16 U	<9.59 U*	~
MW-44	EI	IZ	04/30/25	**0.161**	<0.0404 U	<1.04 U	<0.699 U	<0.756 U	--	--	--	--	--	<3.68 U	<7.37 U	<4.44 U	<1.13 U	<9.35 U*	~
MW-45	ASI	IZ	6/9/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	7/22/1992	12	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-45	ASI	IZ	10/20/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/7/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	11/3/1993	<0	<0	<0	<0	<0	<0	0.83	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/13/1994	<0	<0	<0	<0	<0	<0	0.77	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/24/1994	<0	<0	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/11/1995	<0	<0	<0	<0	<0	<0	0.86	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	11/1/1995	<0	<0	<0	<0	<0	<0	0.67	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/27/1996	<0	<0	<0	<0	<0	<0	0.82	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	11/8/1996	<10	<10	<10	<10	<10	--	0.61	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/22/1997	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/12/1997	<10	<10	<10	<10	<10	--	0.81	0.061	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/23/1998	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/14/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	5/17/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/5/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/3/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-45	ASI	IZ	10/17/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-45	ASI	IZ	4/30/2002	<10	<10	<10	2.8 J	1.4 J	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-45	ASI	IZ	10/8/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-45	ASI	IZ	4/4/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-45	ASI	IZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-45	ASI	IZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-45	ASI	IZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	<38	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-45	ASI	IZ	4/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	<19	<19	<9.7	<9.7	<9.7	<9.7	--	~
MW-45	ASI	IZ	10/17/2005	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	<19	<19	<9.5	<9.5	<9.5	<9.5	--	~
MW-45	ASI	IZ	4/17/2006	<9.6	<9.6	<9.6	4.7 J	2.5 J	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-45	ASI	IZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	0.63 J	<9.6	<9.6	--	~
MW-45	ASI	IZ	4/11/2007	<9.6	<9.6	<9.6	1.8 J	<9.6	--	--	--	<19	<19	<9.6	2.4 J	<9.6	<9.6	--	~
MW-45	ASI	IZ	10/9/2007	<0.79	<0.81	<1.0	1.8 J	<0.94	--	--	--	<7.0	<5.1	<1.2	2.2 J	<1.0	<4.1	--	~
MW-45	ASI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	<1.6	<1.6	<0.97	2.2 J	<1.1	<0.86	--	~
MW-46	EI	LSZ	6/26/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	7/23/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	10/26/1992	73	53	<0	36	24	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/9/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	11/4/1993	<0	<0	<0	<0	<0	<0	0.96	0.098	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	4/11/1994	<0	<0	<0	<0	<0	<0	0.66	0.087	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	10/27/1994	<0	<0	<0	<0	<0	<0	0.74	0.24	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	4/13/1995	<0	<0	<0	<0	<0	<0	0.6	0.059	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	11/5/1995	<0	<0	<0	<0	<0	<0	0.58	0.37	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	5/1/1996	<0	28	<0	<0	<0	<0	0.64	<0	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	11/10/1996	<20	99	<20	<20	<20	--	0.52	0.09	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	5/4/1997	42	440 D	<10	<10	<10	--	0.6	0.068	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/12/1997	52	1300 D	<10	<10	<10	--	0.52	0.065	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/28/1998	<10	1300 D	<10	<10	<10	--	0.74	0.064	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/21/1998	<10	1300 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/16/1999	110	1400	<100	18000	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/16/1999	110	1700 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	6/8/2000	<20	2700 D	15 J	27	18 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/10/2000	<100	760	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/5/2001	16 J	130	<100	11 J	<100	<500	--	--	<200	<200	<100	<200	<100	<200	--	Exceed
MW-46	EI	LSZ	10/18/2001	270	3200 D	<100	13 J	5.7 J	<500	--	--	<200	<200	<100	<200	<100	100 J	--	Exceed
MW-46	EI	LSZ	4/29/2002	<10	1400 D	9.7 J	17	9.4 J	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-46	EI	LSZ	10/7/2002	<10	410 D	3.8 J	23	12	<51	--	--	<20	<20	<10	<20	<10	14 J	--	Exceed
MW-47	EI	LSZ	5/21/1992	87000	77000	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	7/22/1992	91000	80000	3300	43000	42000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/23/1992	100000	77000	<0	35000	24000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/9/1993	75000	54000	2700	22000	19000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	11/3/1993	25000	12000	430	4600	4600	<0	0.62	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/11/1994	970	820	31	260	<0	<0	0.33	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/26/1994	1900	1600	49	650	400	<0	1.1	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/13/1995	620	380	14	110	110	<0	0.37	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	11/5/1995	670	390	14	120	110	<0	<0	0.12	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/30/1996	760	490	<0	290	220	<0	0.28	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	11/11/1996	240 D	180 D	<10	28	16	--	0.45	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/30/1997	330 D	170 D	<10	48	62	--	0.32	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/12/1997	840 D	630 D	15	170 D	140 D	--	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/28/1998	870 D	540 D	13	160 D	140	--	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/21/1998	75	39	<10	15	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/16/1999	420 D	360 D	23	150 D	100 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	6/7/2000	14	8.1 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/10/2000	170 D	95	<10	38	31	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/5/2001	190 D	150	5.3 J	69	43	<50	--	--	<20	<20	<10	<20	<10	2 J	--	Exceed
MW-47	EI	LSZ	10/18/2001	150	130	4.4 J	55	28	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-47	EI	LSZ	4/25/2002	80	77	3.6 J	40	21	<52	--	--	<21	<21	<10	2.2 J	<10	3.3 J	--	Exceed
MW-47	EI	LSZ	10/8/2002	110	67	3.3 J	33	17	<50	--	--	<20	<20	<10	<20	<10	2.5 J	--	Exceed
MW-47	EI	LSZ	4/26/2012	25.1 J	9.61 J	<0.998 J	6.83 J	5.65 J	--	--	--	<6.34 J	<5.81 J	<1.10 J	<4.80 J	<1.44 J	<0.841 J	--	Exceed
MW-47	EI	LSZ	4/18/2014	2.4 J	1 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-47	EI	LSZ	4/13/2016	3.47 J	1.49 J	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-47	EI	LSZ	4/19/2018	3.68 J	1.76 J	<0.587 X7	3.20 J X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-47	EI	LSZ	4/23/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-47	EI	LSZ	4/26/2022	2.10	1.19	<1.09 X7	<0.712 X7	<0.769 X7	<0.452 X7	<5.77	<0.529	<2.88	<6.83 X7	<0.452	<5.77	<0.529	<2.88	<6.83 X7	Exceed
MW-47	Neut	LSZ	4/15/2024	1.39	0.888	<1.21 U	1.16 J	<0.882 U	--	--	--	--	--	<4.30 U*	<8.60 U*	<5.18 U*	<1.32 U*	<10.9 U*	Exceed
MW-48	Neut	LSZ	6/8/1992	2100	9500	12	13	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	7/23/1992	1800	8700	<0	23	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	10/27/1992	4500	19000	<0	56	37	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-48	Neut	LSZ	4/12/1993	4500	13000	13	110	63	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	1/9/1994	6400	26000	35	390	150	<0	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	2/13/1995	9400	29000	<0	700	440	<0	0.78	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	4/28/1998	1900 D	1900 D	<10	51	31	--	--	--	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	4/3/2003	3000	6400	<480	140 J	79 J	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
MW-48	Neut	LSZ	10/8/2003	10000 D	19000 D	52	360	250	<240	--	--	<95	<95	<48	<95	<48	21 J	--	Exceed
MW-48	Neut	LSZ	4/26/2004	7600	12000	50 J	350	260	<980	--	--	<390	<390	<200	<390	<200	92 J	--	Exceed
MW-48	Neut	LSZ	10/7/2004	21000	23000	33 J	230	170	<500	--	--	<200	<200	<100	<200	<100	16 J	--	Exceed
MW-48	Neut	LSZ	4/7/2005	14000	19000	28 J	260	190	--	--	--	<210	<210	<100	<100	<100	85 J	--	Exceed
MW-48	Neut	LSZ	10/12/2005	5700	9100	12	98	62	--	--	--	<20	<20	<9.8	<9.8	1.6 J	51	--	Exceed
MW-48	Neut	LSZ	4/18/2006	15000	18000	21 J	210	150	--	--	--	<190	<190	<96	<96	<96	82 J	--	Exceed
MW-48	Neut	LSZ	11/2/2006	11000	13000	<200	100 J	71 J	--	--	--	<390	<390	<200	<200	<200	<200	--	Exceed
MW-48	Neut	LSZ	4/6/2007	<98	8400	11 J	120	84 J	--	--	--	<200	<200	<98	<98	<98	72 J	--	Exceed
MW-48	Neut	LSZ	10/2/2007	7600	8000	<10	110	58 J	--	--	--	<71	<52	<13	<6.3	<10	<42	--	Exceed
MW-48	Neut	LSZ	10/15/2009	6310	6120	<11.5	89.2 J	44.5 J	--	--	--	<18.7	<17.7	<11.0	<17.8	<12.4	57.8 J	--	Exceed
MW-48	Neut	LSZ	4/9/2010	4950	6140	24.9 J	248	107	--	--	--	<16.2	<15.4	<9.56	<15.4	<10.8	196	--	Exceed
MW-48	Neut	LSZ	10/18/2010	8860	11300	39.6 J	582	222	--	--	--	<16.8 J	<16.0 J	<9.94	<16.0	<11.2	56.6 J	--	Exceed
MW-48	Neut	LSZ	4/21/2011	12400	15000	89.4 J	457	199	--	--	--	--	--	<11.1	<48.5	<14.6	40.1 J	<31.4 J	Exceed
MW-48	Neut	LSZ	4/18/2012	9640	10200	66 J	1100	349	--	--	--	<65.3	<59.8	<11.3	<49.4	<14.9	23.1 J	--	Exceed
MW-48	Neut	LSZ	4/16/2014	13000	15000	120	1500	580	--	--	--	--	--	<1.1	<1.3	<1.2	8.3 J	<4.1	Exceed
MW-48	Neut	LSZ	4/19/2016	12800	14400	156 X7	2140 X7	797 X7	--	--	--	--	--	<1.19	<1.35	<1.22	96.8	<4.29 X7	Exceed
MW-48	Neut	LSZ	4/18/2018	10,300	12,900	158 X7	2,710 X7	754 X7	--	--	--	--	--	<1.15	<1.31	<1.18	22.3	<4.16 X7	Exceed
MW-48	Neut	LSZ	4/20/2020	2260	9650	300 J X7	819 J X7	1590 X7	--	--	--	--	--	<1.17	2.57 J	<1.20	150 J	<4.24 X7	Exceed
MW-48	Neut	LSZ	4/18/2022	6480	9160	248 X7	3890 X7	1420 X7	--	--	--	--	--	<2.30	<29.4	<2.70	33.6 J	<34.8 X7	Exceed
MW-48	Neut	LSZ	4/25/2024	9180	8970	255	3050	1070	--	--	--	--	--	<4.08 U	<8.17 U	<4.92 U	38.0	<10.4 U*	Exceed
MW-49	Neut	SZ	6/9/1992	730	4200	18	210	140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	7/23/1992	370	1800	14	150	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	10/27/1992	970	4700	28	370	270	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	4/12/1993	1200	3800	18	160	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	1/9/1994	2000	7300	28	250	120	<0	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	2/13/1995	2700	7700	<0	91	68	<0	0.56	0.052	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	4/3/2003	2000	4400	<480	32 J	<480	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
MW-49	Neut	SZ	10/8/2003	2800	6400	<480	580	410 J	<2400	--	--	<960	<960	<480	<960	<480	<960	--	Exceed
MW-49	Neut	SZ	4/26/2004	5600	12000	23 J	62 J	58 J	<950	--	--	<380	<380	<190	<380	<190	<380	--	Exceed
MW-49	Neut	SZ	10/7/2004	16000	14000	11 J	72 J	57 J	<490	--	--	<200	<200	<98	<200	<98	<200	--	Exceed
MW-49	Neut	SZ	4/18/2005	13000	9400	<96	38 J	34 J	--	--	--	<190	<190	<96	<96	<96	180	--	Exceed
MW-49	Neut	SZ	10/12/2005	10000	9200	6.3 J	41	36	--	--	--	<19	<19	<9.7	<9.7	1.7 J	76	--	Exceed
MW-49	Neut	SZ	4/11/2006	9600	12000	<99	42 J	33 J	--	--	--	<200	<200	<99	<99	<99	130	--	Exceed
MW-49	Neut	SZ	11/2/2006	9800	7500	<49	24 J	21 J	--	--	--	<98	<98	<49	<49	<49	81	--	Exceed
MW-49	Neut	SZ	4/6/2007	350	3900	<98	18 J	13 J	--	--	--	<200	<200	<98	<98	<98	69 J	--	Exceed
MW-49	Neut	SZ	10/2/2007	3300	4200	3.2 J	24	9.7 J	--	--	--	<7.1	<5.2	<1.3	<0.63	<1.0	58	--	Exceed
MW-49	Neut	SZ	10/12/2009	4750	4810	<10.2	24.4 J	16.9 J	--	--	--	<16.5	<15.7	<9.75	<15.7	<11.0	124	--	Exceed
MW-49	Neut	SZ	4/9/2010	3410	3750	<9.89	52.5 J	29.4 J	--	--	--	<16.0	<15.2	<9.47	<15.3	<10.7	122	--	Exceed
MW-49	Neut	SZ	10/18/2010	2890	4050	27.5 J	310	204	--	--	--	<16.8 J	<16.0 J	<9.94	<16.0	<11.2	92.8 J	--	Exceed
MW-49	Neut	SZ	4/21/2011	3790	6760	117	632	432	--	--	--	--	--	<11.0	<48.0	<14.4	136	<31.1 J	Exceed
MW-49	Neut	SZ	10/13/2011	4620	6030	74 J	704 J	507 J	--	--	--	--	--	<11.2 J	<49.0 J	<14.7 J	89.6 J	<31.7 J	Exceed
MW-49	Neut	SZ	4/18/2012	6680	7750	118	1380	1050	--	--	--	<64.6	<59.2	<11.2	<49.0	<14.7	136	--	Exceed
MW-49	Neut	SZ	10/11/2012	8610	8680	106	1290	894	--	--	--	<16.5	<15.7	<9.75	<49.0	<11.9	123	--	Exceed
MW-49	Neut	SZ	4/23/2013	12200	13300	90.8 J	1450	1110	--	--	--	--	--	<10.0	<50.4	<12.3	142	<32.7 L	Exceed
MW-49	Neut	SZ	10/21/2013	17000	15000	240	2600	2000	--	--	--	--	--	<12	<14	<12	130	<130	Exceed
MW-49	Neut	SZ	4/10/2014	14000	13000	230	2100	1700	--	--	--	--	--	<1.2	<1.4	4.3 J	130	<4.5	Exceed
MW-49	Neut	SZ	10/21/2014	15000	14000	250	2000	1900	--	--	--	--	--	<1.2	<1.3	<1.2	110	<4.2	Exceed
MW-49	Neut	SZ	4/20/2015	16,000	15,000	220	2,300	1,700	--	--	--	--	--	<12	<13	<12	130	<42	Exceed
MW-49	Neut	SZ	10/14/2015	12,800	11,800	239	2,460	1,740	--	--	--	--	--	<12.8	<14.6	<13.1	129	<46.2	Exceed
MW-49	Neut	SZ	4/8/2016	14500	11100	284 X7	2700 X7	2180 X7	--	--	--	--	--	<11.1	<12.6	<11.3	124	<40.0 X7	Exceed
MW-49	Neut	SZ	10/25/2016	17,800	15,500	287 X7	3,590 X7	2,100 X7	--	--	--	--	--	<11.4	<13.0	<11.7	166	<41.2 X7	Exceed
MW-49	Neut	SZ	4/18/2017	13,200	10,500	210 X7	2,340 X7	1,350 X7	--	--	--	--	--	<1.29	<1.47	<1.33	111	<4.67 X7	Exceed
MW-49	Neut	SZ	10/17/2017	15800	12300	283 X7	3150 X7	2140 X7	--	--	--	--	--	<1.25	<1.42	3.22 J	88	<4.52 X7	Exceed
MW-49	Neut	USZ	4/18/2018	12,500	10,200	206 J X7	2,790 X7	1,510 X7	--	--	--	--	--	<1.14	<1.30	<1.17	10.1	<4.12 X7	Exceed
MW-49	Neut	USZ	10/25/2018	13,300	10,200	168 LX7	2610 X7	1470 X7	--	--	--	--	--	<1.29	<1.47	3.28 J	65.7	<4.67 X7	Exceed
MW-49	Neut	USZ	4/17/2019	12200 H	9,000	280 J X7	2,790 X7	2,110 X7	--	--	--	--	--	<61.8	<70.4	<63.4	57.3 J	<224 X7	Exceed
MW-49	Neut	USZ	10/24/2019	11000	9480	295 J X7	2470 X7	1990 X7	--	--	--	--	--	<1.15	<1.31	4.70 J	90.2	<4.16 X7	Exceed
MW-49	Neut	USZ	4/20/2020	13700	9890	326 J X7	2880 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	2.08 J	304 J	<4.24 X7	Exceed
MW-49	Neut	USZ	10/21/2020	11,200	11,400	226 X7	3060 X7	53.5 X7	--	--	--	--	--	<8.59	<6.57	<5.56	103 J	<203 X7	Exceed
MW-49	Neut	USZ	4/26/2021	14,200	10,100	241 X7	4340 X7	1980 X7	--	--	--	--	--	4.95 J	<6.90	2.39 J	86.5	<8.17 X7	Exceed
MW-49	Neut	USZ	10/25/2021	8,760	5,380	354 X7	4170 X7	2970 X7	--	--	--	--	--	<0.485	<6.19	6.24 J	80.2	<7.33 X7	Exceed
MW-49	Neut	USZ	4/18/2022	8450	8640	377 X7	4130 X7	1630 X7	--	--	--	--	--	<2.52	<32.1	13.1 J	53.6	<38.0 X7	Exceed
MW-49	Neut	USZ	10/13/2022	8840	8740	334 X7	3280 X7	29.7 J X7	--	--	--	--	--	<2.32	<29.6	4.47 J	<14.8	<35.1 X7	Exceed
MW-49	Neut	USZ	4/13/2023	11300	7520	315	3450	46.6 J	--	--	--	--	--	<2.44	<31.1	<2.85	20.4 J	<36.8	Exceed
MW-49	Neut	USZ	10/18/2023	13700	11300	178	2430	2.68 J	--	--	--	--	--	<4.54 U	<9.08 U	<5.47 U	48.9	<11.5 U*	Exceed
MW-49	Neut	USZ	4/12/2024	9260	6870	303	3290	2440	--	--	--	--	--	<3.79 U	<7.58 U	<4.57 U	80.4	<9.62 U	Exceed
MW-49	Neut	USZ	10/23/2024	7780	7310	295	3230	17.1	--	--	--	--	--	<3.68 U	<7.36 U	<4.43 U	54.6	<9.34 U	Exceed
MW-49	Neut	USZ	04/30/25	13700	7840	284	3050	2340	--	--	--	--	--	<3.84 U	<7.69 U	<4.63 U	**82.1**	<9.76 U*	Exceed
MW-50	Neut	LSZ	6/5/1992	590	1000	<0	<0	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	7/23/1992	160	240	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	10/27/1992	15	28	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	4/12/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-50	Neut	LSZ	1/9/1994	69	96	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	2/13/1995	11	20	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	5/6/1998	110	170 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	4/17/2003	12	45	<9	0.53 J	<9	--	--	--	--	--	<9	<19	<9	1.5 J	--	Exceed
MW-50	Neut	LSZ	11/4/2003	16	55	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	2.2 J	--	Exceed
MW-50	Neut	LSZ	4/21/2004	23	67	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	1.5 J	--	Exceed
MW-50	Neut	LSZ	10/6/2004	23	37	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<20	<9.8	3.3 J	--	Exceed
MW-50	Neut	LSZ	4/11/2005	5 J	9.2 J	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-50	Neut	LSZ	10/17/2005	52	63	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	13	--	Exceed
MW-50	Neut	LSZ	4/12/2006	65	64	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	7.9 J	--	Exceed
MW-50	Neut	LSZ	11/3/2006	61	55	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-50	Neut	LSZ	4/10/2007	4.2 J	44	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-50	Neut	LSZ	10/4/2007	46	38	<1.0	<0.90	<0.98	--	--	--	--	--	<1.3	<0.64	<1.1	<4.3	--	Exceed
MW-50	Neut	LSZ	4/16/2008	49	31	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	4.3 J	--	Exceed
MW-50	Neut	LSZ	10/29/2008	55	38	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	3 J	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-50	Neut	LSZ	4/23/2009	14.3	29.4	<1.04	2.61 J	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	3.2 J	--	Exceed
MW-50	Neut	LSZ	10/20/2009	57	52.6	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	2.35 J	--	Exceed
MW-50	Neut	LSZ	4/15/2010	3.56 J	2.06 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-50	Neut	LSZ	10/26/2010	63.1	42.4	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	1.05 J	--	Exceed
MW-50	Neut	LSZ	4/21/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
MW-50	Neut	LSZ	4/25/2012	34	34.3	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	1.76 J	--	Exceed
MW-50	Neut	LSZ	4/21/2014	28	17	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-50	Neut	LSZ	4/22/2016	1.36 J	4.84 J	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-50	Neut	LSZ	4/19/2018	63.3	39.9	0.627 J X7	3.64 J X7	1.19 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-50	Neut	LSZ	5/1/2020	15.4	16.1	<0.685 X7	8.32 J X7	3.56 J X7	--	--	--	--	--	<1.29	<1.47	<1.33	<0.775	<4.67 X7	Exceed
MW-50	Neut	LSZ	4/20/2022	24.9	22.8	10.5 X7	220 X7	57.3 X7	--	--	--	--	--	<0.463	<5.91	<0.542	<2.96	<7.00 X7	Exceed
MW-50	Neut	LSZ	4/5/2024	21.9	26.9	22.1	351 b	96.9	--	--	--	--	--	<4.16 U	<8.32 U	<5.01 U	<1.28 U	<10.6 U*	Exceed
MW-51	DNTL	LSZ	5/21/1992	<0	13	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	7/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-51	DNTL	LSZ	10/31/1992	<0	16	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	4/13/1993	19	110	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	1/10/1994	19	180	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	2/11/1995	90	480	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	5/5/1998	150 D	1100 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-52	DNTL	LSZ	5/24/1992	13	11	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-52	DNTL	LSZ	7/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	4/18/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	1/11/1994	20	15	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-52	DNTL	LSZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	5/5/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-53	DNTL	LSZ	5/21/1992	1800	4500	<0	36	46	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	7/20/1992	570	1800	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	10/30/1992	140	390	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	4/13/1993	300	710	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	1/10/1994	640	1600	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	2/11/1995	960	2100	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	5/5/1998	1400 D	4300 D	3.5 J	15	19	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	4/7/2003	780 D	1700 D	63	77	56	--	--	--	--	--	<48	<95	<48	330	--	Exceed
MW-53	DNTL	LSZ	10/8/2003	1200	3400 D	<200	65 J	50 J	--	--	--	--	--	<200	<390	<200	740	--	Exceed
MW-53	DNTL	LSZ	4/20/2004	670 J	1900	67 J	77 J	62 J	--	--	--	--	--	<96	15 J	<96	450	--	Exceed
MW-53	DNTL	LSZ	10/11/2004	1900	3600	<110	27 J	20 J	--	--	--	--	--	<110	6.9 J	<110	440	--	Exceed
MW-53	DNTL	LSZ	4/12/2005	1100	2200	11 J	56 J	19 J	--	--	--	--	--	<97	18 J	<97	400	--	Exceed
MW-53	DNTL	LSZ	10/14/2005	1100	4000	<480	52 J	<480	--	--	--	--	--	<480	<480	<480	680	--	Exceed
MW-53	DNTL	LSZ	4/13/2006	1300	2800	12 J	73 J	33 J	--	--	--	--	--	<99	26 J	<99	510	--	Exceed
MW-53	DNTL	LSZ	11/3/2006	2200	3900	<190	25 J	<190	--	--	--	--	--	<190	<190	<190	350	--	Exceed
MW-53	DNTL	LSZ	4/11/2007	540	1400	<99	23 J	<99	--	--	--	--	--	<99	37 J	<99	380	--	Exceed
MW-53	DNTL	LSZ	10/10/2007	430	1200	<10	22 J	22 J	--	--	--	--	--	<12	26 J	<10	550	--	Exceed
MW-53	DNTL	LSZ	4/16/2008	1500	5600	<10	44 J	32 J	--	--	--	--	--	<9.8	<16	<11	390	--	Exceed
MW-53	DNTL	LSZ	10/29/2008	4100	8300	11 J	48 J	48 J	--	--	--	--	--	<9.8	<16	<11	340	--	Exceed
MW-53	DNTL	LSZ	4/17/2009	1660	3850	13.2 J	70.3 J	20.1 J	--	--	--	--	--	<9.75	23.9 J	<11.0	356	--	Exceed
MW-53	DNTL	LSZ	10/19/2009	3890	8720	17.3 J	98	85.8 J	--	--	--	--	--	<9.56	48.4 J	<10.8	553	--	Exceed
MW-53	DNTL	LSZ	4/12/2010	3110	4550	17.2 J	106	33.5 J	--	--	--	--	--	<9.65	<15.6	<10.9	412	--	Exceed
MW-53	DNTL	LSZ	10/19/2010	4800	9190	14.1 J	87.1 J	77.8 J	--	--	--	--	--	<9.56	33.7 J	<10.8	429	--	Exceed
MW-53	DNTL	LSZ	4/20/2011	4410	5410	70.2 J	74 J	69.3 J	--	--	--	--	--	<11.3	<49.4	<14.9	480	<32.0 J	Exceed
MW-53	DNTL	LSZ	4/23/2012	4190	10300	18.1 J	96.1	34.4	--	--	--	--	--	<2.25	14.4 J	<2.94	494	--	Exceed
MW-53	DNTL	LSZ	4/15/2014	4000	13000	220	430	220	--	--	--	--	--	<11	<13	<11	520	<40	Exceed
MW-53	DNTL	LSZ	4/11/2016	3490	10200	291 X7	631 X7	319 X7	--	--	--	--	--	<22.1	<25.2	<22.7	202	<80.0 X7	Exceed
MW-53	DNTL	LSZ	4/19/2018	3,660	17,000	197 J X7	803 X7	368 J X7	--	--	--	--	--	<1.15	<1.31	8.17 J	17.5	<4.16 X7	Exceed
MW-53	DNTL	LSZ	4/30/2020	1490	8290	<31.1 X7	<54.6 X7	<54.1 X7	--	--	--	--	--	<58.7	<66.8	<60.2	1030	<212 X7	Exceed
MW-53	DNTL	LSZ	4/20/2022	1280	7820	39.1 J X7	478 X7	115 X7	--	--	--	--	--	<4.52	<57.6	<5.28	261	<68.2 X7	Exceed
MW-53	DNTL	LSZ	4/11/2024	2130	9110	26.0	83.1	42.8	--	--	--	--	--	<8.39 U	<16.8 U	<10.1 U	266	<21.3 U*	Exceed
MW-54	DNTL	SZ	5/21/1992	1500	3600	<0	44	40	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	7/20/1992	1600	3700	<0	28	38	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	10/30/1992	1200	5300	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	4/13/1993	8200	23000	<0	78	66	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	1/10/1994	8700	36000	30	120	65	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	2/11/1995	18000	38000	<0	100	99	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	5/5/1998	8300 D	41000 D	51	190	130	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	4/7/2003	13000	55000	<5000	<5000	<5000	--	--	--	--	--	<5000	<10000	<5000	860 J	--	Exceed
MW-54	DNTL	SZ	10/8/2003	13000 D	47000 D	250 J	820	670	--	--	--	--	--	<490	<970	<490	250 J	--	Exceed
MW-54	DNTL	SZ	4/20/2004	9400	52000	60 J	170 J	160 J	--	--	--	--	--	<480	<950	<480	990	--	Exceed
MW-54	DNTL	SZ	10/11/2004	17000	39000	110	210	240	--	--	--	--	--	<96	<190	15 J	940	--	Exceed
MW-54	DNTL	SZ	4/12/2005	9600	25000	28 J	120	110	--	--	--	--	--	<97	<97	12 J	790	--	Exceed
MW-54	DNTL	SZ	10/14/2005	16000	58000	32 J	140	120	--	--	--	--	--	<96	<96	12 J	990	--	Exceed
MW-54	DNTL	SZ	4/13/2006	21000	54000	36 J	140	140	--	--	--	--	--	<97	<97	12 J	<3900	--	Exceed
MW-54	DNTL	SZ	11/3/2006	12000	36000	22 J	100 J	87 J	--	--	--	--	--	<190	<190	<190	1200	--	Exceed
MW-54	DNTL	SZ	4/9/2007	17000	43000	27 J	110	120	--	--	--	--	--	<97	<97	14 J	<3900	--	Exceed
MW-54	DNTL	SZ	10/4/2007	15000	31000	33 J	130	110	--	--	--	--	--	<12	<6.2	<10	1100	--	Exceed
MW-54	DNTL	SZ	4/15/2008	11000	33000	29 J	130	110	--	--	--	--	--	<9.8	<16	11 J	1100 J	--	Exceed
MW-54	DNTL	SZ	10/21/2008	14000	36000	34 J	140	120	--	--	--	--	--	<9.7	<16	<11	1200	--	Exceed
MW-54	DNTL	SZ	4/17/2009	15400	39900	30.8 J	112	90.5 J	--	--	--	--	--	<9.56	<15.4	<10.8	1780	--	Exceed
MW-54	DNTL	SZ	10/19/2009	20600	44300	26.5 J	92.4 J	86.2 J	--	--	--	--	--	<9.56	<15.4	<10.8	1460	--	Exceed
MW-54	DNTL	SZ	4/12/2010	21700	47300	24 J	92.7 J	96.6 J	--	--	--	--	--	<9.75	<15.7	<11.0	3790	--	Exceed
MW-54	DNTL	SZ	10/19/2010	12900	29500	22.1 J	77.2 J	80.7 J	--	--	--	--	--	<9.65	<15.6	<10.9	1260	--	Exceed
MW-54	DNTL	SZ	4/20/2011	24700	57300	74.4 J	66.2 J	112	--	--	--	--	--	<11.1	<48.5	<14.6	374 J	<31.4 J	Exceed
MW-54	DNTL	SZ	4/24/2012	24400	53000	<49.9	60.3 J	<71.8	--	--	--	--	--	<55.1	<240	<72.1	1370	--	Exceed
MW-54	DNTL	SZ	4/15/2014	21000	51000	71 J	180	140	--	--	--	--	--	<11	<13	12 J	1700	<40	Exceed
MW-54	DNTL	SZ	4/11/2016	29500	51100	69.0 X7	159 X7	124 X7	--	--	--	--	--	<5.53	<6.30	8.27 J	1530	<20.0 X7	Exceed
MW-54	DNTL	USZ	4/19/2018	21,500	50,400	47.5 J X7	143 J X7	82.3 J X7	--	--	--	--	--	<57.5	<65.5	<59.0	2010	<208 X7	Exceed
MW-54	DNTL	USZ	4/29/2020	13700	37600	19.9 J X7	115 J X7	43.8 J X7	--	--	--	--	--	<22.5	67.2 J	<23.1	1630 J	2310 J X7	Exceed
MW-54	DNTL	USZ	4/21/2022	11400	37000	101 X7	762 X7	304 X7	--	--	--	--	--	<4.56	<58.2	6.04 J	<29.1	<68.9 X7	Exceed
MW-54	DNTL	USZ	4/11/2024	13000	22800	24.5	66.5	64.8	--	--	--	--	--	<7.93 U	<15.9 U	<9.55 U	2100	<20.1 U*	Exceed
MW-55	DNTL	LSZ	6/3/1992	21	15	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-55	DNTL	LSZ	7/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	4/14/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-55	DNTL	LSZ	1/10/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	2/11/1995	<0	61	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-55	DNTL	LSZ	5/5/1998	<10	580 D	4.5 J	44	5.8 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-55	DNTL	LSZ	4/7/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	2 J	--	~
MW-55	DNTL	LSZ	10/8/2003	940 D	3800 D	22 J	78	51	--	--	--	--	--	<48	<97	<48	71 J	--	Exceed
MW-55	DNTL	LSZ	4/20/2004	520	2400	<95	<95	<95	--	--	--	--	--	<95	<190	<95	120 J	--	Exceed
MW-55	DNTL	LSZ	10/11/2004	1600	4100	10 J	68 J	26 J	--	--	--	--	--	<96	<190	<96	<190	--	Exceed
MW-55	DNTL	LSZ	4/12/2005	1200	2400	<48	16 J	7 J	--	--	--	--	--	<48	<48	<48	230	--	Exceed
MW-55	DNTL	LSZ	10/14/2005	1700	5100	<48	17 J	7.9 J	--	--	--	--	--	<48	<48	<48	320	--	Exceed
MW-55	DNTL	LSZ	4/13/2006	24	100	<9.9	1.8 J	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
MW-55	DNTL	LSZ	11/7/2006	<9.6	21	<9.6	2.6 J	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-55	DNTL	LSZ	4/9/2007	2700	5900	<96	17 J	<96	--	--	--	--	--	<96	<96	<96	590	--	Exceed
MW-55	DNTL	LSZ	10/4/2007	9.2 J	37	<1.0	1.2 J	<0.94	--	--	--	--	--	<1.2	4 J	<1.0	12	--	Exceed
MW-55	DNTL	LSZ	4/15/2008	1300	2700	8 J	28	12	--	--	--	--	--	<0.96	<1.6	1.2 J	490	--	Exceed
MW-55	DNTL	LSZ	10/21/2008	1900	5400	8.6 J	31	15	--	--	--	--	--	<0.96	<1.6	1.3 J	350	--	Exceed
MW-55	DNTL	LSZ	4/17/2009	1470	5380	7.8 J	27.7	5.13 J	--	--	--	--	--	<0.965	<1.56	<1.09	377	--	Exceed
MW-55	DNTL	LSZ	10/19/2009	9080	21600	7.79 J	24.6	12.8	--	--	--	--	--	<0.956	<1.54	1.36 J	606	--	Exceed
MW-55	DNTL	LSZ	4/12/2010	4400	7370	6.94 J	27.9 J	8.41 J	--	--	--	--	--	<4.78	<7.70	<5.38	673	--	Exceed
MW-55	DNTL	LSZ	10/19/2010	4350	8540	<25.2	<25.8	<36.3	--	--	--	--	--	<24.1	<38.9	<27.2	465	--	Exceed
MW-55	DNTL	LSZ	4/19/2011	3370	8930	<20.4	33.5 J	<29.3	--	--	--	--	--	<22.5	<97.9	<29.4	593	<63.4 J	Exceed
MW-55	DNTL	LSZ	4/24/2012	4060	10700	8.9 J	33.4	11	--	--	--	--	--	<1.11	<4.85	<1.46	505	--	Exceed
MW-55	DNTL	LSZ	4/15/2014	6500	19000	110 J	300	200	--	--	--	--	--	<14	<16	<15	490	<51	Exceed
MW-55	DNTL	LSZ	4/12/2016	6100	11800	86.1 J X7	200 X7	146 X7	--	--	--	--	--	<11.1	<12.6	<11.3	390	<40.0 X7	Exceed
MW-55	DNTL	LSZ	4/19/2018	8,810	15,500	42.3 X7	86.1 X7	50.5 X7	--	--	--	--	--	<1.15	<1.31	2.6 J	412 J	<4.16 X7	Exceed
MW-55	DNTL	LSZ	4/29/2020	5910	10600	12.0 X7	28.9 X7	17.8 X7	--	--	--	--	--	<1.15	<1.31	<1.18	1310	<4.16 X7	Exceed
MW-55	DNTL	LSZ	4/21/2022	5430	12100	21.4 J X7	110 X7	46.1 J X7	--	--	--	--	--	<2.29	<29.2	<2.68	568	<34.5 X7	Exceed
MW-55	DNTL	LSZ	4/11/2024	5210	9680	9.99 J	27.8	17.8 J	--	--	--	--	--	<7.85 U	<15.7 U	<9.46 U	527	<19.9 U*	Exceed
MW-56	DNTL	SZ	6/4/1992	4500	4600	<0	25	31	--	--	--	--	--	--	--	--	--	--	Exceed
MW-56	DNTL	SZ	7/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	4/14/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	1/10/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	5/5/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	4/7/2003	530 D	2800 D	10	16	11	--	--	--	--	--	<9	<19	<9	120	--	Exceed
MW-56	DNTL	SZ	10/8/2003	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<20	<9.9	<20	--	~
MW-56	DNTL	SZ	4/20/2004	<9.7	22	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	Exceed
MW-56	DNTL	SZ	10/11/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.6 J	<10	3.4 J	--	~
MW-56	DNTL	SZ	4/12/2005	9.7	58	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-56	DNTL	SZ	10/14/2005	8.9 J	28	<19	1.9 J	<19	--	--	--	--	--	<19	2.1 J	<19	9.6 J	--	Exceed
MW-56	DNTL	SZ	4/13/2006	2300	4900	<97	31 J	16 J	--	--	--	--	--	<97	<97	<97	270	--	Exceed
MW-56	DNTL	SZ	11/7/2006	1200	2900	<95	11 J	<95	--	--	--	--	--	<95	<95	<95	210	--	Exceed
MW-56	DNTL	SZ	4/10/2007	18	62	<9.6	3 J	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-56	DNTL	SZ	10/4/2007	3100	6800	8.3 J	38 J	20 J	--	--	--	--	--	<6.5	<3.2	<5.3	430	--	Exceed
MW-56	DNTL	SZ	4/15/2008	22	48	<1.0	4.1 J	<1.5	--	--	--	--	--	<0.99	<1.6	<1.1	<0.88	--	Exceed
MW-56	DNTL	SZ	10/21/2008	20	80	<1.0	2.2 J	<1.4	--	--	--	--	--	<0.96	11	<1.1	26	--	Exceed
MW-56	DNTL	SZ	4/17/2009	4.39 J	42.6	<1.04	3.28 J	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	<0.875	--	Exceed
MW-56	DNTL	SZ	10/19/2009	11.5	33.3	30.4	<1.02	<1.44	--	--	--	--	--	<0.956	4.63 J	<1.08	94.1	--	Exceed
MW-56	DNTL	SZ	4/12/2010	11	64.4	<0.998	2.23 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-56	DNTL	SZ	10/19/2010	<2.77	1.65 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	5.06 J	<1.08	21.2	--	Exceed
MW-56	DNTL	SZ	4/20/2011	10.8	58.3	<1.02	1.1 J	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	Exceed
MW-56	DNTL	SZ	4/24/2012	<2.80	3.54 J	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	7.31 J	--	Exceed
MW-56	DNTL	SZ	4/16/2014	11	52	1.9 J	2.9 J	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	2 J	<4.1	Exceed
MW-56	DNTL	SZ	4/28/2016	<0.922	35.2	1.10 J X7	2.78 J X7	<1.03 X7	--	--	--	--	--	<1.12	<1.27	<1.15	<0.670	6.05 J X7	Exceed
MW-56	DNTL	USZ	4/20/2018	10.5	154	40 X7	46.8 X7	31.5 X7	--	--	--	--	--	<1.15	21.7	<1.18	25.9	36.2 X7	Exceed
MW-56	DNTL	USZ	4/29/2020	347	627	1.27 J X7	9.81 J X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	25.8	<4.33 X7	Exceed
MW-56	DNTL	USZ	4/21/2022	9.48	68.2	<5.57 X7	<3.65 X7	<3.95 X7	--	--	--	--	--	<2.32	<296	<2.71	<14.8	<35.0 X7	Exceed
MW-56	DNTL	USZ	4/12/2024	<0.0610 U	34.8	<1.06 U	3.61 J	<0.774 U	--	--	--	--	--	<3.77 U	<7.55 U	<4.55 U	1.94 J	<9.58 U	Exceed
MW-57	DNTL	SZ	5/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	7/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	4/13/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	1/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	5/4/1998	<10	14	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-57	DNTL	SZ	4/20/2021	0.195	0.379	<12.4 X7	<12.4 X7	<12.4 X7	--	--	--	--	--	<0.582	<7.43	<0.681	<3.72	<8.80 X7	Exceed
MW-58	DNTL	LSZ	6/3/1992	9700	23000	25	230	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	7/20/1992	1000	1900	<0	76	43	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	10/31/1992	1900	4500	<0	82	48	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	4/14/1993	10000	3800	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	1/9/1994	2900	11000	330	1300	390	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	2/11/1995	8700	23000	<0	210	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	5/5/1998	7100 D	23000 D	35	220 D	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	4/4/2003	10000	33000 D	64 J	280 J	190 J	--	--	--	--	--	<970	<1900	<970	1500 J	--	Exceed
MW-58	DNTL	LSZ	10/7/2003	11000 D	22000 D	220 J	610	500	--	--	--	--	--	<480	<950	<480	720 J	--	Exceed
MW-58	DNTL	LSZ	4/20/2004	7900	31000	<950	180 J	97 J	--	--	--	--	--	<950	<1900	<950	1200 J	--	Exceed
MW-58	DNTL	LSZ	10/11/2004	11000	20000	200	420	370	--	--	--	--	--	<98	<200	7.5 J	770	--	Exceed
MW-58	DNTL	LSZ	4/12/2005	8300	18000	26 J	200	120	--	--	--	--	--	<97	<97	<97	1200	--	Exceed
MW-58	DNTL	LSZ	10/14/2005	9900	26000	27 J	220	150	--	--	--	--	--	<98	<98	<98	1400	--	Exceed
MW-58	DNTL	LSZ	4/13/2006	11000	25000	25 J	210	130	--	--	--	--	--	<96	<96	<96	1600 J	--	Exceed
MW-58	DNTL	LSZ	10/13/2006	10000	21000	<490	350 J	240 J	--	--	--	--	--	<490	<490	<490	1600	--	Exceed
MW-58	DNTL	LSZ	4/9/2007	7300	16000	17 J	150	89 J	--	--	--	--	--	<99	<99	<99	1200 J	--	Exceed
MW-58	DNTL	LSZ	10/4/2007	8800	15000	20 J	150	100	--	--	--	--	--	<12	<6.2	<10	1100	--	Exceed
MW-58	DNTL	LSZ	4/14/2008	2700	9100	15 J	110	29 J	--	--	--	--	--	<9.7	<16	<11	1300	--	Exceed
MW-58	DNTL	LSZ	10/23/2008	6000	14000	18 J	140	88 J	--	--	--	--	--	<9.7	<16	<11	1300	--	Exceed
MW-58	DNTL	LSZ	4/17/2009	6680	17400	19.5 J	171	78.5 J	--	--	--	--	--	<9.56	<15.4	<10.8	2020	--	Exceed
MW-58	DNTL	LSZ	10/19/2009	9220	21900	19.9 J	126	83.3 J	--	--	--	--	--	<9.56	<15.4	<10.8	1830 J	--	Exceed
MW-58	DNTL	LSZ	4/12/2010	7730	16800	22.1 J	164	105	--	--	--	--	--	<9.75	<15.7	<11.0	2920	--	Exceed
MW-58	DNTL	LSZ	10/20/2010	6620	14800	15.7 J	133	83.4 J	--	--	--	--	--	<9.94	<16.0	<11.2	1430	--	Exceed
MW-58	DNTL	LSZ	4/20/2011	10900	25700	76.4 J	148	142	--	--	--	--	--	<11.2	<49.0	<14.7	1350 J	37.7 J	Exceed
MW-58	DNTL	LSZ	4/23/2012	9950	24100	26.1	219	155	--	--	--	--	--	<2.20	<9.60	3.49 J	2280	--	Exceed
MW-58	DNTL	LSZ	4/16/2014	7000	20000	73 J	280	170	--	--	--	--	--	<11	<13	<12	2900	<41	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-58	DNTL	LSZ	4/12/2016	7600	19000	50.5 X7	236 X7	128 X7	--	--	--	--	--	<5.53	<6.30	<5.67	2980	<20.0 X7	Exceed
MW-58	DNTL	LSZ	4/24/2018	9,730	23,400	48.7 J X7	442 J X7	139 J X7	--	--	--	--	--	<55.8	<63.6	<57.3	3,660	<202 X7	Exceed
MW-58	DNTL	LSZ	4/30/2020	13400	36500	<29.9 X7	203 J X7	90.7 J X7	--	--	--	--	--	<56.4	<64.2	<57.8	7780	<204 X7	Exceed
MW-58	DNTL	LSZ	10/26/2021	10200	21100	36.2 J X7	199 X7	173 X7	--	--	--	--	--	<2.42	<30.9	8.36 J	4400	<36.5 X7	Exceed
MW-58	DNTL	LSZ	4/20/2022	85.8	278	35.0 J X7	285 X7	124 X7	--	--	--	--	--	<2.30	<29.4	5.25 J	<14.7	<34.8 X7	Exceed
MW-58	DNTL	LSZ	10/14/2022	25.2	127	28.7 X7	156 X7	25.6 X7	--	--	--	--	--	<0.905	<11.6	2.71 J	<5.78	<13.7 X7	Exceed
MW-58	DNTL	LSZ	4/19/2023	<0.0572	171	22.0 J	161	27.6	--	--	--	--	--	<1.10	<14.1	2.28 J	<7.04	<16.7	Exceed
MW-58	DNTL	LSZ	10/17/2023	<0.0575 U	54.9	32.4	116	13.8	--	--	--	--	--	<3.72 U	<7.44 U	<4.48 U	<1.15 U	<9.45 U*	Exceed
MW-58	DNTL	LSZ	4/12/2024	<0.0594 U	236	25.3	90.3	21.1	--	--	--	--	--	<3.92 U	<7.84 U	<4.72 U	<1.21 U	<9.95 U	Exceed
MW-58	DNTL	LSZ	10/22/2024	177	903	51.7	235	50.3	--	--	--	--	--	<3.64 U	<7.27 U	<4.38 U	<1.12 U	<9.23 U*	Exceed
MW-58	DNTL	LSZ	05/08/25	161	344	**66.2**	228	60.5	--	--	--	--	--	<4.09 U	<8.18 U	<4.93 U	<1.26 U	<10.4 U*	Exceed
MW-59	DNTL	SZ	6/3/1992	500	1100	<0	28	19	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	7/20/1992	440	810	<0	15	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	10/31/1992	500	910	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	4/14/1993	890	600	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	1/9/1994	880	1500	<0	47	37	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	2/11/1995	330	1100	<0	28	22	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	5/5/1998	870 D	4500 D	9.5 J	70	51	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	4/4/2003	940	2300	<490	60 J	53 J	--	--	--	--	--	<490	<980	<490	3600	--	Exceed
MW-59	DNTL	SZ	10/7/2003	990	2500	87 J	83 J	120 J	--	--	--	--	--	<490	110 J	<490	2700	--	Exceed
MW-59	DNTL	SZ	4/20/2004	940	3400	<200	64 J	50 J	--	--	--	--	--	<200	38 J	<200	3100 J	--	Exceed
MW-59	DNTL	SZ	10/22/2004	1700	5500	26 J	120	100 J	--	--	--	--	--	<110	26 J	<110	4900	--	Exceed
MW-59	DNTL	SZ	4/12/2005	1100	2700	<490	79 J	<490	--	--	--	--	--	<490	37 J	<490	3500	--	Exceed
MW-59	DNTL	SZ	10/14/2005	1100	3200	<480	120 J	85 J	--	--	--	--	--	<480	46 J	<480	7300	--	Exceed
MW-59	DNTL	SZ	4/17/2006	1100	2800	<190	110 J	67 J	--	--	--	--	--	<190	42 J	<190	5200	--	Exceed
MW-59	DNTL	SZ	10/13/2006	1100	2600	<480	120 J	82 J	--	--	--	--	--	<480	39 J	<480	4700	--	Exceed
MW-59	DNTL	SZ	4/9/2007	1100	2000	<200	72 J	42 J	--	--	--	--	--	<200	30 J	<200	3800	--	Exceed
MW-59	DNTL	SZ	10/4/2007	970	2000	<20	81 J	53 J	--	--	--	--	--	<25	37 J	<21	3300	--	Exceed
MW-59	DNTL	SZ	4/14/2008	440	1400	10 J	83 J	47 J	--	--	--	--	--	<9.6	36 J	<11	3100	--	Exceed
MW-59	DNTL	SZ	10/23/2008	1000	2100 J	10 J	97	56 J	--	--	--	--	--	<9.7	73 J	<11	2800	--	Exceed
MW-59	DNTL	SZ	4/17/2009	1280	2430	12.4 J	106	56.9 J	--	--	--	--	--	<9.56	42.4 J	<10.8	3500	--	Exceed
MW-59	DNTL	SZ	10/19/2009	1930	4400	17.5 J	117	79.3 J	--	--	--	--	--	<9.65	29.7 J	<10.9	7090	--	Exceed
MW-59	DNTL	SZ	4/12/2010	1410	2650	11 J	98.3	54.8 J	--	--	--	--	--	<9.56	28 J	<10.8	6030	--	Exceed
MW-59	DNTL	SZ	10/20/2010	1800	3340	10.9 J	104	71.2 J	--	--	--	--	--	<9.56	27.9 J	<10.8	4410	--	Exceed
MW-59	DNTL	SZ	4/20/2011	66.6 J	3210	69.1 J	94.1 J	103	--	--	--	--	--	<11.1	<48.5	<14.6	6270	1630 J	Exceed
MW-59	DNTL	SZ	4/23/2012	1,290	2,840	15.7	136	67.4	--	--	--	--	--	<1.10	35.7	<1.44	5530	--	Exceed
MW-59	DNTL	SZ	4/16/2014	2,200	3,600	37 J	170	91 J	--	--	--	--	--	<11	36 J	<12	6800	1500	Exceed
MW-59	DNTL	SZ	4/12/2016	1,660	2,590	28.7 J X7	130 X7	70.3 J X7	--	--	--	--	--	<11.1	33.1 J	<11.3	4610	2040 X7	Exceed
MW-59	DNTL	USZ	4/20/2018	2,860	5,220	44.4 J X7	371 J X7	166 J X7	--	--	--	--	--	<57.5	<65.5	<59.0	6,760	<208 X7	Exceed
MW-59	DNTL	USZ	4/30/2020	8,290	14,600	<29.9 X7	106 J X7	<52.0 X7	--	--	--	--	--	<56.4	<64.2	<57.8	8800	<204 X7	Exceed
MW-59	DNTL	USZ	5/3/2021	4,580	6,250	<107 X7	113 X7	<107 X7	--	--	--	--	--	<5.03	<64.2	<5.89	5,290	97.8 J X7	Exceed
MW-59	DNTL	USZ	10/26/2021	3,790	3,970	16.7 J X7	209 X7	50.0 J X7	--	--	--	--	--	<4.74	<60.5	<5.54	558	<71.6 X7	Exceed
MW-59	DNTL	USZ	4/20/2022	157	366	53.7 J X7	107 X7	89.6 J X7	--	--	--	--	--	<4.49	<57.3	7.39 J	2010	<6.78 X7	Exceed
MW-59	DNTL	USZ	10/14/2022	313	26.1	136 X7	812 X7	261 X7	--	--	--	--	--	<4.54	<57.9	<5.31	210	<68.5	Exceed
MW-59	DNTL	USZ	4/19/2023	409	623	14.8 J	53.6 J	18.3 J	--	--	--	--	--	<2.97	<38.0	<3.48	632	<44.9	Exceed
MW-59	DNTL	USZ	10/17/2023	260	391	50.7	73.2	54.6	--	--	--	--	--	<8.12 U	<16.2 U	<9.78 U	594	45.9 *	Exceed
MW-59	DNTL	USZ	4/12/2024	259	389	14.4	50.3	17.0	--	--	--	--	--	<4.08 U	13.0	<4.92 U	81.5	<10.4 U	Exceed
MW-59 1st Run	***DNTL***	***USZ***	***10/22/2024***	199	319	**24.5**	**52.1**	**38.5**	--	--	--	--	--	**<3.78 U**	**18.5**	**<4.55 U**	**1750**	**47.5 ***	**Exceed**
MW-59 Resample	***DNTL***	***USZ***	***10/23/2024***	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**653**	**Exceed**
MW-59 1st Run	***DNTL***	***USZ***	***05/08/25***	322	437	**<13.8 U**	**86.9 J**	**21.0 J**	--	--	--	--	--	**<48.8 U**	**<97.5 U**	**<58.8 U**	**924**	**<124 U***	**Exceed**
MW-59 Resample	***DNTL***	***USZ***	***05/19/25***	23.1	120	**<5.89 U**	89.7	**26.0 J**	--	--	--	--	--	**<20.9 U**	**<41.7 U**	**<25.1 U**	**920**	**<53.0 U***	**Exceed**
MW-60	DNTL	LSZ	5/24/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	7/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	10/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	4/12/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	1/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	5/4/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	4/7/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-60	DNTL	LSZ	10/7/2003	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-60	DNTL	LSZ	4/20/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-60	DNTL	LSZ	10/11/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-60	DNTL	LSZ	4/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-60	DNTL	LSZ	10/19/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-60	DNTL	LSZ	4/17/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-60	DNTL	LSZ	10/18/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-60	DNTL	LSZ	4/11/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-60	DNTL	LSZ	10/9/2007	<0.82	<0.84	<1.0	<0.89	<0.97	--	--	--	--	--	<1.3	<0.64	<1.0	<4.2	--	~
MW-60	DNTL	LSZ	4/14/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-60	DNTL	LSZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-60	DNTL	LSZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-60	DNTL	LSZ	10/19/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-60	DNTL	LSZ	4/13/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-60	DNTL	LSZ	10/20/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-60	DNTL	LSZ	4/26/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-60	DNTL	LSZ	4/25/2012	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	--	~
MW-60	DNTL	LSZ	4/18/2014	<0.91	2.7 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-60	DNTL	LSZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2 L	<1.3	<1.2	<0.69	<4.2	~
MW-60	DNTL	LSZ	4/21/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-60	DNTL	LSZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-60	DNTL	LSZ	4/30/2020	<0.969	3.14 J	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	Exceed
MW-60	DNTL	LSZ	4/25/2022	<0.0590	1.69	<1.10 X7	<0.723 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93 X7	Exceed
MW-60	DNTL	LSZ	4/11/2024	5.16	8.92	<1.10 U	<0.739 U	<0.799 U	--	--	--	--	--	<3.89 U	<7.79 U	<4.69 U	1.25 J	<9.88 U*	Exceed
MW-61	Neut	SZ	6/5/1992	130000	110000	110	390	410	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	7/28/1992	130000	100000	81	280	340	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	10/29/1992	59000	58000	200	1300	980	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	4/18/1993	30000	24000	350	730	590	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	1/11/1994	23000	17000	140	210	210	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	2/14/1995	46000	45000	<0	380	310	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	5/27/1998	45000 D	43000 D	170	780	520	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	4/10/2003	25000	20000	<4800	480 J	270 J	--	--	--	--	--	<4800	<9500	<4800	8900 J	--	Exceed
MW-61	Neut	SZ	10/6/2003	28000	26000	620 J	950 J	910 J	--	--	--	--	--	<4900	<9800	<4900	13000	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-61	Neut	SZ	4/19/2004	53000	45000	950	1100	1200	--	--	--	--	--	<530	120 J	<530	18000	--	Exceed
MW-61	Neut	SZ	10/12/2004	3100	7000	220 J	3000	980	--	--	--	--	--	<490	<970	<490	<970	--	Exceed
MW-61	Neut	SZ	4/18/2005	17000	17000	<490	330 J	170 J	--	--	--	--	--	<490	130 J	<490	8800	--	Exceed
MW-61	Neut	SZ	10/19/2005	14000	18000	<960	320 J	<960	--	--	--	--	--	<960	100 J	<960	10000	--	Exceed
MW-61	Neut	SZ	4/18/2006	19000	27000	50 J	430	130	--	--	--	--	--	<96	93 J	<96	9200	--	Exceed
MW-61	Neut	SZ	11/3/2006	13000	23000	<480	360 J	110 J	--	--	--	--	--	<480	41 J	<480	6700	--	Exceed
MW-61	Neut	SZ	4/17/2007	12000	17000	28 J	220	63 J	--	--	--	--	--	<98	33 J	<98	7400	--	Exceed
MW-61	Neut	SZ	10/3/2007	18000	22000	40 J	340	97 J	--	--	--	--	--	<13	70 J	<10	9900	--	Exceed
MW-61	Neut	SZ	4/10/2008	14000	18000	26 J	280	83 J	--	--	--	--	--	<9.6	76 J	<11	12000	--	Exceed
MW-61	Neut	SZ	10/21/2008	21000	24000	59 J	550	260	--	--	--	--	--	<9.7	310	<11	25000	--	Exceed
MW-61	Neut	SZ	4/16/2009	34800	32500	61.6 J	552	256	--	--	--	--	--	<9.65	339	<10.9	34800	--	Exceed
MW-61	Neut	SZ	10/20/2009	19900 J	28300 J	52.1 J	397 J	98.6 J	--	--	--	--	--	<9.75 J	206 J	<11.0 J	14600 J	--	Exceed
MW-61	Neut	SZ	4/15/2010	26800	20700	38.5 J	368	176	--	--	--	--	--	<9.56	215	<10.8	18200	--	Exceed
MW-61	Neut	SZ	10/19/2010	19900	21700	42 J	382	143	--	--	--	--	--	<9.56	148	<10.8	12900	--	Exceed
MW-61	Neut	SZ	4/27/2011	20800	20300	87.3 J	308	145	--	--	--	--	--	<11.2	122	<14.7	16000	4330 J	Exceed
MW-61	Neut	SZ	4/25/2012	9360	8240	54.3	766	257	--	--	--	--	--	<1.10	65.5	2.83 J	6110	--	Exceed
MW-61	Neut	SZ	4/17/2014	6700	8300	250	2900	870	--	--	--	--	--	<11	56 J	<11	6100	460	Exceed
MW-61	Neut	SZ	4/22/2016	18000	12200	240 X7	3640 X7	1360 X7	--	--	--	--	--	<11.1	88.7 J	<11.3	11500	3360 X7	Exceed
MW-61	Neut	USZ	4/24/2018	2,660	9,570	340 J X7	5,580 X7	1,790 X7	--	--	--	--	--	<59.3	<67.5	<60.8	6,170	<214 X7	Exceed
MW-61	Neut	USZ	4/28/2020	6750	7030	793 X7	10300 X7	4860 J X7	--	--	--	--	--	<1.13	<64.2	<1.16	8520	1460 X7	Exceed
MW-61	Neut	USZ	4/27/2022	7970	9620	198 J X7	4310 X7	1240 X7	--	--	--	--	--	<9.48	<121	<11.1	11300	4910 X7	Exceed
MW-61	Neut	USZ	4/4/2024	11000	8590	73.5	6960	3140	--	--	--	--	--	<4.49 U	<8.98 U*	<5.41 U	7600	<11.4 U*	Exceed
MW-62	EI	IZ	8/30/1995	950	1600	<0	810	570	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	9/24/1995	750	900 D	57	580	520	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	10/21/1998	590 D	840 D	27	380 D	250 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	4/23/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-62	EI	IZ	10/20/1999	170	380	870	370	260	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	5/18/2000	220 D	450 D	25	270 D	200 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	10/6/2000	120	250 D	18	190 D	130	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	4/3/2001	50	86	5.3 J	77	48	--	--	--	--	--	<10	<20	<10	2.1 J	--	Exceed
MW-62	EI	IZ	10/24/2001	8.2 J	13	1 J	17	11	--	--	--	--	--	<10	5.2 J	<10	<20	--	Exceed
MW-62	EI	IZ	4/25/2002	9.3 J	16	1.1 J	16	10	--	--	--	--	--	<10	<21	<10	<21	--	Exceed
MW-62	EI	IZ	10/8/2002	6 J	9.7	0.74 J	9.9	6.7 J	--	--	--	--	--	<9	<19	<9	0.62 J	--	Exceed
MW-62	EI	IZ	4/2/2003	9.1 J	14	1 J	14	11	--	--	--	--	--	<9	<19	<9	<19	--	Exceed
MW-62	EI	IZ	10/7/2003	3.8 J	8 J	0.6 J	7.9 J	5 J	--	--	--	--	--	<9.5	0.66 J	<9.5	0.24 J	--	Exceed
MW-62	EI	IZ	4/28/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	0.6 J	<10	<20	--	~
MW-62	EI	IZ	10/22/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-62	EI	IZ	4/18/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-62	EI	IZ	10/19/2005	1.8 J	4.4 J	<9.5	4.3 J	2.6 J	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	Exceed
MW-62	EI	IZ	4/18/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-62	EI	IZ	10/18/2006	1.2 J	1.5 J	<9.7	2.4 J	1.5 J	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-62	EI	IZ	4/11/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-62	EI	IZ	10/4/2007	1.2 J	1.8 J	<1.0	2.5 J	1.3 J	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-62	EI	IZ	4/16/2008	<2.8	<0.98	<1.0	1.8 J	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-62	EI	IZ	10/29/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-62	EI	IZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-62	EI	IZ	10/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-62	EI	IZ	4/16/2010	<2.77	2.38 J	<0.998	3.4 J	2.07 J	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-62	EI	IZ	10/20/2010	<2.80	1.56 J	<1.01	2.22 J	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-62	EI	IZ	4/25/2011	<2.77	2.55 J	5.67 J	2.05 J	6.44 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-62	EI	IZ	4/25/2012	<2.77	1.07 J	<0.998	2.3 J	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-62	EI	IZ	4/18/2014	2.6 J	3.8 J	<0.59	4.1 J	3.1 J	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-62	EI	IZ	4/11/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-62	EI	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-62	EI	IZ	4/30/2020	<0.979	1.60 J	<0.629 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	Exceed
MW-62	EI	IZ	4/26/2022	1.48	1.14	<1.18 X7	<0.770 X7	<0.833 X7	--	--	--	--	--	<0.489	<6.24	<0.572	<3.12	<7.39 X7	Exceed
MW-62	EI	IZ	4/25/2024	3.82	6.07	<1.30 U	1.38 J	0.960 J	--	--	--	--	--	<4.60 U	<9.21 U	<5.55 U	<1.42 U	<11.7 U*	Exceed
MW-63	EI	DZ	8/30/1995	39	47	<0	30	27	--	--	--	--	--	--	--	--	--	--	Exceed
MW-63	EI	DZ	9/24/1995	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	12/4/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	4/22/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	10/20/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	5/18/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	10/6/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	4/3/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-63	EI	DZ	10/24/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	3 J	<10	<20	--	Exceed
MW-63	EI	DZ	4/25/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-63	EI	DZ	10/7/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.8 J	<10	<21	--	Exceed
MW-63	EI	DZ	4/2/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	2.8 J	<9	<19	--	Exceed
MW-63	EI	DZ	10/21/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	10/22/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	10/23/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	10/24/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	4/20/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-63	EI	DZ	10/22/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-63	EI	DZ	10/23/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-63	EI	DZ	11/30/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	5.2 J	<9.6	<19	--	Exceed
MW-63	EI	DZ	1/6/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.1 J	<10	<20	--	~
MW-63	EI	DZ	2/9/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	3.3 J	<9.8	<9.8	--	Exceed
MW-63	EI	DZ	3/23/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	2.1 J	<10	<10	--	Exceed
MW-63	EI	DZ	4/7/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	2.5 J	<9.8	<9.8	--	Exceed
MW-63	EI	DZ	5/11/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	2.1 J	<10	<10	--	Exceed
MW-63	EI	DZ	6/9/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	1.6 J	<9.7	<9.7	--	Exceed
MW-63	EI	DZ	7/7/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.9 J	<10	<10	--	Exceed
MW-63	EI	DZ	8/12/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	1.7 J	<9.6	<9.6	--	Exceed
MW-63	EI	DZ	9/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	0.96 J	<9.7	<9.7	--	Exceed
MW-63	EI	DZ	10/12/2005	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	0.61 J	<9.5	<9.5	--	~
MW-63	EI	DZ	11/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-63	EI	DZ	12/16/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-63	EI	DZ	1/25/2006	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<10	<10	<10	--	~
MW-63	EI	DZ	2/28/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-63	EI	DZ	3/24/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-63	EI	DZ	4/11/2006	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<10	<10	<10	--	~
MW-63	EI	DZ	5/23/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-63	EI	DZ	6/28/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-63	EI	DZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	2.2 J	Exceed
MW-63	EI	DZ	1/19/2007	<0.95	<0.95	<0.95	<0.95	<0.95	--	--	--	--	--	<0.95	<0.95	<0.95	<0.95	3 J	Exceed
MW-63	EI	DZ	4/20/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	~
MW-63	EI	DZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	0.19 J	<0.052	<0.094	--	~
MW-63	EI	DZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-63	EI	DZ	10/15/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	--	--	<0.070	<0.11	<0.054	<0.098	--	~
MW-63	EI	DZ	4/22/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	0.114 J	<0.0533	<0.0965	--	~
MW-63	EI	DZ	10/27/2009	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-63	EI	DZ	4/7/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-63	EI	DZ	10/12/2010	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699 J	<0.105	<0.0544	<0.0984	<1.77	~
MW-63	EI	DZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-63	EI	DZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-63	EI	DZ	4/11/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-63	EI	DZ	10/23/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-63	EI	DZ	4/12/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-63	EI	DZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-63	EI	DZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-63	EI	DZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-63	EI	DZ	4/15/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-63	EI	DZ	10/7/2015	<0.141	<0.0870	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-63	EI	DZ	4/5/2016	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 X7	~
MW-63	EI	DZ	10/20/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	0.153 J	<0.110	<0.130 L	<4.01 LX7	~
MW-63	EI	DZ	4/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-63	EI	DZ	10/12/2017	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.01 LX7	~
MW-63	EI	DZ	4/11/2018	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 LX7	~
MW-63	EI	DZ	10/11/2018	<0.159	<0.0976	<0.745 X7	<1.30X7	<1.29 X7	--	--	--	--	--	<0.207	<0.159	<0.134	<0.159	<4.89 X7	~
MW-63	EI	DZ	4/10/2019	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 X7	~
MW-63	EI	DZ	10/16/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-63	EI	DZ	4/14/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127 L	<0.108	<0.127 L	<3.93 LX7	~
MW-63	EI	DZ	10/15/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-63	EI	DZ	4/20/2021	<0.0590	<0.0387	<12.0 X7	<12.0 X7	<12.0 X7	--	--	--	--	--	<0.562	<7.18	<0.658	<3.59	<8.49 X7	~
MW-63	EI	DZ	10/7/2021	0.124	<0.0387	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.553	<3.02	<7.14 X7	~
MW-63	EI	DZ	4/6/2022	<0.0583	<0.0382	<1.14 X7	<0.743 X7	<0.804 X7	--	--	--	--	--	<0.472	<6.03	<0.553	<3.01	<7.13 X7	~
MW-63	EI	DZ	10/6/2022	<0.0523	<0.0343	<1.10 X7	<0.718 X7	<0.776	--	--	--	--	--	<0.456	<5.82	<0.534	<2.91	<6.89 X7	~
MW-63	EI	DZ	4/5/2023	<0.0574	<0.0376	<1.08	<0.707	<0.765	--	--	--	--	--	<0.449	<5.74	<0.526	<2.87	<6.79	~
MW-63	EI	DZ	10/5/2023	<0.0553 U*	<0.0363 U	<1.09 U	<0.732 U	<0.792 U	--	--	--	--	--	<3.86 U	<7.72 U	<4.65 U	<1.19 U	<9.8 U	~
MW-63	EI	DZ	4/8/2024	<0.0608 U	<0.0399 U	<1.07 U	<0.718 U	<0.776 U	--	--	--	--	--	<3.78 U	<7.57 U	<4.56 U	<1.16 U	<9.61 U	~
MW-63 1st Run	*EI*	*DZ*	*10/24/2024*	*2.62*	*8.92*	*<1.03 U*	*2.38 J*	*<0.746 U*	*--*	*--*	*--*	*--*	*--*	*<3.64 U*	*<7.28 U*	*<4.38 U*	*<1.12 U*	9.24 U	*Exceed*
MW-63 Resample	*EI*	*DZ*	*11/19/2024*	*<0..0610 U*	*<0.0400 U*	*--*	*0.700 U**	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*--*	*~*
MW-63	EI	DZ	05/01/25	**0.171**	<0.0408 U	<1.10 U	<0.743 U	<0.803 U	--	--	--	--	--	<3.92 U	<7.83 U	<4.72 U	<1.20 U	<9.94 U*	~
MW-64	AOC1	SZ	4/10/2003	0.82 J	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-64	AOC1	SZ	10/9/2003	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-64	AOC1	SZ	4/27/2004	6.3 J	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-64	AOC1	SZ	4/18/2005	340	19	<14	<14	<14	--	--	--	--	--	<14	<14	<14	4 J	--	Exceed
MW-64	AOC1	SZ	4/29/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-64	AOC1	SZ	10/21/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-64	AOC1	SZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-64	AOC1	SZ	10/23/2009	<3.60	<1.28	<1.30	<1.33	<1.87	--	--	--	--	--	<1.24	<2.00	<1.40	<1.09	--	~
MW-64	AOC1	SZ	4/30/2012	5.39 J	2.06 J	<1.38 J	<1.42 J	<1.99 J	--	--	--	--	--	<1.53 J	<6.66 J	<2.00 J	<1.17 J	--	Exceed
MW-65	TDAL	SZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-65	TDAL	SZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-65	TDAL	SZ	4/19/2004	0.14 J	0.11 J	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	Exceed
MW-65	TDAL	SZ	10/14/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	0.21 J	<0.96	<1.9	~
MW-65	TDAL	SZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-65	TDAL	SZ	10/25/2005	1	0.49	0.23 J	3.2	2	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-65	TDAL	SZ	4/19/2006	0.62 J	0.34 J	<0.96	0.39 J	0.37 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-65	TDAL	SZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-65	TDAL	SZ	4/20/2007	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	~
MW-65	TDAL	SZ	10/11/2007	0.34 J	0.16 J	<0.083	0.49 J	0.28 J	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-65	TDAL	SZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-65	TDAL	SZ	10/15/2008	<0.057	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-65	TDAL	SZ	4/22/2009	<0.0563	0.138 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-65	TDAL	SZ	10/27/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-65	TDAL	SZ	4/6/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-65	TDAL	SZ	10/12/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72	~
MW-65	TDAL	SZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-65	TDAL	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-65	TDAL	SZ	4/11/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-65	TDAL	SZ	10/9/2012	0.712 J	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-65	TDAL	SZ	4/12/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-65	TDAL	SZ	10/15/2013	<0.14 L	<0.089 L	<0.68 L	<1.2 L	<1.2 L	--	--	--	--	--	<0.19 L	<0.14 L	<0.12 L	<0.14 L	<4.5 L	~
MW-65	TDAL	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-65	TDAL	SZ	10/22/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<3.9	~
MW-65	TDAL	SZ	4/15/2015	<0.13	<0.081	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-65	TDAL	SZ	10/7/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-65	TDAL	SZ	4/4/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-65	TDAL	SZ	10/19/2016	<0.129	0.442 J	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 LX7	~
MW-65	TDAL	SZ	4/12/2017	<0.125 L	<0.0769 L	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125 L	<0.106 L	<0.125	R	~
MW-65	TDAL	SZ	10/12/2017	<0.130 L	<0.08 L	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.17 L	R	<0.11 L	<0.13 L	R	~
MW-65	TDAL	USZ	4/11/2018	<0.127 L	<0.0784 L	<0.599 LX7	<1.05 LX7	<1.04 LX7	--	--	--	--	--	<0.167 L	<0.127 L	<0.108 L	<0.127 L	R	~
MW-65	TDAL	USZ	10/11/2018	<0.144	<0.0889	<0.679 LX7	<1.19 LX7	<1.18 LX7	--	--	--	--	--	<0.189 L	<0.144 L	<0.122 L	<0.144 L	<4.46 R	~
MW-65	TDAL	USZ	4/15/2019	<0.138	<0.0851 L	<0.650 LX7	<1.14 LX7	<1.13 LX7	--	--	--	--	--	<0.181 L	<0.138 L	<0.117	<0.138 L	<4.27 R	~
MW-65	TDAL	USZ	10/16/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-65	TDAL	USZ	4/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 RX7	~
MW-65	TDAL	USZ	10/13/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-65	TDAL	USZ	4/15/2021	<0.0618	<0.0405	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.515	<6.58	<0.603	<3.29	<7.79 X7	~
MW-65	TDAL	USZ	10/6/2021	<0.0568	<0.0373	<1.1 X7	<0.721 X7	<0.779 X7	--	--	--	--	--	<0.458	<5.85	<0.536	<2.92	<6.92 X7	~
MW-65	TDAL	USZ	4/6/2022	<0.0594	<0.0390	<1.08 X7	<0.709 X7	<0.767 X7	--	--	--	--	--	<0.450	<5.75	<0.527	<2.88	<6.80 X7	~
MW-65	TDAL	USZ	10/6/2022	<0.0526	<0.0345	<2.16 X7	<1.41 X7	<1.53 X7	--	--	--	--	--	<0.897	<11.5	<1.05	<5.73	<13.6 X7	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-65	TDAL	USZ	4/5/2023	<0.0568	<0.0373	<1.09	<0.717	<0.775	--	--	--	--	--	<0.455	<5.81	<0.533	<2.91	<6.88	~
MW-65	TDAL	USZ	10/5/2023	<0.0551 U*	<0.0361 U	<1.15 U	<0.775 U	<0.838 U	--	--	--	--	--	<4.09 U	<8.17 U	<4.29 U	<1.26 U	<10.4 U	~
MW-65	TDAL	USZ	4/3/2024	0.707	0.226	<1.08 U	<0.727 U	<0.786 U	--	--	--	--	--	<3.83 U	<7.67 U	<4.62 U	<1.18 U	<9.73 U*	~
MW-65	TDAL	USZ	10/17/2024	1.79 p	3.19	<1.03 U	0.932 J	1.04 J	--	--	--	--	--	<3.64 U	<7.29 U	<4.39 U	<1.12 U	<9.25 U*	Exceed
MW-65 1st Run	**TDAL**	**USZ**	**04/30/25**	**<0.0622 U**	**<0.0408 U**	**<1.20 U**	**7.57 J**	**2.23 J**	**--**	**--**	**--**	**--**	**--**	**<4.25 U**	**<8.50 U**	**<5.12 U**	**<1.31 U**	**<10.8 U***	**Exceed**
MW-65 Resample	**TDAL**	**USZ**	**05/19/25**	**--**	**--**	**--**	**<0.758 U**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**Exceed**
MW-66	TDAL	SZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-66	TDAL	SZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-66	TDAL	SZ	4/19/2004	0.16 J	0.12 J	<9.5	<9.5	0.065 J	--	--	--	--	--	<9.5	<0.95	0.075 J	<0.95	<1.9	Exceed
MW-66	TDAL	SZ	10/14/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-66	TDAL	SZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-66	TDAL	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-66	TDAL	SZ	4/19/2006	0.54 J	0.29 J	<0.96	0.36 J	0.37 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-66	TDAL	SZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-66	TDAL	SZ	4/20/2007	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	~
MW-66	TDAL	SZ	10/11/2007	9.9	4.3	0.65 J	9.5	6	--	--	--	--	--	<0.067	<0.10	<0.052	0.12 J	--	Exceed
MW-66	TDAL	SZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-66	TDAL	SZ	10/15/2008	0.089 J	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-66	TDAL	SZ	4/22/2009	<0.0569	0.914 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-66	TDAL	SZ	10/27/2009	0.0982 J	0.185 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-66	TDAL	SZ	4/6/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	--	~
MW-66	TDAL	SZ	10/12/2010	<0.0575 J	<0.0831 J	<0.0848 J	<0.0666 J	<0.0752 J	--	--	--	--	--	<0.0685 J	<0.103 J	<0.0533 J	<0.0965 J	<1.74 J	~
MW-66	TDAL	SZ	4/15/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-66	TDAL	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-66	TDAL	SZ	4/11/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-66	TDAL	SZ	10/9/2012	0.716 J	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-66	TDAL	SZ	4/12/2013	<0.0563	<0.0815	<0.0832	0.106 J	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-66	TDAL	SZ	10/15/2013	<0.13 L	<0.078 L	<0.59 L	<1.0 L	<1.0 L	--	--	--	--	--	<0.17 L	<0.13 L	<0.11 L	<0.13 L	<3.9 L	~
MW-66	TDAL	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-66	TDAL	SZ	10/23/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<3.9	~
MW-66	TDAL	SZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-66	TDAL	SZ	10/7/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-66	TDAL	SZ	4/4/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-66	TDAL	SZ	10/19/2016	<0.130 L	<0.0800 L	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.170 L	<0.130 L	<0.110 L	<0.130 L	<4.01 LX7	~
MW-66	TDAL	SZ	4/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-66	TDAL	SZ	10/12/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-66	TDAL	USZ	4/11/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-66	TDAL	USZ	10/11/2018	<0.148	<0.0909	<0.694 X7	<1.22 X7	<1.20 X7	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56 X7	~
MW-66	TDAL	USZ	4/15/2019	<0.141	<0.0870	<0.664 LX7	<1.16 LX7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.12	<0.141	<4.36 X7	~
MW-66	TDAL	USZ	10/16/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-66	TDAL	USZ	4/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-66	TDAL	USZ	10/13/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-66	TDAL	USZ	4/15/2021	<0.0598	<0.0392	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.507	<6.47	<0.593	<3.23	<7.65 X7	~
MW-66	TDAL	USZ	10/6/2021	1.24	0.469	<1.12 X7	<0.733 X7	<0.793 X7	--	--	--	--	--	<0.466	<5.95	<0.545	<2.97	<7.04 X7	~
MW-66	TDAL	USZ	4/7/2022	0.327	0.383	<1.19 X7	<0.780 X7	<0.844 X7	--	--	--	--	--	<0.496	<6.33	<0.580	<3.16	<7.49 X7	~
MW-66	TDAL	USZ	10/6/2022	<0.0598	<0.0392	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.87	<6.78 X7	~
MW-66	TDAL	USZ	4/5/2023	<0.0577	<0.0379	<1.10	<0.720	<0.779	--	--	--	--	--	<0.457	<5.84	<0.535	<2.92	<6.91	~
MW-66	TDAL	USZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.10 U	<0.741 U	<0.801 U	--	--	--	--	--	<3.91 U	<7.81 U	<4.71 U	<1.12 U	<9.92 U	~
MW-66	TDAL	USZ	4/3/2024	0.382	0.116	<1.06 U	<0.714 U	<0.772 U	--	--	--	--	--	<3.76U	<7.52 U	<4.53 U	<1.16 U	<9.55 U*	~
MW-66	TDAL	USZ	10/17/2024	<0.0606 U	<0.0397 U	<1.04 U	<0.700 U	<0.756 U	--	--	--	--	--	<3.69 U	<7.38 U	<4.44 U	<1.13 U	<9.36 U*	~
MW-66	TDAL	USZ	04/30/25	<0.0620 U	<0.0407 U	<1.17 U	2.92 J	0.856 J	--	--	--	--	--	<4.16 U	<8.33 U	<5.02 U	<1.28 U	<10.6 U*	~
MW-67	DNTL	IZ	12/28/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-67	DNTL	IZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-67	DNTL	IZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-67	DNTL	IZ	4/20/2004	1.5	0.6 J	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	0.15 J	<1.9	Exceed
MW-67	DNTL	IZ	10/11/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-67	DNTL	IZ	4/12/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-67	DNTL	IZ	10/14/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-67	DNTL	IZ	4/17/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-67	DNTL	IZ	10/13/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-67	DNTL	IZ	4/9/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-67	DNTL	IZ	10/4/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
MW-67	DNTL	IZ	4/14/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-67	DNTL	IZ	10/24/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-67	DNTL	IZ	4/17/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-67	DNTL	IZ	10/19/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-67	DNTL	IZ	4/12/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-67	DNTL	IZ	10/20/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-67	DNTL	IZ	4/20/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
MW-67	DNTL	IZ	4/23/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-67	DNTL	IZ	4/16/2014	<0.94	0.9 J	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-67	DNTL	IZ	4/12/2016	7.36 J	20.4	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.130	1.99 J	<4.00 X7	Exceed
MW-67	DNTL	IZ	10/28/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-67	DNTL	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-67	DNTL	IZ	4/23/2020	<0.95	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-67	DNTL	IZ	4/21/2022	0.661	1.92	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	Exceed
MW-67	DNTL	IZ	4/11/2024	<0.0598 U	<0.0392 U	<1.09 U	<0.734 U	<0.793 U	--	--	--	--	--	<3.87 U	<7.73 U	<4.66 U	<1.19 U	<9.81 U*	~
MW-68	DNTL	IZ	12/28/2001	4.9 J	4.8 J	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-68	DNTL	IZ	4/17/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-68	DNTL	IZ	10/8/2003	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<20	<9.8	<20	--	~
MW-68	DNTL	IZ	4/20/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-68	DNTL	IZ	10/11/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-68	DNTL	IZ	4/12/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-68	DNTL	IZ	10/14/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-68	DNTL	IZ	4/13/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-68	DNTL	IZ	10/13/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-68	DNTL	IZ	4/9/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-68	DNTL	IZ	10/9/2007	<0.82	<0.84	<1.0	<0.89	<0.97	--	--	--	--	--	<1.3	<0.64	<1.0	<4.2	--	~
MW-68	DNTL	IZ	4/15/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-68	DNTL	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-68	DNTL	IZ	4/17/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-68	DNTL	IZ	10/19/2009	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-68	DNTL	IZ	10/20/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-68	DNTL	IZ	4/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-68	DNTL	IZ	4/24/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	--	~
MW-68	DNTL	IZ	4/16/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-68	DNTL	IZ	4/12/2016	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 LX7	~
MW-68	DNTL	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-68	DNTL	IZ	4/23/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-68	DNTL	IZ	4/25/2022	<0.0590	<0.0387	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	~
MW-68	DNTL	IZ	4/11/2024	<0.0608 U	<0.0399 U	<1.22 U	<0.821 U	<0.888 U	--	--	--	--	--	<4.33 U	<8.66 U	<5.22 U	<1.33 U	<11.0 U*	~
MW-69	ASI	SZ	12/18/2003	10 J	21	<9.6	72 J	43 J	--	--	--	--	--	<9.6	1.7	<9.6	<0.96	<1.9	Exceed
MW-69	ASI	SZ	2/3/2004	23	9.8	5.4 J	63 J	34 J	--	--	--	--	--	<9.5	<0.95	<9.5	0.32 J	<1.9	Exceed
MW-69	ASI	SZ	2/4/2004	22	9.1 J	5.4 J	62 J	33 J	--	--	--	--	--	<9.8	<0.98	<9.8	0.26 J	<2	Exceed
MW-69	ASI	SZ	4/28/2004	1.4	1.6	0.95 J	3.8 J	6 J	--	--	--	--	--	<9.5	<0.95	<9.5	0.16 J	<1.9	Exceed
MW-69	ASI	SZ	10/20/2004	1.9	1.1	0.72 J	7 J	4.9 J	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	Exceed
MW-69	ASI	SZ	4/6/2005	0.48	0.57	0.18 J	1.7	1.1	--	--	--	--	--	<0.24	<0.49	<0.24	<0.24	<2	~
MW-69	ASI	SZ	10/26/2005	2.9	1.8	0.43	5.8	3.3	--	--	--	--	--	<0.24	<0.49	<0.24	0.25	<2	Exceed
MW-69	ASI	SZ	4/20/2006	0.48 J	0.31 J	0.12 J	1.3	0.94 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-69	ASI	SZ	11/1/2006	0.59 J	0.46 J	0.11 J	1.1	0.86 J	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	<4.9	~
MW-69	ASI	SZ	4/23/2007	7.1	3.4	0.96 J	12	7.3	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	Exceed
MW-69	ASI	SZ	10/12/2007	12	5.9	1.5	19	12	--	--	--	--	--	<0.067	<0.10	<0.052	0.11 J	--	Exceed
MW-69	ASI	SZ	4/9/2008	3	<0.082	0.37 J	4.4	2.4	--	--	--	--	--	<0.068	0.1 J	<0.053	<0.095	<1.7	Exceed
MW-69	ASI	SZ	10/17/2008	1100	1000	47	330	<0.077	--	--	--	--	--	<0.070	11	0.44 J	79	--	Exceed
MW-69	ASI	SZ	4/23/2009	0.278 J	0.567 J	<0.0856	0.27 J	0.149 J	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	--	~
MW-69	ASI	SZ	10/28/2009	<0.0569	1.21	<0.0840	0.158 J	0.0936 J	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-69	ASI	SZ	4/8/2010	2.12	1.11	0.598 J	6.88	4.68	--	--	--	--	--	<0.0692	0.942 J	<0.0539	<0.0974	--	Exceed
MW-69	ASI	SZ	10/13/2010	<0.563	<0.815	<0.832	<0.653	<0.738	--	--	--	--	--	<0.672 J	<1.01	<0.523	<0.946	<17.1	~
MW-69	ASI	SZ	4/18/2011	0.625 J	0.761 J	1.37	3.29	2.82	--	--	--	--	--	<0.0672	0.711 J	<0.0523	0.127 J	<1.71 J	~
MW-69	ASI	SZ	10/25/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-69	ASI	SZ	4/17/2012	0.423 J	<0.0815	<0.0832	0.265 J	0.174 J	--	--	--	--	--	<0.0672	0.107 J	<0.0523	<0.0946	--	~
MW-69	ASI	SZ	10/26/2012	<0.0563 J	<0.0815 J	<0.0832 J	0.393 J	0.176 J	--	--	--	--	--	<0.0672 J	1.39 J	<0.0523 J	<0.0946 J	<1.71 J	~
MW-69	ASI	SZ	4/18/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 L	~
MW-69	ASI	SZ	10/16/2013	<0.13 L	<0.082 L	<0.62 L	<1.1 L	<1.1 L	--	--	--	--	--	<0.17 L	<0.13 L	<0.11 L	<0.13 L	<4.1 L	~
MW-69	ASI	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-69	ASI	SZ	10/24/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<3.9	~
MW-69	ASI	SZ	4/16/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-69	ASI	SZ	10/9/2015	0.296 J	<0.0899	0.896 J	<1.20	<1.19	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51	~
MW-69	ASI	SZ	4/5/2016	0.164 J	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-69	ASI	SZ	10/24/2016	<0.141	<0.087	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.12	<0.141	<4.36 LX7	~
MW-69	ASI	SZ	4/14/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-69	ASI	SZ	10/17/2017	<0.134	<0.0825	<0.63 X7	<1.1 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 LX7	~
MW-69	ASI	SZ	4/16/2018	<0.125	<0.0769	<0.588 LX7	<1.03 LX7	<1.02 LX7	--	--	--	--	--	<0.163	<0.125 L	<0.106	<0.125 L	<3.86 LX7	~
MW-69	ASI	SZ	10/25/2018	<0.146	<0.0899	<0.687 LX7	<1.20 X7	<1.19 X7	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51 X7	~
MW-69	ASI	SZ	4/11/2019	<0.138 L	<0.0851 L	<0.650 LX7	<1.14 LX7	<1.13 LX7	--	--	--	--	--	<0.181 L	<0.138 L	<0.117 L	<0.138 L	<4.27 LX7	~
MW-69	ASI	SZ	10/24/2019	<0.133 L	<0.0816	<0.623 X7	<1.09 LX7	<1.08 X7	--	--	--	--	--	<0.173	<0.133 L	<0.112	<0.133 L	<4.09 R	~
MW-69	ASI	SZ	4/15/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-69	ASI	SZ	10/14/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-69	ASI	SZ	4/19/2021	0.0698 J	<0.0400	<11.2 X7	<11.2 X7	<11.2 X7	--	--	--	--	--	<0.524	<6.69	<0.614	<3.35	<7.92 X7	~
MW-69	ASI	SZ	10/11/2021	<0.0551	<0.0361	<1.13 X7	<0.740 X7	<0.800 X7	--	--	--	--	--	<0.470	<6.00	<0.550	<3.00	<7.10 X7	~
MW-69	ASI	SZ	4/13/2022	<0.0631	<0.0414	<1.17 X7	<0.767 X7	<0.830 X7	--	--	--	--	--	<0.487	<6.22	<0.570	<3.11	<7.36 X7	~
MW-69	ASI	SZ	10/6/2022	0.390	0.292	<1.13 X7	0.818 J X7	<0.802 X7	--	--	--	--	--	<0.471	<6.01	<0.551	<3.01	<7.12	~
MW-69	ASI	SZ	4/10/2023	<0.0588	<0.0386	<1.17*	<0.765*	<0.827*	--	--	--	--	--	<0.486	<6.20	<0.569	<3.10	<7.34*	~
MW-69	ASI	SZ	10/11/2023	<0.0583 U	<0.0382 U	<1.09 U	<0.733 U	<0.792 U	--	--	--	--	--	<9.81 U*	<3.86 U	<7.73 U	<4.66 U	<1.19 U	~
MW-69	ASI	SZ	4/24/2024	<0.0598 U	<0.0392 U	<1.32 U	<0.889 U	<0.962 U	--	--	--	--	--	<4.69 U	<9.38 U	<5.65 U	<1.44 U	<11.9 U*	~
MW-69	ASI	SZ	10/16/2024	<0.0606 U	<0.0397 U	<1.03 U	<0.692 U	<0.748 U	--	--	--	--	--	<3.65 U	<7.29 U	<4.39 U	<1.12 U	<9.26 U*	~
MW-69	ASI	SZ	05/09/25	<0.0585 U	<0.0383 U	<1.05 U	<0.709 U	<0.766 U	--	--	--	--	--	<3.74 U	<7.47 U	<4.50 U	<1.15 U	<9.48 U*	~
MW-70	DNTL	IZ	12/29/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-70	DNTL	IZ	4/9/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-70	DNTL	IZ	10/22/2003	<1	2.2	<10	<10	<10	--	--	--	--	--	<10	<1	<10	<1	<2	Exceed
MW-70	DNTL	IZ	2/3/2004	<0.95	0.31 J	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-70	DNTL	IZ	4/20/2004	0.15 J	0.81 J	<9.5	<9.5	0.066 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-70	DNTL	IZ	10/20/2004	<0.97	0.24 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-70	DNTL	IZ	4/6/2005	0.1 J	0.75	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-70	DNTL	IZ	10/25/2005	0.24	0.41	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.47	<0.24	<0.24	<1.9	~
MW-70	DNTL	IZ	4/19/2006	0.94 J	0.47 J	<0.96	0.34 J	0.35 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-70	DNTL	IZ	10/31/2006	<0.97	0.36 J	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-70	DNTL	IZ	4/20/2007	<0.98	0.55 J	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	--	~
MW-70	DNTL	IZ	10/12/2007	<0.056	0.12 J	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-70	DNTL	IZ	4/10/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-70	DNTL	IZ	10/16/2008	<0.057	0.085 J	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-70	DNTL	IZ	4/23/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-70	DNTL	IZ	10/27/2009	<0.0575	0.222 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-70	DNTL	IZ	4/6/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-70	DNTL	IZ	10/12/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-70	DNTL	IZ	4/15/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-70	DNTL	IZ	10/26/2011	<2.88 J	<1.03 J	<1.04 J	<1.06 J	<1.49 J	--	--	--	--	--	<1.15 J	<4.99 J	<1.50 J	<0.875 J	<3.24 J	~
MW-70	DNTL	IZ	4/12/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-70	DNTL	IZ	10/30/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72	~
MW-70	DNTL	IZ	4/19/2013	<0.0586	0.127 J	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77 L	~
MW-70	DNTL	IZ	10/15/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-70	DNTL	IZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-70	DNTL	IZ	10/23/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-70	DNTL	IZ	4/16/2015	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-70	DNTL	IZ	10/7/2015	<0.125	0.244 J	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-70	DNTL	IZ	4/5/2016	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-70	DNTL	IZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-70	DNTL	IZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	10/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	4/11/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	10/12/2018	<0.141	<0.087	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36 X7	~
MW-70	DNTL	IZ	4/15/2019	<0.125	<0.0769	<0.588 LX7	<1.03 LX7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-70	DNTL	IZ	10/17/2019	<0.131 L	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172 L	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-70	DNTL	IZ	4/13/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-70	DNTL	IZ	10/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-70	DNTL	IZ	4/15/2021	<0.0618	<0.0405	<11.3 X7	<11.3 X7	<11.3 X7	--	--	--	--	--	<0.530	<6.77	<0.621	<3.39	<8.01 X7	~
MW-70	DNTL	IZ	10/7/2021	<0.0561	<0.0368	<1.15 X7	<0.756 X7	<0.817 X7	--	--	--	--	--	<0.488	<6.13	<0.562	<3.06	<7.25 X7	~
MW-70	DNTL	IZ	4/7/2022	0.491	0.632	<1.08 X7	<0.706 X7	<0.763 X7	--	--	--	--	--	<0.448	<5.72	<0.525	<2.86	<6.77 X7	~
MW-70	DNTL	IZ	10/6/2022	<0.0535	<0.0351	<1.10 X7	<0.720 X7	<0.779 X7	--	--	--	--	--	<0.457	<5.84	<0.535	<2.92	<6.91 X7	~
MW-70	DNTL	IZ	4/5/2023	<0.0587	<0.0385	<1.10	<0.719	<0.778	--	--	--	--	--	<0.457	<5.83	<0.535	<2.92	<6.90	~
MW-70	DNTL	IZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.06 U	<0.710 U	<0.768 U	--	--	--	--	--	<3.74 U	<7.49 U	<4.51 U	<1.15 U	<9.5 U	~
MW-70	DNTL	IZ	4/3/2024	0.189	0.0399 J	<1.11 U	<0.745 U	<0.805 U	--	--	--	--	--	<3.93 U	<7.85 U	<4.73 U	<1.21 U	<9.96 U*	~
MW-70	DNTL	IZ	10/17/2024	<0.0610 U	<0.0400 U	<1.02 U	<0.687 U	<0.742 U	--	--	--	--	--	<3.62 U	<7.24 U	<4.36 U	<1.11 U	<9.19 U*	~
MW-70	DNTL	IZ	05/13/25	<0.0596 U	<0.0391 U	<1.18 U	<0.796 U	<0.861 U	--	--	--	--	--	<4.20 U	<8.39 U	<5.06 U	<1.29 U	<10.6 U*	~
MW-71	ASI	SZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-71	ASI	SZ	4/28/2004	<0.95	<0.95	<9.5	<9.5	0.082 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-71	ASI	SZ	10/20/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-71	ASI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-71	ASI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-71	ASI	SZ	4/20/2006	<0.96	<0.96	<0.96	0.3 J	0.23 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-71	ASI	SZ	11/1/2006	<0.98	<0.98	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	<4.9	~
MW-71	ASI	SZ	4/23/2007	20	9.4	2.8	32	21	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	Exceed
MW-71	ASI	SZ	10/12/2007	22	11	2.6	35	22	--	--	--	--	--	<0.067	<0.10	<0.052	0.21 J	--	Exceed
MW-71	ASI	SZ	4/9/2008	1.2	<0.081	<0.083	0.19 J	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-71	ASI	SZ	10/16/2008	4.4	2.3	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	0.19 J	--	Exceed
MW-71	ASI	SZ	4/22/2009	0.259 J	0.732 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-71	ASI	SZ	10/27/2009	<0.0569	0.325 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-71	ASI	SZ	4/7/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-71	ASI	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-71	ASI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-71	ASI	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-71	ASI	SZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-71	ASI	SZ	10/30/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-71	ASI	SZ	4/22/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 L	~
MW-71	ASI	SZ	10/21/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 L	~
MW-71	ASI	SZ	4/10/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-71	ASI	SZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	~
MW-71	ASI	SZ	4/20/2015	<0.13	<0.077	6.5	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-71	ASI	SZ	10/13/2015	<0.146	<0.0899	<0.687	<1.20	<1.19	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51	~
MW-71	ASI	SZ	4/7/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-71	ASI	SZ	10/20/2016	10.7	8.88	<0.611 X7	1.97 J X7	1.41 J X7	--	--	--	--	--	<0.170	<0.130	<0.110	0.759 L	<4.01 LX7	Exceed
MW-71	ASI	SZ	4/17/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	R	~
MW-71	ASI	SZ	10/16/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89L X7	~
MW-71	ASI	SZ	4/12/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-71	ASI	SZ	10/22/2018	<0.140	<0.086	<0.657 LX7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-71	ASI	SZ	4/11/2019	<0.133 L	<0.0816 L	<0.623 LX7	<1.09 LX7	<1.08 LX7	--	--	--	--	--	<0.173 L	<0.133 L	<0.112 L	<0.133 L	<4.09 LX7	~
MW-71	ASI	SZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-71	ASI	SZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-71	ASI	SZ	10/13/2020	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 X7	~
MW-71	ASI	SZ	4/22/2021	<0.0583	<0.0382	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.497	<6.34	<0.581	<3.17	<7.51 X7	~
MW-71	ASI	SZ	10/7/2021	<0.0572	<0.0375	<1.14 X7	<0.744 X7	<0.804 X7	--	--	--	--	--	<0.472	<6.03	<0.553	<3.01	<7.13 X7	~
MW-71	ASI	SZ	4/7/2022	<0.0575	<0.0377	<1.12 X7	<0.731 X7	<0.790 X7	--	--	--	--	--	<0.464	<5.92	<0.543	<2.96	<7.01 X7	~
MW-71	ASI	SZ	10/6/2022	<0.0532	0.151	<1.09 X7	<0.717 X7	<0.775 X7	--	--	--	--	--	<0.455	<5.81	<0.533	<2.91	<6.88 X7	~
MW-71	ASI	SZ	4/6/2023	<0.0583	<0.0382	<1.10	<0.719	<0.777	--	--	--	--	--	<0.457	<5.83	<0.534	<2.91	<6.90	~
MW-71	ASI	SZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.11 U	<0.748 U	<0.808 U	--	--	--	--	--	<3.94 U	<7.88 U	<4.75 U	<1.21 U	<10.0 U	~
MW-71	ASI	SZ	4/15/2024	37.0	68.1	<1.13 U	<0.763 U	<0.824 U	--	--	--	--	--	<4.02 U*	<8.04 U*	<4.84 U*	<1.24 U*	<10.2 U*	Exceed
MW-71	ASI	SZ	10/17/2024	<0.0598 U	<0.0392 U	<1.09 U	<0.730 U	<0.789 U	--	--	--	--	--	<3.85 U	<7.70 U	<4.64 U	<1.18 U	<9.77 U*	~
MW-71	ASI	SZ	05/06/25	0.0777 J p	<0.0391 U	<1.09 U	<0.731 U	<0.790 U	--	--	--	--	--	<3.85 U	<7.70 U	<4.64 U	<1.18 U	<9.77 U*	~
MW-72	Neut	IZ	12/29/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-72	Neut	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-72	Neut	IZ	10/7/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-72	Neut	IZ	4/20/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-72	Neut	IZ	10/12/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-72	Neut	IZ	4/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-72	Neut	IZ	10/17/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-72	Neut	IZ	4/17/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-72	Neut	IZ	10/18/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-72	Neut	IZ	4/11/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-72	Neut	IZ	10/9/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
MW-72	Neut	IZ	4/14/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	--	--	<0.99	<1.6	<1.1	<0.88	--	~
MW-72	Neut	IZ	10/24/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-72	Neut	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-72	Neut	IZ	10/19/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-72	Neut	IZ	4/13/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	~
MW-72	Neut	IZ	10/21/2010	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
MW-72	Neut	IZ	4/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-72	Neut	IZ	4/24/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-72	Neut	IZ	4/18/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-72	Neut	IZ	4/21/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-72	Neut	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-72	Neut	IZ	4/23/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-72	Neut	IZ	4/25/2022	<0.0572	<0.0375	<1.12 X7	<0.732 X7	<0.791 X7	--	--	--	--	--	<0.465	<5.93	<0.544	<2.97	<7.02 X7	~
MW-72	Neut	IZ	4/18/2024	12.3	25.2	<1.03 U	<0.694 U	<0.751 U	--	--	--	--	--	<3.66 U	<7.32 U	<4.41 U	<1.13 U	<9.29 U*	Exceed
MW-73	AOC2	SZ	12/18/2003	830	960	27	89	77	--	--	--	--	--	<9.8	<20	0.77 J	91	--	Exceed
MW-73	AOC2	SZ	4/22/2004	93	83	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	66	--	Exceed
MW-73	AOC2	SZ	10/14/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-73	AOC2	SZ	4/11/2005	100	110	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	42	--	Exceed
MW-73	AOC2	SZ	10/13/2005	<20	<20	<20	<20	<20	--	--	--	--	--	<20	<20	<20	<20	--	Exceed
MW-73	AOC2	SZ	4/13/2006	25	41	22	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	23	--	Exceed
MW-73	AOC2	SZ	10/18/2006	9.4 J	19	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	17	--	Exceed
MW-73	AOC2	SZ	4/10/2007	25	41	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	8.2 J	--	Exceed
MW-73	AOC2	SZ	10/4/2007	530	380	<5.2	<4.5	<4.9	--	--	--	--	--	<6.5	<3.2	<5.3	230	--	Exceed
MW-73	AOC2	SZ	4/16/2008	37	58	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	22	--	Exceed
MW-73	AOC2	SZ	10/29/2008	110	100	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	61	--	Exceed
MW-73	AOC2	SZ	4/20/2009	21	67.3	<0.998	1.45 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	7.12 J	--	Exceed
MW-73	AOC2	SZ	10/19/2009	21.3	23	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	56.7	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-73	AOC2	SZ	4/16/2010	45.4	73.2	<1.02	1.56 J	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	25.9	--	Exceed
MW-73	AOC2	SZ	10/21/2010	25.6	24	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	67	--	Exceed
MW-73	AOC2	SZ	4/21/2011	158	130	5.72 J	1.68 J	5.7 J	--	--	--	--	--	<1.10	<4.80	<1.44	73.6	<3.11 J	Exceed
MW-73	AOC2	SZ	4/26/2012	26.7 J	67.7 J	<1.01 J	<1.03 J	<1.45 J	--	--	--	--	--	<1.11 J	<4.85 J	<1.46 J	26.8 J	--	Exceed
MW-73	AOC2	SZ	4/21/2014	7.2 J	140	<0.59	2.7 J	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-73	AOC2	SZ	4/22/2016	21.3	90.3	<0.598 X7	2.50 J X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	8.76 J	<4.08 X7	Exceed
MW-73	AOC2	SZ	4/20/2018	<47.5	<32.0	<30.5 X7	<53.5 X7	<53.0 X7	--	--	--	--	--	<57.5	<65.5	<59.0	<34.5	<208 X7	~
MW-73	AOC2	SZ	4/22/2020	24.0	19.4	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	36.1	<4.12 X7	Exceed
MW-73	AOC2	SZ	4/27/2021	15.8	15.5	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.507	<6.48	<0.594	8.95 J	<7.66 X7	Exceed
MW-73	AOC2	SZ	4/25/2022	10.9	11.7	1.13 J X7	14.3 X7	5.46 J X7	--	--	--	--	--	<0.453	<5.78	<0.530	6.40 J	<6.85 X7	Exceed
MW-73	AOC2	SZ	4/8/2024	29.9	22.5	6.50 J	78.5	32.2 b	--	--	--	--	--	<4.05 U	<8.10 U	<4.88 U	32.7	<10.3 U	Exceed
MW-74	AOC2	SZ	12/19/2003	4	38	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	Exceed
MW-74	AOC2	SZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-74	AOC2	SZ	10/7/2004	6.2 J	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	Exceed
MW-74	AOC2	SZ	4/11/2005	<9.7	10	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-74	AOC2	SZ	10/13/2005	<9.8	11	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-74	AOC2	SZ	4/13/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-74	AOC2	SZ	10/18/2006	<9.7	8.3 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-74	AOC2	SZ	4/10/2007	1.9 J	11	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-74	AOC2	SZ	10/4/2007	0.81 J	6.1 J	<0.99	<0.86	<0.93	--	--	--	--	--	<1.2	<0.61	<1.0	<4.0	--	Exceed
MW-74	AOC2	SZ	4/14/2008	16	25	<1.0	1.9 J	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	1.4 J	--	Exceed
MW-74	AOC2	SZ	10/21/2008	<2.8	6.7 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-74	AOC2	SZ	4/20/2009	<2.83	8.61 J	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-74	AOC2	SZ	10/20/2009	<2.77	11	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-74	AOC2	SZ	4/16/2010	4.87 J	11	<1.01	1.16 J	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-74	AOC2	SZ	10/20/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09 J	<0.850	--	~
MW-74	AOC2	SZ	4/21/2011	<2.83	1.21 J	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-74	AOC2	SZ	10/13/2011	<2.77	11	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-74	AOC2	SZ	4/24/2012	<2.80	2.51 J	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	--	Exceed
MW-74	AOC2	SZ	10/17/2012	<2.77	1.88 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-74	AOC2	SZ	4/29/2013	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	<2.91	<3.14 L	~
MW-74	AOC2	SZ	10/24/2013	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<12 L	~
MW-74	AOC2	SZ	4/16/2014	3.3 J	8.5 J	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	Exceed
MW-74	AOC2	SZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-74	AOC2	SZ	4/21/2015	<0.91	4.0 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-74	AOC2	SZ	10/19/2015	<0.125	0.260 J	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-74	AOC2	SZ	4/19/2016	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28 L	<1.16	<0.676 L	<4.08 LX7	~
MW-74	AOC2	SZ	10/26/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-74	AOC2	SZ	4/19/2017	<0.950	0.998 J	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-74	AOC2	SZ	10/18/2017	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.2	<0.704	<4.24 X7	~
MW-74	AOC2	SZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-74	AOC2	SZ	10/26/2018	<1.01	<0.681	<0.649 LX7	<1.14 LX7	<1.13 LX7	--	--	--	--	--	<1.22	<1.39 L	<1.26 L	<0.734	<4.43 R	~
MW-74	AOC2	SZ	4/17/2019	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-74	AOC2	SZ	10/24/2019	1.81 J	1.58 J	<0.587 X7	2.85 J X7	<1.02 X7	--	--	--	--	--	<1.11 L	<1.26	<1.13 L	<0.663 L	<4.00 LX7	Exceed
MW-74	AOC2	SZ	4/22/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-74	AOC2	SZ	10/21/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<1.07	<0.130	<4.01 X7	~
MW-74	AOC2	SZ	4/28/2021	0.214	0.674	<10.3 X7	<10.3 X7	<10.3 X7	--	--	--	--	--	<0.486	<6.21	<0.569	<3.10	<7.35 X7	~
MW-74	AOC2	SZ	10/26/2021	4.48	7.86	<1.08 X7	<0.708 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.8 X7	Exceed
MW-74	AOC2	SZ	4/25/2022	<0.0598	0.325	<1.10 X7	<0.718 X7	<0.776 X7	--	--	--	--	--	<0.0456	<5.82	<0.534	<2.91	<6.89 X7	~
MW-74	AOC2	SZ	10/13/2022	2.00	2.95	<1.13 X7	<0.737 X7	1.21 J X7	--	--	--	--	--	<0.468	<5.98	<0.548	<2.99	<7.07 X7	Exceed
MW-74	AOC2	SZ	4/18/2023	<0.0579	0.122	<1.10	<0.723	<0.781	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93	~
MW-74	AOC2	SZ	10/16/2023	<0.0579 U	0.182	<1.06 U	<0.714 U	<0.772 U	--	--	--	--	--	<3.76 U	<7.52 U	<4.53 U	<1.16 U	<9.55 U*	~
MW-74	AOC2	SZ	4/8/2024	<0.0600 U	0.235	<1.15 U	<0.776 U	<0.839 U	--	--	--	--	--	<4.09 U	<8.18 U	<4.93 U	<1.26 U	<10.4 U	~
MW-74	AOC2	SZ	10/21/2024	1.80	1.29	<1.05 U	0.836 J	0.937 J	--	--	--	--	--	<3.74 U	<7.48 U	<4.51 U	<1.15 U	<9.49 U*	Exceed
MW-74	AOC2	SZ	05/01/25	0.196	0.0962 J	<1.08 U	<0.727 U	<0.786 U	--	--	--	--	--	<3.83 U	<7.67 U	<4.62 U	<1.18 U	<9.73 U*	~
MW-75	EI	SZ	12/19/2003	<1	<1	<10	<10	<10	--	--	--	--	--	<10	<1	<10	<1	<2.1	~
MW-75	EI	SZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-75	EI	SZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-75	EI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-75	EI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-75	EI	SZ	4/20/2006	0.094 J	<0.99	<0.99	0.12 J	0.09 J	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	<5	~
MW-75	EI	SZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-75	EI	SZ	4/20/2007	7.2	3.1	1	13	8.3	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	Exceed
MW-75	EI	SZ	10/11/2007	160	69	12	180	110	--	--	--	--	--	<0.067	<0.10	<0.052	1.4	--	Exceed
MW-75	EI	SZ	4/8/2008	8.3	<0.081	0.1 J	1.5	0.92 J	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	Exceed
MW-75	EI	SZ	10/17/2008	0.15 J	0.19 J	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-75	EI	SZ	4/22/2009	0.3 J	0.702 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-75	EI	SZ	10/28/2009	0.146 J	0.601 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-75	EI	SZ	4/6/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-75	EI	SZ	10/12/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692 J	<0.104	<0.0539	<0.0974	<1.76	~
MW-75	EI	SZ	4/15/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-75	EI	SZ	10/19/2011	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 J	~
MW-75	EI	SZ	4/11/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-75	EI	SZ	10/23/2012	0.714 J	0.223 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-75	EI	SZ	4/15/2013	<0.0580	<0.0840	<0.0856	0.0963 J	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76	~
MW-75	EI	SZ	10/15/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-75	EI	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-75	EI	SZ	10/23/2014	0.41 J	--	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-75	EI	SZ	4/16/2015	<0.14	<0.087	<0.66	<1.2	<1.2	--	--	--	--	--	<0.18	<0.14	<0.12	<0.14	<4.4	~
MW-75	EI	SZ	10/7/2015	0.369 J	0.919 J	<0.617	<1.08	<1.07	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05	~
MW-75	EI	SZ	4/5/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-75	EI	SZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-75	EI	SZ	4/13/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-75	EI	SZ	10/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-75	EI	SZ	4/11/2018	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 LX7	~
MW-75	EI	SZ	10/11/2018	<0.140	<0.086	<0.657 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-75	EI	SZ	4/10/2019	<0.135	<0.0833	<0.636 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18 X7	~
MW-75	EI	SZ	10/17/2019	<0.125 L	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163 L	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-75	EI	SZ	4/13/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-75	EI	SZ	10/13/2020	.527 J	.318 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-75	EI	SZ	4/15/2021	0.0714 J	<0.0380	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.494	<6.30	<0.578	<3.15	<7.46 X7	~
MW-75	EI	SZ	10/7/2021	0.0735 J	<0.0366	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.86	<6.78 X7	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-75	EI	SZ	4/7/2022	0.618	0.999	<1.26 X7	<0.823 X7	<0.890 X7	--	--	--	--	--	<0.523	<6.67	<0.612	<3.34	<7.90 X7	~
MW-75	EI	SZ	10/10/2022	<0.0594	<0.0390	<1.12 X7	<0.733 X7	<0.792 X7	--	--	--	--	--	<0.465	<5.94	<0.545	<2.97	<7.03 X7	~
MW-75	EI	SZ	4/6/2023	<0.0581	<0.0381	<1.09	<0.711	<0.768	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82	~
MW-75	EI	SZ	10/5/2023	<0.0553 U*	<0.0363 U	<1.20 U	<0.805 U	<0.870 U	--	--	--	--	--	<4.24 U	<8.49 U	<5.11 U	<1.31 U	<10.8 U	~
MW-75	EI	SZ	4/18/2024	1.77	3.83	<1.07 U	0.879 J b	<0.776 U	--	--	--	--	--	<3.78 U	<7.56 U	<4.56 U	<1.16 U	<9.60 U*	Exceed
MW-75	EI	SZ	10/17/2024	0.486 p	1.52	<1.02 U	1.23 J	1.23 J	--	--	--	--	--	<3.63 U	<7.25 U	<4.37 U	<1.12 U	<9.21 U*	Exceed
MW-75	EI	SZ	05/01/25	<0.0618 U	<0.0405 U	<1.07 U	<0.723 U	<0.781 U	--	--	--	--	--	<3.81 U	<7.62 U	<4.59 U	<1.17 U	<9.67 U*	~
MW-76	EI	SZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-76	EI	SZ	4/22/2004	0.11 J	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-76	EI	SZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-76	EI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-76	EI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-76	EI	SZ	4/20/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-76	EI	SZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-76	EI	SZ	4/20/2007	14	5.8	1.7	21	13	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	Exceed
MW-76	EI	SZ	10/11/2007	13	5.8	1.4	20	13	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	Exceed
MW-76	EI	SZ	4/9/2008	5.7	<0.081	<0.083	0.99	0.64 J	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	Exceed
MW-76	EI	SZ	10/16/2008	1.2	0.44 J	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-76	EI	SZ	4/22/2009	<0.0569	0.207 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-76	EI	SZ	10/27/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-76	EI	SZ	4/8/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-76	EI	SZ	10/12/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-76	EI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-76	EI	SZ	10/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-76	EI	SZ	4/11/2012	<0.0575 J	<0.0831 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	--	~
MW-76	EI	SZ	10/9/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-76	EI	SZ	4/22/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-76	EI	SZ	10/18/2013	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	0.84 J	<4.0 L	~
MW-76	EI	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-76	EI	SZ	10/24/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	0.17 J	<3.9	~
MW-76	EI	SZ	4/16/2015	<0.14	<0.087	<0.66	<1.2	<1.2	--	--	--	--	--	<0.18	<0.14	<0.12	<0.14	<4.4	~
MW-76	EI	SZ	10/13/2015	<0.137	<0.0842	<0.643	<1.13	<1.12	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22	~
MW-76	EI	SZ	4/5/2016	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-76	EI	SZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.533 L	<3.86 LX7	~
MW-76	EI	SZ	4/13/2017	<0.148	<0.0909	<0.694 X7	<1.22 X7	<1.20 X7	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56 LX7	~
MW-76	EI	SZ	10/12/2017	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.01 LX7	~
MW-76	EI	SZ	4/11/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-76	EI	SZ	10/11/2018	<0.143	<0.0879	<0.671 X7	<1.18 X7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 X7	~
MW-76	EI	SZ	4/10/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-76	EI	SZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-76	EI	SZ	4/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-76	EI	SZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-76	EI	SZ	4/15/2021	<0.0631	<0.0414	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.517	<6.60	<0.605	<3.30	<7.81 X7	~
MW-76	EI	SZ	10/7/2021	0.203	<0.0382	<1.09 X7	<0.715 X7	<0.773 X7	--	--	--	--	--	<0.454	<5.8	<0.532	<2.9	<6.86 X7	~
MW-76	EI	SZ	4/7/2022	<0.0590	<0.0387	<1.20 X7	<0.786 X7	<0.850 X7	--	--	--	--	--	<0.499	<6.38	<0.584	<3.19	<7.55 X7	~
MW-76	EI	SZ	10/10/2022	<0.0627	<0.0411	<1.08 X7	<0.706 X7	<0.763 X7	--	--	--	--	--	<0.448	<5.72	<0.525	<2.86	<6.77 X7	~
MW-76	EI	SZ	4/6/2023	<0.0575	<0.0377	<1.09	<0.711	<0.768	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82	~
MW-76	EI	SZ	10/10/2023	<0.0581 U	<0.0381 U	<1.09 U	<0.734 U	<0.793 U	--	--	--	--	--	<3.87 U	<7.73 U	<4.66 U	<1.19 U	<9.81 U*	~
MW-76	EI	SZ	4/22/2024	0.0962 J	0.0776 J	<1.11 U	4.95 J	3.34 J	--	--	--	--	--	<3.93 U	<7.86 U	<4.74 U	<1.21 U	<9.98 U*	~
MW-76	EI	SZ	10/18/2024	<0.0604 U	<0.0396 U	<1.15 UH	<0.773 UH	<0.835 UH	--	--	--	--	--	<4.07 UH	<8.15 UH	<4.91 UH	<1.25 UH	<10.3 UH*	~
MW-76	EI	SZ	10/18/2024	<0.0604 U	<0.0396 U	<1.07 U	<0.722 U	<0.780 U						<3.80 U	<7.61 U	<4.58 U	<1.17 U	<9.65 U*	~
MW-76	EI	SZ	05/05/25	<0.0620 U	<0.0407 U	<1.08 U	<0.726 U	<0.785 U	--	--	--	--	--	<3.83 U	<7.65 U*	<4.61 U	<1.18 U	<9.71 U*	~
MW-77	EI	SZ	12/19/2003	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-77	EI	SZ	4/26/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-77	EI	SZ	10/14/2004	0.96	3.7	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	0.3 J	0.24 J	0.68 J	75	Exceed
MW-77	EI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-77	EI	SZ	10/26/2005	6.9	4.2	0.99	14	7.3	--	--	--	--	--	<0.48	<0.96	<0.48	<0.48	<3.8	Exceed
MW-77	EI	SZ	4/20/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-77	EI	SZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-77	EI	SZ	4/20/2007	7.4	2.9	0.9 J	12	7.5	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	Exceed
MW-77	EI	SZ	10/11/2007	31	14	3.3	45	27	--	--	--	--	--	<0.067	0.13 J	<0.052	0.31 J	--	Exceed
MW-77	EI	SZ	4/9/2008	7.5	<0.081	<0.083	0.98	0.63 J	--	--	--	--	--	<0.067	<0.10	<0.052	0.12 J	<1.7	Exceed
MW-77	EI	SZ	10/17/2008	2.7	1.1	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	Exceed
MW-77	EI	SZ	4/22/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-77	EI	SZ	10/27/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-77	EI	SZ	4/8/2010	<0.0558	<0.0808	<0.0824	<0.0647	<0.0730	--	--	--	--	--	<0.0666	<0.100	<0.0518	<0.0937	--	~
MW-77	EI	SZ	10/14/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-77	EI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-77	EI	SZ	10/19/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-77	EI	SZ	4/12/2012	<0.0575 J	<0.0831 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	--	~
MW-77	EI	SZ	10/9/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-77	EI	SZ	4/15/2013	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77	~
MW-77	EI	SZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-77	EI	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-77	EI	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-77	EI	SZ	4/16/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-77	EI	SZ	10/13/2015	<0.143	<0.0879	<0.671	<1.18	<1.16	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41	~
MW-77	EI	SZ	4/5/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-77	EI	SZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-77	EI	SZ	4/13/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	1.55	<0.112	<0.133	<4.09 LX7	~
MW-77	EI	SZ	10/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-77	EI	SZ	4/11/2018	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-77	EI	SZ	10/11/2018	<0.146	<0.0899	<0.687 X7	<1.20 X7	<1.19 X7	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51 X7	~
MW-77	EI	SZ	4/10/2019	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-77	EI	SZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-77	EI	SZ	4/13/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-77	EI	SZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-77	EI	SZ	4/15/2021	<0.0568	<0.0373	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.498	<6.36	<0.583	<3.18	<7.52 X7	~
MW-77	EI	SZ	10/7/2021	<0.0551	<0.0361	<1.22 X7	<0.797 X7	<0.862 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.65 X7	~
MW-77	EI	SZ	4/8/2022	<0.0590	<0.0387	<1.11 X7	<0.728 X7	<0.788 X7	--	--	--	--	--	<0.463	<5.91	<0.541	<2.95	<6.99 X7	~
MW-77	EI	SZ	10/10/2022	<0.0598	<0.0392	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.85 X7	~
MW-77	EI	SZ	4/6/2023	<0.0581	<0.0381	<1.14	<0.746	<0.807	--	--	--	--	--	<0.474	<6.05	<0.555	<3.02	<7.16	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-77	EI	SZ	10/12/2023	<0.0567 U	<0.0372 U	<1.09 U	<0.736 U	<0.796 U	--	--	--	--	--	<3.88 U	<7.76 U	<4.67 U	<1.19 U	<9.84 U*	~
MW-77	EI	SZ	4/18/2024	<0.0625 U	<0.0410 U	<1.22 U	<0.819 U	<0.886 U	--	--	--	--	--	<4.32 U	<8.64 U*	<5.20 U	<1.33 U	<11.0 U*	~
MW-77	EI	SZ	10/17/2024	<0.0608 U	<0.0399 U	<1.04 U	<0.702 U	<0.759 U	--	--	--	--	--	<3.70 U	<7.40 U	<4.46 U	<1.14 U	<9.40 U*	~
MW-77	EI	SZ	05/05/25	<0.0622 U	<0.0408 U	<1.10 U	<0.742 U	<0.802 U	--	--	--	--	--	<3.91 U	<7.82 U*	<4.71 U	<1.20 U	<9.92 U*	~
MW-78	Neut	SZ	12/19/2003	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-78	Neut	SZ	4/26/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-78	Neut	SZ	10/12/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-78	Neut	SZ	4/12/2005	<9.7	7 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-78	Neut	SZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-78	Neut	SZ	4/13/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-78	Neut	SZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-78	Neut	SZ	4/10/2007	<9.6	1.2 J	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-78	Neut	SZ	10/9/2007	3.8 J	4.8 J	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-78	Neut	SZ	4/14/2008	<2.8	2.3 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-78	Neut	SZ	10/24/2008	<2.8	4 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-78	Neut	SZ	4/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-78	Neut	SZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-78	Neut	SZ	4/21/2010	5.03 J	8.69 J	<0.998	1.25 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-78	Neut	SZ	10/21/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08 J	<0.841	--	~
MW-78	Neut	SZ	4/21/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-78	Neut	SZ	4/24/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-78	Neut	SZ	4/16/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-78	Neut	SZ	4/21/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.130	<0.663	<4.00 X7	~
MW-78	Neut	SZ	4/20/2018	3.88 J	5.39 J	<0.610 X7	4.92 J X7	2.27 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-78	Neut	SZ	4/23/2020	<0.950	<0.640	<0.610 X7	<1.07 LX7	<1.06 X7	--	--	--	--	--	<1.15 L	<1.31	<1.18	<0.690	<4.16 X7	~
MW-78	Neut	SZ	4/25/2022	<0.0587	0.115	<1.08 X7	<0.706 X7	<0.763 X7	--	--	--	--	--	<0.448	<5.73	<0.525	<2.86	<6.77 X7	~
MW-78	Neut	SZ	4/18/2024	2.45	5.25	<1.04 U	<0.697 U	<0.754 U	--	--	--	--	--	<3.67 U	<7.35 U	<4.43 U	<1.13 U	<9.33 U*	~
MW-79	ASI	SZ	12/12/2005	<0.24	<0.24	<0.24	0.024 J	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-79	ASI	SZ	4/20/2006	0.15 J	0.31 J	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-79	ASI	SZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-79	ASI	SZ	4/20/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	~
MW-79	ASI	SZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-79	ASI	SZ	4/10/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-79	ASI	SZ	10/17/2008	<0.057	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-79	ASI	SZ	4/23/2009	<0.0558	<0.0808	<0.0824	<0.0647	<0.0730	--	--	--	--	--	<0.0666	<0.100	<0.0518	<0.0937	--	~
MW-79	ASI	SZ	10/28/2009	0.149 J	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-79	ASI	SZ	4/8/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-79	ASI	SZ	10/14/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-79	ASI	SZ	4/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-79	ASI	SZ	10/26/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
MW-79	ASI	SZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-79	ASI	SZ	10/26/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-79	ASI	SZ	4/22/2013	<0.0592	<0.0857	<0.0874	<0.0686	<0.0775	--	--	--	--	--	<0.0706	<0.106	<0.0549	<0.0994	<1.79 L	~
MW-79	ASI	SZ	10/18/2013	<0.15	<0.091	<0.69	<1.2	<1.2	--	--	--	--	--	<0.19	<0.15	<0.13	<0.15	<4.6 L	~
MW-79	ASI	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-80	DNTL	IZ	10/15/2004	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-80	DNTL	IZ	4/6/2005	0.082 J	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-80	DNTL	IZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-80	DNTL	IZ	4/20/2006	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1	<1	<1	<5	~
MW-80	DNTL	IZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-80	DNTL	IZ	4/23/2007	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	--	~
MW-80	DNTL	IZ	10/12/2007	9.8	4.2	0.91 J	13	8	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	Exceed
MW-80	DNTL	IZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-80	DNTL	IZ	10/15/2008	<0.057	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-80	DNTL	IZ	4/23/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-80	DNTL	IZ	10/27/2009	0.366 J	1.48	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	Exceed
MW-80	DNTL	IZ	4/6/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-80	DNTL	IZ	10/14/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692 J	<0.104	<0.0539	<0.0974	<1.76	~
MW-80	DNTL	IZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-80	DNTL	IZ	10/26/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-80	DNTL	IZ	4/17/2012	0.493 J	0.222 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-80	DNTL	IZ	10/30/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-80	DNTL	IZ	4/19/2013	<0.0569	<0.0823	<0.0840	0.128 J	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 L	~
MW-80	DNTL	IZ	10/17/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-80	DNTL	IZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-80	DNTL	IZ	10/23/2014	0.51 J	1.3	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-80	DNTL	IZ	4/16/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-80	DNTL	IZ	10/7/2015	0.358 J	0.704 J	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-80	DNTL	IZ	4/5/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-80	DNTL	IZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-80	DNTL	IZ	4/13/2017	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 LX7	~
MW-80	DNTL	IZ	10/12/2017	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.01 LX7	~
MW-80	DNTL	IZ	4/12/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-80	DNTL	IZ	10/22/2018	<0.140 L	<0.086 L	<0.657 LX7	<1.15 LX7	<1.14 LX7	--	--	--	--	--	<0.183 L	<0.140 L	<0.118 L	<0.140 L	<4.31 R	~
MW-80	DNTL	IZ	4/15/2019	<0.143	<0.0879	<0.671 LX7	<1.18 LX7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 X7	~
MW-80	DNTL	IZ	10/17/2019	<0.133 L	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173 L	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-80	DNTL	IZ	4/15/2020	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131 L	<4.05 RX7	~
MW-80	DNTL	IZ	10/13/2020	0.340 J	0.222 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-80	DNTL	IZ	4/15/2021	<0.0663	<0.0435	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.519	<6.63	<0.607	<3.31	<7.84 X7	~
MW-80	DNTL	IZ	10/11/2021	0.0711 J	<0.0377	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.453	<5.79	<0.530	<2.89	<6.85 X7	~
MW-80	DNTL	IZ	4/8/2002	<0.0606	<0.0397	<1.07 X7	<0.704 X7	<0.761 X7	--	--	--	--	--	<0.447	<5.70	<0.523	<2.85	<6.75 X7	~
MW-80	DNTL	IZ	10/11/2022	1.24	1.57	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.87	<6.78 X7	Exceed
MW-80	DNTL	IZ	4/6/2023	<0.0572	<0.0375	<1.14	<0.745	<0.806	--	--	--	--	--	<0.473	<6.04	<0.554	<3.02	<7.15	~
MW-80	DNTL	IZ	10/12/2023	<0.0561 U	<0.0368 U	<1.16 U	<0.777 U	<0.840 U	--	--	--	--	--	<4.10 U	<8.19 U	<4.94 U	<1.26 U	<10.4 U*	~
MW-80	DNTL	IZ	4/3/2024	0.129	<0.0399 U	<1.13 U	<0.763 U	<0.825 U	--	--	--	--	--	<4.02 U	<8.04 U	<4.85 U	<1.24 U	<10.2 U*	~
MW-80 1st Run	***DNTL***	***USZ***	***10/21/2024***	**1.71**	**1.62**	**<1.16 U**	**<0.791 U**	**<0.855 U**	**--**	**--**	**--**	**--**	**--**	**<4.17 U**	**<8.34 U**	**<5.03 U**	**<1.28 U**	**<10.6 U***	**Exceed**
MW-80 Resample	***DNTL***	***USZ***	***11/19/2024***			--	--	--	--	--	--	--	--	--	--	--	--	**<3.23 U**	~
MW-80	DNTL	IZ	05/13/25	<0.0594 U	<0.0390 U	<1.14 U	<0.764 U	<0.826 U	--	--	--	--	--	<4.03 U	<8.05 U	<4.85 U	<1.24 U	<10.2 U*	~
MW-81	Neut	IZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-81	Neut	IZ	4/21/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-81	Neut	IZ	10/22/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-81	Neut	IZ	4/13/2005	<9.7	1 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-81	Neut	IZ	10/17/2005	<9.7	8.7 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-81	Neut	IZ	4/12/2006	<9.9	13	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
MW-81	Neut	IZ	10/13/2006	<9.8	4.9 J	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-81	Neut	IZ	4/10/2007	<9.8	3 J	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-81	Neut	IZ	10/4/2007	4.7 J	4.8 J	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-81	Neut	IZ	4/10/2008	12	6.6 J	<1.0	1.7 J	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	Exceed
MW-81	Neut	IZ	10/29/2008	<2.8	4.8 J	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	Exceed
MW-81	Neut	IZ	4/17/2009	<2.85	1.24 J	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
MW-81	Neut	IZ	10/20/2009	<2.83	2.86 J	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-81	Neut	IZ	4/15/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-81	Neut	IZ	10/20/2010	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	<0.875	--	~
MW-81	Neut	IZ	4/21/2011	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<1.13	<4.94	<1.49	<0.866	<3.20 J	~
MW-81	Neut	IZ	4/25/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-81	Neut	IZ	4/21/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-81	Neut	IZ	4/22/2016	<0.969	0.857 J	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-81	Neut	IZ	4/24/2018	<1.00	<0.674	<0.642 X7	3.91 J X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-81	Neut	IZ	5/1/2020	<1.09	<0.736	<0.701 X7	<1.23 X7	<1.22 X7	--	--	--	--	--	<1.32	<1.51	<1.36	<0.793	<4.78 X7	~
MW-81	Neut	IZ	4/26/2022	0.396	0.357	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.553	<3.02	<7.14 X7	~
MW-81	Neut	IZ	4/5/2024	0.0761 J	0.0699 J	<1.37 U	<0.924 U	<0.999 U	--	--	--	--	--	<4.87 U	<9.74 U	<5.87 U	<1.50 U	<12.4 U*	~
MW-82	DNT	SZ	10/26/2005	65000	41000	5900 J	82000	47000	--	--	--	--	--	<20	110	36 J	740	--	Exceed
MW-82	DNT	SZ	4/17/2006	140000	62000	19000 J	270000	160000	--	--	--	--	--	<98	350	79 J	54 J	--	Exceed
MW-82	DNT	SZ	10/18/2006	57000	37000	5500	61000	39000	--	--	--	--	--	<500	440 J	<500	940	--	Exceed
MW-82	DNT	SZ	4/16/2007	15000	11000	1200 J	19000	12000	--	--	--	--	--	<96	6.5 J	<96	260	--	Exceed
MW-82	DNT	SZ	10/10/2007	78000	41000	6300 J	93000	55000	--	--	--	--	--	<13	12 J	29 J	550	--	Exceed
MW-82	DNT	SZ	4/25/2012	3630	1910	323 J	4510	2630	--	--	--	--	--	<1.10	6.47 J	<1.44	35	--	Exceed
MW-82	DNT	SZ	10/25/2013	4400	2600	410	4800	2900	--	--	--	--	--	<1.1	<1.3	<1.1	4.4 J	<4.0	Exceed
MW-82	DNT	SZ	6/3/2014	<4.6	200	22 J	100	30 J	--	--	--	--	--	<5.6	<6.4	<5.7	6.2 J	<20	Exceed
MW-82R	DNTU-AOC1	SZ	4/21/2017	43100	31400	7230 X7	112000 X7	62900 X7	--	--	--	--	--	<11.1	28.6 J	<56.7	1090	<200 X7	Exceed
MW-82R	DNTU-AOC1	SZ	4/20/2018	17,800	10,600	3,060 X7	49,500 X7	24,300 X7	--	--	--	--	--	<57.5	<65.5	<59.0	581	<208 X7	Exceed
MW-82R	DNTU-AOC1	SZ	5/1/2020	45100	20100	15800 X7	155000 X7	108000 X7	--	--	--	--	--	<59.9	1050	<61.5	3290	<217 X7	Exceed
MW-82R	DNTU-AOC1	SZ	4/26/2022	35000	18300	15300 X7	186000 X7	108000 X7	--	--	--	--	--	<2.25	293	49.1	1350	<33.9 X7	Exceed
MW-82R	DNTU-AOC1	SZ	4/24/2024	45800	17700	25300	323000	205000	--	--	--	--	--	<4.12 U	22.9	51.6	5970	<10.5 U	Exceed
MW-83	DNT	SZ	10/26/2005	50000	23000	9300 J	130000	71000	--	--	--	--	--	<100	390	55 J	1900 E	--	Exceed
MW-83	DNT	SZ	4/17/2006	82000	66000	6500 J	93000	56000	--	--	--	--	--	<100	9.1 J	49 J	910	--	Exceed
MW-83	DNT	SZ	10/18/2006	66000	28000	10000 J	140000	90000	--	--	--	--	--	<500	200 J	81 J	5000	--	Exceed
MW-83	DNT	SZ	4/16/2007	77000	25000	12000	140000	87000	--	--	--	--	--	<97	49 J	110	4700	--	Exceed
MW-83	DNT	SZ	10/10/2007	91000	32000	10000 J	160000	98000	--	--	--	--	--	<12	45 J	83 J	2600 J	--	Exceed
MW-84	DNT	SZ	4/22/2010	1700	1090	740	9240	6270	--	--	--	--	--	<0.956	16.6	3.35 J	120	--	Exceed
MW-84	DNT	SZ	10/25/2010	975	495	338	2650	2700	--	--	--	--	--	<9.75	<15.7	<11.0	41.7 J	--	Exceed
MW-84	DNT	SZ	4/26/2011	544 J	335 J	259 J	2310 J	1520 J	--	--	--	--	--	<11.2 J	<49.0 J	<14.7 J	45 J	<31.7 J	Exceed
MW-84	DNT	SZ	4/25/2012	204	205	186 J	3100	1850	--	--	--	--	--	<1.11	289	<1.46	18.8	--	Exceed
MW-84	DNT	SZ	2/19/2013	3700	3500	2870	42100	21800	--	--	--	--	--	<0.956	--	--	390	5930 J	Exceed
MW-84	DNT	SZ	10/25/2013	1000	620	460	7500	4600	--	--	--	--	--	<17	54 J	<17	48 J	1400	Exceed
MW-84	DNT	SZ	6/3/2014	230	150	96 J	1300	900	--	--	--	--	--	<11	<13	<11	<6.7	<40	Exceed
MW-84R	DNTU-AOC1	IZ	4/21/2017	37500	19400	8570 X7	131000 X7	65100 X7	--	--	--	--	--	<11.3	410	<116	2,160	<408 X7	Exceed
MW-84R	DNTU-AOC1	IZ	4/20/2018	49,000	24,700	11,400 X7	184,000 X7	83,400 X7	--	--	--	--	--	<57.5	338 J	<59.0	2,750	<208 X7	Exceed
MW-84R	DNTU-AOC1	IZ	5/1/2020	3580	2360	686 X7	8250 X7	7120 X7	--	--	--	--	--	<1.16	50.4	<1.19	279 J	<4.20 X7	Exceed
MW-84R	DNTU-AOC1	IZ	4/26/2022	12100	8950	4260 X7	46100 X7	36500 X7	--	--	--	--	--	<2.36	<30.1	10.7 J	480	<35.6 X7	Exceed
MW-84R	DNTU-AOC1	IZ	4/24/2024	16100	7950	7620	83000	55900	--	--	--	--	--	<4.10 U	<8.20 U	6.14 J	414	<10.4 U	Exceed
MW-85	DNT	SZ	4/8/2010	<0.0563	0.746 J	0.604 J	8.07	4.54	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	Exceed
MW-85	DNT	SZ	10/13/2010	<0.0569	<0.0823	0.445 J	6.37	3.53	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	Exceed
MW-85	DNT	SZ	4/18/2011	<0.0569	0.575 J	1.5	4.26	3.34	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	Exceed
MW-85	DNT	SZ	10/25/2011	<2.77	<0.987	<0.998	3.81 J	1.98 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-85	DNT	SZ	4/17/2012	<0.0575	<0.0831	0.98	13.4	7.61	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	Exceed
MW-85	DNT	SZ	10/26/2012	<0.0563	<0.0815	0.537 J	8.33	4.17	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	Exceed
MW-85	DNT	SZ	4/18/2013	<0.0586	1.76	0.797 J	12.9	7.19	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77 L	Exceed
MW-85	DNT	SZ	10/18/2013	0.28 J	0.93 J	0.9 J	10	6.3	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 I	Exceed
MW-85	DNT	SZ	4/10/2014	<0.13	1.00	<0.60	7.4	4.3 J	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	Exceed
MW-85	DNT	SZ	10/24/2014	0.42 J	1.10	1.2 J	8.8	5.7	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	Exceed
MW-85	DNT	SZ	4/17/2015	1.2 J	0.60 J	1.4 J	12	6.9	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	Exceed
MW-85	DNT	SZ	10/9/2015	0.448 J	1.37	1.26 J	11.8	7.80	--	--	--	--	--	<0.189	<0.144	<0.122	<0.144	<4.46	Exceed
MW-85	DNT	SZ	4/6/2016	0.715 J	2.03	1.48 J X7	15.6 X7	10.2 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	Exceed
MW-85	DNT	SZ	10/25/2016	<0.133	<0.0816	<0.623 X7	8.56 X7	3.48 J X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	Exceed
MW-85	DNT	SZ	4/14/2017	0.731 J	1.20	1.43 J X7	16.6 X7	9.97 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	Exceed
MW-85	DNT	SZ	10/17/2017	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 LX7	~
MW-85	DNTU	SZ	4/16/2018	2.47	4.34	2.25 J X7	29.4 X7	16.5 X7	--	--	--	--	--	<0.165	<0.126 L	<0.107	<0.126 L	R	Exceed
MW-85	DNTU	SZ	10/22/2018	3.42	6.56	2.34 JLX7	37.3 X7	16.7 X7	--	--	--	--	--	<0.185	0.147 J	<0.120	<0.141	<4.36 X7	Exceed
MW-85	ASI	SZ	4/10/2019	2.85	3.91	2.45 J X7	26.2 X7	16.3 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	Exceed
MW-85	ASI	SZ	10/23/2019	1.39 J	2.19	1.46 J X7	14.1 X7	8.78 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130 L	<4.01 LX7	Exceed
MW-85	ASI	SZ	4/15/2020	2.38	3.72	2.12 J X7	33.0 X7	14.3 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	Exceed
MW-85	ASI	SZ	10/14/2020	3.40	3.89	2.77 J X7	23.8 X7	18.9 X7	--	--	--	--	--	<0.167	<0.127	<0.108	.370 J	<3.93 X7	Exceed
MW-85	ASI	SZ	4/19/2021	1.86	1.79	<12.2 X7	13.4 X7	<12.2 X7	--	--	--	--	--	<0.574	<7.33	<0.672	<3.67	<8.68X7	Exceed
MW-85	ASI	SZ	10/11/2021	1.74	1.07	<1.13 X7	6.36 J X7	4.48 J X7	--	--	--	--	--	<0.471	<6.01	<0.551	<3.0	<7.11 X7	Exceed
MW-85	ASI	SZ	4/8/2022	2.32	2.33	1.53 J X7	18.2 X7	11.9 X7	--	--	--	--	--	<0.446	<5.69	<0.522	<2.85	<6.74 X7	Exceed
MW-85	ASI	SZ	10/10/2022	3.51	3.03	1.24 J X7	13.6 X7	9.41 J X7	--	--	--	--	--	<0.461	<5.89	<0.540	<2.95	<6.97 X7	Exceed
MW-85	ASI	SZ	4/6/2023	1.59	1.32	<1.15	7.76 J	5.23 J	--	--	--	--	--	<0.477	<6.09	<0.559	<3.05	<7.21	Exceed
MW-85	ASI	SZ	10/11/2023	0.765	0.574	<1.14 U	3.54 J	2.21 J	--	--	--	--	--	<4.05 U	<8.09 U	<4.88 U	<1.24 U	<10.3 U*	~
MW-85	ASI	SZ	4/19/2024	1.42	1.00	<1.05 U	5.47 J	3.97 J	--	--	--	--	--	<3.72 U	<7.43 U*	<4.48 U	<1.14 U	<9.43 U*	Exceed
MW-85	ASI	SZ	10/22/2024	0.565	0.392	<1.04 U	3.66 J	2.78 J	--	--	--	--	--	<3.70 U	<7.40 U	<4.46 U	<1.14 U	<9.39 U*	~
MW-85	ASI	SZ	05/06/25	0.761	0.300	<1.10 U	3.40 J	1.88 J	--	--	--	--	--	<3.91 U	<7.81 U	<4.71 U	<1.20 U	<9.92 U*	~
MW-86	DNT	SZ	10/13/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-86	DNT	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-86	DNT	SZ	10/19/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-86	DNT	SZ	4/16/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-86	DNT	SZ	10/30/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-86	DNT	SZ	4/17/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-86	DNT	SZ	10/18/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-86	DNT	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-86	DNT	SZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	~
MW-86	DNT	SZ	4/16/2015	0.29 J	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-86	DNT	SZ	10/9/2015	<0.133	<0.0816	<0.623	<1.09	<1.08	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09	~
MW-86	DNT	SZ	4/6/2016	<0.125	0.166 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~

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Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-86	DNT	SZ	10/25/2016	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-86	DNT	SZ	4/14/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-86	DNT	SZ	10/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-86	DNTU	SZ	4/16/2018	2.73 J	4.77 J	2.30 J X7	30.4 J X7	16.9 J X7	--	--	--	--	--	<0.163 J	<0.125 J	<0.106 J	<0.125 J	<3.86 J X7	Exceed
MW-86	DNTU	SZ	5/30/2018	<0.130	<0.0800	<0.617	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.611	<0.131	<0.111	<0.130	<4.05 X7	~
MW-86	DNTU	SZ	10/25/2018	<0.141	<0.087	<0.664 LX7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141 L	<0.120 L	<0.141 L	<4.36 R	~
MW-86	ASI	SZ	4/11/2019	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-86	ASI	SZ	10/23/2019	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131 L	<4.05 LX7	~
MW-86	ASI	SZ	4/15/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-86	ASI	SZ	10/14/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-86	ASI	SZ	4/19/2021	0.336	0.159	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.500	<6.39	<0.585	<3.19	<7.56 X7	~
MW-86	ASI	SZ	10/11/2021	<0.0579	<0.038	<1.16 X7	<0.759 X7	<0.821 X7	--	--	--	--	--	<0.482	<6.16	<0.564	<3.08	<7.28 X7	~
MW-86	ASI	SZ	4/8/2022	<0.0572	<0.0375	<1.08 X7	<0.708 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.80 X7	~
MW-86	ASI	SZ	10/10/2022	<0.0614	<0.0403	<1.08 X7	<0.708 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.527	<2.87	<6.80 X7	~
MW-86	ASI	SZ	4/10/2023	<0.0588	<0.0386	<1.10*	<0.721*	<0.779*	--	--	--	--	--	<0.458	<5.85	<0.536	<2.92	<6.92*	~
MW-86	ASI	SZ	10/11/2023	<0.0581 U	<0.0381 U	<1.14 U	<0.768 U	<0.831 U	--	--	--	--	--	<4.05 U	<8.10 U	<4.88 U	<1.25 U	<10.3 U*	~
MW-86	ASI	SZ	4/19/2024	<0.0608 U	<0.0399 U	<1.06 U	<0.715 U	<0.773 U	--	--	--	--	--	<3.77 U	<7.54 U*	<4.54 U	<1.16 U	<9.57 U*	~
MW-86	ASI	SZ	10/21/2024	<0.0610 U	<0.0400 U	<1.08 U	<0.729 U	<0.789 U	--	--	--	--	--	<3.84 U	<7.69 U	<4.63 U	<1.18 U	<9.76 U*	~
MW-86	ASI	SZ	05/06/25	<0.0602 U	<0.0395 U	<1.10 U	<0.742 U	<0.802 U	--	--	--	--	--	<3.91 U	<7.82 U	<4.71 U	<1.20 U	<9.92 U*	~
MW-87	ASI	SZ	4/8/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-87	ASI	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-87	ASI	SZ	4/18/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-87	ASI	SZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-87	ASI	SZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-87	ASI	SZ	10/26/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-87	ASI	SZ	4/18/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 L	~
MW-87	ASI	SZ	10/18/2013	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-87	ASI	SZ	4/10/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-87	ASI	SZ	10/27/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16 L	<0.13	<0.11	<0.13	<3.9	~
MW-87	ASI	SZ	4/16/2015	0.26 J	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-87	ASI	SZ	10/9/2015	<0.148	<0.0909	<0.694	<1.22	<1.20	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56	~
MW-87	ASI	SZ	4/6/2016	0.132 J	0.439 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-87	ASI	SZ	10/24/2016	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-87	ASI	SZ	4/14/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-87	ASI	SZ	10/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-87	ASI	SZ	4/16/2018	<0.130 J	0.353 J	<0.611 J X7	<1.07 J X7	<1.06 J X7	--	--	--	--	--	<0.170 J	<0.130 J	<0.110 J	<0.130	<4.01 J X7	~
MW-87	ASI	SZ	10/25/2018	<0.138	<0.0851	<0.650 LX7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-87	ASI	SZ	4/11/2019	<0.130 L	<0.0800 L	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.170 L	<0.130 L	<0.110 L	<0.130 L	<4.01 LX7	~
MW-87	ASI	SZ	10/24/2019	<0.130	<0.0800	<0.611 X7	<1.07 LX7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130 L	<4.01 LX7	~
MW-87	ASI	SZ	4/15/2020	<0.130	<0.0800	<0.611 X7	1.11 J X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-87	ASI	SZ	10/14/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<0.106 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-87	ASI	SZ	4/19/2021	<0.0635	0.0597 J	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.506	<6.47	<0.593	<3.23	<7.65 X7	~
MW-87	ASI	SZ	10/11/2021	<0.0572	0.0581 J	<1.12 X7	<0.734 X7	<0.794 X7	--	--	--	--	--	<0.466	<5.95	<0.546	<2.98	<7.05 X7	~
MW-87	ASI	SZ	4/12/2022	<0.0594	<0.0390	<1.14 X7	<0.747 X7	<0.807 X7	--	--	--	--	--	<0.474	<6.05	<0.555	<3.03	<7.16 X7	~
MW-87	ASI	SZ	10/10/2022	<0.0610	<0.0400	<1.08	0.799 J X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.80 X7	~
MW-87	ASI	SZ	4/10/2023	<0.0592	<0.0388	<1.18*	<0.771*	<0.834*	--	--	--	--	--	<0.490	<6.26	<0.573	<3.13	<7.40*	~
MW-87	ASI	SZ	10/11/2023	<0.0581 U	0.0546 J	<1.11 U	2.06 J	0.896 J	--	--	--	--	--	<3.94 U	<7.89 U	<4.75 U	<1.21 U	<10.0 U*	~
MW-87	ASI	SZ	4/19/2024	<0.0588 U	0.0522 J	<1.07 U	<0.722 U	<7.80 U	--	--	--	--	--	<3.80 U	<7.61 U*	<4.58 U	<1.17 U	<9.65 U*	~
MW-87	ASI	SZ	10/22/2024	<0.0614 U	<0.0403 U	<1.03 U	1.56 J	<0.751 U	--	--	--	--	--	<3.66 U	<7.32 U	<4.41 U	<1.13 U	<9.29 U*	~
MW-87	ASI	SZ	05/08/25	<0.0604 U	<0.0396 U	<1.09 U	1.08 J	<0.791 U	--	--	--	--	--	<3.86 U	<7.71 U	<4.65 U	<1.19 U	<9.79 U*	~
MW-88	ASI	SZ	4/7/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-88	ASI	SZ	10/13/2010	<0.0563 J	<0.0815 J	<0.0832 J	<0.0653 J	<0.0738 J	--	--	--	--	--	<0.0672 J	<0.101 J	<0.0523 J	<0.0946 J	<1.71 J	~
MW-88	ASI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-88	ASI	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-88	ASI	SZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-88	ASI	SZ	10/25/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-88	ASI	SZ	4/15/2013	<0.0592	<0.0857	<0.0874	<0.0686	<0.0775	--	--	--	--	--	<0.0706	<0.106	<0.0549	<0.0994	<1.79	~
MW-88	ASI	SZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-88	ASI	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-88	ASI	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-88	ASI	SZ	4/16/2015	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-88	ASI	SZ	10/7/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-88	ASI	SZ	4/6/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-88	ASI	SZ	10/20/2016	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	0.110	<0.130 L	<4.01 X7	~
MW-88	ASI	SZ	4/18/2017	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-88	ASI	SZ	10/16/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-88	ASI	SZ	4/12/2018	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-88	ASI	SZ	10/22/2018	<0.141	<0.087	<0.664 LX7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36 X7	~
MW-88	ASI	SZ	4/11/2019	<0.126 L	<0.0777 L	<0.593 LX7	<1.04 LX7	<1.03 LX7	--	--	--	--	--	<0.165 L	<0.126 L	<0.107 L	<0.126 L	<3.89 LX7	~
MW-88	ASI	SZ	10/17/2019	<0.141 L	<0.0870	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185 L	<0.141	<0.120	<0.141	<4.36 LX7	~
MW-88	ASI	SZ	4/13/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-88	ASI	SZ	10/15/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-88	ASI	SZ	4/22/2021	<0.0575	<0.0377	<11.1 X7	<11.1 X7	<11.1 X7	--	--	--	--	--	<0.521	<6.65	<0.610	<3.33	<7.87 X7	~
MW-88	ASI	SZ	10/11/2021	<0.0575	<0.0377	<1.16 X7	<0.763 X7	<0.824 X7	--	--	--	--	--	<0.484	<6.18	<0.567	<3.09	<7.32 X7	~
MW-88	ASI	SZ	4/12/2022	<0.0606	<0.0397	<1.07 X7	<0.703 X7	<0.760 X7	--	--	--	--	--	<0.447	<5.70	<0.523	<2.85	<6.75 X7	~
MW-88	ASI	SZ	10/11/2022	<0.0594	<0.0390	<1.08 X7	<0.710 X7	<0.768 X7	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.81 X7	~
MW-88	ASI	SZ	4/10/2023	<0.0592	<0.0388	<1.15*	<0.754*	<0.816*	--	--	--	--	--	<0.479	<6.12	<0.561	<3.06	<7.24*	~
MW-88	ASI	SZ	10/11/2023	<0.0581 U	<0.0381 U	<1.15 U	<0.773	<0.835 U	--	--	--	--	--	<4.07 U	<8.15 U	<4.91 U	<1.25 U	<10.3 U*	~
MW-88	ASI	SZ	4/15/2024	<0.0629 U	<0.0412 U	<1.22 U	<0.820 U	<0.887 U	--	--	--	--	--	<4.32 U*	<8.64 U*	<5.21 U*	<1.33 U*	<11.0 U*	~
MW-88	ASI	SZ	10/18/2024	<0.0610 U	<0.0400 U	<1.02 U	<0.688 U	<0.743 U	--	--	--	--	--	<3.62 U	<7.25 U	<4.37 U	<1.12 U	<9.20 U*	~
MW-88	ASI	SZ	45785	<0.0610 U	<0.0400 U	<1.09 U	<0.736 U	<0.796 U	--	--	--	--	--	<3.88 U	<7.76 U	<4.68 U	<1.19 U	<9.85 U*	~
MW-89	ASI	SZ	4/22/2010	3.28 J	<0.987	1.94 J	23.4	22.4	--	--	--	--	--	<0.956	128	<1.08	7.03 J	--	Exceed
MW-89	ASI	SZ	10/26/2010	<2.85	<1.02	<1.03	2.77 J	3.36 J	--	--	--	--	--	<0.984	40.5	<1.11	<0.866	--	Exceed
MW-89	ASI	SZ	4/27/2011	<2.80	<0.996	6.12 J	3.45 J	8.76 J	--	--	--	--	--	<1.11	<4.85	<1.46	2.66 J	<3.14 J	~
MW-89	ASI	SZ	10/18/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-89	ASI	SZ	4/24/2012	<2.83	<1.01	<1.02	1.49 J	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	--	~
MW-89	ASI	SZ	10/18/2012	<2.83	<1.01	<1.02	1.85 J	<1.46	--	--	--	--	--	<0.975	<4.90	<1.19	<2.94	--	~
MW-89	ASI	SZ	4/25/2013	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	--	--	<0.994	<4.99	<1.21	<3.00	<3.24 L	~
MW-89	ASI	SZ	10/25/2013	12	5.6 J	7.1 J	42	33	--	--	--	--	--	<1.1	1.8 J	<1.1	6.6 J	<4.0	Exceed
MW-89	ASI	SZ	4/21/2014	6.5 J	3.1 J	3.3 J	23	22	--	--	--	--	--	<1.1	<1.3	<1.1	3.4 J	<4.0	Exceed
MW-89	ASI	SZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-89	ASI	SZ	4/22/2015	<0.95	<0.64	<0.61	2.4 J	1.3 J	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-89	ASI	SZ	10/20/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	0.372 J	<0.106	0.253 J	<3.86	~
MW-89	ASI	SZ	4/21/2016	5.18 J	2.61 J	1.86 J X7	17.0 X7	13.2 X7	--	--	--	--	--	<1.13	<1.28	<1.16	1.83 J	<4.08 X7	Exceed
MW-89	ASI	SZ	10/26/2016	<0.96	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-89	ASI	SZ	4/19/2017	<0.990	<0.667	<0.635 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-89	ASI	SZ	10/19/2017	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-89	ASI	SZ	4/23/2018	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-89	ASI	SZ	10/29/2018	<0.990	<0.667	<0.635 LX7	<1.11 X7	<1.10 LX7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-89	ASI	SZ	4/18/2019	<0.960	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-89	ASI	SZ	10/28/2019	9.24J	6.64J	<0.610	2.45J	<0.106	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-89	ASI	SZ	4/23/2020	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-89	ASI	SZ	10/22/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-89	ASi	SZ	4/28/2021	<0.0572	<0.0375	<10.9 X7	<10.9 X7	<10.9 X7	--	--	--	--	--	<0.513	<6.55	<0.601	<3.28	<7.75 X7	~
MW-89	ASi	SZ	10/26/2021	0.356	0.43	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.553	<3.02	<7.14 X7	~
MW-89	ASI	SZ	4/25/2022	<0.598	<0.0392	<1.08 X7	<0.708 X7	<0.765 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.79 X7	~
MW-89	ASI	SZ	10/14/2022	<0.0568	<0.0373	<1.11 X7	<0.727 X7	<0.786 X7	--	--	--	--	--	<0.462	<5.90	<0.540	<2.95	<6.98 X7	~
MW-89	ASI	SZ	4/18/2023	<0.0565	<0.0370	<1.11	<1.11	<1.11	--	--	--	--	--	<1.11	<1.11	<1.11	<1.11	<1.11	~
MW-89	ASI	SZ	10/18/2023	1.34	0.822	<1.18 U	<0.794 U	<0.858 U	--	--	--	--	--	<4.18 U	<8.37 U	<5.04 U	<1.29 U	<10.6 U*	Exceed
MW-89	ASI	SZ	4/19/2024	<0.0600 U	<0.0393 U	<1.13 U	<0.757 U	<0.818 U	--	--	--	--	--	<3.99 U	<7.98 U*	<4.81 U	<1.23 U	<10.1 U*	~
MW-89	ASI	SZ	10/23/2024	<0.0606 U	<0.0397 U	<1.08 U	1.87 J	1.65 J	--	--	--	--	--	<3.81 U	<7.62 U	<4.59 U	<1.17 U	<9.68 U*	~
MW-89	ASI	SZ	05/06/25	<0.0594 U	<0.0390 U	<1.12 U	<0.752 U	<0.813 U	--	--	--	--	--	<3.96 U	<7.93 U	<4.78 U	<1.22 U	<10.1 U*	~
MW-91	ASI	SZ	4/7/2010	3330	1310	692	7550	5350	--	--	--	--	--	<0.0685	0.13 J	2.37	3.52	--	Exceed
MW-91	ASI	SZ	10/26/2010	53.9	27	15.1	157	88.3	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-91	ASI	SZ	4/27/2011	292	114	55.1	476	270	--	--	--	--	--	<1.11	<4.85	<1.46	1.09 J	<3.14 J	Exceed
MW-91	ASI	SZ	10/18/2011	347 J	115	49.8	356 J	272 J	--	--	--	--	--	<1.11	<4.85	<1.46	1.03 J	<3.14	Exceed
MW-91	ASI	SZ	4/27/2012	126	35.2	16	182	149	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-91	ASI	SZ	10/17/2012	137	28.5	11.5	146	98.4	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-91	ASI	SZ	4/25/2013	96.5	24.3	5.9 J	106	81.4	--	--	--	--	--	<1.01	<5.09	<1.24	8.89 J	<3.30 L	Exceed
MW-91	ASI	SZ	10/25/2013	200	61	38	420	310	--	--	--	--	--	<1.1	<1.3	<1.1	7.8 J	<4.0	Exceed
MW-91	ASI	SZ	4/16/2014	40	17	8.9 J	65	47	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	Exceed
MW-91	ASI	SZ	10/22/2014	--	28	18	--	160	--	--	--	--	--	<1.2	<1.3	<1.2	1.5 J	<4.2	Exceed
MW-91	ASI	SZ	4/22/2015	44	17	7.1 J	75	48	--	--	--	--	--	<1.2	<1.4	<1.3	<0.73	<4.4	Exceed
MW-91	ASI	SZ	10/20/2015	95.3	16.8	19.1	216	179	--	--	--	--	--	<0.189	19.9	<0.122	17.5	<4.46	Exceed
MW-91	ASI	SZ	4/21/2016	46.0	18.9	11.4 X7	129 X7	70.2 X7	--	--	--	--	--	<1.11	<1.26	<1.13	0.976 J	<4.00 X7	Exceed
MW-91	ASI	SZ	10/27/2016	74.3	22.5	15.3 X7	193 X7	103 X7	--	--	--	--	--	<1.11	<1.26	<1.13	1.85 J	<4.00 X7	Exceed
MW-91	ASI	SZ	4/19/2017	72.1	21.4	12.5 X7	156 X7	90.1 X7	--	--	--	--	--	<1.13	<1.28	<1.16	1.12 J	<4.08 X7	Exceed
MW-91	ASI	SZ	10/19/2017	181	65.8	32.5 X7	606 X7	375 X7	--	--	--	--	--	<1.17	20	<1.2	5.21 J	<4.24 X7	Exceed
MW-91	ASI	SZ	4/20/2018	63.7	33.5	11.4 X7	134 X7	79.8 X7	--	--	--	--	--	<1.15	1.51 J	<1.18	<0.690	<4.16 X7	Exceed
MW-91	ASI	SZ	10/29/2018	19.7	5.15 J	3.95 JLX7	52.0 X7	29.9 LX7	--	--	--	--	--	<1.15	<1.31	<1.18	1.29 J	<4.16 X7	Exceed
MW-91	ASI	SZ	4/18/2019	17.5 H	12.5	4.51 J X7	27.2 X7	31.2 X7	--	--	--	--	--	<1.22	<1.39	<1.26	<0.734	<4.43 X7	Exceed
MW-91	ASI	SZ	10/28/2019	40.2	14.8	9.26 J X7	90.5 X7	67.8 X7	--	--	--	--	--	<1.15	<1.31	<1.18	0.777 J	<4.16 X7	Exceed
MW-91	ASI	SZ	4/30/2020	6.27 J	2.26 J	1.68 J X7	20.8 X7	17.7 X7	--	--	--	--	--	<1.14	1.47 J	<1.17	<0.683	<4.12 X7	Exceed
MW-91	ASI	SZ	10/22/2020	22.4	7.96	6.31 X7	63.3 X7	39.4 X7	--	--	--	--	--	<0.175	14.9	<0.113	1.63 J	5.02 X7	Exceed
MW-91	ASI	SZ	4/28/2021	9.13	3.09	<10.6 X7	22.9 X7	14.9 X7	--	--	--	--	--	<0.499	<6.36	<0.583	<3.18	<7.53 X7	Exceed
MW-91	ASI	SZ	10/26/2021	8.19	3.47	<5.47 X7	45.4 J X7	30.3 J X7	--	--	--	--	--	<2.28	<29.1	<2.66	<14.5	<34.4 X7	Exceed
MW-91	ASI	SZ	4/26/2022	8.05	6.06	19.7 X7	35.9 X7	27.6 X7	--	--	--	--	--	<0.901	<11.5	<1.05	<5.75	<13.6 X7	Exceed
MW-91	ASI	SZ	10/14/2022	2.22	1.24	<2.23 X7	9.43 J X7	6.01 J X7	--	--	--	--	--	<0.929	<11.9	<1.09	<5.93	<14 X7	Exceed
MW-91	ASI	SZ	4/18/2023	<0.0581	1.32	<1.11	<1.11	<1.11	--	--	--	--	--	<1.11	<1.11	<1.11	<1.11	<1.11	Exceed
MW-91	ASI	SZ	10/17/2023	4.28	2.08	2.03 J	22.9	18.1	--	--	--	--	--	<3.88 U	<7.77 U	<4.68 U	2.59 J	<9.86 U*	Exceed
MW-91 1st Run	**ASI**	**SZ**	**4/17/2024**	**9.56**	**3.02**	**<1.09 U H**	**37.3 H**	**51.0 H**	**--**	**--**	**--**	**--**	**--**	**<3.86 U H**	**16.7 H**	**<4.86 U H**	**5.42 U H**	**<9.81 UH***	**Exceed**
MW-91-ReSamp-Run	**ASI**	**SZ**	**5/21/2024**	**20.7**	**10.4**	**5.71 J**	**53.5**	**39.7**	**--**	**--**	**--**	**--**	**--**	**<3.97 U**	**<7.95 U**	**<4.79 U**	**3.43 J**	**<10.1 U***	**Exceed**
MW-91	ASI	SZ	10/23/2024	4.10	2.30	<1.03 U	10.8	11.2	--	--	--	--	--	<3.66 U	<7.33 U	<4.41 U	<1.13 U	<9.30 U*	Exceed
MW-91 1st Run	**ASI**	**SZ**	**5/6/2025**	141	38.9	**10.7**	101	82.9	**--**	**--**	**--**	**--**	**--**	**<3.90 U**	**<7.80 U**	**<4.70 U**	**4.32 J**	**<9.90 U***	**Exceed**
MW-91-ReSamp-Run	**ASI**	**SZ**	**06/19/25**	23.7	12.7	**--**	75.9	**55.4**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**Exceed**
MW-93	DNT	SZ	4/8/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-93	DNT	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	0.0928 J	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-93	DNT	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-93	DNT	SZ	10/26/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-93	DNT	SZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-93	DNT	SZ	10/25/2012	<0.0563 J	<0.0815 J	<0.0832 J	<0.0653 J	<0.0738 J	--	--	--	--	--	<0.0672 J	<0.101 J	<0.0523 J	<0.0946 J	<1.71 J	~
MW-93	DNT	SZ	4/19/2013	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 L	~
MW-93	DNT	SZ	10/16/2013	0.27 J	1.3	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-93	DNT	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-93	DNT	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-93	DNT	SZ	4/16/2015	0.27 J	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-93	DNT	SZ	10/8/2015	<0.141	<0.0870	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-93	DNT	SZ	4/7/2016	<0.130	0.503 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-93	DNT	SZ	10/24/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-93	DNT	SZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-93	DNT	SZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125 L	<0.106	<0.125	R	~
MW-93	DNTU	SZ	4/12/2018	<0.131	0.191 J	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-93	DNTU	SZ	10/22/2018	<0.134	<0.0825	<0.630 LX7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-93	DNTU-AOC1	SZ	4/11/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-93	DNTU-AOC1	SZ	10/18/2019	<0.131 L	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172 L	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-93	DNTU-AOC1	SZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-93	DNTU-AOC1	SZ	10/15/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-93	DNTU-AOC1	SZ	4/19/2021	<0.0594	<0.0390	<10.9 X7	<10.9 X7	<10.9 X7	--	--	--	--	--	<0.511	<6.52	<0.597	<3.26	<7.71 X7	~
MW-93	DNTU-AOC1	SZ	10/12/2021	0.0699 J	<0.0366	<1.2 X7	<0.786 X7	<0.850 X7	--	--	--	--	--	<0.499	<6.37	<0.584	<3.19	<7.54 X7	~
MW-93	DNTU-AOC1	SZ	4/12/2022	<0.0602	<0.0395	<1.13 X7	<0.737 X7	<0.797 X7	--	--	--	--	--	<0.468	<5.98	<0.548	<2.99	<7.07 X7	~
MW-93	DNTU-AOC1	SZ	10/11/2022	<0.0594	<0.0390	<1.10 X7	<0.723 X7	<0.782 X7	--	--	--	--	--	<0.459	<5.86	<0.538	<2.93	<6.94 X7	~
MW-93	DNTU-AOC1	SZ	4/11/2023	<0.0598	<0.0392	<2.25*	<1.48*	<1.59*	--	--	--	--	--	<0.937	<12.0	<1.10	<5.98	<14.2*	~
MW-93	DNTU-AOC1	SZ	10/10/2023	<0.0583 U	<0.0382 U	<1.1 U	<0.738 U	<0.797 U	--	--	--	--	--	<3.89 U	<7.78 U	<4.69 U	<1.2 U	<9.87 U*	~
MW-93	DNTU-AOC1	SZ	4/15/2024	<0.0618 U	<0.0405 U	<1.08 U	<0.724 U	<0.783 U	--	--	--	--	--	<3.82 U*	<7.64 U*	<4.60 U*	<1.17 U*	<9.69 U*	~
MW-93	DNTU-AOC1	SZ	10/17/2024	<0.0598 U	<0.0392 U	<1.04 U	<0.699 U	<0.756 U	--	--	--	--	--	<3.68 U	<7.37 U	<4.44 U	<1.13 U	<9.35 U*	~
MW-93	DNTU-AOC1	SZ	05/08/25	<0.0610 U	<0.0400 U	<1.04 U	<0.701 U	<0.758 U	--	--	--	--	--	<3.70 U	<7.39 U	<4.45 U	<1.14 U	<9.38 U*	~
MW-94	DNT	SZ	4/7/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-94	DNT	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-94	DNT	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-94	DNT	SZ	10/26/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-94	DNT	SZ	4/13/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-94	DNT	SZ	10/25/2012	<0.0580 J	<0.0840 J	<0.0856 J	<0.0672 J	<0.0759 J	--	--	--	--	--	<0.0692 J	<0.104 J	<0.0539 J	<0.0974 J	<1.76 J	~
MW-94	DNT	SZ	4/19/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-94	DNT	SZ	10/16/2013	<0.13 L	<0.077 L	<0.59 L	<1.0 L	<1.0 L	--	--	--	--	--	<0.16 L	<0.13 L	<0.11 L	<0.13 L	<3.9 L	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-94	DNT	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-94	DNT	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-94	DNT	SZ	4/16/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-94	DNT	SZ	10/8/2015	<0.141	0.403 J	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-94	DNT	SZ	4/7/2016	<0.125	0.219 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-94	DNT	SZ	4/13/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-94	DNT	SZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-94	DNTU	SZ	4/12/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-94	DNTU	SZ	10/22/2018	<0.141	<0.087	<0.664 LX7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36 X7	~
MW-94	DNTU-AOC1	SZ	4/11/2019	<0.157	<0.0964	<0.736 X7	<1.29 X7	<1.28 X7	--	--	--	--	--	<0.205	<0.157	<0.133	<0.157	<4.83 X7	~
MW-94	DNTU-AOC1	SZ	10/18/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-94	DNTU-AOC1	SZ	4/14/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-94	DNTU-AOC1	SZ	10/15/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-94	DNTU-AOC1	SZ	4/19/2021	<0.0618	<0.0405	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.503	<6.42	<0.588	<3.21	<7.59 X7	~
MW-94	DNTU-AOC1	SZ	10/13/2021	<0.0568	<0.0373	<1.16 X7	<0.759 X7	<0.820 X7	--	--	--	--	--	<0.482	<6.15	<0.564	<3.08	<7.28 X7	~
MW-94	DNTU-AOC1	SZ	4/12/2022	<0.0622	<0.0408	<1.08 X7	<0.705 X7	<0.762 X7	--	--	--	--	--	<0.488	<5.72	<0.524	<2.86	<6.77 X7	~
MW-94	DNTU-AOC1	SZ	10/11/2022	<0.0587	<0.0385	<1.09 X7	<0.712 X7	<0.770 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.89	<6.83 X7	~
MW-94	DNTU-AOC1	SZ	4/11/2023	<0.0585	<0.0383	<1.13*	<0.740*	<0.800*	--	--	--	--	--	<0.470	<6.00	<0.550	<3.00	<7.10*	~
MW-94	DNTU-AOC1	SZ	10/10/2023	<0.0583 U	<0.0382 U	<1.16 U	<0.781 U	<0.845 U	--	--	--	--	--	<4.12 U	<8.23 U	<4.96 U	<1.27 U	<10.5 U*	~
MW-94	DNTU-AOC1	SZ	4/15/2024	<0.0629 U	<0.0412 U	<1.05 U	<0.707 U	<0.764 U	--	--	--	--	--	<3.72 U*	<7.45 U*	<4.49 U*	<1.15 U*	<9.45 U*	~
MW-94	DNTU-AOC1	SZ	10/17/2024	<0.0608 U	<0.0399 U	<1.02 U	<0.689 U	<0.745 U	--	--	--	--	--	<3.63 U	<7.27 U	<4.38 U	<1.12 U	<9.22 U*	~
MW-94	DNTU-AOC1	SZ	05/08/25	<0.0610 U	<0.0400 U	<1.11 U	<0.747 U	<0.807 U	--	--	--	--	--	<3.93 U	<7.87 U	<4.74 U	<1.21 U	<9.99 U*	~
MW-95	ASI	IZ	4/7/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	0.112 J	<0.0528	<0.0955	--	~
MW-95	ASI	IZ	10/14/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-95	ASI	IZ	4/19/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-95	ASI	IZ	12/8/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-95	ASI	IZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-95	ASI	IZ	10/25/2012	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76	~
MW-95	ASI	IZ	4/17/2013	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77	~
MW-95	ASI	IZ	10/18/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-95	ASI	IZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-95	ASI	IZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-95	ASI	IZ	4/17/2015	0.18 J	<0.082	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-95	ASI	IZ	10/13/2015	<0.146	<0.0899	<0.687	<1.20	<1.19	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51	~
MW-95	ASI	IZ	4/7/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-95	ASI	IZ	10/24/2016	<0.141	<0.087	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.12	<0.141	<4.36 LX7	~
MW-95	ASI	IZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-95	ASI	IZ	4/12/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-95	ASI	IZ	10/12/2018	<0.140	<0.086	<0.657 LX7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-95	ASI	IZ	4/15/2019	<0.143	<0.0879	<0.671 LX7	<1.18 LX7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 X7	~
MW-95	ASI	IZ	10/18/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-95	ASI	IZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-95	ASI	IZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-95	ASI	IZ	4/19/2021	<0.0561	<0.0368	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.515	<6.58	<0.603	<3.29	<7.79 X7	~
MW-95	ASI	IZ	10/12/2021	<0.0568	<0.0373	<1.19 X7	<0.781 X7	<0.844 X7	--	--	--	--	--	<0.496	<6.33	<0.581	<3.17	<7.49 X7	~
MW-95	ASI	IZ	4/12/2022	<0.0627	<0.0411	<1.18 X7	<0.775 X7	<0.837 X7	--	--	--	--	--	<0.492	<6.28	<0.576	<3.14	<7.43 X7	~
MW-95	ASI	IZ	10/11/2022	0.0977 J	<0.0408	<1.15 X7	<0.751 X7	<0.812 X7	--	--	--	--	--	<0.477	<6.09	<0.558	<3.05	<7.21 X7	~
MW-95	ASI	IZ	4/11/2023	<0.0577	<0.0379	<1.17*	<0.765*	<0.827*	--	--	--	--	--	<0.486	<6.20	<0.569	<3.10	<7.34*	~
MW-95	ASI	IZ	10/10/2023	<0.0581 U	<0.0381 U	<1.09 U	<0.730 U	<0.789 U	--	--	--	--	--	<3.85 U	<7.70 U	<4.64 U	<1.18 U	<9.77 U*	~
MW-95	ASI	IZ	4/8/2024	<0.0585 U	0.0809 J	<1.07 U	<0.722 U	<0.781 U	--	--	--	--	--	<3.81 U	<7.61 U	<4.59 U	<1.17 U	<9.66 U	~
MW-95	ASI	IZ	10/18/2024	<0.0608 U	<0.0399 U	<1.05 U	<0.704 U	<0.761 U	--	--	--	--	--	<3.71 U	<7.42 U	<4.47 U	<1.14 U	<9.42 U*	~
MW-95	ASI	IZ	05/06/25	<0.0600 U	<0.0393 U	<1.08 U	<0.724 U	<0.783 U	--	--	--	--	--	<3.82 U	<7.64 U	<4.60 U	<1.17 U	<9.69 U*	~
MW-96	ASI	DZ	4/7/2010	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	0.935 J	<0.0544	<0.0984	--	~
MW-96	ASI	DZ	10/13/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-96	ASI	DZ	4/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-96	ASI	DZ	10/26/2011	<2.83 J	<1.01 J	<1.02 J	<1.04 J	<1.46 J	--	--	--	--	--	<1.12 J	<4.90 J	<1.47 J	<0.858 J	<3.17 J	~
MW-96	ASI	DZ	4/16/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-96	ASI	DZ	10/23/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-96	ASI	DZ	4/17/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-96	ASI	DZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-96	ASI	DZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-96	ASI	DZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0 L	~
MW-96	ASI	DZ	4/17/2015	<0.13	<0.081	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-96	ASI	DZ	10/8/2015	<0.133	<0.0816	<0.623	<1.09	<1.08	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09	~
MW-96	ASI	DZ	4/6/2016	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-96	ASI	DZ	10/24/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-96	ASI	DZ	4/13/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-96	ASI	DZ	10/16/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-96	ASI	DZ	4/16/2018	<0.131	<0.0808	<0.617 LX7	<1.08 LX7	<1.07 LX7	--	--	--	--	--	<0.172	<0.131 L	<0.111	<0.131 L	<4.05 LX7	~
MW-96	ASI	DZ	10/12/2018	<0.149	<0.092	<0.702 X7	<1.23 X7	<1.22 X7	--	--	--	--	--	<0.195	<0.149	<0.126	<0.149	<4.61 X7	~
MW-96	ASI	DZ	4/11/2019	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 X7	~
MW-96	ASI	DZ	10/18/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-96	ASI	DZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-96	ASI	DZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-96	ASI	DZ	4/19/2021	<0.0627	<0.0411	<11.0 X	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.519	<6.63	<0.607	<3.31	<7.84 X7	~
MW-96	ASI	DZ	10/12/2021	<0.0602	<0.0395	<1.10 X7	<0.720 X7	<0.779 X7	--	--	--	--	--	<0.458	<5.84	<0.535	<2.92	<6.91 X7	~
MW-96	ASI	DZ	4/12/2022	<0.0610	<0.0400	<1.09 X7	<0.713 X7	<0.770 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	~
MW-96	ASI	DZ	10/11/2022	<0.0594	<0.0390	<1.09 X7	<0.716 X7	<0.774 X7	--	--	--	--	--	<0.455	<5.80	<0.532	<2.90	<6.87 X7	~
MW-96	ASI	DZ	4/11/2023	<0.0588	<0.0386	<1.13*	<0.739*	<0.799*	--	--	--	--	--	<0.469	<5.99	<0.549	<3.00	<7.09*	~
MW-96	ASI	DZ	10/10/2023	<0.0581 U	<0.0381 U	<1.11 U	<0.750 U	<0.810 U	--	--	--	--	--	<3.95 U	<7.90 U	<4.76 U	<1.22 U	<10.0 U*	~
MW-96	ASI	DZ	4/8/2024	<0.0600 U	<0.0393 U	<1.05 U	<0.709 U	<0.767 U	--	--	--	--	--	<3.74 U	<7.48 U	<4.51 U	<1.15 U	<9.49 U	~
MW-96 1st Run	**ASI**	**SZ**	**10/18/2024**	**0.466**	**0.381**	**<1.08 U**	**<0.724**	**<0.783 U**	**--**	**--**	**--**	**--**	**--**	**<3.82 U**	**<7.64 U**	**<4.60 U**	**<1.17 U**	**<9.69 U***	**~**
MW-96-ReSamp-Run	**ASI**	**SZ**	**11/19/2024**	**0.182**	**0.115**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
MW-96	ASI	DZ	05/01/25	0.104	<0.0407 U	<1.07 U	<0.718 U	<0.776 U	--	--	--	--	--	<3.78 U	<7.57 U	<4.56 U	<1.16 U	<9.61 U*	~
MW-97	AOC2	SZ	4/7/2010	10.2	144	94	698	28.3	--	--	--	--	--	<0.0685	2.27	<0.0533	14.2	--	Exceed
MW-97	AOC2	SZ	10/12/2010	<0.575	31.1	8.44 J	48.4	36.8	--	--	--	--	--	<0.685 J	<1.03	<0.533	5.73 J	<17.4	Exceed
MW-97	AOC2	SZ	4/18/2011	5.17 J	37.8 J	3.35 J	9.36 J	6.21 J	--	--	--	--	--	<0.0685 J	0.605 J	<0.0533 J	4.77 J	<1.74 J	Exceed
MW-97	AOC2	SZ	10/26/2011	<2.80 J	5.62 J	<1.01 J	13.1 J	7.16 J	--	--	--	--	--	<1.11 J	9.2 J	<1.46 J	<0.850 J	20.6 J	Exceed
MW-97	AOC2	SZ	4/16/2012	1.11	8.43	0.901 J	12.3	6.55	--	--	--	--	--	<0.0672	0.6 J	<0.0523	1.15	--	Exceed
MW-97	AOC2	SZ	10/23/2012	0.854 J	3.29	0.209 J	1.52	0.609 J	--	--	--	--	--	<0.0685	0.484 J	<0.0533	0.153 J	<1.74 J	Exceed
MW-97	AOC2	SZ	4/17/2013	1.86	4.54	0.297 J	1.46	0.797 J	--	--	--	--	--	<0.0706	<0.106	<0.0549	2.07	<1.79	Exceed
MW-97	AOC2	SZ	10/17/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	11	<0.11	<0.13	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-97	AOC2	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-97	AOC2	SZ	10/24/2014	0.19 J	0.69 J	0.67 J	1.6 J	1.1 J	--	--	--	--	--	<0.17	4.9	<0.11	<0.13	19	Exceed
MW-97	AOC2	SZ	4/20/2015	2.3	0.37 J	0.78 J	1.9 J	<1.1	--	--	--	--	--	<0.17	0.36 J	<0.11	0.13 J	<4.0	Exceed
MW-97	AOC2	SZ	10/8/2015	0.266 J	3.57	<0.611	1.69 J	1.07 J	--	--	--	--	--	<0.170	0.436 J	<0.110	0.224 J	5.98 J	Exceed
MW-97	AOC2	SZ	4/6/2016	0.366 J	6.45	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.165 J	<3.86 X7	Exceed
MW-97	AOC2	SZ	10/19/2016	0.217 J	4.27	<0.588 X7	1.81 J X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.388 J	<3.86 LX7	Exceed
MW-97	AOC2	SZ	4/13/2017	0.716 J	9.10	<0.599 X7	1.47 J X7	1.46 J X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	10/13/2017	0.682 J	9.33	<0.588 X7	2.63 J X7	1.38 J X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	Exceed
MW-97	AOC2	SZ	4/12/2018	0.377 J	4.07	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	10/12/2018	0.469 J	4.87	<0.650 X7	1.36 J X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	Exceed
MW-97	AOC2	SZ	4/11/2019	<0.133	2.00	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	Exceed
MW-97	AOC2	SZ	10/17/2019	<0.127 L	1.74	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167 L	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	4/14/2020	<0.127	2.54	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	10/13/2020	<0.153	.453 J	<0.719 X7	<1.26 X7	<1.25 X7	--	--	--	--	--	<0.200	<0.153	<0.129	<0.153	<4.72 X7	~
MW-97	AOC2	SZ	4/20/2021	0.327	5.31	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.509	<6.50	<0.596	<3.25	<7.70 X7	Exceed
MW-97	AOC2	SZ	10/13/2021	0.198	1.11	<1.16 X7	1.5 J X7	<0.821 X7	--	--	--	--	--	<0.482	<6.16	<0.564	<3.08	<7.28 X7	~
MW-97	AOC2	SZ	4/13/2022	0.281	5.62	<1.18 X7	1.10 J X7	<0.838 X7	--	--	--	--	--	<0.492	<6.28	<0.576	<3.14	<7.44 X7	Exceed
MW-97	AOC2	SZ	10/12/2022	0.0746 J	1.02	<1.10 X7	<0.722 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.85	<0.537	<2.93	<6.93 X7	~
MW-97	AOC2	SZ	4/11/2023	<0.0579	2.86	<1.09*	<0.711*	<0.769*	--	--	--	--	--	<0.452	<5.77	<0.529	<2.88	<6.82*	Exceed
MW-97	AOC2	SZ	10/5/2023	<0.0553 U*	0.299	<1.04 U	<0.703 U	<0.760 U	--	--	--	--	--	<3.70 U	<7.41 U	<4.46 U	<1.14 U	<9.4 U	~
MW-97	AOC2	SZ	4/8/2024	0.421	7.25	<1.13 U	1.37 J	1.04 J b	--	--	--	--	--	<3.99 U	<7.98 U	<4.81 U	<1.23 U	<10.1 U	Exceed
MW-97	AOC2	SZ	10/17/2024	0.127	2.41	<1.08 U	3.00 J	2.34 J	--	--	--	--	--	<3.84 U	<7.68 U	<4.63 U	<1.18 U	<9.75 U*	Exceed
MW-97 1st Run	**AOC2**	**SZ**	**05/05/25**	**0.857**	6.25	**<1.20 U**	**1.98 J**	**1.53 J**	**--**	**--**	**--**	**--**	**--**	**<4.26 U**	**<8.52 U**	**<5.13 U**	**<1.31 U**	**<10.8 U**	Exceed
MW-97-ReSamp-Run	AOC2	SZ	05/19/25	--	8.71	--	--	--	--	--	--	--	--	--	--	--	--	--	Exceed
MW-98	DNT	IZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-98	DNT	IZ	4/12/2012	<0.0575 J	<0.0831 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	--	~
MW-98	DNT	IZ	10/23/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72	~
MW-98	DNT	IZ	4/17/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-98	DNT	IZ	10/17/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 L	~
MW-98	DNT	IZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-98	DNT	IZ	10/23/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-98	DNT	IZ	4/17/2015	0.27 J	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-98	DNT	IZ	10/8/2015	<0.141	<0.0870	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-98	DNT	IZ	4/5/2016	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 X7	~
MW-98	DNT	IZ	10/24/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-98	DNT	IZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	3.57	<0.106	<0.125	<3.86 LX7	~
MW-98	DNT	IZ	10/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-98	DNTU	IZ	4/12/2018	<0.126	0.110 J	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-98	DNTU	IZ	10/12/2018	<0.148	<0.0909	<0.694 X7	<1.22 X7	<1.20 X7	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56 X7	~
MW-98	DNTU	IZ	4/15/2019	<0.135	<0.0833	<0.636 LX7	<1.11 LX7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18 X7	~
MW-98	DNTU	IZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-98	DNTU	IZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-98	DNTU	IZ	10/14/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-98	DNTU	IZ	4/21/2021	<0.0663	<0.0435	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.64 X7	~
MW-98	DNTU	IZ	10/13/2021	<0.0568	<0.0373	<1.09 X7	<0.716 X7	<0.774 X7	--	--	--	--	--	<0.455	<5.81	<0.532	<2.9	<6.87 X7	~
MW-98	**DNTU**	**IZ**	**4/13/2022**	**3.96**	**6.83**	**<1.10 X7**	**<0.723 X7**	**<0.781 X7**	**--**	**--**	**--**	**--**	**--**	**<0.459**	**<5.86**	**<0.537**	**<2.93**	**<6.93 X7**	**Exceed**
MW-98Re-Samp-ReRun	**DNTU**	**IZ**	**5/26/2022**	**<0.0594**	**<0.0390**	**<1.11 X7**	**<0.727 X7**	**<0.786 X7**	**--**	**--**	**--**	**--**	**--**	**<0.462**	**<5.90**	**<0.541**	**<2.95**	**<6.98 X7**	**~**
MW-98	DNTU	IZ	10/12/2022	<0.0538	<0.0353	<1.10 X7	<0.723 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93 X7	~
MW-98	DNTU	IZ	4/11/2023	<0.0587	<0.0385	<2.20*	<1.44*	<1.56*	--	--	--	--	--	<0.914	<11.7	<1.07	<5.83	<13.8*	~
MW-98	DNTU	IZ	10/10/2023	<0.0579 U	<0.0380 U	<1.12 U	<0.753 U	<0.814 U	--	--	--	--	--	<3.97 U	<7.93 U	<4.78 U	<1.22 U	<10.1 U*	~
MW-98	DNTU	IZ	4/8/2024	<0.0592 U	<0.0388 U	<1.09 U	<0.734 U	<0.794 U	--	--	--	--	--	<3.87 U	<7.74 U	<4.66 U	<1.19 U	<9.82 U	~
MW-98	**DNTU**	**IZ**	**10/17/2024**	**<0.0604 U**	**<0.0396 U**	**<1.15 U**	**<0.777 U**	**<0.840 U**	**--**	**--**	**--**	**--**	**--**	**<4.09 U**	**<8.19 U**	**<4.93 U**	**<1.26 U**	**<10.4 U***	**~**
MW-98Re-Samp-ReRun	**DNTU**	**IZ**	**11/19/2024**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**<3.22 U**	**~**
MW-98	DNTU	IZ	05/08/25	<0.0610 U	<0.0400 U	<1.10 U	<0.739 U	<0.799 U	--	--	--	--	--	<3.90 U	<7.79 U	<4.70 U	<1.20 U	<9.89 U*	~
MW-100	--	--	10/13/2015	0.234 J	<0.0851	<0.650	<1.14	<1.13	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27	~
RL-1	ASI	SZ	10/11/2000	1700	130	<100	57 J	63 J	--	--	--	--	--	--	--	--	--	--	Exceed
RL-1	ASI	SZ	4/28/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
RL-1	ASI	SZ	10/26/2001	<10	<10	<10	1.1 J	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
RL-1	ASI	SZ	10/8/2002	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<20	<9	<20	--	~
RL-1	ASI	SZ	4/8/2003	<11	<11	<11	<11	<11	--	--	--	--	--	<11	<22	<11	<22	--	~
RL-1	ASI	SZ	10/3/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
RL-1	ASI	SZ	4/19/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
RL-1	ASI	SZ	10/6/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
RL-1	ASI	SZ	4/7/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
RL-1	ASI	SZ	10/12/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
RL-1	ASI	SZ	4/11/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
RL-1	ASI	SZ	11/3/2006	1.9 J	<9.7	<9.7	4.5 J	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
RL-1	ASI	SZ	4/10/2007	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
RL-1	ASI	SZ	10/2/2007	<0.81	<0.83	<1.0	<0.88	<0.96	--	--	--	--	--	<1.3	<0.63	<1.0	<4.2	--	~
RL-1	ASI	SZ	4/10/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
RL-1	ASI	SZ	10/15/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RL-1	ASI	SZ	4/13/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
RL-1	ASI	SZ	10/18/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
RL-1	ASI	SZ	4/19/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
RL-1	ASI	SZ	10/13/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14	~
RL-1	ASI	SZ	4/18/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
RL-1	ASI	SZ	10/11/2012	<2.77	<0.987	<0.998	1.32 J	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	~
RL-1	ASI	SZ	4/23/2013	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<4.90	<1.19	<2.94	<3.17 L	~
RL-1	ASI	SZ	10/21/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13	~
RL-1	ASI	SZ	4/10/2014	<0.99	<0.67	<0.64	<1.1	<1.1	--	--	--	--	--	<1.2	<1.4	<1.2	<0.72	<4.3	~
RL-1	ASI	SZ	4/20/2015	<1.10	<0.72	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
RL-1	ASI	SZ	10/14/2015	<1.02	<0.688	<0.656	<1.15	<1.14	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47	~
RL-1	ASI	SZ	4/8/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
RL-1	ASI	SZ	10/25/2016	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 LX7	~
RL-1	ASI	SZ	4/18/2017	1.89 J	1.47 J	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
RL-1	ASI	SZ	10/17/2017	<1.12	<0.753	<0.718 X7	<1.26 X7	<1.25 X7	--	--	--	--	--	<1.35	<1.54	<1.39	<0.812	<4.89 X7	~
RL-1	ASI	SZ	4/18/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RL-1	ASI	SZ	10/25/2018	<0.969	<0.653	<0.622 LX7	<1.09 X7	<1.08 LX7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
RL-1	ASI	SZ	4/17/2019	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
RL-1	ASI	SZ	10/24/2019	<0.922	0.859 J	<0.592	<1.04	<1.03	--	--	--	--	--	<1.12	<1.27	<1.15	<0.670	<4.04	~
RL-1	ASI	SZ	4/20/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
RL-1	ASI	SZ	10/21/2020	9.11	8.36	<0.650 X7	2.59 J X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	Exceed

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Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RL-1	ASI	SZ	4/26/2021	<0.0602	<0.0395	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.498	<6.35	<0.582	<3.18	<7.52 X7	~
RL-1	ASI	SZ	10/25/2021	0.394	0.233	<1.19 X7	<0.782 X7	<0.845 X7	--	--	--	--	--	<0.497	<6.34	<0.581	<3.17	<7.5 X7	~
RL-1	ASI	SZ	4/18/2022	0.158	0.141	<1.18 X7	<0.771 X7	<0.833 X7	--	--	--	--	--	<0.490	<6.25	<0.573	<3.13	<7.40 X7	~
RL-1	ASI	SZ	10/13/2022	2.73	1.68	<1.13 X7	<0.741 X7	<0.802 X7	--	--	--	--	--	<0.471	<6.01	<0.551	<3.01	<7.11 X7	Exceed
RL-1	ASI	SZ	4/13/2023	0.787	<0.192	<1.24	<0.814	<0.880	--	--	--	--	--	<0.517	<6.60	<0.605	<3.30	<7.81	~
RL-1	ASI	SZ	10/18/2023	4.41	3.25	<1.24 U	4.06 J	9.80 J	--	--	--	--	--	<4.39 U	<8.78 U	<5.29 U	<1.35 U	<11.1 U*	Exceed
RL-1	**ASI**	**SZ**	**4/17/2024**	**<0.0583 U**	**<0.0382 U**	**<1.14 U**	**<0.767 U**	**<0.829 U**	**--**	**--**	**--**	**--**	**--**	**<4.04 U**	**<8.08 U**	**<4.87 U**	**<1.24 U**	**<10.3 U***	**~**
RL-1-ReSamp-ReRun	**ASI**	**SZ**	**5/21/2024**	**<0.0583 U**	**<0.0382 U**	**<1.14 U**	**<0.767 U**	**<0.829 U**	**--**	**--**	**--**	**--**	**--**	**<4.04 U**	**<8.08 U**	**<4.87 U**	**<1.24 U**	**<10.3 U***	**~**
RL-1	ASI	SZ	10/24/2024	<0.0594 U	<0.0390 U	<1.10 U	<0.738 U	<0.798 U	--	--	--	--	--	<3.89 U	<7.78 U	<4.69 U	<1.20 U	<9.88 U	~
RL-1	ASI	SZ	05/01/25	<0.0614 U	<0.0403 U	<1.13 U	<0.762 U	<0.824 U	--	--	--	--	--	<4.02 U	<8.03 U	<4.84 U	<1.24 U	<10.2 U*	~
RW-15	EI	SZ	5/4/1994	1900	2000	72	570	450	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/22/1993	49000	40000	1600	14000	9300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	6/20/1994	33000	32000	810	7400	8300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/10/1994	41000	30000	1000	12000	5500	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	4/26/1995	40000	38000	1300	11000	6800	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/21/1995	35000	29000	<0	11000	7400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	4/27/1996	31000	39000	10000	2100	<0	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/20/1996	32000 D	26000 D	970	7900 D	2600	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	7/1/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
RW-21	EI	SZ	7/8/1997	36000 D	27000 D	810	7900 D	5800 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/1/1997	27000 D	27000 D	750	7800	<520	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	5/14/1998	4300 D	21000 D	590 D	6400 D	160	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/29/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-21	EI	SZ	4/24/1999	25000 D	26000 D	620	4900 D	1900	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/27/1999	13000	17000	550	5900 D	<50	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	6/7/2000	21000 D	23000 D	500	410	<200	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/9/2000	32000 D	25000 D	740	6500 D	1400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	4/10/2001	26000	28000	1000 J	8900	<2000	--	--	--	--	--	<2000	<4000	<2000	<4000	--	Exceed
RW-21	EI	SZ	10/27/2001	25000 D	20000 D	550 D	5300 D	3200 D	--	--	--	--	--	<50	<100	<50	14 J	--	Exceed
RW-21	EI	SZ	4/23/2002	21000 D	19000 D	720	7800 D	3100 D	--	--	--	--	--	<99	<200	8.2 J	22 J	--	Exceed
RW-21	EI	SZ	10/7/2002	18000 D	17000 D	650 D	6400 D	56	--	--	--	--	--	<9	2.1 J	6.8 J	7 J	--	Exceed
RW-21	EI	SZ	4/3/2003	10000	16000 D	450 J	4500	230 J	--	--	--	--	--	<950	<1900	<950	<1900	--	Exceed
RW-21	EI	SZ	10/3/2003	9100	9900	<4800	3000 J	<4800	--	--	--	--	--	<4800	<9500	<4800	<9500	--	Exceed
RW-21	EI	SZ	4/19/2004	8300	14000	270	2200	42 J	--	--	--	--	--	<200	<390	<200	<390	--	Exceed
RW-21	EI	SZ	10/22/2004	12000	15000	540	3200	<110	--	--	--	--	--	<110	<21	<110	<210	--	Exceed
RW-21	EI	SZ	4/7/2005	5100	6900	320	2500	<100	--	--	--	--	--	<100	<100	<100	12 J	--	Exceed
RW-21	EI	SZ	10/12/2005	12000	14000	490 J	4600	98 J	--	--	--	--	--	<960	<960	<960	<960	--	Exceed
RW-21	EI	SZ	4/11/2006	10000	17000	330	3600	410	--	--	--	--	--	<110	<110	<110	<110	--	Exceed
RW-21	EI	SZ	11/2/2006	11000	14000	390	3900	<97	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-21	EI	SZ	4/6/2007	7100	15000	420	4600	11 J	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-21	EI	SZ	10/2/2007	17000	13000	510	5200	1300	--	--	--	--	--	<13	<6.4	<10	<42	--	Exceed
RW-21	EI	SZ	10/21/2008	5300	4300	170	1600	1300	--	--	--	--	--	<9.9	130	<11	190	--	Exceed
RW-21	EI	SZ	10/12/2009	1210	1570	64.1 J	586	357	--	--	--	--	--	<9.75	41.9 J	<11.0	50.7 J	--	Exceed
RW-21	EI	SZ	4/9/2010	19700	16700	584	5290	4170	--	--	--	--	--	<9.75	<15.7	<11.0	22.8 J	--	Exceed
RW-21	EI	SZ	10/18/2010	9590	11500	406	2270	<14.8	--	--	--	--	--	<9.84	<15.9	<11.1	16.4 J	--	Exceed
RW-21	EI	SZ	4/19/2011	11700	12000	359	2590	1150	--	--	--	--	--	<11.3	<49.4	<14.9	19.7 J	<32.0 J	Exceed
RW-21	EI	SZ	10/13/2011	6020	11100	303 J	2520	<14.5 J	--	--	--	--	--	<11.1 J	<48.5 J	<14.6 J	11 J	<31.4 J	Exceed
RW-21	EI	SZ	4/18/2012	10700	12400	412	4090	<14.4	--	--	--	--	--	<11.0	<48.0	<14.4	9.26 J	--	Exceed
RW-21	EI	SZ	10/11/2012	14400	11700	277	2370	980	--	--	--	--	--	<10.0	<50.4	<12.3	<30.3	--	Exceed
RW-21	EI	SZ	4/23/2013	1230	11800	104	20.4 J	<14.4	--	--	--	--	--	<9.56	<48.0	<11.7	85.9 J	<31.1 L	Exceed
RW-21	EI	SZ	10/21/2013	6600	5400	160	1100	460	--	--	--	--	--	<12	<14	<12	<7.3	<130	Exceed
RW-21	EI	SZ	4/10/2014	13000	12000	380	3800	250	--	--	--	--	--	<1.2	<1.4	3.8 J	<0.73	<4.4	Exceed
RW-21	EI	SZ	10/21/2014	290	3.9 J	39	43	11	--	--	--	--	--	<1.2	<1.4	<1.3	4.1 J	<4.5	Exceed
RW-21	EI	SZ	4/20/2015	8,100	9100	130	380	<1.1	--	--	--	--	--	<1.2	<1.4	<1.2	<0.73	<4.4	Exceed
RW-21	EI	SZ	10/19/2015	946	510	13.7 J	119	108	--	--	--	--	--	<1.89	<1.44	<1.22	22.9 J	<44.6	Exceed
RW-21	EI	SZ	4/21/2016	345	221	4.55 J X7	40.4 X7	39.8 X7	--	--	--	--	--	<1.11	2.79 J	<1.13	19.9	78.8 X7	Exceed
RW-21	EI	SZ	10/20/2016	367	354	6.44 J X7	62.3 X7	47.3 X7	--	--	--	--	--	<1.15	2.17 J	<1.18	17.5	80.7 X7	Exceed
RW-21	EI	SZ	4/21/2017	176	30.3	2.33 J X7	34.5 X7	16.8 X7	--	--	--	--	--	<1.11	1.28 J	<1.13	15.4	18.1 J X7	Exceed
RW-21	EI	SZ	10/19/2017	163	179	3.85 J X7	43.5 X7	29.7 X7	--	--	--	--	--	<1.39	<1.58	<1.42	4.75 J	49.7 X7	Exceed
RW-21	EI	SZ	4/19/2018	76.0	10.3	<0.610 X7	1.61 J X7	1.57 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	7.22 J	<4.16 X7	Exceed
RW-21	EI	SZ	10/29/2018	57.2	7.79 J	<0.622 LX7	<1.09 X7	<1.08 LX7	--	--	--	--	--	<1.17	<1.34	<1.20	2.12 J	<4.24 X7	Exceed
RW-21	EI	SZ	4/18/2019	84.4 H	98.3	3.55 J X7	33.3 X7	29.1 X7	--	--	--	--	--	<1.16	<1.32	<1.19	6.81 J	15.5 J X7	Exceed
RW-21	EI	SZ	10/28/2019	42.4	6.54 J	<0.629 X7	1.35 J X7	1.45 J X7	--	--	--	--	--	<1.19	<1.35	<1.22	2.23 J	6.29 J X7	Exceed
RW-21	EI	SZ	4/29/2020	12.5	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	5.00 J	5.69 J X7	Exceed
RW-21	EI	SZ	10/22/2020	17.2	3.77	<0.630 X7	5.47 X7	3.83 J X7	--	--	--	--	--	<0.175	.297 J	<0.113	2.04 J	16.2 X7	Exceed
RW-21	EI	SZ	4/28/2021	10.1	1.91	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.516	<6.59	<0.604	<3.29	9.29 J X7	Exceed
RW-21	EI	SZ	10/26/2021	31.1	8.75	<1.26 X7	1.08 J X7	0.905 J X7	--	--	--	--	--	<0.522	<6.67	<0.611	<3.33	<7.89 X7	Exceed
RW-21	EI	SZ	4/27/2022	4.77	1.37	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.453	<5.79	<0.531	<2.89	<6.85 X7	Exceed
RW-21	EI	SZ	11/4/2022	4.71	1.09	<1.07 X7	1.04 J X7	0.938 J	--	--	--	--	--	<0.447	<5.70	<0.523	6.05 J	<6.75 X7	Exceed
RW-21	EI	SZ	4/19/2023	23.0	6.76	<1.15	1.46 J	1.66 J	--	--	--	--	--	<0.480	<6.12	<0.561	<3.06	<7.24	Exceed
RW-21	EI	SZ	10/18/2023	84	8.99	<1.18 U	1.64 J	1.02 J	--	--	--	--	--	<4.18 U	<8.36 U	<5.04 U	<1.29 U	<10.6 U*	Exceed
RW-21	EI	SZ	4/4/2024	18.4	10.4	<1.27 U	3.30 J	2.76 J	--	--	--	--	--	<4.51 U	<9.03 U*	<5.44 U	1.66 J	<11.5 U*	Exceed
RW-21	EI	SZ	10/23/2024	31.6	10.4	<1.05 U	2.90 J	3.02 J	--	--	--	--	--	<3.73 U	<7.45 U	<4.49 U	<1.15 U	<9.46 U*	Exceed
RW-21	EI	SZ	05/09/25	22.1	12.7	<1.07 U	3.12 J	2.83 J	--	--	--	--	--	<3.81 U	<7.61 U	<4.59 U	<1.17 U	<9.66 U*	Exceed
RW-22	ASI	IZ	11/10/1993	<0	<0	<0	22	13	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	6/20/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-22	ASI	IZ	10/30/1994	<0	<0	21	88	<0	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/26/1995	<0	14	81	1000	820	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	11/21/1995	17	53	88	240	770	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/22/1996	<0	<0	<0	3100	2300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/29/1996	<0	96	210	1800	1300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	5/2/1996	<0	<0	150	1300	440	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	11/27/1996	120	79	130	410 D	260	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/22/1997	34	21	45	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/29/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
RW-22	ASI	IZ	11/1/1997	110	<56	95	130	210	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	5/14/1998	70	38	99	150 D	41	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	10/27/1998	100	38	72	25	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	10/7/1999	460 E	78	420 E	2200 D	2100 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	6/13/2000	37 J	<50	27 J	170	380	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	10/12/2000	32 J	26 J	<100	<100	48 J	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/28/2001	290 D	78	130 J D	1800 D	1300 D	--	--	--	--	--	<10	2400 D	<10	350 J D	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-22	ASI	IZ	10/26/2001	310	81	160	2000 D	1400 D	--	--	--	--	--	<50	2400 D	<50	320	--	Exceed
RW-22	ASI	IZ	4/23/2002	350	99 J	220	2100 D	1500	--	--	--	--	--	<110	850	<110	370	--	Exceed
RW-22	ASI	IZ	10/7/2002	310 D	74	120	1300 D	1100 D	--	--	--	--	--	<10	2100 D	1.2 J	310 D	--	Exceed
RW-22	ASI	IZ	4/3/2003	120 J	<950	88 J	1100	1400	--	--	--	--	--	<950	3600	<950	310 J	--	Exceed
RW-22	ASI	IZ	10/3/2003	320 J	<950	190 J	1900	1700	--	--	--	--	--	<950	4400	<950	480 J	--	Exceed
RW-22	ASI	IZ	4/19/2004	340	54 J	140	1500	1400	--	--	--	--	--	<100	3200	<100	410	--	Exceed
RW-22	ASI	IZ	10/22/2004	330	64	140	1800	1600	--	--	--	--	--	<10	2900	<10	470	--	Exceed
RW-22	ASI	IZ	4/7/2005	160	28 J	110	930	870	--	--	--	--	--	<98	2400	<98	260	--	Exceed
RW-22	ASI	IZ	10/12/2005	460	97 J	210	2000	1600	--	--	--	--	--	<190	3900	<190	550	--	Exceed
RW-22	ASI	IZ	4/11/2006	520	100	250	3300	2600	--	--	--	--	--	<100	3000	<100	680	--	Exceed
RW-22	ASI	IZ	11/2/2006	600	120	220	2400	2000	--	--	--	--	--	<98	6000	<98	580	--	Exceed
RW-22	ASI	IZ	4/6/2007	370	62 J	200	1500	1600	--	--	--	--	--	<98	1700	<98	800	--	Exceed
RW-22	ASI	IZ	10/2/2007	370	110	170	1000	1800	--	--	--	--	--	<13	880	<10	550	--	Exceed
RW-22	ASI	IZ	4/10/2008	430	110	190	1200	1100	--	--	--	--	--	<0.95	500	<1.1	590	--	Exceed
RW-23	ASI	IZ	11/10/1993	<0	<0	<0	11	12	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	6/20/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	10/30/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	4/26/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	11/21/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	5/31/1996	<0	<0	<0	14	<0	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	11/27/1996	<10	<10	<10	17	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	4/22/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	11/1/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	5/14/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	10/27/1998	<10	<10	<10	13	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	4/24/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	10/7/1999	<10	<10	<10	21	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	6/13/2000	<10	<10	<10	10	7.5 J	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	10/12/2000	<10	<10	<10	12	7.7 J	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	4/10/2001	4.9 J	3.3 J	3.1 J	48	13	--	--	--	--	--	<10	8.5 J	<10	<20	--	Exceed
RW-23	ASI	IZ	10/26/2001	2 J	<10	2.8 J	37	30	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
RW-23	ASI	IZ	4/23/2002	7.4 J	5.2 J	14	130	110	--	--	--	--	--	<10	81	<10	10 J	--	Exceed
RW-23	ASI	IZ	10/7/2002	8.2 J	7.8 J	2.8 J	29	11	--	--	--	--	--	<9	5.6 J	<9	1.1 J	--	Exceed
RW-23	ASI	IZ	4/3/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
RW-23	ASI	IZ	1/7/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
RW-23	ASI	IZ	4/28/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
RW-23	ASI	IZ	10/22/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
RW-23	ASI	IZ	4/12/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
RW-23	ASI	IZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
RW-23	ASI	IZ	4/13/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
RW-23	ASI	IZ	10/18/2006	<9.9	<9.9	<9.9	0.93 J	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
RW-23	ASI	IZ	4/10/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
RW-23	ASI	IZ	10/10/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
RW-23	ASI	IZ	4/17/2008	<2.8	1.6 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
RW-23	ASI	IZ	10/23/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
RW-23	ASI	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-23	ASI	IZ	10/21/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-23	ASI	IZ	4/9/2010	<2.77	<0.987	<0.998	2.08 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-23	ASI	IZ	10/21/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	~
RW-23	ASI	IZ	4/26/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
RW-23	ASI	IZ	10/18/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17	~
RW-23	ASI	IZ	4/27/2012	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	--	~
RW-23	ASI	IZ	10/17/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	~
RW-23	ASI	IZ	4/25/2013	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	--	--	<0.994	<4.99	<1.21	<3.00	<3.24 L	~
RW-23	ASI	IZ	10/22/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13 L	~
RW-23	ASI	IZ	4/18/2014	13	31	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
RW-23	ASI	IZ	10/21/2014	<0.94	<0.63	<0.60 L	<1.1 L	<1.0 L	--	--	--	--	--	<1.1	<1.3 L	<1.2	<0.68	<4.1 L	~
RW-23	ASI	IZ	4/22/2015	<1.1	<0.72	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
RW-23	ASI	IZ	10/19/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
RW-23	ASI	IZ	4/20/2016	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-23	ASI	IZ	10/26/2016	<0.95	<0.64	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.69	<4.16 X7	~
RW-23	ASI	IZ	4/19/2017	15.9	9.04 J	2.45 J X7	40.2 X7	17 X7	--	--	--	--	--	<1.40	41.0	<1.44	2.81 J	<5.07 X7	Exceed
RW-23	ASI	IZ	5/31/2017	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
RW-23	ASI	IZ	10/18/2017	2.13 J	1.89 J	<0.693 X7	<1.22 LX7	<1.2 X7	--	--	--	--	--	<1.31 L	<1.49 L	<1.34 L	<0.784	R	Exceed
RW-23	ASI	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-23	ASI	IZ	10/29/2018	<0.950	<0.640	<0.610 LX7	<1.07 X7	<1.06 LX7	--	--	--	--	--	<1.15	<1.31 L	<1.18	<0.690 L	<4.16 X7	~
RW-23	ASI	IZ	4/17/2019	<1.03	<0.696	<0.663 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<1.25	<1.42	<1.28	<0.750	<4.52 X7	~
RW-23	ASI	IZ	10/28/2019	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
RW-23	ASI	IZ	4/22/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-23	ASI	IZ	10/22/2020	.301 J	<0.0816	<0.623 X7	4.02 J X7	2.08 J X7	--	--	--	--	--	<0.173	0.286 J	<0.112	<0.133	<4.09 X7	~
RW-23	ASI	IZ	4/27/2021	0.107	0.0517 J	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.505	<6.45	<0.592	<3.23	<7.64 X7	~
RW-23	ASI	IZ	10/14/2021	0.0848 J	<0.037	<1.13 X7	<0.738 X7	<0.798 X7	--	--	--	--	--	<0.469	<5.98	<0.548	<2.99	<7.08 X7	~
RW-23	ASI	IZ	4/25/2022	<0.0583	<0.0382	<1.10 X7	<0.719 X7	<0.777 X7	--	--	--	--	--	<0.457	<5.83	<0.534	<2.91	<6.90 X7	~
RW-23	ASI	IZ	10/13/2022	1.05	1.05	<1.13 X7	<0.739 X7	<0.799 X7	--	--	--	--	--	<0.469	<5.99	<0.549	<3.00	<7.09 X7	~
RW-23	ASI	IZ	4/18/2023	<0.0575	<0.0377	<1.20	<0.783	<0.846	--	--	--	--	--	<0.497	<6.35	<0.582	<3.17	<7.51	~
RW-23	ASI	IZ	10/16/2023	<0.0583 U	<0.0382 U	<1.21 U	<0.817 U	<0.883 U	--	--	--	--	--	<4.31 U	<8.61 U	<5.19 U	<1.33 U	<10.9 U*	~
RW-23	ASI	IZ	4/19/2024	0.776	1.62	<1.08 U	<0.724 U	<0.783 U	--	--	--	--	--	<3.82 U	<7.64 U*	<4.60 U	<1.17 U	<9.69 U*	Exceed
RW-23	ASI	IZ	10/23/2024	0.862	1.25	<1.06 U	<0.713 U	<0.771 U	--	--	--	--	--	<3.76 U	<7.52 U	<4.53 U	<1.16 U	<9.54 U*	~
RW-23	ASI	IZ	05/05/25	<0.0616 U	<0.0404 U	<1.19 U	<0.797 U	<0.862 U	--	--	--	--	--	<4.20 U	<8.41 U*	<5.06 U	<1.29 U	<10.7 U*	~
RW-24	EI	IZ	9/2/1992	44	190	13	140	101	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	6/20/1994	38	150	11	96	93	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	10/30/1994	27	98	<0	76	55	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	4/12/1995	45	140	12	95	85	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	11/9/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	5/3/1996	170	540	26	330	230	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	11/20/1996	120	320	<50	190	150	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	4/29/1997	12	31	<10	13	18	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	11/1/1997	190	440	<50	280	210	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	5/7/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	10/21/1998	16	21	14	220 E	68	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	4/23/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	10/20/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-24	EI	IZ	5/18/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	10/6/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	4/3/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	4.9 J	<10	<20	--	~
RW-24	EI	IZ	10/24/2001	<50	<50	<50	<50	<50	--	--	--	--	--	<50	<100	<50	<100	--	Exceed
RW-24	EI	IZ	4/25/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<21	<10	<21	--	Exceed
RW-24	EI	IZ	10/7/2002	<11	<11	<11	<11	<11	--	--	--	--	--	<11	<21	<11	<21	--	Exceed
RW-24	EI	IZ	4/2/2003	<48	<48	<48	<48	<48	--	--	--	--	--	<48	<95	<48	<95	--	Exceed
RW-24	EI	IZ	10/7/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	0.78 J	<9.5	<19	--	Exceed
RW-24	EI	IZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
RW-24	EI	IZ	10/22/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<21	<10	<21	--	~
RW-24	EI	IZ	10/23/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<21	<10	<21	--	~
RW-24	EI	IZ	4/11/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
RW-24	EI	IZ	10/13/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
RW-24	EI	IZ	4/12/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
RW-24	EI	IZ	10/18/2006	<9.8	<9.8	<9.8	2.8 J	2 J	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
RW-24	EI	IZ	4/10/2007	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
RW-24	EI	IZ	10/4/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	--	--	<1.3	<0.62	<1.0	<4.1	--	Exceed
RW-24	EI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
RW-24	EI	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	Exceed
RW-24	EI	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-24	EI	IZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
RW-24	EI	IZ	4/22/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-24	EI	IZ	10/21/2010	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
RW-24	EI	IZ	4/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
RW-24	EI	IZ	4/24/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
RW-24	EI	IZ	4/16/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
RW-24	EI	IZ	4/19/2016	<0.950	0.772 J	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-24	EI	IZ	4/23/2018	<0.913	<0.615	<0.587 LX7	<1.03 LX7	<1.02 LX7	--	--	--	--	--	<1.11 L	<1.26 L	<1.13 L	<0.663 L	R	~
RW-24	EI	IZ	5/1/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-24	EI	IZ	4/28/2021	<0.0658	<0.0432	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.495	<6.33	<0.580	<3.16	<7.48 X7	~
RW-24	EI	IZ	4/25/2022	<0.0602	<0.0395	<1.09 X7	<0.712 X7	<0.770 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.89	<6.83 X7	~
RW-24	EI	IZ	4/18/2024	<0.0622	<0.0408	<1.19 U	<0.802 U	<0.867 U	--	--	--	--	--	<4.23 U	<8.46 U	<5.10 U	<1.30 U	<10.7 U*	~
RW-25	EI	LSZ	8/30/1995	24000	46000	2100	24000	18000	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	9/24/1995	19000 D	34000 D	1200	18000 D	13000 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	10/28/1998	16000 D	7500 D	370	3800 D	2800 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	4/24/1999	2200 D	4400 D	140	1300 D	210	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	10/27/1999	910 D	2800 D	150	1900 D	33	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	6/13/2000	2900	2500	<500	1000	820	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	10/9/2000	240	100	<100	390	400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	12/28/2001	2900 D	3200 D	180	1400	930	--	--	--	--	--	<100	<200	<100	<200	--	Exceed
RW-25	EI	LSZ	4/23/2002	3400 D	3400 D	220	2000 D	1400	--	--	--	--	--	<100	320	<100	680	--	Exceed
RW-25	EI	LSZ	4/17/2003	2500 D	1500 D	71	640 D	430 J D	--	--	--	--	--	<9	<19	<9	7.3 J	--	Exceed
RW-25	EI	LSZ	10/3/2003	660	380	25 J	250	180	--	--	--	--	--	<95	310	<95	120 J	--	Exceed
RW-25	EI	LSZ	4/19/2004	1300	930	35 J	350	230	--	--	--	--	--	<98	<200	<98	<200	--	Exceed
RW-25	EI	LSZ	10/22/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	470	<10	<20	--	Exceed
RW-25	EI	LSZ	10/23/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	340	<9.5	<19	--	Exceed
RW-25	EI	LSZ	4/7/2005	<97	1200	58 J	57 J	<97	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-25	EI	LSZ	10/13/2005	1300	2200	88	880	520	--	--	--	--	--	<49	<49	<49	<49	--	Exceed
RW-25	EI	LSZ	4/11/2006	1100	3600	120	630	<100	--	--	--	--	--	<100	<100	<100	<100	--	Exceed
RW-25	EI	LSZ	11/2/2006	250	5400	220	530	25 J	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-25	EI	LSZ	4/6/2007	<98	3400	93 J	<98	<98	--	--	--	--	--	<98	<98	<98	<98	--	Exceed
RW-25	EI	LSZ	10/2/2007	4500	3400	160	1700	1300	--	--	--	--	--	<13	<6.3	<10	<42	--	Exceed
RW-25	EI	LSZ	10/12/2009	3360	2710	128	1250	812	--	--	--	--	--	<9.47	<15.3	<10.7	13.1 J	--	Exceed
RW-25	EI	LSZ	4/9/2010	3560	4510	232	1770	927	--	--	--	--	--	<9.65	<15.6	<10.9	18.4 J	--	Exceed
RW-25	EI	LSZ	10/18/2010	49 J	895	47.3 J	<10.6	<14.9	--	--	--	--	--	<9.94	<16.0	<11.2	<8.75	--	Exceed
RW-25	EI	LSZ	4/19/2011	111	5630	157	<10.4	841	--	--	--	--	--	<11.2	<49.0	<14.7	39.7 J	<31.7 J	Exceed
RW-25	EI	LSZ	4/26/2012	482	311	18.3	160	152	--	--	--	--	--	<1.10	559	<1.44	57.5	--	Exceed
RW-25	EI	LSZ	10/24/2013	11000	9500	330	3600	3200	--	--	--	--	--	<1.2	71	<1.2	66	670	Exceed
RW-25	EI	LSZ	10/21/2014	1400	870	34	150	90	--	--	--	--	--	<1.1	<1.3	<1.1	<0.67	<4.0	Exceed
RW-25	EI	LSZ	4/20/2015	830	2,600	87	790	380	--	--	--	--	--	<1.2	<1.3	<1.2	<0.70	<4.2	Exceed
RW-25	EI	LSZ	10/14/2015	6,050	9,680	344	3,390	2,350	--	--	--	--	--	<11.7	<13.4	<12.0	<7.04	<42.4	Exceed
RW-25	EI	LSZ	4/8/2016	9370	9780	345 X7	3160 X7	2590 X7	--	--	--	--	--	<12.1	<13.8	<12.4	9.43 J	<43.8 X7	Exceed
RW-25	EI	LSZ	10/25/2016	13,400	12,900	365 X7	4,340 X7	2,680 X7	--	--	--	--	--	<1.15	<1.31	<1.18	14	<4.16 LX7	Exceed
RW-25	EI	LSZ	4/18/2017	10,200	9,750	296 X7	3,190 X7	2,070 X7	--	--	--	--	--	<1.32	<1.51	<1.36	5.71 J	<4.78 X7	Exceed
RW-25	EI	LSZ	10/17/2017	11900	10700	344 X7	3780 X7	2740 X7	--	--	--	--	--	<1.26	<1.44	2.65 J	5.58 J	<4.57 X7	Exceed
RW-25	EI	LSZ	4/18/2018	4,790	8,340	188 J X7	2,560 X7	28.5 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	Exceed
RW-25	EI	LSZ	10/25/2018	311	6,300	255 LX7	2310 X7	26.7 LX7	--	--	--	--	--	<1.26	<1.44	2.06 J	<0.758	<4.57 X7	Exceed
RW-25	EI	LSZ	4/17/2019	482 JH	6,410	266 J X7	1,730 X7	<57.0 X7	--	--	--	--	--	<61.8	<70.4	<63.4	<37.1	<224 X7	Exceed
RW-25	EI	LSZ	10/24/2019	<96.0	7440	<61.6 X7	79.5 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	29.5	<4.20 X7	Exceed
RW-25	EI	LSZ	4/20/2020	368 J	6330	159 J X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<1.22	<1.39	<1.26	20.0	<4.43 X7	Exceed
RW-25	EI	LSZ	10/21/2020	9,350	8,650	201 J X7	2740 X7	1620 X7	--	--	--	--	--	<8.59	<6.57	<5.56	32.7 J	<203 X7	Exceed
RW-25	EI	LSZ	4/26/2021	8,400	6,430	169 X7	2840 X7	1640 X7	--	--	--	--	--	<0.527	<6.73	3.64 J	12.3	<7.96 X7	Exceed
RW-25	EI	LSZ	10/25/2021	6,500	4,350	317 X7	3470 X7	2580 X7	--	--	--	--	--	<0.492	<6.28	3.95 J	9.73 J	<7.43 X7	Exceed
RW-25	EI	LSZ	4/18/2022	5530	5960	281 X7	2690 X7	2020 X7	--	--	--	--	--	<0.996	<12.7	2.86 J	20.9 J	<15.0 X7	Exceed
RW-25	EI	LSZ	10/13/2022	5470	6150	253 X7	2200 X7	626 X7	--	--	--	--	--	<0.468	<5.97	2.75 J	7.01 J	<7.07 X7	Exceed
RW-25	EI	LSZ	4/13/2023	7710	5570	246	2160	1840	--	--	--	--	--	<0.977	<12.5	2.01 J	8.61 J	<14.8	Exceed
RW-25	EI	LSZ	10/18/2023	8550	7900	149	1960	1360	--	--	--	--	--	<3.89 U	<7.78 U	<4.69 U	20.2	<9.87 U*	Exceed
RW-25	EI	LSZ	4/12/2024	6980	5920	215	2230	1740	--	--	--	--	--	<3.91 U	<7.81 U	<4.71 U	10.3	<9.92 U	Exceed
RW-25	EI	LSZ	10/23/2024	5310	4610	230	2290	1630	--	--	--	--	--	<3.71 U	<7.41 U	<4.47 U	11.1	<9.41 U	Exceed
RW-25	EI	LSZ	04/30/25	3050	5270	204	2220	5.18 J	--	--	--	--	--	<3.90 U	<7.80 U	<4.70 U	2.17 J	<9.90 U*	Exceed
RW-26	EI	IZ	8/30/1995	520	2400	<0	1800	1000	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	9/24/1995	600	2600 D	190	2000 D	1100 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	10/28/1998	11	36	<10	86	140	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	4/24/1999	790 D	1200 D	70	690 D	440 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	10/27/1999	600 D	980 D	69	720 D	410 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	6/13/2000	520	850	57 J	570	400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	10/9/2000	640	860	52 J	610	420	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	4/10/2001	340 D	600 D	33	450 D	200 D	--	--	--	--	--	<10	9.1 J	<10	4.9 J	--	Exceed
RW-26	EI	IZ	10/27/2001	190 D	250 D	17	200 D	130	--	--	--	--	--	<10	9.2 J	<10	5.8 J	--	Exceed
RW-26	EI	IZ	4/23/2002	150 D	220 D	20	120	1.4 J	--	--	--	--	--	<10	7.7 J	<10	6.2 J	--	Exceed
RW-26	EI	IZ	10/7/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	110	<10	<20	--	Exceed
RW-26	EI	IZ	4/2/2003	<480	<480	<480	<480	<480	--	--	--	--	--	<480	30 J	<480	<950	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-26	EI	IZ	10/3/2003	97	100	6.5 J	81	62	--	--	--	--	--	<9.5	4.6 J	<9.5	4.5 J	--	Exceed
RW-26	EI	IZ	4/19/2004	63	78	3.9 J	36	<9.7	--	--	--	--	--	<9.7	1.6 J	<9.7	4.9 J	--	Exceed
RW-26	EI	IZ	10/22/2004	57	63	4.7 J	57	38	--	--	--	--	--	<9.6	2.6 J	<9.6	4.4 J	--	Exceed
RW-26	EI	IZ	10/23/2004	65	63	4.9 J	59	40	--	--	--	--	--	<10	4.1 J	<10	5.4 J	--	Exceed
RW-26	EI	IZ	4/7/2005	60	65	6.1 J	65	45	--	--	--	--	--	<9.7	2.6 J	<9.7	4 J	--	Exceed
RW-26	EI	IZ	10/12/2005	61	70	5.5 J	64	43	--	--	--	--	--	<9.5	2.4 J	<9.5	4.9 J	--	Exceed
RW-26	EI	IZ	4/11/2006	57	54	4.3 J	52	36	--	--	--	--	--	<19	1.8 J	<19	<19	--	Exceed
RW-26	EI	IZ	11/2/2006	55	47	4.1 J	51	33	--	--	--	--	--	<9.7	1.4 J	<9.7	<9.7	--	Exceed
RW-26	EI	IZ	4/6/2007	45	46	3.3 J	44	30	--	--	--	--	--	<9.6	1.1 J	<9.6	<9.6	--	Exceed
RW-26	EI	IZ	10/2/2007	31	29	2.7 J	30	16	--	--	--	--	--	<1.3	3 J	<1.1	<4.3	--	Exceed
RW-26	EI	IZ	4/16/2008	43	40	3.5 J	47	30	--	--	--	--	--	<0.95	1.9 J	<1.1	4.1 J	--	Exceed
RW-26	EI	IZ	10/20/2008	42	47	3.9 J	53	35	--	--	--	--	--	<0.98	<1.6	<1.1	2.3 J	--	Exceed
RW-26	EI	IZ	4/17/2009	51.1	50.4	3.85 J	56.4	36.5	--	--	--	--	--	<0.975	<1.57	<1.10	5.19 J	--	Exceed
RW-26	EI	IZ	10/12/2009	59	53.8	3.47 J	43.2	29.9	--	--	--	--	--	<0.975	<1.57	<1.10	2.54 J	--	Exceed
RW-26	EI	IZ	4/9/2010	44.3	44.1	2.89 J	37.6	24.9	--	--	--	--	--	<0.975	<1.57	<1.10	1.73 J	--	Exceed
RW-26	EI	IZ	10/18/2010	43	40.5	2.9 J	37.2	25.4	--	--	--	--	--	<0.975	<1.57	<1.10	1.43 J	--	Exceed
RW-26	EI	IZ	4/19/2011	44.2	46.5	8.12 J	30.7	23	--	--	--	--	--	<1.13	<4.94	<1.49	2.44 J	23 J	Exceed
RW-26	EI	IZ	10/13/2011	33.4	37.2	2.65 J	27.4	14.4	--	--	--	--	--	<1.12	<4.90	<1.47	1.39 J	14.2 J	Exceed
RW-26	EI	IZ	4/18/2012	35.2	37.3	2.64 J	38.4	23.4	--	--	--	--	--	<1.10	<4.80	<1.44	1.89 J	--	Exceed
RW-26	EI	IZ	10/11/2012	39.8 J	44.8 J	2.58 J	37.9	21.3	--	--	--	--	--	<0.975	<4.90	<1.19	<2.94	--	Exceed
RW-26	EI	IZ	4/23/2013	51.5	56.6	1.14 J	30	16.1	--	--	--	--	--	<0.975	<4.90	<1.19	8.95 J	31.6 J	Exceed
RW-26	EI	IZ	10/21/2013	46	50	3.3 J	38	25	--	--	--	--	--	<1.2	<1.3	<1.2	2.3 J	<13	Exceed
RW-26	EI	IZ	4/10/2014	49	54	3.7 J	40	26	--	--	--	--	--	<1.2	<1.4	<1.3	1.9 J	<4.5	Exceed
RW-26	EI	IZ	10/21/2014	40	46	3.6 J	39	27	--	--	--	--	--	<1.2	<1.4	<1.2	1.6 J	<4.4	Exceed
RW-26	EI	IZ	4/20/2015	34	37	1.7 J	25	16	--	--	--	--	--	<1.2	<1.4	<1.2	1.7 J	5.5 J	Exceed
RW-26	EI	IZ	10/14/2015	29.8	34.9	1.96 J	25.5	15.0	--	--	--	--	--	<1.24	<1.41	<1.27	1.37 J	8.88 J	Exceed
RW-26	EI	IZ	4/8/2016	35.7	37.9	2.41 J X7	28.5 X7	18.6 X7	--	--	--	--	--	<1.22	<1.39	<1.26	1.88 J	<4.43 X7	Exceed
RW-26	EI	IZ	10/25/2016	37.5	42.1	2.48 J X7	34.4 X7	17.9 X7	--	--	--	--	--	<1.16	<1.32	<1.19	1.45 J	18.2 J X7	Exceed
RW-26	EI	IZ	4/18/2017	29.8	32.9	1.94 J X7	27.6 X7	14.6 X7	--	--	--	--	--	<1.26	<1.44	<1.30	1.22 J	<4.57 X7	Exceed
RW-26	EI	IZ	10/17/2017	32.7	35.7	2.9 J X7	36.3 X7	21.5 X7	--	--	--	--	--	<1.31	<1.49	<1.34	1.43 J	<4.73 X7	Exceed
RW-26	EI	IZ	4/18/2018	29	33.1	1.98 J X7	28.9 X7	14 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	Exceed
RW-26	EI	IZ	10/25/2018	24.1	27.7	1.51 JLX7	23.3 X7	11.5 LX7	--	--	--	--	--	<1.28	<1.46	<1.31	<0.767	<4.62 X7	Exceed
RW-26	EI	IZ	4/17/2019	22.3 H	21.2	1.92 J X7	22.6 X7	13.7 X7	--	--	--	--	--	<1.34	1.88 J	<1.37	1.87 J	<4.84 X7	Exceed
RW-26	EI	IZ	10/24/2019	20.1	21.5	<0.604 X7	16.0 X7	12.9 X7	--	--	--	--	--	<1.14	2.53 J	<1.17	1.93 J	5.32 J X7	Exceed
RW-26	EI	IZ	4/20/2020	10.5	17.4	1.91 J X7	<1.10 X7	17.0 X7	--	--	--	--	--	<1.19	<1.35	<1.22	5.79 J	<4.29 X7	Exceed
RW-26	EI	IZ	10/21/2020	15.8	21.0	1.42 J X7	15.5 X7	12.1 X7	--	--	--	--	--	<0.170	3.93	<0.110	2.02 J	38.5 X7	Exceed
RW-26	EI	IZ	4/26/2021	17.6	21.8	<10.7 X7	23.4 X7	13.9 X7	--	--	--	--	--	<0.502	<6.41	<0.588	<3.21	<7.59 X7	Exceed
RW-26	EI	IZ	10/25/2021	12.8	18.6	1.47 J X7	17.3 X7	11.7 J X7	--	--	--	--	--	<0.592	<7.56	<0.693	<3.78	<8.94 X7	Exceed
RW-26	EI	IZ	4/18/2022	9.41	18.1	1.59 J X7	18.9 X7	13.1 X7	--	--	--	--	--	<0.483	<6.16	<0.565	<3.08	<7.29 X7	Exceed
RW-26	EI	IZ	10/13/2022	12.2	20.7	3.07 J X7	21.9 X7	17.4 X7	--	--	--	--	--	<0.480	<6.13	<0.562	<3.06	<7.25	Exceed
RW-26	EI	IZ	4/13/2023	12.2	18.6	1.47 J	18.1	13.6	--	--	--	--	--	<0.458	<5.84	<0.536	<2.92	<6.91	Exceed
RW-26	EI	IZ	10/18/2023	29.5	31.1	<1.14 U	12.2	6.33 J	--	--	--	--	--	<4.04 U	<8.08 U	<4.87 U	<1.24 U	<10.3 U*	Exceed
RW-26	EI	IZ	4/12/2024	16.4	19.8	<1.13 U	13.1	9.39 J	--	--	--	--	--	<4.01 U	<8.01 U	<4.83 U	2.24 J	<10.2 U	Exceed
RW-26	EI	IZ	10/24/2024	1.07	1.52	<1.05 U	1.93 J	1.64 J	--	--	--	--	--	<3.73 U	<7.47 U	<4.50 U	<1.15 U	<9.48 U	Exceed
RW-26	EI	IZ	04/30/25	27.1	35.2	<1.05 U	17.6	11.7	--	--	--	--	--	<3.74 U	<7.48 U	<4.51 U	<1.15 U	<9.49 U*	Exceed
RW-27	ASI	SZ	4/13/2010	26500	7720	4690	43700	28900	--	--	--	--	--	<19.5	<31.4	<22.0	<17.2	--	Exceed
RW-27	ASI	SZ	10/18/2010	14200	4340	3370	33900	16300	--	--	--	--	--	<19.5	<31.4	<22.0	<17.2	--	Exceed
RW-27	ASI	SZ	4/19/2011	18500	6590	3600	36600	24100	--	--	--	--	--	<22.9	<99.9	<30.0	<17.5	<64.7 J	Exceed
RW-27	ASI	SZ	10/13/2011	14600	5250	3740 J	27000	13900	--	--	--	--	--	<22.3 J	<97.0 J	<29.1 J	18.5 J	<62.8 J	Exceed
RW-27	ASI	SZ	4/18/2012	15800	4710	2910	34000	19500	--	--	--	--	--	<1.13	136	12.8	8.13 J	--	Exceed
RW-27	ASI	SZ	10/11/2012	26400	8710	3850	43300	24500	--	--	--	--	--	<96.5	<485	<118	<291	--	Exceed
RW-27	ASI	SZ	4/23/2013	16100	7760	2360	26600	12200	--	--	--	--	--	<1.00	23.2	9.07 J	245	<3.27 L	Exceed
RW-27	ASI	SZ	10/21/2013	18000	4900	2700	35000	24000	--	--	--	--	--	<6.1	2100	<6.2	370	<66	Exceed
RW-27	ASI	SZ	4/10/2014	20000	6500	3600	27000	18000	--	--	--	--	--	<12	<14	<13	<7.4	<45	Exceed
RW-27	ASI	SZ	10/21/2014	18000	7700	3900	39000	24000	--	--	--	--	--	<13	<15	<13	<7.8	<47	Exceed
RW-27	ASI	SZ	4/20/2015	17,000	7,500	3,300	43,000	8,600	--	--	--	--	--	<12	<13	<12	<7.0	<42	Exceed
RW-27	ASI	SZ	10/14/2015	16,500	6,400	3,390	38,500	23,600	--	--	--	--	--	<12.8	<14.6	<13.1	74.4 J	<46.2	Exceed
RW-27	Tech	IZ	4/8/2016	9200	5930	3130 X7	15000 X7	6040 X7	--	--	--	--	--	<14.0	<16.0	<14.4	14.5 J	<50.7 X7	Exceed
RW-27	Tech	IZ	10/25/2016	25,400	7,880	3,860 X7	50,500 X7	26,000 X7	--	--	--	--	--	<11.5	20.8 J	<11.8	34.4 J	<41.6 LX7	Exceed
RW-27	Tech	IZ	4/20/2017	19,900	6,280	2,680 X7	34,700 X7	17,600 X7	--	--	--	--	--	<12.8	72.1 J	13.8 J	29.4 J	<46.2 X7	Exceed
RW-27	Tech	IZ	10/17/2017	12300	4350	1490 X7	21000 X7	11500 X7	--	--	--	--	--	<6.93	518	<7.11	169	<25.1 X7	Exceed
RW-27	ASI	SZ	4/18/2018	9,230	5,470	2,170 X7	36,600 X7	6,350 X7	--	--	--	--	--	<1.15	3.57 J	<1.18	73.4	<4.16 X7	Exceed
RW-27	ASI	SZ	10/25/2018	14,200	4,790	2000 LX7	27600 X7	9870 LX7	--	--	--	--	--	<61.8	<70.4	<63.4	<37.1	<224 X7	Exceed
RW-27	ASI	SZ	4/17/2019	14000 H	5,030	2,450 X7	29,000 X7	5,750 X7	--	--	--	--	--	<68.5	<78.0	<70.2	<41.1	<248 X7	Exceed
RW-27	ASI	SZ	10/24/2019	17800	5340	2320 X7	23200 X7	<113 X7	--	--	--	--	--	<122	<139	<126	<73.4	<443 X7	Exceed
RW-27	ASI	SZ	4/20/2020	4690	2880	1880 X7	14300 X7	<1.10 X7	--	--	--	--	--	<1.20	30.2	<1.23	75.8	<4.33 X7	Exceed
RW-27	ASI	SZ	10/22/2020	15,700	4,950	1,860 X7	28700 X7	19100 X7	--	--	--	--	--	<17.5	<13.4	<11.3	<13.4	<413 X7	Exceed
RW-27	ASI	SZ	4/26/2021	14,200	4,500	1550 X7	29200 X7	44.2 X7	--	--	--	--	--	<0.581	<7.41	4.64 J	14.6	<8.77 X7	Exceed
RW-27	ASI	SZ	10/25/2021	1,730	802	135 X7	68.7 X7	36.5 J X7	--	--	--	--	--	<2.93	<37.4	<3.43	44.0 J	<44.2 X7	Exceed
RW-27	ASI	SZ	4/18/2022	9580	4280	2830 X7	28600 X7	5740 X7	--	--	--	--	--	<2.52	<32.2	11.8 J	23.8 J	<38.1 X7	Exceed
RW-27	ASI	SZ	10/13/2022	11100	4550	2400 X7	22100 X7	7330 X7	--	--	--	--	--	<2.68	<34.2	10.6 J	19.2 J	<40.5 X7	Exceed
RW-27	ASI	SZ	4/13/2023	10500	3380	430	25200	9370	--	--	--	--	--	<2.45	<31.2	6.75 J	<15.6	<36.9	Exceed
RW-27	ASI	SZ	10/18/2023	12700	4900	3370	32600	20100	--	--	--	--	--	<3.94 U	12.4	9.84 J	23.9	<10.0 U*	Exceed
RW-27	**ASI**	**SZ**	**4/17/2024**	**11900**	**3840**	**1890 H**	**17700 H**	**11400 H**	**--**	**--**	**--**	**--**	**--**	**<4.01 U H**	**<8.02 U H**	**5.44 J H**	**19.6 H**	**<10.2 U H***	**Exceed**
RW-27-ReSamp-ReRun	**ASI**	**SZ**	**5/21/2024**	**18600**	**7150**	**8160**	**43900**	**21000**	**--**	**--**	**--**	**--**	**--**	**<4.80 U**	**<9.61 U**	**<5.79 U**	**19.9**	**<12.2 U***	**Exceed**
RW-27	ASI	SZ	10/23/2024	10700	3580	2500	23700	4240	--	--	--	--	--	<3.70 U	11.3	9.25 J	13.5	<9.40 U*	Exceed
RW-27	ASI	SZ	04/30/25	14000	4040	2000	20300	8770	--	--	--	--	--	<4.35 U	<8.70 U	6.18 J	10.2 J	<11.0 U*	Exceed
RW-28	ASI	IZ	4/13/2010	<2.88	<1.03	31.7	1.47 J	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	<0.875	--	Exceed
RW-28	ASI	IZ	10/18/2010	<2.77	<0.987	<0.998	7.46 J	3.81 J	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
RW-28	ASI	IZ	4/19/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	971	<1.46	<0.850	238 J	Exceed
RW-28	ASI	IZ	10/13/2011	<2.77	1.32 J	8.29 J	98.1	61.5	--	--	--	--	--	<1.10	4210 J	<1.44	8.32 J	935 J	Exceed
RW-28	ASI	IZ	4/18/2012	<2.85	<1.02	6.92 J	99.9	72.3	--	--	--	--	--	<1.13	3990	<1.49	10.4	--	Exceed
RW-28	ASI	IZ	10/11/2012	<2.77	<0.987	1.24 J	22.1 J	14.7	--	--	--	--	--	<0.956	3540	<1.17	2.94 J	--	Exceed
RW-28	ASI	IZ	4/23/2013	<2.83	<1.01	<1.02	26.4	15.8	--	--	--	--	--	<0.975	3090	<1.19	9.72 J	948 J	Exceed
RW-28	ASI	IZ	10/21/2013	<0.96	<0.65	<0.62	<1.1	<1.1	--	--	--	--	--	<1.2	320	<1.2	<0.70	1800	Exceed
RW-28	ASI	IZ	4/10/2014	9.4 J	1.5 J	75	800	790	--	--	--	--	--	<1.2	3500	<1.2	400	1200	Exceed
RW-28	ASI	IZ	10/21/2014	6 J	<0.69	94 J	520	590	--	--	--	--	--	<1.2	3000	<1.3	260	790	Exceed
RW-28	ASI	IZ	4/20/2015	16	<0.64	64	830	690	--	--	--	--	--	<1.2	3,000	<1.2	390	1,200	Exceed
RW-28	ASI	IZ	10/14/2015	18.3 J	<7.03	49.3 J	615	526	--	--	--	--	--	<12.6	2,380	<13.0	282	1,150	Exceed
RW-28	ASI	IZ	4/8/2016	47.9 J	<7.03	48.9 J X7	486 X7	456 X7	--	--	--	--	--	<12.6	3110	<13.0	245	1080 J X7	Exceed
RW-28	ASI	IZ	10/25/2016	66.8	7.76 J	56.5 X7	697 X7	485 X7	--	--	--	--	--	<1.15	1,910	<1.18	256	997 LX7	Exceed
RW-28	ASI	IZ	4/18/2017	131	18.2	74.7 X7	952 X7	579 X7	--	--	--	--	--	<1.28	2,150	<1.31	313	573 X7	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-28	ASI	IZ	10/17/2017	<1.07	<0.719	<0.685 X7	1.96 J X7	<1.19 X7	--	--	--	--	--	<1.29	769	<1.33	<0.775	1150 X7	Exceed
RW-28	ASI	IZ	4/18/2018	246 J	51.9	104 X7	1,460 X7	814 X7	--	--	--	--	--	<1.15	1,100	<1.18	33.2	<208 X7	Exceed
RW-28	ASI	IZ	10/25/2018	222	34.6 J	91.7 JLX7	1120 X7	761 LX7	--	--	--	--	--	<24.5	1,590	<25.1	306	737 X7	Exceed
RW-28	ASI	IZ	4/17/2019	68.6 JH	58.2 J	79.6 J X7	808 X7	786 X7	--	--	--	--	--	<67.6	<77.1	<69.4	239 J	416 J X7	Exceed
RW-28	ASI	IZ	10/24/2019	221	30.6 J	91.9 J X7	745 X7	743 X7	--	--	--	--	--	<23.7	968	<24.3	203 J	<85.8 X7	Exceed
RW-28	ASI	IZ	4/20/2020	141 J	43.0	88.0 J X7	4.06 J X7	980 X7	--	--	--	--	--	<1.16	4.79 J	<1.19	299	135 J X7	Exceed
RW-28	ASI	IZ	10/22/2020	168	27.3	73.2 X7	597 X7	578 X7	--	--	--	--	--	<0.181	1,220	.539 J	175	2190 X7	Exceed
RW-28	ASI	IZ	4/26/2021	202	30.9	90.1 X7	787 X7	666 X7	--	--	--	--	--	<0.544	1,290	<0.637	186	561 X7	Exceed
RW-28	ASI	IZ	10/25/2021	126	21	108 X7	653 X7	460 X7	--	--	--	--	--	<0.498	2,170	0.792 J	177	695 X7	Exceed
RW-28	ASI	IZ	4/18/2022	95	19.4	52.7 X7	600 X7	482 X7	--	--	--	--	--	<0.907	1530	<1.06	122	1290 X7	Exceed
RW-28	ASI	IZ	10/13/2022	136	35.8	103 X7	762 X7	606 X7	--	--	--	--	--	<0.986	1580	<1.15	164	1080 X7	Exceed
RW-28	ASI	IZ	4/13/2023	128	23.0	60.0	521	450	--	--	--	--	--	<1.03	1200	<1.21	140	842	Exceed
RW-28	ASI	IZ	10/18/2023	118	23.2	<1.20 U	86.1	66.2	--	--	--	--	--	<4.24 U	192	<5.11 U	45.7	<10.8 U*	Exceed
RW-28	ASI	IZ	10/23/2024	69.0	10.8	49.5	265	253	--	--	--	--	--	<4.26 U	1050	<5.15 U	66.7	<10.9 U*	Exceed
RW-28-ReSamp-ReRun	ASI	IZ	11/19/2024	--	--	--	--	--	--	--	--	--	--	--	--	--	--	282	Exceed
RW-28	ASI	IZ	4/17/2024	79	11.4	27.2 H	223 H	225 H	--	--	--	--	--	<4.30 U H	605 H	<5.18 U H	80.2 H	<10.9 U H*	Exceed
RW-28-ReSamp-ReRun	ASI	IZ	5/21/2024	105	20	40.9	281	332	--	--	--	--	--	<3.81 U	1140	<4.59 U	101	<9.66 U*	Exceed
RW-28	ASI	IZ	04/30/25	88.3	16.5	25.4	289	219	--	--	--	--	--	<3.90 U	19.4	<4.70 U	40.3	<9.89 U*	Exceed
RWC-1	ASI	SZ	4/18/1990	23000	8100	5600	52000	36000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	7/12/1990	19000	7700	4300	39000	30000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/3/1990	13000	3500	2700	30000	22000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/7/1991	18000	6000	2900	33000	28000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/1/1991	14000	5000	3600	43000	31000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/7/1992	12000	4500	2100	27000	17000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/3/1992	20000	6100	3000	38000	26000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/18/1993	18000	7200	3400	32000	21000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	7/20/1993	18000	4700	3000	25000	23000	<0	0.69	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/10/1993	18000	4700	3000	25000	23000	<0	0.69	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/17/1994	14000	6900	3000	29000	24000	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/27/1994	14000	4500	1800	27000	18000	<0	0.76	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/30/1995	13000	5400	2500	29000	21000	<0	0.66	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/21/1995	10000	4000	2000	23000	15000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/27/1996	19000	6900	3200	45000	25000	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/27/1996	16000	5300	2600	24000 D	9100	--	1.2	0.064	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/9/1997	10000	3400	1400	9700	6000	--	0.66	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/1/1997	9300 D	3900	1500	15000 D	5900 D	--	0.62	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/14/1998	11000	4000	<2000	20000	11000	--	0.58	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/27/1998	9700	3100	1200	14000	3300	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/23/1999	12000 D	5300	2400	19000 D	11000 D	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/28/1999	11000	4600	2500	27000 D	15000	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	6/12/2000	13000 D	6400 D	2300	23000 D	17000 D	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/11/2000	1.9 J	9.2 J	5.5 J	31	7.5 J	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/10/2001	9700 J D	3700 J D	1900 J D	34000 D	18000 D	<50	--	--	<20	<20	<10	<20	20	<20	--	Exceed
RWC-1	ASI	SZ	10/25/2001	15000 D	4700 D	2600 D	28000 D	17000 D	<250	--	--	<100	<100	<50	<100	12 J	<100	--	Exceed
RWC-1	ASI	SZ	4/23/2002	14000 D	4400 D	2800 D	25000 D	15000 D	<530	--	--	<210	<210	<110	<210	13 J	14 J	--	Exceed
RWC-1	ASI	SZ	10/7/2002	12000 D	4900 D	2800 D	22000 D	14000 D	<49	--	--	<20	<20	<9	<20	13	4.7 J	--	Exceed
RWC-1	ASI	SZ	4/3/2003	18000 D	5600	2900	33000 D	22000 D	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
RWC-1	ASI	SZ	10/3/2003	10000	3100 J	2000 J	20000	14000	<24000	--	--	<9500	<9500	<4800	<9500	<4800	<9500	--	Exceed
RWC-1	ASI	SZ	4/19/2004	13000	3600	1700 J	19000	12000	<480	--	--	<190	<190	<95	<190	9.1 J	<190	--	Exceed
RWC-1	ASI	SZ	10/6/2004	14000	4300 J	2200 J	25000	15000	<480	--	--	<190	<190	<95	<190	10 J	<190	--	Exceed
RWC-1	ASI	SZ	4/7/2005	11000	3700	2300	19000	13000	--	--	--	<190	<190	<96	5.1 J	10 J	17 J	--	Exceed
RWC-1	ASI	SZ	10/12/2005	15000	5400	2600	26000	15000	--	--	--	<200	<200	<100	11 J	11 J	<100	--	Exceed
RWC-1	ASI	SZ	4/11/2006	16000	6600	3000	32000	17000	--	--	--	<200	<200	<100	<100	<100	43 J	--	Exceed
RWC-1	ASI	SZ	11/2/2006	11000	3200	2000	22000	14000	--	--	--	<390	<390	<200	18 J	<200	<200	--	Exceed
RWC-1	ASI	SZ	4/6/2007	7500	3000	1700	13000	7200	--	--	--	<200	<200	<99	11 J	<99	220	--	Exceed
RWC-1	ASI	SZ	10/2/2007	12000	3600	2300	25000	16000	--	--	--	<72	<53	<13	<6.4	<10	120	--	Exceed
RWC-1	ASI	SZ	4/10/2008	9300	3100	1900	22000	13000	--	--	--	<16	<15	<9.6	<15	<11	72 J	--	Exceed
RWC-1	ASI	SZ	10/20/2008	5900	2700	1600	11000	6700	--	--	--	<16	<16	<9.7	<16	<11	30 J	--	Exceed
RWC-1	ASI	SZ	4/17/2009	11500	4310	2740	30600	17400	--	--	--	<1.65	<1.57	<0.975	<1.57	10.5	21.1	--	Exceed
RWC-1	ASI	SZ	10/12/2009	12600	3910	2330	25000	16300	--	--	--	<16.2	<15.4	<9.56	<15.4	11 J	29.9 J	--	Exceed
RWC-1	ASI	SZ	4/13/2010	5260	1400	890	9800	4970	--	--	--	<16.3	58.5 J	<9.65	1040	<10.9	306	--	Exceed
RWC-1	ASI	SZ	10/13/2011	598	494	237	101	423	--	--	--	--	--	<11.3	2260	<14.9	15.9 J	522	Exceed
RWC-2	EI	SZ	1/22/1991	19000	23000	700	6500	5300	180	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	5/7/1991	32000	31000	840	8800	8600	1500	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	7/23/1991	36000	32000	700	6700	5800	600	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/7/1991	41000	30000	1200	17000	14000	350	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	2/9/1992	61000	46000	1200	11000	8800	210	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/10/1993	31000	26000	520	3700	3500	<0	0.35	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/17/1994	37000	36000	880	6700	6100	<0	0.5	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/26/1994	32000	25000	370	4100	2900	<0	0.59	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/19/1995	41000	31000	970	6000	7100	<0	0.54	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/21/1995	28000	27000	610	4700	3500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/27/1996	38000	39000	950	7900	4300	<0	0.46	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/20/1996	27000 D	25000 D	620	4000 E	1100	--	0.41	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	5/9/1997	29000 D	24000 D	670	5800 D	3900	--	0.54	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/1/1997	27000 D	25000 D	<500	4000	3000	--	0.71	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	5/14/1998	26000 D	26000 D	580 D	3300 D	1500 D	--	0.89	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/27/1998	31000 D	32000 D	390	3800 D	420	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/24/1999	29000 D	27000 D	<1000	2700	1500	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/28/1999	26000 D	28000 D	<1000	7900	3400	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	6/13/2000	20000 D	22000 D	680	3500	3000	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/12/2000	31000 D	27000 D	780	7300 D	4400 D	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/10/2001	33000	26000	550 J	8600	6100	<25000	--	--	<10000	<10000	<5000	<10000	<5000	<10000	--	Exceed
RWC-2	EI	SZ	10/25/2001	33000 D	27000 D	730	8601	5700 D	<500	--	--	<200	<200	<100	<200	<100	<200	--	Exceed
RWC-2	EI	SZ	4/23/2002	580	2400 D	85 J	8602	130	<500	--	--	<200	<200	<99	<200	<99	<200	--	Exceed
RWC-2	EI	SZ	10/8/2002	<9	290 D	11	8603	2.3 J	<48	--	--	<19	<19	<9	<19	<9	0.56 J	--	Exceed
RWC-2	EI	SZ	4/3/2003	4300	2400	53 J	8604	480	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
RWC-2	EI	SZ	10/3/2003	69	54	3.2 J	8605	1.5 J	<48	--	--	<19	<19	<9.5	<19	<9.5	3.3 J	--	Exceed
RWC-2	EI	SZ	12/19/2003	3900	2600	92	8606	530	<48	--	--	<19	<19	<9.5	<19	2.1 J	2.9 J	--	Exceed
RWC-2	EI	SZ	4/19/2004	4900	2900	77 J	8607	<95	<480	--	--	<190	<190	<95	<190	<95	<190	--	Exceed
RWC-2	EI	SZ	10/6/2004	2600	1200	30 J	8608	140	<480	--	--	<190	<190	<96	<190	<96	<190	--	Exceed
RWC-2	EI	SZ	4/7/2005	240	840	28 J	8609	<95	--	--	--	<190	<190	<95	<95	<95	<95	--	Exceed

TABLE A-1
HISTORICAL GROUNDWATER RESULTS
SEMIANNUAL REPORT - August 2025
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (µg/L)	2,6-DNT (µg/L)	m-MNT (µg/L)	o-MNT (µg/L)	p-MNT (µg/L)	4,6-DNOC	SR	ZN	2,4-TDA (µg/L)	2,6-TDA (µg/L)	1,3-DCB (µg/L)	Toluidine (µg/L)	NB (µg/L)	5-N-o-T (µg/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RWC-2	EI	SZ	10/12/2005	1800	1200	35 J	8610	210	--	--	--	<190	<190	<96	<96	<96	<96	--	Exceed
RWC-2	EI	SZ	4/11/2006	3800	2700	60 J	8611	150	--	--	--	<190	<190	<97	<97	<97	<97	--	Exceed
RWC-2	EI	SZ	11/2/2006	2700	1600	42 J	8612	220	--	--	--	<190	<190	<96	<96	<96	<96	--	Exceed
RWC-2	EI	SZ	4/6/2007	<98	660	23 J	8613	<98	--	--	--	<200	<200	<98	<98	<98	<98	--	Exceed
RWC-2	EI	SZ	10/2/2007	1400	800	24 J	8614	160	--	--	--	<70	<52	<13	<6.3	<10	<41	--	Exceed
RWC-2	EI	SZ	10/23/2009	3.2 J	3.95 J	<0.998	8615	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	Exceed
RWC-2	EI	SZ	4/9/2010	21.7	12.6	<0.998	8616	2.7 J	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	Exceed
RWC-2	EI	SZ	10/26/2010	8.09 J	1.64 J	<1.02	8617	<1.46	--	--	--	<1.65 J	<1.57 J	<0.975	<1.57	<1.10	<0.858	--	Exceed
RWC-2	EI	SZ	4/21/2011	13.6	81.1	8.21 J	8618	6.37 J	--	--	--	--	--	<1.10	<4.80	<1.44	1.4 J	<3.11 J	Exceed
RWC-2	EI	SZ	10/13/2011	5.4 J	5.27 J	<0.998	8619	1.7 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed

Notes/Abbreviations:

AOC1 = Area of Concern No. 1
ASI = Acid Spill Impoundment
DNTL = DNT Loading Area
DNT = DNT Production Unit Area
DZ = Deep Zone
EI = Effluent Impoundment
"Exceed" indicates a detected concentration is greater than the GWPS.
IZ = Intermediate Zone
LSZ = Lower Shallow Zone
Neut = Area of Neutralization Pit
RL-1 = Recovery Pump Below Plastic Liner
RWC-1 = Recovery Wells RW-1 to RW-10
RWC-2 = Recovery Wells RW-11 to RW-20
SR = Strontium
SZ = Shallow Zone
TDA = Total toluenediamines, individual isomers not separated during low-level analysis.
TDAL = TDA Loading Area
SZ = Upper Shallow Zone
ZN = Zinc
"~" Indicates all detected COCs in sample are in compliance with GWPS.
" < " = concentration is less than the sample-specific detection limit shown.
E = The analyte concentration exceeds the upper calibration range; the reslt is considered an estimate
D = The analyte concentration is reported from a dilution
J = The concentration is an estimate becase the detection is less than the sample-specific quantitation limit.
L = The concentration is an estimate with a possible low bias due to srrogate recoveries or other quality control isses.
R = The result is rejected
H = Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
X7 = The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The TCEQ does not offer accreditation for this analyte, in this matrix, analyzed by this method.
b = The compound was found in the blank and sample.
p = The %RPD between the primary confirmation column/detector is >40%. The lower value has been reported.
U = Analyte was not detected at or above the SDL.
! = concentration may be a combination of 2,4- and 2,6-TDA isomers.
* RPD of the LCS and LCSD exceeds the control limits.
* LCS or LCSD is outside acceptance limits.

DNT = Dinitrotoluene
MNT = Mononitrotoluene
TDA = Toluendiamine
DCB = Dichlorobenzene
NB = Nitrobenzene
5-N-o-T=5-Nitro-o-Toluene

TABLE 5-1B
RESULTS OF ANALYSIS OF GROUNDWATER
April/May 2025
Air Products LLC
Pasadena, Texas

Well Number	Unit	Area	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	2,4-TDA & 2,6-TDA**	1,3-DCB	Toluidines	NB	5-N-o-T	Exceed
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	GWPS?
Groundwater Protection Standard (GWPS)					1.3	1.3	240	4.1	57	0.29	730	30	49	--	
MW-10		WMA1	USZ	05/13/25	<0.0600 U	<0.0393 U	<1.21 U	<0.811 U	<0.876 U	<10.8 U*	<4.27 U	<8.55 U	<5.15 U	<1.31 U	~
MW-11	DNT	WMA2	USZ	05/08/25	**0.210**	<0.0396 U	<1.13 U	<0.758 U	<0.819 U	<10.1 U*	<3.99 U	<7.99 U	<4.81 U	<1.23 U	~
MW-21	EI	WMA1	DZ	05/05/25	<0.0616 U	<0.0404 U	<1.04 U	<0.698 U	<0.754 U	<9.33 U*	<3.68 U	<7.35 U*	<4.43 U	<1.13 U	~
MW-24	ASI	WMA2	SZ	04/30/25	**5990**	**2310**	**1110**	**12400**	**3800**	<9.68 U*	<3.81 U	**22.6**	<4.60 U	**69.4**	Exceed
MW-26	ASI	WMA2	SZ	05/13/25	**0.337**	<0.403 U	<1.14 U*	<0.765 U*	<0.827 U*	<10.2 U*	<4.03 U	<8.06 U	<4.86 U	<1.24 U	~
MW-27		WMA2	IZ	05/09/25	<0.0606 U	<0.0397 U	<1.11 U	<0.748 U	<0.809 U	<10.0 U*	<3.94 U	<7.89 U	<4.75 U	<1.21 U	~
MW-28	ASI	WMA2	DZ	05/09/25	<0.0592 U	<0.0388 U	<1.11 U	<0.745 U	<0.806 U	<9.97 U*	<3.93 U	<7.86 U	<4.73 U	<1.21 U	~
MW-31	ASI	WMA2	DZ	05/01/25	**0.106**	<0.0404 U	<1.08 U	<0.726 U	<0.785 U	<9.71 U*	<3.83 U	<7.65 U	<4.61 U	<1.18 U	~
MW-32	ASI	WMA2	IZ	05/01/25	**0.0791 J p**	<0.0408 U	<1.06 U	<0.710 U	<0.768 U	<9.50 U*	<3.74 U	<7.49 U	<4.51 U	<1.15 U	~
MW-36	EI	WMA1	IZ	05/05/25	**0.341**	**1.46**	<1.04 U	<0.701 U	<0.758 U	<9.38 U*	<3.69 U	<7.39 U	<4.45 U	<1.14 U	Exceed
MW-40	EI	WMA1	IZ	05/05/25	**48.4**	**152**	<1.13 U	<0.763 U	<0.825 U	<10.2 U*	<4.02 U	<8.04 U*	<4.85 U	<1.24 U	Exceed
MW-41	EI	WMA1	IZ	05/09/25	**0.175**	<0.0400 U	<1.14 U	<0.770 U	<0.833 U	<10.3 U*	<4.06 U	<8.12 U	<4.89 U	<1.25 U	~
MW-43	EI	WMA1	IZ	04/30/25	**0.237**	**0.144**	<1.18 U	**0.809 J**	<0.858 U	<10.6 U*	<4.18 U	<8.36 U	<5.04 U	<1.29 U	~
MW-44	EI	WMA1	IZ	04/30/25	**0.161**	<0.0404 U	<1.04 U	<0.699 U	<0.756 U	<9.35 U*	<3.68 U	<7.37 U	<4.44 U	<1.13 U	~
MW-49	Neut	WMA1	USZ	04/30/25	**13700**	**7840**	**284**	**3050**	**2340**	<9.76 U*	<3.84 U	<7.69 U	<4.63 U	**82.1**	Exceed
MW-58	DNTL	WMA1	LSZ	05/08/25	**161**	**344**	**66.2**	**228**	**60.5**	<10.4 U*	<4.09 U	<8.18 U	<4.93 U	<1.26 U	Exceed
MW-59	DNTL	WMA1	USZ	05/08/25	**322**	**437**	<13.8 U	**86.9 J**	**21.0 J**	<124 U*	<48.8 U	<97.5 U	<58.8 U	**924**	Exceed
MW-59RS	DNTL	WMA1	USZ	06/19/25	**23.1**	**120**	<5.89 U	**89.7**	**25.0 J**	<53.0 U*	<20.9 U	<41.7 U	<25.1 U	**920**	Exceed
MW-63	EI	WMA1	DZ	05/01/25	**0.171**	<0.0408 U	<1.10 U	<0.743 U	<0.803 U	<9.94 U*	<3.92 U	<7.83 U	<4.72 U	<1.20 U	~
MW-65	TDAL		USZ	04/30/25	<0.0622 U	<0.0408 U	<1.20 U	**7.57 J**	**2.23 J**	<10.8 U*	<4.25 U	<8.50 U	<5.12 U	<1.31 U	Exceed
MW-65RS	TDAL		USZ	06/19/25	--	--	--	<0.758 U	--	--	--	--	--	--	~
MW-66	TDAL		USZ	04/30/25	<0.0620 U	<0.0407 U	<1.17 U	**2.92 J**	**0.856 J**	<10.6 U*	<4.16 U	<8.33 U	<5.02 U	<1.28 U	~
MW-69	ASI	offsite	SZ	05/09/25	<0.0585 U	<0.0383 U	<1.05 U	<0.709 U	<0.766 U	<9.48 U*	<3.74 U	<7.47 U	<4.50 U	<1.15 U	~
MW-70	DNTL	WMA1	IZ	05/13/25	<0.0596 U	<0.0391 U	<1.18 U	<0.796 U	<0.861 U	<10.6 U*	<4.20 U	<8.39 U	<5.06 U	<1.29 U	~
MW-71	ASI	offsite	SZ	05/06/25	**0.0777 J p**	<0.0391 U	<1.09 U	<0.731 U	<0.790 U	<9.77 U*	<3.85 U	<7.70 U	<4.64 U	<1.18 U	~
MW-74	AOC2	WMA1	SZ	05/01/25	**0.196**	**0.0962 J**	<1.08 U	<0.727 U	<0.786 U	<9.73 U*	<3.83 U	<7.67 U	<4.62 U	<1.18 U	~
MW-75	EI	WMA1	SZ	05/01/25	<0.0618 U	<0.0405 U	<1.07 U	<0.723 U	<0.781 U	<9.67 U*	<3.81 U	<7.62 U	<4.59 U	<1.17 U	~
MW-76	EI	WMA1	SZ	05/05/25	<0.0620 U	<0.0407 U	<1.08 U	<0.726 U	<0.785 U	<9.71 U*	<3.83 U	<7.65 U*	<4.61 U	<1.18 U	~
MW-77	EI	WMA1	SZ	05/05/25	<0.0622 U	<0.0408 U	<1.10 U	<0.742 U	<0.802 U	<9.92 U*	<3.91 U	<7.82 U*	<4.71 U	<1.20 U	~
MW-78	Neut	WMA1	SZ												
MW-8	EI	WMA1	USZ	05/09/25	<0.0633 U	<0.0415 U	<1.16 U	<0.778 U	<0.841 U	<10.4 U*	<4.10 U	<8.20 U	<4.94 U	<1.26 U	~
MW-80	DNTL	WMA1	IZ	05/13/25	<0.0594 U	<0.0390 U	<1.14 U	<0.764 U	<0.826 U	<10.2 U*	<4.03 U	<8.05 U	<4.85 U	<1.24 U	~
MW-85	ASI	WMA2	SZ	05/06/25	**0.761**	**0.300**	<1.10 U	**3.40 J**	**1.88 J**	<9.92 U*	<3.91 U	<7.81 U	<4.71 U	<1.20 U	~
MW-86	ASI	WMA2	SZ	05/06/25	<0.0602 U	<0.0395 U	<1.10 U	<0.742 U	<0.802 U	<9.92 U*	<3.91 U	<7.82 U	<4.71 U	<1.20 U	~
MW-87	ASI	offsite	SZ	05/08/25	<0.0604 U	<0.0396 U	<1.09 U	**1.08 J**	<0.791 U	<9.79 U*	<3.86 U	<7.71 U	<4.65 U	<1.19 U	~
MW-88	ASI	offsite	SZ	05/08/25	<0.0610 U	<0.0400 U	<1.09 U	<0.736 U	<0.796 U	<9.85 U*	<3.88 U	<7.76 U	<4.68 U	<1.19 U	~
MW-89	ASI	offsite	SZ	05/06/25	<0.0594 U	<0.0390 U	<1.12 U	<0.752 U	<0.813 U	<10.1 U*	<3.96 U	<7.93 U	<4.78 U	<1.22 U	~
MW-91	ASI	WMA2	SZ	05/06/25	**141**	**38.9**	**10.7**	**101**	**82.9**	<9.90 U*	<3.90 U	<7.80 U	<4.70 U	**4.32 J**	Exceed

TABLE 5-1B
RESULTS OF ANALYSIS OF GROUNDWATER
April/May 2025
Air Products LLC
Pasadena, Texas

Well Number	Unit	Area	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	2,4-TDA & 2,6-TDA**	1,3-DCB	Toluidines	NB	5-N-o-T	Exceed
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	GWPS?
Groundwater Protection Standard (GWPS)					1.3	1.3	240	4.1	57	0.29	730	30	49	--	
MW-91RS	ASI	WMA2	SZ	06/19/25	**23.7**	**12.7**	--	**75.9**	**55.4**	--	--	--	--	--	Exceed
MW-93	DNTU-AOC1	WMA2	SZ	05/08/25	<0.0610 U	<0.0400 U	<1.04 U	<0.701 U	<0.758 U	<9.38 U*	<3.70 U	<7.39 U	<4.45 U	<1.14 U	~
MW-94	DNTU-AOC1	WMA2	SZ	05/08/25	<0.0610 U	<0.0400 U	<1.11 U	<0.747 U	<0.807 U	<9.99 U*	<3.93 U	<7.87 U	<4.74 U	<1.21 U	~
MW-95	ASI	WMA2	IZ	05/06/25	<0.0600 U	<0.0393 U	<1.08 U	<0.724 U	<0.783 U	<9.69 U*	<3.82 U	<7.64 U	<4.60 U	<1.17 U	~
MW-96	ASI	WMA2	DZ	05/01/25	**0.104**	<0.0407 U	<1.07 U	<0.718 U	<0.776 U	<9.61 U*	<3.78 U	<7.57 U	<4.56 U	<1.16 U	~
MW-97	AOC2	WMA1	SZ	05/05/25	**0.857**	**6.25**	<1.20 U	**1.98 J**	**1.53 J**	<10.8 U	<4.26 U	<8.52 U	<5.13 U	<1.31 U	Exceed
MS-97RS	AOC2	WMA1	SZ	06/19/25	--	**8.71**	--	--	--	--	--	--	--	--	Exceed
MW-98	DNTU	WMA2	IZ	05/08/25	<0.0610 U	<0.0400 U	<1.10 U	<0.739 U	<0.799 U	<9.89 U*	<3.90 U	<7.79 U	<4.70 U	<1.20 U	~
RL-1	ASI	WMA2	SZ	05/01/25	<0.0614 U	<0.0403 U	<1.13 U	<0.762 U	<0.824 U	<10.2 U*	<4.02 U	<8.03 U	<4.84 U	<1.24 U	~
RW-21	EI	WMA1	SZ	05/09/25	**22.1**	**12.7**	<1.07 U	**3.12 J**	**2.83 J**	<9.66 U*	<3.81 U	<7.61 U	<4.59 U	<1.17 U	Exceed
RW-23	ASI	WMA2	IZ	05/05/25	<0.0616 U	<0.0404 U	<1.19 U	<0.797 U	<0.862 U	<10.7 U*	<4.20 U	<8.41 U*	<5.06 U	<1.29 U	~
RW-24	EI	WMA1	IZ												
RW-25	EI	WMA1	LSZ	04/30/25	**3050**	**5270**	**204**	**2220**	**5.18 J**	<9.90 U*	<3.90 U	<7.80 U	<4.70 U	**2.17 J**	Exceed
RW-26	EI	WMA1	IZ	04/30/25	**27.1**	**35.2**	<1.05 U	**17.6**	**11.7**	<9.49 U*	<3.74 U	<7.48 U	<4.51 U	<1.15 U	Exceed
RW-27	ASI	WMA2	SZ	04/30/25	**14000**	**4040**	**2000**	**20300**	**8770**	<11.0 U*	<4.35 U	<8.70 U	**6.18 J**	**10.2 J**	Exceed
RW-28	ASI	WMA2	IZ	04/30/25	**88.3**	**16.5**	**25.4**	**289**	**219**	<9.89 U*	<3.90 U	**19.4**	<4.70 U	**40.3**	Exceed

Notes: Concentration is greater than the GWPS. Estimated concentration is greater than the GWPS. Sample detection limit is greater than the GWPS.

ASI = Acid spill Impoundment
EI = Effluent Impoundment
DNTL = DNT Loading Area
DNTU = DNT Production Unit Area
TDAL = TDA Loading Area
Neut = Area of Neutralization Pit
AOC1 = Area of Concern No. 1
RL-1 = Recovery Pump Below Plastic Liner

SZ = Shallow Zone
USZ = Upper Shallow Zone
LSZ = Lower Shallow Zone
IZ = Intermediate Zone
DZ = Deep Zone
WMA1 = Waste Management Area 1
WMA2 = Waste Management Area 2

"Exceed" indicates a detected concentration is greater than the GWPS.

"~" Indicates all detected COCs in sample are in compliance with GWPS.

"**" Indicates the concentration represents total toluene diamines.

" < " = concentration is less than the sample detection limit shown.

H = Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

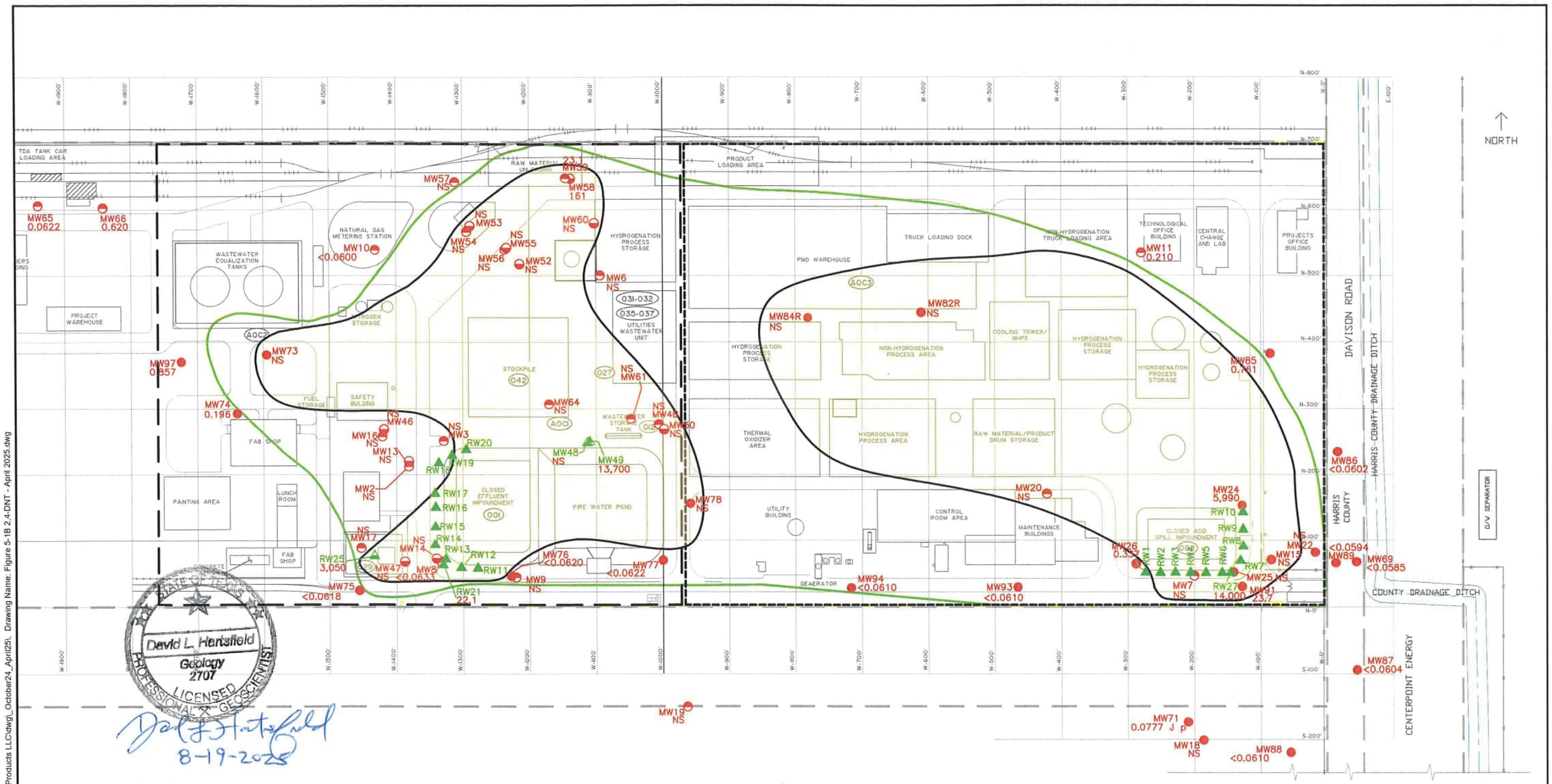
J = Estimated concentration. Analyte was detected at a level less than the reporting limit, and greater than or equal to the sample detection limit.

p = The %RPD between the primary confirmation column/detector is >40%. The lower value has been reported.

U = Analyte was not detected at or above the SDL.

* = The LCS or LCSD is outside acceptance limits.

RS = Sample was resampled due to laboratory hold time exceedances.



Base Map Source: AIR PRODUCTS LLC

David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST
8-19-2025

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- 47.3 — ANALYTE CONCENTRATION (ug/L) (INCLUDED ESTIMATED VALUES)
- GWPS EXCEEDANCE AREA
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER
- NS — NOT SAMPLED
- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2
- BOUNDARY OF PLUME MANAGEMENT ZONE 1

0 50 100 150
APPROXIMATE SCALE (FEET)

NOTES:

THE GWPS FOR 2,4-DNT IS 1.3 ug/L
INTERPRETATIONS SHOWN ON THIS MAP ARE APPROXIMATIONS BASED ON AVAILABLE CURRENT AND HISTORICAL GROUNDWATER DATA.

2,4-DNT CONCENTRATIONS SHALLOW ZONE - APRIL/MAY 2025

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 08/14/25
By: AT

Figure 5-1B

Plot Date: 08/14/25 - 10:22am, Plotted by: USAT145973
Drawing Path: K:\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25\, Drawing Name: Figure 5-1B 2,4-DNT - April 2025.dwg



Base Map Source: AIR PRODUCTS LLC

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST
8-19-2025

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- 47.3 — ANALYTE CONCENTRATION (ug/L) (INCLUDED ESTIMATED VALUES)
- GWPS EXCEEDANCE AREA
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER
- NS — NOT SAMPLED
- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2
- BOUNDARY OF PLUME MANAGEMENT ZONE 1

0 50 100 150
APPROXIMATE SCALE (FEET)

NOTES:

THE GWPS FOR 2,6-DNT IS 1.3 ug/L
INTERPRETATIONS SHOWN ON THIS MAP ARE APPROXIMATIONS BASED ON AVAILABLE CURRENT AND HISTORICAL GROUNDWATER DATA.

N

wsp

2,6-DNT CONCENTRATIONS SHALLOW ZONE - APRIL/MAY 2025

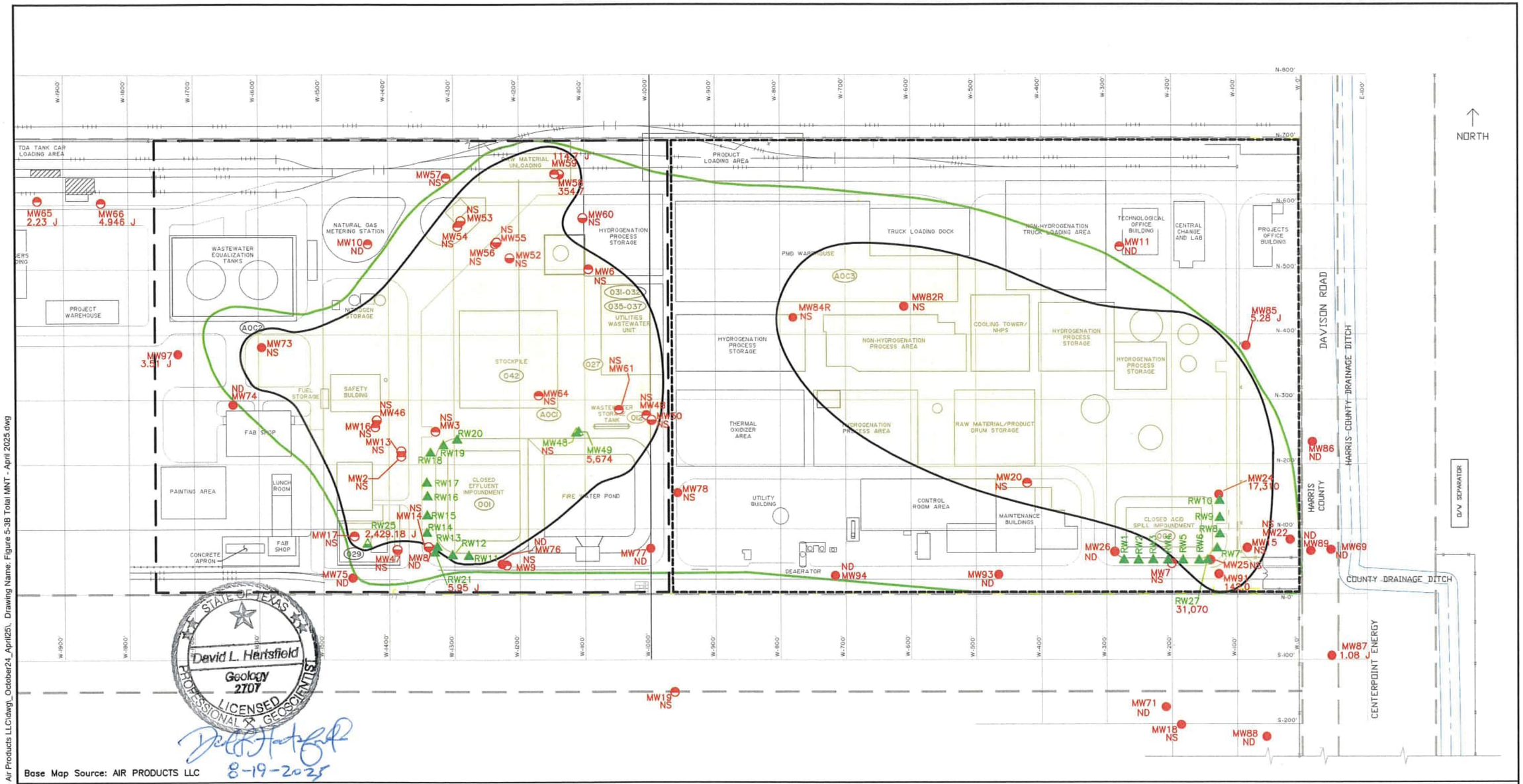
PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 08/14/25
By: SD

Figure 5-2B

Plot Date: 08/14/25 - 10:35am, Plotted by: USAT145973
Drawing Path: K:\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwgs_October24_April25\, Drawing Name: Figure 5-2B 2,6-DNT - April 2025.dwg



Base Map Source: AIR PRODUCTS LLC

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST
8-19-2025

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER
- 47.3 — ANALYTE CONCENTRATION (ug/L) (INCLUDED ESTIMATED VALUES)
- GWPS EXCEEDANCE AREA
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER
- ND — NON DETECT
- NS — NOT SAMPLED
- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2
- BOUNDARY OF PLUME MANAGEMENT ZONE 1

0 50 100 150
APPROXIMATE SCALE (FEET)

NOTES:
THE PCL FOR THE m-,o-,p-MNT ISOMERS ARE 240, 4.1, AND 57 ug/L RESPECTIVELY. THE MINIMUM ISOLEVEL MAPPED EQUALS THE o-MNT PCL AND ENVELOPES ALL MNT PCL EXCEEDANCES.

INTERPRETATIONS SHOWN ON THIS MAP ARE APPROXIMATIONS BASED ON AVAILABLE CURRENT AND HISTORICAL GROUNDWATER DATA.

TOTAL CONCENTRATIONS OF MNT SHALLOW ZONE - APRIL/MAY 2025

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 08/14/25
By: AT

Figure 5-3B

Plot Date: 08/14/25 - 10:49am, Plotted by: USAT145973
Drawing Path: K:\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25\, Drawing Name: Figure 5-3B Total MNT - April 2025.dwg

MW-80	
2,4-DNT	<0.0594 U
2,6-DNT	<0.0390 U
Total MNT	ND
Total TDA	<10.2 U
Toluidines	<8.05 U
5-N-o-T	<1.24 U

MW-70	
2,4-DNT	<0.0596 U
2,6-DNT	<0.0391 U
Total MNT	ND
Total TDA	<10.6 U
Toluidines	<8.39 U
5-N-o-T	<1.29 U

MW-98	
2,4-DNT	<0.0610 U
2,6-DNT	<0.0400 U
Total MNT	ND
Total TDA	<9.89 U
Toluidines	<7.79 U
5-N-o-T	<1.20 U

MW-27	
2,4-DNT	<0.0606 U
2,6-DNT	<0.0397 U
Total MNT	ND
Total TDA	<10.0 U
Toluidines	<7.89 U
5-N-o-T	<1.21 U

MW-40	
2,4-DNT	48.4
2,6-DNT	152
Total MNT	ND
Total TDA	<10.2 U
Toluidines	<8.04 U
5-N-o-T	<1.24 U

MW-44	
2,4-DNT	0.161
2,6-DNT	<0.0404 U
Total MNT	ND
Total TDA	<9.35 U
Toluidines	<7.37 U
5-N-o-T	<1.13 U

RW-26	
2,4-DNT	27.1
2,6-DNT	35.2
Total MNT	29.30
Total TDA	<9.49 U
Toluidines	<7.48 U
5-N-o-T	<1.15 U

MW-36	
2,4-DNT	0.341
2,6-DNT	1.46
Total MNT	ND
Total TDA	<9.38 U
Toluidines	<7.39 U
5-N-o-T	<1.14 U

MW-43	
2,4-DNT	0.237
2,6-DNT	0.144
Total MNT	0.809 J
Total TDA	<10.6 U
Toluidines	<8.36 U
5-N-o-T	<1.29 U

MW-41	
2,4-DNT	0.175
2,6-DNT	<0.0400 U
Total MNT	ND
Total TDA	<10.3 U
Toluidines	<8.12 U
5-N-o-T	<1.25 U

MW-95	
2,4-DNT	<0.0600 U
2,6-DNT	<0.0393 U
Total MNT	ND
Total TDA	<9.69 U
Toluidines	<7.64 U
5-N-o-T	<1.17 U

RW-28	
2,4-DNT	88.3
2,6-DNT	16.5
Total MNT	533.4
Total TDA	<9.89 U
Toluidines	19.4
5-N-o-T	40.3

RW-23	
2,4-DNT	<0.0616 U
2,6-DNT	<0.0404 U
Total MNT	ND
Total TDA	<10.7 U
Toluidines	<8.41 U
5-N-o-T	<1.29 U

MW-32	
2,4-DNT	0.0791 J p
2,6-DNT	<0.0408 U
Total MNT	ND
Total TDA	<9.50 U
Toluidines	<7.49 U
5-N-o-T	<1.15 U

MW-62	
2,4-DNT	<0.913
2,6-DNT	<0.615
Total MNT	ND
Total TDA	ND
Toluidines	<0.126
5-N-o-T	<0.663

Base Map Source: AIR PRODUCTS LLC

EXPLANATION

MW40 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

RW26 △ INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER

PROXIMATE TOTAL CONTAMINANT CONCENTRATIONS (µg/L)
CLUDED ESTIMATED VALUES)

ND

NS NOT SAMPLED

FENCE

PROPERTY BOUNDARY

WASTE MANAGEMENT AREA No. 1

WASTE MANAGEMENT AREA No. 2

BOUNDARY OF PLUME MANAGEMENT ZONE 2

NOTES:

THE GWPS FOR 2,4–DNT IS 1.3 ug/L.
THE GWPS FOR 2,6–DNT IS 1.3 ug/L.
THE GWPS FOR THE m–,o–,p–MNT ISOMERS ARE 240, 4.1, AND 57 ug/L RESPECTIVELY.
THE LOWEST GWPS FOR TDA IS 0.29 ug/L.
THE LOWEST GWPS FOR TOLUIDINES IS 30 ug/L.

0 50 100 150
APPROXIMATE SCALE (FEET)

-N-

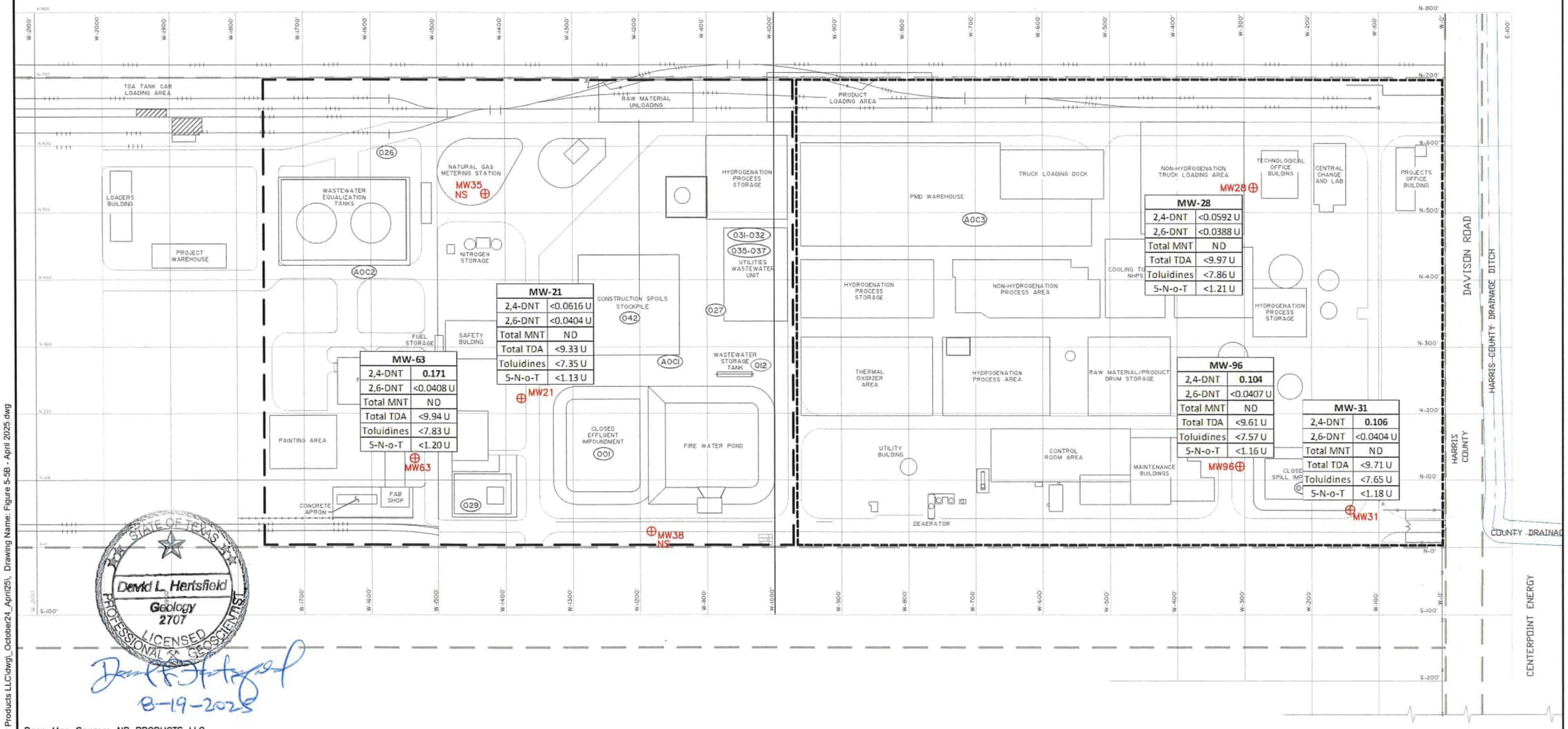
CONTAMINANT CONCENTRATIONS
INTERMEDIATE ZONE - APRIL 2025
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 08/14/25
By: AT

Figure 5-4B

STATE OF TEXAS
David L. Hartsfield
Geology
2707
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PROFESSIONAL GEOSCIENTIST
8-19-2025

Plot Date: 08/14/25 - 11:26am, Plotted by: USAT145973
Drawing Path: K:\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25\, Drawing Name: Figure 5-4B - April 2025.dwg



MW-63	
2,4-DNT	**0.171**
2,6-DNT	<0.0408 U
Total MNT	ND
Total TDA	<9.94 U
Toluidines	<7.83 U
5-N-o-T	<1.20 U

MW-21	
2,4-DNT	<0.0616 U
2,6-DNT	<0.0404 U
Total MNT	ND
Total TDA	<9.33 U
Toluidines	<7.35 U
5-N-o-T	<1.13 U

MW-28	
2,4-DNT	<0.0592 U
2,6-DNT	<0.0388 U
Total MNT	ND
Total TDA	<9.97 U
Toluidines	<7.86 U
5-N-o-T	<1.21 U

MW-96	
2,4-DNT	**0.104**
2,6-DNT	<0.0407 U
Total MNT	ND
Total TDA	<9.61 U
Toluidines	<7.57 U
5-N-o-T	<1.16 U

MW-31	
2,4-DNT	**0.106**
2,6-DNT	<0.0404 U
Total MNT	ND
Total TDA	<9.71 U
Toluidines	<7.65 U
5-N-o-T	<1.18 U

STATE OF TEXAS
David L. Hartsfield
Geology
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PROFESSIONAL GEOSCIENTIST
8-19-2025

Base Map Source: AIR PRODUCTS LLC

EXPLANATION

MW21 ⊕ DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

MW-63	
2,4-DNT	**0.171**
2,6-DNT	<0.0408 U
Total MNT	ND
Total TDA	<9.94 U
Toluidines	<7.83 U
5-N-o-T	<1.20 U

APPROXIMATE TOTAL CONTAMINANT CONCENTRATIONS (µg/L) (INCLUDED ESTIMATED VALUES)

ND NON DETECT

NS NOT SAMPLED

FENCE
PROPERTY BOUNDARY
WASTE MANAGEMENT AREA No. 1
WASTE MANAGEMENT AREA No. 2

0 50 100 150
APPROXIMATE SCALE (FEET)

NOTES:

THE GWPS FOR 2,4-DNT IS 1.3 ug/L.
THE GWPS FOR 2,6-DNT IS 1.3 ug/L.
THE GWPS FOR THE m-,o-,p-MNT ISOMERS ARE 240, 4.1, AND 57 ug/L RESPECTIVELY.
THE LOWEST GWPS FOR TDA IS 0.29 ug/L.
THE LOWEST GWPS FOR TOLUIDINES IS 30 ug/L.

-N-

wsp

CONTAMINANT CONCENTRATIONS
DEEP ZONE - APRIL 2025
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 08/14/25
By: AT

Figure 5-5B

Plot Date: 08/14/25 - 11:43am, Plotted by: USAT145973
Drawing Path: K:\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25_Drawing Name: Figure 5-5B - April 2025.dwg

APPENDIX IV

POLLUTANT DISPERSAL PATHWAYS

APPENDIX IV
POLLUTANT DISPERSAL PATHWAYS

1. Surface Waters

The potential for impact to surface water from a release of hazardous constituents at APLLC Pasadena plant is minimized by APLLC's stormwater management system. The stormwater management system is designed to ensure segregation, and if necessary, treatment of first-flush runoff. The system includes curbing, valved discharge points from diked areas, valved leak containment systems, valved stormwater ditches, collection basins, piping and tankage for waters that must be treated, and permitted outfalls for discharge. No surface water bodies or perennial streams exist on the property. Receiving waters for runoff from the property include a municipal drainageway along Davison Road, located to the east of the APLLC property, which flows to Cotton Patch Bayou and thence to Buffalo Bayou and the San Jacinto River, Galveston Bay and the Gulf of Mexico.

Effluent from the plant flows to the municipal drainageway from outfalls 001 and 002, located at the east ends of the North and South Ditches, respectively. Discharge from these points is performed under the plant's TPDS discharge permit.

Potentially contaminated stormwater from the curbed process areas is routed to the Total Plant Wastewater Tank (TPWWT) prior to pumping it to the POTW at Gulf Coast Waste Disposal Authority's Washburn Tunnel Facility.

Potentially contaminated stormwater from undeveloped areas within the plant between the DNT Process Area and the TDA Process area flows to the lined and reconstructed Acid Spill Impoundment (ASI). Although the primary function of the ASI is to act as a containment for potential spills within the Tank Farm immediately to the north of the ASI, stormwater may also be collected within the ASI. Any stormwater collected within the ASI is either routed to the TPWWT or sampled and, if the water meets the conditions of the plant's TPDS permit, it is released to the South Ditch. During periods of very heavy rainfall, the ASI can be bypassed and stormwater released to the South Ditch. Prior to this, the stormwater in the pond is circulated through

the pump header and sampled. If the water samples meet the requirements of the TPDS permit, the bypassed stormwater is released to the South Ditch and the pond water is pumped to the South Ditch.

The north and south ditches are equipped with valves and sump pumps ("lift stations"). The valves remain closed at all times unless there is sufficient rainfall to require that they be opened. The valves protect the outfalls from any accidental spills or releases. If contaminants are accidentally released to the ditches, the sump pumps can remove the material and route it to the TPWWT and thence to the POTW. During storms, the water collecting in the ditches is inspected and sampled and if the water meets the requirements of the TPDS permit, the valves can be opened and the water released flows toward the 001 and 002 outfalls for release.

II. Groundwater

The Beaumont formation underlies the facility. The Beaumont formation consists of approximately 300 feet of unconsolidated clay material with interbedded water-bearing sands and forms the upper part of the regional Chicot Aquifer. However, no known water supply wells are completed in this interval within one mile of the plant. The highly productive sands of the regional Chicot and Evangeline Aquifers lie at greater depths and are protected by significant thicknesses of multiple clay beds.

The uppermost water-bearing zones within the upper 100 feet of sediment are termed the Upper Shallow Zone (USZ) the Lower Shallow Zone (LSZ) the Intermediate Zone (IZ) and the Deep Zone (DZ). Logs from boreholes show that the upper 100 feet consists mostly of clay, with generally thin, discontinuous, fine sandy or silty beds. Studies of releases of waste constituents at the plant indicate that these beds may transmit relatively small quantities of groundwater. Measurements of water levels in surveyed wells at the plant indicates that movement of groundwater in the USZ and the LSZ is southeastward, while movement of groundwater in the IZ and DZ is northward. The gradients in this area are relatively flat, resulting in relatively low rates of groundwater movement, on the order of 5 to 20 feet per year.

In general, it appears that constituents entering the groundwater beneath the facility would travel first within the groundwater in the USZ. This would generally be in a southeastward direction toward the municipal drainageway ditch located to the east of the plant. The potential for this groundwater to discharge into surface waters in the drainageway has not been evaluated.

Water within the USZ could move downward into the LSZ and then move southeastward toward the municipal drainageway. The potential for this groundwater to discharge into the USZ and then into surface waters in the drainageway has not been evaluated.

Water within the LSZ has the potential to move downward to the IZ since the hydraulic head in the IZ is lower than that in the LSZ. Contaminants entering the groundwater in the IZ could then move northward. Groundwater in this zone probably eventually flows toward discharge points along Buffalo Bayou.

Several factors would affect the transport of hazardous constituents in groundwater, including the following:

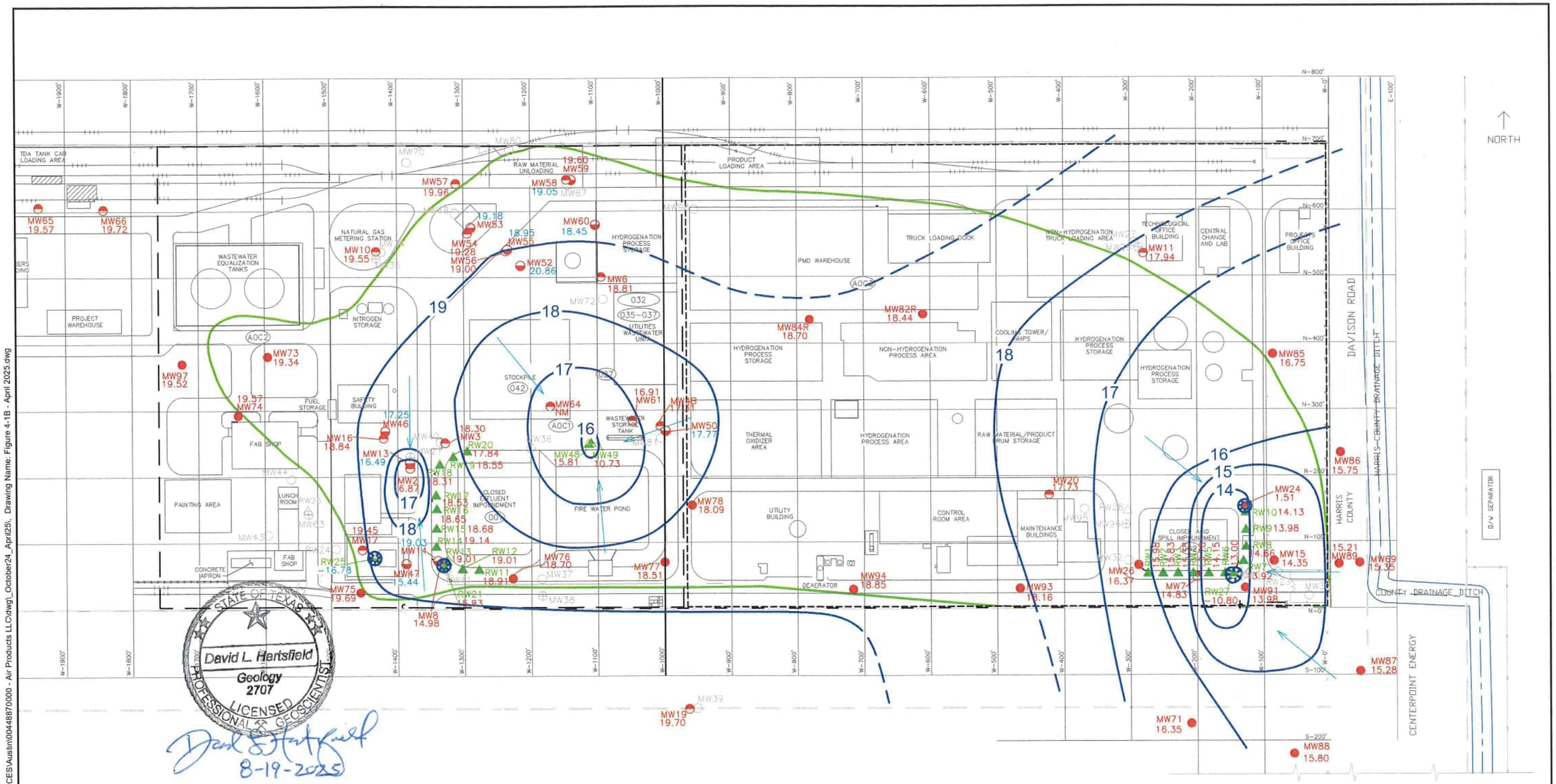
- The presence of clayey and silty strata and lenses, which would slow the movement of groundwater and restrict further vertical movement downward;
- Natural attenuation of the organic constituents within the groundwater, due to physical, chemical, and biological processes, which would tend to arrest the movement, and reduce the concentrations of hazardous constituents; and
- Relases are likely to involve limited volumes of groundwater the groundwater movement is naturally relatively slow.

Given these factors, and the lack of any wells to act as receptors of the constituents, the potential for hazardous constituents to impact off-site or deeper groundwater receptors appears to be very low.

Supporting documentation of existing lateral/vertical pathways and movements of releases are depicted on the potentiometric flow maps, cross-sections depicting existing PCLE zones are attached to Appendix IV.

III. Air

The potential for dispersal of hazardous constituents through air emissions from the APLLC waste management units appears to be very low. The units are enclosed and are not used to manage significant volumes or concentrations of compounds that readily volatilize to the atmosphere.



Base Map Source: AIR PRODUCTS LLC

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST
8-19-2025

EXPLANATION

- MW2 17.74 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW14 9.74 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL) (NOT CONTOURED)
- MW15 10.30 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 12.12 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW25 1.30 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL) (NOT CONTOURED)
- RW9 13.20 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER
- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2
- 18 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (USZ ONLY – DASHED WHERE INFERRED)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- BOUNDARY OF PLUME MANAGEMENT ZONE 1
- * — ANOMALOUS MEASUREMENT, NOT CONTOURED
- NM — NOT MEASURED, NOT ACCESSIBLE

0 50 100 150
APPROXIMATE SCALE (FEET)

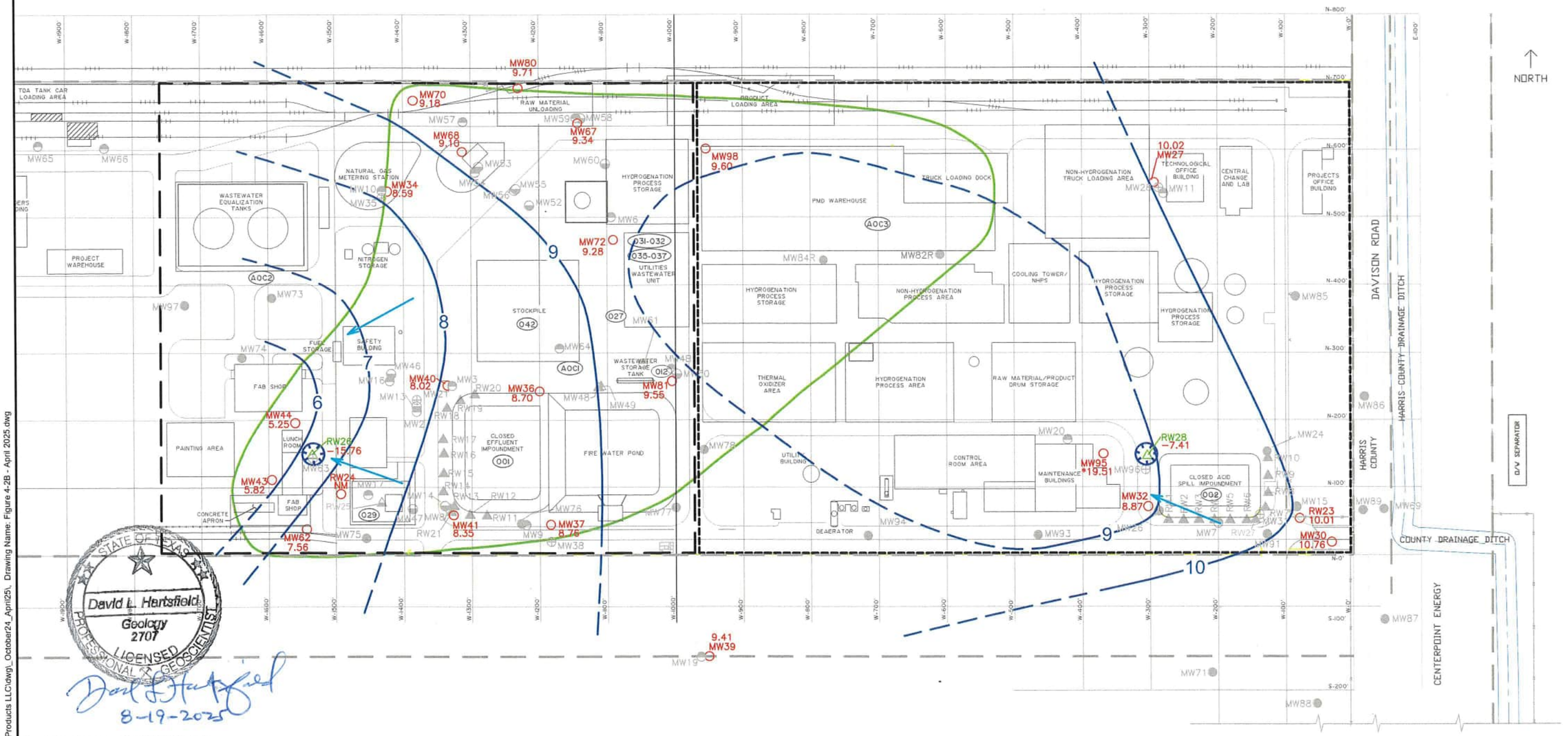
NOTES:
LEVELS IN LSZ ARE NOT CONTOURED
ALL MEASUREMENTS OBTAINED ON APRIL 29, 2025

WATER LEVEL MAP
SHALLOW ZONE - APRIL/MAY 2025
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/26/25
By: SD

Figure 4-1B

Plot Date: 06/26/25 - 10:01am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25\, Drawing Name: Figure 4-1B - April 2025.dwg



Base Map Source: AIR PRODUCTS LLC

David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST
STATE OF TEXAS
8-19-2025

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 7.77 — INTERMEDIATE ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 −4.28 — INTERMEDIATE ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FTMSL)
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER
- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2
- 18 — CONTOUR LINE OF WATER ELEVATION (FT MSL)
- BOUNDARY OF PLUME MANAGEMENT ZONE 2
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- ANOMALOUS MEASUREMENT, NOT CONTOURED
- NM — NOT MEASURED, NOT ACCESSIBLE

0 50 100 150
APPROXIMATE SCALE (FEET)

N

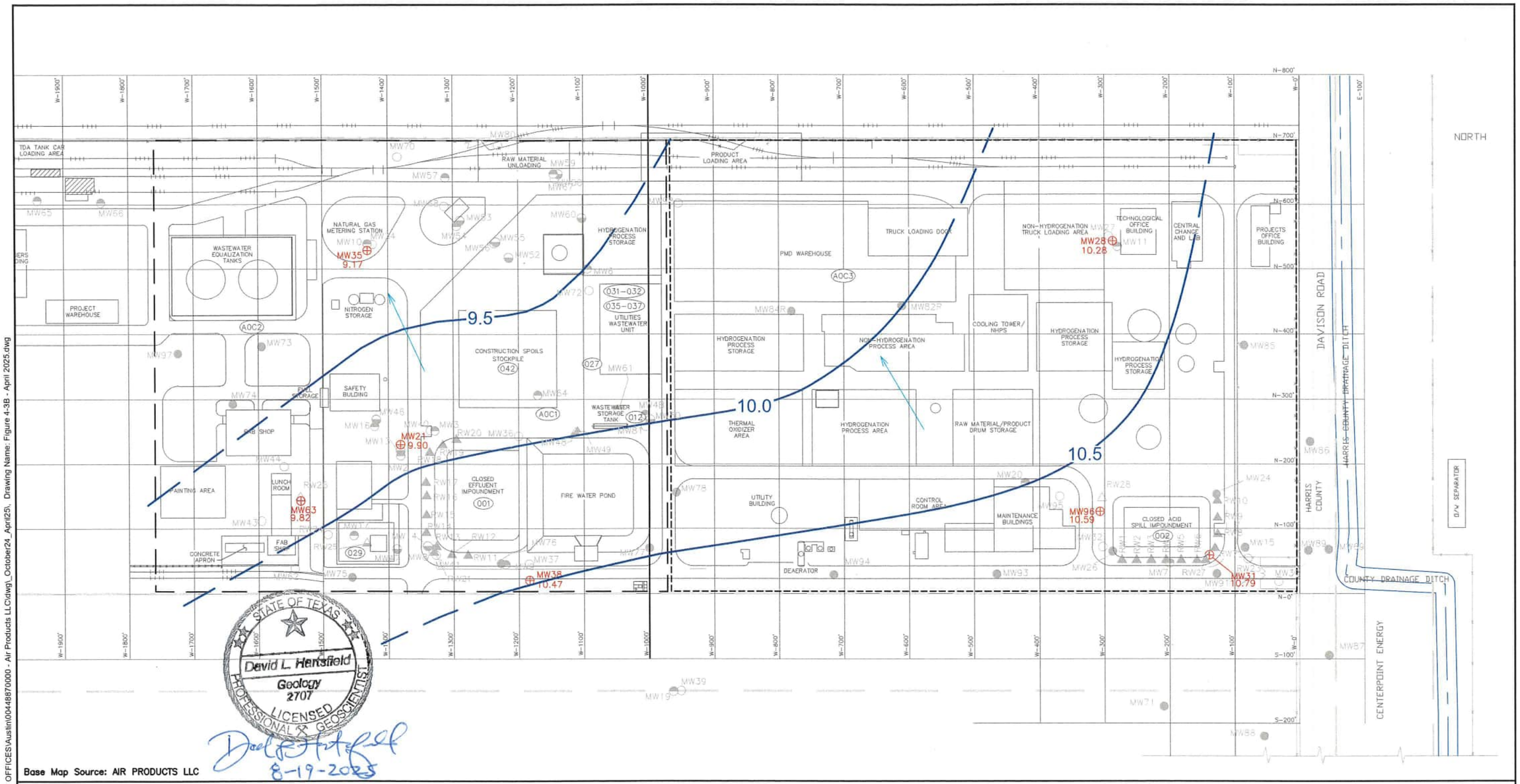
ALL MEASUREMENTS OBTAINED ON APRIL 29, 2025

WATER LEVEL MAP
INTERMEDIATE ZONE - APRIL/MAY 2025
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 08/14/25
By: AT

Figure 4-2B

Plot Date: 08/14/25 - 9:47am, Plotted by: USAT145973
Drawing Path: K:\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25\, Drawing Name: Figure 4-2B - April 2025.dwg



Base Map Source: AIR PRODUCTS LLC

STATE OF TEXAS
David L. Hensfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

8-19-2025

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- (001) — SOLID WASTE MANAGEMENT UNIT, NOR ID NUMBER
- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2
- 18 — CONTOUR LINE OF WATER LEVEL ELEVATION (FT MSL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

0 50 100 150
APPROXIMATE SCALE (FEET)

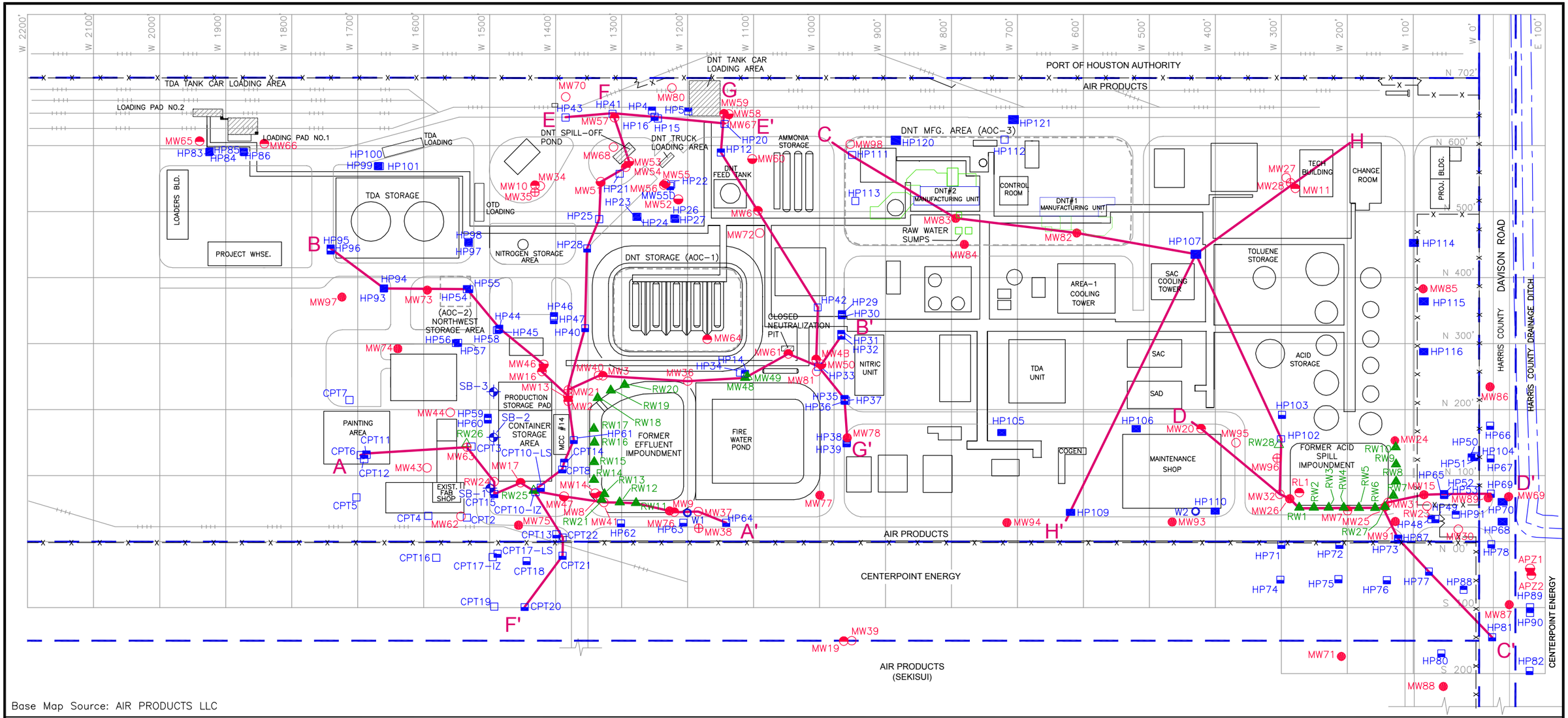
ALL MEASUREMENTS OBTAINED ON APRIL 29, 2025

WATER LEVEL MAP DEEP ZONE - APRIL/MAY 2025
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/24/25
By: SD

Figure 4-3B

Plot Date: 06/24/25 - 1:16pm, Plotted by: USSD7150I4
Drawing Path: X:\US\USPDX800-PORClientData\AMEC US OFFICES\Austin\00448870000 - Air Products LLC\dwg_October24_April25\, Drawing Name: Figure 4-3B - April 2025.dwg



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER

- HP107 — SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP44 — UPPER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP45 — LOWER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP65 — INTERMEDIATE ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT14 — UPPER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT13 — LOWER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT22 — INTERMEDIATE ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- SB-1 — SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- W1 — PLANT WATER WELL

- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- A—A' LINE OF CROSS SECTION

0 50 100 150
APPROXIMATE SCALE (FEET)

N

LOCATIONS OF WELLS, GROUNDWATER SAMPLES, AND CROSS SECTIONS

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 01/10/10	Project No.: 4487	4487B175.dwg

AMEC Geomatrix

Figure XI.A.4.1

A WEST — A' EAST

CONTAINER STORAGE AREA

FORMER EFFLUENT IMPOUNDMENT

CPT-6, RW-26, MW-63, CPT-3, RW-24, CPT-15, MW-17, RW-25, CPT-1, MW-47, MW-14, MW-8, RW-21, MW-41, RW-13, RW-12, HP-62, RW-11, MW-9, HP-63, MW-37, MW-38, HP-64

FILL

SANDY INTERVAL

Upper Shallow Zone

Lower Shallow Zone

SHALLOW ZONE

PMZ1

WEST BOUNDARY OF PMZ1

SHALLOW ZONE CONFINING BED

PCLE ZONE

WEST BOUNDARY OF PMZ2

INTERMEDIATE ZONE

PMZ2

EAST BOUNDARY OF PMZ2

DEEP ZONE

ELEVATION (FT. MSL)

40, 20, 0, −20, −40, −60, −80, −100

55', 58.1', 56', 22', 65.14', 48.1', 55', 47', 44', 47', 27', 35', 35', 34', 45.3', 30', 45.3', 45.3', 72', 72', 76', 90.5', 100'

STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED
PROFESSIONAL GEOSCIENTIST

3-25-2010

EXPLANATION

MW-17 — WELL IDENTIFICATION

HP-62 — CPT IDENTIFICATION

SCREENED INTERVAL — 22' TOTAL DEPTH

TIP RESISTANCE — 54.3' TOTAL DEPTH

SCALE IN FEET
VERTICAL EXAGGERATION = 3X

0, 20, 60

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99

WATER LEVEL IN LOWER SHALLOW ZONE (LSZ) 6/2/99

WATER LEVEL IN INTERMEDIATE ZONE (ISZ) 6/2/99

WATER LEVEL IN DEEP ZONE (DZ) 6/2/99

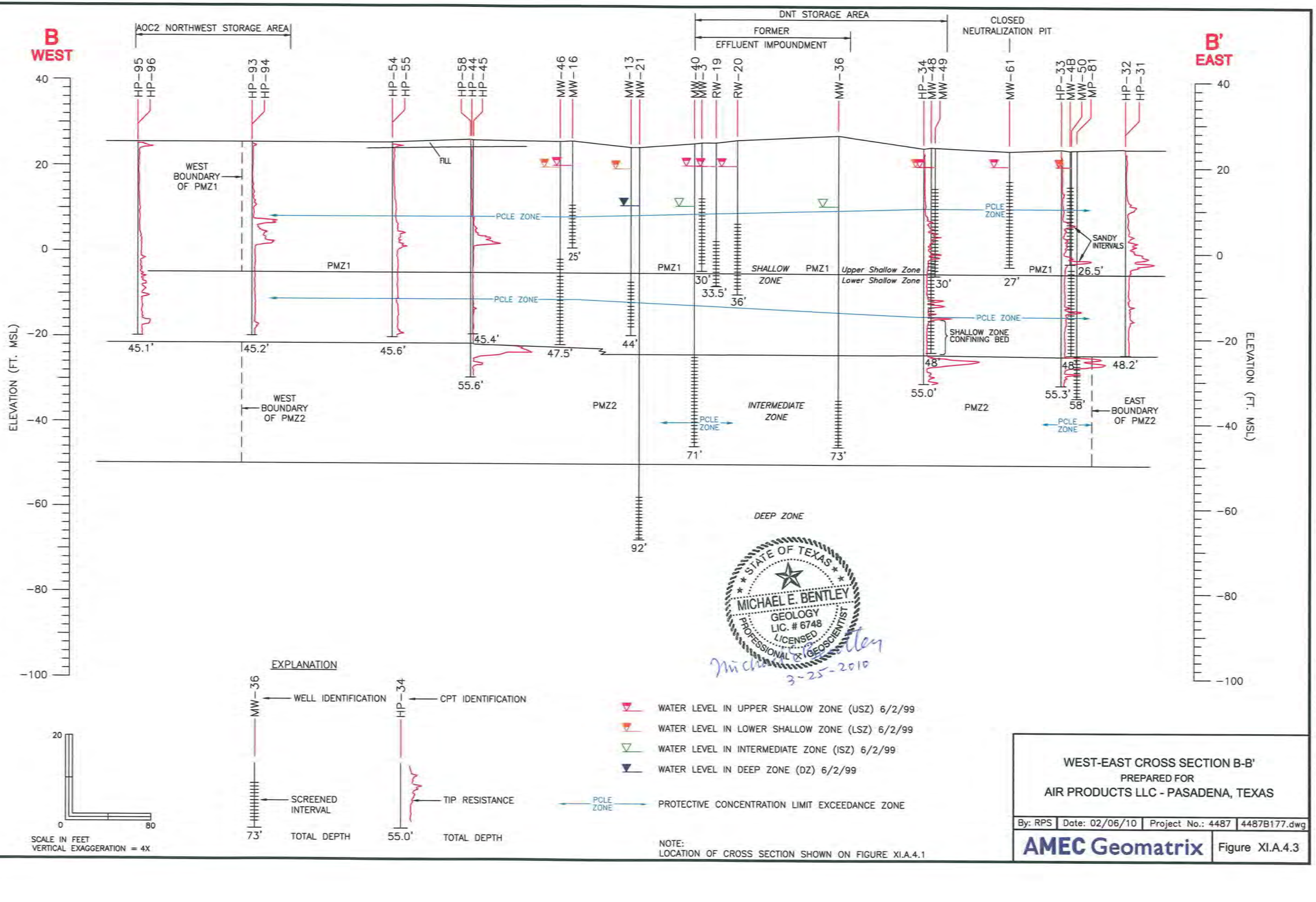
PCLE ZONE — PROTECTIVE CONCENTRATION LIMIT EXCEEDANCE ZONE

NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1

WEST-EAST CROSS SECTION A-A'
PREPARED FOR
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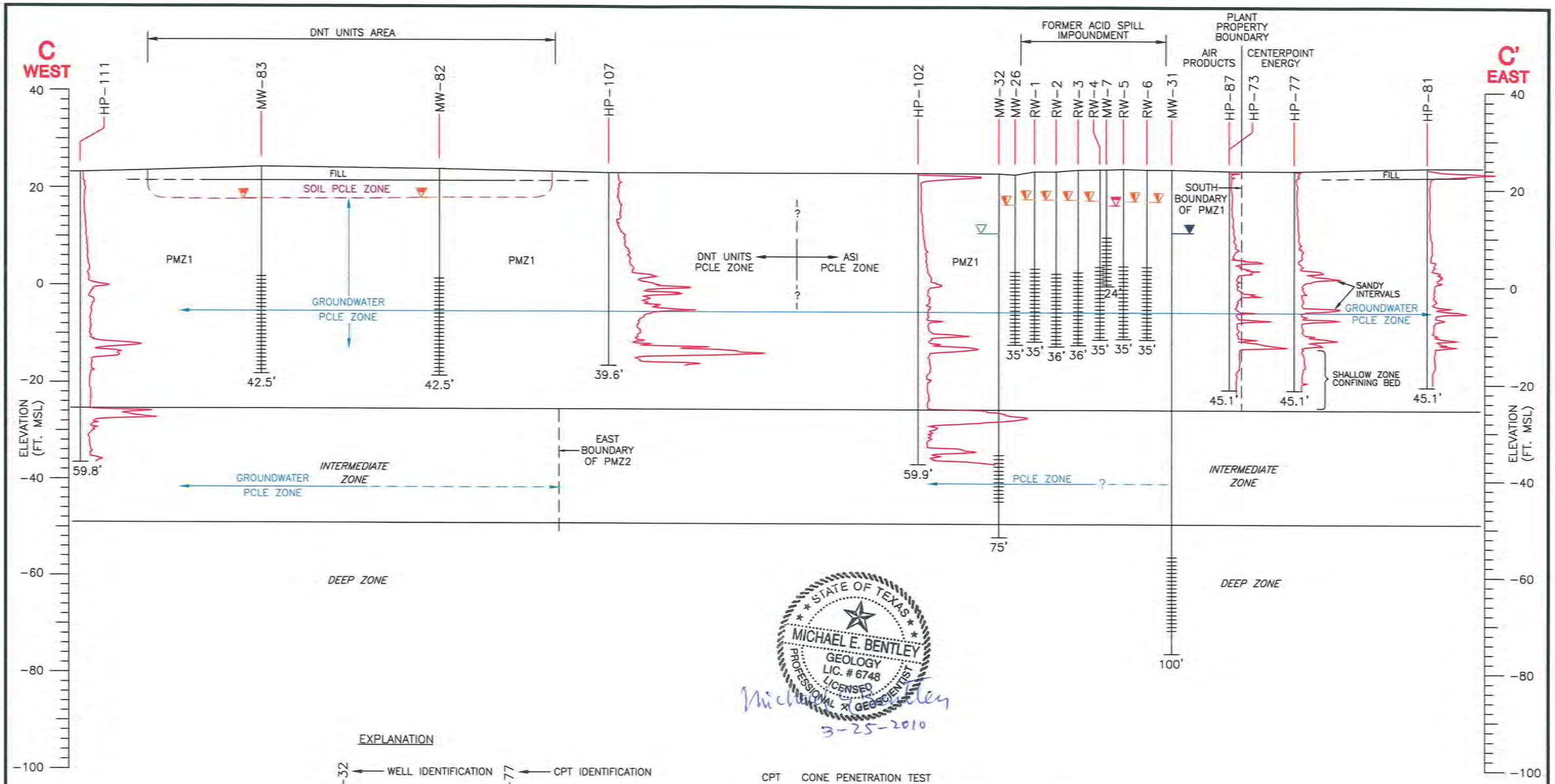
AMEC Geomatrix | Figure XI.A.4.2



WEST-EAST CROSS SECTION B-B'
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AMEC Geomatrix | Figure XI.A.4.3



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3-25-2010

CPT CONE PENETRATION TEST

PCLE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99

WATER LEVEL IN SHALLOW ZONE (SZ) 6/2/99

WATER LEVEL IN INTERMEDIATE ZONE (IZ) 6/2/99

WATER LEVEL IN DEEP ZONE (DZ) 6/2/99

NOTES:

1. LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1
2. WATER LEVELS MEASURED 10/1/2007 IN MW-82 AND MW-83

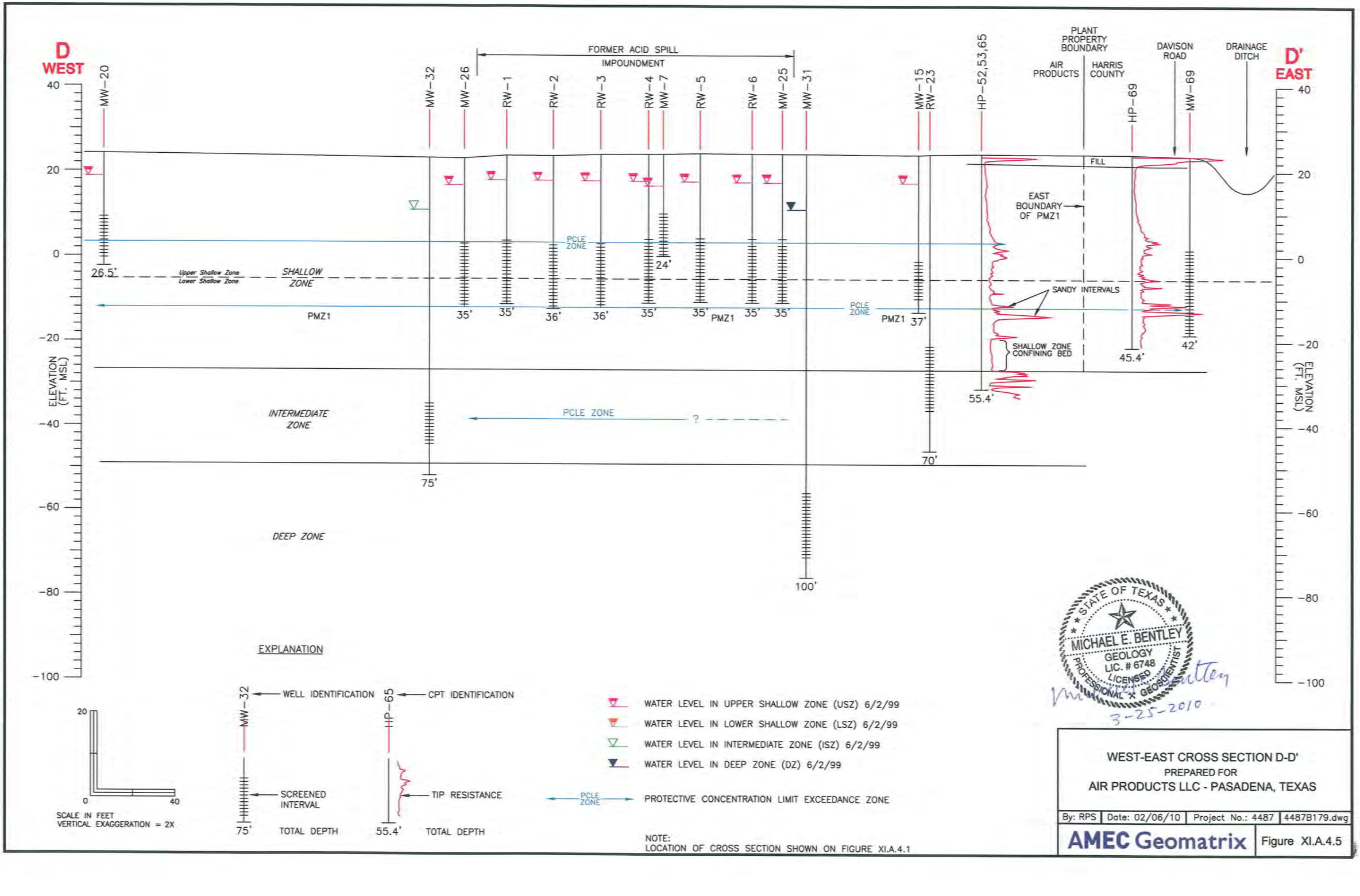
WEST-EAST CROSS SECTION C-C'

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B178.dwg

AMEC Geomatrix | Figure XI.A.4.4



NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1

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WEST-EAST CROSS SECTION D-D'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B179.dwg

AMEC Geomatrix | Figure XI.A.4.5

E WEST — E' EAST

DNT TANK CAR LOADING AREA

HP-43 | HP-41 | MW-57 | HP-4 | HP-16 | HP-15 | MW-59 | HP-20 | MW-58 | MW-67

FILL

WEST BOUNDARY OF PMZ1

PCLE ZONE

PMZ1 — *SHALLOW ZONE* — *Upper Shallow Zone* / *Lower Shallow Zone* — PMZ1

24.7' | 31' | 56.4'

SANDY INTERVALS

SHALLOW ZONE CONFINING BED

PCLE ZONE

46' | 54.3' | 54.9' | 65.1' | 56.4' | 57.5'

WEST BOUNDARY OF PMZ2

PMZ2 — *INTERMEDIATE ZONE* — PMZ2

ELEVATION (FT. MSL): 30, 20, 10, 0, −10, −20, −30, −40

EXPLANATION

MW-57 ← WELL IDENTIFICATION

HP-41 ← CPT IDENTIFICATION

SCREENED INTERVAL

TIP RESISTANCE

31' TOTAL DEPTH

54.9' TOTAL DEPTH

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99

WATER LEVEL IN LOWER SHALLOW ZONE (LSZ) 6/2/99

WATER LEVEL IN INTERMEDIATE ZONE (ISZ) 6/2/99

WATER LEVEL IN DEEP ZONE (DZ) 6/2/99

PCLE ZONE — PROTECTIVE CONCENTRATION LIMIT EXCEEDANCE ZONE

SCALE IN FEET
VERTICAL EXAGGERATION = 2X

NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1

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WEST-EAST CROSS SECTION E-E'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B180.dwg

AMEC Geomatrix | Figure XI.A.4.6

F NORTH — F' SOUTH

PLANT PROPERTY BOUNDARY
PORT OF HOUSTON AUTHORITY
AIR PRODUCTS
DNT SPILL OFF POND
FORMER EFFLUENT IMPOUNDMENT
SOUTH DITCH
PLANT PROPERTY BOUNDARY
AIR PRODUCTS
CENTERPOINT ENERGY

HP-41 MW-57 MP-68 MW-54 MW-53 HP-21 MW-51 HP-25 HP-28 HP-40 MW-40 MW-21 MW-13 MW-2 RW-18 RW-17 RW-16 HP-61 CPT-8 RW-25 CPT-1 CPT-9 CPT-21 CPT-20

ELEVATION (FT. MSL)

FILL

NORTH BOUNDARY OF PMZ1

PCLE ZONE

PMZ1

SHALLOW ZONE

Upper Shallow Zone
Lower Shallow Zone

SOUTH BOUNDARY OF PMZ1

SANDY INTERVALS

SHALLOW ZONE CONFINING BED

NORTH BOUNDARY OF PMZ2

PMZ2

INTERMEDIATE ZONE

SOUTH BOUNDARY OF PMZ2

DEEP ZONE

31' 31' 46' 49' 65.9' 54.9' 57.5' 54.9' 54.9' 56.6' 71' 34' 35' 44' 34' 34' 45.3' 54.9' 48.1' 55.1' 55' 55.0' 54.9' 92'

EXPLANATION

MW-57 — WELL IDENTIFICATION
HP-28 — CPT IDENTIFICATION
SCREENED INTERVAL
TIP RESISTANCE
31' TOTAL DEPTH
54.9' TOTAL DEPTH
PCLE ZONE — PROTECTIVE CONCENTRATION LIMIT EXCEEDANCE ZONE

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99
WATER LEVEL IN LOWER SHALLOW ZONE (LSZ) 6/2/99
WATER LEVEL IN INTERMEDIATE ZONE (ISZ) 6/2/99
WATER LEVEL IN DEEP ZONE (DZ) 6/2/99

SCALE IN FEET
VERTICAL EXAGGERATION = 4X

NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE X1.A.4.1

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3-25-2010

NORTH-SOUTH CROSS SECTION F-F'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B181.dwg

AMEC Geomatrix | Figure X1.A.4.7

G
NORTH

G'
SOUTH

DNT TANK CAR LOADING AREA

FORMER NEUTRALIZATION PIT

MW-58 MW-59 HP-20 HP-12 MW-60 MW-6 HP-42 MW-4B MW-50 MW-81 HP-33 HP-35 HP-36 HP-37 MW-78 HP-38 HP-39

ELEVATION (FT. MSL)

30 20 10 0 −10 −20 −30 −40

FILL

PCLE ZONE

19.7'

26'

26.5'

30'

SHALLOW ZONE

Upper Shallow Zone

Lower Shallow Zone

PMZ1

SANDY INTERVALS

SHALLOW ZONE CONFINING BED

46' 46' 48' 55.3' 55.9' 58' 60'

59.6'

PMZ2

INTERMEDIATE ZONE

56.4'

SOUTH BOUNDARY OF PMZ2

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3-25-2010

EXPLANATION

MW-60 — WELL IDENTIFICATION

HP-42 — CPT IDENTIFICATION

SCREENED INTERVAL

TIP RESISTANCE

46' TOTAL DEPTH

59.6' TOTAL DEPTH

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99

WATER LEVEL IN LOWER SHALLOW ZONE (LSZ) 6/2/99

WATER LEVEL IN INTERMEDIATE ZONE (ISZ) 6/2/99

PCLE ZONE — PROTECTIVE CONCENTRATION LIMIT EXCEEDANCE ZONE

NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1

0 10 50

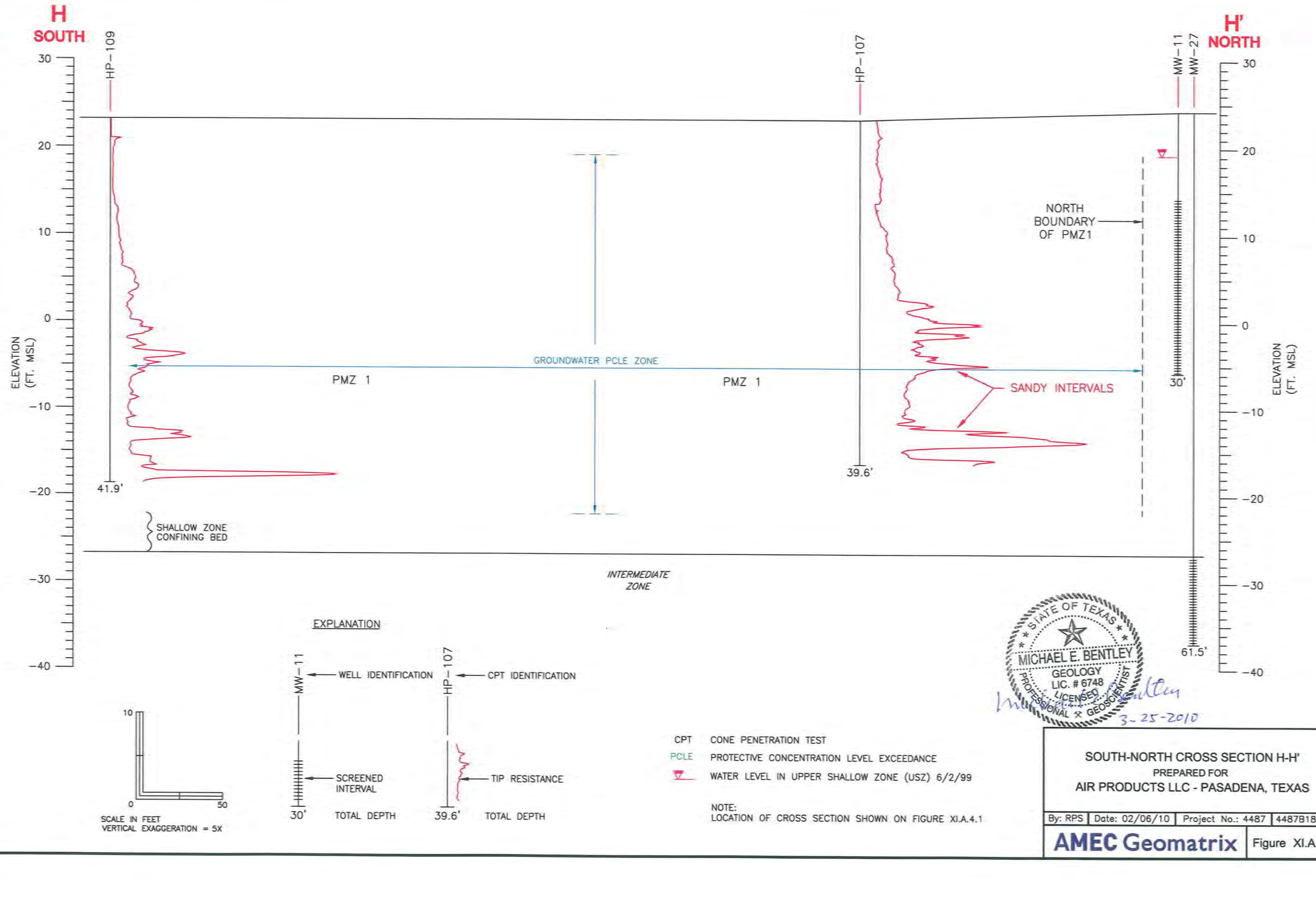
SCALE IN FEET
VERTICAL EXAGGERATION = 5X

NORTH-SOUTH CROSS SECTION G-G'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B182.dwg

AMEC Geomatrix | Figure XI.A.4.8

H SOUTH — H' NORTH



EXPLANATION

SCALE IN FEET
VERTICAL EXAGGERATION = 5X

CPT CONE PENETRATION TEST

PCLE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99

NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1

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3-25-2010

SOUTH-NORTH CROSS SECTION H-H'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B183.dwg

AMEC Geomatrix | Figure XI.A.4.9

X. Air Emission Standards

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

Section X.D. applies to Permittees with "one- stop" permits applying for an amendment, modification, or renewal of the Air Permits Division portions of their combined "one-stop" permit.

A. Process Vents

Does the facility have process vents and equipment subject to the requirements of 40 CFR Part 264, Subpart AA?

If Yes: 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 incorporation into the 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:

   I,_____*[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

Does the facility have equipment subject to the requirements of 40 CFR Part 264, Subpart BB?

If No: please provide the regulatory exclusion/exemption(s):

If Yes: please provide a report that includes all of the information required by 40 CFR §270.25.

1. For incorporation into the 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 contain 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:

   I, *[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

Does the facility have tanks subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted tanks)

If No: provide the regulatory exception/exemption(s) for each tank subject to regulation under 40 CFR Part 264, Subpart J:

Does the facility have surface impoundments subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted surface impoundments)

If No: provide the regulatory exception/exemption(s) for each permitted surface impoundment subject to regulation under 40 CFR Part 264, Subpart K:

Does the facility have containers subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted container storage areas)

If No: provide the regulatory exception/exemption(s) applicable to the authorized containers subject to regulation under 40 CFR Part 264, Subpart I:

If the facility contains tanks, surface impoundments, 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.

1. For incorporation into the permit, complete Table X.C.

2. As applicable, include the following floating roof cover certification as part of the air emissions report for tanks:

   I, *[owner or operator]*, certify that the floating roof cover meets the applicable design specifications as listed in 40 CFR §264.1084(e)(1) or 40 CFR §264.1084(f)(1).

   [Signature] _____ *[Date]* _____.

3. As applicable, include the following floating membrane cover certification as part of the air emissions report for surface impoundments:

   I, *[owner or operator]*, certify that the floating membrane cover meets the applicable design specifications listed in 40 CFR §264.1085(c)(1).

   [Signature] _____ *[Date]* _____.

4. As applicable, include the following container certification as part of the air emissions report for containers:

   I, *[owner or operator]*, certify that the requirements of 40 CFR Part §264, Subpart CC, are met for all containers subject to control.

   [Signature] _____ *[Date]* _____.

5. As applicable, include the following control device certification as part of the air emissions report:

   I, *[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. "One-Stop" Permits:

Does the facility have a "one-stop" permit?

☐ Yes ■ No

If yes: does this permit application propose to delete the "one-stop" portion of the permit?

☐ Yes ☐ No

Does the facility want the application processed in accordance with 30 TAC Chapter 33

- Consolidated Permit Applications?

☐ Yes ■ No

If yes: please provide a copy of the notification of intent required by 30 TAC 33.43.

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. "One-Stop" permit applications shall include the following air quality information, as applicable.

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 and assuming the values used in any equation.

PART B - SECTION X

Air Emission Standards

X Air Emission Standards Response

Section X Air Emission Standards is not applicable as referenced in the Class 1ED modification Part B permit application Section I.D.6. The equipment subject to the requirements of 40 CFR Part 264 Subpart BB and Subpart CC were taken out of service after the May 2012 permit renewal.

Paragraph		Response
A.	Reserved	
B.	Reserved	
C.	Reserved	
D.	Reserved	

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.

APPENDIX XII

Hazardous Waste Permit Application Fee

XII Hazardous Waste Permit Application Fee Response

Air Products LLC has calculated the Permit Application Fee in accordance with the instructions and as presented in Tables XII.A and XII.B included herein.

Paragraph			Response
A.	1	Process Analysis $1,000	Included in Table XII.B
	2	Management Facility Analysis $500	Included in Table XII.B
	3	Unit Analysis $500 each	Two (2) Units Included in Table XII.B
	4	Site Evaluation $100/acre	0.87 acre Included in Table XII.A and XII.B
	5	Initial Application Fee $50	Included in Table XII.B
		Renewal Notice Fee $15	Included in Table XII.B

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]
Closed Acid Spill Imp	Closed	0.56	1	
Closed Effluent Impo	Closed	0.31	1	
		Total[4] 0.87	Total[4] 2	

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: Air Products LLC

Solid Waste Registration Number: 30317

1. Process Analysis - $1,000..... $ 1,000
2. Facility Management Analysis - $500..... $ 500
3. Unit Analysis - 2 units @ $500 per unit..... $ 1,000
4. Site Evaluation - 0.87 acres @ $100 per acre..... $ 87

   (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** $ 2,652

Pay Online through ePay portal www3.tceq.texas.gov/epay/

Enter ePay Trace Number: 582EA000678361

For Payment by check, make checks Payable To:

Texas Commission on Environmental Quality - Fund 549
(your canceled check will be your receipt)

Complete And Return With Payment To:

Texas Commission on Environmental Quality
Financial Administration Division - MC 214
P.O. BOX 13088
Austin, Texas 78711-3088

The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessitated.

Please do not submit a photocopy of the check (or equivalent transaction submittal) with your application packet but provide only the following account information:

Check No.	Date of Check	Check Amount
NA	NA	NA

XIII. Confidential Material

Any information submitted in this application which is deemed confidential shall be provided in this Section as a separate collective document and clearly labeled **CONFIDENTIAL**. Refer to Part B instructions (page 9) for further information.

APPENDIX XIII

Confidential Material

XIII Confidential Material Response

Air Products LLC does not claim any confidential material information in this application.

AIR PRODUCTS FACILITY
HW50134
SWR 30317
AIR PRODUCTS LLC
PASADENA, HARRIS COUNTY, TEXAS

March 23, 2026 Revision 2

Volume 2

VOLUME 2

Tab		Content	TCEQ Form Page#
B	XI	Compliance Plan	86-116
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		Table XI.A.1. – Facility History for Waste Management Units	
		Table XI.E. – General Information	
		Table XI.E.1 – Corrective Action Program Cost Estimate	
		Table XI.E.2.e – Groundwater Monitoring Cost Estimate	
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		CP Table I – Waste Management Units and Areas Subject to Corrective Action and Compliance Monitoring	
		CP Table II – Solid Waste Management Units and/or Areas of Concern	
		CP Table III – Corrective Action Program Table of Detected Hazardous and Solid Waste Constituents and the Groundwater Protection Standard	
		CP Table IV – Compliance Monitoring Program Table of Detected Hazardous Constituents and Quantitation Limits	
		CP Table IVA - Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard	
		CP Table V - Designation of Wells	
		CP Table VI: Compliance Period and Post Closure Period for RCRA-Regulated Units	
		CP Table VII - Reporting Requirements	
		CP Table VIII - Compliance Schedule	
		CP Table IX - Description of Uppermost Aquifer	
		Attachment XI.A.4 - Site Geology and Hydrogeologic Conditions Report	
		Attachment XI.A.4.d - Water Well Report	
		Attachment XI.A.4.i - Well Logs and Cone Penetrometer Test Logs	
		Attachment XI.A.4.j.1 - Tier 1 Exclusion Criteria Checklist	
		Attachment XI.A.4.j.2 - Tier 2 Exclusion Criteria Checklist	
		Attachment XI.B.1 - Results of Appendix 8 Analyses	
		Attachment XI.D Addendum (August 2025)	
		Attachment XI.D - Corrective Action Program	
		Attachment XI.D.2 - Recovery/Control Well Area of Influence and Pumping Rates	
		CP Attachment A Sheet 1 of 6	
		CP Attachment A Sheet 2 of 6	
		CP Attachment A Sheet 3 of 6	

		CP Attachment A Sheet 4 of 6	
		CP Attachment A Sheet 5 of 6	
		CP Attachment A Sheet 6 of 6	
		Figure XI.D.3.a1	
		Figure XI.D.3.a2	
		Figure XI.D.6	
		Figure XI.D.6.c.(3).1	
		Figure XI.D.6.c.(3).2	
		Attachment XI.D.3.c(1) - Sampling and Analysis Plan	
		Attachment XI.D.3.c.(2) - Well Certification Report	

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 or the USB with the application providing an electronic copy of the files supporting the compliance plan tables**. Tables should be converted to the PDF format when submitting the application**:

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 and Post Closure 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 MS Word 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 tables provided in the application are formatted to be accessible, and the agency will no longer accept site-specific tables created by the applicant. **Convert the tables to the PDF format when submitting the application.** 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).

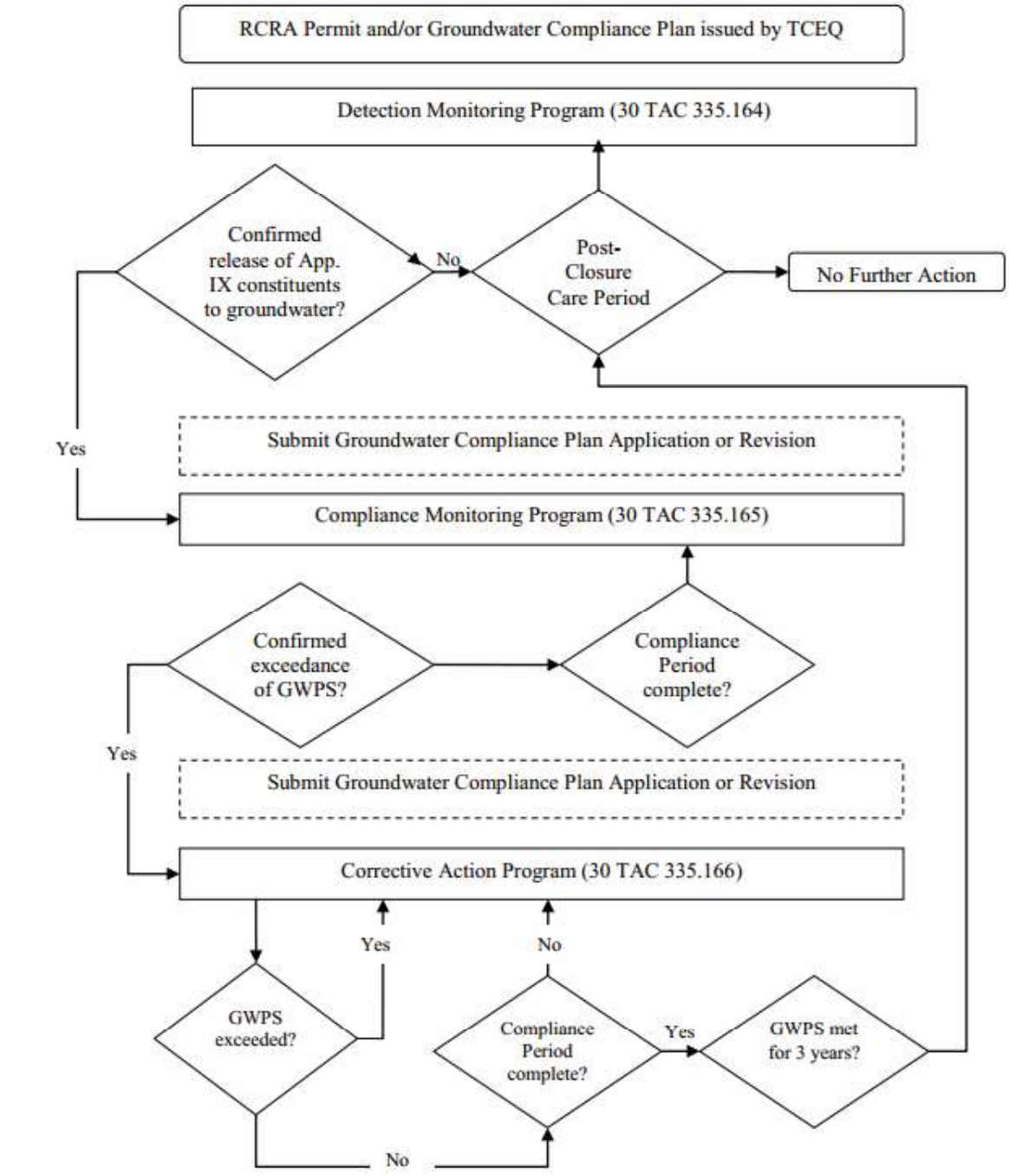
Figure 1 - Overview of Required Submittals And Revisions Associated with TCEQ Groundwater Compliance Plan Application

Type of Compliance Plan Application or Revision	Minimum Required Submittals				Additional Application Submittals Or Revisions					
				Part B, Section I	Section XI. A.	Section XI.B	Section XI.C	Section XI.D	Section XI.E	Attachment A
	Description of Modification	Public Notification Evidence	Fee Payment Evidence	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:

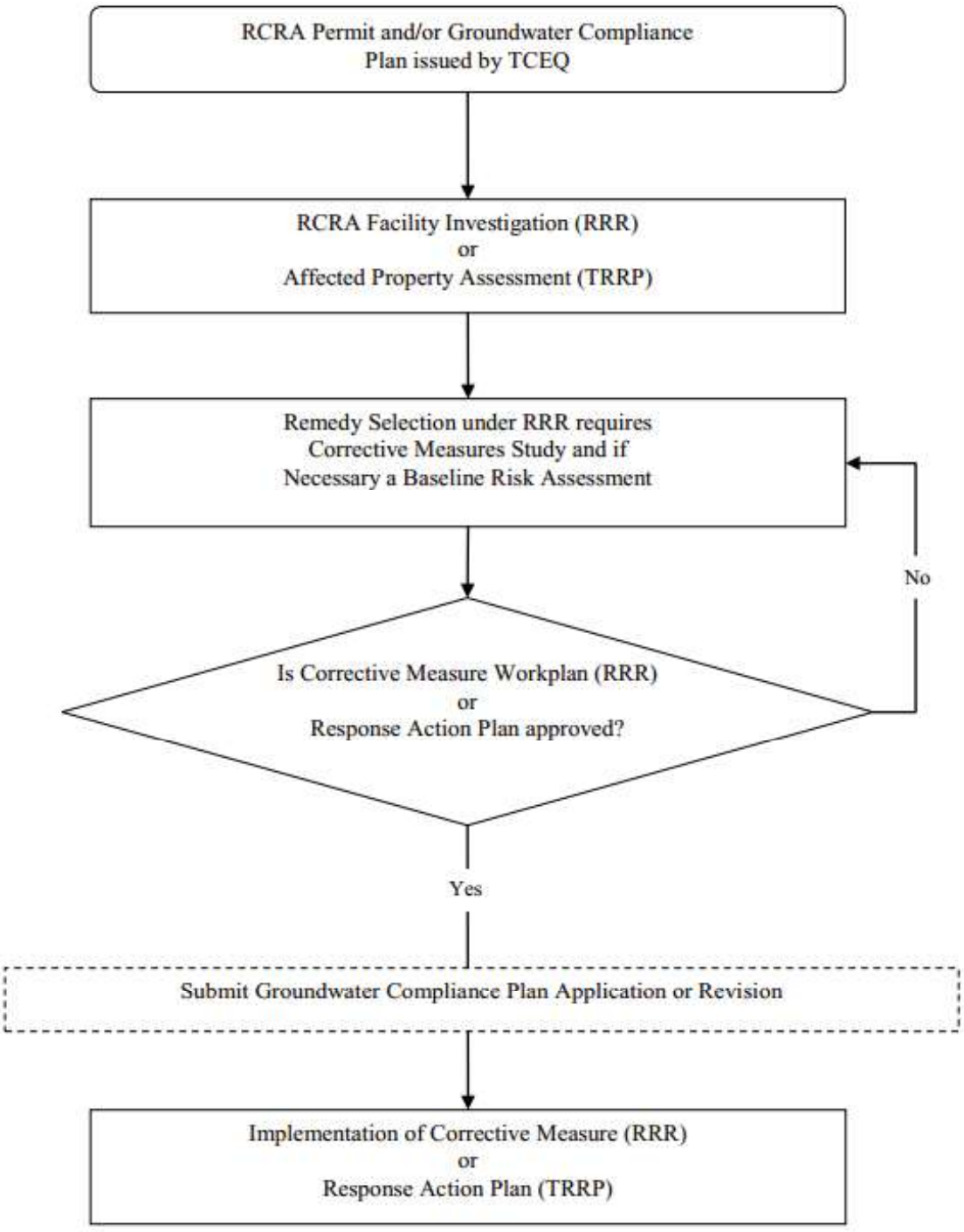
- • Submittal of additional or revised information required.
- ○ No submittal of additional or revised information required.
- ▪ Possible submittal of additional or revised information required

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 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

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.

   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);
   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.
   c. All on site wastewater treatment units.

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

and Compliance Monitoring accordingly in the format provided.

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.

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.

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;

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;

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.

e. Present the geologic, stratigraphic and hydrogeological information; and

f. Maps indicating the lateral and vertical extent of the contamination for each stratigraphic unit affected, with supporting documentation.

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.

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:

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).

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.

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).

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 IV - Compliance Monitoring Program Table of Hazardous and Solid Waste Constituents and Practical Quantitation Limits or Method Quantitation Limits for Compliance Monitoring.

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.

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

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,

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).

(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

(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.

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
    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

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.

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.

      (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.

      (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.

      (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).

(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

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.

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.

(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.

(2) The proposed point of compliance (30 TAC 335.161), point of exposure wells, or alternate point of exposure wells.

(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

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.

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.

   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)
   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 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

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.

   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.

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
2. CP Table XI.E.1. - Corrective Action Program Cost Estimate
3. CP Table XI.E.2.e - Groundwater Monitoring Cost Estimate
4. CP Table XI.E.3. - Financial Assurance Summary

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);

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.

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

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 (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;

- 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.

XI Compliance Plan Response

This Part B application is for a compliance plan and post-closure care of two permitted units at the Air Products LLC (APLLC) Pasadena, TX Facility, i.e., Unit 001 Effluent Impoundment and Unit 002 Acid Spill Impoundment which were closed on 7/14/1989 and 9/1/1987, respectively. The attached Compliance Plan's corrective action cost estimates were most recently revised with the Class 1ED modification and permit HW50134 was issued July 2, 2018.

All permitted units at the facility are closed. No new units are proposed. Proposed changes to the Compliance Plan simply provide corrective action modifications which have already been discussed and approved by the TCEQ and are already being utilized. These changes include the activation of recovery wells MW 24 and RW25 for full-time operation, the de-activation of former recovery well RW21, and a procedural update regarding groundwater chemical analysis. APLLC's response to the Section XI requirements are shown in the table below per the Format of Hazardous Waste permit Application and Instructions.

Paragraph			**Response**
A. Site Specific Information			
	1	a	An 11"x 17" plan view map of the facility showing the PMZ boundaries is provided in the figures supporting Section XI.A of the application. Refer to map labeled 'Figure XI.A.1.a'.
		b	A U.S.G.S quadrangle topographic map showing the entire facility is provided in the figures supporting Section XI.A of the application. Refer to map labeled 'Figure XI.A.1.b'.
		c	An 8.5" x 11" map labeled 'CP Attachment A, Sheet 1 of 6 Facility Site Map, and PMZ Boundary Location Map' is provided in the figures supporting Section XI.A of the application.
		d	The facility was vacant land at the time of plant construction in 1972. No known previous structures had occupied the property.
	2	a	Refer to completed 'CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring' associated with Section XI of the application form.
		b	Reserved – not applicable
		c	Reserved – not applicable
	3		Refer to completed 'CP Table I – Waste Management Units and Areas Subject to Groundwater Corrective Action and Compliance Monitoring' associated with Section XI of the application form.
	4		The Geology Report is provided in Section VI.B of the application. In addition, a Site Geology and Hydrogeologic Conditions Report supporting the compliance plan renewal application for the waste management units and areas listed in CP Table I is provided in the Attachment XI.A.4.
		a	Refer to the supporting figures provided in Attachment XI.A.4. A regional geologic map is included as Figure XI.A.4.A. A regional geologic cross section is included as Figure XI.A.4.B, and a hydrostratigraphic column

			is included as Figure XI.A.4.C. Detailed local cross sections are provided in Figures XI.A.4.1 through XI.A.4.9.
		b	Refer to Section 1.3 of the Site Geology and Hydrogeologic Conditions Report provided in Attachment XI.A.4 of the application.
		c	Not Applicable.
		d	The term “Uppermost Aquifer” refers to the following transmissive zones: The “Shallow Zone” is identified as the first transmissive zone consisting of sediments of the Beaumont Formation, encountered from the ground surface to a depth of 50 feet below grade [+25 feet above Mean Sea Level (MSL) to -25 feet below MSL]. The second transmissive zone is identified as the “Intermediate Zone,” encountered at depths of 50 feet below grade (approximately -25 feet below MSL). The third transmissive zone is referred to as the “Deep Zone,” encountered at depths of 75 to 80 feet below grade level (approximately -50 to -55 feet below MSL). Detailed description and evaluation of uppermost aquifer (i.e., groundwater characteristics flow rates, directions, hydraulic conductivity, etc.) are provided in Section 1 of the Site Geology and Hydrogeologic Conditions Report provided in the attachment supporting Section XI.A.4 of the application. Records of water wells within ½ mile of the facility (as discussed in Section 1.5 of the Site Geology and Hydrogeologic Conditions Report) are provided in Attachment XI.A.4.d.
		e	Refer to Section 1 of the Site Geology and Hydrogeologic Conditions Report provided in the Attachment XI.A.4.
		f	The PCLE Zones are shown on Figures XI.A.4.18 and XI.A.4.19 for the Shallow Zone and the Intermediate Zone, respectively. The figures show the locations of the monitoring wells and the discrete groundwater samples. Referenced maps are provided in Attachment XI.A.4.
		g	The PCLE Zones are shown on Figures XI.A.4.18 and XI.A.4.19 for the Shallow Zone and the Intermediate Zone, respectively. The figures show the locations of the monitoring wells and the discrete groundwater samples. Referenced maps are provided in Attachment XI.A.4.
		h	The locations of the cross sections are shown on Figure XI.A.4.1. The cross sections are shown on Figures XI.A.4.2 through XI.A.4.9. Referenced maps are provided in Attachment XI.A.4.
		i	The well construction diagrams and the cone penetrometer test (CPT) logs for the wells and CPTs, respectively, that were used in the cross sections are provided in Appendix XI.A.4.i of Attachment XI.A.4.
		j	A Tier 1 Exclusion Criteria Checklist has been prepared for several of the waste management units for which an APAR has been previously submitted, including 1) the TDA Rail Car Loading Area (NOR 025) (Appendix D of the APAR for TDA Tank Car Loading Area, Geomatrix, January 2001); 2) the group of AOCs and SWMUs in Waste Management Area No. 1, including the three units that comprise the DNT Loading Area (NOR 022, 023, and 024), the Neutralization Pit (NOR 027), the DNT Storage Area (AOC 001), the Northwest Storage Area (AOC 002) (Appendix II.4 of the previous Compliance Plan Application,

			Geomatrix, January 2001); 3) the former ASI (NOR 002) (Attachment 2A of the ASI APAR, Geomatrix, January 2006); and 4) the DNT Manufacturing Area (AOC 003) (Attachment 2A of the DNT Units APAR, Geomatrix, December 2007). All these indicated no threat to ecological receptors from COCs released from these units, except for a potential concern at the former ASI. The Tier 1 Checklist for the Former Acid Spill Impoundment (ASI) is included in Attachment XI.A.4.j.1. The former ASI is located near the southeastern corner of the facility, near a stream, Cotton Patch Bayou, which has been channelized and made into an urban drainage ditch. A Tier 2 Screening Level Risk Assessment was performed for the former ASI (Section 9.0 of the APAR, Geomatrix, January 2006). The Tier 2 Assessment is included as Attachment XI.A.4.j.2. The Tier 2 assessment resulted in the adoption of several benchmark concentrations protective of aquatic life as Groundwater-to-Surface Water PCLs, all of which are higher than the Tier 1 Residential Drinking Water PCLs of the GWPS. Well MW69 is considered to be an ecological point of exposure well.
B. Hazardous Constituents in Groundwater and Groundwater Protection Standards			The analytical results from the initial (1985) baseline sampling of selected facility wells and impoundment liquids to determine a list of potential Chemicals of Concern (Appendix VIII of 40CFR261) are shown on tables included in Appendix XI.B.1. The most recent analysis of Chemicals of Concern in groundwater samples from each waste management unit's monitoring wells are shown on Table XI.A.4.g1 provided in the table attachments associated with Section XI.A. All historical analyses are shown on Table XI.A.4.g3. A complete list of hazardous constituents and their principal degradation constituents for units/areas subject to the Corrective Action Program (i.e., Waste Management Area No. 1, Waste Management Area No. 2, and TDA Tank Car Loading Area) are provided in 'CP Table III' associated with Section XI of the application form. CP Table IV is not applicable - there are no Compliance Monitoring Programs currently established at this facility. As such, CP Table IV has been updated to reflect that this table is 'Reserved'.
	1		See discussion in response B.2 below.
	2		All of the proposed GWPS referenced in CP Table III and IIIA for units/areas subject to the groundwater Corrective Action Program are considered Alternate Concentration Limits (ACLs) pursuant to 30TAC335.160(b), and are based on the Tier 1 Protective Concentration Levels (PCLs) determined under Remedy Standard A for residential Class 2 Groundwater ingestion. As such, an ACL demonstration is not required.

			The Tier 1 PCLs are based on the most current version (February 6, 2025), of Table 3 (Tier 1 Groundwater PCLs) associated with 30 TAC 350. Refer to 'CP Table III - List of the Detected Constituents and their respective GWPS' provided in the tables associated with Section XI of the application form. Refer to 'CP Table IIIA - List of the Indicator Constituents and their respective GWPS' provided in the tables associated with Section XI of the application form. Please note that the Tier 1 PCLs listed in CP Table III and IIIA will change automatically when changes to the rule affect the values. The groundwater contamination plume associated with Waste Management Area No. 2 (includes the former Acid Spill Impoundment and former DNT Manufacturing Area) has a potential to discharge into a surface water drainage ditch, as described in Attachment XI.A.4 (Site Geology and Hydrogeologic Conditions Report). Ecological PCLs have been developed for this exposure pathway, as described in Attachment XI.A.4.j.2 of this report. The Point of Exposure (POE) was established at the location of existing monitor well, MW69. The Ecological PCLs (ECOGW), however, were determined to be greater than the critical PCLs, which are based on Tier 1 PCLs protective concentrations for residential exposure to class 2 groundwater (GWGWIng). Therefore, all GWPS established for Waste Management Area No. 1, Waste Management Area No. 2, and the former TDA Rail Car Loading Area are based on residential groundwater ingestion exposure pathway (GWGWIng).
C. Compliance Monitoring Program			Section XI.C (Compliance Monitoring Program) is not applicable at this time for this facility. CP Table IV (and related CP Table IVA) associated with Section XI.C of the application have been updated to reflect that they are 'Reserved'.
D. Corrective Action Program			This facility currently has existing, authorized groundwater corrective action programs established for units and areas listed in CP Table I of this application (i.e., Waste Management Area No. 1, Waste Management Area No. 2 and the TDA Tank Car Loading Area) under the terms of the facilities existing Compliance Plan CP-50134 (issued January 7, 2016), and pursuant to the Class 3 modification issued by the TCEQ on September 14, 2011. The initial Part B Permit and Compliance Plan for the facility were issued September 17, 1990.

			The Class 3 modification issued by the TCEQ on September 14, 2011, incorporated updated changes to accommodate the implementation of final response actions (i.e., establishment of Plume Management Zones) to address two Protective Concentration Level Exceedence (PCLE) zones identified in the eastern part of the plant as a result of the completion of Affected Property Assessment Reports (APARs) and draft Response Action Plans (RAPs) for the former Acid Spill Impoundment (ASI) (NOR 002) and the DNT Manufacturing Area (AOC3). No changes to the current, established groundwater corrective action programs for Waste Management Area No. 1, Waste Management Area No. 2 and the TDA Tank Car Loading Area are being proposed in the renewal application. Attachment XI.D provides a detailed description of current design system specifications associated with the established corrective action programs for these units/areas and update information specifically in response to Section XI.D.1-8 of this application, as applicable. Items that are not applicable are noted below.
	1		Refer to responses provided in Attachment XI.D, Section XI.D.1.
	2		Refer to responses provided in Attachment XI.D, Section XI.D.2.
	3		Refer to responses provided in Attachment XI.D, Section XI.D.3. An updated Sampling and Analysis Plan is included in Attachment XI.D.3.c(1).
	4		Refer to responses provided in Attachment XI.D, Section XI.D.4.
	5		Not applicable.
	6		Refer to responses provided in Attachment XI.D, Section XI.D.6.
	7		Not applicable.
	8		Refer to responses provided in Attachment XI.D, Section XI.D.8.
E. Cost Estimates for Financial Assurance			The Cost Estimate tables have been formatted to be consistent with the existing Compliance Plan cost tables. There are three identified Waste Management Areas, designated as follows: 1) Waste Management Area 1: encompasses the Former Effluent Impoundment (NOR Unit 001), the Former DNT Loading Area (NOR Units 022, 023, and 024), the Former Neutralization Pit (NOR Unit 027), the Former DNT Storage Area (AOC 1), and the Former Northwest Storage Area (AOC 2). 2) Waste Management Area 1: encompasses the Former Acid Spill Impoundment (NOR Unit 002) and the Former DNT Manufacturing Area (AOC3). 3) TDA Tank Car Loading Area

	The total years used to calculate the financial assurance for the Corrective Action Program (see CP Table VI.) is 16 years.

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)
Effluent Impoundment	Surface Impoundment	001	05/72	K111, K112, D002, D030	727000	0	1986	01/1987	07/14/1988	Yes
Acid Spill Impoundment	Surface Impoundment	002	05/72	D002, D030	335000	0	1986	10/28/1987	11/18/88	Yes
Container Storage Area	Container Storage Area	003	11/01/1980	U221, D030, D001	27500	0	2015	2015	11/02/2015	No
TDA Byproducts Tank	Tank (Surface)	005	1976	K113, K114, K115	17500	0	2012	2015	09/08/2015	No
TDA Wastewater Surge Tank	Waste Treatment Unit	011	1986	K112	140000	0	2012	2012	06/07/2017	No
Total Wastewater Tank	Tank (Surface)	012	1986	K111, K112	20000	N/A	N/A	N/A	08/30/2019 (transferred to Evonik)	No
Spent carbon storage tank (V-8)	Tank (surface)	014	02/1992	N/A	40000	0	2012	2015	02/06/2015	No
Spent carbon storage tank (V-4)	Tank (surface)	015	02/1992	K111	5000	0	2012	2015	02/06/2015	No
MEA/Sodium carbonate sump or toluene sump	Sump	019	05/1972	U220	14700	0	05/1992	07/22/1992	07/23/2003 (NOR status date)	No

DNT Wastewater/ Red water sump	Sump	020	05/1972	D030	3560	0	2012	2014	03/03/2014	No
DNT tank car loading area	Sump	022	05/1972	D030	2900	0	2012	2018	09/21/2018 (Per TCEQ letter)	Yes
DNT truck loading area	Sump	023	05/1972	D030	4000	0	2012	2018	09/21/2018 (per TCEQ letter)	Yes
DNT spill off pond	Sump	024	05/1972	D030	6000	0	2012	2018	09/21/2018 per TCEQ letter)	Yes
TDA tank car loading area	Sump	025	05/1976	D030, U221	600	0	2012	2017	06/29/2017	Yes
Neutralization pit	Sump	027	05/1972	K111, K112	8800	0	1986	1986	03/18/2021	Yes
Neutralization tank (V-16.155)	Tank (surface)	031	02/1992	K111	13000	0	2017	2017	06/07/2017	No
Contaminated wastewater tank (V16.153)	Tank (surface)	032	02/1992	D030	56000	0	2012	2021	03/31/2021	No
Pulse bed adsorber (V-1)	Tank (surface)	033	02/1992	K111	30000	0	2012	2017	06/07/2017	No
Pulse bed adsorber (V-2)	Tank (surface)	034	02/1992	K111	30000	0	2012	2017	06/07/2017	No
Contaminated wastewater adsorber (V-3)	Tank (surface)	035	02/1992	K111	7500	0	2012	2021	03/31/2021	No
Contaminated wastewater surge adsorber	Tank (surface)	036	02/1992	D030	800	0	2012	2021	03/31/21	No
Carbon filter (V-9)	Tank (surface)	037	02/1992	K111	800	0	2012	2021	03/31/2021	No
DNT Storage Area	Tank (product storage)	Area of Concern 1	N/A	N/A	N/A	N/A	N/A	2012	N/A	Yes
Northwest Storage Area	Unknown	Area of Concern 2	Unknown	Unknown	N/A	N/A	N/A	2012	N/A	Yes

DNT Manufacturing Units	Process Unit AOC	Area of Concern 3	Constructed in 1972	N/A	N/A	N/A	N/A	2012	N/A	Yes

Footnotes:

1. Indicate by asterisk (*) those waste management units that have received any hazardous waste constituent listed in Appendix VIII of 40 CFR Part 261.

2. For the purposes of this Compliance Plan Application, a waste management unit receiving hazardous waste after July 26, 1982, shall be considered a RCRA-regulated Unit. A waste management unit that ceased receiving hazardous waste on or before that date shall be considered a Solid Waste Management Unit (SWMU).

3. The date the applicant submitted certification of closure to the Commission.

4. Hazardous constituents are those hazardous constituents listed in Appendix IX of 40 CFR Part 264.

Table XI.E. – General Information

Waste Management Area/Unit Description	NOR No. (if applicable)	Compliance Period for Waste Management Area/Unit[1, 2]
Waste Management Area 1: includes Former Effluent Impoundment, Former Neutralization Pit, Former DNT Loading Area, Former DNT Storage Area (AOC1), Former Northwest Storage Area (AOC 2)	001, 022, 023, 024, 027	16
Waste Management Area 2: includes Former Acid Spill Impoundment, Former DNT Manufacturing Area (AOC 3)	002	16
TDA Tank Car Loading Area		16

Footnotes:

1. The compliance period is the number of years equal to the active life of the waste management area as defined in 30 TAC 335.162

2. In instances where the compliance period is equal to or exceeds 30 years, the maximum amount of financial assurance required will be based on 30 years because the required post-closure care period to perform Corrective Action and groundwater monitoring is 30 years. In instances where the compliance period is less than 30 years, the financial assurance for Corrective Action or Compliance Monitoring will be based on the longest time frame established by one of the following criteria:

    a. the duration of your Compliance Plan;

    b. the estimated time frame for clean-up based on model projections and historical data as approved by the Executive Director; or

    c. the compliance period for the unit/area.

Table XI.E.1. Corrective Action Program Cost Estimate

Task	Cost
1. Pumping Capacity Per Year:	
A. Daily average system pumping rate	10,571 gal/day
B. Annual groundwater volume recovered	3,858,415 gal/yr
2. Off-Site Liquid Treatment / Disposal Cost:	
A. Volume of treated contaminated water to be disposed of off-site yearly	3,858,415 gal/yr
B. Transportation of liquid waste disposed of off-site yearly	
(1) Transportation cost per gallon	$/gal
(2) Gallons of contaminated water shipped per year	gal/yr
(3) Annual cost of transportation (1 x 2)	$/yr
C. On-site yearly storage cost prior to off-site disposal	$/yr
D. Off-site yearly treatment cost of liquid waste	
(1) Treatment charge per gallon	0.0042 $/gal
(2) Total volume to be treated per year	3,858,415 gal/yr
(3) Annual treatment cost (1 x 2)	16,205 $/yr
E. Off-site disposal cost of liquid waste per year	
(1) Disposal charge per gallon	$/gal
(2) Total volume to be disposed per year	gal/yr
(3) Annual disposal cost (1 x 2)	$/yr
Annual Off-Site Liquid Treatment / Disposal Cost (2B3 + 2C +2D3 + 2E3)	**16,205 $**
3. On-site Wastewater Treatment System Cost and On-site Treatment / Disposal Cost:	
Submit a cost estimate for a treatment system specifically designed and used exclusively for the groundwater Corrective Action Program and operational after some start up maintenance. Estimates to clean out the system should also be included in the following cost.	
A. Initial capital expenditure for treatment system including start up maintenance	$
On-Site Wastewater Treatment System Capital Cost (3A)	$

B. Gallons of contaminated water to be treated on-site per year	gal/yr
C. Cost of on-site treatment per gallon	$/gal
D. Cost of sludge or solids disposal per year	$/yr
E. Cost per year of maintenance on treatment system and recovery system, along with any additional equipment and repairs needed for the systems	$/yr
F. Cost of on-site disposal per year	$/yr
Annual On-Site Treatment / Disposal Cost [(3B x 3C) + 3D + 3E + 3F]	**$**
4. Inspections, Maintenance and Operation Cost for the Corrective Action Program:	
A. Operator's time on-site for inspections and maintenance per year	208 hr/yr
B. Charge of salary per hour	120 $/hr
C. Annual cost of labor (4A x 4B)	24,960 $/yr
D. Replacement cost of parts and equipment per year	800 $/yr
E. Electricity cost per year	1,704 $/yr
Annual Inspections / Maintenance / Operation Cost for the Corrective Action Program (4C + 4D + 4E)	**27,464 $**

Table XI.E.2.e - Groundwater Monitoring Cost Estimate

Task	Cost
1. Annual Sampling and Analysis Cost	
A. Background Wells	
(1) Number of wells	3
(2) Sample analysis cost per well	377 $/well
(3) Number of sampling events per year	0.5 /yr
(4) Sampling cost (1 x 2 x 3)	566 $/yr
B. Point of Compliance Wells	
(1) Number of wells	18
(2) Sample analysis cost per well	377 $/well
(3) Number of sampling events per year	1.75/yr
(4) Sampling cost (1 x 2 x 3)	11,876 $/yr
C. Recovery Wells	
(1) Number of wells	7
(2) Sample analysis cost per well	377 $/well
(3) Number of sampling events per year	2/yr
(4) Sampling cost (1 x 2 x 3)	5,278 $/yr
D. Corrective Action Observation Wells	
(1) Number of wells	12
(2) Sample analysis cost per well	377 $/well
(3) Number of sampling events per year	0.625 /yr
(4) Sampling cost (1 x 2 x 3)	2,828 $/yr
E. Point of Exposure Wells	
(1) Number of wells	35
(2) Sample analysis cost per well	377 $/well
(3) Number of sampling events per year	1.3571 /yr
(4) Sampling cost (1 x 2 x 3)	17,907 $/yr
F. Supplemental 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)	
G. Field Quality Control Sampling	
(1) Number of wells	4
(2) Sample analysis cost per well	377 $/well
(3) Number of sampling events per year	1.625 /yr
(4) Sampling cost (1 x 2 x 3)	2,450 $/yr
2. Sampling Labor Cost:	
A. Hours of sampling per well	1 hrs/well
B. Number of sampling technicians per well	1 /yr
C. Charge per hour	120 $/hr
D. Total number of wells to be sampled annually	16 (32 wells biennial)
E. Total number of wells sampled semi-annually	43
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)	102
I. Sampling Labor Cost (2A x 2B x 2C x 2H)	12,240 $/yr
Annual Groundwater Monitoring Cost (Annual Sampling and Analysis Cost + Sampling Labor Cost)	53,145 $/yr
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 (3A x 3B)	
D. Recovery well installation cost per well	$/well
E. Number of Recovery Wells to be installed	
F. Cost of Recovery well system (3D x 3E)	
Total Well Installation Cost (3C + 3F)	
4. Administrative Cost:	
A. Annual cost for record-keeping and report preparation	

Annual Administrative Cost (4A)	21,000 $/yr
5. Inspection and Maintenance Cost for the Monitoring Program:	
A. Operator's time (hours) on-site for inspections and maintenance per year	47 hr/yr
B. Charge or salary per hour	120 $/hr
C. Annual cost of labor (4A x 4B)	5,640 $/yr
D. Replacement of parts and equipment per year	4,250 $/yr
Annual Inspections / Maintenance Cost for the Groundwater Monitoring Program (5C + 5D)	$9,890

Notes: Number of Sampling Events Per Year Calculated as follows:

Background Wells - One sampling event every 2 years for 3 wells = 0.5 sampling events per well per year.

Point of Compliance Wells - Two sampling events per year for 15 wells; one sampling event per 2 years for 3 wells = (2*15) + (0.5*3) = 31.5 samples. 31.5 samples/18 wells = 1.75 sampling events per well per year.

Recovery Wells - Two sampling events per year for 7 wells. 14 samples/7 wells = 2 sampling events per well per year.

Corrective Action Observation Wells - Two sampling events per year for 1 well; one sampling event per 2 years for 11 wells = (2*1)+(0.5*11) = 7.5 samples/12 wells = 0.625 sampling events per well per year.

Point of Exposure Wells - Two sampling events per year for 20 wells; one sampling event per 2 years for 15 wells = (2*20)+(0.5*15) = 47.5 samples/ 35 wells = 1.3571 sampling events per well per year.

Field Quality Control Sampling - One sample per 20 wells; four sampling events with 3 QC samples; one sampling event every two years adds one extra sample = (2*3)+(0.5*1) = 6.5 samples/4 wells = 1.625 sampling events per well per year.

Table XI.E.3. - Financial Assurance Summary

Task	Cost
Annual Off-Site Liquid Treatment / Disposal Cost	$ 16,205
Annual On-Site Treatment / Disposal Cost	
Annual Inspection / Maintenance / Operation Cost for the Corrective Action Program	$ 27,464
Annual Groundwater Monitoring Cost	$ 53,145
Annual Administrative Cost	$ 21,000
Annual Inspection and Maintenance Cost for the Groundwater Monitoring Program	$ 9,890
Annual Subtotal	$ 127,704
Total Years Used for Calculating Financial Assurance for Corrective Action and/or Compliance Monitoring Program	16 Years
Remediation Cost (Annual Subtotal x Total Years Used)	$ 2,043,264
On-Site Wastewater Treatment System Capital Cost Total	
Total Well Cost	
10% Contingency	$ 204,326
Grand Total Cost (round to nearest $1000)	$ 2,248,000

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
Waste Management Area 1	N/A
Former Effluent Impoundment	001
Former DNT Loading Area (consisting of 3 units: Former DNT Tank Car Loading Area; Former DNT Truck Loading Area; Former DNT Spill Off Pond)	022, 023, 024: all 3 units closed on NOR (10/9/2018)
Former DNT Storage Area (AOC 1)	N/A
Former Neutralization Pit	027: closed on NOR (08/31/2021)
Former Northwest Storage Area (AOC 2)	N/A
Waste Management Area 2	N/A
Former Acid Spill Impoundment	002
Former DNT Manufacturing Area (AOC 3)	N/A

B. Compliance Monitoring[1] (30 TAC Section 335.165)

Unit Name	Notice of Registration (NOR) Number, if applicable
Reserved	

C. Corrective Action[2] (30 TAC Section 335.167)

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (SWMU or AOC)
Former TDA Tank Car Loading Area	025 [closed on NOR (07/28/2017)]	SWMU

D. Alternative Corrective Action[3] (30 TAC Section 335.151)

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (RCRA-regulated unit, SWMU, or AOC)
Reserved		

E. Facility Operations Area (FOA)[4] (30 TAC Section 335.156 and Chapter 350 Subchapter G)

Unit Name	Notice of Registration (NOR) Number, if applicable	Unit Type (RCRA-regulated unit, SWMU, or AOC)
Reserved		

Permittee: Air Products LLC

Footnotes:
1. Program applies to RCRA-regulated units only.

2. Program applies to releases from solid waste management units (SWMUs) and/or areas of concern (AOCs).

3. Program applies to commingled releases from a RCRA-regulated unit(s) and from one or more SWMUs and/or AOCs.

4. List the RCRA-regulated units, SWMUs, and/or AOCs which are located within the FOA boundary that are subject to Corrective Action.

   List the RCRA-regulated units, SWMUs, and/or AOCs which are located outside of the FOA boundary and are subject to Compliance Monitoring and/or Corrective Action separately in CP Table I.A., I.B., I.C., or I.D. as appropriate.

CP Table II: Solid Waste Management Units and/or Areas of Concern Addressed in Permit Section XI.H. for which Corrective Action Applies Pursuant to 30 TAC Section 335.167

Unit Name[3]	NOR Number, if applicable	SWMU or AOC	Affected Media[1]	Date Program Requirement and Remedy Standard Completed[2]
Former TDA Tank Car Loading Area	025	SWMU	Soil	Unit closed on NOR (07/28/2017)
Former DNT Storage Area (AOC 1)		AOC	Soil and Groundwater	
Former Northwest Storage Area (AOC 2)		AOC	Soil and Groundwater	
Former DNT Loading Area	022, 023, 024	SWMU	Soil and Groundwater	Units closed on NOR (10/9/2018)
Former Neutralization Pit	027	SWMU	Soil and Groundwater	Unit closed on NOR (08/31/2021)
Former MEA and Sodium Carbonate Sump	019	SWMU	None	02/26/1998 with No Further Action Pending Public Participation Notification Requirements. Unit closed on NOR (07/23/2003)
Former DNT Wastewater "Red Water" Sumps	020	SWMU	None	02/26/1998 with No Further Action Pending Public Participation Notification Requirements. Unit closed on NOR (01/29/2015)
Former DNT Manufacturing Area (AOC 3)		AOC	Soil and Groundwater	

SWMU = Solid Waste Management Unit; AOC = Area of Concern; NOR = Notice of Registration

Footnotes:

1. Specify the affected media [i.e., soil, groundwater (GW), surface water (SW), or sediment (SED)].

2. For each SWMU or AOC which has completed the Corrective Action Program objectives, specify the Remedy Standard (or Risk Reduction Standard) that was completed, the date of the Commission's No Further Action (NFA) approval letter for all affected media of concern, and the land use used to obtain NFA.

3. For sites with an authorized Facility Operations Area (FOA), list all SWMUs and/or AOCs located within the FOA boundary and outside of the FOA boundary that are subject to Corrective Action at the site.

   Please separate the SWMUs and/or AOCs that are located within the FOA boundary from the SWMUs and/or AOCs that are located outside of the FOA boundary.

Notes:

a) CP Table II lists SWMUs and/or AOC which have been identified in the RCRA Facility Assessment (RFA) Report as having a release(s) or potential releases of hazardous waste, hazardous constituents, or other chemicals of concern. The Permittee is thus required to meet Corrective Action objectives in accordance with Permit Section XI.H. and 30 TAC Section 335.167.

b) The Permittee shall update CP Table II when a new SWMU and/or AOC which requires Corrective Action is identified.

c) The Permittee shall also update CP Table II when the Corrective Action status of an affected media for a SWMU or AOC has changed as outlined in Footnote No. 2.

d) SWMUs and/or AOCs shall not be deleted from this table when the Corrective Action objectives have been completed and a NFA determination has been approved for the SWMU and/or AOC. In accordance with Permit Section XI.H., CP Table II is intended to be a historical record of the facility's corrective actions and to reflect when the Corrective Action objectives have been met for each SWMU/AOC.

e) There may be cases in which the Permittee fulfills the Corrective Action objectives for soils at a SWMU/AOC, but long-term monitoring and corrective action may be necessary to meet the groundwater Corrective Action objectives. In such instances, the SWMU/AOC would be listed in CP Table I.C and would be subject to all applicable provisions of this Compliance Plan. If a release from a SWMU/AOC is commingled with a RCRA-regulated unit, then the unit and the SWMU/AOC would be listed in CP Table I.D. In accordance with Permit Section XI.H, once the Corrective Action objectives for groundwater are completed, then the Permittee shall modify or amend the Compliance Plan to reassign the SWMU/AOC in CP Table I.C (or CP Table I.D) to CP Table II. CP Table II should reflect the new status of the SWMU/AOC and include the Remedy Standard (or Risk Reduction Standard) that was completed, the date of the NFA approval letter for <u>all</u> affected media of concern, and the land use used to obtain NFA.

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

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/L) at the POC[1, 3]		**Column C** Groundwater Protection Standards (mg/L) at the POE, APOE, or FBOC[2, 3]	
Waste Management Area 1, Waste Management Area 2, and TDA Loading Area	Benzene	0.005	GWGWIng	0.005	GWGWIng
	Chloroform	0.080	GWGWIng	0.080	GWGWIng
	1,2-Dichloroethane	0.005	GWGWIng	0.005	GWGWIng
	Trichloroethylene	0.005	GWGWIng	0.005	GWGWIng
	Methyl Ethyl Ketone [2-Butanone]	15	GWGWIng	15	GWGWIng
	Methylene Chloride	0.005	GWGWIng	0.005	GWGWIng
	Toluene	1.0	GWGWIng	1.0	GWGWIng
	m-Nitrotoluene	0.240	GWGWIng	0.240	GWGWIng
	o-Nitrotoluene	0.0041	GWGWIng	0.0041	GWGWIng
	p-Nitrotoluene	0.057	GWGWIng	0.057	GWGWIng
	2,4-Dinitrotoluene	0.0013	GWGWIng	0.0013	GWGWIng
	2,6-Dinitrotoluene	0.0013	GWGWIng	0.0013	GWGWIng
	1,3-Dichlorobenzene	0.730	GWGWIng	0.730	GWGWIng
	4,6-Dinitro-o-cresol [Dinitro-2-methylphenol, 4,6]	0.0024	GWGWIng	0.0024	GWGWIng
	Nitrobenzene	0.049	GWGWIng	0.049	GWGWIng
	o-Toluidine	0.057	GWGWIng	0.057	GWGWIng
	p-Toluidine	0.030	GWGWIng	0.030	GWGWIng
	2,4-Toluenediamine	0.00029	GWGWIng	0.00029	GWGWIng
	2,6-Toluenediamine	0.73	GWGWIng	0.73	GWGWIng
	Aroclor 1242	0.0005	GWGWIng	0.0005	GWGWIng
	Strontium	15	GWGWIng	15	GWGWIng
	Zinc	7.3	GWGWIng	7.3	GWGWIng

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, delete the contents of the table and add "Reserved" to the first row of CP Table III.

b) CP Table III represents the long list of hazardous constituents that are reasonably

expected to be in, or derived from, the waste placed in each RCRA-regulated unit, SWMU, and/or AOC listed in the table. CP Table III also lists the hazardous constituents that have been historically detected in the groundwater for each RCRA-regulated unit, SWMU, and/or AOC. These hazardous constituents are monitored in accordance with Provision XI.F.3.c.(1).

c) In accordance with Provision XI.D.6., the Groundwater Protection Standards (GWPS) must be met before the Corrective Action Program can be terminated for the RCRA-regulated unit, SWMU, and/or AOC.

d) If applicable, "Appendix IX" can be used in Column A for a unit instead of listing each chemical of concern (COC). The Permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the Permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the unit.

e) Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells should not be listed in CP Table III. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table III, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by CP Table VII and Provision XI.G.3 and become a part of the Permit by reference.

f) POC = point of compliance; POE = point of exposure; APOE = alternate point of exposure (only applicable for an authorized plume management zone [PMZ]); and FBOC = Facility Operation Area (FOA) Boundary of Compliance (only applicable for an authorized FOA).

Footnotes:

1. Use Column B to specify the GWPS assigned at the POC for a RCRA-regulated unit subject to Corrective Action or for a SWMU/AOC subject to the Risk Reduction Rules. Put "N/A" if not applicable.

2. Use Column C to specify the GWPS assigned at the POE, APOE (PMZ only), or FBOC (authorized FOA only). Put "N/A" if not applicable.

3. For each COC, include the appropriate GWPS designation to demonstrate that the Corrective Action Program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

   ACL = alternative concentration limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B

RRR GWPS Designations and Definitions

MSC	ACL pursuant to 30 TAC Section 335.160(b) based upon the groundwater Medium-Specific Concentration (MSC), Residential (or Industrial) Risk Reduction Standard No. 2 (or No. 3) specified in 30 TAC Section 335 Subchapter S.

MCL — ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Maximum Contaminant Level (MCL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.

SMCL — ALC pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Secondary Maximum Contaminant Level (SMCL) specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.

AL — ACL pursuant to 30 TAC Section 335.160(b) based upon the Action Level (AL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.

BKG — Background as determined in accordance with Provision XI.F.1.

ND — Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the most recent edition of EPA SW-846, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentration of an analyte in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TRRP GWPS Designations and Definitions

$^{GW}GW_{Ing}$ — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater ingestion PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1 or Class 2 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), $^{GW}GW_{Ing}$ PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10E-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.

$^{GW}GW_{Class3}$ — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

$^{Air}GW_{Inh\text{-}V}$ — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the inhalation of volatile constituents from groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1, 2, or 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SW}GW — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-surface water PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SED}GW	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-sediment PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
^{ECO}GW	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL protective of ecological receptor(s) determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
BKG	Background as determined in accordance with Provision XI.F.1.
ND	Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the most recent edition of EPA SW-846 and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

CP Table IIIA: Corrective Action Program Table of Indicator Parameters and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/L) at the POC[1, 3]		**Column C** Groundwater Protection Standards (mg/L) at the POE, APOE, or FBOC[2, 3]	
Waste Management Area 1, Waste Management Area 2, TDA Loading Area	2,4-Dinitrotoluene	0.0013	GWGWIng	0.0013	GWGWIng
	2,6-Dinitrotoluene	0.0013	GWGWIng	0.0013	GWGWIng
	o-Nitrotoluene	0.0041	GWGWIng	0.0013	GWGWIng
	m-Nitrotoluene	0.240	GWGWIng	0.240	GWGWIng
	p-Nitrotoluene	0.057	GWGWIng	0.057	GWGWIng
	2,4-Toluenediamine	0.00029	GWGWIng	0.00029	GWGWIng
	2,6-Toluenediamine	0.73	GWGWIng	0.73	GWGWIng
	o-Toluidine	0.057	GWGWIng	0.057	GWGWIng
	p-Toluidine	0.030	GWGWIng	0.030	GWGWIng
	Nitrobenzene	0.049	GWGWIng	0.049	GWGWIng
	1,3 Dichlorobenzene	0.730	GWGWIng	0.730	GWGWIng

Notes:

a) If the Corrective Action Program (Provision XI.E.) does not apply to the RCRA-regulated units, SWMUs, or AOCs at the facility, delete the contents of the table and add "Reserved" to the first row of CP Table IIIA.

b) CP Table IIIA represents the short list of hazardous constituents (i.e., indicator parameters) developed from CP Table III and are monitored on a frequency specified in CP Table VIII to verify that the ground water protection standards (GWPS) are met.

c) In accordance with Provision XI.D.6, the GWPS must be met before the Corrective Action Program can be terminated for the RCRA-regulated unit, SWMU and/or AOC.

d) If applicable, "Appendix IX" can be used in Column A for a unit instead of listing each chemical of concern (COC). The Permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the Permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the unit.

e) Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells should not be listed in CP Table IIIA. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table IIIA, then any proposed change to the

well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by CP Table VII and Provision XI.G.3 and become a part of the Permit by reference.

f) POC = point of compliance; POE = point of exposure; APOE = alternate point of exposure (only applicable for an authorized plume management zone [PMZ]); FBOC = Facility Operations Area (FOA) Boundary of Compliance (only applicable for an authorized FOA).

Footnotes:

1. Use Column B to specify the GWPS assigned at the POC for a RCRA-regulated unit subject to Corrective Action or for a SWMU/AOC subject to the Risk Reduction Rules. Put "N/A" if not applicable.

2. Use Column C to specify the GWPS assigned at the POE, APOE, or FBOC. Put "N/A" if not applicable.

3. For each COC, include the appropriate GWPS designation to demonstrate that the Corrective Action Program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

   ACL = alternative concentration limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B

RRR GWPS Designations and Definitions

MSC	ACL pursuant to 30 TAC Section 335.160(b) based upon the groundwater Medium-Specific Concentration (MSC), Residential (or Industrial) Risk Reduction Standard No. 2 (or No. 3) specified in 30 TAC Section 335 Subchapter S.
MCL	ACL pursuant to 30 TAC Section 335.160(b) based upon the groundwater Maximum Contaminant Level (MCL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.
SMCL	ALC pursuant to 30 TAC Section 335.160(b) based upon the groundwater Secondary Maximum Contaminant Level (SMCL) specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.
AL	ACL pursuant to 30 TAC Section 335.160(b) based upon the Action Level (AL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.
BKG	Background as determined in accordance with Provision XI.F.1.
ND	Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the most recent edition of EPA SW-846 and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentration of an analyte in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TRRP GWPS Designations and Definitions

$^{GW}GW_{Ing}$	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater ingestion PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1 or Class 2 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), $^{GW}GW_{Ing}$ PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10E-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.
$^{GW}GW_{Class3}$	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
$^{Air}GW_{Inh-V}$	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the inhalation of volatile constituents from groundwater PCL determined under RSA or RSB (Residential or Commercial /Industrial) for Class 1, 2, or 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
^{SW}GW	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-surface water PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
^{SED}GW	ACL pursuant to 30 TAC Section 335.160(b)and 30 TAC Chapter 350 which is based upon the groundwater-to-sediment PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
^{ECO}GW	ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL protective of ecological receptor(s) determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.
BKG	Background as determined in accordance with Provision XI.F.1.
ND	Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the most recent edition of EPA SW-846 and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final

volume of extract (or sample) used by the laboratory.

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

Unit Name	Column A Hazardous Constituents	Column B Concentration Limits (mg/L)[1, 2]	
Reserved	*chemical of concern*	*0.00*	*GWGWIng*
	chemical of concern	*0.00*	*SWGW*
	chemical of concern	*0.00*	*SWGW*
	chemical of concern	*0.00*	* AirGWInh-v
	chemical of concern	*0.00*	*GWGWIng*
Reserved	*chemical of concern*	*0.00*	*GWGWIng*
	chemical of concern	*0.00*	*GWGWIng*
	chemical of concern	*0.00*	*GWGWIng*

Notes:

a) If there are no RCRA-regulated units subject to the Compliance Monitoring Program pursuant to 30 TAC Section 335.165, delete the contents of the table and add "Reserved" to the first row of CP Table IV.

b) CP Table IV represents the long list of hazardous constituents that are reasonably expected to be in, or derived from, waste placed in a RCRA-regulated unit but may not be detected in the groundwater above the chemical of concern's (COC) concentration limit.

c) If applicable, "Appendix IX" can be used in Column A for a RCRA-regulated unit instead of listing each COC. The Permittee may petition the Executive Director for the deletion of a specific COC from the Appendix IX analysis if the Permittee can demonstrate that the COC was never used in the facility's operations nor was disposed of in the unit.

d) CP Table IV chemicals of concern (COCs) are to be monitored annually in accordance with Provision XI.F.3.c(2)(b). Any CP Table IV COCs detected in the groundwater at a concentration greater than the COC's concentration limit should be added to CP Table IVA through permit modification or amendment.

Footnotes:

1. Use Column B to specify the concentration limit assigned at the point of compliance (POC).

2. For each COC, include the appropriate concentration limit designation according to either the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP concentration limit designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

RRR Concentration Limit Designations and Definitions

ND Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentrations of analytes in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

BKG Background as determined in accordance with Provision XI.F.1.

TRRP Concentration Limit Designations and Definitions

ND Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

BKG Background as determined in accordance with Provision XI.F.1.

CP Table IVA: Compliance Monitoring Program Table of Detected Hazardous Constituents and the Groundwater Protection Standard

Unit Name	**Column A** Hazardous Constituents	**Column B** Groundwater Protection Standards (mg/L)[1, 2]	
Reserved	*chemical of concern*	*0.00*	*GWGWIng*
	chemical of concern	*0.00*	*SWGW*
	chemical of concern	*0.00*	*SWGW*
	chemical of concern	*0.00*	* AirGWInh-v
	chemical of concern	*0.00*	*GWGWIng*
Reserved	*chemical of concern*	*0.00*	*GWGWIng*
	chemical of concern	*0.00*	*GWGWIng*
	chemical of concern	*0.00*	*GWGWIng*

Notes:

a) If there are no RCRA-regulated units subject to the Compliance Monitoring Program pursuant to 30 TAC Section 335.165, delete the contents of the table and add "Reserved" to the first row of CP Table IVA.

b) CP Table IVA represents the short list of hazardous constituents released from a RCRA-regulated unit which are detected in the groundwater above the concentration limits specified in CP Table IV, Column B.

c) CP Table IVA chemicals of concern (COCs) are monitored in accordance with the frequency specified in CP Table VIII to verify the groundwater protection standards (GWPS) are met.

Footnotes:

1. Use Column B to specify the GWPS assigned at the point of compliance (POC).

2. For each COC, include the appropriate GWPS designation that applies to verify the Compliance Monitoring Program objectives are being achieved either under the Risk Reduction Rules (RRR) pursuant to 30 TAC Chapter 335 or the Texas Risk Reduction Program (TRRP) pursuant to 30 TAC Chapter 350. The RRR and TRRP GWPS designations and definitions may not be combined pursuant to 30 TAC Section 350.2(m).

   ACL = alternative concentration limit; PCL = protective concentration level; RSA = Remedy Standard A; RSB = Remedy Standard B.

RRR GWPS Designations and Definitions

MSC ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Medium-Specific Concentration, Residential (or Industrial) Risk Reduction Standard No. 2 (or No. 3) specified in 30 TAC Section 335 Subchapter S.

MCL ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Maximum Contaminant Level specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subparts B and G.

SMCL ACL pursuant to 30 TAC Section 335.160(b) based upon the Groundwater Secondary Maximum Contaminant Level specified in 40 CFR Part 143, National Secondary Drinking Water Regulations.

AL ACL pursuant to 30 TAC Section 335.160(b) based upon the Action Level (AL) specified in 40 CFR Part 141, National Primary Drinking Water Regulations Subpart I.

BKG Background as determined in accordance with Provision XI.F.1.

ND Non-detectable at the practical quantitation limit (PQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The PQL is the lowest concentrations of analytes in groundwater that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions.

TRRP GWPS Designations and Definitions

$^{GW}GW_{Ing}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater ingestion PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1 or Class 2 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table. In accordance with 30 TAC Section 350.72(b), $^{GW}GW_{Ing}$, PCLs may need to be adjusted to lower concentrations to meet the cumulative carcinogenic risk level (less than or equal to 1x10E-4) and hazard index criteria (less than or equal to 10) when there are more than 10 carcinogenic and/or more than 10 noncarcinogenic chemicals of concern within a source medium.

$^{GW}GW_{Class3}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

$^{Air}GW_{Inh\text{-}V}$ ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the inhalation of volatiles from groundwater PCL determined under RSA or RSB (Residential or Commercial/Industrial) for Class 1, 2, or 3 groundwater. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SW}GW ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is

based upon the groundwater-to-surface water PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{SED}GW — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater-to-sediment PCL determined under RSA or RSB (Residential or Commercial/Industrial). The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

^{ECO}GW — ACL pursuant to 30 TAC Section 335.160(b) and 30 TAC Chapter 350 which is based upon the groundwater PCL protective of ecological receptor(s) determined under RSA or RSB. The PCL value, Column B, will change as updates to the rule are promulgated. Changes to the rule automatically change the concentration value established in Column B in this table.

BKG — Background as determined in accordance with Provision XI.F.1.

ND — Non-detectable at the method quantitation limit (MQL) as determined by the analytical methods of the EPA SW-846 most recent edition, and as listed in the July 8, 1987, edition of the Federal Register and later editions. The MQL is defined in 30 TAC Section 350.4(54) as the lowest non-zero concentration standard in the laboratory's initial calibration curve and is based on the final volume of extract (or sample) used by the laboratory.

CP Table V: Designation of Wells

Point of Compliance (POC) Wells

Unit Name	Well Numbers
WMA1: Shallow Zone	MW8, MW75, MW76, MW77
WMA1: Intermediate Zone	MW36, MW37, MW40, MW41
WMA1: Deep Zone	MW21, MW38
WMA2: Shallow Zone	MW7, MW24, MW26, RW27
WMA2: Intermediate Zone	MW32, RW23, RW28
WMA2: Deep Zone	MW31, MW96
TDA Rail Car Loading Area: Shallow Zone	MW65, MW66
TDA Rail Car Loading Area: Intermediate Zone	None
TDA Rail Car Loading Area: Deep Zone	None

Point of Exposure (POE) Wells

Unit Name	Well Numbers
WMA1: Shallow Zone	MW53, MW54, MW55, MW56, MW58, MW59, MW61, MW73
WMA1: Intermediate Zone	MW67, MW68, MW72, MW81, RW26
WMA1: Deep Zone	MW21, MW38, MW63
WMA2: Shallow Zone	MW69, MW71, MW82R, MW84R, MW87, MW88
WMA2: Intermediate Zone	MW30, MW95, MW98
WMA2: Deep Zone	None
TDA Rail Car Loading Area	None

Alternate Point of Exposure (APOE) Wells

Unit Name	Well Numbers

WMA1: Shallow Zone	MW8, MW74, MW75, MW76, MW77, MW97
WMA1: Intermediate Zone	MW43, MW44, MW70, MW80
WMA 1: Deep Zone	None
WMA2: Shallow Zone	MW11, MW85, MW86, MW89, MW91, MW93, MW94
WMA2: Intermediate Zone	None
WMA2: Deep Zone	None
TDA Rail Car Loading Area	None

Background Wells

Unit Name	Well Numbers
Shallow Zone	MW10
Intermediate Zone	MW27
Deep Zone	MW28

FOA Boundary of Compliance (FBOC) Wells

Unit Name	Exposure Pathway	Well Numbers

Note:
Attenuation monitoring point (AMP) wells, corrective action system (CAS) wells, and corrective action observation (CAO) wells required by Permit Section XI.B.2. should not be listed in CP Table V. These wells should only be depicted in the CP Attachment A maps. Once an AMP, CAS, or CAO well meets its respective attenuation action levels (AALs) or GWPS, then the Permittee may propose to discontinue monitoring that well without modification to the Permit. If the AMP, CAS, or CAO well is listed in CP Table V, then any proposed change to the well would require modification to the Permit. Changes to the wells depicted in the CP Attachment A maps can be approved in the Groundwater Monitoring Report required by Provision XI.G.3. and CP Table VII and become a part of the Permit by reference.

CP Table VI: Compliance Period and Post Closure Period for RCRA-Regulated Units

[*Unit name*]	Year or Number of Years
Year Waste Management Activities Initiated	1972
Year Closed	1988
Compliance Period	16 Years
Compliance Period Begin Date	1988
Compliance Period End Date	2004
Post Closure Care Period	30 years
Post Closure Care Period Begin Date	2004
Post Closure Care Period End Date	2034

CP Table VII: Reporting Requirements

Item	Program	Reporting Frequency	Requirements
1.	All programs	Annually by July 21st	Each report shall be certified by a qualified engineer and/or geoscientist.
2.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	A table of all modifications and amendments made to this Compliance Plan with their corresponding approval dates by the Executive Director (or the Commission) and a brief description of each action;
3.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	A summary of any activity and/or response actions implemented since the last reporting period within an area subject to an institutional control.
4.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Tabulation of well casing elevations in accordance with CP Attachment C;
5.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide a certified well installation diagram for any new monitoring well installed or replaced during the reporting period. Provide the certification for all wells plugged and abandoned during the reporting period;
6.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Recommendation for any changes to the program;
7.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Any other items requested by the Executive Director;

Item	Program	Reporting Frequency	Requirements
8.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Prepare water table maps from the groundwater data collected pursuant to Permit Section XI. F. and reported in accordance with Provision XI.G.3. The Permittee shall also include in the report an evaluation of the following parameters: a. Development and maintenance of a cone of depression during operation of the groundwater recovery system(s), if applicable; b. Direction and gradient of groundwater flow; c. Effectiveness of hydrodynamic control of the contaminated groundwater zone during operation of the groundwater recovery system(s), if applicable; and d. Estimation of the rate and direction of groundwater contamination migration.
9.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	The Permittee shall submit the groundwater monitoring report required by Provision XI.G.3. to each recipient listed in Provision XI.J.3. The report must include all applicable information listed in this table (CP Table VII: Reporting Requirements) for the reporting period. If both Corrective Action and Compliance Monitoring Programs are authorized, then the report shall contain the applicable information required for both programs.
10.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Discuss the Corrective Action System(s) authorized under Provision XI.B.3. that was in operation during the reporting period. Provide a narrative summary of the evaluations made for each system for the preceding reporting period in accordance with Permit Sections XI.E., XI.F., and XI.G. The reporting periods shall be January 1st through June 30th and July 1st through December 31st for the Corrective Action Program, unless an alternative schedule is approved by the Commission. The reporting period for the Compliance Monitoring Program shall be based on the calendar year.
11.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Discuss the method(s) used to manage recovered/purged groundwater in accordance with Provision XI.B.8. The Permittee shall maintain this information as part of the facility's operating record and make it available for inspection upon request.

Item	Program	Reporting Frequency	Requirements
12.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide an updated table and map of all monitoring and corrective action system wells. The wells to be sampled shall be those wells proposed in the Compliance Plan Application referenced in Provision I.B. and any changes subsequently approved by the Executive Director pursuant to Provisions XI.B.2. and XI.B.3. Provide in chronological order a list of those wells which have been added to, or deleted from, the groundwater monitoring program and remediation systems since original issuance of the Compliance Plan. Include the date of the Commission's approval for each well;
13.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide the results of the chemical analyses, submitted in a tabulated format acceptable to the Executive Director, which clearly indicates each chemical of concern (COC) that exceeds the Groundwater Protection Standard (GWPS) or Concentration Limit. Copies of the original laboratory report(s) which contain the appropriate quality control and quality assurance data and the detection limit for each COC shall be provided if requested by the Executive Director;
14.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Tabulation of all water level elevations, depth to water measurements, and total depth of well measurements collected since the previous groundwater monitoring report was submitted as required by Provisions XI.F.3.d.(1) and XI.F.3.d.(4). Also include in the table an evaluation of the silt accumulated in each well and clearly indicate the wells which require corrective action for silt accumulation as required by Provision XI.F.3.d.(4).;
15.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide potentiometric surface maps showing the elevation of the water table at the time of sampling, delineation of the radius of influence of the Corrective Action System, and the direction of groundwater flow gradients outside any radius of influence;
16.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Tabulation of all data evaluation results pursuant to Provision XI.F.4. Include the compliance status of each well regarding the Corrective Action objectives, GWPS, and/or Concentration Limits;

Item	Program	Reporting Frequency	Requirements
17.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide an updated summary as required by CP Table VIII;
18.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Provide a summary of any changes made to the groundwater monitoring program and/or Corrective Action Program. Include a summary of well inspections, repairs, and any operational difficulties;
19.	Corrective Action and/or Compliance Monitoring	Annually by July 21st	Include a notation of the presence or absence of light and/or dense non-aqueous phase liquids (NAPLs) in each well during each sampling event. Provide a tabulation of the depth and thickness of the NAPL, if detected, for each well;
20.	Corrective Action only	Annually by July 21st	Provide quarterly tabulations of the quantities of recovered groundwater and NAPLs, and graphs of monthly recorded flow rates versus time for the corrective action recovery wells in operation during the reporting period. Also provide a narrative summary which describes and evaluates the NAPL recovery program;
21.	Corrective Action only	Annually by July 21st	Tabulation of the total contaminant mass recovered from each groundwater recovery system in operation during the reporting period;
22.	Corrective Action only	Annually by July 21st	Provide maps of the area(s) where GWPSs are exceeded. Depict the concentrations of CP Table IIIA COCs, and any newly detected CP Table III COCs, as isopleth contours or discrete concentrations if isopleth contours cannot be inferred. Clearly delineate the area(s) where concentrations of COCs exceed the GWPS. Depict the boundary of the plume management zone (PMZ), if applicable;
23.	Corrective Action only	Annually by July 21st	Provide maps and tables which include the extent and thickness of detected light and/or dense NAPLs;

Item	Program	Reporting Frequency	Requirements
24.	Corrective Action only	Annually by July 21st	Annually provide a Corrective Measures Implementation (CMI) Progress Report or Response Action Effectiveness Report (RAER) in accordance with Provision XI.H.6. The Permittee must also include a narrative summary of the status of the approved final corrective measures conducted in accordance with the approved CMI Workplan or Response Action Plan and must demonstrate that the requirements of Provisions XI.H.6 and XI.H.7. are being met. The CMI Progress Report must include: a) A summary of the response actions taken since the last reporting period; b) An estimate of the percentage of the response action(s) which has been completed; c) An estimate in years of the additional time necessary to complete the response action(s); d) A determination whether sufficient progress is being made to complete the response actions within a reasonable timeframe; and e) Any other reasonable information required by the Executive Director. The RAER must include: f) The information required by Title 30 Texas Administrative Code (TAC) Section 350.93; or g) The Permittee may complete and submit the RAER Form (TCEQ Form 10327/RAER). The required CMI Progress Report/RAER may be submitted as a separate section in the groundwater monitoring report required by Provisions XI.G.3. Alternatively, the required elements of the CMI Progress Report/RAER may be incorporated within the groundwater monitoring report, but each requirement must be clearly identified within the groundwater monitoring report.

Item	Program	Reporting Frequency	Requirements
25.	Corrective Action only	Annually by July 21st	The Permittee must include a narrative summary of the status of each Solid Waste Management Unit (SWMU) and/or Area of Concern (AOC) subject to the requirements of Permit Section XI.H. The Permittee must also discuss the Interim Corrective Measures (ICM) Program for each applicable SWMU and/or AOC and document that the objectives of Provision XI.H.8.b. are being achieved.
26.	PMZ	Annually by July 21st	Provide a summary evaluating the effectiveness of the Corrective Action system in controlling migration beyond the downgradient boundary and vertical limit of the PMZ to achieve the GWPS. The summary shall include an evaluation of whether the attenuation action levels are exceeded at their respective attenuation monitoring points pursuant to 30 TAC Sections 350.33(f)(4)(A) and 350.33(f)(4)(D)(ii);
27.	PMZ	Annually by July 21st	Provide an estimate of the percentage of the response action which has been completed within the PMZ;
28.	PMZ	Annually by July 21st	Include an estimate in years of the additional time necessary to complete the response actions for the PMZ;
29.	PMZ	Annually by July 21st	Provide a determination whether sufficient progress is being made to achieve the selected remedy standard within a reasonable time frame given the circumstance of the affected property within the PMZ.
30.	Facility Operations Area (FOA) only	Not Applicable	Provide additional reporting requirements to fulfill the requirements of 30 TAC Section 350.134 and 30 TAC Section 350.135. These requirements include, but are not limited to: a. Provide an average of both lost workday injury case rates and injury incidence rates for the most recent three (3) year period compared to the most recent specific industry national average published by the Bureau of Labor Statistics; b. Document that the worker health and safety program meet the requirements of the Occupational Safety and Health Administration (OSHA) by providing records of the OSHA compliance history or the results of the most recent audit of the health and safety programs by the OSHA or a third party certified professional

Item	Program	Reporting Frequency	Requirements
			industrial hygienist and safety specialist. An audit is required anytime there is a significant change to the health and safety program, or at a minimum every three (3) years, the results of which indicate the program is satisfactory; c. Document a compliance history ranking of average or better for the TCEQ; d. Document the pollution prevention program that has a goal of prevention of releases of COCs to environmental media within the FOA; e. Provide a statement that the program required in 30 TAC Section 350.134(a)(7) to protect workers within the FOA from environmental media having concentrations of COCs greater than protective concentration levels (PCLs) or action levels based on the health and safety program is still in effect. In addition, the Permittee shall provide, for the preceding year, an updated map delineating areas where the Soil Response Action Plan has been implemented pursuant to 30 TAC Section 350.135(a)(5); f. Document there have not been any significant outstanding non-compliance issues resulting from inspections for compliance with the RCRA permit or Order, if any; g. Document areas of ecological impact identified within the FOA and procedures for responding to these identified ecologically impacted areas on a continual basis. Review any ecologically impacted areas annually and report any new ecological impacts within thirty (30) days of verification of impact; h. Document activity associated with tracking and responding to releases to soil and groundwater above reportable quantities, which occur within the FOA after the issuance of the Compliance Plan, in accordance with 30 TAC Section 350.135(a)(7); i. Document any NAPL occurrences and any procedure(s) used to address known NAPLs and any NAPLs identified during the operational life of the FOA. This should

Item	Program	Reporting Frequency	Requirements
			include any previously discovered NAPL occurrences; and j. Provide documentation that access is restricted to the FOA.

CP Table VIII: Compliance Schedule

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
A.	60 days	Compliance Plan	Submit to the Executive Director a schedule summarizing all activities required by the Compliance Plan. The schedule shall list the starting dates of all routine activities. The permittee shall include an updated schedule in the groundwater monitoring report required by Provision XI.G.3. and CP Table VII. The schedule shall list the activity or report, the Compliance Plan Section which requires the activity or report, and the calendar date the activity or report is to be completed or submitted (if this date can be determined.)
B.	Requirement completed on RCRA Part B Permit Renewal Application date	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 of each second and fourth quarter	30 TAC §335.166	Corrective Action monitoring shall be conducted on a semiannual basis for the RCRA-regulated units listed in CP Table I.A. which are subject to the Corrective Action Program.
D.	Not Applicable	30 TAC §335.165	Compliance Monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units listed in CP Table I.B. which are subject to the Compliance Monitoring Program.
E.	During the first thirty (30) days of each second and fourth quarter	30 TAC §335.167	Corrective Action monitoring shall be conducted on a semiannual basis for the solid waste management units (SWMUs) and/or areas of concern (AOCs) listed in CP Table I.C. which are subject to the Corrective Action Program.

Item	**Compliance Schedule** (from the date of issuance of the Compliance Plan unless otherwise specified)	**Regulatory Citation**	**Requirement**
F.	Not Applicable	30 TAC §335.151	Alternative Corrective Action monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units, SWMUs, and/or AOCs listed in CP Table I.D. which are subject to the Corrective Action Program.
G.	Not Applicable	30 TAC Section 335.156 and Chapter 350	FOA Corrective Action monitoring shall be conducted on Choose an item. basis for the RCRA-regulated units, SWMUs, and/or AOCs listed in CP Table I.E., which are located within the FOA Boundary and are subject to the Corrective Action Program.
H.	Requirement completed on January 9, 2012	30 TAC §350.31(g) and §350.33(f) (4)(C)(i)	If a plume management zone (PMZ) has been authorized, submit to the Executive Director proof of compliance with the institutional control requirements which provides notice of the existence and location of the PMZ and which prevents exposure to groundwater from this zone until such a time when the concentrations of the chemicals of concern are less than the groundwater protection standards (GWPS) listed on CP Table III.
I.	Notify within 30 days	30 TAC §350.33(k)	If a PMZ has been authorized, after an unexpected event occurs which indicates that additional response actions will be required at an affected property.

Notes:

1. Please note that Corrective Action monitoring is conducted on semiannual basis unless a less frequent monitoring schedule is approved based on plume stability and achievement of Corrective Action objectives.

CP Table IX: Description of Uppermost Aquifer

The term "Uppermost Aquifer" as referenced in this Compliance Plan refers to the three uppermost transmissive groundwater bearing unit (GWBUs) within the Beaumont Formation beneath the facility. These three transmissive units are referenced as the Shallow Zone, the Intermediate Zone, and the Deep Zone. Groundwater impact has been identified in all three of these units but is no longer observed in the Deep Zone.

The Shallow Zone comprises the upper 50 feet of sediments and generally consists of clay with sandy silt and silty sand lenses. Generally, the shallowest of the transmissive units in the Shallow Zone are present in the 20 to 50-foot depth interval. Shallow Zone groundwater is present under confined to semi-confined conditions, with its potentiometric surface ranging from 3 to 10 feet below the ground surface, with an elevation ranging from 17 to 20 above mean sea level. Groundwater flow direction is generally toward the southeast.

Beneath the Shallow Zone transmissive units, a very firm to hard clay is present, with thickness ranging from 5 to 15 feet. The underlying transmissive unit is referenced as the Intermediate Zone. The Intermediate Zone generally consists of a laterally continuous fine-grained, well graded, silty sand and sandy silt unit approximately 5 to 15 feet in thickness. Intermediate Zone groundwater is present under confined conditions, with its potentiometric surface ranging from 12 to 18 feet below the ground surface, with an elevation ranging from 9 to 14 above mean sea level. Groundwater flow direction is generally toward the north.

Beneath the Intermediate Zone, is a firm, plastic clay, approximately 10 feet in thickness. The underlying transmissive unit is the Deep Zone. The Deep Zone is a laterally continuous silty sand unit approximately 15 feet in thickness. Deep Zone groundwater is present under confined conditions, with its potentiometric surface ranging from 11 to 18 feet below the ground surface, with an elevation ranging from 10 to 14 above mean sea level. Groundwater flow direction is generally toward the north.

Underlying the Deep Zone is a clay unit, 40-50 in thickness.

ATTACHMENT – XI.A.4

SITE GEOLOGY AND HYDROGEOLOGIC CONDITIONS REPORT

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Air Products LLC, Pasadena, Texas

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Attachment XI.A.4.j.1 Tier 1 Exclusion Criteria Checklist
Attachment XI.A.4.j.2 Tier 2 Screening Level Ecological Risk Assessment

1.0 SITE GEOLOGY AND HYDROGEOLOGIC CONDITIONS

The APLLC facility is located in the northern part of Pasadena, Texas, as shown on the United States Geological Survey (USGS) topographic map, CP Application Figure XI.A.1.b. The site is situated along the north side of Texas Highway 225, between Red Bluff and Davison roads.

APLLC property consists of approximately 111 acres. The property is divided by a 150-foot wide tract (Figure XI.A.1.b) with electrical transmission lines and towers belonging to Centerpoint Energy. The tract to the south is occupied with parking areas and office buildings, a Polyvinyl Alcohol plant (PVOH Plant) operated by another corporate entity, and a Steam Methane Reformer (SMR) Plant. The Polyurethane Intermediates Plant (PUI Plant) site, which is the subject of this Compliance Plan (CP) Renewal Application, occupies approximately 32 acres.

1.1 SURFACE WATER

The topography of the area is flat and characteristic of the Gulf Coastal Plain. The nearest major surface water body is Buffalo Bayou, which is located approximately 1.1 miles to the northwest. Its tributaries, the tidally-influenced Cotton Patch and Little Vince Bayou, are located 0.5 miles north and 1.4 miles west, respectively, of the plant site. The upstream portion of Cotton Patch Bayou is now a Harris County Flood Control Ditch (HCFCD No. G110-00-00) and flows from south to north along the east side of Davison Road, a County road that parallels the eastern property boundary of the facility. The County ditch drains a significant part of the populated area of the City of Pasadena, which lies south of Highway 225. The reach that flows parallel to the plant is channelized with earthen sides and floor.

Surface waters flow generally to the northwest toward Buffalo Bayou. Industrial development has resulted in significant alterations to the course of parts of the drainage features. The plant site is bounded on three sides by highways and railroads that are built up 2 or 3 feet above the surrounding grade. Additionally, to the north, large mining spoils piles on Agrifos property form prominent topographic features which have made major alterations in the flow of groundwater and the routes of surface-water drainages.

Artificial drainage systems are present which have been designed to drain the relatively flat area of the plant. Two drainage ditches run parallel to the north and south PUI Plant boundaries and discharge into the county drainage ditch along Davison Road. The drainage ditches are too shallow to intercept the groundwater table and are not discharge points for shallow groundwater. The County drainage ditch, however, is likely a discharge area for groundwater in the shallow water-bearing unit (0 to 45 feet below grade - bg) when the water table rises in periods of adequate rainfall.

Surface elevations in the plant area range from approximately 22 to 26 feet mean sea level (MSL). Prior to plant construction, the upper soil layer was removed and approximately 1 to 3 feet of crushed rock and shell sub-base material was brought in to level and build up the site. This served to provide a load-bearing base and help prevent flooding and erosion.

1.2 LOCAL SITE GEOLOGY

Figure XI.A.4.A shows the geologic setting of the property, which is underlain by the clay, silt, and sand of the Beaumont Formation of Pleistocene Age. The upper part of the Beaumont Formation in most of Harris County was deposited by fluvial processes before the last period of Pleistocene glaciation. The Beaumont and underlying formations form a relatively clay-rich interval to a depth of about 300 feet. The formations that outcrop on the Gulf Coastal Plain generally dip southward, toward the Gulf (Figure XI.A.4.B). A hydrostratigraphic column is shown on Figure XI.A.4.C.

In the plant area, the upper Beaumont Formation is a product of overbank deposition at the eastern fringes of the ancient Brazos River alluvial plain during flooding events. The flood plain environment is characterized by periods of nondeposition, subaerial exposure, and soil-forming processes interrupted by storm events that result in floodwaters breaching natural levees and carrying crevasse-splay sediments onto the floodplain. These overbank events tend to deposit sand and silt in the higher-energy environments near the levees, while clay material is carried further from the channel and deposited in slower-moving water on the floodplain. Consequently, the formation consists predominantly of clay, but it also contains relatively thin, discontinuous silty or sandy seams. The clays are characterized by their relatively high shear strength and low compressibility. The sediments are oxidized and desiccated, resulting in low water content, stiff to hard consistency, presence of carbonate nodules (“caliche”) and light, mottled color.

1.3 SITE SURFACE SOILS

According to the United States Department of Agriculture Soil Survey of Harris County, the surface soil in the vicinity of the APLLC facility is comprised of nearly level, clayey and loamy (“Vertisols”?) soil of the Lake Charles-Bernard association. Near the APLLC facility the surface layer of the Lake Charles soil is approximately 36 inches thick. The upper 22 inches consists of firm black clay and the lower approximately 14 inches comprises a very firm, mildly alkaline, very dark gray clay. Below the surface layer is a layer approximately 16 inches thick composed of very firm, mildly alkaline, dark gray clay that has intersecting slickensides from the soil heaving that is characteristic of “self-mulching” vertisols. Beneath that layer to a depth of approximately 6 feet is a layer of very firm mildly alkaline, gray clay that is mottled olive brown and yellowish brown.

The surface layer of the Bernard soil is a friable, neutral, very dark gray clay loam about 6 inches thick. The surface layer is underlain by a firm, neutral, very dark gray clay that grades into a very firm, moderately alkaline dark gray clay to a depth of approximately 4 feet.

The soils that comprise the Lake Charles-Bernard association are somewhat poorly drained with low permeability and a high water capacity. When the soils are dry, cracks form on the surface that allows for water to infiltrate at a high rate until the soils become wet and the cracks are sealed.

1.4 SITE SUBSURFACE SOILS

The subsurface soils have been characterized based on the results of environmental investigations completed at the site since 1981. Numerous soil borings, monitoring well borings, and recovery well borings have been made at the site using traditional drilling methods such as hollow stem auger or mud rotary. A number of additional soil borings were installed using geoprobe techniques, and several monitoring wells were installed using a hand auger. Approximately 50 cone penetrometer tests (CPT) have been conducted. The boring logs, monitoring well boring/completion logs, and CPT logs used to construct geologic cross sections for this report are included in Appendix XI.A.4.i.

The APLLC facility is located on the outcrop of the Pleistocene Age Beaumont Formation as mentioned previously. Prior to the construction of the plant, approximately one to two feet of crushed shell and fill material were placed upon the surface. Beneath the fill material, the Beaumont Formation consists of unconsolidated, interbedded sand, silt, and clay of terrestrial origin. The beds contain carbonate nodules and in places, varying amounts of natural plant materials including nearly unaltered pieces of woody material and carbonized plant fragments and rootlets. The water-transmissive zones consist of relatively thin sandy or silty beds separated by clay-rich intervals. Based on evaluation of the lithologic logs from wells and borings completed at the site, differences in water levels in monitoring wells, and pumping tests, the Beaumont Formation may be subdivided into three hydrogeologic zones at the APLLC facility.

The following is a description of the subsurface soil units beneath the site. Geologic cross-sections illustrate the site stratigraphy of the upper Beaumont Formation (Figures XI.A.4.2 through XI.A.4.9).

1.4.1 Shallow Zone

The upper 50 feet of sediment at the site is termed the Shallow Zone (SZ). It generally consists of clay with sandy silt and silty sand lenses. The bulk of the upper 45 feet of sediment is considered to be “water-bearing” and is composed of a yellowish-red, reddish-brown, or gray highly plastic, firm to hard clay with thin discontinuous beds of more transmissive silty and sandy sediment. This 45-foot thick clay-rich interval was historically divided into an upper and lower zone and early wells were isolated in one or the other of these zones, termed the Upper Shallow Zone (USZ) and the Lower Shallow Zone (LSZ). Now, the zones are usually screened together in SZ wells with a 20-foot long screen through both units, for the reasons described in Section 1.5. Beneath the lowest transmissive zone of the LSZ is a very firm to hard reddish brown clay of variable thickness (generally about 5 feet thick) that separates the LSZ from the Intermediate Zone (IZ) in the approximate interval of 45 to 50 feet bg.

1.4.2 Intermediate Zone

The IZ begins at a depth of about 50 feet bg and consists of one or more laterally continuous fine grained, well graded, silty sand and sandy silt beds within a zone approximately 10 to 15 feet thick. Beneath the transmissive zone is an approximately 10 foot thick interval of highly plastic, firm clay that separates the IZ from the Deep Zone (DZ).

1.4.3 Deep Zone

The DZ consists of a laterally continuous, approximately 15 foot-thick silty sand that is interbedded with a few finer-grained clayey lenses. Beneath the DZ is a clay layer that is approximately 40 to 50 feet thick based on of the electric logs of the onsite water wells.

1.5 Site Groundwater Conditions and Groundwater Classification

The facility is located in an area of the Gulf Coastal Plain that has abundant groundwater resources, as well as a public water supply from the City of Pasadena. A hydrostratigraphic column is shown on Figure XI.A.4.C. The shallow sands and silts of the Upper Chicot-Beaumont Formation contain fresh to brackish water with a TDS concentration of 500 to 1,100 mg/L. This water is usually found from 70 to 200 feet bg and is used for domestic purposes in individual residences or businesses in some areas. These shallow water-bearing zones are in the uppermost part of the Chicot Aquifer system.

The facility site lies within an area where the prolific Gulf Coast Aquifer (lower Chicot Aquifer and Evangeline Aquifer) was historically exploited for municipal and industrial use. The land surface subsidence that was attributed to this pumping led to the creation of the Harris-Galveston County Subsidence District and today pumping of these zones has been sharply curtailed so that most of the high-capacity wells are now inactive. There are two deep (approximately 1,300 feet) high-capacity wells on the APLLC PUI plant site that are available to provide an emergency water supply. The wells are now located within PMZs. The casings of these wells are fully cemented through the two affected groundwater units. The Gulf Coast Aquifer is protected from vertical movement of site COCs by the presence of intervening low-permeability clay units. A records survey of water wells within ½ mile of the plant is provided in Attachment XI.A.4.d.

The following discussion describes the shallow water-bearing zones (less than 100 feet below grade) that are the subject of the Corrective Actions covered by the facility's Compliance Plan. There are three separate near-surface water-bearing zones at the site. These are the SZ, IZ, and the DZ. The SZ has, in the past, been further divided into the USZ and LSZ for monitoring purposes, and several older monitoring wells are completed only within the USZ or the LSZ and not the full SZ. The general lithology of these zones is described in Section 1.4. The zones are illustrated on the geologic cross sections of Figures XI.A.4.2 through XI.A.4.9.

The shallow water-bearing zones of concern are part of the Pleistocene Beaumont Formation/Upper Chicot Aquifer and consist of interbedded sand, silt, and clay of terrestrial origin. The more water-transmissive zones consist of sandy or silty beds ("sand bodies") separated by clay-rich units.

1.5.1 Groundwater Classification

The shallow water-bearing zones are classified as Class 2 groundwater in accordance with 30 TAC 350.52. These beds are capable of producing over 150 gallons per day of groundwater containing less than 10,000 mg/L total dissolved solids. However, there are no wells completed in these beds that are used to supply water used for human consumption within ½ mile of the

property. A records survey of water wells within ½ mile of the plant is included in Attachment XI.A.4.d.

The SZ comprises the sedimentary materials from the ground surface to a depth of approximately 50 feet and consists mostly of clay. Within this interval, relatively mobile groundwater is present in numerous discontinuous, sandy and silty beds that are generally found within the approximate depth intervals of 20 to 45 feet bg. The water table occurs approximately 3 to l0 feet bgl, and the deeper zones have lower potentiometric levels. Water levels of the different zones are also shown on the cross sections. All sediments below the water table are saturated with groundwater. The surficial fill/pad materials have been found to contain small quantities of perched groundwater at some times in some areas of the site.

The SZ overlies a laterally continuous silty sand unit at the top of the IZ at a depth of approximately 50 feet. Below the IZ sand, a 5- to 15- foot thick clay or silty clay layer separates the IZ silty sand from the DZ. The top of the DZ is at a depth of approximately 75 to 80 feet bgl. The DZ consists of silty sand interbedded with clayey lenses. Clay that forms the lower boundary of the DZ is encountered at a depth of approximately 90 feet bgl. The silty sand units that form the IZ and DZ appear to be laterally continuous across the plant area.

1.5.2 Groundwater Gradients

Potentiometric surfaces of these units based on water-level measurements made while recovery wells are in operation are shown on Figures XI.A.4.10 through XI.A.4.13. Figures XI.A.4.14 through XI.A.4.17 show conditions where the pumping wells are not in operation. The maps XI.A.4.10, XI.A.4.11, and XI.A.4.14 show that the direction of horizontal groundwater flow in the SZ is toward the southeast over much of the plant. Water levels in the IZ (Figure XI.A.4.12) and the DZ (Figure XI.A.4.13) show that groundwater movement in the IZ and DZ is westward.

Figure XI.A.4.11 indicates that groundwater southeast of the plant is influenced by a system of off-site pumping wells used to lower the water table around a pit that houses pumps and compressors for a pipeline system. These wells apparently influenced groundwater movement in the ASI area during the time of the original release from this unit, as the axis of the PCLE zone is oriented southeastward toward the pit (Figure XI.A.4.18).

Figure XI.A.4.11 shows estimated conditions in this area at a time when SZ water levels at the facility are just below the surveyed elevations of the bottom of the ditch. Note that in the upstream area to the south, the levels in the SZ and the ditch are very close to each other. After periods of heavy rainfall, “static” groundwater levels are above the bottom of the ditch near the ASI. The SZ water levels are generally maintained below the channel at MW69 when recovery wells are active.

1.5.3 Combining USZ and LSZ

Historically, the upper and lower parts of the SZ have been monitored separately at the plant. This has been primarily due to screen length limitations for monitoring wells and the evolving understanding of the complex hydrogeology of the site. However, it has been concluded that the full thickness of the SZ in its natural state constitutes a single homogeneous hydrogeologic

entity (with one area of anomalous water levels, discussed below), as suggested by the following:

1. Water levels in all sandy beds in the SZ are similar in most areas of the plant. That is, water will rise to approximately the same elevation in each well of a group of nearby wells/piezometers completed at different depths in the SZ interval (an exception to this occurs west of the former EI, as described below). The water levels in the IZ and DZ are similar to each other but are 6 to 10 feet lower in elevation than the potentiometric levels of groundwater within the SZ.
2. Hydraulic gradients at all levels in the SZ are in the opposite direction (toward the southeast) from those in the IZ and DZ (toward the northwest) in most of the plant.
3. The sandy beds in both the USZ and LSZ are similar in character, being relatively fine grained, relatively thin, and laterally discontinuous within the plant property.
4. Most of the releases of COCs from waste units have entered both the underlying USZ and the LSZ and the movement of affected groundwater has in most places been in the same direction, though in places the PCLE areas (plumes) in the two zones are different lengths.

1.5.4 SZ Clay Layers

The vertical hydraulic conductivity of Beaumont formation SZ clay layers may be anomalously high. The relatively thin, discontinuous sandy beds in the SZ appear to be in hydraulic communication over most of the plant, and affected groundwater appears to move readily from shallow sands to deeper ones within the SZ. The hydraulic communication likely involves either vertical connections between sandy beds through passageways in the clay such as root holes or burrows, or places where the intervening clay has been replaced by sand. The existence of clay-bed "defects" appears to be the most likely explanation, since the interconnections between sands have not been found, and the possibility that passages through the clays are responsible appears to be consistent with observations of slickensides, root holes, and burrows in clay core samples.

The disruptions of clay-bed integrity, plus abundant caliche nodules and terrestrial fossils, are consistent with the probable origin of upper Beaumont sediment as a product of continental alluvial deposition. The slickensides were probably caused by natural soil-forming processes (heaving soils common to "self-mulching" vertisols) at the time of their deposition on an alluvial floodplain. In this environment, the clay materials would have been subjected to dry-weather desiccation and cracking. Also, biological activity by ancient animal and plant life created burrows and root holes now visible in the clay. All these features are believed to facilitate the movement of groundwater and COCs between the sandy beds of the SZ.

1.5.5 SZ Confining Clay Layer

The lowermost part of the SZ contains a clay unit that is in most places about 5 feet thick and appears to be laterally continuous across the plant. In contrast to the other clay intervals in the SZ, this lowermost clay bed, which occupies the interval nominally between 45 and 50 feet bg) generally appears to be a good aquitard over much of the plant. In many areas there is no evidence of highly affected groundwaters in SZ PCLE zones moving downward into the IZ such as, for example in the area southeast of the ASI. On the other hand, in some locations

significant volumes of affected shallow groundwater have moved down into the IZ, such as in the area west of the former Effluent Impoundment. It has been concluded that the lowermost clay may not have been affected by the same ancient soil processes that affected large areas of the shallower clays, but in some areas, the lower clay may have been affected by some other, more rare and localized phenomenon as described in the section below on a natural hydraulic sink.

1.5.6 New Water-Level Data

Water-level data collected while recovery systems were not in operation have provided information on the nature of contaminant transport in the western part of the plant, both within the SZ and between the SZ and the IZ. The results of these measurements are shown for the SZ in the eastern part of the plant on Figure XI.A.4.14 and for the western plant on Figure XI.A.4.15. Water levels from only the lower part of the SZ (the LSZ) are shown on Figure XI.A.4.16. The levels in Figure XI.A.4.14 were measured with all SZ recovery wells turned off. Recovery wells at the former ASI remained in operation during the west-plant measurements shown on Figures XI.A.4.15 and 16. Figure XI.A.4.17 clearly shows the western movement in the IZ with CAS well RW26 turned off.

Figures XI.A.4.15 and 16 show two unusual features of SZ hydrogeology near the former EI: 1) the existence of a groundwater flow divide in the SZ; and 2) the existence of a groundwater sink that has a significant effect on flow in the LSZ. These features are discussed below.

1.5.7 Hydraulic Sink

Figure XI.A.4.16 shows contours based only on water levels from wells completed in the lower part of the SZ (the LSZ). The levels were measured January 16, 2009 after all CAS wells at the former EI had been off since April 2008. The map indicates there is a potentiometric low in the LSZ to the west of the former Effluent Impoundment and south of the Container Storage Area, in the area west of wells RW25 and MW17. Since all SZ recovery wells in this area were turned off (nearby IZ recovery well RW26 was active at the time), the depression in water levels appears to be related to natural downward flow between the LSZ and the IZ, i.e. a hydraulic sink in the LSZ. Water exiting from the LSZ would form a hydraulic source in the IZ at this point. Both imply the existence of a high-conductivity “passage” though the lower clay bed in the LSZ.

The existence of a hydraulic sink/source in this area appears to account for the anomalous location of the PCLE zone in the IZ (described below and shown in Figure XI.A.4.19), which is approximately 150 feet west of its apparent source at the former Effluent Impoundment. The lowered LSZ water levels around this feature explain previous observations of persistent low water levels in RW25 after pumping is stopped at this well. The flow of groundwater into the sink is apparently sufficient to cause a cone of depression of LSZ water levels in the southwest part of the plant (Figure XI.A.4.16). The depression is not evident in the non-pumping USZ potentiometric levels (Figure XI.A.4.14 and 15).

1.5.8 Flow Divide

The earlier picture of flow in the SZ (Figure XI.A.4.14) shows primarily eastward movement of groundwater. However, additional wells have been installed and, after a period when CAS wells were idle, a flow divide was visible on the non-pumping SZ water level map of Figure XI.A.4.15. The map shows what appears to be groundwater flow converging on the vicinity of the Container Storage Area from both the north and the south. The water levels indicate this area is also a groundwater divide, with flow moving toward the east and west. The divide appears to account for the observation that the gradient between wells MW65 and MW66 is sometimes directed westward. These wells are located at the TDA Tank Car Loading Area at the western edge of the Groundwater Monitoring System. Most of the earlier observations were made while the EI recovery wells were active (e.g. Figure XI.A.4.10).

1.5.9 Modified Conceptual Model

The above observations allow refinement of the conceptual model of the flow of shallow groundwater at this site. As mentioned previously, flow in the SZ has generally been observed to be toward the southeast, as shown on Figures XI.A.4.10 (pumps on) and XI.A.4.14 (pumps off), while the flow directions are to the northwest in the IZ, as shown on Figure XI.A.4.17 (pump off), and in the DZ, as shown as shown on Figure XI.A.4.13. The southeastward flow in the SZ at APLLC is likely an artifact produced by the large piles of mining waste located immediately north of the facility, on neighboring property. Before the placement of these piles, the original natural flow direction in the SZ likely had been north or northwestward, similar to those in the IZ and DZ. Saturation of the piles with water causes formation of a groundwater “mound” in and beneath the pile.

The shallow water table within the plant now slopes locally southward away from the mound. This barrier diverts naturally north-flowing groundwater around both the east and west sides of the waste piles, temporarily interrupting the northward movement of shallow groundwater. The eastward-moving groundwater is partly intercepted by the pumping wells at the former ASI, the off-site dewatering wells, and, potentially, the drainage ditch in times of wet weather and high ground water levels. The eastward and westward groundwater movement appears to originate at a flow divide northwest of the former EI (Figure XI.A.4.15). The new discovery of the westward moving groundwater raises a concern that contaminants could be transported past the western boundary of Plume Management Zone No. 1. This concern is addressed in the Corrective Action Program Description of part XI.D.2.

The pumping at the EI appears to shift the divide westward to a position west of AOC2 and east of the TDA Tank Car Loading Area (compare Figures XI.A.4.10 and XI.A.4.15). This area has few monitoring wells, which obscures the existence of the westward flow. A new well (MW97) should help to confirm the location of the divide under pumping conditions.

A portion of the groundwater in the lower part of the SZ is diverted to a sink caused by a porous passage through the clay confining bed at a depth of approximately 45 to 50 feet below grade (Figure XI.A.4.16). Capture\control of this affected groundwater is addressed in the Corrective Action Program Description of part XI.D.2.

1.5.10 Hydraulic Properties of Water-Bearing Units

The SZ and IZ at the APLLC facility generally have hydraulic conductivity on the order of 1.0 to 2.5 ft/day. Analysis of data collected at observation wells during a pumping test of RW22 (originally named MW42) indicates that the storativity of the confined IZ in the area of the former ASI is about 5×10^{-4} (dimensionless). The hydraulic conductivity of the DZ is generally similar to that of the IZ. Groundwater velocity calculated for the SZ is the order of 0.05 feet per day southward. Groundwater velocity calculated for the IZ and DZ is on the order of 0.015 ft/day northward.

2.0 RELEASES TO GROUNDWATER

Groundwater Protective Concentration Level Exceedance (PCLE) Zones have been identified in the SZ, and in some cases the IZ also, in the vicinity of seven plant areas where hazardous materials are handled now or were handled in the past: the closed former ASI, the closed former EI, the Dinitrotoluene (DNT) Loading Area, the former Neutralization Pit (NP), the DNT Storage Area (AOC1), the Northwest Storage Area (AOC2), and the DNT Manufacturing Area (AOC3). The Toluenediamine (TDA) Tank Car Loading Area has had a release to soil but no PCLE Zone in groundwater has been confirmed. The former ASI (NOR 002), the former EI (NOR 001), the former NP (NOR 027), and the former Northwest Storage Area (AOC2) are no longer in operation. The Former DNT Loading Area (NOR 022, 023, and 024), the DNT Storage Area (AOC1), the DNT Manufacturing Area (AOC3), and the TDA Tank Car Loading Area (NOR 025) are active.

The PCLE zones have been affected by several Chemicals of Concern (COC). The constituents in greatest abundance are nitrotoluene (NT) compounds and these have been adopted as indicator parameters. They include: 2,4-Dinitrotoluene (2,4-DNT), 2,6-Dinitrotoluene (2,6-DNT), o-Mononitrotoluene (o-MNT), m-Mononitrotoluene (m-MNT), p-Mononitrotoluene (p-MNT), o-Toluidine, p-Toluidine, 5-Nitro-o-toluidine (5-N-o-T), 2,4-Toluenediamine (2,4-TDA) and 2,6-Toluenediamine (2,6-TDA). Other indicator parameters include COCs analyzable by EPA Method 8270: Nitrobenzene (NB) and 1,3-Dichlorobenzene (1,3-DCB). Additional constituents have been identified at relatively low concentrations in several areas – See Part XI.B for the full list of COC. The most recent (October 2009) results of analyses of groundwater samples are shown in Table XI.A.4.g1. All historical groundwater analyses are shown on Table XI.A.4.g3. Appendix 8 analyses are shown in Section XI.B. The well locations in the SZ and the IZ are shown on Figures XI.A.4.18 and XI.A.4.19, respectively

The seven areas of affected groundwater are managed by hydraulic control using groundwater recovery wells in the SZ and IZ. The PCLE zones in the west half of the plant are in existing SZ and IZ Plume Management Zones (PMZ). Some of the SZ and IZ PCLE zones in the east half of the plant are placed into expansions of the existing west plant PMZs. Pumping for groundwater recovery and hydraulic control is currently in progress in the vicinity of the former ASI and the former EI. Pumping for groundwater recovery and hydraulic control at the ASI and EI is sufficient to control all PLCE zones at the facility. The groundwater PCLE zones are shown on Figures XI.A.4.18 and XI.A.4.19 for the SZ and IZ, respectively.

Resource Conservation and Recovery Act (RCRA) Facility Investigations (RFI) have been conducted to evaluate the nature and extent of PCLE Zones in the vicinity of the Former DNT Loading Area and the former NP area. The results of those investigations plus two units with no further action required (MEA Carbonate Sump, NOR 019, and DNT Red-Water Sumps, NOR 020) are included in an RFI Report (Geomatrix, 1998). The assessments of the DNT Storage Area and the Northwest Storage Area (AOC2) were provided in the prior Application for Renewal of the Compliance Plan (Geomatrix, 2001). The assessments of the ASI and the DNT Manufacturing Area were included in APARs (Geomatrix 2006a and 2007, respectively). The assessment of the TDA Tank Car Loading Area (no confirmed groundwater PCLE zone) is

included in an APAR (Geomatrix, 2001a).

A discussion of the groundwater PCLE Zones in the vicinity of each of the seven areas of the plant is included in the following sections.

2.1 FORMER EFFLUENT IMPOUNDMENT

Affected groundwater in the vicinity of the former EI (NOR001) has been identified in the SZ, the IZ, and in the DZ at well MW63. The results of the analysis of the October 2009 groundwater samples collected from monitoring wells and from one-time use of temporary water sample collection devices in the vicinity of the closed EI are listed in Tables XI.A.4.g1 and g2, respectively and all historical results are in Table XI.A.4.g3. The extent of the PCLE Zones in the SZ and IZ in the area that includes the former EI is illustrated in Figures XI.A.4.18 and XI.A.4.19, respectively.

The highest concentrations of NT compounds in groundwater in the vicinity of the former EI have been historically measured in wells near the southwest corner of the former impoundment. In addition, the most highly affected groundwater in the IZ has been found to occur to the west of the EI rather than beneath it. As confirmed by new information (see Section 1.5, above) affected groundwater first moved westward in the LSZ to the area near wells RW24 and RW25, then moved down into the IZ. The affected groundwater then spread in the IZ radially away from the point of entry, eventually affecting the locations of the IZ monitoring wells MW43, MW44, MW62, and RW26 in the area around the employee lunch room and an adjacent fabrication shop. A portion of the affected IZ groundwater moved downward to the DZ and affected well MW63. The affected groundwater was removed from the DZ by pumping monitoring well MW63 from November 2004 to June 2007 (see history of COC concentrations in MW63 on Table XI.A.4.g3.) COCs have been detected in IZ groundwater at the northwest and southwest corners of the former EI, at wells MW40 and MW41, respectively. Detections at MW41 have not been confirmed.

2.2 FORMER ACID SPILL IMPOUNDMENT

PCLE Zones in the groundwater in the vicinity of the former ASI (NOR002) are in the SZ and the IZ. The extent of the PCLE Zones in the SZ and IZ is illustrated in Figures XI.A.4.18 and XI.A.4.19, respectively. The results of the October 2011 analysis of groundwater samples collected from monitoring wells and the results of all analyses of samples collected during the investigations using temporary water sample collection devices in the vicinity of the former ASI are given in Tables XI.A.4.g1 and g2, respectively. All historical analyses for the wells are given in Table XI.A.4.g3.

Observations of increases in concentrations at MW15 resulted in an investigation of groundwater conditions within several thin sandy beds in the lower part of the SZ to the east and south of this area. The investigation determined that a PCLE Zone extends beyond the boundaries of APLLC property. Movement of the SZ PCLE Zone is influenced by the discharge area at a Harris County Drainage Ditch near the eastern property boundary, and by dewatering wells in continuous operation at a petroleum terminal farther east (Figure XI.A.4.11). Results of

this investigation were presented in an APAR (Geomatrix, 2006a). The affected groundwater was found primarily in the LSZ. No affected groundwater was found in the IZ beneath the newly delineated LSZ PCLE Zone. The approved Response Action Plan for the ASI (Geomatrix, 2006b) recommended continued recovery/control of groundwater to prevent discharge to the Drainage Ditch, and to remove all affected SZ groundwater that is currently off site.

The highest concentrations of NT compounds in groundwater in the IZ are in recovery well RW22. (This well was removed due to new construction and was replaced in Fall 2009 by RW28.) There were no detectable concentrations of NT compounds in any of the four IZ monitoring wells in the vicinity of the closed ASI. The presence of NT compounds in the IZ appears to be limited in areal extent and is believed to be due to downward movement of COCs from the LSZ beneath the former impoundment.

2.3 FORMER DNT LOADING AREA

The Former DNT Loading Area consists of three separate facilities, the DNT Tank Car Loading area (NOR022), the DNT Truck Loading Area (NOR023), and the DNT Spill-Off Pond (NOR024). The DNT and TDA loading facilities consist of concrete pads equipped with sumps to retain product that may be accidentally spilled during the loading process. The DNT Spill-Off Pond is connected to sumps located beneath the DNT Rail Car Loading Area and the DNT Truck Loading Area and is designed to receive any overflow from them through concrete-lined ditches by gravity flow.

Groundwater PCLE Zones in the vicinity of the Former DNT Loading Area have been identified in the SZ and the IZ. No samples have been collected from the DZ in this area. The extent of PCLE Zones in the SZ and the IZ is illustrated in Figures XI.A.4.18 and XI.A.4.19. The groundwater in the vicinity of the Former DNT Loading Area has been affected by NT compounds DNT, MNT, TDA, Toluidines, NB, and 5-N-o-T. The results of the analysis of recent groundwater samples collected from monitoring wells and temporary water sample collection points in the vicinity of the Former DNT Loading Area are listed in Tables XI.A.4.g1 and XI.A.4.g2, respectively. All historical analysis for wells are shown on Table XI.A.4.g3.

The highest concentrations of NT compounds in groundwater in the SZ were measured in samples from USZ well MW54 and LSZ well MW58, located immediately south of the Spill-Off Pond and immediately east of the Tank Car Loading Area, respectively. Concentrations decline downgradient to the south. NT compounds originally detected in monitoring well MW6, located some distance downgradient to the south of the DNT Tank Car Loading Area and southeast of the DNT Truck Loading Area, are believed to have originated from a source area beneath the DNT Storage Area (2,4-DNT isomer concentrations are greater than 2,6-DNT concentrations below this unit). However, the southward movement of groundwater has moved the groundwater affected by the DNT Storage Area away from MW6 and now the well contains groundwater affected by the Former DNT Loading Area (2,6-DNT concentrations larger than the concentrations of the more biodegradable 2,4-DNT). The source of the constituents at MW6 was addressed in a RFA submitted to TNRCC October 18, 1999. Conditions in the vicinity of the DNT Storage Area are described below in another subsection.

Results of analysis of groundwaters from IZ wells are in Table XI.A.4.g1 and are illustrated as PCLE Zones on the map shown on Figure XI.A.4.19. The PCLE Zones do not extend beyond the boundary of APLLC property. The wells were originally affected by only low concentrations of COCs, and now most wells are in compliance with the GWPS. This may be due to movement of affected groundwater southward, away from the wells and toward recovery well RW26.

Although no groundwater samples were collected from the DZ in the vicinity of the former Former DNT Loading Area, this zone is not anticipated to be affected, based on results of previous investigations at the site. The absence of a significant downward gradient and the presence of an approximately 10 feet thick clay unit between the IZ and the DZ should continue to protect the DZ from contamination. Evidence of this can be seen by the lack of contamination in the DZ in areas of the plant where impact to the IZ has been identified.

2.4 FORMER NEUTRALIZATION PIT

Affected groundwater in the vicinity of the former Neutralization Pit (NP) (NOR027) has been identified in the SZ and the IZ. No samples have been collected from the DZ in the vicinity of the former NP. The groundwater in the vicinity of the former NP has been affected by NT compounds DNT, MNT, Toluidines, NB, and 5-N-o-T. The results of the analysis of groundwater samples collected from during the investigation of the former NP are listed in Table XI.A.4.g1 and Table XI.A.4.g2. PCLE zones in the USZ and the LSZ are shown for the combined units that are part of WMA1, including the former NP, on Figure XI.A.4.18. PCLE zones in the IZ are shown on Figure XI.A.4.19.

The highest concentrations of NT compounds in groundwater from the USZ were identified in samples from well MW61, completed beneath the former NP. Concentrations decline downgradient to the south. Samples from well MW4B had concentrations an order of magnitude below those from MW61. The highest concentrations of NT compounds in groundwater from the LSZ were measured in samples from well MW48, located downgradient to the southwest of the former pit.

Based on the presence of the NT compounds in the IZ at several temporary screening-sample locations (Geomatrix, 1998), monitoring wells MW72 and MW81 were installed into the IZ in the vicinity of the former Neutralization Pit (Figure XI.A.4.19). Results of analyses of the October 2008 samples from these IZ wells are shown in Table XI.A.4.g3. Results from temporary sampling devices used in the IZ investigation are shown in Table XI.A.4.g2.

Although no groundwater samples were collected from the DZ in the vicinity of the former NP, this zone is not anticipated to be affected, based on results of previous investigations at the site. The absence of a significant downward gradient and the presence of an approximately 10 feet thick clay unit between the IZ and the DZ should continue to protect the DZ from contamination. Evidence of this can be seen by the lack of contamination in the DZ in areas of the plant where impact to the IZ has been identified.

2.5 DNT STORAGE AREA

The DNT Storage Area (AOC1) consists of five large heated tanks used to store finished DNT product awaiting loading into vehicles for transport to customers. During the groundwater portion of Phase II of the RFI for the Former DNT Loading Area (Geomatrix, 1998), analysis of contaminant transport north of USZ monitoring well MW6 indicated that the constituents found in this well were likely not from any of the three units at the Former DNT Loading Area. In response to this conclusion, an RFA was conducted to determine the source of the constituents at MW6 and MW64 (Geomatrix, 1999). It was concluded that it was most likely that the constituents in MW6 originated from a source area beneath the DNT Storage Area (AOC 1).

The RFA noted that the concentrations of COCs in MW6 had been observed to be declining since the installation of the well. This suggested that the source area lay to the south of the well, and that the constituents had originally migrated northward, under the original natural northward gradient, toward the MW6 location. Then, after the local hydraulic gradient was reversed by the placement of the nearby spoils pile, the well was installed and the concentrations were observed to be declining. This movement was accelerated by beginning of pumping operation at the former EI. The RFA indicated that the soils and groundwater associated with the DNT Storage Area would be evaluated for Corrective Action and the unit was included as an AOC in the 2001 CP Renewal (Geomatrix, 2001b). The APAR for Groundwater at the DNT Storage Area was presented as an Appendix to the Geology Report of the 2001 CP Renewal (Geomatrix, 2001b). The APAR for soils was presented in a separate report (Geomatrix, 2001c).

In the last few years, concentrations at MW6 reached low values before beginning to increase again. The increase was accompanied by a change in ionic ratios between DNT isomers and the detection of TDA. These data indicated a different type of affected groundwater had begun to arrive from the Former DNT Loading Area to the north, as indicated earlier in this report.

Groundwater samples from MW64, which is a very shallow hand-dug monitoring well completed directly below the DNT Storage Area, have historically had relatively low concentrations. Soil samples collected from the floor of the unit also had relatively low concentrations, considering the fact that pure product had been released here on several occasions in the past and cleaned up by scraping the frozen solid material off the soil-cement floor. MW64 has been in compliance with the GWPS since the April 2008 sampling event. The screen of this well is across the water table, and during several occasions no sample could be obtained from this well because of insufficient water. It may be that the concentrations in underlying soils and in groundwater at MW6 and MW64 are relatively low because the releases have resulted in only dilute, dissolved product or wash water being released, perhaps because the molten, pure-phase product has never reached earthen materials below the floor of the unit. The PCLE zones in this area have been controlled historically by the recovery systems near the former EI (RWC2, RW21, RW25) and, beginning in April 2004, the former Neutralization Pit (recovery wells MW48 and MW49) (Figure XI.A.4.18).

2.6 NORTHWEST STORAGE AREA

The assessment of the Northwest Storage Area (AOC 2) was conducted to determine the origin of the steady increases in contaminant concentrations at wells MW16 and MW46 completed in the USZ and LSZ, respectively. In a subsequent groundwater assessment, the groundwater PCLE Zones were delineated and found to be originating at this AOC. No COCs were detected in the IZ. The APAR for groundwater affected by AOC 2 was originally provided in an attachment to the Geology Report included with the 2001 CP Renewal (Geomatrix, 2001b). The APAR for soils was presented in a separate report (Geomatrix, 2001c). The PCLE zones in this area have been historically controlled by recovery systems near the former EI (RWC2, RW21, RW25). The estimated location of this unit (Figure XI.A.2) has been changed from the location shown in previous documents to better align with the groundwater PCLE zone.

2.7 TDA TANK CAR LOADING AREA

The TDA Tank Car Loading Area (NOR 025) RFI report delineated the area of affected soils at this unit (IT, 1997). After review of the RFI report, TCEQ requested that additional investigation be performed to determine if COCs were present in groundwater beneath the unit. An additional investigation was performed in 2000, including installation of two new wells in the upper part of the SZ (MW65 and MW66). The results of the additional investigation are described in Geomatrix (2001a). Although it was determined that COCs had been released to the groundwater, concentrations of the COCs were below their GWPS for residential groundwater ingestion. No affected groundwater has been confirmed in this area.

2.8 DNT MANUFACTURING AREA

This unit (AOC 3) consists of two separate but adjacent manufacturing units, DNT Unit No. 1 (east unit) and DNT Unit No. 2 (west unit). The release was discovered by observations of discolored water in shallow excavations for two new ancillary storage tanks and an APA was begun. The extent of affected soil and groundwater was described in the APAR (Geomatrix, 2007). As a result of these investigations, three COCs have been added to the facility GWPS: benzene, 1,2-dichloroethane, and methylene chloride – see Section XI.B. The PCLE zones are shown in this application on Figures XI.A.4.18 and 19 for the SZ and the IZ, respectively. The affected SZ groundwater is moving downgradient toward the groundwater recovery system at the former ASI, to the east. The affected IZ groundwater is within the capture area of IZ CAS well RW26 at the former EI, to the west.

The approved DRAFT Response Action Plan (Geomatrix, 2008) recommended combining the DNT Manufacturing Area and the former ASI in a new Waste Management Area No.2 (WMA2) and managing their SZ PCLE zones together in a new PMZ1. The Class 3 modification issued September 14, 2011 authorized this and added the SZ PCLE zones of new WMA2 (the DNT Manufacturing Area and the former ASI) to the existing SZ PCLE zones of WMA1 (the former EI and associated SWMUs) into a single new PMZ1. The SZ PCLE zones of WMA1 had previously been managed together in a PMZ that had been named PMZ3.

The approved DRAFT Response Action Plan (Geomatrix, 2008) also recommended combining

the IZ PCLE zone of the DNT Manufacturing Area with the IZ PCLE zones within WMA1. The Class 3 modification issued September 14, 2011 authorized combining the IZ PCLE zones in a new PMZ2. The IZ PCLE zones of WMA1 had previously been managed together in a PMZ that had been named PMZ4.

3.0 GROUNDWATER DISCHARGE AREAS

Groundwater in the SZ moves to the southeast beneath most of the facility. Water in the SZ moves toward a channelized municipal drainage ditch that runs north-south on the east side of the facility, parallel to Davison Road. The ditch flows northward through the broad industrial area on the south side of Buffalo Bayou. The placement of spoil piles north of the plant has been accompanied by major modifications to the drainage pattern. The ditch joins the natural channel of Cotton Patch Bayou within the industrial area downstream from the APLLC facility, and Cotton Patch Bayou eventually discharges to Buffalo Bayou. Groundwater can discharge to the ditch when water levels in the SZ at the ditch are above the floor of the channel. This can occur during wet weather or when the CAS wells around the former ASI are not in operation.

Two drainage ditches run parallel to the north and south plant process area boundary and empty into the municipal drainage-way along Davison Road. The shallow ditches that flow along the northern and southern property lines of the subject Polyurethane Intermediates Plant (North Ditch and South Ditch) are too shallow to intercept the water table, thus they are too shallow to serve as discharge points for shallow groundwater.

A Tier 1 Exclusion Criteria Checklist prepared for the APAR of the former ASI (see Attachment XI.A.4.j1) identified potential threats from the affected groundwater to ecological receptors in the drainage ditch east of the plant (Geomatrix, 2006a). A Tier 2 Screening Level Ecological Risk Assessment (see Attachment XI.A.4.j2) resulted in adoption of several COC benchmark concentrations protective of aquatic life as groundwater-to-surface water PCLs. All these PCLs are higher than the Tier 1 residential drinking-water PCLs of the GWPS. Monitoring well MW69 serves as an ecological point of exposure well for this surface-water feature.

4.0 REFERENCES

Geomatrix, 1998, RCRA Facility Investigation Report, Former DNT Loading Area and Neutralization Pit, Air Products, Inc., September 1998.

Geomatrix, 1999, RCRA Facility Assessment, October 1999.

Geomatrix, 2001a, Affected Property Assessment Report, TDA Tank Car Loading Area, January 2001.

Geomatrix, 2001b, Compliance Plan Renewal and Class 3 Modification, Rev. 1, January 2001.

Geomatrix, 2001c, Affected Property Assessment Report for Soils, Former DNT Loading Area, Former Neutralization Pit, DNT Storage Area, Northwest Storage Area, January 2001.

Geomatrix, 2006a, Affected Property Assessment Report, Former Acid Spill Impoundment, January 2006.

Geomatrix, 2006b, DRAFT Response Action Plan, Former Acid Spill Impoundment, November 2006.

Geomatrix, 2007, Affected Property Assessment Report, DNT Manufacturing Area, December 2007.

Geomatrix, 2008, DRAFT Response Action Plan, DNT Manufacturing Area, February 2008.

IT, 1997, RCRA Facility Investigation Report, TDA Loading Areas, Air Products Inc, February 1997.

Tables

TABLE XI.A.4.g1
RESULTS OF ANALYSIS OF GROUNDWATER
October 2023
Air Products LLC
Pasadena, Texas

Well Number	Unit	Area	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	2,4-TDA & 2,6-TDA^	1,3-DCB	Toluidines	NB	5-N-o-T	Exceed
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	GWPS?
Groundwater Protection Standard (GWPS)					1.3	1.3	240	4.1	57	0.29	730	30	49	--	
MW-11	DNT	WMA2	USZ	10/12/2023	<0.0561 U	<0.0368 U	<1.13 U	<0.762 U	<0.824 u	<10.2 U*	<4.02 U	<8.03 U	<4.84 U	<1.24 U	~
MW-21	EI	WMA1	DZ	10/12/2023	<0.0563 U	<0.0369 U	<1.30 U	<0.874 U	<0.945 U	<11.7 U*	<4.61 U	<9.22 U	<5.55 U	<1.142 U	~
MW-24	ASI	WMA2	SZ	10/18/2023	**7530**	**2960**	**1480**	**15700**	**9690**	<13.0 U*	<5.11 U	**19.4**	<6.16 U	**59.8**	Exceed
MW-26	ASI	WMA2	SZ	10/17/2023	**0.918**	**0.144**	<1.13 U	**0.804 J**	<0.822 U	<10.2 U*	<4.01 U	<8.01 U	<4.83 U	<1.23 U	~
MW-31	ASI	WMA2	DZ	10/12/2023	<0.0567 U	<0.0372 U	<1.23 U	<0.828 U	<0.895 U	<11.1 U*	<4.36 U	<8.73 U	<5.26 U	<1.34 U	~
MW-32	ASI	WMA2	IZ	10/17/2023	<0.0577 U	**0.123**	<1.08 U	<0.728 U	<0.787 U	<9.74 U*	<3.84 U	<7.68	<4.63	<1.18 U	~
MW-36	EI	WMA1	IZ	10/12/2023	**0.133**	**2.29**	<1.05 U	<0.707 U	<0.765 U	<9.46 U	<3.73 U	<7.45 U	<4.49 U	<1.15 U	Exceed
MW-40	EI	WMA1	IZ	10/16/2023	**25.3**	**137**	<1.08 U	<0.723 U	<0.782 U	<9.68 U*	<3.81 U	<7.62 U	<4.59 U	**3.75 J**	Exceed
MW-41	EI	WMA1	IZ	10/18/2023	<0.0577 U	<0.0379 U	<1.15 U	<0.775 U	<0.838 U	<10.4 U*	<4.08 U	<8.17 U	<4.92 U	<1.26 U	~
MW-43	EI	WMA1	IZ	10/17/2023	<0.0577 U	**0.0477 J**	<1.17 U	<0.788 U	<0.852 U	<10.5 U*	<4.15 U	<8.30 U	<5.00 U	<1.28 U	~
MW-44	EI	WMA1	IZ	10/17/2023	<0.0577 U	<0.0379 U	<1.08 U	<0.725 U	<0.784 U	<9.71 U*	<3.82 U	<7.65 U	<4.61 U	<1.18 U	~
MW-49	Neut	WMA1	USZ	10/18/2023	**13700**	**11300**	**178**	**2430**	**2.68 J**	<11.5 U*	<4.54 U	<9.08 U	<5.47 U	**48.9**	Exceed
MW-58	DNTL	WMA1	LSZ	10/17/2023	<0.0575 U	**54.9**	**32.4**	**116**	**13.8**	<9.45 U*	<3.72 U	<7.44 U	<4.48 U	<1.15 U	Exceed
MW-59	DNTL	WMA1	USZ	10/17/2023	**260**	**391**	**50.7**	**73.2**	**54.6**	**45.9 ***	<8.12 U	<16.2 U	<9.78 U	**594**	Exceed
MW-63	EI	WMA1	DZ	10/5/2023	<0.0553 U*	<0.0363 U	<1.09 U	<0.732 U	<0.792 U	<9.8 U	<3.86 U	<7.72 U	<4.65 U	<1.19 U	~
MW-65	TDAL		USZ	10/5/2023	<0.0551 U*	<0.0361 U	<1.15 U	<0.775 U	<0.838 U	<10.4 U	<4.09 U	<8.17 U	<4.29 U	<1.26 U	~
MW-66	TDAL		USZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.10 U	<0.741 U	<0.801 U	<9.92 U	<3.91 U	<7.81 U	<4.71 U	<1.12 U	~
MW-69	ASI	offsite	SZ	10/11/2023	<0.0583 U	<0.0382 U	<1.09 U	<0.733 U	<0.792 U	<9.81 U*	<3.86 U	<7.73 U	<4.66 U	<1.19 U	~
MW-70	DNTL	WMA1	IZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.06 U	<0.710 U	<0.768 U	<9.5 U	<3.74 U	<7.49 U	<4.51 U	<1.15 U	~
MW-71	ASI	offsite	SZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.11 U	<0.748 U	<0.808 U	<10.0 U	<3.94 U	<7.88 U	<4.75 U	<1.21 U	~
MW-74	AOC2	WMA1	SZ	10/16/2023	<0.0579 U	**0.182**	<1.06 U	<0.714 U	<0.772 U	<9.55 U*	<3.76 U	<7.52 U	<4.53 U	<1.16 U	~
MW-75	EI	WMA1	SZ	10/5/2023	<0.0553 U*	<0.0363 U	<1.20 U	<0.805 U	<0.870 U	<10.8 U	<4.24 U	<8.49 U	<5.11 U	<1.31 U	~
MW-76	EI	WMA1	SZ	10/10/2023	<0.0581 U	<0.0381 U	<1.09 U	<0.734 U	<0.793 U	<9.81 U*	<3.87 U	<7.73 U	<4.66 U	<1.19 U	~
MW-77	EI	WMA1	SZ	10/12/2023	<0.0567 U	<0.0372 U	<1.09 U	<0.736 U	<0.796 U	<9.84 U*	<3.88 U	<7.76 U	<4.67 U	<1.19 U	~
MW-8	EI	WMA1	USZ	10/12/2023	**0.219**	**0.0952**	<1.15 U	<0.774 U	<0.837 U	<10.4 U*	<4.08 U	<8.16 U	<4.92 U	<1.26 U	~
MW-80	DNTL	WMA1	IZ	10/12/2023	<0.0561 U	<0.0368 U	<1.16 U	<0.777 U	<0.840 U	<10.4 U*	<4.10 U	<8.19 U	<4.94 U	<1.26 U	~
MW-85	ASI	WMA2	SZ	10/11/2023	**0.765**	**0.574**	<1.14 U	**3.54 J**	**2.21 J**	<10.3 U*	<4.05 U	<8.09 U	<4.88 U	<1.24 U	~
MW-86	ASI	WMA2	SZ	10/11/2023	<0.0581 U	<0.0381 U	<1.14 U	<0.768 U	<0.831 U	<10.3 U*	<4.05 U	<8.10 U	<4.88 U	<1.25 U	~
MW-87	ASI	offsite	SZ	10/11/2023	<0.0581 U	**0.0546 J**	<1.11 U	**2.06 J**	**0.896 J**	<10.0 U*	<3.94 U	<7.89 U	<4.75 U	<1.21 U	~
MW-88	ASI	offsite	SZ	10/11/2023	<0.0581 U	<0.0381 U	<1.15 U	<0.773	<0.835 U	<10.3 U*	<4.07 U	<8.15 U	<4.91 U	<1.25 U	~
MW-89	ASI	offsite	SZ	10/18/2023	**1.34**	**0.822**	<1.18 U	<0.794 U	<0.858 U	<10.6 U*	<4.18 U	<8.37 U	<5.04 U	<1.29 U	Exceed
MW-91	ASI	WMA2	SZ	10/17/2023	**4.28**	**2.08**	**2.03 J**	**22.9**	**18.1**	<9.86 U*	<3.88 U	<7.77 U	<4.68 U	**2.59 J**	Exceed

TABLE XI.A.4.g1
RESULTS OF ANALYSIS OF GROUNDWATER
October 2023
Air Products LLC
Pasadena, Texas

Well Number	Unit	Area	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	2,4-TDA & 2,6-TDA^	1,3-DCB	Toluidines	NB	5-N-o-T	Exceed
					(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	GWPS?
Groundwater Protection Standard (GWPS)					1.3	1.3	240	4.1	57	0.29	730	30	49	--	
MW-93	DNTU-AOC1	WMA2	SZ	10/10/2023	<0.0583 U	<0.0382 U	<1.1 U	<0.738 U	<0.797 U	<9.87 U*	<3.89 U	<7.78 U	<4.69 U	<1.2 U	~
MW-94	DNTU-AOC1	WMA2	SZ	10/10/2023	<0.0583 U	<0.0382 U	<1.16 U	<0.781 U	<0.845 U	<10.5 U*	<4.12 U	<8.23 U	<4.96 U	<1.27 U	~
MW-95	ASI	WMA2	IZ	10/10/2023	<0.0581 U	<0.0381 U	<1.09 U	<0.730 U	<0.789 U	<9.77 U*	<3.85 U	<7.70 U	<4.64 U	<1.18 U	~
MW-96	ASI	WMA2	DZ	10/10/2023	<0.0581 U	<0.0381 U	<1.11 U	<0.750 U	<0.810 U	<10.0 U*	<3.95 U	<7.90 U	<4.76 U	<1.22 U	~
MW-97	AOC2	WMA1	SZ	10/5/2023	<0.0553 U*	**0.299**	<1.04 U	<0.703 U	<0.760 U	<9.4 U	<3.70 U	<7.41 U	<4.46 U	<1.14 U	~
MW-98	DNTU	WMA2	IZ	10/10/2023	<0.0579 U	<0.0380 U	<1.12 U	<0.753 U	<0.814 U	<10.1 U*	<3.97 U	<7.93 U	<4.78 U	<1.22 U	~
RL-1	ASI		SZ	10/18/2023	**4.41**	**3.25**	<1.24 U	4.06 J	9.80 J	<11.1 U*	<4.39 U	<8.78 U	<5.29 U	<1.35 U	Exceed
RW-21	EI	WMA1	SZ	10/18/2023	**84**	**8.99**	<1.18 U	**1.64 J**	**1.02 J**	<10.6 U*	<4.18 U	<8.36 U	<5.04 U	<1.29 U	Exceed
RW-23	ASI	WMA2	IZ	10/16/2023	<0.0583 U	<0.0382 U	<1.21 U	<0.817 U	<0.883 U	<10.9 U*	<4.31 U	<8.61 U	<5.19 U	<1.33 U	~
RW-25	EI	WMA1	LSZ	10/18/2023	**8550**	**7900**	**149**	**1960**	**1360**	<9.87 U*	<3.89 U	<7.78 U	<4.69 U	**20.2**	Exceed
RW-26	EI	WMA1	IZ	10/18/2023	**29.5**	**31.1**	<1.14 U	**12.2**	**6.33 J**	<10.3 U*	<4.04 U	<8.08 U	<4.87 U	<1.24 U	Exceed
RW-27	ASI	WMA2	SZ	10/18/2023	**12700**	**4900**	**3370**	**32600**	**20100**	<10.0 U*	<3.94 U	**12.4**	**9.84 J**	**23.9**	Exceed
RW-28	ASI	WMA2	IZ	10/18/2023	**118**	**23.2**	<1.20 U	**86.1**	**66.2**	<10.8 U*	<4.24 U	**192**	<5.11 U	**45.7**	Exceed

Notes: Concentration is greater than the GWPS. Estimated concentration is greater than the GWPS. Sample detection limit is greater than the GWPS.

ASI = Acid spill Impoundment
EI = Effluent Impoundment
DNTL = DNT Loading Area
DNTU = DNT Production Unit Area
TDAL = TDA Loading Area
Neut = Area of Neutralization Pit
AOC1 = Area of Concern No. 1
RL-1 = Recovery Pump Below Plastic Liner

SZ = Shallow Zone
USZ = Upper Shallow Zone
LSZ = Lower Shallow Zone
IZ = Intermediate Zone
DZ = Deep Zone
WMA1 = Waste Management Area 1
WMA2 = Waste Management Area 2

"Exceed" indicates a detected concentration is greater than the GWPS.
"~" Indicates all detected COCs in sample are in compliance with GWPS.
"^" Indicates the concentration represents total toluene diamines.
" < " = concentration is less than the sample detection limit shown.
J = Estimated concentration. Analyte was detected at a level less than the reporting limit, and greater than or equal to the sample detection limit.
"*" RPD of the LCS and LCSD exceeds the control limits; or LCS or LCSD is outside acceptance limits.

TABLE XI.A.4.g2
RESULTS OF ANALYSIS OF GROUNDWATER SAMPLES - SAMPLING DEVICES
Compliance Plan Renewal - 2025
Air Products LLC
Pasadena Texas

Sample Number	Date	Unit	Zone	2,4-DNT	2,6-DNT	o-MNT	m-MNT	p-MNT	Toluidines	2,4-TDA	2,6-TDA	1,3 DCB	NB	5-N-o-T	TDA	Toluene
CPT-2-IZ	2/18/1994	EI	IZ	3,700	6,900	3,100	280	2,300	NA	NA	NA	NA	NA	NA	NA	NA
CPT-3-IZ	2/18/1994	EI	IZ	2,600	8,300	5,400	500	3,300	NA	NA	NA	NA	NA	NA	NA	NA
CPT-4-IZ	2/16/1994	EI	IZ	340	2,500	1,200	120	810	NA	NA	NA	NA	NA	NA	NA	NA
CPT-5-IZ	2/17/1994	EI	IZ	<10	<10	<0.3	<0.3	<0.3	NA	NA	NA	NA	NA	NA	NA	NA
CPT-6-IZ	2/18/1994	EI	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-7-IZ	2/7/1994	EI	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-8-LS	2/23/1994	EI	LSZ	2,100	1,400	790	56	510	NA	NA	NA	NA	NA	NA	NA	NA
CPT-10-IZ	2/18/1994	EI	IZ	<10	14	32	<10	18	NA	NA	NA	NA	NA	NA	NA	NA
CPT-10-LS	2/22/1994	EI	LSZ	41,000	54,000	30,000	2,300	16,000	NA	NA	NA	NA	NA	NA	NA	NA
CPT-11-US	2/22/1994	EI	USZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-12-US	2/22/1994	EI	USZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-13-LS	2/23/1994	EI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-14-US	2/23/1994	EI	USZ	95	110	76	<10	45	NA	NA	NA	NA	NA	NA	NA	NA
CPT-15-LS	9/13/1994	EI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-16-IZ	9/15/1994	EI	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-17-IZ	9/15/1994	EI	IZ	92	1300	920	83	500	NA	NA	NA	NA	NA	NA	NA	NA
CPT-17-LS	9/15/1994	EI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-18-LS	9/16/1994	EI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-19-IZ	9/16/1994	EI	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-20-LS	9/16/1994	EI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-21-LS	9/19/1994	EI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
CPT-22-IZ	9/14/1994	EI	IZ	<12	<12	<12	<12	<12	NA	NA	NA	NA	NA	NA	NA	NA
HP-1	2/11/1992	MEA	USZ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0
HP-2	2/12/1992	MEA	USZ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0
HP-3	2/11/1992	MEA	USZ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1.0
HP-4	2/12/1992	DNTL	USZ	1,600	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HP-5	2/12/1992	DNTL	USZ	1,500	2,400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HP-12	2/13/1992	DNTL	USZ	12	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
HP-14	2/17/1992	AOC1/Neut	USZ	<10	12	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA
HP-15	5/18/1998	DNTL	IZ	12	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-16	5/19/1998	DNTL	LSZ	26	110	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-20	5/20/1998	DNTL	IZ	11	15	5.0 J	<10	1.2 J	NA	NA	NA	NA	NA	NA	NA	NA
HP-20 Dup	5/20/1998	DNTL	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-21	5/18/1998	DNTL	IZ	5,000	6,600	59	11	15	NA	NA	NA	NA	NA	NA	NA	NA
HP-22	5/18/1998	DNTL	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-23	5/18/1998	DNTL	USZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-23 A	5/18/1998	DNTL	USZ	<15	<15	<15	<15	<15	NA	NA	NA	NA	NA	NA	NA	NA
HP-24	5/18/1998	DNTL	LSZ	110	7,500	42	9.5 J	39	NA	NA	NA	NA	NA	NA	NA	NA
HP-25	7/23/1998	DNTL	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-26	5/18/1998	DNTL	USZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-27	5/18/1998	DNTL	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-28	7/23/1998	DNTL	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-29	5/21/1998	Neut	USZ	9.1 J	1.8 J	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-30	5/21/1998	Neut	LSZ	5.6 J	<10	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-31	5/21/1998	Neut	USZ	<10	<10	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-32	5/21/1998	Neut	LSZ	<10	<10	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-33	5/20/1998	Neut	IZ	140	22	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-34	5/20/1998	AOC1/Neut	IZ	5.1 J	<12	<12	<12	<12	<24	NA	NA	NA	NA	NA	NA	NA
HP-35	5/20/1998	Neut	USZ	<10	<10	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-36	5/20/1998	Neut	LSZ	<10	<10	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-36 Dup	5/20/1998	Neut	LSZ	<13	<13	<13	<13	<13	<27	NA	NA	NA	NA	NA	NA	NA
HP-37	5/20/1998	Neut	IZ	25	4.2 J	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA

TABLE XI.A.4.g2
RESULTS OF ANALYSIS OF GROUNDWATER SAMPLES - SAMPLING DEVICES
Compliance Plan Renewal - 2025
Air Products LLC
Pasadena Texas

Sample Number	Date	Unit	Zone	2,4-DNT	2,6-DNT	o-MNT	m-MNT	p-MNT	Toluidines	2,4-TDA	2,6-TDA	1,3 DCB	NB	5-N-o-T	TDA	Toluene
HP-38	5/19/1998	Neut	USZ	<14	<14	<14	<14	<14	<27	NA	NA	NA	NA	NA	NA	NA
HP-39	5/18/1998	Neut	LSZ	<10	<10	<10	<10	<10	<20	NA	NA	NA	NA	NA	NA	NA
HP-40	7/23/1998	DNTL	LSZ	18	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-41	7/23/1998	DNTL	IZ	2.3 J	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-42	5/18/1998	Neut	IZ	<15	6.3 J	<15	<15	<15	<29	NA	NA	NA	NA	NA	NA	NA
HP-43	7/23/1998	DNTL	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-44	5/13/1999	AOC2	USZ	<2,500	26,000	<2,500	<2,500	<2,500	NA	NA	NA	NA	NA	NA	NA	NA
HP-45	5/13/1999	AOC2	LSZ	160	720	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-46	5/13/1999	AOC2	USZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-47	5/13/1999	AOC2	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-48	5/12/1999	ASI	USZ	<10	<10	24	<10	19	NA	NA	NA	NA	NA	NA	NA	NA
HP-49	5/13/1999	ASI	LSZ	53,000	24,000	130,000	13,000	95,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-50	5/17/1999	ASI	USZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-51	5/13/1999	ASI	LSZ	4,200	1,800	9,200	920	6,500	NA	NA	NA	NA	NA	NA	NA	NA
HP-52	5/14/1999	ASI	USZ	40	25	170	14	94	NA	NA	NA	NA	NA	NA	NA	NA
HP-53	5/14/1999	ASI	LSZ	67,000	19,000	140,000	10,000	98,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-54	9/21/1999	AOC2	USZ	14,000	17,000	<1,000	<1,000	<1,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-55	9/21/1999	AOC2	LSZ	74,000	45,000	<2,500	<2,500	<2,500	NA	NA	NA	NA	NA	NA	NA	NA
HP-56	9/21/1999	AOC2	USZ	190	2,800	17	2.3 J	11	NA	NA	NA	NA	NA	NA	NA	NA
HP-57	9/23/1999	AOC2	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-58	9/21/1999	AOC2	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-59	9/22/1999	AOC2	USZ	<10	<10	2.1 J	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-60	9/23/1999	AOC2	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-61	9/24/1999	AOC2	LSZ	71	37	22	24	9.7 J	NA	NA	NA	NA	NA	NA	NA	NA
HP-62	9/24/1999	AOC2	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-63	9/23/1999	AOC2	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-64	9/24/1999	AOC2	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-65	9/28/1999	ASI	IZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-66	9/27/1999	ASI	LSZ	<10	<10	9.4 J	4.3 J	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-67	9/28/1999	ASI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-68	5/23/2003	ASI	SZ	<9.6	<9.6	5.3 J	<9.6	2.6 J	0.91 J	<19	<19	<9.6	<9.6	<19	NA	NA
HP-69	9/27/1999	ASI	LSZ	6,200	2,900	13,000	1,500	8,100	NA	NA	NA	NA	NA	NA	NA	NA
HP-70	5/23/2003	ASI	SZ	<9.6	<9.6	2.6 J	<9.6	1.1 J	3.9 J	<19	<19	<9.6	<9.6	<19	NA	NA
HP-71	9/30/1999	ASI	LSZ	3,500	1,400	6,700	660	4,700	NA	NA	NA	NA	NA	NA	NA	NA
HP-72	9/30/1999	ASI	LSZ	64,000	19,000	140,000	12,000	100,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-73	9/23/1999	ASI	LSZ	51,000	16,000	130,000	9,400 J	92,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-74	9/30/1999	ASI	LSZ	<10	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-75	9/30/1999	ASI	LSZ	14,000	4,300 J	27,000	2,500 J	19,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-76	9/30/1999	ASI	LSZ	53,000	23,000	120,000	13,000	88,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-77	10/1/1999	ASI	LSZ	18,000	10,000	120,000	12,000	83,000	NA	NA	NA	NA	NA	NA	NA	NA
HP-78	10/4/1999	ASI	LSZ	4,100	1,500 J	11,000	1,100 J	8,300	NA	NA	NA	NA	NA	NA	NA	NA
HP-79 (APZ1)	1/18/2002	ASI	LSZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-80	10/1/1999	ASI	LSZ	<10	<10	6.8 J	<10	5.6 J	NA	NA	NA	NA	NA	NA	NA	NA
HP-81	10/4/1999	ASI	LSZ	5.1 J	<10	<10	<10	<10	NA	NA	NA	NA	NA	NA	NA	NA
HP-82	1/21/2002	ASI	LSZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-83	9/30/1999	TDAL	USZ	NA	NA	NA	NA	NA	<20	NA	NA	NA	NA	NA	<20	NA
HP-84	9/28/1999	TDAL	LSZ	NA	NA	NA	NA	NA	<20	NA	NA	NA	NA	NA	<20	NA
HP-85	9/30/1999	TDAL	USZ	NA	NA	NA	NA	NA	<20	NA	NA	NA	NA	NA	<20	NA
HP-86	9/28/1999	TDAL	LSZ	NA	NA	NA	NA	NA	<20	NA	NA	NA	NA	NA	<20	NA
HP-87	9/24/1999	ASI	USZ	56	24	130	<10	91	NA	NA	NA	NA	NA	NA	NA	NA
HP-88	1/21/2002	ASI	USZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-89	1/18/2002	ASI	LSZ	0.52 J	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA

TABLE XI.A.4.g2
RESULTS OF ANALYSIS OF GROUNDWATER SAMPLES - SAMPLING DEVICES
Compliance Plan Renewal - 2025
Air Products LLC
Pasadena Texas

Sample Number	Date	Unit	Zone	2,4-DNT	2,6-DNT	o-MNT	m-MNT	p-MNT	Toluidines	2,4-TDA	2,6-TDA	1,3 DCB	NB	5-N-o-T	TDA	Toluene
HP-90	1/18/2002	ASI	USZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-91	6/28/2000	ASI	USZ	0	0	<0.50	<0.25	<0.50	NA	NA	NA	NA	NA	NA	NA	NA
HP-92 (APZ2)	1/18/2002	ASI	USZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-93*	6/20/2000	AOC2	USZ	24	12	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-94*	6/21/2000	AOC2	LSZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-95*	6/20/2000	AOC2	USZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-96*	6/20/2000	AOC2	LSZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-97*	6/21/2000	AOC2	USZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-98*	6/21/2000	AOC2	LSZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-99*	6/22/2000	AOC2	USZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-100*	6/20/2000	AOC2	LSZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-101*	6/21/2000	AOC2	IZ	<0.83	<0.83	<1.7	<0.83	<1.7	NA	NA	NA	NA	<1.7	NA	NA	NA
HP-102	1/15/2002	ASI	IZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-103	1/15/2002	ASI	LSZ	38 J	32 J	890	59	470	36 J	<100	<100	<50	<50	<100	NA	NA
HP-104	1/15/2002	ASI	IZ	<10	<10	<10	<10	<10	<20	<20	<20	<10	<10	<20	NA	NA
HP-105	8/18/2006	DNT Unit	SZ	<0.97	3	76	6	20	22	NA	NA	<0.97	<0.97	<0.97	<4.8	NA
HP-105	8/21/2006	DNT Unit	SZ	<0.98	3	63	5	18	15	NA	NA	<0.98	<0.98	<0.98	<4.9	NA
HP-106	8/17/2006	DNT Unit	SZ	<0.98	<0.98	20	0.67 J	3	0.61 J	NA	NA	15	<0.98	<0.98	<4.9	NA
HP-107	8/15/2006	DNT Unit	SZ	2000 J	2100 J	28,000	1900 J	15,000	2200 J	NA	NA	<50	<50	74	<250	NA
HP-107	8/21/2006	DNT Unit	SZ	9,500	5,600	61,000	4,300	32,000	2,200	NA	NA	<9.5	15	120	30 J	NA
HP-109	8/17/2006	DNT Unit	SZ	2	0.26 J	<0.96	<0.96	<0.96	<0.96	NA	NA	<0.96	<0.96	0.82 J	<4.8	NA
HP-110	8/18/2006	DNT Unit	SZ	<1	<1	0.38 J	<1	0.2 J	<1	NA	NA	<1	<1	<1	<5	NA
HP-110	8/21/2006	DNT Unit	SZ	0.34 J	0.33 J	1	<0.98	0.7 J	3	NA	NA	<0.98	<0.98	<0.98	<4.9	NA
HP-111	8/14/2006	DNT Unit	IZ	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	NA	NA	<0.99	<0.99	<0.99	<5	NA
HP-111	8/21/2006	DNT Unit	IZ	0.15 J	<1.1	0.47 J	<1.1	0.27 J	<1.1	NA	NA	<1.1	<1.1	<1.1	<5.5	NA
HP-112	8/15/2006	DNT Unit	IZ	<0.98	<0.98	<0.98	<0.98	<0.98	1	NA	NA	<0.98	<0.98	<0.98	<4.9	NA
HP-112	8/21/2006	DNT Unit	IZ	0.2 J	0.13 J	2	0.1 J	0.89 J	24	NA	NA	<1	<1	<1	<5	NA
HP-113	8/15/2006	DNT Unit	IZ	<0.98	<0.98	0.29 J	<0.98	<0.98	<0.98	NA	NA	<0.98	<0.98	<0.98	<4.9	NA
HP-113	8/21/2006	DNT Unit	IZ	<1.2	<1.2	0.21 J	<1.2	0.12 J	<1.2	NA	NA	<1.2	<1.2	<1.2	<5.9	NA
HP-114	5/31/2007	DNT Unit	SZ	<0.99	<0.99	<0.99	<0.99	<0.99	<0.99	<5	<5	<0.99	<0.99	<0.99	NA	NA
HP-114	6/4/2007	DNT Unit	SZ	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98	<4.9	<4.9	<0.98	<0.98	<0.98	NA	NA
HP-115	5/31/2007	DNT Unit	SZ	0.12 J	0.18 J	2	0.11 J	0.77 J	0.25 J	<4.8	<4.8	<0.95	<0.95	<0.95	NA	NA
HP-115	6/4/2007	DNT Unit	SZ	<1	<1	0.1 J	<1	<1	0.22 J	<5	<5	<1	<1	<1	NA	NA
HP-116	5/31/2007	DNT Unit	SZ	<0.95	0.38 J	3	0.22 J	2	13	<4.8	<4.8	<0.95	<0.95	<0.95	NA	NA
HP-116	6/4/2007	DNT Unit	SZ	0.48 J	1	11	0.92 J	7	4	<5.2	<5.2	<1	<1	<1	NA	NA
HP-120	5/31/2007	DNT Unit	SZ	<1	<1	<1	<1	<1	0.22 J	<5	<5	<1	<1	<1	NA	NA
HP-120	6/4/2007	DNT Unit	SZ	<0.99	<0.99	<0.99	<0.99	<0.99	0.13 J	<5	<5	<0.99	<0.99	<0.99	NA	NA
HP-121	5/31/2007	DNT Unit	SZ	<0.95	<0.95	2	<0.95	0.51 J	13	<4.8	<4.8	<0.95	<0.95	<0.95	NA	NA
HP-121	6/4/2007	DNT Unit	SZ	<0.99	0.15 J	7	0.38 J	3	5	<5	<5	<0.99	<0.99	<0.99	NA	NA

Notes:

All results in micrograms per liter

NA= Not Analyzed

DUP = Field Duplicate Sample

< = Symbol indicates concentration below reporting limit

J = Result below reporting limit but above method detection limit

* Some analyses were adjusted for a laboratory sample preparation error.

EI= Effluent Impoundment

ASI = Acid Spill Impoundment

DNTL = DNT Loading Area

Neut = Area of Neutralization Pit

AOC1 = Area of Concern No. 1

ACO2 = Area of Concern No. 2

TDAL = TDA Loading Area

DNT Unit = DNT Manufacturing Unit Area

MEA = MEA/Carbonate Sump

USZ = Upper Shallow Zone

LSZ = Lower Shallow Zone

SZ = Shallow Zone

IZ = Intermediate Zone

DZ = Deep Zone

DNT = Dinitrotoluene

MNT = Mononitrotoleuene, Nitrotoluene

DCB = Dichlorobenzene

NB = Nitrobenzene

TDA = Toluenediamine (2,4 and 2,6 isomers are combined in the column labeled "TDA")

5 N-o-T = 5-Nitro-o-Toluidine

Toluidines includes both o-Toluidine and p-Toluidine

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
APZ-1	ASI	LSZ	10/21/2004	0.99	0.26 J	<9.5	<9.5	<9.5	<38	--	--	--	--	<9.5	<9.5	<9.5	<0.95	<1.9	~
APZ-1	ASI	LSZ	4/6/2005	0.19 J	0.097 J	<0.26	<0.26	<0.26	--	--	--	--	--	<0.26	<0.52	<0.26	<0.26	<2.1	~
APZ-1	ASI	LSZ	10/25/2005	0.26	2.8	<0.25	<0.25	<0.25	--	--	--	--	--	<0.25	<0.5	<0.25	<0.25	<2	Exceed
APZ-1	ASI	LSZ	4/20/2006	<0.97	0.095 J	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
APZ-1	ASI	LSZ	11/1/2006	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	<5	~
APZ-1	ASI	LSZ	4/20/2007	<0.97	4.4	<0.97	<0.97	<0.97	--	--	--	<4.8	<4.8	<0.97	<0.97	<0.97	<0.97	--	Exceed
APZ-1	ASI	LSZ	10/12/2007	<0.057	<0.083	<0.085	<0.067	<0.075	--	--	--	<1.7	<1.7	<0.069	<0.10	<0.053	<0.096	--	~
APZ-1	ASI	LSZ	4/9/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	--	--	<0.070	<0.11	<0.054	<0.098	<1.8	~
APZ-1	ASI	LSZ	10/17/2008	<0.062	<0.089	<0.091	<0.071	<0.081	--	--	--	<1.9	<1.9	<0.073	<0.11	<0.057	<0.10	--	~
APZ-1	ASI	LSZ	4/22/2009	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	<1.77	<1.77	<0.0699	<0.105	<0.0544	<0.0984	--	~
APZ-2	ASI	SZ	10/21/2004	0.17 J	<1.2	<12	<12	<12	<47	--	--	--	--	<12	<1.2	<12	<1.2	<2.4	~
APZ-2	ASI	SZ	4/6/2005	0.23 J	0.11 J	<0.25	<0.25	<0.25	--	--	--	--	--	0.036 J	<0.5	<0.25	<0.25	<2	~
APZ-2	ASI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
APZ-2	ASI	SZ	4/20/2006	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	<5	~
APZ-2	ASI	SZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
APZ-2	ASI	SZ	4/20/2007	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	<5	<5	<0.99	<0.99	<0.99	<0.99	--	~
APZ-2	ASI	SZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
APZ-2	ASI	SZ	4/9/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
APZ-2	ASI	SZ	10/17/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	<1.8	<1.8	<0.070	<0.11	<0.054	<0.098	--	~
APZ-2	ASI	SZ	4/22/2009	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	<1.77	<1.77	<0.0699	<0.105	<0.0544	<0.0984	--	~
APZ-2	ASI	SZ	10/27/2009	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	<1.76 !	<1.76 !	<0.0692	<0.104	<0.0539	<0.0974	--	~
APZ-2	ASI	SZ	4/8/2010	0.17 J	<0.0848	<0.0865	0.331 J	<0.0767	--	--	--	<1.77	<1.77	<0.0699	<0.105	<0.0544	<0.0984	--	~
DNT1FD	EI	SZ	2/17/2004	4800	1600	130 J	1400	1100	<2500	--	--	<1000	<1000	<500	<1000	<500	<1000	--	Exceed
DNT2FD	EI	SZ	2/17/2004	1900	540	100 J	1200	860	<2500	--	--	<1000	<1000	<500	<1000	<500	<1000	--	Exceed
MW-1	EI	SZ	1/29/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	2/20/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	6/18/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	8/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	7/27/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	1/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	4/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/3/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	5/8/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	8/3/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-1	EI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	1/29/1985	1800	3770	205	2470	1590	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	2/20/1985	1200	2380	134	1620	1040	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/23/1985	3820	6860	254	3420	2240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	12/19/1985	1060	2210	135	1670	928	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	3/25/1986	2230	4420	126	1750	618	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/12/1986	1860	2870	620	730	506	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	8/19/1986	5300	6880	161	2240	1680	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/21/1986	2300	2290	81.5	887	419	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	1/29/1987	4800	5700	84.8	1140	616	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/2/1987	1370	1780	53.7	420	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/24/1987	337	1540	36.3	317	256	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/29/1987	3980	4950	102	1430	949	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	1/27/1988	2360	2740	1040	97	898	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/29/1988	1580	3440	133	716	514	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/27/1988	6060	8640	117	1650	904	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/3/1988	14100	13800	275	3030	2010	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	2/9/1989	9400	12000	270	2800	2300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	5/8/1989	18000	21000	<0	4400	3600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/31/1989	6100	6600	110	1200	890	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/17/1989	6600	7900	160	1600	1300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	1/26/1990	5500	5700	<0	1100	870	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/19/1990	3500	3500	<0	700	500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	7/9/1990	8600	8800	180	2000	1400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/5/1990	13000	13000	300	2800	1900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	5/1/1991	110	68	<0	26	23	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	8/15/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	10/3/1991	14	<0	<0	13	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/31/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	5/5/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	7/24/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	11/9/1993	67	32	<0	<0	<0	<0	0.41	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.39	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	10/25/1994	14	41	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/22/1995	<0	<0	<0	<0	<0	<0	0.54	0.052	--	--	--	--	--	--	--	~
MW-2	EI	SZ	11/10/1995	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	5/4/1996	<0	<0	<0	<0	<0	<0	0.37	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	11/13/1996	<10	<10	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	~
MW-2	EI	SZ	5/4/1997	<10	42	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/26/1997	<10	15	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/14/1998	<10	40	<10	<10	<10	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/28/1998	<10	52	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/17/1999	33	46	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/23/1999	<50	570	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	6/6/2000	<10	210 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	10/11/2000	<100	980	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-2	EI	SZ	4/6/2001	1.1 J	640 D	0.62 J	1.9 J	1.2 J	<50	--	--	<20	<20	<10	<20	<10	13 J	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-2	EI	SZ	10/24/2001	<50	6000 D	2.6 J	14 J	12 J	<250	--	--	<100	<100	<50	<100	<50	140	--	Exceed
MW-2	EI	SZ	4/22/2002	<10	360 D	0.55 J	2.1 J	1.5 J	<52	--	--	<21	<21	<10	<21	<10	8.3 J	--	Exceed
MW-2	EI	SZ	10/10/2002	6.4 J	1200 D	2.2 J	5.4 J	4 J	<50	--	--	<20	<20	<10	<20	<10	34	--	Exceed
MW-3	EI	SZ	1/29/1985	17	24	1	13	14	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	2/20/1985	8	20	<0	4	6	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/23/1985	23	106	<0	4	6	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	12/19/1985	64.6	1050	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	3/25/1986	234	1650	<0	32.2	23.2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	6/12/1986	257	1890	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	8/19/1986	319	3140	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/24/1986	800	3000	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/29/1987	318	2360	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/2/1987	161	1510	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/24/1987	131	1100	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-3	EI	SZ	1/27/1988	593	2690	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/29/1988	502	1130	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/29/1988	<0	4040	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/3/1988	1260	4520	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	2/14/1989	1700	14000	<0	18	22	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/10/1989	1100	7300	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/31/1989	1100	6300	<0	11	12	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/19/1989	900	4800	<0	11	12	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/22/1990	7200	1500	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/19/1990	600	4300	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/12/1990	540	3700	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/3/1990	720	4400	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/22/1991	99	930	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/1/1991	18	200	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/24/1991	<0	140	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/3/1991	82	720	<0	28	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	2/9/1992	1600	5900	<0	44	38	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/5/1992	1800	6800	<0	61	65	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	8/28/1992	3000	8200	<0	48	51	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/28/1992	4300	13000	<0	58	55	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	1/28/1993	2500	9100	10	55	55	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/18/1993	4400	9900	<0	38	41	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	7/20/1993	2200	9500	<0	32	38	<0	0.43	0.097	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	11/5/1993	3900	7900	<0	20	29	<0	0.55	0.05	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/15/1994	2100	5600	<0	11	20	<0	0.39	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/25/1994	1200	3300	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/26/1995	1200	2800	<0	<0	<0	<0	0.54	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	11/12/1995	710	1300	<0	<0	<0	<0	0.16	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/4/1996	740	2400	<0	<0	<0	<0	0.37	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	11/13/1996	1100 D	2800 D	<10	<10	<10	--	0.24	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/4/1997	580 D	770 D	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/26/1997	380 D	580 D	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	5/13/1998	--	--	--	--	--	--	0.43	<0	--	--	--	--	--	--	--	~
MW-3	EI	SZ	5/27/1998	260 D	330 D	<10	<10	<10	--	0.54	<0	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/28/1998	160 D	180 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/17/1999	120	120	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/23/1999	610	1700	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	6/6/2000	1000 D	2700 D	<10	6.3 J	7.5 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	10/11/2000	2100 D	7400 D	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-3	EI	SZ	4/6/2001	3600 D	8200 D	<200	<200	<200	<1000	--	--	<400	<400	<200	<400	<200	310 J	--	Exceed
MW-3	EI	SZ	10/24/2001	2500 D	3300 D	<100	<100	<100	<500	--	--	<200	<200	<100	<200	<100	170 J	--	Exceed
MW-3	EI	SZ	4/22/2002	1300 D	1600 D	1.1 J	2.9 J	3.8 J	<260	--	--	<100	<100	<51	<100	<51	97 J	--	Exceed
MW-3	EI	SZ	10/10/2002	3200 D	3400 D	1.9 J	5.3 J	7.8 J	<48	--	--	<19	<19	<9	<19	<9	140	--	Exceed
MW-4	Neut	SZ	1/29/1985	98	356	9	14	56	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	2/20/1985	44	235	3	44	21	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	7/23/1985	37	199	3	42	19	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	12/19/1985	6.05	98.3	<0	50.1	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4	Neut	SZ	3/25/1986	28.1	372	<0	157	63.2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	1/29/1987	739	1310	79.1	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/2/1987	649	1260	83.5	<0	28	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/23/1987	15.3	1070	<0	84.6	42.9	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/28/1987	614	785	<0	50.8	29.3	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	1/27/1988	425	607	42	<0	21	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/27/1988	659	946	<0	33	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/28/1988	<0	428	<0	<0	21	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/3/1988	280	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	2/9/1989	240	205	<0	14	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	5/5/1989	320	290	<0	24	17	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/31/1989	330	240	<0	13	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/17/1989	620	660	<0	47	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	1/24/1990	1900	1300	28	300	170	<250	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/24/1990	1800	4100	<0	470	270	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	7/10/1990	3900	7400	83	860	650	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	10/2/1990	3200	5100	67	770	530	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-4B	Neut	SZ	6/8/1992	48000	55000	31	190	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	5/27/1998	5000 D	3900 D	<10	24	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-4B	Neut	SZ	4/10/2003	2300 D	2500 D	<97	9.7 J	8.4 J	<490	--	--	<190	<190	<97	<190	<97	140 J	--	Exceed
MW-4B	Neut	SZ	10/6/2003	2100	2400	<490	<490	<490	<2400	--	--	<970	<970	<490	<970	<490	130 J	--	Exceed
MW-4B	Neut	SZ	4/19/2004	1100	1600	3.7 J	8 J	8.8 J	<49	--	--	<20	<20	<9.8	<20	<9.8	94	--	Exceed
MW-4B	Neut	SZ	10/12/2004	1500	1400	1.8 J	6.6 J	7.6 J	<47	--	--	<19	<19	<9.4	<19	<9.4	83	--	Exceed
MW-4B	Neut	SZ	4/18/2005	760	850	<96	<96	<96	--	--	--	<190	<190	<96	<96	<96	68 J	--	Exceed
MW-4B	Neut	SZ	10/19/2005	690	730	<96	<96	<96	--	--	--	<190	<190	<96	<96	<96	50 J	--	Exceed
MW-4B	Neut	SZ	4/18/2006	470	530	<9.6	2.8 J	2.4 J	--	--	--	<19	<19	<9.6	<9.6	<9.6	60	--	Exceed
MW-4B	Neut	SZ	11/3/2006	570	580	<95	9.9 J	<95	--	--	--	<190	<190	<95	<95	<95	<95	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-4B	Neut	SZ	4/17/2007	430	450	<9.5	2.7 J	1.5 J	--	--	--	<19	<19	<9.5	<9.5	<9.5	64	--	Exceed
MW-4B	Neut	SZ	10/3/2007	550	610	<1.0	5.3 J	2.8 J	--	--	--	<7.0	<5.1	<1.3	<0.62	<1.0	38	--	Exceed
MW-4B	Neut	SZ	4/10/2008	490	590	<1.0	7.7 J	2.9 J	--	--	--	<1.6	<1.5	<0.95	<1.5	<1.1	43	--	Exceed
MW-4B	Neut	SZ	10/20/2008	530	500	1.1 J	20	5.4 J	--	--	--	<1.6	<1.5	<0.95	<1.5	<1.1	36	--	Exceed
MW-4B	Neut	SZ	4/16/2009	209	226	<1.01	13.2	4.27 J	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	30.1	--	Exceed
MW-4B	Neut	SZ	10/15/2009	492 J	829 J	<0.998 J	9.35 J	4.3 J	--	--	--	<1.62 J	<1.54 J	<0.956 J	<1.54 J	<1.08 J	41.4 J	--	Exceed
MW-4B	Neut	SZ	4/15/2010	887	1240	1.38 J	14.8	7.78 J	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	49.7	--	Exceed
MW-4B	Neut	SZ	10/18/2010	460	616	<1.04	11.1	4.29 J	--	--	--	<1.68 J	<1.60 J	<0.994	<1.60	<1.12	31.8	--	Exceed
MW-4B	Neut	SZ	4/27/2011	944	1300	6.73 J	13.9	10	--	--	--	--	--	<1.10	<4.80	<1.44	68	<3.11 J	Exceed
MW-4B	Neut	SZ	4/25/2012	698	951	1.53 J	26.4	8.5 J	--	--	--	<6.40	<5.86	<1.11	<4.85	<1.46	48.5	--	Exceed
MW-4B	Neut	SZ	4/17/2014	480	800	4.9 J	49	22	--	--	--	--	--	<1.1	<1.3	<1.1	27	<4.0	Exceed
MW-4B	Neut	SZ	4/22/2016	996	1200	13.1 X7	272 X7	59.3 X7	--	--	--	--	--	<1.26	<1.44	<1.30	40.1	<4.57 X7	Exceed
MW-4B	Neut	USZ	4/16/2018	679	804	26.2 LX7	651 LX7	104 LX7	--	--	--	--	--	<1.29	<1.47 L	<1.33	19.1 L	<4.67 LX7	Exceed
MW-4B	Neut	USZ	4/28/2020	545	726	57.8 X7	802 X7	189 J X7	--	--	--	--	--	<1.19	<1.35	<1.22	55.1	<4.29 X7	Exceed
MW-4B	Neut	USZ	4/27/2022	327	553	94.8 X7	2670 X7	717 X7	--	--	--	--	--	<0.480	<6.13	0.900 J	6.36 J	<0.726 X7	Exceed
MW-4B	Neut	USZ	4/4/2024	275	408	73.9	1640	316	--	--	--	--	--	<4.52 U	<9.04 U*	<5.45 U	15.4	<11.5 U*	Exceed
MW-5	ASI	SZ	1/29/1985	1	3	2930	24100	19400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	2/20/1985	8360	3240	1680	1650	10400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/23/1985	4440	2250	1050	12290	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	12/18/1985	4950	2630	1760	10100	4290	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	3/24/1986	10800	3800	1860	22700	14400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	6/11/1986	11000	3290	1970	23300	11600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	8/11/1986	4530	1930	1640	16700	8890	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/20/1986	6120	1940	624	6750	4690	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/28/1987	19600	5580	1780	18300	12000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	3/31/1987	6350	2010	808	6970	3850	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/23/1987	4980	2590	1180	10200	1920	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/28/1987	8560	2850	1340	11800	6610	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/27/1988	4620	1660	7180	891	3910	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/28/1988	4250	1910	1220	11200	4000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/29/1988	4620	1660	381	1700	730	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/3/1988	1980	727	304	3290	1840	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	2/10/1989	780	<0	120	200	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/5/1989	910	330	200	2000	1300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	8/9/1989	440	190	88	680	500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/17/1989	180	69	26	190	170	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/25/1990	74	210	34	290	220	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/26/1990	430	150	50	530	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/11/1990	230	90	21	190	140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/3/1990	120	37	18	170	130	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/22/1991	170	56	28	210	190	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/1/1991	260	93	37	310	190	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/24/1991	240	87	27	280	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/3/1991	12000	450	300	4300	4100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	2/9/1992	1300	430	180	2300	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/4/1992	1100	520	240	2500	2100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	8/28/1992	2700	1000	420	4700	3400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/28/1992	2800	1000	410	4800	3700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	1/28/1993	7100	2800	13000	14000	800	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/8/1993	1900	700	270	2600	2000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	7/20/1993	6300	3100	1100	9300	7900	<0	0.64	0.17	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	11/5/1993	3000	1100	480	4000	3400	<0	0.62	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/14/1994	100	490	150	1900	1200	<0	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/11/1994	2600	960	430	5200	2600	<0	0.72	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/22/1995	1200	470	260	2200	1900	<0	0.73	0.067	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	11/12/1995	1000	560	250	2700	1800	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/11/1996	700	480	220	2400	1600	<0	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	11/15/1996	430	160	130	1500 D	1200 D	--	0.52	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	5/9/1997	420 D	190	85	1000 D	740 D	--	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/26/1997	300 D	200 D	96	1200 D	890 D	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/22/1998	380	190	82	1200 D	740 D	--	0.74	<0	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/23/1998	390 D	180 D	81	1200 D	720 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/20/1999	280	120	48	540 D	340 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/23/1999	140	<100	<100	730	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	6/9/2000	170 D	96	44	450 D	310 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	10/12/2000	150	64	37 J	410	270	--	--	--	--	--	--	--	--	--	--	Exceed
MW-5	ASI	SZ	4/6/2001	200 D	110	55	680 D	340 D	<50	--	--	<20	31	<10	9.6 J	<10	7 J	--	Exceed
MW-5	ASI	SZ	10/25/2001	140	73	43	570 D	340 D	<50	--	--	<20	<20	<10	36	<10	6.4 J	--	Exceed
MW-5	ASI	SZ	4/24/2002	84	56	35	380 D	250 D	<50	--	--	24	24	<10	33	<10	3.6 J	--	Exceed
MW-5	ASI	SZ	10/10/2002	<10	<10	<10	<10	0.62 J	<50	--	--	70	72	<10	23	<10	<20	--	Exceed
MW-6	AOC1	SZ	1/29/1985	306	188	<0	2	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	2/20/1985	215	141	<0	1	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/23/1985	268	155	<0	2	2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-6	AOC1	SZ	3/24/1986	194	131	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	6/12/1986	236	142	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	8/19/1986	148	141	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/20/1986	67.3	156	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	1/28/1987	128	125	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/1/1987	128	112	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/23/1987	<0	107	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/28/1987	149	99.8	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	1/26/1988	50	54	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/27/1988	75	78	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/27/1988	<0	75.8	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/5/1988	151	71	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	2/16/1989	<0	37	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	5/8/1989	91	59	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/27/1989	68	39	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/19/1989	93	54	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-6	AOC1	SZ	1/24/1990	67	110	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/24/1990	98	69	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	7/10/1990	140	94	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	10/2/1990	79	56	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-6	AOC1	SZ	6/25/1992	45	27	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	5/27/1998	17	11	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-6	AOC1	SZ	4/10/2003	<190	76 J	<190	<190	<190	<950	--	--	<380	<380	<190	<380	<190	<380	--	Exceed
MW-6	AOC1	SZ	10/6/2003	<97	14 J	<97	<97	<97	<490	--	--	<190	<190	<97	<190	<97	<190	--	Exceed
MW-6	AOC1	SZ	4/19/2004	10	24	<9.7	2.9 J	<9.7	<48	--	--	<19	<19	<9.7	<19	<9.7	4.4 J	--	Exceed
MW-6	AOC1	SZ	10/12/2004	42 J	190	<96	<96	<96	<480	--	--	<190	<190	<96	<190	<96	<190	--	Exceed
MW-6	AOC1	SZ	4/18/2005	5 J	11	<9.8	<9.8	<9.8	--	--	--	21	95	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-6	AOC1	SZ	10/19/2005	94	24	<9.6	<9.6	<9.6	--	--	--	<19	22	<9.6	0.97 J	<9.6	7.1 J	--	Exceed
MW-6	AOC1	SZ	4/18/2006	7.5 J	42	<9.6	<9.6	<9.6	--	--	--	<19	7.5 J	<9.6	0.93 J	1.2 J	17	--	Exceed
MW-6	AOC1	SZ	11/7/2006	6.3 J	32	<9.6	<9.6	<9.6	--	--	--	<19	25	<9.6	0.79 J	<9.6	<9.6	--	Exceed
MW-6	AOC1	SZ	4/18/2007	29	120	<9.5	<9.5	<9.5	--	--	--	<19	24	<9.5	0.7 J	<9.5	25	--	Exceed
MW-6	AOC1	SZ	10/3/2007	32	84	<1.0	<0.89	<0.97	--	--	--	<7.2	130	<1.3	1.5 J	<1.0	15	--	Exceed
MW-6	AOC1	SZ	4/14/2008	420	1100	1.2 J	7.4 J	6.3 J	--	--	--	210 J	650	<0.96	6.4 J	<1.1	300	--	Exceed
MW-6	AOC1	SZ	10/20/2008	380	1000	<1.0	6 J	5.8 J	--	--	--	340	1300	<0.99	9.4 J	<1.1	200	--	Exceed
MW-6	AOC1	SZ	4/16/2009	145	341	<0.998	<1.02	1.57 J	--	--	--	119 J	347	<0.956	5.34 J	<1.08	64.7	--	Exceed
MW-6	AOC1	SZ	10/15/2009	6.47 J	13.7	<0.989	<1.01	<1.42	--	--	--	421	335	<0.947	7.56 J	<1.07	<0.833	--	Exceed
MW-6	AOC1	SZ	4/15/2010	513	1170	1.42 J	5.11 J	4.31 J	--	--	--	138	89.9	<0.956	2.6 J	<1.08	166	--	Exceed
MW-6	AOC1	SZ	10/18/2010	<2.85	2.47 J	<1.03	<1.05	<1.48	--	--	--	<1.67 J	117 J	<0.984	3.63 J	<1.11	<0.866	--	Exceed
MW-6	AOC1	SZ	4/27/2011	168	536	<1.03	1.61 J	6.84 J	--	--	--	--	--	<1.13	<4.94	<1.49	66.8	69.4 J	Exceed
MW-6	AOC1	SZ	4/26/2012	28.1	68.9	<0.998	<1.02	<1.44	--	--	--	15 J	26.2	<1.10	<4.80	<1.44	14	--	Exceed
MW-6	AOC1	SZ	4/17/2014	22	44	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	Exceed
MW-6	AOC1	SZ	4/22/2016	417	762	<0.587 X7	3.57 J X7	3.4 J X7	--	--	--	--	--	<1.11	2.06 J	<1.13	94.6	210 X7	Exceed
MW-6	AOC1	USZ	4/24/2018	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-6	DNTU-AOC1	USZ	4/29/2020	<0.990	<0.667	<0.635 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-6	DNTU-AOC1	USZ	4/27/2022	3.19	3.16	2.85 J X7	41.5 X7	23.2 X7	--	--	--	--	--	<0.481	<6.14	<0.563	<3.07	<7.27 X7	Exceed
MW-6	DNTU-AOC1	USZ	4/4/2024	0.125	<0.0395 U	<1.15 U	<0.777 U	<0.840 U	--	--	--	--	--	<4.09 U	<8.19 U*	<4.93 U	<1.26 U	<10.4 U*	~
MW-7	ASI	SZ	1/29/1985	11	83	96	1270	528	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	2/20/1985	13	60	63	843	312	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/23/1985	16	112	108	1480	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	12/18/1985	<0	59.3	<0	1310	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	3/24/1986	15.7	111	82.2	1130	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	6/11/1986	<0	94	81.6	982	363	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	8/11/1986	<0	148	102	1310	108	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/20/1986	<0	119	80.3	963	309	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/28/1987	<0	149	104	1240	310	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	3/31/1987	13	119	95.4	1010	307	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/23/1987	<0	64	52.7	668	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/28/1987	23.4	191	202	2600	292	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/26/1988	<0	24	200	16	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/28/1988	<0	24	<0	218	51	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/27/1988	40	28	13	184	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/5/1988	295	<0	83	957	483	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	2/10/1989	<0	<0	<0	50	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/5/1989	<0	<0	<0	23	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	8/3/1989	<0	<0	<0	37	22	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/17/1989	<0	<0	<0	51	37	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/25/1990	<0	9.2	<0	46	30	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/23/1990	<0	<0	<0	29	20	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/11/1990	<0	<0	<0	17	13	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/2/1990	<0	<0	<0	17	11	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/22/1991	20	<0	<0	80	67	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/1/1991	27	<0	<0	74	27	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/24/1991	29	10	<0	90	50	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/3/1991	61	25	25	350	250	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	2/9/1992	46	20	13	190	100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/4/1992	36	17	12	150	99	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/24/1992	<0	<0	<0	65	40	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/28/1992	16	<0	<0	84	45	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	1/28/1993	<0	<0	<0	38	17	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/7/1993	<0	<0	<0	66	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	7/20/1993	10	<0	<0	45	31	<0	0.57	0.13	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	11/5/1993	18	<0	<0	66	49	<0	0.69	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/14/1994	16	12	<0	62	38	<0	0.6	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/11/1994	<0	<0	<0	31	13	<0	0.72	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/22/1995	19	<0	<0	56	36	<0	0.63	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	11/12/1995	18	<0	<0	63	30	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/11/1996	<0	<0	<0	30	<0	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	11/15/1996	270 D	130 D	49	510 D	210 D	--	0.45	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/9/1997	48	24	13	170 D	51	--	0.6	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/18/1997	99	48	22	220 D	130 D	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	5/13/1998	--	--	--	--	--	--	0.5	<0	--	--	--	--	--	--	--	~
MW-7	ASI	SZ	5/28/1998	82	36	15	180 D	<10	--	0.69	<0	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/23/1998	130	57	25	360 D	220 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/20/1999	170 D	72	35	400 D	280 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/23/1999	28	13	<10	110	64	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	6/12/2000	76	56	24	200 D	120	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	10/12/2000	150	59	30 J	330	230	--	--	--	--	--	--	--	--	--	--	Exceed
MW-7	ASI	SZ	4/8/2001	22	8.6 J	4.3 J	62	23	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-7	ASI	SZ	10/25/2001	14	6.1 J	3.9 J	48	25	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-7	ASI	SZ	4/24/2002	30	15	6.6 J	65	27	<52	--	--	<21	<21	<10	<21	<10	0.61 J	--	Exceed
MW-7	ASI	SZ	10/10/2002	360 D	97	51	470 D	360 D	<48	--	--	<19	<19	<9	3.2 J	<9	11 J	--	Exceed
MW-7	ASI	SZ	4/11/2003	24	8.5 J	3.8 J	41	22	<48	--	--	<19	<19	<9	<19	<9	<19	--	Exceed
MW-7	ASI	SZ	10/6/2003	13	6.4 J	2.5 J	28	<9.7	<48	--	--	<19	<19	<9.7	0.67 J	<9.7	0.27 J	--	Exceed
MW-7	ASI	SZ	4/19/2004	13	5.1 J	1.9 J	15	8.3 J	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	Exceed
MW-7	ASI	SZ	10/12/2004	11	4.3 J	2 J	22	15	<48	--	--	<19	<19	<9.6	0.48 J	<9.6	<19	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-7	ASI	SZ	4/18/2005	16	7.2 J	3.4 J	33	1.5 J	--	--	--	<20	<20	<9.8	0.8 J	<9.8	<9.8	--	Exceed
MW-7	ASI	SZ	10/19/2005	17	6.1 J	2.9 J	32	22	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-7	ASI	SZ	4/19/2006	10	3.9 J	1.7 J	19	5.1 J	--	--	--	<19	<19	<9.5	0.99 J	<9.5	<9.5	--	Exceed
MW-7	ASI	SZ	11/3/2006	18	5 J	2.3 J	26	20	--	--	--	<20	<20	<10	<10	<10	<10	--	Exceed
MW-7	ASI	SZ	4/18/2007	15	4.4 J	3 J	34	15	--	--	--	<19	<19	<9.6	0.65 J	<9.6	<9.6	--	Exceed
MW-7	ASI	SZ	10/3/2007	11	3.2 J	2.1 J	22	15	--	--	--	<7.1	<5.2	<1.3	<0.63	<1.0	<4.2	--	Exceed
MW-7	ASI	SZ	4/15/2008	<2.8	1.9 J	1 J	14	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-7	ASI	SZ	10/20/2008	3.6 J	1.3 J	<1.0	10	6.7 J	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	Exceed
MW-7	ASI	SZ	4/16/2009	6.92 J	3.45 J	2.33 J	10.9	2.61 J	--	--	--	<1.67	<1.58	<0.984	<1.59	<1.11	<0.866	--	Exceed
MW-7	ASI	SZ	10/15/2009	<2.74	<0.977	29.5	2.08 J	1.71 J	--	--	--	<1.60	<1.52	<0.947	<1.53	<1.07	<0.833	--	~
MW-7	ASI	SZ	4/15/2010	<2.77	<0.987	<0.998	3.28 J	2 J	--	--	--	<1.62	7.28 J	<0.956	<1.54	<1.08	<0.841	--	~
MW-7	ASI	SZ	10/19/2010	<2.85	<1.02	1.09 J	16.7	8.1 J	--	--	--	<1.67 J	<1.58 J	<0.984	<1.59	<1.11	<0.866	--	Exceed
MW-7	ASI	SZ	4/27/2011	10.3	8.45 J	8.51 J	32.9	21.1	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-7	ASI	SZ	4/26/2012	9.28 J	11.5	9.86	110	50.6	--	--	--	<6.34 J	<5.81	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-7	ASI	SZ	4/17/2014	34	29	24	220	150	--	--	--	--	--	<1.1	17	<1.2	1.7 J	<4.1	Exceed
MW-7	ASI	SZ	4/15/2016	181	54.6	26.2 X7	285 X7	189 X7	--	--	--	--	--	<1.11	<1.26	<1.13	4.41 J	<4.00 X7	Exceed
MW-7	ASI	USZ	4/24/2018	<1.01	<0.681	<0.649 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<1.22	<1.39	<1.26	<0.734	<4.43 X7	~
MW-7	ASI	USZ	4/28/2020	<0.979	<0.66	<0.629 X7	<1.10 X7	3.51 J X7	--	--	--	--	--	<1.19	1.82 J	<1.22	<0.711	<4.29 X7	~
MW-7	ASI	USZ	4/28/2022	1.00	0.959	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	~
MW-7	ASI	USZ	4/5/2024	1.22	0.815	<1.10 U	2.06 J b	1.50 J	--	--	--	--	--	<3.90 U	<7.80 U	<4.70 U	<1.20 U	<9.90 U*	~
MW-8	EI	SZ	1/29/1985	50	356	24	287	143	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	2/20/1985	42	302	20	231	40	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/23/1985	64	437	30	342	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	12/19/1985	56.1	417	48.5	299	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	3/25/1986	81.1	689	62.4	696	391	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	6/12/1986	95.9	746	91.9	956	497	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	8/19/1986	78	988	80.7	849	348	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/21/1986	67.4	474	31.3	348	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/29/1987	74.8	911	39.4	390	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/2/1987	55	716	40.7	339	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/24/1987	108	654	48.2	470	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/29/1987	63.7	567	33.5	372	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/28/1988	118	695	289	39	32	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/29/1988	78	879	46	475	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/28/1988	<0	804	42	454	186	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/5/1988	130	1190	86	1010	381	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	2/10/1989	130	1100	140	880	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	5/10/1989	<0	960	100	1000	350	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	8/3/1989	<0	440	<0	320	200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/24/1989	50	690	62	620	350	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/26/1990	420	30	47	430	180	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/19/1990	<0	560	<0	460	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/10/1990	32	500	49	570	250	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	10/11/1990	31	620	53	670	360	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/22/1991	32	160	<0	69	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	7/24/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	2/9/1992	<0	<0	<0	<0	10	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	5/5/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	7/23/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/29/1992	50	45	<0	15	12	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	1/28/1993	11	11	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/8/1993	100	80	<0	27	26	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	7/20/1993	21	<0	<0	17	12	<0	0.36	0.13	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	11/7/1993	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/25/1994	<0	<0	<0	<0	<0	<0	--	0.28	--	--	--	--	--	--	--	~
MW-8	EI	SZ	4/22/1995	<0	<0	<0	<0	<0	<0	0.49	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	11/10/1995	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	5/4/1996	<0	<0	<0	<0	<0	<0	0.19	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	11/13/1996	<10	<10	<10	<10	<10	--	0.31	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	5/16/1997	<10	<10	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/18/1997	<10	<10	<10	<10	<10	--	0.31	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	4/14/1998	<10	<10	<10	<10	<10	--	0.52	<0	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/26/1998	10	11	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/17/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/30/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-8	EI	SZ	6/7/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-8	EI	SZ	10/11/2000	10	25	<10	7.9 J	5.6 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-8	EI	SZ	4/8/2001	1.5 J	1.3 J	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-8	EI	SZ	10/24/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-8	EI	SZ	4/24/2002	<10	<10	<10	<10	<10	<51	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-8	EI	SZ	10/10/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-8	EI	SZ	4/10/2003	11	5.9 J	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	Exceed
MW-8	EI	SZ	10/6/2003	9.1 J	8.2 J	<9.6	3.4 J	2.9 J	<48	--	--	<19	<19	<9.6	<19	<9.6	1.2 J	--	Exceed
MW-8	EI	SZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-8	EI	SZ	4/19/2004	0.32 J	0.32 J	<9.5	<9.5	0.076 J	3.3 J	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	Exceed
MW-8	EI	SZ	10/15/2004	0.16 J	0.17 J	<9.8	<9.8	<9.8	<39	--	--	--	--	<9.8	<0.98	0.05 J	<0.98	<2	~
MW-8	EI	SZ	4/5/2005	0.47	0.28	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	0.08 J	<1.9	~
MW-8	EI	SZ	10/25/2005	0.64	0.45	<0.24	0.033 J	0.064 J	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-8	EI	SZ	4/19/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-8	EI	SZ	11/1/2006	<0.98	<0.98	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	<4.9	~
MW-8	EI	SZ	4/20/2007	0.12 J	0.11 J	<0.96	<0.96	<0.96	--	--	--	<4.8	<4.8	<0.96	<0.96	<0.96	<0.96	--	~
MW-8	EI	SZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
MW-8	EI	SZ	4/8/2008	<0.058	<0.084	<0.086	<0.067	<0.076	--	--	--	--	--	<0.069	<0.10	<0.054	<0.097	<1.8	~
MW-8	EI	SZ	10/17/2008	3.2	2.8	0.14 J	1.3	1.2	--	--	--	<1.7	<1.7	<0.068	<0.10	<0.053	<0.095	--	Exceed
MW-8	EI	SZ	4/22/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71	<1.71	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-8	EI	SZ	10/28/2009	5.78	5.34	0.174 J	1.48	1.56	--	--	--	<1.76 !	<1.76 !	<0.0692	<0.104	<0.0539	<0.0974	--	Exceed
MW-8	EI	SZ	4/8/2010	118	92.1	3.29	25.4	19.4	--	--	--	<1.76	<1.76	<0.0692	<0.104	<0.0539	0.271 J	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-8	EI	SZ	10/14/2010	702 J	458 J	10.7	106 J	113 J	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	0.797 J	<1.72	Exceed
MW-8	EI	SZ	4/15/2011	364 J	223 J	6.79	35.5 J	54.5 J	--	--	--	--	--	<0.0692	<0.104	0.158 J	0.738 J	<1.76 J	Exceed
MW-8	EI	SZ	10/20/2011	604	616	40.4	173	158	--	--	--	--	--	<1.34	5.02 J	334	<1.89	<34.1 J	Exceed
MW-8	EI	SZ	4/12/2012	110 J	54 J	1.23	9.84	9.03	--	--	--	<1.71	<1.71	<0.0672 J	<0.101	<0.0523	0.192 J	--	Exceed
MW-8	EI	SZ	10/30/2012	171	71.1	1.69	15.9	13.7	--	--	--	--	--	<0.0685	<0.103	<0.0533	0.339 J	<1.74	Exceed
MW-8	EI	SZ	4/12/2013	14.2	3.35	<0.0832	0.351 J	0.311 J	--	--	--	--	--	<0.0672	<0.101	<0.0523	1.67	<1.71	Exceed
MW-8	EI	SZ	10/21/2013	39	7.7	<0.75	1.6 J	1.9 J	--	--	--	--	--	<0.21	<0.16	<0.13	<0.16	<4.9	Exceed
MW-8	EI	SZ	4/8/2014	110	46	<1.2	9.8 J	9.9 J	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	Exceed
MW-8	EI	SZ	10/24/2014	280	92	3.2 J	19	21	--	--	--	--	--	<0.17 L	<0.13	<0.11	0.29 J	<4.0	Exceed
MW-8	EI	SZ	4/15/2015	110	31	1.8 J	8.2	8.7	--	--	--	--	--	<0.16	<0.13	<0.11	1.6 J	<3.9	Exceed
MW-8	EI	SZ	10/13/2015	0.190 J	0.336 J	<0.65	<1.14	<1.13	--	--	--	--	--	<0.181	<0.138 *	<0.117	<0.138	<4.27	~
MW-8	EI	SZ	4/7/2016	58.4	13.9	<0.588 X7	2.59 J X7	2.54 J X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.276 J	<3.86 X7	Exceed
MW-8	EI	SZ	4/17/2017	2.60	0.558 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.13	<0.11	<0.13	<4.01 LX7	Exceed
MW-8	EI	SZ	10/17/2017	9.08	2.54	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	Exceed
MW-8	EI	USZ	4/16/2018	<0.127	<0.0784	<0.599 LX7	<1.05 LX7	<1.04 LX7	--	--	--	--	--	<0.167	<0.127 L	<0.108	<0.127 L	<3.93 LX7	~
MW-8	EI	USZ	10/25/2018	<0.151	<0.093	<0.710 LX7	<1.24 X7	<1.23 X7	--	--	--	--	--	<0.198	<0.151	<0.128	<0.151	<4.66 X7	~
MW-8	EI	USZ	4/12/2019	1.61 L	0.860 L	<0.588 LX7	<1.03 LX7	<1.02LX7	--	--	--	--	--	<0.163 L	<0.125 L	<0.106 L	<0.125 L	<3.86 LX7	Exceed
MW-8	EI	USZ	10/23/2019	<0.135	<0.0833	<0.636 X7	<1.11 LX7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135 L	<4.18 LX7	~
MW-8	EI	USZ	4/17/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-8	EI	USZ	10/20/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-8	EI	USZ	4/22/2021	<0.0614	<0.0403	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.496	<6.33	<0.580	<3.16	<7.49 X7	~
MW-8	EI	USZ	10/6/2021	2.37	1.55	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.533	<3.02	<7.14 X7	Exceed
MW-8	EI	USZ	4/12/2022	<0.0598	<0.0392	<1.17 X7	<0.769 X7	<0.831 X7	--	--	--	--	--	<0.488	<6.23	<0.571	<3.12	<7.38 X7	~
MW-8	EI	USZ	10/12/2022	<0.0602	<0.0395	<1.18 X7	<0.774 X7	<0.837 X7	--	--	--	--	--	<0.492	<6.27	<0.575	<3.14	<7.43 X7	~
MW-8	EI	USZ	4/12/2023	<0.0600	<0.0393	<1.13	<0.737	1.41 J	--	--	--	--	--	<0.468	<5.97	<0.548	<2.99	<7.07	~
MW-8	EI	USZ	10/12/2023	0.219	0.0952	<1.15 U	<0.774 U	<0.837 U	--	--	--	--	--	<4.08 U	<8.16 U	<4.92 U	<1.26 U	<10.4 U*	~
MW-8	EI	USZ	4/4/2024	0.146	<0.0408 U	<1.22 U	1.74 J	<0.886 U	--	--	--	--	--	<4.32 U	<8.64 U*	<5.20 U	<1.33 U	<11.0 U*	~
MW-9	EI	SZ	1/29/1985	4	50	4	37	24	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	2/20/1985	3	44	3	35	23	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/23/1985	3	62	4	41	29	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	12/19/1985	<0	823	37	62	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	3/25/1986	14.7	109	<0	45.1	32.1	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	6/18/1986	<0	54.5	<0	24.3	23.3	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	8/12/1986	25	77	<0	30.1	28.2	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/20/1986	<0	41.2	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	1/29/1987	<0	48.7	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	4/2/1987	<0	53.8	<0	22.5	20.7	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/27/1987	12.2	46	<0	19.4	16.7	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/30/1987	<0	59.4	<0	23.1	20.1	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	1/28/1988	<0	<0	13	<0	15	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/29/1988	<0	20	<0	12	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/28/1988	<0	36	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/5/1988	<0	29	<0	11	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	2/14/1989	<0	11	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	5/10/1989	<0	18	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	7/31/1989	<0	11	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/20/1989	<0	12	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	1/30/1990	<0	6.6	<0	14	9.5	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/12/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/3/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	1/22/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/24/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	2/9/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/6/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/23/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	1/28/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/8/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	7/20/1993	<0	<0	<0	<0	<0	<0	0.5	0.17	--	--	--	--	--	--	--	~
MW-9	EI	SZ	11/5/1993	<0	<0	<0	<0	<0	<0	0.41	0.05	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/14/1994	<0	<0	<0	<0	<0	<0	0.39	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/27/1994	<0	<0	<0	<0	<0	<0	0.68	0.076	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/22/1995	<0	<0	<0	<0	<0	<0	0.63	0.16	--	--	--	--	--	--	--	~
MW-9	EI	SZ	11/14/1995	<0	<0	<0	<0	<0	<0	0.16	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/11/1996	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	11/13/1996	<10	<10	<10	<10	<10	--	0.24	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	5/16/1997	<10	<10	<10	<10	<10	--	0.43	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/18/1997	<10	<10	<10	<10	<10	--	0.38	<0	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/14/1998	<10	<10	<10	<10	<10	--	0.52	0.082	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/28/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/20/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	10/30/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	6/13/2000	3.4 J	3 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-9	EI	SZ	10/12/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-9	EI	SZ	4/6/2001	0.22 J	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-9	EI	SZ	10/26/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-9	EI	SZ	4/22/2002	<10	<10	<10	<10	<10	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-9	EI	SZ	10/10/2002	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-10	NA	SZ	1/29/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	2/20/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	8/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-10	NA	SZ	7/23/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	7/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/5/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	5/8/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	8/3/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/16/1989	<0	<0	<0	26	14	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-10	NA	SZ	1/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/19/1990	70	55	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-10	NA	SZ	7/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/4/1990	5000	1400	1000	11000	7600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-10	NA	SZ	5/2/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	6/15/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-10	NA	SZ	4/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-10	NA	SZ	10/20/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-10	NA	SZ	4/22/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-10	NA	SZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-10	NA	SZ	4/17/2017	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-10	BG	USZ	4/12/2019	<0.260	<0.160	<1.22 LX7	<2.14 LX7	<2.12 X7	--	--	--	--	--	<0.340	<0.260	<0.22	<0.260	<8.02 X7	~
MW-10	BG	USZ	4/20/2021	<0.0579	<0.0380	<11.3 X7	<11.3 X7	<11.3 X7	--	--	--	--	--	<0.532	<6.80	<0.623	<3.40	<8.04 X7	Exceed
MW-10	BG	USZ	4/12/2023	<0.0570	<0.0374	<1.15	<0.756	<0.817	--	--	--	--	--	<0.480	<6.13	<0.562	<3.07	<7.26	~
MW-11	Tech	SZ	1/29/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	2/20/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	8/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/23/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/30/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/11/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	5/8/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/27/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/19/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	1/26/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	7/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	10/4/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-11	Tech	SZ	4/20/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	<4.8	<4.8	<0.96	<0.96	<0.96	<0.96	--	~
MW-11	Tech	SZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
MW-11	Tech	SZ	10/20/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-11	Tech	SZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71 J	<1.71	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-11	Tech	SZ	10/30/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-11	Tech	SZ	4/22/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 L	~
MW-11	Tech	SZ	10/21/2013	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-11	Tech	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-11	Tech	SZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	~
MW-11	Tech	SZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-11	Tech	SZ	10/13/2015	<0.144	<0.0889	<0.679	<1.19	<1.18	--	--	--	--	--	<0.189	<0.144 *	<0.122	<0.144	<4.46	~
MW-11	Tech	SZ	4/7/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-11	Tech	SZ	10/20/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-11	Tech	SZ	4/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-11	Tech	SZ	10/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-11	Tech	USZ	4/17/2018	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-11	Tech	USZ	10/25/2018	<0.140	<0.086	<0.657 LX7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-11	DNT	USZ	4/12/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-11	DNT	USZ	10/23/2019	<0.131	<0.0808	<0.617 X7	<1.08 LX7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131 L	<4.05 LX7	~
MW-11	DNT	USZ	4/17/2020	<0.135	<0.0833	<0.636 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18 LX7	~
MW-11	DNT	USZ	10/20/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-11	DNT	USZ	4/20/2021	<0.0606	<0.0397	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.508	<6.49	<0.595	<3.24	<7.68 X7	~
MW-11	DNT	USZ	10/6/2021	<0.0594	<0.039	<1.08 X7	<0.709 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.75	<0.527	<2.87	<6.8 X7	~
MW-11	DNT	USZ	4/13/2022	<0.0598	<0.0392	<1.20 X7	<0.787 X7	<0.851 X7	--	--	--	--	--	<0.500	<6.38	<0.585	<3.19	<7.55 X7	~
MW-11	DNT	USZ	10/12/2022	<0.0583	<0.0382	<1.08 X7	<0.709 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.527	<2.87	<6.80 X7	~
MW-11	DNT	USZ	4/12/2023	<0.0570	<0.0374	<1.19	<0.778	<0.841	--	--	--	--	--	<0.494	<6.31	<0.578	<3.15	<7.47	~
MW-11	DNT	USZ	10/12/2023	<0.0561 U	<0.0368 U	<1.13 U	<0.762 U	<0.824 U	--	--	--	--	--	<4.02 U	<8.03 U	<4.84 U	<1.24 U	<10.2 U*	~
MW-11	DNT	USZ	4/5/2024	1.93	0.864	<1.19 U	<0.799 U	<0.864 U	--	--	--	--	--	<4.21 U	<8.42 U	<5.07 U	<1.30 U	<10.7 U*	Exceed
MW-12	ASI	IZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	7/23/1985	4	2	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12	ASI	IZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	3/25/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	6/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	4/2/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	7/27/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12	ASI	IZ	10/30/1987	<0	<0	<0	46	25.5	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12	ASI	IZ	1/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-12	ASI	IZ	4/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12B	ASI	IZ	9/13/1988	373	272	148	1020	579	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/11/1988	148	660	419	5160	2910	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	2/16/1989	1100	630	750	6900	5200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	5/12/1989	1400	<0	<0	6500	5600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	8/9/1989	1200	570	250	2400	1800	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/25/1989	830	330	360	4400	3100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	1/23/1990	210	500	320	2900	2200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	4/18/1990	760	300	<0	4200	3700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	7/25/1990	380	110	290	2600	2000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/8/1990	750	210	380	3100	2400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-12B	ASI	IZ	5/10/1991	310	89	160	1400	1200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-12B	ASI	IZ	10/1/1991	78	28	44	300	220	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/18/1985	55	310	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/23/1985	888	2320	188	2480	1340	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	12/18/1985	417	328	<0	982	717	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	3/25/1986	805	2300	154	2440	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	6/20/1986	1180	2040	166	1620	143	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	8/22/1986	1338	3333	237	2230	835	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/22/1986	2720	5050	294	2690	1780	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/29/1987	11600	19900	419	4710	2410	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/1/1987	11400	16800	358	4250	1430	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/27/1987	15100	25000	586	6900	4560	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/30/1987	11600	19900	419	4710	2410	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/28/1988	6370	19000	4040	335	179	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/27/1988	12700	27800	593	6120	2890	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/29/1988	<0	31900	589	5430	1230	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/11/1988	20200	33000	418	6640	3770	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	2/16/1989	15000	22000	650	6300	3800	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/12/1989	19000	26000	<0	5200	3500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	8/7/1989	20000	27000	400	5100	2500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/25/1989	17000	21000	500	4500	3400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/23/1990	26000	22000	<0	4900	2900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/18/1990	44000	52000	1200	11000	7600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	7/9/1990	25000	32000	630	7100	4600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/8/1990	31000	38000	620	7300	5600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	5/7/1991	6100	16000	320	2900	750	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/2/1991	850	920	38	250	130	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/1/1992	480	710	19	200	110	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/26/1992	42	23	<0	11	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/9/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	11/4/1993	35	16	<0	<0	<0	<0	0.89	4	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/13/1994	24	16	<0	<0	<0	<0	0.33	0.83	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/26/1994	<0	<0	<0	<0	<0	<0	0.45	2	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	4/19/1995	<0	54	<0	<0	<0	<0	0.26	1.2	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	11/5/1995	37	32	<0	<0	<0	<0	0.24	2.1	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/1/1996	13	12	<0	<0	<0	<0	0.19	1.4	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	11/10/1996	15	41	<10	23	<10	--	0.38	2.9	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/4/1997	88	65	<10	18	11	--	0.43	1.1	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	11/14/1997	22	18	<10	<10	<10	--	0.53	6.7	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	5/14/1998	14	19	<10	12	<10	--	0.73	3.5	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/21/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	4/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	10/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-13	EI	LSZ	6/8/2000	23	39	<10	7.3 J	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	10/10/2000	4.4 J	6.1 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-13	EI	LSZ	4/5/2001	13	17	0.58 J	8.4 J	6 J	<50	--	--	<20	140	<10	11 J	<10	12 J	--	Exceed
MW-13	EI	LSZ	10/18/2001	11	23	22	3.9 J	4.3 J	<50	--	--	<20	68	<10	8.3 J	<10	9.2 J	--	Exceed
MW-13	EI	LSZ	4/24/2002	4 J	11	<10	4 J	1.3 J	<50	--	--	<20	6 J	<10	<20	<10	0.67 J	--	Exceed
MW-13	EI	LSZ	10/7/2002	4.7 J	5.4 J	<10	1.9 J	2.2 J	<52	--	--	33	380 D	<10	<21	<10	4.4 J	--	Exceed
MW-14	EI	LSZ	5/18/1985	79000	65000	1100	18000	31000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	7/23/1985	48870	39970	1970	18800	14930	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	12/18/1985	71300	65500	1890	21200	17700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	3/25/1986	120000	112000	4150	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	6/20/1986	1020	21400	4670	25400	15000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	8/22/1986	81400	63800	3820	32000	25600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/20/1986	71800	62500	1680	16100	14500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/29/1987	220000	152000	4000	39800	31400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/2/1987	162000	112000	4090	42500	37500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	7/27/1987	164000	114000	6420	56600	53300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/30/1987	147000	130000	43080	38000	38400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/28/1988	113000	76500	14800	1810	16700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/29/1988	55300	63300	1210	13800	11500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	8/1/1988	16800	94600	13600	27200	19300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/3/1988	160000	139000	1690	28600	20400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	2/16/1989	96000	94000	3800	34000	32000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	5/12/1989	92000	76000	<0	36000	39000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	8/7/1989	92000	80000	2400	25000	20000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/25/1989	80000	70000	3000	27000	2500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/29/1990	<0	85000	3100	29000	27000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/18/1990	60000	54000	2900	24000	20000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	7/9/1990	110000	93000	3500	35000	30000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/8/1990	120000	100000	3900	30000	28000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-14	EI	LSZ	5/8/1991	91000	82000	2900	29000	28000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-14	EI	LSZ	10/2/1991	102000	92000	2400	26000	20000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	5/1/1992	83000	82000	2600	26000	22000	15	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				1.3	1.3	240	4.1	57				0.29	730	730	30	49	---		
MW-14	EI	LSZ	10/23/1992	110000	100000	<0	35000	25000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/9/1993	98000	110000	3600	30000	26000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/3/1993	62000	59000	1900	17000	16000	<0	0.83	10	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/13/1994	63000	38000	1300	13000	6700	<0	0.44	3.3	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/10/1994	24000	11000	350	3000	1100	<0	0.49	2.2	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/19/1995	10000	8900	190	1000	580	<0	0.49	1.9	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/16/1995	5400	3900	190	1900	1100	<0	<0	6.4	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/30/1996	830	1200	<0	690	<0	<0	0.28	1.6	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/11/1996	3200 D	3300 D	<100	580	350	--	0.38	2.8	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/30/1997	880	940 D	<100	440	140	--	0.32	1.8	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	11/14/1997	740	430	<100	150	100	--	0.44	4.2	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	5/14/1998	1400 D	970 D	44	370 D	220 D	--	0.5	0.9	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/21/1998	670 D	350 D	38	240 D	190 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/16/1999	990 D	510 D	84	720 D	96	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/16/1999	3800 E D	3100 D	<200 D	1600 D	910 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	6/7/2000	1200 D	1700 D	56	620 D	440 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	10/10/2000	4100 D	4400 D	250	2300 D	1400	--	--	--	--	--	--	--	--	--	--	Exceed
MW-14	EI	LSZ	4/5/2001	47000 D	49000 D	1300	17000 D	12000 D	<2500	--	--	<1000	<1000	<500	<1000	<500	<1000	--	Exceed
MW-14	EI	LSZ	10/18/2001	16000 D	15000 D	700	5200	4400	<1000	--	--	<1000	<1000	<200	<1000	<200	50 J	--	Exceed
MW-14	EI	LSZ	4/25/2002	23000 D	22000 D	990	11000 D	8000 D	<510	--	--	<200	<200	<100	81 J	<100	180 J	--	Exceed
MW-14	EI	LSZ	10/8/2002	21000 D	18000 D	680	6700 D	5000 D	<250	--	--	<100	<100	<50	71 J	8.3 J	510	--	Exceed
MW-15	ASI	SZ	5/18/1985	54000	40000	9000	50000	49000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/23/1985	6580	2170	887	12930	639	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	12/18/1985	<0	1760	2050	9550	9040	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	3/25/1986	5770	2340	1540	15600	11600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	6/19/1986	<0	1840	1340	4420	5710	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	8/12/1986	4780	1830	9400	7440	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/21/1986	6380	1910	834	6770	3280	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/28/1987	5020	1750	789	7700	5640	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	3/31/1987	5540	1720	802	7550	5950	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/24/1987	3630	1390	1250	12800	5060	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/28/1987	5110	1870	906	9120	6530	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/27/1988	3610	1380	8000	979	7750	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/28/1988	36200	1230	982	9730	6240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/27/1988	2510	1700	848	8690	3430	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/3/1988	6140	1680	770	8800	5440	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	2/14/1989	1900	4800	1100	11000	8400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/5/1989	2900	1100	750	6900	4200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	8/9/1989	580	310	140	1900	1200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/20/1989	1400	900	600	6400	4200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/26/1990	630	800	530	4900	3000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/25/1990	880	960	550	6800	4100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	7/24/1990	2100	2100	1600	15000	11000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/5/1990	1500	1700	1200	14000	9200	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-15	ASI	SZ	5/8/1991	2300	2200	1100	12000	9900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-15	ASI	SZ	10/3/1991	1700	1100	860	12000	8000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/3/1992	3000	1700	930	1000	8300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/29/1992	4700	2800	1200	14000	9700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/8/1993	4700	2200	1200	11000	9400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	11/9/1993	5500	2500	1200	10000	8800	<0	0.62	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/14/1994	4400	2500	980	10000	7900	<0	0.6	0.069	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/10/1994	2100	2800	610	16000	7900	<0	0.65	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/26/1995	8200	4000	1700	15000	12000	<0	0.63	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	11/12/1995	7700	3700	1400	13000	10000	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/11/1996	11000	3500	2200	28000	18000	<0	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	11/15/1996	8900 D	3600	1400	14000 D	11000 D	--	0.58	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/19/1997	7000 D	4300	1800	12000 D	7800 D	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/26/1997	8300 D	4800	1600	19000 D	15000 D	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	5/13/1998	--	--	--	--	--	--	0.58	<0	--	--	--	--	--	--	--	~
MW-15	ASI	SZ	5/28/1998	9300 D	3900	1500	19000 D	9200 D	--	0.69	<0	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/23/1998	8900 D	3200 D	1600	20000 D	13000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/20/1999	10000 D	4700	2100	22000 D	16000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/30/1999	6700	2200	<2000	15000	12000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	6/12/2000	6400	3100	1300	10000	7900	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	10/12/2000	6000	1800	900 J	9900	7200	--	--	--	--	--	--	--	--	--	--	Exceed
MW-15	ASI	SZ	4/6/2001	5300 D	1500 J D	690 J D	11000 D	6500 D	<10000	--	--	<20	<20	<10	<20	2.7 J	5.6 J	--	Exceed
MW-15	ASI	SZ	10/25/2001	6100 D	1700 D	970 J D	12000 D	8000 D	<50	--	--	<20	<20	<10	<20	2.4 J	<20	--	Exceed
MW-15	ASI	SZ	4/24/2002	3000 D	1300 D	800 D	10000 D	7000 D	<51	--	--	<20	<20	<10	<20	<10	3.1 J	--	Exceed
MW-15	ASI	SZ	10/10/2002	3800 D	1300 D	780 D	7200 D	4700 D	<50	--	--	<20	<20	<10	<20	<10	5.3 J	--	Exceed
MW-15	ASI	SZ	4/11/2003	430 D	140 D	96	920 D	690 D	<48	--	--	<19	<19	<9	14 J	<9	42	--	Exceed
MW-15	ASI	SZ	10/6/2003	590 D	260 D	120	1200 D	2.5 J	<48	--	--	<19	<19	<9.6	<19	<9.6	0.51 J	--	Exceed
MW-15	ASI	SZ	4/19/2004	350	180	68	510	110	<52	--	--	<21	<21	<10	<21	<10	<21	--	Exceed
MW-15	ASI	SZ	10/22/2004	1600	670	320	4300	2400	<48	--	--	<19	<19	<9.6	<19	<9.6	<19	--	Exceed
MW-15	ASI	SZ	4/18/2005	120	410	27 J	<48	150	--	--	--	<96	<96	<48	<48	<48	30 J	--	Exceed
MW-15	ASI	SZ	10/19/2005	1500	540	240	2000	1400	--	--	--	<380	<380	<190	<190	<190	<190	--	Exceed
MW-15	ASI	SZ	4/19/2006	1500	940	400	2900	2100	--	--	--	<200	<200	<100	21 J	<100	55 J	--	Exceed
MW-15	ASI	SZ	11/3/2006	2900	840	420 J	5000	3500	--	--	--	<20	<20	<9.9	18	<9.9	7.1 J	--	Exceed
MW-15	ASI	SZ	4/18/2007	1600	740	460	3300	1800	--	--	--	<98	<98	<49	6.8 J	<49	<49	--	Exceed
MW-15	ASI	SZ	10/3/2007	2400	790	440	4800	3300	--	--	--	<73	<53	<13	<6.4	<11	<43	--	Exceed
MW-15	ASI	SZ	4/17/2008	1700	760	470	3800	2100	--	--	--	79 J	<16	<9.7	68 J	<11	69 J	--	Exceed
MW-15	ASI	SZ	10/20/2008	4400	1400	990	9600	2300	--	--	--	<17	<16	<9.8	56 J	<11	56 J	--	Exceed
MW-15	ASI	SZ	4/16/2009	2680	918	552	5800	<1.49	--	--	--	<1.68	<1.60	<0.994	11.5	<1.12	17.4	--	Exceed
MW-15	ASI	SZ	10/23/2009	9360 J	2740 J	1350 J	15400 J	11200 J	--	--	--	<1.62 J	<1.54 J	<0.956 J	38.4 J	1.53 J	10.1 J	--	Exceed
MW-15	ASI	SZ	4/15/2010	6870	1870	829	7970	5750	--	--	--	<1.62	<1.54	<0.956	56.7	<1.08	13.6	--	Exceed
MW-15	ASI	SZ	10/26/2010	3340	753	339	3540	2760	--	--	--	<42.0 J	<39.9 J	<24.8	<40.0	<28.0	<21.9	--	Exceed
MW-15	ASI	SZ	4/27/2011	7930	2420	1150	8400	5200	--	--	--	--	--	<1.10	56.5	<1.44	10.9	<3.11 J	Exceed
MW-15	ASI	SZ	4/26/2012	2440	913	490	6030	1450	--	--	--	<6.34	<5.81	<1.10	126	<1.44	19.6	--	Exceed
MW-15	ASI	SZ	4/17/2014	5500	1600 E	1500	13000	7200 E	--	--	--	--	--	<1.1	24	<1.1	8.8 J	<4.0	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-15	ASI	SZ	4/15/2016	672	340	167 X7	1600 X7	1160 X7	--	--	--	--	--	<1.11	2.01 J	<1.13	1.53 J	<4.00 X7	Exceed
MW-15	ASI	SZ	4/24/2018	4,760	2,090	522 X7	6,430 X7	<54.6 X7	--	--	--	--	--	<59.3	<67.5	<60.8	<35.6	<214 X7	Exceed
MW-15	ASI	SZ	4/28/2020	7410	3040	1440 X7	12800 X7	10500 X7	--	--	--	--	--	<1.17	1150 J	<1.20	46.5	<424 X7	Exceed
MW-15	ASI	SZ	4/28/2022	3960	2410	1550 X7	14800 X7	8720 X7	--	--	--	--	--	<0.908	159	<1.06	12.9 J	92.5 X7	Exceed
MW-15	***ASI***	***SZ***	***4/5/2024***	**3400**	**1430**	**11.1 J**	**84.8 b**	**74.9**	--	--	--	--	--	**<4.83 U**	**294**	**<5.82 U**	***4.60 J***	***181 ****	Exceed
MW-15-ReSamp-ReRu	**ASI**	**SZ**	**5/1/2024**	**3880**	**1560**	**603**	**4940**	**3690**	--	--	--	--	--	**<4.49 U**	**1180**	**<5.41 U**	**20.9**	**220 ***	Exceed
MW-16	EI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	8/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/23/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/3/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	2/13/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	5/10/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	8/7/1989	160	150	<0	52	38	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/19/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/29/1990	<0	<0	<0	11	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/24/1990	<0	10	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	7/25/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/4/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	5/3/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/29/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	7/21/1993	<0	<0	<0	<0	<0	<0	0.43	0.12	--	--	--	--	--	--	--	~
MW-16	EI	SZ	11/7/1993	<0	<0	<0	<0	<0	<0	0.48	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.44	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	10/25/1994	<0	<0	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	~
MW-16	EI	SZ	4/26/1995	<0	18	<0	<0	<0	<0	0.54	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	11/12/1995	<0	48	<0	<0	<0	<0	0.16	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	5/11/1996	<0	150	<0	<0	<0	<0	0.37	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	11/13/1996	<10	310 D	<10	<10	<10	--	0.47	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	5/4/1997	13	350 D	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/18/1997	<10	720 D	<10	<10	<10	--	0.45	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/14/1998	<10	610 D	<10	<10	<10	--	0.59	<0	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/26/1998	<10	600 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/17/1999	31	800 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/30/1999	92	1700 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	6/8/2000	<50	3900 D	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	10/11/2000	<100	3900 D	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-16	EI	SZ	4/8/2001	6.3 J	5400 D	<100	6.3 J	6.9 J	<500	--	--	<200	<200	<100	<200	<100	78 J	--	Exceed
MW-16	EI	SZ	10/24/2001	<50	280	<50	<50	<50	<250	--	--	<100	<100	<50	<100	<50	<100	--	Exceed
MW-16	EI	SZ	4/22/2002	<110	4700 D	9 J	16 J	20 J	<530	--	--	<210	<210	<110	<210	<110	130 J	--	Exceed
MW-16	EI	SZ	10/10/2002	<9	7200 D	6.7 J	15	16	<48	--	--	<19	<19	<9	<19	3.4 J	250 D	--	Exceed
MW-17	EI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	6/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	8/12/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/24/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/6/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	2/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/5/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/26/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/25/1990	<0	<0	<0	15	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-17	EI	SZ	10/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/1/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/3/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/29/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	7/21/1993	<0	<0	<0	<0	<0	<0	0.57	0.14	--	--	--	--	--	--	--	~
MW-17	EI	SZ	11/7/1993	<0	<0	<0	<0	<0	<0	0.41	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/15/1994	<0	<0	<0	<0	<0	<0	0.33	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/25/1994	<0	<0	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/26/1995	<0	<0	<0	<0	<0	<0	0.45	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	11/10/1995	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-17	EI	SZ	5/11/1996	<0	<0	<0	<0	<0	<0	0.28	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	11/15/1996	<10	<10	<10	<10	<10	--	0.24	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	5/19/1997	<10	<10	<10	<10	<10	--	0.49	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/18/1997	<10	<10	<10	<10	<10	--	0.45	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/14/1998	<10	<10	<10	<10	<10	--	0.59	<0	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/26/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/17/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/30/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	6/8/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	10/11/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-17	EI	SZ	4/8/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-17	EI	SZ	10/24/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-17	EI	SZ	4/22/2002	<10	<10	<10	<10	<10	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-17	EI	SZ	10/10/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-17	EI	SZ	12/19/2003	<1.1	<1.1	<11	<11	<11	<44	--	--	--	--	<11	<1.1	<11	<1.1	<2.2	~
MW-18	ASI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	3/24/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	6/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/24/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/6/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	2/14/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	5/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	1/31/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	7/24/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	10/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-18	ASI	SZ	4/11/2003	2 J	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	Exceed
MW-19	EI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	12/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	3/26/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	6/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	3/31/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/24/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	1/26/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/6/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	2/14/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	5/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/18/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	1/31/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	4/19/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	7/10/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	10/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-19	EI	SZ	9/26/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	5/18/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	7/23/1985	4	24	4	53	25	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	12/19/1985	<0	14.7	<0	29	14	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	3/25/1986	<0	17.7	<0	41.8	20.9	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	6/18/1986	<0	11	<0	27.4	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	8/12/1986	<0	17.7	<0	31.8	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/21/1986	<0	8.53	<0	20.8	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	4/2/1987	74.4	134	18.4	<0	11.1	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	7/23/1987	<0	9.17	<0	17.6	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	1/26/1988	<0	28	44	<0	17	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/28/1988	<0	58	<0	39	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	7/27/1988	<0	37.4	<0	40.8	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/3/1988	<0	20	<0	45	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	2/10/1989	<0	74	<0	80	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/8/1989	83	<0	10	95	59	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	8/10/1989	11	66	<0	55	43	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/20/1989	22	100	<0	71	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	1/26/1990	110	37	9.4	74	62	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/24/1990	56	160	<0	50	13	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	7/11/1990	43	90	<0	46	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/3/1990	80	87	<0	50	49	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	5/1/1991	110	100	<0	55	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-20	ASI	SZ	10/4/1991	100	62	<0	99	90	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/6/1992	150	86	<0	70	55	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/29/1992	250	120	11	120	110	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/8/1993	210	93	<0	89	80	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	11/9/1993	200	110	13	100	92	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/17/1994	160	150	13	110	97	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/11/1994	<0	<0	<0	<0	<0	<0	0.58	<0	--	--	--	--	--	--	--	~
MW-20	ASI	SZ	4/22/1995	150	120	14	98	100	<0	0.68	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	11/14/1995	140	150	18	160	120	<0	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/4/1996	170	210	<0	170	140	<0	0.59	0.077	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	11/20/1996	110 D	130 D	17	170 D	170 D	--	0.41	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	5/9/1997	54	68	11	83	72	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/26/1997	110	140	15	120	120	--	0.66	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/14/1998	95	140	14	150	130	--	0.82	<0	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/26/1998	110	130	11	120	100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/20/1999	99	120	12	110	100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/23/1999	73	100	12	120	110	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	6/6/2000	86	160	19 J	130	120	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	10/12/2000	100	160	19	150	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-20	ASI	SZ	4/28/2001	280 D	78	140 J D	1800 D	1300 D	<50	--	--	620 D	630 D	<10	2500 D	<10	360 J D	--	Exceed
MW-20	ASI	SZ	10/25/2001	89	120	17	120	120	<50	--	--	<20	<20	<10	<20	<10	15 J	--	Exceed
MW-20	ASI	SZ	4/24/2002	65	120	15	110	110	<50	--	--	<20	<20	<10	<20	<10	20	--	Exceed
MW-20	ASI	SZ	10/10/2002	50	70	8.9 J	63	66	<48	--	--	<19	<19	<9	<19	<9	13 J	--	Exceed
MW-20	ASI	SZ	4/11/2003	96	130	13	94	130	<52	--	--	<21	<21	<10	<21	<10	11 J	--	Exceed
MW-20	ASI	SZ	10/6/2003	51	74	8.1 J	54	50	<48	--	--	<19	<19	<9.7	<19	<9.7	4.8 J	--	Exceed
MW-20	ASI	SZ	4/19/2004	8.8 J	13	1.1 J	8.9 J	10	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	Exceed
MW-20	ASI	SZ	10/12/2004	84	110	9.6 J	73	81	<48	--	--	<19	<19	<9.7	<19	<9.7	33	--	Exceed
MW-20	ASI	SZ	4/18/2005	47	26	2.7 J	20	24	--	--	--	<19	<19	<9.6	1.4 J	<9.6	14	--	Exceed
MW-20	ASI	SZ	10/19/2005	56	70	7.2 J	50	55	--	--	--	<20	<20	<10	<10	<10	39	--	Exceed
MW-20	ASI	SZ	4/19/2006	68	87	6.2 J	48	55	--	--	--	<20	<20	<9.9	<9.9	<9.9	46	--	Exceed
MW-20	ASI	SZ	11/3/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	8.7 J	<9.6	<9.6	<9.6	<9.6	--	~
MW-20	ASI	SZ	4/18/2007	23	23	2.3 J	19	24	--	--	--	7.3 J	22	<9.7	0.83 J	<9.7	20	--	Exceed
MW-20	ASI	SZ	10/3/2007	55	55	5.8 J	46	54	--	--	--	8.5 J	8.2 J	<1.3	3.1 J	<1.0	44	--	Exceed
MW-20	ASI	SZ	4/15/2008	46	46	4.9 J	40	47	--	--	--	10 J	8.2 J	<0.99	<1.6	<1.1	46	--	Exceed
MW-20	ASI	SZ	10/20/2008	<2.8	<1.0	<1.0	2.2 J	2.3 J	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	~
MW-20	ASI	SZ	4/16/2009	43.8	39.9	3.95 J	32.8	39	--	--	--	10.6 J	6.24 J	<0.975	<1.57	<1.10	29.2	--	Exceed
MW-20	ASI	SZ	10/19/2009	58.2	47.4	4.14 J	30.7	37.6	--	--	--	7.31 J	<1.54	<0.956	<1.54	<1.08	42.9	--	Exceed
MW-20	ASI	SZ	4/21/2010	67.2	50.7	4.25 J	32.7	38.8	--	--	--	<1.65	<1.57	<0.975	<1.57	<1.10	46.8	--	Exceed
MW-20	ASI	SZ	10/26/2010	38	26.5	1.89 J	17	22.7	--	--	--	<1.67 J	8.48 J	<0.984	<1.59	<1.11	20.2	--	Exceed
MW-20	ASI	SZ	4/27/2011	45.7	39.7	8.11 J	16.3	23.6	--	--	--	--	--	<1.10	<4.80	<1.44	34.3	3.33 J	Exceed
MW-20	ASI	SZ	4/26/2012	51.1	40.6	3.32 J	27.1	33.6	--	--	--	<6.46 J	<5.92	<1.12	<4.90	<1.47	41.7	--	Exceed
MW-20	ASI	SZ	4/14/2014	47	39	3 J	16	24	--	--	--	--	--	<1.2	<1.3	<1.2	15	<4.2	Exceed
MW-20	ASI	SZ	4/15/2016	60.4	41.6	3.78 J X7	21.5 X7	27.7 X7	--	--	--	--	--	<1.11	<1.26	<1.13	33.6	<4.00 X7	Exceed
MW-20	ASI	USZ	4/24/2018	38.5	29.8	2.76 J X7	<1.11 X7	12.9 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	Exceed
MW-20	ASI	USZ	4/28/2020	48.2	31.3	2.64 J X7	<1.08 X7	21.1 X7	--	--	--	--	--	<1.16	<1.32	<1.19	61.5	<4.20 X7	Exceed
MW-20	ASI	USZ	4/28/2022	40.0	38.5	2.91 J X7	17.7 X7	23.7 X7	--	--	--	--	--	<0.483	<6.16	<0.565	40.4	<7.29 X7	Exceed
MW-20	ASI	USZ	4/5/2024	46.8	35.2	<1.20 U	13.8 b	18.7	--	--	--	--	--	4.26 U	<8.52 U	<5.14 U	36.8	<10.8 U*	Exceed
MW-21	EI	DZ	6/12/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	12/19/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	3/25/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	6/20/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/29/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/1/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/27/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/30/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/29/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/11/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	2/16/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/12/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	8/7/1989	<0	<0	<0	32	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-21	EI	DZ	10/25/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/23/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/18/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/9/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/8/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/7/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	1/31/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/7/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/26/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-21	EI	DZ	7/21/1993	<0	<0	<0	<0	<0	<0	0.5	0.27	--	--	--	--	--	--	--	~
MW-21	EI	DZ	11/4/1993	<0	<0	<0	<0	<0	<0	0.41	0.27	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/13/1994	<0	<0	<0	<0	<0	<0	0.55	0.31	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/10/1994	<0	<0	<0	<0	<0	<0	0.63	2.4	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/19/1995	<0	<0	<0	<0	<0	<0	0.73	0.24	--	--	--	--	--	--	--	~
MW-21	EI	DZ	11/5/1995	<0	<0	<0	<0	<0	<0	0.41	0.75	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/1/1996	<0	<0	<0	<0	<0	<0	0.59	0.51	--	--	--	--	--	--	--	~
MW-21	EI	DZ	11/10/1996	<10	<10	<10	<10	<10	--	0.58	0.4	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/23/1997	<10	<10	<10	<10	<10	--	0.49	0.37	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/12/1997	<10	<10	<10	<10	<10	--	0.52	0.28	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/22/1998	<10	<10	<10	<10	<10	--	0.59	0.27	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/20/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/14/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-21	EI	DZ	10/7/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	5/16/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	10/10/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-21	EI	DZ	4/5/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-21	EI	DZ	10/18/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-21	EI	DZ	4/24/2002	<10	<10	<10	<10	<10	<51	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-21	EI	DZ	10/7/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-21	EI	DZ	4/2/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-21	EI	DZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-21	EI	DZ	4/26/2004	0.11 J	0.092 J	<9.5	<9.5	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-21	EI	DZ	10/26/2004	<0.96	<0.96	<9.6	<9.6	<9.6	<38	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-21	EI	DZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.49	<0.24	<0.24	<2	~
MW-21	EI	DZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-21	EI	DZ	4/20/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-21	EI	DZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-21	EI	DZ	4/23/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	<4.8	<4.8	<0.96	<0.96	<0.96	<0.96	--	~
MW-21	EI	DZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	<1.7	<1.7	<0.067	<0.10	<0.052	<0.094	--	~
MW-21	EI	DZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-21	EI	DZ	10/17/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	<1.8	<1.8	<0.070	<0.11	<0.054	<0.098	--	~
MW-21	EI	DZ	4/22/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	<1.74	<1.74	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-21	EI	DZ	10/27/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71 !	<1.71 !	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-21	EI	DZ	4/6/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	<1.71	<1.71	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-21	EI	DZ	10/12/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	<1.74	~
MW-21	EI	DZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-21	EI	DZ	10/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-21	EI	DZ	4/12/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	<1.71	<1.71	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-21	EI	DZ	10/25/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-21	EI	DZ	4/15/2013	<0.0598	<0.0865	<0.0883	<0.0693	<0.0783	--	--	--	--	--	<0.0713	<0.108	<0.0555	<0.100	<1.81	~
MW-21	EI	DZ	10/15/2013	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-21	EI	DZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-21	EI	DZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-21	EI	DZ	4/15/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-21	EI	DZ	10/8/2015	<0.130	<0.08	<0.611	<1.07	<1.06	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01	~
MW-21	EI	DZ	4/5/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-21	EI	DZ	10/26/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-21	EI	DZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-21	EI	DZ	10/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-21	EI	DZ	4/11/2018	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-21	EI	DZ	10/11/2018	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 X7	~
MW-21	EI	DZ	4/15/2019	<0.137	<0.0842	<0.643 LX7	<1.13 LX7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 X7	~
MW-21	EI	DZ	10/16/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 R	~
MW-21	EI	DZ	4/15/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-21	EI	DZ	10/14/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-21	EI	DZ	4/21/2021	<0.0568	<0.0373	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.493	<6.29	<0.577	<3.15	<7.45 X7	~
MW-21	EI	DZ	10/6/2021	<0.0579	<0.0380	<1.08 X7	<0.71 X7	<0.767 X7	--	--	--	--	--	<0.451	<5.75	<0.528	<2.88	<6.81 X7	~
MW-21	EI	DZ	4/13/2021	<0.0610	<0.0400	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.85 X7	~
MW-11	DNT	USZ	4/5/2024	1.93	0.864	<1.19 U	<0.799 U	<0.864 U	--	--	--	<4.21 U	<8.42 U	<5.07 U	<1.30 U	<10.7 U*	Exceed		
MW-21	EI	DZ	10/12/2022	<0.0614	<0.0403	<1.08 X7	<0.709 X7	<0.766 X7	--	--	--	<0.450	<5.75	<0.527	<2.87	<6.80 X7	~		
MW-21	EI	DZ	4/12/2023	<0.0570	<0.0374	<1.23	<0.802	<0.867	--	--	--	<0.510	<6.50	<0.596	<3.25	<7.70	~		
MW-21	EI	DZ	10/12/2023	<0.0563 U	<0.0369 U	<1.30 U	<0.874 U	<0.945 U	--	--	--	<4.61 U	<9.22 U	<5.55 U	<1.142 U	<11.7 U*	~		
MW-21	EI	DZ	4/8/2024	<0.0588 U	<0.0386 U	<1.05 U	<0.703 U	<0.760 U	--	--	--	<3.71 U	<7.41 U	<4.47 U	<1.14 U	<9.41 U*	~		
MW-22	ASI	SZ	6/12/1985	2	<0	16	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	7/23/1985	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	12/18/1985	6.6	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	3/25/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	6/19/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	8/22/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/21/1986	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	1/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	4/2/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	7/24/1987	41	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	10/28/1987	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	1/27/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	4/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	7/28/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/5/1988	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	2/14/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	5/12/1989	<0	<0	<0	14	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	8/9/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/20/1989	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	1/26/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	4/25/1990	410	430	300	3400	2100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	7/11/1990	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/5/1990	<0	<0	<0	17	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-22	ASI	SZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	5/8/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-22	ASI	SZ	10/3/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-23	ASI	IZ	9/13/1988	620	287	323	4070	1140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	10/5/1988	5700	1860	1390	16400	9660	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	2/16/1989	6000	2300	2700	27000	22000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	5/12/1989	<0	<0	1200	15000	11000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	8/10/1989	8500	2300	2000	23000	18000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	10/25/1989	1500	370	520	5200	3900	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	1/23/1990	390	2000	650	6200	4600	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	4/18/1990	2900	590	1100	10000	7700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	7/25/1990	600	81	210	2300	1700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	10/8/1990	510	84	210	1800	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-23	ASI	IZ	1/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-23	ASI	IZ	5/10/1991	340	53	140	1300	1300	<0	<0	<0	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-23	ASI	IZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-23	ASI	IZ	10/1/1991	940	210	400	5600	4400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/21/1988	20100	5490	1880	1520	6300	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	2/13/1989	1700	460	260	2600	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/5/1989	1000	240	140	1400	750	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	8/3/1989	<0	40	21	55	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/16/1989	178	47	32	250	140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	1/22/1990	150	120	170	1900	880	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/23/1990	260	320	250	2700	1400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/1/1990	450	370	220	2100	1400	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	1/23/1991	1900	530	390	3100	2700	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/10/1991	290	150	120	600	240	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	7/12/1991	460	150	110	1000	840	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/1/1991	560	180	250	2100	1500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	2/1/1992	680	150	68	720	510	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/28/1992	81	31	20	210	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	7/22/1992	200	60	32	330	190	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/19/1992	52	20	13	130	69	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	1/26/1993	64	23	13	110	71	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/6/1993	44	22	13	93	60	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	7/22/1993	<0	<0	<0	21	10	<0	0.5	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	11/2/1993	17	<0	<0	34	24	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/12/1994	20	<0	<0	51	41	<0	0.55	0.075	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/24/1994	<0	<0	<0	15	<0	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/11/1995	<0	<0	<0	24	13	<0	0.63	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	11/16/1995	100	28	64	970	77	<0	0.25	0.13	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/31/1996	<0	<0	<0	10	<0	<0	0.65	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	11/4/1996	<10	<10	<10	18	10	--	0.61	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/1/1997	<10	<10	<10	25	14	--	0.6	<0	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/17/1997	<10	<10	<10	16	11	--	0.59	0.078	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/14/1998	10	<10	<10	15	<10	--	0.73	0.063	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-24	ASI	SZ	4/15/1999	11	21	13	180 D	36	--	--	--	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	10/15/1999	<10	<10	<10	96	48	--	--	--	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	5/17/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-24	ASI	SZ	10/5/2000	4.5 J	6.7 J	6.2 J	83	42	--	--	--	--	--	--	--	--	--	--	Exceed
MW-24	ASI	SZ	4/2/2001	3 J	6.9 J	<10	66	26	<50	--	--	<20	<20	<10	130	<10	<20	--	Exceed
MW-24	ASI	SZ	10/17/2001	9.6 J	19	18	280 D	100	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-24	ASI	SZ	4/29/2002	6.3 J	20	4.7 J	54	16	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-24	ASI	SZ	10/9/2002	6.4 J	8.9 J	9.1 J	93	46	<49	--	--	83	67	<9	21	<9	<20	--	Exceed
MW-24	ASI	SZ	4/8/2003	6.7 J	10	7.8 J	100	36	<48	--	--	<19	<19	<9	3.7 J	<9	<19	--	Exceed
MW-24	ASI	SZ	10/10/2003	8.5 J	7.2 J	12 J	150	59	<250	--	--	<100	<100	<50	22 J	<50	<100	--	Exceed
MW-24	ASI	SZ	4/28/2004	9.3 J	19	17	210	64	<48	--	--	<19	<19	<9.5	<19	<9.5	<19	--	Exceed
MW-24	ASI	SZ	10/6/2004	<9.6	<9.6	3.9 J	49	19	<48	--	--	61	52	<9.6	30	<9.6	<19	--	Exceed
MW-24	ASI	SZ	4/13/2005	7 J	27	10	100	37	--	--	--	<19	<19	<9.7	10	<9.7	<9.7	--	Exceed
MW-24	ASI	SZ	10/18/2005	<20	2.8 J	3.1 J	38	15 J	--	--	--	91	91	<20	32	<20	<20	--	Exceed
MW-24	ASI	SZ	4/18/2006	12	31	25	290	98	--	--	--	25	29	<9.6	12	<9.6	<9.6	--	Exceed
MW-24	ASI	SZ	11/8/2006	8.3 J	16	18	200	100	--	--	--	22	26	<9.7	30	<9.7	<9.7	--	Exceed
MW-24	ASI	SZ	4/17/2007	13	41	39	350	140	--	--	--	<19	<19	<9.7	3.8 J	<9.7	<9.7	--	Exceed
MW-24	ASI	SZ	10/10/2007	8.8 J	25	34	370	160	--	--	--	7.6 J	7 J	<1.2	100	<1.0	<4.1	--	Exceed
MW-24	ASI	SZ	4/17/2008	11	35	45	420	130	--	--	--	6.6 J	<1.5	<0.96	7.6 J	<1.1	0.94 J	--	Exceed
MW-24	ASI	SZ	10/23/2008	7.5 J	21	22	170	51	--	--	--	9.1 J	6.2 J	<0.97	2.9 J	<1.1	<0.86	--	Exceed
MW-24	ASI	SZ	4/21/2009	8.58 J	32.6	29.3	235	60.2	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-24	ASI	SZ	10/21/2009	6.6 J	23.2	26.2	246	127	--	--	--	<1.62	<1.54	<0.956	4.71 J	<1.08	1.16 J	--	Exceed
MW-24	ASI	SZ	4/22/2010	5.03 J	10.8	8.36 J	40.9	5.06 J	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-24	ASI	SZ	10/21/2010	4.3 J	8.17 J	7.59 J	26.5	6.33 J	--	--	--	<1.65	<1.57	<0.975	5.74 J	<1.10	<0.858	--	Exceed
MW-24	ASI	SZ	4/26/2011	4.44 J	8.95 J	10.6	11.7	7.35 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-24	ASI	SZ	10/18/2011	3.04 J	4.97 J	3.47 J	5.87 J	2.11 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-24	ASI	SZ	4/27/2012	<2.83 J	2.2 J	<1.02 J	1.85 J	<1.46 J	--	--	--	<6.46 J	<5.92 J	<1.12 J	<4.90 J	<1.47 J	<0.858 J	--	Exceed
MW-24	ASI	SZ	10/30/2012	17.6	6.51	7.23	97.8	62	--	--	--	--	--	<0.0679	380	<0.0528	6	20.3	Exceed
MW-24	ASI	SZ	4/25/2013	216	56	63.5	761	599	--	--	--	--	--	<1.01	3190	<1.24	57.1	--	Exceed
MW-24	ASI	SZ	10/24/2013	5200	1500	990	14000	9500	--	--	--	--	--	<11	8300	<11	270	1700 J	Exceed
MW-24	ASI	SZ	4/21/2014	<0.91	3.5 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-24	ASI	SZ	10/24/2014	<0.95	<0.64	0.84 J	6.3 J	20	--	--	--	--	--	<1.2	2800	<1.2	4.8 J	4800	Exceed
MW-24	ASI	SZ	4/22/2015	8.6 J	2.8 J	1.8 J	21	15	--	--	--	--	--	<1.2	43	<1.3	1.8 J	<4.5	Exceed
MW-24	ASI	SZ	10/20/2015	<1.40	<0.86	<6.57	<11.5	<11.4	--	--	--	--	--	<1.83	35.6	<1.18	<1.40	<43.1	Exceed
MW-24	ASI	SZ	4/13/2016	<9.13	<6.15	<5.87 X7	<10.3 X7	<10.2 X7	--	--	--	--	--	<11.1	1500	<11.3	<6.63	625 J X7	Exceed
MW-24	ASI	SZ	10/28/2016	14.3	4.48 J	3.14 J X7	40.3 X7	22.7 X7	--	--	--	--	--	<1.15	835	<1.18	1.04 J	<4.16 X7	Exceed
MW-24	ASI	SZ	4/19/2017	<0.931	<0.627	<0.598 LX7	<1.05 LX7	<1.04 LX7	--	--	--	--	--	<1.13 L	8.42 L	<1.16 L	<0.676	148 LX7	Exceed
MW-24	ASI	SZ	10/18/2017	2.95 J	2.01 J	0.903 J X7	5.80 J X7	2.08 J X7	--	--	--	--	--	<1.22	<1.39	<1.26	<0.734	<4.43 X7	Exceed
MW-24	ASI	SZ	4/17/2018	<0.950	<0.640	<0.610 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<1.15 L	<1.31 L	<1.18 L	<0.690 L	R	~
MW-24	ASI	SZ	10/26/2018	<0.960	<0.646	<0.616 LX7	<1.08 X7	<1.07 LX7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-24	ASI	SZ	4/18/2019	<0.990	<0.667	<0.635 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-24	ASI	SZ	10/25/2019	1.96 J	1.16 J	<0.616	2.23 J	<1.07	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20	Exceed
MW-24	ASI	SZ	4/22/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 RX7	~
MW-24	ASI	SZ	10/22/2020	1.26 J	0.955 J	<0.605 X7	1.41 J X7	<1.05 X7	--	--	--	--	--	<0.168	3.81	<0.109	<0.129	124 X7	Exceed
MW-24	ASI	SZ	4/27/2021	0.701	0.410	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.496	26.9	<0.581	<3.17	<7.50 X7	~
MW-24	ASI	SZ	10/25/2021	7710	2970	2080 X7	28200 X7	7770 X7	--	--	--	--	--	<2.43	37.9 J	13.3 J	342	36.7 X7	Exceed
MW-24 1st run	***ASI***	***SZ***	***4/18/2022***	**2490**	**1380**	**500 X7**	**264 X7**	**2650 X7**	--	--	--	--	--	**<2.55**	**<32.5**	**<2.98**	**23.0 J**	**<38.5 X7**	Exceed
^MW-24-ReSamp-Run	ASI	SZ	5/26/2022	2590	1160	431 X7	483 X7	3100 X7	--	--	--	--	--	<2.32	<29.6	<2.71	18.1 J	<35.0	Exceed
MW-24	ASI	SZ	10/13/2022	2960	1700	611 X7	842 X7	3600 X7	--	--	--	--	--	<4.64	<59.2	<5.43	<29.6	<70.1 X7	Exceed
MW-24	ASI	SZ	4/13/2023	2170	1320	535	454	2760	--	--	--	--	--	<2.54	<32.4	<2.97	<16.2	<38.4	Exceed
MW-24	ASI	SZ	10/18/2023	7530	2960	1480	15700	9690	--	--	--	--	--	<5.11 U	19.4	<6.16 U	59.8	<13.0 U*	Exceed
MW-24 1st run	***ASI***	***SZ***	***5/21/2024***	**7030**	**2580**	**1290 H**	**16900 H**	**9610 H**	--	--	--	--	--	**<3.98 U H**	**<7.96 U H**	**<4.50 U H**	18.3 H	<10.1 U H*	Exceed
^MW-24-ReSamp-Run	ASI	SZ	5/21/2024	9800	4580	732	2360	7590	--	--	--	--	--	<4.15 U	<8.30 U	<5.00 U	53.3	<10.5 U*	Exceed
MW-25	ASI	SZ	10/21/1988	35300	9180	8720	74700	40900	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	2/13/1989	8400	2800	2300	28000	20000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/8/1989	16000	5100	4200	45000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	8/3/1989	12000	4000	2600	22000	18000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/16/1989	1200	1800	1200	11000	8500	--	--	--	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-25	ASI	SZ	1/22/1990	1800	6200	1400	16000	9400	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/23/1990	10000	3300	2400	22000	18000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/1/1990	9100	2800	1600	20000	15000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	1/23/1991	8400	2900	1500	19000	13000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/10/1991	11000	3900	2200	23000	19000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	7/12/1991	12000	4200	2300	26000	19000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/1/1991	13000	4600	3700	56000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	2/1/1992	14000	5200	2900	31000	24000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/29/1992	15000	5400	2600	32000	24000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	7/22/1992	18000	6200	3600	44000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/19/1992	15000	5300	2800	28000	23000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	1/26/1993	13000	5100	2300	28000	21000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/6/1993	24000	9200	3900	46000	39000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	7/22/1993	25000	7000	3300	37000	45000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	11/2/1993	22000	8000	<0	38000	35000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/12/1994	26000	13000	4500	58000	52000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/10/1994	12000	4900	2100	34000	17000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/11/1995	22000	7100	3900	56000	33000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	11/1/1995	8800	3100	1700	20000	16000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/25/1996	<0	21000	<0	73000	47000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	11/4/1996	23000 D	7200	3600	51000 D	37000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/1/1997	10000 D	2700	1600	21000 D	15000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/17/1997	14000 D	6200	2400	26000 D	21000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/13/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
MW-25	ASI	SZ	5/28/1998	19000 D	6000	2800	39000 D	26000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/22/1998	29000	9200	4500	67000	45000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/15/1999	20000	6500	3000	37000 D	26000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/15/1999	11000	<5000	<5000	39000	25000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	5/17/2000	5400	2900	1500	15000 D	12000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	10/5/2000	23000 D	7800	4000	45000 D	33000 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-25	ASI	SZ	4/2/2001	10000 D	4400 J D	2400 J D	37000 D	23000 D	--	--	--	--	--	<10	<20	17	<20	--	Exceed
MW-25	ASI	SZ	10/17/2001	8900 D	3800 D	2100 D	25000 D	17000 D	--	--	--	--	--	<10	<20	8.7 J	2.3 J	--	Exceed
MW-25	ASI	SZ	4/30/2002	8400 D	3800 D	2100 D	22000 D	15000 D	--	--	--	--	--	<9	<20	9.3 J	12 J	--	Exceed
MW-25	ASI	SZ	10/9/2002	12000 D	3900 D	2300 D	21000 D	16000 D	--	--	--	--	--	<7	<14	<7	4.9 J	--	Exceed
MW-25	ASI	SZ	4/8/2003	6700 D	21000 D	3600 J D	44000 D	37000 D	--	--	--	--	--	<95	<190	<95	<190	--	Exceed
MW-25	ASI	SZ	10/10/2003	33000 D	12000 D	6400	62000 D	49000 D	--	--	--	--	--	<500	28 J	<500	66 J	--	Exceed
MW-25	ASI	SZ	4/27/2004	15000	5000	2600	31000	23000	--	--	--	--	--	<480	<19	<480	<950	--	Exceed
MW-25	ASI	SZ	10/6/2004	9700	4100	2100	22000	15000	--	--	--	--	--	<9.6	8 J	<9.6	17 J	--	Exceed
MW-25	ASI	SZ	4/13/2005	7500	2600	1700 J	17000	12000	--	--	--	--	--	<9.7	14	5.9 J	4.9 J	--	Exceed
MW-25	ASI	SZ	10/18/2005	18000	5800	3200	40000	27000	--	--	--	--	--	<490	33 J	<490	<490	--	Exceed
MW-25	ASI	SZ	4/18/2006	19000	7200	3400 J	42000	27000	--	--	--	--	--	<96	8.7 J	<96	<96	--	Exceed
MW-25	ASI	SZ	11/8/2006	15000	4900	2900	34000	24000	--	--	--	--	--	<490	<490	<490	<490	--	Exceed
MW-25	ASI	SZ	10/12/2009	17300	3520	2090	38600	15000	--	--	--	--	--	<9.75	<15.7	20.6 J	22.7 J	--	Exceed
MW-26	ASI	SZ	10/21/1988	17000	8910	2630	19800	9050	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	2/13/1989	11000	5000	3400	37000	28000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/8/1989	56000	18000	11000	120000	94000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	8/9/1989	8000	3100	1200	13000	9300	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/24/1989	6200	2600	1400	13000	9700	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	1/22/1990	2300	6400	1400	13000	9300	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/23/1990	8100	3000	1700	18000	13000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/1/1990	4000	1200	460	5000	4000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	1/23/1991	1100	<0	540	5000	4800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/10/1991	2600	1000	500	2900	3000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	7/16/1991	2300	860	370	2600	2800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/1/1991	2700	650	580	4800	5200	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	2/1/1992	2600	750	320	3200	2800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/29/1992	2200	720	300	2600	1800	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	7/22/1992	2100	750	360	3300	2700	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/20/1992	2200	670	300	2800	2500	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	1/26/1993	1900	470	170	1800	1500	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/7/1993	1700	490	310	1400	1200	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	7/22/1993	1500	370	130	820	1000	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	11/2/1993	1200	270	<0	20	740	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/12/1994	1100	330	120	1200	1100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/10/1994	1000	150	81	930	540	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/11/1995	1100	200	100	1000	830	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	11/16/1995	1100	140	65	820	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/27/1996	64	120	67	540	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	11/8/1996	520 D	58	460 D	470 D	45	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/1/1997	150 D	13	13	130 D	170 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/17/1997	150	15	11	91	120 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/13/1998	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
MW-26	ASI	SZ	5/28/1998	680 D	110	42	510 D	410 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/22/1998	79	11	<10	65	52	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/15/1999	42	<10	<10	36	30	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/15/1999	64	<10	<10	83	100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	5/17/2000	53	10	4.9 J	42	39	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	10/5/2000	16	<10	<10	13	12	--	--	--	--	--	--	--	--	--	--	Exceed
MW-26	ASI	SZ	4/3/2001	35	4.1 J	<10	30	26	--	--	--	--	--	<10	9.2 J	<10	2.6 J	--	Exceed
MW-26	ASI	SZ	10/18/2001	12	2.7 J	1.2 J	9.7 J	8.5 J	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-26	ASI	SZ	10/9/2002	120	19	9.5 J	82	72	--	--	--	--	--	<9	22	<9	5.7 J	--	Exceed
MW-26	ASI	SZ	4/4/2003	72	9.5 J	4.1 J	44	45	--	--	--	--	--	<9	<19	<9	2.6 J	--	Exceed
MW-26	ASI	SZ	10/10/2003	50	7.1 J	3 J	29	26	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-26	ASI	SZ	4/27/2004	22	<9.5	1.1 J	12	10	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-26	ASI	SZ	10/6/2004	150	20	8.1 J	82	70	--	--	--	--	--	<9.6	<19	<9.6	4.6 J	--	Exceed
MW-26	ASI	SZ	4/13/2005	21	3.9 J	2.1 J	17	13	--	--	--	--	--	<9.7	3.3 J	<9.7	1.5 J	--	Exceed
MW-26	ASI	SZ	10/17/2005	4.6 J	<9.6	<9.6	3.9 J	3.2 J	--	--	--	--	--	<9.6	5 J	<9.6	<9.6	--	Exceed
MW-26	ASI	SZ	4/18/2006	18	2.4 J	<9.6	10	8 J	--	--	--	--	--	<9.6	1.1 J	<9.6	<9.6	--	Exceed
MW-26	ASI	SZ	11/7/2006	9.2 J	0.94 J	<9.8	4.6 J	3.3 J	--	--	--	--	--	<9.8	0.74 J	<9.8	<9.8	--	Exceed
MW-26	ASI	SZ	4/16/2007	2.1 J	<9.6	<9.6	3 J	1.4 J	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-26	ASI	SZ	10/10/2007	5 J	<0.81	<1.0	4.7 J	5 J	--	--	--	--	--	<1.2	7.1 J	<1.0	<4.1	--	Exceed
MW-26	ASI	SZ	4/17/2008	4.3 J	<1.0	<1.0	7.2 J	4.5 J	--	--	--	--	--	<0.98	4.4 J	<1.1	1.4 J	--	Exceed
MW-26	ASI	SZ	10/23/2008	4.4 J	<1.0	<1.0	4.7 J	3.5 J	--	--	--	--	--	<0.97	5 J	<1.1	<0.86	--	Exceed
MW-26	ASI	SZ	4/21/2009	3.58 J	<0.987	<0.998	7.57 J	4.88 J	--	--	--	--	--	<0.956	1.81 J	<1.08	2.82 J	--	Exceed
MW-26	ASI	SZ	10/21/2009	8.59 J	<0.996	<1.01	8.41 J	7.22 J	--	--	--	--	--	<0.965	4.31 J	<1.09	3.26 J	--	Exceed
MW-26	ASI	SZ	4/9/2010	2.98 J	<0.987	<0.998	3.46 J	2.08 J	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-26	ASI	SZ	10/21/2010	<2.77	<0.987	30.5	2.62 J	2.01 J	--	--	--	--	--	<0.956	4.71 J	<1.08	<0.841	--	~
MW-26	ASI	SZ	4/27/2011	5.39 J	<1.01	5.98 J	3.97 J	7.96 J	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	Exceed
MW-26	ASI	SZ	10/18/2011	5.24 J	<0.987	<0.998	4.46 J	3.17 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-26	ASI	SZ	4/27/2012	3.52 J	<0.987	<0.998	3.11 J	2.12 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-26	ASI	SZ	10/17/2012	5.75 J	<0.987	<0.998	6.28 J	3.9 J	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-26	ASI	SZ	4/29/2013	8.73 J	<0.996	<1.01	1.74 J	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	8.51 J	<3.14 L	Exceed
MW-26	ASI	SZ	10/24/2013	4.2 J	<0.65	<0.62	3.4 J	3.1 J	--	--	--	--	--	<1.2	<1.3	<1.2	4.5 J	<13	Exceed
MW-26	ASI	SZ	4/18/2014	2.9 J	1 J	<0.59	1.8 J	1.9 J	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-26	ASI	SZ	10/21/2014	4 J	<0.62	<0.59	3.5 J	3.9 J	--	--	--	--	--	<1.1	<1.3	<1.1	1.3 J	<4.0	Exceed
MW-26	ASI	SZ	4/22/2015	21	3.4 J	1.1 J	13	10 J	--	--	--	--	--	<1.2	<1.4	<1.3	<0.73	<4.4	Exceed
MW-26	ASI	SZ	10/19/2015	2.21	0.295 J	<0.611	2.06 J	1.55 J	--	--	--	--	--	<0.170	1.25	<0.110	0.451 J	<4.01	Exceed
MW-26	ASI	SZ	4/19/2016	2.93 J	<0.615	<0.587 X7	2.69 J X7	2.19 J X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-26	ASI	SZ	10/26/2016	2.13 J	<0.653	<0.622 X7	2.42 J X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	Exceed
MW-26	ASI	SZ	4/20/2017	4.83 J	0.97 J	0.596 J X7	7.19 J X7	3.94 J X7	--	--	--	--	--	<1.12	<1.27	<1.15	<0.67	<4.04 X7	Exceed
MW-26	ASI	SZ	10/19/2017	1.75 J	<0.653	<0.622 X7	1.45 J X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.2	<0.704	<4.24 X7	Exceed
MW-26	ASI	SZ	4/17/2018	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 LX7	~
MW-26	ASI	SZ	10/29/2018	<0.941	<0.634	<0.604 LX7	<1.06 X7	<1.05 LX7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-26	ASI	SZ	4/18/2019	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-26	ASI	SZ	10/25/2019	<0.913	<0.615	<0.587 X7	<1.03X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-26	ASI	SZ	4/22/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-26	ASI	SZ	10/22/2020	1.12 J	<0.450	<0.623 X7	3.75 J X7	2.65 J X7	--	--	--	--	--	<0.173	1.15	<0.112	<0.133	4.77 J X7	Exceed
MW-26	ASI	SZ	4/28/2021	0.304	0.119	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.504	<6.44	<0.590	<3.22	<7.62 X7	Exceed
MW-26	ASI	SZ	10/14/2021	2.1	0.276	<1.09 X7	<0.711 X7	<0.769 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.88	<6.83 X7	Exceed
MW-26	ASI	SZ	4/19/2022	1.96	0.523	<2.19 X7	4.05 J X7	<2.57 J X7	--	--	--	--	--	<0.910	<11.6	<1.07	<5.81	<13.8 X7	Exceed
MW-26	ASI	SZ	10/14/2022	3.85	3.23	1.10 X7	3.96 J	2.68 J	--	--	--	--	--	<0.456	<5.82	<0.533	<2.91	<6.88	Exceed
MW-26	ASI	SZ	4/17/2023	<0.0608	0.263	<1.17	1.65 J	1.34 J	--	--	--	--	--	<0.488	<6.23	<0.571	<3.11	<7.37	~
MW-26	ASI	SZ	10/17/2023	0.918	0.144	<1.13 U	0.804 J	<0.822 U	--	--	--	--	--	<4.01 U	<8.01 U	<4.83 U	<1.23 U	<10.2 U*	~
MW-26	ASI	SZ	4/15/2024	0.240	0.178	<1.12 U	<0.755 U	<0.816 U	--	--	--	--	--	<3.98 U*	<7.96 U*	<4.80 U*	<1.22 U*	<10.1 U*	~
MW-27	Tech	IZ	1/31/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	5/8/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	7/25/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-27	Tech	IZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-27	Tech	IZ	4/22/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-27	Tech	IZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-27	Tech	IZ	4/17/2017	<0.143	<0.0879	<0.671 X7	<1.18 X7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 LX7	~
MW-27	Tech	IZ	4/17/2018	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-27	BG	IZ	4/12/2019	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-27	BG	IZ	4/22/2021	<0.0618	<0.0405	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.64 X7	~
MW-27	BG	IZ	4/12/2023	<0.0574	<0.0376	<1.15	<0.750	<0.811	--	--	--	--	--	<0.477	<6.08	<0.558	<3.04	<7.20	~
MW-28	Tech	DZ	1/31/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	5/8/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	7/24/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-28	Tech	DZ	10/25/2011	<2.74	<0.977	<0.989	<1.01	<1.42	--	--	--	--	--	<1.09	<4.76	<1.43	<0.833	<3.08 J	~
MW-28	Tech	DZ	4/22/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 L	~
MW-28	Tech	DZ	4/15/2015	<0.13	<0.081	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-28	Tech	DZ	4/17/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-28	BG	DZ	4/12/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-28	BG	DZ	4/22/2021	<0.0565	<0.0370	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.518	<6.61	<0.606	<3.30	<7.82 X7	Exceed
MW-28	BG	DZ	4/12/2023	<0.0572	<0.0375	<1.29	<0.846	<0.914	--	--	--	--	--	<0.537	<6.86	<0.629	<3.43	<8.12	~
MW-29	ASI	IZ	1/24/1991	<0	<0	<0	12	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	7/12/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/28/1992	49	38	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	10/19/1992	<0	<0	<0	13	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	4/6/1993	24	18	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-29	ASI	IZ	11/2/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/12/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/24/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	11/1/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/25/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	11/4/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	5/1/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/16/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/28/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	6/15/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	10/5/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-29	ASI	IZ	4/2/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-29	ASI	IZ	10/17/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-29	ASI	IZ	4/29/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-29	ASI	IZ	10/9/2002	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<20	<9	<20	--	~
MW-29	ASI	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-29	ASI	IZ	10/22/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-29	ASI	IZ	4/28/2004	0.11 J	0.1 J	<9.5	0.11 J	0.11 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-29	ASI	IZ	10/20/2004	<9.7	<9.7	<97	<97	4.9 J	--	--	--	--	--	<97	<9.7	<97	<9.7	<19	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-29	ASI	IZ	4/5/2005	<2.4	<2.4	<2.4	<2.4	5.1	--	--	--	--	--	<2.4	<4.9	<2.4	<2.4	<20	~
MW-29	ASI	IZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-29	ASI	IZ	4/18/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-29	ASI	IZ	11/8/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-29	ASI	IZ	4/17/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-29	ASI	IZ	10/10/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	--	--	<1.3	<0.62	<1.0	<4.1	--	~
MW-29	ASI	IZ	4/17/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	<0.87	--	~
MW-30	ASI	IZ	1/24/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	7/12/1991	<0	<0	<0	22	13	--	--	--	--	--	--	--	--	--	--	Exceed
MW-30	ASI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	4/29/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	10/19/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-30	ASI	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-30	ASI	IZ	11/4/2003	<0.24	<0.24	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	1.8	<9.5	<0.95	<1.9	~
MW-30	ASI	IZ	4/16/2012	<0.0563	<0.0815	<0.0832	0.183 J	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-30	ASI	IZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-30	ASI	IZ	4/4/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-30	ASI	IZ	5/31/2017	<0.125	<0.0769	<0.588	<1.03	<0.102	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-30	ASI	IZ	4/12/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	0.166 J	<0.106	<0.125	<3.86 LX7	~
MW-30	ASI	IZ	4/17/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-30	ASI	IZ	4/6/2022	0.241	0.278	<1.09 X7	<0.712 X7	<0.769 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.88	<6.83 X7	~
MW-30	ASI	IZ	4/22/2024	<0.0612 U	<0.0401 U	<1.11 U	<0.747 U	<0.808 U	--	--	--	--	--	<3.94 U	<7.88 U	<4.75 U	<1.21 U	<10.0 U*	~
MW-31	ASI	DZ	1/24/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	7/12/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/1/1991	<0	<0	<0	11	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/28/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/19/1992	19	<0	<0	19	12	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	4/6/1993	<0	<0	<0	19	15	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	11/2/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/24/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	11/1/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/25/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	11/4/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	5/1/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/16/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/28/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	4/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/27/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	6/15/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-31	ASI	DZ	10/5/2000	7.5 J	2.3 J	<10	16	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-31	ASI	DZ	4/2/2001	3.3 J	<10	<10	11	5.8 J	--	--	--	--	--	<10	190 E	<10	<20	--	Exceed
MW-31	ASI	DZ	10/17/2001	<10	<10	<10	1.3 J	0.65 J	--	--	--	--	--	<10	1.1 J	<10	<20	--	~
MW-31	ASI	DZ	4/29/2002	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<20	<9	<20	--	~
MW-31	ASI	DZ	10/9/2002	3.8 J	<9	0.86 J	11	7.4 J	--	--	--	--	--	<9	2.4 J	<9	<19	--	Exceed
MW-31	ASI	DZ	4/8/2003	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-31	ASI	DZ	10/22/2003	<1	<1	<10	<10	<10	--	--	--	--	--	<10	<1	<10	<1	<2	~
MW-31	ASI	DZ	5/6/2004	0.17 J	0.11 J	<9.5	0.12 J	0.11 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-31	ASI	DZ	10/20/2004	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-31	ASI	DZ	4/5/2005	0.082 J	0.052 J	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-31	ASI	DZ	10/25/2005	<0.25	0.084 J	<0.25	0.057 J	0.09 J	--	--	--	--	--	<0.25	<0.5	<0.25	<0.25	<2	~
MW-31	ASI	DZ	4/20/2006	0.47 J	0.12 J	<0.96	0.22 J	0.17 J	--	--	--	--	--	<0.96	0.55 J	<0.96	<0.96	<4.8	~
MW-31	ASI	DZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-31	ASI	DZ	4/23/2007	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	~
MW-31	ASI	DZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	17	<0.052	<0.094	--	~
MW-31	ASI	DZ	4/9/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	13	<0.052	<0.094	<1.7	~
MW-31	ASI	DZ	10/17/2008	<0.058	<0.084	<0.086	0.13 J	<0.076	--	--	--	--	--	<0.069	7.1	<0.054	<0.097	--	~
MW-31	ASI	DZ	4/23/2009	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	1.14	<0.0528	<0.0955	--	~
MW-31	ASI	DZ	10/27/2009	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	2.06	<0.0528	<0.0955	--	~
MW-31	ASI	DZ	4/7/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	0.124 J	<0.0528	<0.0955	--	~
MW-31	ASI	DZ	10/12/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692 J	1.2	<0.0539	<0.0974	<1.76	~
MW-31	ASI	DZ	4/15/2011	<0.0569	<0.0823	<0.0840	0.381 J	1.4	--	--	--	--	--	<0.0679	10.3	<0.0528	<0.0955	<1.72 J	~
MW-31	ASI	DZ	10/20/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-31	ASI	DZ	4/16/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-31	ASI	DZ	10/9/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	0.103 J	<0.0533	<0.0965	<1.74	~
MW-31	ASI	DZ	4/15/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-31	ASI	DZ	10/17/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	0.31 J	<0.11	<0.13	<3.9 L	~
MW-31	ASI	DZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-31	ASI	DZ	10/23/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-31	ASI	DZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	0.30 J	<0.11	<0.13	<3.9	~
MW-31	ASI	DZ	10/9/2015	<0.133	<0.0816	<0.623	<1.09	<1.08	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09	~
MW-31	ASI	DZ	4/4/2016	<0.130	<0.080	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.17	<0.130 L	<0.110	<0.130	<4.01 X7	~
MW-31	ASI	DZ	10/20/2016	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	0.432 J	<0.11	<0.130 L	<4.01 LX7	~
MW-31	ASI	DZ	4/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-31	ASI	DZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	1.11	<0.106	<0.125	<3.86 LX7	~
MW-31	ASI	DZ	4/12/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-31	ASI	DZ	10/11/2018	<0.140	<0.086	<0.657 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.14	<0.118	<0.140	<4.31 X7	~
MW-31	ASI	DZ	4/10/2019	<0.135	<0.0833	<0.636 X7	<1.11 LX7	<1.10 X7	--	--	--	--	--	<0.177	<0.135 L	<0.115	<0.135 L	<4.18 R	~
MW-31	ASI	DZ	10/16/2019	<0.133 L	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173 L	0.551 J	<0.112	<0.133	<4.09 LX7	~
MW-31	ASI	DZ	4/17/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	0.225 J	<0.108	<0.127	<3.93 LX7	~
MW-31	ASI	DZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	0.661 J	<0.108	<0.127	<3.93 X7	~
MW-31	ASI	DZ	4/14/2021	0.127	<0.0403	<11.2 X7	<11.2 X7	<11.2 X7	--	--	--	--	--	<0.527	<6.73	<0.617	<3.37	<7.97 X7	Exceed
MW-31	ASI	DZ	10/6/2021	<0.0551	<0.0361	<1.13 X7	<0.737 X7	<0.797 X7	--	--	--	--	--	<0.468	<5.97	<0.548	<2.99	<7.07 X7	~
MW-31	ASI	DZ	4/7/2022	<0.0614	<0.0403	<1.11 X7	<0.728 X7	<0.787 X7	--	--	--	--	--	<0.462	<5.90	<0.541	<2.95	<6.99 X7	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-31	ASI	DZ	10/6/2022	<0.0541	<0.0355	<1.15 X7	<0.751 X7	<0.812 X7	--	--	--	--	--	<0.477	<6.09	<0.558	<3.05	<7.21	~
MW-31	ASI	DZ	4/5/2023	<0.0588	<0.0386	<1.09	<0.714	<0.772	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.85	~
MW-31	ASI	DZ	10/12/2023	<0.0567 U	<0.0372 U	<1.23 U	<0.828 U	<0.895 U	--	--	--	--	--	<4.36 U	<8.73 U	<5.26 U	<1.34 U	<11.1 U*	~
MW-31	ASI	DZ	4/24/2024	<0.0598 U	<0.0392 U	<1.08 U	<0.728 U	<0.787 U	--	--	--	--	--	<3.84 U	<7.67 U	<4.62 U	<1.18 U	<9.74 U*	~
MW-32	ASI	IZ	1/25/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	5/10/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	4/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-32	ASI	IZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-32	ASI	IZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-32	ASI	IZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	0.067 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-32	ASI	IZ	10/19/2004	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-32	ASI	IZ	4/5/2005	<0.24	0.059 J	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-32	ASI	IZ	10/17/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	3.5 J	<9.8	<9.8	--	~
MW-32	ASI	IZ	4/17/2006	<9.6	<9.6	<9.6	1.8 J	1.1 J	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-32	ASI	IZ	11/8/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-32	ASI	IZ	4/16/2007	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-32	ASI	IZ	10/10/2007	<0.81	<0.83	<1.0	<0.88	<0.96	--	--	--	--	--	<1.3	<0.63	<1.0	<4.2	--	~
MW-32	ASI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-32	ASI	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-32	ASI	IZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-32	ASI	IZ	10/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	2.94 J	<1.09	<0.850	--	~
MW-32	ASI	IZ	4/9/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-32	ASI	IZ	10/21/2010	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
MW-32	ASI	IZ	4/26/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-32	ASI	IZ	10/18/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-32	ASI	IZ	4/27/2012	<2.83 J	<1.01 J	<1.02 J	<1.04 J	<1.46 J	--	--	--	--	--	<1.12 J	<4.90 J	<1.47 J	<0.858 J	--	~
MW-32	ASI	IZ	10/17/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	~
MW-32	ASI	IZ	4/29/2013	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	<2.91	<3.14 L	~
MW-32	ASI	IZ	10/24/2013	<0.93	<0.63	<0.60	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<12	~
MW-32	ASI	IZ	4/18/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-32	ASI	IZ	10/21/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-32	ASI	IZ	4/22/2015	<1.1	<0.71	<0.68	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.77	<4.6	~
MW-32	ASI	IZ	10/19/2015	<0.130	<0.080	<0.611	<1.07	<1.06	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01	~
MW-32	ASI	IZ	4/19/2016	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-32	ASI	IZ	10/26/2016	<0.96	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-32	ASI	IZ	4/21/2017	<0.950	<0.640	<0.610 X7	6.87 J X7	2.69 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-32	ASI	IZ	10/19/2017	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.2	<0.704	<4.24 X7	~
MW-32	ASI	IZ	4/17/2018	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 LX7	~
MW-32	ASI	IZ	10/29/2018	<0.922	<0.621	<0.592 LX7	<1.04 X7	<1.03 LX7	--	--	--	--	--	<1.12	<1.27	<1.15	<0.670	<4.04X7	~
MW-32	ASI	IZ	4/18/2019	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-32	ASI	IZ	10/28/2019	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-32	ASI	IZ	5/1/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-32	ASI	IZ	10/22/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-32	ASI	IZ	4/28/2021	<0.0583	<0.0382	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.503	<6.42	<0.589	<3.21	<7.60 X7	Exceed
MW-32	ASI	IZ	10/14/2021	<0.0606	<0.0397	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.87	<6.78 X7	~
MW-32	ASI	IZ	4/19/2022	<0.0631	<0.0414	<1.09 X7	<0.711 X7	<0.769 X7	--	--	--	--	--	<0.452	<5.76	<0.528	<2.88	<6.82 X7	~
MW-32	ASI	IZ	10/14/2022	0.0593 J	0.0355 J	<1.09 X7	<0.715 X7	<0.772 X7	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.86 X7	~
MW-32	ASI	IZ	4/17/2023	<0.0583	<0.0382	<1.11	<0.729	<0.788	--	--	--	--	--	<0.463	<5.91	<0.542	<2.96	<6.99	~
MW-32	ASI	IZ	10/17/2023	<0.0577 U	0.123	<1.08 U	<0.728 U	<0.787 U	--	--	--	--	--	<3.84 U	<7.68	<4.63	<1.18 U	<9.74 U*	~
MW-32	ASI	IZ	4/24/2024	<0.0602 U	<0.0395 U	<1.11 U	<0.750 U	<0.810 U	--	--	--	--	--	<3.95 U	<7.90 U	<4.76 U	<1.22 U*	<10.0 U*	~
MW-33	ASI	DZ		<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ		<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	5/8/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	7/12/1991	<0	<0	<0	25	17	--	--	--	--	--	--	--	--	--	--	Exceed
MW-33	ASI	DZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	2/1/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/29/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/7/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	11/3/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/12/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/24/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	11/1/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	5/31/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	11/8/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/22/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/12/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/23/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/14/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	5/17/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	10/5/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-33	ASI	DZ	4/3/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-33	ASI	DZ	10/17/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-33	ASI	DZ	10/8/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-33	ASI	DZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-33	ASI	DZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-33	ASI	DZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-33	ASI	DZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-33	ASI	DZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-33	ASI	DZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.49	<0.24	<0.24	<2	~
MW-33	ASI	DZ	4/20/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-33	ASI	DZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-33	ASI	DZ	4/23/2007	<0.98	<0.98	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	--	~
MW-33	ASI	DZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-33	ASI	DZ	4/9/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-34	AOC2	IZ	1/29/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	7/23/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-34	AOC2	IZ	12/30/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-35	AOC2	DZ	1/29/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	7/23/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-35	AOC2	DZ	5/6/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	1/25/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	10/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	4/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-36	EI	IZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-36	EI	IZ	10/20/2011	<0.0563	1.13	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-36	EI	IZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-36	EI	IZ	10/25/2012	<0.0563 J	0.143 J	<0.0832 J	<0.0653 J	<0.0738 J	--	--	--	--	--	<0.0672 J	<0.101 J	<0.0523 J	<0.0946 J	4.75 J	Exceed
MW-36	EI	IZ	4/15/2013	<0.0580	0.608 J	<0.0856	0.427 J	0.232 J	--	--	--	--	--	<0.0692	0.146 J	<0.0539	<0.0974	8.09	Exceed
MW-36	EI	IZ	10/17/2013	<0.13	15	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 L	Exceed
MW-36	EI	IZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-36	EI	IZ	10/23/2014	<0.13	0.41 J	<0.60	<1.1	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-36	EI	IZ	4/15/2015	<0.13	0.64 J	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	0.30 J	<0.11	<0.13	<3.9	~
MW-36	EI	IZ	10/7/2015	0.230 J	1.39	<0.611	<1.07	<1.06	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01	Exceed
MW-36	EI	IZ	4/6/2016	<0.125	0.989	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-36	EI	IZ	10/24/2016	<0.125	0.661 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.442 J	<3.86 LX7	~
MW-36	EI	IZ	4/12/2017	<0.125	1.79	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	0.241 J	<0.106	<0.125	<3.86 LX7	Exceed
MW-36	EI	IZ	10/13/2017	<0.125	1.05	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-36	EI	IZ	4/11/2018	<0.125	0.628 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-36	EI	IZ	10/11/2018	<0.140	0.761 J	<0.657 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.14	<0.118	<0.140	<4.31 X7	~
MW-36	EI	IZ	4/10/2019	1.41 J	18.6	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	Exceed
MW-36	EI	IZ	10/16/2019	<0.131 L	0.875 J	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172 L	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-36	EI	IZ	4/14/2020	<0.125	1.11	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-36	EI	IZ	10/13/2020	.543 J	1.43	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	.407 J	<4.09 X7	Exceed
MW-36	EI	IZ	4/15/2021	0.608	1.79	<10.4 X7	<10.4 X7	<10.4 X7	--	--	--	--	--	<0.487	<6.21	<0.570	<3.11	<7.35 X7	Exceed
MW-36	EI	IZ	10/6/2021	0.387	1.71	<2.18 X7	<1.43 X7	<1.54 X7	--	--	--	--	--	<0.906	<11.6	<1.06	<5.78	<13.7 X7	Exceed
MW-36	EI	IZ	4/6/2022	0.412	1.67	<1.07 X7	<0.703 X7	<0.760 X7	--	--	--	--	--	<0.446	<5.70	<0.522	<2.85	<6.74 X7	Exceed
MW-36	EI	IZ	10/6/2022	<0.0538	1.71	<1.08 X7	<0.710 X7	<0.767 X7	--	--	--	--	--	<0.451	<5.75	<0.527	<2.88	<6.81 X7	Exceed
MW-36	EI	IZ	4/5/2023	0.243	2.40	<1.09	<0.713	<0.771	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84	Exceed
MW-36	EI	IZ	10/12/2023	0.133	2.29	<1.05 U	<0.707 U	<0.765 U	--	--	--	--	--	<3.73 U	<7.45 U	<4.49 U	<1.15 U	<9.46 U	Exceed
MW-36	EI	IZ	4/8/2024	0.235	1.94	<1.09 U	1.22 J	0.910 J b	--	--	--	--	--	<3.88 U	<7.75 U	<4.67 U	<1.19 U	<9.84 U	Exceed
MW-37	EI	IZ	1/28/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-37	EI	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-37	EI	IZ	11/4/2003	<0.24	<0.24	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-37	EI	IZ	4/22/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-37	EI	IZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-37	EI	IZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-37	EI	IZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-37	EI	IZ	4/12/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-37	EI	IZ	11/7/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-37	EI	IZ	4/17/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-37	EI	IZ	10/9/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
MW-37	EI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-37	EI	IZ	10/23/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	<0.87	--	~
MW-37	EI	IZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-37	EI	IZ	10/23/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-37	EI	IZ	4/22/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-37	EI	IZ	10/25/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-37	EI	IZ	4/25/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-37	EI	IZ	4/23/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	--	~
MW-37	EI	IZ	4/21/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-37	EI	IZ	4/20/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-37	EI	IZ	4/17/2018	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 LX7	~
MW-37	EI	IZ	5/19/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-37	EI	IZ	4/19/2022	<0.0618	<0.0405	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.85 X7	~
MW-37	EI	IZ	4/22/2024	<0.0618 U	<0.0405 U	<1.12 U	<0.756 U	<0.818 U	--	--	--	--	--	<3.99 U	<7.97 U	<4.80 U*	<1.23 U	<10.1 U*	Exceed
MW-38	EI	DZ	1/28/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	5/2/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-38	EI	DZ	4/17/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-38	EI	DZ	1/7/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-38	EI	DZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-38	EI	DZ	10/11/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-38	EI	DZ	4/11/2005	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-38	EI	DZ	10/18/2005	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-38	EI	DZ	4/12/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-38	EI	DZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-38	EI	DZ	4/17/2007	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-38	EI	DZ	10/9/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	--	--	<1.3	<0.62	<1.0	<4.1	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-38	EI	DZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-38	EI	DZ	10/30/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-38	EI	DZ	4/21/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	10/23/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	4/22/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	10/25/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-38	EI	DZ	4/26/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-38	EI	DZ	4/23/2012	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	--	~
MW-38	EI	DZ	4/21/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-38	EI	DZ	4/21/2016	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-38	EI	DZ	4/17/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 LX7	~
MW-38	EI	DZ	5/19/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-38	EI	DZ	4/20/2022	<0.0579	<0.0380	<1.09 X7	<0.711 X7	<0.768 X7	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82 X7	~
MW-38	EI	DZ	4/22/2024	<0.0604 U	0.0547 J	<1.04 U	<0.698 U	<0.754 U	--	--	--	--	--	<3.68 U	<7.35 U	<4.43 U	<1.13 U	<9.33 U*	~
MW-39	EI	IZ	1/28/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	5/7/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	7/16/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	10/1/1991	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-39	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/4/1991	18	12	<0	16	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/29/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/26/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/9/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/5/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/26/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/19/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/5/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	5/1/1996	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/10/1996	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	5/29/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	11/14/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/23/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	10/20/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-40	EI	IZ	4/22/1999	<10	52	<10	46	22	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	10/27/1999	<10	64	<10	58	24	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	5/16/2000	4.2 J	69	4.1 J	52	27	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	10/10/2000	<10	75	<10	61	29	--	--	--	--	--	--	--	--	--	--	Exceed
MW-40	EI	IZ	4/5/2001	1.1 J	19	1.1 J	22	9 J	--	--	--	--	--	<10	0.85 J	<10	<20	--	Exceed
MW-40	EI	IZ	10/18/2001	<10	4.1 J	<10	5.7 J	2.2 J	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-40	EI	IZ	4/29/2002	<10	1.7 J	<10	3 J	<10	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-40	EI	IZ	10/7/2002	<10	2.9 J	<10	3.8 J	1.5 J	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-40	EI	IZ	4/2/2003	<9	2.8 J	<9	2.9 J	1.3 J	--	--	--	--	--	<9	<19	<9	<19	--	Exceed
MW-40	EI	IZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-40	EI	IZ	4/26/2004	1.9	23	0.067 J	0.88 J	0.33 J	--	--	--	--	--	<9.5	<0.95	<9.5	0.18 J	<1.9	Exceed
MW-40	EI	IZ	10/14/2004	<0.97	4	<9.7	0.16 J	0.052 J	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	Exceed
MW-40	EI	IZ	4/6/2005	0.27	4.5	<0.24	0.12 J	0.086 J	--	--	--	--	--	<0.24	<0.49	<0.24	0.093 J	14	Exceed
MW-40	EI	IZ	10/17/2005	<9.6	21	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-40	EI	IZ	4/12/2006	<9.9	18	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
MW-40	EI	IZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-40	EI	IZ	5/31/2007	0.76 J	11	<0.96	0.5 J	0.14 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	Exceed
MW-40	EI	IZ	10/9/2007	<0.79	6.3 J	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-40	EI	IZ	4/15/2008	<2.8	10	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-40	EI	IZ	10/23/2008	<2.9	13	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	<0.87	--	Exceed
MW-40	EI	IZ	4/20/2009	<2.83	7.62 J	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-40	EI	IZ	10/21/2009	<2.77	8.06 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-40	EI	IZ	4/13/2010	<2.77	9.27 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-40	EI	IZ	10/25/2010	<2.80	7.37 J	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-40	EI	IZ	4/21/2011	<2.77	12.2	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-40	EI	IZ	10/17/2011	<2.77	12.7	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-40	EI	IZ	4/23/2012	2.79 J	16.1 J	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-40	EI	IZ	10/18/2012	<2.77	22.3	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-40	EI	IZ	4/25/2013	6.43 J	38.4	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	<2.91	19.3 J	Exceed
MW-40	EI	IZ	10/22/2013	1.2 J	31	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<12	Exceed
MW-40	EI	IZ	4/18/2014	<0.91	23	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-40	EI	IZ	10/21/2014	<0.95	22	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	Exceed
MW-40	EI	IZ	4/21/2015	<0.99	37	<0.64	<1.1	<1.1	--	--	--	--	--	<1.2	<1.4	<1.2	<0.72	<4.3	Exceed
MW-40	EI	IZ	10/19/2015	2.75	37.2	<0.630	<1.10	<1.09	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13	Exceed
MW-40	EI	IZ	4/21/2016	<0.931	47.8	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	Exceed
MW-40	EI	IZ	10/27/2016	4.30 J	53	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	4/19/2017	5.43 J	69.6	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	Exceed
MW-40	EI	IZ	10/18/2017	7.63 J	65.2	<0.629 X7	<1.1 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	Exceed
MW-40	EI	IZ	4/19/2018	7.88 J	80.3	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	10/26/2018	6.11 J	58.3	<0.587 LX7	<1.03 X7	<1.02 LX7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	4/18/2019	5.20 JH	47.3	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	Exceed
MW-40	EI	IZ	10/28/2019	8.98 J	68.4	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-40	EI	IZ	4/22/2020	15.2	88.0	<0.604 X7	5.47 J X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	3.14 J	<4.12 X7	Exceed
MW-40	EI	IZ	10/21/2020	11.2	66.2	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	.986 J	11.7 X7	Exceed
MW-40	EI	IZ	4/27/2021	20.1	106.0	<11.4 X7	<11.4 X7	<11.4 X7	--	--	--	--	--	<0.536	<6.84	<0.627	<3.42	<8.10 X7	Exceed
MW-40	EI	IZ	10/14/2021	11.1	90.3	<1.14 X7	<0.746 X7	<0.806 X7	--	--	--	--	--	<0.474	<6.05	<0.554	<3.02	<7.16 X7	Exceed
MW-40	EI	IZ	4/19/2022	11.3	105	<1.09 X7	<0.712 X7	<0.770 X7	--	--	--	--	--	<0.452	<5.78	<0.529	<2.89	<683 X7	Exceed
MW-40	EI	IZ	10/14/2022	19.1	114	<1.10 X7	<0.720 X7	<0.778 X7	--	--	--	--	--	<0.457	<5.84	<0.535	<2.92	<6.91	Exceed
MW-40	EI	IZ	4/17/2023	20.4	115	<2.22	<1.46	<1.57	--	--	--	--	--	<0.925	<11.8	<1.08	<5.90	<14.0	Exceed
MW-40	EI	IZ	10/16/2023	25.3	137	<1.08 U	<0.723 U	<0.782 U	--	--	--	--	--	<3.81 U	<7.62 U	<4.59 U	3.75 J	<9.68 U*	Exceed
MW-40	EI	IZ	4/8/2024	29.7	115	<1.11 U	0.957 J	<0.809 U	--	--	--	--	--	<3.94 U	<7.89 U	<4.75 U	2.61 J	<10.0 U	Exceed
MW-41	EI	IZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/4/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	1/31/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	5/1/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-41	EI	IZ	11/3/1993	<0	<0	<0	<0	<0	<0	0.83	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/11/1994	<0	<0	<0	<0	<0	<0	0.77	0.1	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/26/1994	<0	<0	<0	<0	<0	<0	0.97	0.089	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/19/1995	<0	<0	<0	<0	<0	<0	0.91	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	11/5/1995	<0	<0	<0	<0	<0	<0	0.67	0.069	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/30/1996	<0	<0	<0	<0	<0	<0	0.77	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	11/11/1996	<10	<10	<10	<10	<10	--	0.79	0.062	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/30/1997	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/12/1997	<10	<10	<10	<10	<10	--	0.81	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/23/1998	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-41	EI	IZ	12/21/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	10/16/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	6/7/2000	2.7 J	8.1 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-41	EI	IZ	10/10/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-41	EI	IZ	4/5/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-41	EI	IZ	10/18/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-41	EI	IZ	4/25/2002	<10	<10	<10	<10	<10	<51	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-41	EI	IZ	10/8/2002	<10	1.8 J	<10	0.79 J	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-41	EI	IZ	4/3/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-41	EI	IZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-41	EI	IZ	4/26/2004	0.11 J	0.12 J	<9.5	0.085 J	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	0.1 J	<1.9	~
MW-41	EI	IZ	10/20/2004	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-41	EI	IZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-41	EI	IZ	10/13/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-41	EI	IZ	4/12/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	<19	<19	<9.5	<9.5	<9.5	<9.5	--	~
MW-41	EI	IZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-41	EI	IZ	4/17/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-41	EI	IZ	10/9/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	<7.0	<5.1	<1.3	<0.62	<1.0	<4.1	--	~
MW-41	EI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	~
MW-41	EI	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	~
MW-41	EI	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-41	EI	IZ	10/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	~
MW-41	EI	IZ	4/13/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-41	EI	IZ	10/25/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63 J	<1.55 J	<0.965	<1.56	<1.09	<0.850	--	~
MW-41	EI	IZ	4/26/2011	<2.80 J	<0.996 J	<1.01 J	<1.03 J	<1.45 J	--	--	--	--	--	<1.11 J	<4.85 J	<1.46 J	<0.850 J	<3.14 J	~
MW-41	EI	IZ	10/17/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-41	EI	IZ	4/23/2012	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	<6.46	<5.92	<1.12	<4.90	<1.47	<0.858	--	~
MW-41	EI	IZ	10/18/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<4.85	<1.18	<2.91	--	~
MW-41	EI	IZ	4/25/2013	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	<3.11 L	~
MW-41	EI	IZ	10/24/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13	~
MW-41	EI	IZ	4/18/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-41	EI	IZ	10/21/2014	<1.0	<0.69	<0.66	<1.2	<1.1	--	--	--	--	--	<1.2	<1.4	<1.3	<0.74	<4.5	~
MW-41	EI	IZ	4/22/2015	<1.0	<0.69	<0.66	<1.2	<1.1	--	--	--	--	--	<1.2	<1.4	<1.3	<0.74	<4.5	~
MW-41	EI	IZ	10/20/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-41	EI	IZ	4/12/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-41	EI	IZ	10/27/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-41	EI	IZ	4/21/2017	<0.913	<0.615	<0.587 X7	4.43 J X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-41	EI	IZ	10/19/2017	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-41	EI	IZ	4/19/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-41	EI	IZ	10/29/2018	<0.931	<0.627	<0.598 LX7	<1.05 X7	<1.04 LX7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-41	EI	IZ	4/19/2019	<1.06	<0.711	<0.678 X7	<1.19 X7	<1.18 X7	--	--	--	--	--	<1.28	<1.46	<1.31	<0.767	<4.62 X7	~
MW-41	EI	IZ	10/28/2019	<1.04	<0.703	<0.670 X7	<1.18 X7	<1.16 X7	--	--	--	--	--	<1.26	<1.44	<1.30	<0.758	<4.57 X7	~
MW-41	EI	IZ	4/29/2020	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-41	EI	IZ	10/21/2020	<0.135	<0.0833	<0.636 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.018 X7	~
MW-41	EI	IZ	4/28/2021	<0.0610	<0.0400	<11.5 X7	<11.5 X7	<11.5 X7	--	--	--	--	--	<0.539	<6.89	<0.631	<3.44	<8.15 X7	Exceed
MW-41	EI	IZ	10/26/2021	0.194	<0.0373	<1.08 X7	<0.707 X7	<0.765 X7	--	--	--	--	--	<0.449	<5.73	<0.526	<2.87	<6.79 X7	~
MW-41	EI	IZ	4/27/2022	<0.0590	<0.0390	<1.08 X7	9.97 X7	5.77 J X7	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82 X7	Exceed
MW-41	EI	IZ	10/14/2022	<0.0553	<0.0363	<1.22 X7	1.48 J X7	<0.863	--	--	--	--	--	<0.507	<6.47	<0.593	<3.23	<7.66 X7	~
MW-41	EI	IZ	4/19/2023	<0.0581	<0.0381	<1.18	<0.776	<0.838	--	--	--	--	--	<0.493	<6.29	<0.576	<3.14	<7.44	~
MW-41	EI	IZ	10/18/2023	<0.0577 U	<0.0379 U	<1.15 U	<0.775 U	<0.838 U	--	--	--	--	--	<4.08 U	<8.17 U	<4.92 U	<1.26 U	<10.4 U*	~
MW-41	EI	IZ	4/5/2024	0.357	0.173	<1.25 U	<0.842 U	<0.911 U	--	--	--	--	--	<4.44 U	<8.88 U	<5.35 U	<1.37 U	<11.3 U*	~
MW-42	ASI	IZ	9/30/1991	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-42	ASI	IZ	10/4/1991	<0	<0	<0	150	100	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-42	ASI	IZ	1/31/1992	<0	<0	<0	110	67	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/22/1992	36	490	44	460	360	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	7/22/1992	34	570	49	680	470	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/27/1992	25	540	36	600	360	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/15/1993	51	680	48	620	370	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/4/1993	42	490	36	410	280	<0	0.83	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/13/1994	78	1000	68	720	480	<0	0.88	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/28/1994	92	1000	58	620	410	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/12/1995	96	1100	66	670	540	<0	1	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/9/1995	77	1200	68	910	540	<0	1	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/3/1996	97	1200	72	800	460	<0	0.91	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/11/1996	140	1400 D	99	1100 D	700 D	--	0.92	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/29/1997	220 D	1400 D	72	1000 D	590 D	--	0.94	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	11/1/1997	250 D	1600 D	74	1200 D	760 D	--	0.98	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/7/1998	270 D	1400 D	68	1200 D	710 D	--	0.97	<0	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/21/1998	42	640 D	33	520 D	260 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/22/1999	<10	74	<10	70	34	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/20/1999	<10	49	<10	98	59	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	5/16/2000	2.2 J	40	3.1 J	37	20	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	6/6/2000	<10	21	<10	29	16	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	10/6/2000	3 J	41	<10	48	26	--	--	--	--	--	--	--	--	--	--	Exceed
MW-43	EI	IZ	4/3/2001	<10	10	<10	14	6.2 J	<50	--	--	<20	21	<10	<20	<10	<20	--	Exceed
MW-43	EI	IZ	10/24/2001	<10	1.9 J	<10	4.2 J	2 J	<50	--	--	<20	11 J	<10	0.65 J	<10	<20	--	Exceed
MW-43	EI	IZ	4/29/2002	<9	<9	<9	1.9 J	<9	<50	--	--	<20	<20	<9	<20	<9	<20	--	~
MW-43	EI	IZ	10/7/2002	<10	2.4 J	<10	4.2 J	2.4 J	<52	--	--	<21	<21	<10	<21	<10	<21	--	Exceed
MW-43	EI	IZ	4/2/2003	<9	<9	<9	2.9 J	1.8 J	<48	--	--	<19	<19	<9	<19	<9	<19	--	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-43	EI	IZ	10/7/2003	<9.8	<9.8	<9.8	0.8 J	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-43	EI	IZ	4/21/2004	<9.5	<9.5	<9.5	<9.5	<9.5	<48	--	--	<19	<19	<9.5	<19	<9.5	<19	--	~
MW-43	EI	IZ	10/7/2004	<9.8	<9.8	<9.8	<9.8	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-43	EI	IZ	4/11/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	<19	<19	<9.7	<9.7	<9.7	<9.7	--	~
MW-43	EI	IZ	10/13/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	~
MW-43	EI	IZ	4/12/2006	<10	<10	<10	<10	<10	--	--	--	<21	<21	<10	<10	<10	<10	--	~
MW-43	EI	IZ	10/16/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	<20	<20	<9.9	<9.9	<9.9	<9.9	--	~
MW-43	EI	IZ	4/9/2007	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	~
MW-43	EI	IZ	10/3/2007	<0.83	<0.85	<1.0	<0.90	<0.98	--	--	--	<7.3	<5.3	<1.3	<0.64	<1.1	<4.3	--	~
MW-43	EI	IZ	4/15/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	~
MW-43	EI	IZ	10/23/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	<1.7	<1.6	<0.98	<1.6	<1.1	<0.87	--	~
MW-43	EI	IZ	4/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	~
MW-43	EI	IZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-43	EI	IZ	4/13/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-43	EI	IZ	10/19/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	<1.65 J	<1.57 J	<0.975	<1.57	<1.10 J	<0.858	--	~
MW-43	EI	IZ	4/20/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-43	EI	IZ	10/17/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-43	EI	IZ	4/23/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<6.34	<5.81	<1.10	<4.80	<1.44	<0.841	--	~
MW-43	EI	IZ	10/17/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<4.80	<1.17	<2.88	--	~
MW-43	EI	IZ	4/25/2013	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	18.4 J	Exceed
MW-43	EI	IZ	10/22/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13	~
MW-43	EI	IZ	4/15/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-43	EI	IZ	10/22/2014	<0.92	<0.62	<0.59 L	<1.0 L	<1.0 L	--	--	--	--	--	<1.1	<1.3 L	<1.1	<0.67	<4.0 L	~
MW-43	EI	IZ	4/21/2015	<1.1	<0.73	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
MW-43	EI	IZ	10/19/2015	<0.135	<0.0833	<0.636	<1.11	<1.10	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18	~
MW-43	EI	IZ	4/11/2016	<0.979	<0.660	<0.629 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	~
MW-43	EI	IZ	10/27/2016	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-43	EI	IZ	4/19/2017	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-43	EI	IZ	10/19/2017	<1	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-43	EI	IZ	4/19/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-43	EI	IZ	10/29/2018	<0.950	<0.640	<0.610 LX7	<1.07 X7	<1.06 LX7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-43	EI	IZ	4/17/2019	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-43	EI	IZ	10/25/2019	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-43	EI	IZ	4/22/2020	<0.960	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-43	EI	IZ	10/21/2020	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 X7	~
MW-43	EI	IZ	4/27/2021	<0.0635	0.0759 J	<11.1 X7	<11.1 X7	<11.1 X7	--	--	--	--	--	<0.520	<6.64	<0.609	<3.32	<7.86 X7	~
MW-43	EI	IZ	10/25/2021	<0.0561	<0.0368	<1.22 X7	<0.797 X7	<0.861 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.64 X7	~
MW-43	EI	IZ	4/20/2022	0.0934 J	0.368	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.454	<5.79	<0.531	<2.90	<6.85 X7	~
MW-43	EI	IZ	10/14/2022	<0.0535	0.0691 J	<1.11 X7	<0.727 X7	<0.786 X7	--	--	--	--	--	<0.462	<5.90	<0.541	<2.95	<6.98 X7	~
MW-43	EI	IZ	4/18/2023	<0.0568	0.0403 J	<1.20	<0.789	<0.853	--	--	--	--	--	<0.501	<6.40	<0.586	<3.20	<1.11	~
MW-43	EI	IZ	10/17/2023	<0.0577 U	0.0477 J	<1.17 U	<0.788 U	<0.852 U	--	--	--	--	--	<4.15 U	<8.30 U	<5.00 U	<1.28 U	<10.5 U*	~
MW-43	EI	IZ	4/3/2024	2.11	0.916	<1.32 U	<0.889 U	<0.962 U	--	--	--	--	--	<4.69 U	<9.38 U	<5.65 U	<1.44 U	<11.9 U	Exceed
MW-44	EI	IZ	5/22/1992	<0	12	<0	16	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	7/22/1992	<0	35	<0	44	19	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/27/1992	<0	66	<0	120	59	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/15/1993	<0	86	<0	120	59	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/4/1993	<0	<0	<0	<0	<0	<0	0.69	<0	--	--	--	--	--	--	--	~
MW-44	EI	IZ	4/14/1994	12	220	21	240	140	<0	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/28/1994	19	540	40	490	220	<0	--	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/12/1995	<0	180	16	140	100	<0	0.89	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/9/1995	<0	130	<0	150	65	<0	0.32	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	5/3/1996	<0	31	<0	31	16	<0	0.64	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/11/1996	<50	590 D	53	650 D	310	--	0.92	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/29/1997	29	480 D	29	500 D	270 D	--	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	11/1/1997	10	350 D	18	290 D	160 D	--	0.89	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	5/7/1998	28	690 D	35	510 D	290 D	--	0.89	<0	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/21/1998	<10	70	<10	110	48	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/22/1999	<10	12	<10	21	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/20/1999	<10	<10	<10	12	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	5/16/2000	<10	9.1 J	<10	15	6.4 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	10/6/2000	<10	3.1 J	<10	9 J	3.9 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-44	EI	IZ	4/3/2001	<10	<10	<10	5.6 J	1.5 J	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-44	EI	IZ	10/24/2001	<10	<10	<10	2.3 J	0.64 J	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-44	EI	IZ	4/29/2002	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-44	EI	IZ	10/7/2002	<10	<10	<10	2.1 J	0.84 J	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-44	EI	IZ	4/2/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-44	EI	IZ	10/7/2003	<9.8	<9.8	<9.8	0.64 J	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-44	EI	IZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	<48	--	--	<19	<19	<9.5	<19	<9.5	<19	--	~
MW-44	EI	IZ	10/7/2004	<9.8	<9.8	<9.8	<9.8	<9.8	<49	--	--	<20	<20	<9.8	<20	<9.8	<20	--	~
MW-44	EI	IZ	4/11/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-44	EI	IZ	10/13/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	<20	<20	<9.8	<9.8	<9.8	<9.8	--	~
MW-44	EI	IZ	4/12/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	<20	<20	<9.9	<9.9	<9.9	<9.9	--	~
MW-44	EI	IZ	10/16/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	<20	<20	<9.9	<9.9	<9.9	<9.9	--	~
MW-44	EI	IZ	4/9/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	~
MW-44	EI	IZ	10/3/2007	<0.83	<0.85	<1.0	<0.90	<0.98	--	--	--	<7.3	<5.3	<1.3	<0.64	<1.1	<4.3	--	~
MW-44	EI	IZ	4/16/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	<1.6	<1.6	<0.97	<1.6	<1.1	<0.86	--	~
MW-44	EI	IZ	10/23/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	<1.6	<1.5	<0.96	<1.6	<1.1	<0.85	--	~
MW-44	EI	IZ	4/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<1.56	<1.09	<0.850	--	~
MW-44	EI	IZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	~
MW-44	EI	IZ	4/13/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	<1.65	<1.57	<0.975	<1.57	<1.10	<0.858	--	~
MW-44	EI	IZ	10/19/2010	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	<1.68 J	<1.60 J	<0.994	<1.60	<1.12	<0.875	--	~
MW-44	EI	IZ	4/20/2011	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<1.13	<4.94	<1.49	<0.866	<3.20 J	~
MW-44	EI	IZ	10/17/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	~
MW-44	EI	IZ	4/23/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	<6.34	<5.81	<1.10	<4.80	<1.44	<0.841	--	~
MW-44	EI	IZ	10/17/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	<1.63	<1.55	<0.965	<4.85	<1.18	<2.91	--	~
MW-44	EI	IZ	4/25/2013	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	<3.11 L	~
MW-44	EI	IZ	10/22/2013	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<12	~
MW-44	EI	IZ	4/15/2014	<1.1	<0.72	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
MW-44	EI	IZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-44	EI	IZ	4/21/2015	<1.0	<0.70	<0.66	<1.2	<1.2	--	--	--	--	--	<1.3	<1.4	<1.3	<0.75	<4.5	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-44	EI	IZ	10/19/2015	<0.140	<0.086	<0.657	<1.15	<1.14	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31	~
MW-44	EI	IZ	4/11/2016	<0.913	1.10 J	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-44	EI	IZ	10/27/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-44	EI	IZ	4/19/2017	<0.931	<0.627	<0.598 X7	1.26 J X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-44	EI	IZ	10/19/2017	<0.979	<0.66	<0.629 X7	<1.1 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	~
MW-44	EI	IZ	4/19/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-44	EI	IZ	10/26/2018	<0.969	<0.653	<0.622 LX7	<1.09 X7	<1.08 LX7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-44	EI	IZ	4/17/2019	1.05 JH	1.18 J	<0.663 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<1.25	<1.42	<1.28	<0.750	<4.52 X7	~
MW-44	EI	IZ	10/28/2019	<0.913	<0.615	<0.587 LX7	<1.03 LX7	<1.02 LX7	--	--	--	--	--	<1.11 L	<1.26 L	<1.13	<0.663 L	<4.00 LX7	~
MW-44	EI	IZ	4/22/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-44	EI	IZ	10/21/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	.166 J	<0.108	<0.127	<3.93 X7	~
MW-44	EI	IZ	4/28/2021	<0.0579	<0.0380	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.503	<6.42	<0.589	<3.21	<7.60 X7	~
MW-44	EI	IZ	10/14/2021	<0.0561	<0.0368	<1.09 X7	<0.716 X7	<0.774 X7	--	--	--	--	--	<0.455	<5.80	<0.532	<2.90	<6.87 X7	~
MW-44	EI	IZ	4/20/2022	<0.0590	0.0519J	<1.09 X7	<0.715 X7	<0.773 X7	--	--	--	--	--	<0.454	<5.80	<0.532	<2.90	<6.86 X7	~
MW-44	EI	IZ	10/14/2022	<0.0530	<0.0348	<1.11 X7	<0.726 X7	<0.785 X7	--	--	--	--	--	<0.461	<5.88	<0.539	<2.94	<6.96 X7	~
MW-44	EI	IZ	4/18/2023	<0.0574	<0.0376	<1.11	<1.11	<1.11	--	--	--	--	--	<0.460	<1.11	<1.11	<2.94	TDA	~
MW-44	EI	IZ	10/17/2023	<0.0577 U	<0.0379 U	<1.08 U	<0.725 U	<0.784 U	--	--	--	--	--	<3.82 U	<7.65 U	<4.61 U	<1.18 U	<9.71 U*	~
MW-44	EI	IZ	4/3/2024	0.272	0.0629 J	<1.19 U	<0.803 U	<0.868 U	--	--	--	--	--	<4.23 U	<8.46 U	<5.10 U	<1.30 U	<10.7 U*	~
MW-45	ASI	IZ	6/9/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	7/22/1992	12	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-45	ASI	IZ	10/20/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/7/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	11/3/1993	<0	<0	<0	<0	<0	<0	0.83	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/13/1994	<0	<0	<0	<0	<0	<0	0.77	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/24/1994	<0	<0	<0	<0	<0	<0	--	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/11/1995	<0	<0	<0	<0	<0	<0	0.86	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	11/1/1995	<0	<0	<0	<0	<0	<0	0.67	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/27/1996	<0	<0	<0	<0	<0	<0	0.82	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	11/8/1996	<10	<10	<10	<10	<10	--	0.61	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/22/1997	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/12/1997	<10	<10	<10	<10	<10	--	0.81	0.061	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/23/1998	<10	<10	<10	<10	<10	--	0.82	<0	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/22/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/14/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/15/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	5/17/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	10/5/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-45	ASI	IZ	4/3/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-45	ASI	IZ	10/17/2001	<10	<10	<10	<10	<10	<50	--	--	<20	<20	<10	<20	<10	<20	--	~
MW-45	ASI	IZ	4/30/2002	<10	<10	<10	2.8 J	1.4 J	<52	--	--	<21	<21	<10	<21	<10	<21	--	~
MW-45	ASI	IZ	10/8/2002	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-45	ASI	IZ	4/4/2003	<9	<9	<9	<9	<9	<48	--	--	<19	<19	<9	<19	<9	<19	--	~
MW-45	ASI	IZ	10/21/2003	<0.97	<0.97	<9.7	<9.7	<9.7	<39	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-45	ASI	IZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	<9.5	<38	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-45	ASI	IZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	<38	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-45	ASI	IZ	4/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	<19	<19	<9.7	<9.7	<9.7	<9.7	--	~
MW-45	ASI	IZ	10/17/2005	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	<19	<19	<9.5	<9.5	<9.5	<9.5	--	~
MW-45	ASI	IZ	4/17/2006	<9.6	<9.6	<9.6	4.7 J	2.5 J	--	--	--	<19	<19	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-45	ASI	IZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	<19	<19	<9.6	0.63 J	<9.6	<9.6	--	~
MW-45	ASI	IZ	4/11/2007	<9.6	<9.6	<9.6	1.8 J	<9.6	--	--	--	<19	<19	<9.6	2.4 J	<9.6	<9.6	--	~
MW-45	ASI	IZ	10/9/2007	<0.79	<0.81	<1.0	1.8 J	<0.94	--	--	--	<7.0	<5.1	<1.2	2.2 J	<1.0	<4.1	--	~
MW-45	ASI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	<1.6	<1.6	<0.97	2.2 J	<1.1	<0.86	--	~
MW-46	EI	LSZ	6/26/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	7/23/1992	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	10/26/1992	73	53	<0	36	24	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/9/1993	<0	<0	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	11/4/1993	<0	<0	<0	<0	<0	<0	0.96	0.098	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	4/11/1994	<0	<0	<0	<0	<0	<0	0.66	0.087	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	10/27/1994	<0	<0	<0	<0	<0	<0	0.74	0.24	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	4/13/1995	<0	<0	<0	<0	<0	<0	0.6	0.059	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	11/5/1995	<0	<0	<0	<0	<0	<0	0.58	0.37	--	--	--	--	--	--	--	~
MW-46	EI	LSZ	5/1/1996	<0	28	<0	<0	<0	<0	0.64	<0	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	11/10/1996	<20	99	<20	<20	<20	--	0.52	0.09	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	5/4/1997	42	440 D	<10	<10	<10	--	0.6	0.068	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/12/1997	52	1300 D	<10	<10	<10	--	0.52	0.065	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/28/1998	<10	1300 D	<10	<10	<10	--	0.74	0.064	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/21/1998	<10	1300 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/16/1999	110	1400	<100	18000	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/16/1999	110	1700 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	6/8/2000	<20	2700 D	15 J	27	18 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	10/10/2000	<100	760	<100	<100	<100	--	--	--	--	--	--	--	--	--	--	Exceed
MW-46	EI	LSZ	4/5/2001	16 J	130	<100	11 J	<100	<500	--	--	<200	<200	<100	<200	<100	<200	--	Exceed
MW-46	EI	LSZ	10/18/2001	270	3200 D	<100	13 J	5.7 J	<500	--	--	<200	<200	<100	<200	<100	100 J	--	Exceed
MW-46	EI	LSZ	4/29/2002	<10	1400 D	9.7 J	17	9.4 J	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-46	EI	LSZ	10/7/2002	<10	410 D	3.8 J	23	12	<51	--	--	<20	<20	<10	<20	<10	14 J	--	Exceed
MW-47	EI	LSZ	5/21/1992	87000	77000	<0	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	7/22/1992	91000	80000	3300	43000	42000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/23/1992	100000	77000	<0	35000	24000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/9/1993	75000	54000	2700	22000	19000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	11/3/1993	25000	12000	430	4600	4600	<0	0.62	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/11/1994	970	820	31	260	<0	<0	0.33	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/26/1994	1900	1600	49	650	400	<0	1.1	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/13/1995	620	380	14	110	110	<0	0.37	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	11/5/1995	670	390	14	120	110	<0	<0	0.12	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/30/1996	760	490	<0	290	220	<0	0.28	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	11/11/1996	240 D	180 D	<10	28	16	--	0.45	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/30/1997	330 D	170 D	<10	48	62	--	0.32	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/12/1997	840 D	630 D	15	170 D	140 D	--	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/28/1998	870 D	540 D	13	160 D	140	--	0.44	<0	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/21/1998	75	39	<10	15	11	--	--	--	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-47	EI	LSZ	10/16/1999	420 D	360 D	23	150 D	100 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	6/7/2000	14	8.1 J	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	10/10/2000	170 D	95	<10	38	31	--	--	--	--	--	--	--	--	--	--	Exceed
MW-47	EI	LSZ	4/5/2001	190 D	150	5.3 J	69	43	<50	--	--	<20	<20	<10	<20	<10	2 J	--	Exceed
MW-47	EI	LSZ	10/18/2001	150	130	4.4 J	55	28	<50	--	--	<20	<20	<10	<20	<10	<20	--	Exceed
MW-47	EI	LSZ	4/25/2002	80	77	3.6 J	40	21	<52	--	--	<21	<21	<10	2.2 J	<10	3.3 J	--	Exceed
MW-47	EI	LSZ	10/8/2002	110	67	3.3 J	33	17	<50	--	--	<20	<20	<10	<20	<10	2.5 J	--	Exceed
MW-47	EI	LSZ	4/26/2012	25.1 J	9.61 J	<0.998 J	6.83 J	5.65 J	--	--	--	<6.34 J	<5.81 J	<1.10 J	<4.80 J	<1.44 J	<0.841 J	--	Exceed
MW-47	EI	LSZ	4/18/2014	2.4 J	1 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-47	EI	LSZ	4/13/2016	3.47 J	1.49 J	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-47	EI	LSZ	4/19/2018	3.68 J	1.76 J	<0.587 X7	3.20 J X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
MW-47	EI	LSZ	4/23/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-47	EI	LSZ	4/26/2022	2.10	1.19	<1.09 X7	<0.712 X7	<0.769 X7	<0.452 X7	<5.77	<0.529	<2.88	<6.83 X7	<0.452	<5.77	<0.529	<2.88	<6.83 X7	Exceed
MW-47	Neut	LSZ	4/15/2024	1.39	0.888	<1.21 U	1.16 J	<0.882 U	--	--	--	--	--	<4.30 U*	<8.60 U*	<5.18 U*	<1.32 U*	<10.9 U*	Exceed
MW-48	Neut	LSZ	6/8/1992	2100	9500	12	13	<0	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	7/23/1992	1800	8700	<0	23	18	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	10/27/1992	4500	19000	<0	56	37	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	4/12/1993	4500	13000	13	110	63	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	1/9/1994	6400	26000	35	390	150	<0	0.77	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	2/13/1995	9400	29000	<0	700	440	<0	0.78	<0	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	4/28/1998	1900 D	1900 D	<10	51	31	--	--	--	--	--	--	--	--	--	--	Exceed
MW-48	Neut	LSZ	4/3/2003	3000	6400	<480	140 J	79 J	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
MW-48	Neut	LSZ	10/8/2003	10000 D	19000 D	52	360	250	<240	--	--	<95	<95	<48	<95	<48	21 J	--	Exceed
MW-48	Neut	LSZ	4/26/2004	7600	12000	50 J	350	260	<980	--	--	<390	<390	<200	<390	<200	92 J	--	Exceed
MW-48	Neut	LSZ	10/7/2004	21000	23000	33 J	230	170	<500	--	--	<200	<200	<100	<200	<100	16 J	--	Exceed
MW-48	Neut	LSZ	4/7/2005	14000	19000	28 J	260	190	--	--	--	<210	<210	<100	<100	<100	85 J	--	Exceed
MW-48	Neut	LSZ	10/12/2005	5700	9100	12	98	62	--	--	--	<20	<20	<9.8	<9.8	1.6 J	51	--	Exceed
MW-48	Neut	LSZ	4/18/2006	15000	18000	21 J	210	150	--	--	--	<190	<190	<96	<96	<96	82 J	--	Exceed
MW-48	Neut	LSZ	11/2/2006	11000	13000	<200	100 J	71 J	--	--	--	<390	<390	<200	<200	<200	<200	--	Exceed
MW-48	Neut	LSZ	4/6/2007	<98	8400	11 J	120	84 J	--	--	--	<200	<200	<98	<98	<98	72 J	--	Exceed
MW-48	Neut	LSZ	10/2/2007	7600	8000	<10	110	58 J	--	--	--	<71	<52	<13	<6.3	<10	<42	--	Exceed
MW-48	Neut	LSZ	10/15/2009	6310	6120	<11.5	89.2 J	44.5 J	--	--	--	<18.7	<17.7	<11.0	<17.8	<12.4	57.8 J	--	Exceed
MW-48	Neut	LSZ	4/9/2010	4950	6140	24.9 J	248	107	--	--	--	<16.2	<15.4	<9.56	<15.4	<10.8	196	--	Exceed
MW-48	Neut	LSZ	10/18/2010	8860	11300	39.6 J	582	222	--	--	--	<16.8 J	<16.0 J	<9.94	<16.0	<11.2	56.6 J	--	Exceed
MW-48	Neut	LSZ	4/21/2011	12400	15000	89.4 J	457	199	--	--	--	--	--	<11.1	<48.5	<14.6	40.1 J	<31.4 J	Exceed
MW-48	Neut	LSZ	4/18/2012	9640	10200	66 J	1100	349	--	--	--	<65.3	<59.8	<11.3	<49.4	<14.9	23.1 J	--	Exceed
MW-48	Neut	LSZ	4/16/2014	13000	15000	120	1500	580	--	--	--	--	--	<1.1	<1.3	<1.2	8.3 J	<4.1	Exceed
MW-48	Neut	LSZ	4/19/2016	12800	14400	156 X7	2140 X7	797 X7	--	--	--	--	--	<1.19	<1.35	<1.22	96.8	<4.29 X7	Exceed
MW-48	Neut	LSZ	4/18/2018	10,300	12,900	158 X7	2,710 X7	754 X7	--	--	--	--	--	<1.15	<1.31	<1.18	22.3	<4.16 X7	Exceed
MW-48	Neut	LSZ	4/20/2020	2260	9650	300 J X7	819 J X7	1590 X7	--	--	--	--	--	<1.17	2.57 J	<1.20	150 J	<4.24 X7	Exceed
MW-48	Neut	LSZ	4/18/2022	6480	9160	248 X7	3890 X7	1420 X7	--	--	--	--	--	<2.30	<29.4	<2.70	33.6 J	<34.8 X7	Exceed
MW-48	Neut	LSZ	4/25/2024	9180	8970	255	3050	1070	--	--	--	--	--	<4.08 U	<8.17 U	<4.92 U	38.0	<10.4 U*	Exceed
MW-49	Neut	SZ	6/9/1992	730	4200	18	210	140	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	7/23/1992	370	1800	14	150	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	10/27/1992	970	4700	28	370	270	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	4/12/1993	1200	3800	18	160	120	<0	<0	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	1/9/1994	2000	7300	28	250	120	<0	0.38	<0	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	2/13/1995	2700	7700	<0	91	68	<0	0.56	0.052	--	--	--	--	--	--	--	Exceed
MW-49	Neut	SZ	4/3/2003	2000	4400	<480	32 J	<480	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
MW-49	Neut	SZ	10/8/2003	2800	6400	<480	580	410 J	<2400	--	--	<960	<960	<480	<960	<480	<960	--	Exceed
MW-49	Neut	SZ	4/26/2004	5600	12000	23 J	62 J	58 J	<950	--	--	<380	<380	<190	<380	<190	<380	--	Exceed
MW-49	Neut	SZ	10/7/2004	16000	14000	11 J	72 J	57 J	<490	--	--	<200	<200	<98	<200	<98	<200	--	Exceed
MW-49	Neut	SZ	4/18/2005	13000	9400	<96	38 J	34 J	--	--	--	<190	<190	<96	<96	<96	180	--	Exceed
MW-49	Neut	SZ	10/12/2005	10000	9200	6.3 J	41	36	--	--	--	<19	<19	<9.7	<9.7	1.7 J	76	--	Exceed
MW-49	Neut	SZ	4/11/2006	9600	12000	<99	42 J	33 J	--	--	--	<200	<200	<99	<99	<99	130	--	Exceed
MW-49	Neut	SZ	11/2/2006	9800	7500	<49	24 J	21 J	--	--	--	<98	<98	<49	<49	<49	81	--	Exceed
MW-49	Neut	SZ	4/6/2007	350	3900	<98	18 J	13 J	--	--	--	<200	<200	<98	<98	<98	69 J	--	Exceed
MW-49	Neut	SZ	10/2/2007	3300	4200	3.2 J	24	9.7 J	--	--	--	<7.1	<5.2	<1.3	<0.63	<1.0	58	--	Exceed
MW-49	Neut	SZ	10/12/2009	4750	4810	<10.2	24.4 J	16.9 J	--	--	--	<16.5	<15.7	<9.75	<15.7	<11.0	124	--	Exceed
MW-49	Neut	SZ	4/9/2010	3410	3750	<9.89	52.5 J	29.4 J	--	--	--	<16.0	<15.2	<9.47	<15.3	<10.7	122	--	Exceed
MW-49	Neut	SZ	10/18/2010	2890	4050	27.5 J	310	204	--	--	--	<16.8 J	<16.0 J	<9.94	<16.0	<11.2	92.8 J	--	Exceed
MW-49	Neut	SZ	4/21/2011	3790	6760	117	632	432	--	--	--	--	--	<11.0	<48.0	<14.4	136	<31.1 J	Exceed
MW-49	Neut	SZ	10/13/2011	4620	6030	74 J	704 J	507 J	--	--	--	--	--	<11.2 J	<49.0 J	<14.7 J	89.6 J	<31.7 J	Exceed
MW-49	Neut	SZ	4/18/2012	6680	7750	118	1380	1050	--	--	--	<64.6	<59.2	<11.2	<49.0	<14.7	136	--	Exceed
MW-49	Neut	SZ	10/11/2012	8610	8680	106	1290	894	--	--	--	<16.5	<15.7	<9.75	<49.0	<11.9	123	--	Exceed
MW-49	Neut	SZ	4/23/2013	12200	13300	90.8 J	1450	1110	--	--	--	--	--	<10.0	<50.4	<12.3	142	<32.7 L	Exceed
MW-49	Neut	SZ	10/21/2013	17000	15000	240	2600	2000	--	--	--	--	--	<12	<14	<12	130	<130	Exceed
MW-49	Neut	SZ	4/10/2014	14000	13000	230	2100	1700	--	--	--	--	--	<1.2	<1.4	4.3 J	130	<4.5	Exceed
MW-49	Neut	SZ	10/21/2014	15000	14000	250	2000	1900	--	--	--	--	--	<1.2	<1.3	<1.2	110	<4.2	Exceed
MW-49	Neut	SZ	4/20/2015	16,000	15,000	220	2,300	1,700	--	--	--	--	--	<12	<13	<12	130	<42	Exceed
MW-49	Neut	SZ	10/14/2015	12,800	11,800	239	2,460	1,740	--	--	--	--	--	<12.8	<14.6	<13.1	129	<46.2	Exceed
MW-49	Neut	SZ	4/8/2016	14500	11100	284 X7	2700 X7	2180 X7	--	--	--	--	--	<11.1	<12.6	<11.3	124	<40.0 X7	Exceed
MW-49	Neut	SZ	10/25/2016	17,800	15,500	287 X7	3,590 X7	2,100 X7	--	--	--	--	--	<11.4	<13.0	<11.7	166	<41.2 X7	Exceed
MW-49	Neut	SZ	4/18/2017	13,200	10,500	210 X7	2,340 X7	1,350 X7	--	--	--	--	--	<1.29	<1.47	<1.33	111	<4.67 X7	Exceed
MW-49	Neut	SZ	10/17/2017	15800	12300	283 X7	3150 X7	2140 X7	--	--	--	--	--	<1.25	<1.42	3.22 J	88	<4.52 X7	Exceed
MW-49	Neut	USZ	4/18/2018	12,500	10,200	206 J X7	2,790 X7	1,510 X7	--	--	--	--	--	<1.14	<1.30	<1.17	10.1	<4.12 X7	Exceed
MW-49	Neut	USZ	10/25/2018	13,300	10,200	168 LX7	2610 X7	1470 X7	--	--	--	--	--	<1.29	<1.47	3.28 J	65.7	<4.67 X7	Exceed
MW-49	Neut	USZ	4/17/2019	12200 H	9,000	280 J X7	2,790 X7	2,110 X7	--	--	--	--	--	<61.8	<70.4	<63.4	57.3 J	<224 X7	Exceed
MW-49	Neut	USZ	10/24/2019	11000	9480	295 J X7	2470 X7	1990 X7	--	--	--	--	--	<1.15	<1.31	4.70 J	90.2	<4.16 X7	Exceed
MW-49	Neut	USZ	4/20/2020	13700	9890	326 J X7	2880 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	2.08 J	304 J	<4.24 X7	Exceed
MW-49	Neut	USZ	10/21/2020	11,200	11,400	226 X7	3060 X7	53.5 X7	--	--	--	--	--	<8.59	<6.57	<5.56	103 J	<203 X7	Exceed
MW-49	Neut	USZ	4/26/2021	14,200	10,100	241 X7	4340 X7	1980 X7	--	--	--	--	--	4.95 J	<6.90	2.39 J	86.5	<8.17 X7	Exceed
MW-49	Neut	USZ	10/25/2021	8,760	5,380	354 X7	4170 X7	2970 X7	--	--	--	--	--	<0.485	<6.19	6.24 J	80.2	<7.33 X7	Exceed
MW-49	Neut	USZ	4/18/2022	8450	8640	377 X7	4130 X7	1630 X7	--	--	--	--	--	<2.52	<32.1	13.1 J	53.6	<38.0 X7	Exceed
MW-49	Neut	USZ	10/13/2022	8840	8740	334 X7	3280 X7	29.7 J X7	--	--	--	--	--	<2.32	<29.6	4.47 J	<14.8	<35.1 X7	Exceed
MW-49	Neut	USZ	4/13/2023	11300	7520	315	3450	46.6 J	--	--	--	--	--	<2.44	<31.1	<2.85	20.4 J	<36.8	Exceed
MW-49	Neut	USZ	10/18/2023	13700	11300	178	2430	2.68 J	--	--	--	--	--	<4.54 U	<9.08 U	<5.47 U	48.9	<11.5 U*	Exceed
MW-49	Neut	USZ	4/12/2024	9260	6870	303	3290	2440	--	--	--	--	--	<3.79 U	<7.58 U	<4.57 U	80.4	<9.62 U	Exceed
MW-50	Neut	LSZ	6/5/1992	590	1000	<0	<0	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	7/23/1992	160	240	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-50	Neut	LSZ	10/27/1992	15	28	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	4/12/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-50	Neut	LSZ	1/9/1994	69	96	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	2/13/1995	11	20	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	5/6/1998	110	170 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-50	Neut	LSZ	4/17/2003	12	45	<9	0.53 J	<9	--	--	--	--	--	<9	<19	<9	1.5 J	--	Exceed
MW-50	Neut	LSZ	11/4/2003	16	55	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	2.2 J	--	Exceed
MW-50	Neut	LSZ	4/21/2004	23	67	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	1.5 J	--	Exceed
MW-50	Neut	LSZ	10/6/2004	23	37	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<20	<9.8	3.3 J	--	Exceed
MW-50	Neut	LSZ	4/11/2005	5 J	9.2 J	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-50	Neut	LSZ	10/17/2005	52	63	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	13	--	Exceed
MW-50	Neut	LSZ	4/12/2006	65	64	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	7.9 J	--	Exceed
MW-50	Neut	LSZ	11/3/2006	61	55	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-50	Neut	LSZ	4/10/2007	4.2 J	44	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-50	Neut	LSZ	10/4/2007	46	38	<1.0	<0.90	<0.98	--	--	--	--	--	<1.3	<0.64	<1.1	<4.3	--	Exceed
MW-50	Neut	LSZ	4/16/2008	49	31	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	4.3 J	--	Exceed
MW-50	Neut	LSZ	10/29/2008	55	38	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	3 J	--	Exceed
MW-50	Neut	LSZ	4/23/2009	14.3	29.4	<1.04	2.61 J	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	3.2 J	--	Exceed
MW-50	Neut	LSZ	10/20/2009	57	52.6	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	2.35 J	--	Exceed
MW-50	Neut	LSZ	4/15/2010	3.56 J	2.06 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-50	Neut	LSZ	10/26/2010	63.1	42.4	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	1.05 J	--	Exceed
MW-50	Neut	LSZ	4/21/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
MW-50	Neut	LSZ	4/25/2012	34	34.3	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	1.76 J	--	Exceed
MW-50	Neut	LSZ	4/21/2014	28	17	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-50	Neut	LSZ	4/22/2016	1.36 J	4.84 J	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-50	Neut	LSZ	4/19/2018	63.3	39.9	0.627 J X7	3.64 J X7	1.19 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-50	Neut	LSZ	5/1/2020	15.4	16.1	<0.685 X7	8.32 J X7	3.56 J X7	--	--	--	--	--	<1.29	<1.47	<1.33	<0.775	<4.67 X7	Exceed
MW-50	Neut	LSZ	4/20/2022	24.9	22.8	10.5 X7	220 X7	57.3 X7	--	--	--	--	--	<0.463	<5.91	<0.542	<2.96	<7.00 X7	Exceed
MW-50	Neut	LSZ	4/5/2024	21.9	26.9	22.1	351 b	96.9	--	--	--	--	--	<4.16 U	<8.32 U	<5.01 U	<1.28 U	<10.6 U*	Exceed
MW-51	DNTL	LSZ	5/21/1992	<0	13	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	7/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-51	DNTL	LSZ	10/31/1992	<0	16	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	4/13/1993	19	110	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	1/10/1994	19	180	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	2/11/1995	90	480	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-51	DNTL	LSZ	5/5/1998	150 D	1100 D	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-52	DNTL	LSZ	5/24/1992	13	11	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-52	DNTL	LSZ	7/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	4/18/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	1/11/1994	20	15	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-52	DNTL	LSZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-52	DNTL	LSZ	5/5/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-53	DNTL	LSZ	5/21/1992	1800	4500	<0	36	46	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	7/20/1992	570	1800	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	10/30/1992	140	390	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	4/13/1993	300	710	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	1/10/1994	640	1600	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	2/11/1995	960	2100	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	5/5/1998	1400 D	4300 D	3.5 J	15	19	--	--	--	--	--	--	--	--	--	--	Exceed
MW-53	DNTL	LSZ	4/7/2003	780 D	1700 D	63	77	56	--	--	--	--	--	<48	<95	<48	330	--	Exceed
MW-53	DNTL	LSZ	10/8/2003	1200	3400 D	<200	65 J	50 J	--	--	--	--	--	<200	<390	<200	740	--	Exceed
MW-53	DNTL	LSZ	4/20/2004	670 J	1900	67 J	77 J	62 J	--	--	--	--	--	<96	15 J	<96	450	--	Exceed
MW-53	DNTL	LSZ	10/11/2004	1900	3600	<110	27 J	20 J	--	--	--	--	--	<110	6.9 J	<110	440	--	Exceed
MW-53	DNTL	LSZ	4/12/2005	1100	2200	11 J	56 J	19 J	--	--	--	--	--	<97	18 J	<97	400	--	Exceed
MW-53	DNTL	LSZ	10/14/2005	1100	4000	<480	52 J	<480	--	--	--	--	--	<480	<480	<480	680	--	Exceed
MW-53	DNTL	LSZ	4/13/2006	1300	2800	12 J	73 J	33 J	--	--	--	--	--	<99	26 J	<99	510	--	Exceed
MW-53	DNTL	LSZ	11/3/2006	2200	3900	<190	25 J	<190	--	--	--	--	--	<190	<190	<190	350	--	Exceed
MW-53	DNTL	LSZ	4/11/2007	540	1400	<99	23 J	<99	--	--	--	--	--	<99	37 J	<99	380	--	Exceed
MW-53	DNTL	LSZ	10/10/2007	430	1200	<10	22 J	22 J	--	--	--	--	--	<12	26 J	<10	550	--	Exceed
MW-53	DNTL	LSZ	4/16/2008	1500	5600	<10	44 J	32 J	--	--	--	--	--	<9.8	<16	<11	390	--	Exceed
MW-53	DNTL	LSZ	10/29/2008	4100	8300	11 J	48 J	48 J	--	--	--	--	--	<9.8	<16	<11	340	--	Exceed
MW-53	DNTL	LSZ	4/17/2009	1660	3850	13.2 J	70.3 J	20.1 J	--	--	--	--	--	<9.75	23.9 J	<11.0	356	--	Exceed
MW-53	DNTL	LSZ	10/19/2009	3890	8720	17.3 J	98	85.8 J	--	--	--	--	--	<9.56	48.4 J	<10.8	553	--	Exceed
MW-53	DNTL	LSZ	4/12/2010	3110	4550	17.2 J	106	33.5 J	--	--	--	--	--	<9.65	<15.6	<10.9	412	--	Exceed
MW-53	DNTL	LSZ	10/19/2010	4800	9190	14.1 J	87.1 J	77.8 J	--	--	--	--	--	<9.56	33.7 J	<10.8	429	--	Exceed
MW-53	DNTL	LSZ	4/20/2011	4410	5410	70.2 J	74 J	69.3 J	--	--	--	--	--	<11.3	<49.4	<14.9	480	<32.0 J	Exceed
MW-53	DNTL	LSZ	4/23/2012	4190	10300	18.1 J	96.1	34.4	--	--	--	--	--	<2.25	14.4 J	<2.94	494	--	Exceed
MW-53	DNTL	LSZ	4/15/2014	4000	13000	220	430	220	--	--	--	--	--	<11	<13	<11	520	<40	Exceed
MW-53	DNTL	LSZ	4/11/2016	3490	10200	291 X7	631 X7	319 X7	--	--	--	--	--	<22.1	<25.2	<22.7	202	<80.0 X7	Exceed
MW-53	DNTL	LSZ	4/19/2018	3,660	17,000	197 J X7	803 X7	368 J X7	--	--	--	--	--	<1.15	<1.31	8.17 J	17.5	<4.16 X7	Exceed
MW-53	DNTL	LSZ	4/30/2020	1490	8290	<31.1 X7	<54.6 X7	<54.1 X7	--	--	--	--	--	<58.7	<66.8	<60.2	1030	<212 X7	Exceed
MW-53	DNTL	LSZ	4/20/2022	1280	7820	39.1 J X7	478 X7	115 X7	--	--	--	--	--	<4.52	<57.6	<5.28	261	<68.2 X7	Exceed
MW-53	DNTL	LSZ	4/11/2024	2130	9110	26.0	83.1	42.8	--	--	--	--	--	<8.39 U	<16.8 U	<10.1 U	266	<21.3 U*	Exceed
MW-54	DNTL	SZ	5/21/1992	1500	3600	<0	44	40	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	7/20/1992	1600	3700	<0	28	38	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	10/30/1992	1200	5300	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	4/13/1993	8200	23000	<0	78	66	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	1/10/1994	8700	36000	30	120	65	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	2/11/1995	18000	38000	<0	100	99	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	5/5/1998	8300 D	41000 D	51	190	130	--	--	--	--	--	--	--	--	--	--	Exceed
MW-54	DNTL	SZ	4/7/2003	13000	55000	<5000	<5000	<5000	--	--	--	--	--	<5000	<10000	<5000	860 J	--	Exceed
MW-54	DNTL	SZ	10/8/2003	13000 D	47000 D	250 J	820	670	--	--	--	--	--	<490	<970	<490	250 J	--	Exceed
MW-54	DNTL	SZ	4/20/2004	9400	52000	60 J	170 J	160 J	--	--	--	--	--	<480	<950	<480	990	--	Exceed
MW-54	DNTL	SZ	10/11/2004	17000	39000	110	210	240	--	--	--	--	--	<96	<190	15 J	940	--	Exceed
MW-54	DNTL	SZ	4/12/2005	9600	25000	28 J	120	110	--	--	--	--	--	<97	<97	12 J	790	--	Exceed
MW-54	DNTL	SZ	10/14/2005	16000	58000	32 J	140	120	--	--	--	--	--	<96	<96	12 J	990	--	Exceed
MW-54	DNTL	SZ	4/13/2006	21000	54000	36 J	140	140	--	--	--	--	--	<97	<97	12 J	<3900	--	Exceed
MW-54	DNTL	SZ	11/3/2006	12000	36000	22 J	100 J	87 J	--	--	--	--	--	<190	<190	<190	1200	--	Exceed
MW-54	DNTL	SZ	4/9/2007	17000	43000	27 J	110	120	--	--	--	--	--	<97	<97	14 J	<3900	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-54	DNTL	SZ	10/4/2007	15000	31000	33 J	130	110	--	--	--	--	--	<12	<6.2	<10	1100	--	Exceed
MW-54	DNTL	SZ	4/15/2008	11000	33000	29 J	130	110	--	--	--	--	--	<9.8	<16	11 J	1100 J	--	Exceed
MW-54	DNTL	SZ	10/21/2008	14000	36000	34 J	140	120	--	--	--	--	--	<9.7	<16	<11	1200	--	Exceed
MW-54	DNTL	SZ	4/17/2009	15400	39900	30.8 J	112	90.5 J	--	--	--	--	--	<9.56	<15.4	<10.8	1780	--	Exceed
MW-54	DNTL	SZ	10/19/2009	20600	44300	26.5 J	92.4 J	86.2 J	--	--	--	--	--	<9.56	<15.4	<10.8	1460	--	Exceed
MW-54	DNTL	SZ	4/12/2010	21700	47300	24 J	92.7 J	96.6 J	--	--	--	--	--	<9.75	<15.7	<11.0	3790	--	Exceed
MW-54	DNTL	SZ	10/19/2010	12900	29500	22.1 J	77.2 J	80.7 J	--	--	--	--	--	<9.65	<15.6	<10.9	1260	--	Exceed
MW-54	DNTL	SZ	4/20/2011	24700	57300	74.4 J	66.2 J	112	--	--	--	--	--	<11.1	<48.5	<14.6	374 J	<31.4 J	Exceed
MW-54	DNTL	SZ	4/24/2012	24400	53000	<49.9	60.3 J	<71.8	--	--	--	--	--	<55.1	<240	<72.1	1370	--	Exceed
MW-54	DNTL	SZ	4/15/2014	21000	51000	71 J	180	140	--	--	--	--	--	<11	<13	12 J	1700	<40	Exceed
MW-54	DNTL	SZ	4/11/2016	29500	51100	69.0 X7	159 X7	124 X7	--	--	--	--	--	<5.53	<6.30	8.27 J	1530	<20.0 X7	Exceed
MW-54	DNTL	USZ	4/19/2018	21,500	50,400	47.5 J X7	143 J X7	82.3 J X7	--	--	--	--	--	<57.5	<65.5	<59.0	2010	<208 X7	Exceed
MW-54	DNTL	USZ	4/29/2020	13700	37600	19.9 J X7	115 J X7	43.8 J X7	--	--	--	--	--	<22.5	67.2 J	<23.1	1630 J	2310 J X7	Exceed
MW-54	DNTL	USZ	4/21/2022	11400	37000	101 X7	762 X7	304 X7	--	--	--	--	--	<4.56	<58.2	6.04 J	<29.1	<68.9 X7	Exceed
MW-54	DNTL	USZ	4/11/2024	13000	22800	24.5	66.5	64.8	--	--	--	--	--	<7.93 U	<15.9 U	<9.55 U	2100	<20.1 U*	Exceed
MW-55	DNTL	LSZ	6/3/1992	21	15	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-55	DNTL	LSZ	7/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	4/14/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	1/10/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-55	DNTL	LSZ	2/11/1995	<0	61	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-55	DNTL	LSZ	5/5/1998	<10	580 D	4.5 J	44	5.8 J	--	--	--	--	--	--	--	--	--	--	Exceed
MW-55	DNTL	LSZ	4/7/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	2 J	--	~
MW-55	DNTL	LSZ	10/8/2003	940 D	3800 D	22 J	78	51	--	--	--	--	--	<48	<97	<48	71 J	--	Exceed
MW-55	DNTL	LSZ	4/20/2004	520	2400	<95	<95	<95	--	--	--	--	--	<95	<190	<95	120 J	--	Exceed
MW-55	DNTL	LSZ	10/11/2004	1600	4100	10 J	68 J	26 J	--	--	--	--	--	<96	<190	<96	<190	--	Exceed
MW-55	DNTL	LSZ	4/12/2005	1200	2400	<48	16 J	7 J	--	--	--	--	--	<48	<48	<48	230	--	Exceed
MW-55	DNTL	LSZ	10/14/2005	1700	5100	<48	17 J	7.9 J	--	--	--	--	--	<48	<48	<48	320	--	Exceed
MW-55	DNTL	LSZ	4/13/2006	24	100	<9.9	1.8 J	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
MW-55	DNTL	LSZ	11/7/2006	<9.6	21	<9.6	2.6 J	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-55	DNTL	LSZ	4/9/2007	2700	5900	<96	17 J	<96	--	--	--	--	--	<96	<96	<96	590	--	Exceed
MW-55	DNTL	LSZ	10/4/2007	9.2 J	37	<1.0	1.2 J	<0.94	--	--	--	--	--	<1.2	4 J	<1.0	12	--	Exceed
MW-55	DNTL	LSZ	4/15/2008	1300	2700	8 J	28	12	--	--	--	--	--	<0.96	<1.6	1.2 J	490	--	Exceed
MW-55	DNTL	LSZ	10/21/2008	1900	5400	8.6 J	31	15	--	--	--	--	--	<0.96	<1.6	1.3 J	350	--	Exceed
MW-55	DNTL	LSZ	4/17/2009	1470	5380	7.8 J	27.7	5.13 J	--	--	--	--	--	<0.965	<1.56	<1.09	377	--	Exceed
MW-55	DNTL	LSZ	10/19/2009	9080	21600	7.79 J	24.6	12.8	--	--	--	--	--	<0.956	<1.54	1.36 J	606	--	Exceed
MW-55	DNTL	LSZ	4/12/2010	4400	7370	6.94 J	27.9 J	8.41 J	--	--	--	--	--	<4.78	<7.70	<5.38	673	--	Exceed
MW-55	DNTL	LSZ	10/19/2010	4350	8540	<25.2	<25.8	<36.3	--	--	--	--	--	<24.1	<38.9	<27.2	465	--	Exceed
MW-55	DNTL	LSZ	4/19/2011	3370	8930	<20.4	33.5 J	<29.3	--	--	--	--	--	<22.5	<97.9	<29.4	593	<63.4 J	Exceed
MW-55	DNTL	LSZ	4/24/2012	4060	10700	8.9 J	33.4	11	--	--	--	--	--	<1.11	<4.85	<1.46	505	--	Exceed
MW-55	DNTL	LSZ	4/15/2014	6500	19000	110 J	300	200	--	--	--	--	--	<14	<16	<15	490	<51	Exceed
MW-55	DNTL	LSZ	4/12/2016	6100	11800	86.1 J X7	200 X7	146 X7	--	--	--	--	--	<11.1	<12.6	<11.3	390	<40.0 X7	Exceed
MW-55	DNTL	LSZ	4/19/2018	8,810	15,500	42.3 X7	86.1 X7	50.5 X7	--	--	--	--	--	<1.15	<1.31	2.6 J	412 J	<4.16 X7	Exceed
MW-55	DNTL	LSZ	4/29/2020	5910	10600	12.0 X7	28.9 X7	17.8 X7	--	--	--	--	--	<1.15	<1.31	<1.18	1310	<4.16 X7	Exceed
MW-55	DNTL	LSZ	4/21/2022	5430	12100	21.4 J X7	110 X7	46.1 J X7	--	--	--	--	--	<2.29	<29.2	<2.68	568	<34.5 X7	Exceed
MW-55	DNTL	LSZ	4/11/2024	5210	9680	9.99 J	27.8	17.8 J	--	--	--	--	--	<7.85 U	<15.7 U	<9.46 U	527	<19.9 U*	Exceed
MW-56	DNTL	SZ	6/4/1992	4500	4600	<0	25	31	--	--	--	--	--	--	--	--	--	--	Exceed
MW-56	DNTL	SZ	7/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	4/14/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	1/10/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	5/5/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-56	DNTL	SZ	4/7/2003	530 D	2800 D	10	16	11	--	--	--	--	--	<9	<19	<9	120	--	Exceed
MW-56	DNTL	SZ	10/8/2003	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<20	<9.9	<20	--	~
MW-56	DNTL	SZ	4/20/2004	<9.7	22	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	Exceed
MW-56	DNTL	SZ	10/11/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.6 J	<10	3.4 J	--	~
MW-56	DNTL	SZ	4/12/2005	9.7	58	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-56	DNTL	SZ	10/14/2005	8.9 J	28	<19	1.9 J	<19	--	--	--	--	--	<19	2.1 J	<19	9.6 J	--	Exceed
MW-56	DNTL	SZ	4/13/2006	2300	4900	<97	31 J	16 J	--	--	--	--	--	<97	<97	<97	270	--	Exceed
MW-56	DNTL	SZ	11/7/2006	1200	2900	<95	11 J	<95	--	--	--	--	--	<95	<95	<95	210	--	Exceed
MW-56	DNTL	SZ	4/10/2007	18	62	<9.6	3 J	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed
MW-56	DNTL	SZ	10/4/2007	3100	6800	8.3 J	38 J	20 J	--	--	--	--	--	<6.5	<3.2	<5.3	430	--	Exceed
MW-56	DNTL	SZ	4/15/2008	22	48	<1.0	4.1 J	<1.5	--	--	--	--	--	<0.99	<1.6	<1.1	<0.88	--	Exceed
MW-56	DNTL	SZ	10/21/2008	20	80	<1.0	2.2 J	<1.4	--	--	--	--	--	<0.96	11	<1.1	26	--	Exceed
MW-56	DNTL	SZ	4/17/2009	4.39 J	42.6	<1.04	3.28 J	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	<0.875	--	Exceed
MW-56	DNTL	SZ	10/19/2009	11.5	33.3	30.4	<1.02	<1.44	--	--	--	--	--	<0.956	4.63 J	<1.08	94.1	--	Exceed
MW-56	DNTL	SZ	4/12/2010	11	64.4	<0.998	2.23 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-56	DNTL	SZ	10/19/2010	<2.77	1.65 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	5.06 J	<1.08	21.2	--	Exceed
MW-56	DNTL	SZ	4/20/2011	10.8	58.3	<1.02	1.1 J	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	Exceed
MW-56	DNTL	SZ	4/24/2012	<2.80	3.54 J	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	7.31 J	--	Exceed
MW-56	DNTL	SZ	4/16/2014	11	52	1.9 J	2.9 J	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	2 J	<4.1	Exceed
MW-56	DNTL	SZ	4/28/2016	<0.922	35.2	1.10 J X7	2.78 J X7	<1.03 X7	--	--	--	--	--	<1.12	<1.27	<1.15	<0.670	6.05 J X7	Exceed
MW-56	DNTL	USZ	4/20/2018	10.5	154	40 X7	46.8 X7	31.5 X7	--	--	--	--	--	<1.15	21.7	<1.18	25.9	36.2 X7	Exceed
MW-56	DNTL	USZ	4/29/2020	347	627	1.27 J X7	9.81 J X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	25.8	<4.33 X7	Exceed
MW-56	DNTL	USZ	4/21/2022	9.48	68.2	<5.57 X7	<3.65 X7	<3.95 X7	--	--	--	--	--	<2.32	<296	<2.71	<14.8	<35.0 X7	Exceed
MW-56	DNTL	USZ	4/12/2024	<0.0610 U	34.8	<1.06 U	3.61 J	<0.774 U	--	--	--	--	--	<3.77 U	<7.55 U	<4.55 U	1.94 J	<9.58 U	Exceed
MW-57	DNTL	SZ	5/22/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	7/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	10/30/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	4/13/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	1/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-57	DNTL	SZ	5/4/1998	<10	14	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
MW-57	DNTL	SZ	4/20/2021	0.195	0.379	<12.4 X7	<12.4 X7	<12.4 X7	--	--	--	--	--	<0.582	<7.43	<0.681	<3.72	<8.80 X7	Exceed
MW-58	DNTL	LSZ	6/3/1992	9700	23000	25	230	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	7/20/1992	1000	1900	<0	76	43	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	10/31/1992	1900	4500	<0	82	48	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	4/14/1993	10000	3800	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	1/9/1994	2900	11000	330	1300	390	--	--	--	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-58	DNTL	LSZ	2/11/1995	8700	23000	<0	210	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	5/5/1998	7100 D	23000 D	35	220 D	140	--	--	--	--	--	--	--	--	--	--	Exceed
MW-58	DNTL	LSZ	4/4/2003	10000	33000 D	64 J	280 J	190 J	--	--	--	--	--	<970	<1900	<970	1500 J	--	Exceed
MW-58	DNTL	LSZ	10/7/2003	11000 D	22000 D	220 J	610	500	--	--	--	--	--	<480	<950	<480	720 J	--	Exceed
MW-58	DNTL	LSZ	4/20/2004	7900	31000	<950	180 J	97 J	--	--	--	--	--	<950	<1900	<950	1200 J	--	Exceed
MW-58	DNTL	LSZ	10/11/2004	11000	20000	200	420	370	--	--	--	--	--	<98	<200	7.5 J	770	--	Exceed
MW-58	DNTL	LSZ	4/12/2005	8300	18000	26 J	200	120	--	--	--	--	--	<97	<97	<97	1200	--	Exceed
MW-58	DNTL	LSZ	10/14/2005	9900	26000	27 J	220	150	--	--	--	--	--	<98	<98	<98	1400	--	Exceed
MW-58	DNTL	LSZ	4/13/2006	11000	25000	25 J	210	130	--	--	--	--	--	<96	<96	<96	1600 J	--	Exceed
MW-58	DNTL	LSZ	10/13/2006	10000	21000	<490	350 J	240 J	--	--	--	--	--	<490	<490	<490	1600	--	Exceed
MW-58	DNTL	LSZ	4/9/2007	7300	16000	17 J	150	89 J	--	--	--	--	--	<99	<99	<99	1200 J	--	Exceed
MW-58	DNTL	LSZ	10/4/2007	8800	15000	20 J	150	100	--	--	--	--	--	<12	<6.2	<10	1100	--	Exceed
MW-58	DNTL	LSZ	4/14/2008	2700	9100	15 J	110	29 J	--	--	--	--	--	<9.7	<16	<11	1300	--	Exceed
MW-58	DNTL	LSZ	10/23/2008	6000	14000	18 J	140	88 J	--	--	--	--	--	<9.7	<16	<11	1300	--	Exceed
MW-58	DNTL	LSZ	4/17/2009	6680	17400	19.5 J	171	78.5 J	--	--	--	--	--	<9.56	<15.4	<10.8	2020	--	Exceed
MW-58	DNTL	LSZ	10/19/2009	9220	21900	19.9 J	126	83.3 J	--	--	--	--	--	<9.56	<15.4	<10.8	1830 J	--	Exceed
MW-58	DNTL	LSZ	4/12/2010	7730	16800	22.1 J	164	105	--	--	--	--	--	<9.75	<15.7	<11.0	2920	--	Exceed
MW-58	DNTL	LSZ	10/20/2010	6620	14800	15.7 J	133	83.4 J	--	--	--	--	--	<9.94	<16.0	<11.2	1430	--	Exceed
MW-58	DNTL	LSZ	4/20/2011	10900	25700	76.4 J	148	142	--	--	--	--	--	<11.2	<49.0	<14.7	1350 J	37.7 J	Exceed
MW-58	DNTL	LSZ	4/23/2012	9950	24100	26.1	219	155	--	--	--	--	--	<2.20	<9.60	3.49 J	2280	--	Exceed
MW-58	DNTL	LSZ	4/16/2014	7000	20000	73 J	280	170	--	--	--	--	--	<11	<13	<12	2900	<41	Exceed
MW-58	DNTL	LSZ	4/12/2016	7600	19000	50.5 X7	236 X7	128 X7	--	--	--	--	--	<5.53	<6.30	<5.67	2980	<20.0 X7	Exceed
MW-58	DNTL	LSZ	4/24/2018	9,730	23,400	48.7 J X7	442 J X7	139 J X7	--	--	--	--	--	<55.8	<63.6	<57.3	3,660	<202 X7	Exceed
MW-58	DNTL	LSZ	4/30/2020	13400	36500	<29.9 X7	203 J X7	90.7 J X7	--	--	--	--	--	<56.4	<64.2	<57.8	7780	<204 X7	Exceed
MW-58	DNTL	LSZ	10/26/2021	10200	21100	36.2 J X7	199 X7	173 X7	--	--	--	--	--	<2.42	<30.9	8.36 J	4400	<36.5 X7	Exceed
MW-58	DNTL	LSZ	4/20/2022	85.8	278	35.0 J X7	285 X7	124 X7	--	--	--	--	--	<2.30	<29.4	5.25 J	<14.7	<34.8 X7	Exceed
MW-58	DNTL	LSZ	10/14/2022	25.2	127	28.7 X7	156 X7	25.6 X7	--	--	--	--	--	<0.905	<11.6	2.71 J	<5.78	<13.7 X7	Exceed
MW-58	DNTL	LSZ	4/19/2023	<0.0572	171	22.0 J	161	27.6	--	--	--	--	--	<1.10	<14.1	2.28 J	<7.04	<16.7	Exceed
MW-58	DNTL	LSZ	10/17/2023	<0.0575 U	54.9	32.4	116	13.8	--	--	--	--	--	<3.72 U	<7.44 U	<4.48 U	<1.15 U	<9.45 U*	Exceed
MW-58	DNTL	LSZ	4/12/2024	<0.0594 U	236	25.3	90.3	21.1	--	--	--	--	--	<3.92 U	<7.84 U	<4.72 U	<1.21 U	<9.95 U	Exceed
MW-59	DNTL	SZ	6/3/1992	500	1100	<0	28	19	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	7/20/1992	440	810	<0	15	11	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	10/31/1992	500	910	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	4/14/1993	890	600	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	1/9/1994	880	1500	<0	47	37	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	2/11/1995	330	1100	<0	28	22	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	5/5/1998	870 D	4500 D	9.5 J	70	51	--	--	--	--	--	--	--	--	--	--	Exceed
MW-59	DNTL	SZ	4/4/2003	940	2300	<490	60 J	53 J	--	--	--	--	--	<490	<980	<490	3600	--	Exceed
MW-59	DNTL	SZ	10/7/2003	990	2500	87 J	83 J	120 J	--	--	--	--	--	<490	110 J	<490	2700	--	Exceed
MW-59	DNTL	SZ	4/20/2004	940	3400	<200	64 J	50 J	--	--	--	--	--	<200	38 J	<200	3100 J	--	Exceed
MW-59	DNTL	SZ	10/22/2004	1700	5500	26 J	120	100 J	--	--	--	--	--	<110	26 J	<110	4900	--	Exceed
MW-59	DNTL	SZ	4/12/2005	1100	2700	<490	79 J	<490	--	--	--	--	--	<490	37 J	<490	3500	--	Exceed
MW-59	DNTL	SZ	10/14/2005	1100	3200	<480	120 J	85 J	--	--	--	--	--	<480	46 J	<480	7300	--	Exceed
MW-59	DNTL	SZ	4/17/2006	1100	2800	<190	110 J	67 J	--	--	--	--	--	<190	42 J	<190	5200	--	Exceed
MW-59	DNTL	SZ	10/13/2006	1100	2600	<480	120 J	82 J	--	--	--	--	--	<480	39 J	<480	4700	--	Exceed
MW-59	DNTL	SZ	4/9/2007	1100	2000	<200	72 J	42 J	--	--	--	--	--	<200	30 J	<200	3800	--	Exceed
MW-59	DNTL	SZ	10/4/2007	970	2000	<20	81 J	53 J	--	--	--	--	--	<25	37 J	<21	3300	--	Exceed
MW-59	DNTL	SZ	4/14/2008	440	1400	10 J	83 J	47 J	--	--	--	--	--	<9.6	36 J	<11	3100	--	Exceed
MW-59	DNTL	SZ	10/23/2008	1000	2100 J	10 J	97	56 J	--	--	--	--	--	<9.7	73 J	<11	2800	--	Exceed
MW-59	DNTL	SZ	4/17/2009	1280	2430	12.4 J	106	56.9 J	--	--	--	--	--	<9.56	42.4 J	<10.8	3500	--	Exceed
MW-59	DNTL	SZ	10/19/2009	1930	4400	17.5 J	117	79.3 J	--	--	--	--	--	<9.65	29.7 J	<10.9	7090	--	Exceed
MW-59	DNTL	SZ	4/12/2010	1410	2650	11 J	98.3	54.8 J	--	--	--	--	--	<9.56	28 J	<10.8	6030	--	Exceed
MW-59	DNTL	SZ	10/20/2010	1800	3340	10.9 J	104	71.2 J	--	--	--	--	--	<9.56	27.9 J	<10.8	4410	--	Exceed
MW-59	DNTL	SZ	4/20/2011	66.6 J	3210	69.1 J	94.1 J	103	--	--	--	--	--	<11.1	<48.5	<14.6	6270	1630 J	Exceed
MW-59	DNTL	SZ	4/23/2012	1,290	2,840	15.7	136	67.4	--	--	--	--	--	<1.10	35.7	<1.44	5530	--	Exceed
MW-59	DNTL	SZ	4/16/2014	2,200	3,600	37 J	170	91 J	--	--	--	--	--	<11	36 J	<12	6800	1500	Exceed
MW-59	DNTL	SZ	4/12/2016	1,660	2,590	28.7 J X7	130 X7	70.3 J X7	--	--	--	--	--	<11.1	33.1 J	<11.3	4610	2040 X7	Exceed
MW-59	DNTL	USZ	4/20/2018	2,860	5,220	44.4 J X7	371 J X7	166 J X7	--	--	--	--	--	<57.5	<65.5	<59.0	6,760	<208 X7	Exceed
MW-59	DNTL	USZ	4/30/2020	8,290	14,600	<29.9 X7	106 J X7	<52.0 X7	--	--	--	--	--	<56.4	<64.2	<57.8	8800	<204 X7	Exceed
MW-59	DNTL	USZ	5/3/2021	4,580	6,250	<107 X7	113 X7	<107 X7	--	--	--	--	--	<5.03	<64.2	<5.89	5,290	97.8 J X7	Exceed
MW-59	DNTL	USZ	10/26/2021	3,790	3,970	16.7 J X7	209 X7	50.0 J X7	--	--	--	--	--	<4.74	<60.5	<5.54	558	<71.6 X7	Exceed
MW-59	DNTL	USZ	4/20/2022	157	366	53.7 J X7	107 X7	89.6 J X7	--	--	--	--	--	<4.49	<57.3	7.39 J	2010	<6.78 X7	Exceed
MW-59	DNTL	USZ	10/14/2022	313	26.1	136 X7	812 X7	261 X7	--	--	--	--	--	<4.54	<57.9	<5.31	210	<68.5	Exceed
MW-59	DNTL	USZ	4/19/2023	409	623	14.8 J	53.6 J	18.3 J	--	--	--	--	--	<2.97	<38.0	<3.48	632	<44.9	Exceed
MW-59	DNTL	USZ	10/17/2023	260	391	50.7	73.2	54.6	--	--	--	--	--	<8.12 U	<16.2 U	<9.78 U	594	45.9 *	Exceed
MW-59	DNTL	USZ	4/12/2024	259	389	14.4	50.3	17.0	--	--	--	--	--	<4.08 U	13.0	<4.92 U	81.5	<10.4 U	Exceed
MW-60	DNTL	LSZ	5/24/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	7/20/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	10/31/1992	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	4/12/1993	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	1/11/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	2/11/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	5/4/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-60	DNTL	LSZ	4/7/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-60	DNTL	LSZ	10/7/2003	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-60	DNTL	LSZ	4/20/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-60	DNTL	LSZ	10/11/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-60	DNTL	LSZ	4/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-60	DNTL	LSZ	10/19/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-60	DNTL	LSZ	4/17/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-60	DNTL	LSZ	10/18/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-60	DNTL	LSZ	4/11/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-60	DNTL	LSZ	10/9/2007	<0.82	<0.84	<1.0	<0.89	<0.97	--	--	--	--	--	<1.3	<0.64	<1.0	<4.2	--	~
MW-60	DNTL	LSZ	4/14/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-60	DNTL	LSZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-60	DNTL	LSZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-60	DNTL	LSZ	10/19/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-60	DNTL	LSZ	4/13/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-60	DNTL	LSZ	10/20/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-60	DNTL	LSZ	4/26/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-60	DNTL	LSZ	4/25/2012	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	--	~
MW-60	DNTL	LSZ	4/18/2014	<0.91	2.7 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-60	DNTL	LSZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2 L	<1.3	<1.2	<0.69	<4.2	~
MW-60	DNTL	LSZ	4/21/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-60	DNTL	LSZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-60	DNTL	LSZ	4/30/2020	<0.969	3.14 J	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	Exceed
MW-60	DNTL	LSZ	4/25/2022	<0.0590	1.69	<1.10 X7	<0.723 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93 X7	Exceed
MW-60	DNTL	LSZ	4/11/2024	5.16	8.92	<1.10 U	<0.739 U	<0.799 U	--	--	--	--	--	<3.89 U	<7.79 U	<4.69 U	1.25 J	<9.88 U*	Exceed
MW-61	Neut	SZ	6/5/1992	130000	110000	110	390	410	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	7/28/1992	130000	100000	81	280	340	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	10/29/1992	59000	58000	200	1300	980	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	4/18/1993	30000	24000	350	730	590	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	1/11/1994	23000	17000	140	210	210	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	2/14/1995	46000	45000	<0	380	310	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	5/27/1998	45000 D	43000 D	170	780	520	--	--	--	--	--	--	--	--	--	--	Exceed
MW-61	Neut	SZ	4/10/2003	25000	20000	<4800	480 J	270 J	--	--	--	--	--	<4800	<9500	<4800	8900 J	--	Exceed
MW-61	Neut	SZ	10/6/2003	28000	26000	620 J	950 J	910 J	--	--	--	--	--	<4900	<9800	<4900	13000	--	Exceed
MW-61	Neut	SZ	4/19/2004	53000	45000	950	1100	1200	--	--	--	--	--	<530	120 J	<530	18000	--	Exceed
MW-61	Neut	SZ	10/12/2004	3100	7000	220 J	3000	980	--	--	--	--	--	<490	<970	<490	<970	--	Exceed
MW-61	Neut	SZ	4/18/2005	17000	17000	<490	330 J	170 J	--	--	--	--	--	<490	130 J	<490	8800	--	Exceed
MW-61	Neut	SZ	10/19/2005	14000	18000	<960	320 J	<960	--	--	--	--	--	<960	100 J	<960	10000	--	Exceed
MW-61	Neut	SZ	4/18/2006	19000	27000	50 J	430	130	--	--	--	--	--	<96	93 J	<96	9200	--	Exceed
MW-61	Neut	SZ	11/3/2006	13000	23000	<480	360 J	110 J	--	--	--	--	--	<480	41 J	<480	6700	--	Exceed
MW-61	Neut	SZ	4/17/2007	12000	17000	28 J	220	63 J	--	--	--	--	--	<98	33 J	<98	7400	--	Exceed
MW-61	Neut	SZ	10/3/2007	18000	22000	40 J	340	97 J	--	--	--	--	--	<13	70 J	<10	9900	--	Exceed
MW-61	Neut	SZ	4/10/2008	14000	18000	26 J	280	83 J	--	--	--	--	--	<9.6	76 J	<11	12000	--	Exceed
MW-61	Neut	SZ	10/21/2008	21000	24000	59 J	550	260	--	--	--	--	--	<9.7	310	<11	25000	--	Exceed
MW-61	Neut	SZ	4/16/2009	34800	32500	61.6 J	552	256	--	--	--	--	--	<9.65	339	<10.9	34800	--	Exceed
MW-61	Neut	SZ	10/20/2009	19900 J	28300 J	52.1 J	397 J	98.6 J	--	--	--	--	--	<9.75 J	206 J	<11.0 J	14600 J	--	Exceed
MW-61	Neut	SZ	4/15/2010	26800	20700	38.5 J	368	176	--	--	--	--	--	<9.56	215	<10.8	18200	--	Exceed
MW-61	Neut	SZ	10/19/2010	19900	21700	42 J	382	143	--	--	--	--	--	<9.56	148	<10.8	12900	--	Exceed
MW-61	Neut	SZ	4/27/2011	20800	20300	87.3 J	308	145	--	--	--	--	--	<11.2	122	<14.7	16000	4330 J	Exceed
MW-61	Neut	SZ	4/25/2012	9360	8240	54.3	766	257	--	--	--	--	--	<1.10	65.5	2.83 J	6110	--	Exceed
MW-61	Neut	SZ	4/17/2014	6700	8300	250	2900	870	--	--	--	--	--	<11	56 J	<11	6100	460	Exceed
MW-61	Neut	SZ	4/22/2016	18000	12200	240 X7	3640 X7	1360 X7	--	--	--	--	--	<11.1	88.7 J	<11.3	11500	3360 X7	Exceed
MW-61	Neut	USZ	4/24/2018	2,660	9,570	340 J X7	5,580 X7	1,790 X7	--	--	--	--	--	<59.3	<67.5	<60.8	6,170	<214 X7	Exceed
MW-61	Neut	USZ	4/28/2020	6750	7030	793 X7	10300 X7	4860 J X7	--	--	--	--	--	<1.13	<64.2	<1.16	8520	1460 X7	Exceed
MW-61	Neut	USZ	4/27/2022	7970	9620	198 J X7	4310 X7	1240 X7	--	--	--	--	--	<9.48	<121	<11.1	11300	4910 X7	Exceed
MW-61	Neut	USZ	4/4/2024	11000	8590	73.5	6960	3140	--	--	--	--	--	<4.49 U	<8.98 U*	<5.41 U	7600	<11.4 U*	Exceed
MW-62	EI	IZ	8/30/1995	950	1600	<0	810	570	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	9/24/1995	750	900 D	57	580	520	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	10/21/1998	590 D	840 D	27	380 D	250 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	4/23/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-62	EI	IZ	10/20/1999	170	380	870	370	260	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	5/18/2000	220 D	450 D	25	270 D	200 D	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	10/6/2000	120	250 D	18	190 D	130	--	--	--	--	--	--	--	--	--	--	Exceed
MW-62	EI	IZ	4/3/2001	50	86	5.3 J	77	48	--	--	--	--	--	<10	<20	<10	2.1 J	--	Exceed
MW-62	EI	IZ	10/24/2001	8.2 J	13	1 J	17	11	--	--	--	--	--	<10	5.2 J	<10	<20	--	Exceed
MW-62	EI	IZ	4/25/2002	9.3 J	16	1.1 J	16	10	--	--	--	--	--	<10	<21	<10	<21	--	Exceed
MW-62	EI	IZ	10/8/2002	6 J	9.7	0.74 J	9.9	6.7 J	--	--	--	--	--	<9	<19	<9	0.62 J	--	Exceed
MW-62	EI	IZ	4/2/2003	9.1 J	14	1 J	14	11	--	--	--	--	--	<9	<19	<9	<19	--	Exceed
MW-62	EI	IZ	10/7/2003	3.8 J	8 J	0.6 J	7.9 J	5 J	--	--	--	--	--	<9.5	0.66 J	<9.5	0.24 J	--	Exceed
MW-62	EI	IZ	4/28/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	0.6 J	<10	<20	--	~
MW-62	EI	IZ	10/22/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-62	EI	IZ	4/18/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-62	EI	IZ	10/19/2005	1.8 J	4.4 J	<9.5	4.3 J	2.6 J	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	Exceed
MW-62	EI	IZ	4/18/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-62	EI	IZ	10/18/2006	1.2 J	1.5 J	<9.7	2.4 J	1.5 J	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-62	EI	IZ	4/11/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-62	EI	IZ	10/4/2007	1.2 J	1.8 J	<1.0	2.5 J	1.3 J	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-62	EI	IZ	4/16/2008	<2.8	<0.98	<1.0	1.8 J	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-62	EI	IZ	10/29/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-62	EI	IZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-62	EI	IZ	10/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-62	EI	IZ	4/16/2010	<2.77	2.38 J	<0.998	3.4 J	2.07 J	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-62	EI	IZ	10/20/2010	<2.80	1.56 J	<1.01	2.22 J	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-62	EI	IZ	4/25/2011	<2.77	2.55 J	5.67 J	2.05 J	6.44 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	Exceed
MW-62	EI	IZ	4/25/2012	<2.77	1.07 J	<0.998	2.3 J	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-62	EI	IZ	4/18/2014	2.6 J	3.8 J	<0.59	4.1 J	3.1 J	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-62	EI	IZ	4/11/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-62	EI	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-62	EI	IZ	4/30/2020	<0.979	1.60 J	<0.629 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<1.19	<1.35	<1.22	<0.711	<4.29 X7	Exceed
MW-62	EI	IZ	4/26/2022	1.48	1.14	<1.18 X7	<0.770 X7	<0.833 X7	--	--	--	--	--	<0.489	<6.24	<0.572	<3.12	<7.39 X7	Exceed
MW-62	EI	IZ	4/25/2024	3.82	6.07	<1.30 U	1.38 J	0.960 J	--	--	--	--	--	<4.60 U	<9.21 U	<5.55 U	<1.42 U	<11.7 U*	Exceed
MW-63	EI	DZ	8/30/1995	39	47	<0	30	27	--	--	--	--	--	--	--	--	--	--	Exceed
MW-63	EI	DZ	9/24/1995	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	12/4/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	4/22/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	10/20/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	5/18/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	10/6/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
MW-63	EI	DZ	4/3/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-63	EI	DZ	10/24/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	3 J	<10	<20	--	Exceed
MW-63	EI	DZ	4/25/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-63	EI	DZ	10/7/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.8 J	<10	<21	--	Exceed
MW-63	EI	DZ	4/2/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	2.8 J	<9	<19	--	Exceed
MW-63	EI	DZ	10/21/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	10/22/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	10/23/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-63	EI	DZ	10/24/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-63	EI	DZ	4/20/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-63	EI	DZ	10/22/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-63	EI	DZ	10/23/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-63	EI	DZ	11/30/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	5.2 J	<9.6	<19	--	Exceed
MW-63	EI	DZ	1/6/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.1 J	<10	<20	--	~
MW-63	EI	DZ	2/9/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	3.3 J	<9.8	<9.8	--	Exceed
MW-63	EI	DZ	3/23/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	2.1 J	<10	<10	--	Exceed
MW-63	EI	DZ	4/7/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	2.5 J	<9.8	<9.8	--	Exceed
MW-63	EI	DZ	5/11/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	2.1 J	<10	<10	--	Exceed
MW-63	EI	DZ	6/9/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	1.6 J	<9.7	<9.7	--	Exceed
MW-63	EI	DZ	7/7/2005	<10	<10	<10	<10	<10	--	--	--	--	--	<10	1.9 J	<10	<10	--	Exceed
MW-63	EI	DZ	8/12/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	1.7 J	<9.6	<9.6	--	Exceed
MW-63	EI	DZ	9/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	0.96 J	<9.7	<9.7	--	Exceed
MW-63	EI	DZ	10/12/2005	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	0.61 J	<9.5	<9.5	--	~
MW-63	EI	DZ	11/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-63	EI	DZ	12/16/2005	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-63	EI	DZ	1/25/2006	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<10	<10	<10	--	~
MW-63	EI	DZ	2/28/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-63	EI	DZ	3/24/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-63	EI	DZ	4/11/2006	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<10	<10	<10	--	~
MW-63	EI	DZ	5/23/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-63	EI	DZ	6/28/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-63	EI	DZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	2.2 J	Exceed
MW-63	EI	DZ	1/19/2007	<0.95	<0.95	<0.95	<0.95	<0.95	--	--	--	--	--	<0.95	<0.95	<0.95	<0.95	3 J	Exceed
MW-63	EI	DZ	4/20/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	~
MW-63	EI	DZ	10/11/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	0.19 J	<0.052	<0.094	--	~
MW-63	EI	DZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-63	EI	DZ	10/15/2008	<0.059	<0.085	<0.086	<0.068	<0.077	--	--	--	--	--	<0.070	<0.11	<0.054	<0.098	--	~
MW-63	EI	DZ	4/22/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	0.114 J	<0.0533	<0.0965	--	~
MW-63	EI	DZ	10/27/2009	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-63	EI	DZ	4/7/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-63	EI	DZ	10/12/2010	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699 J	<0.105	<0.0544	<0.0984	<1.77	~
MW-63	EI	DZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-63	EI	DZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-63	EI	DZ	4/11/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-63	EI	DZ	10/23/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-63	EI	DZ	4/12/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-63	EI	DZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-63	EI	DZ	4/4/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-63	EI	DZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-63	EI	DZ	4/15/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-63	EI	DZ	10/7/2015	<0.141	<0.0870	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-63	EI	DZ	4/5/2016	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 X7	~
MW-63	EI	DZ	10/20/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	0.153 J	<0.110	<0.130 L	<4.01 LX7	~
MW-63	EI	DZ	4/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-63	EI	DZ	10/12/2017	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.01 LX7	~
MW-63	EI	DZ	4/11/2018	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 LX7	~
MW-63	EI	DZ	10/11/2018	<0.159	<0.0976	<0.745 X7	<1.30X7	<1.29 X7	--	--	--	--	--	<0.207	<0.159	<0.134	<0.159	<4.89 X7	~
MW-63	EI	DZ	4/10/2019	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 X7	~
MW-63	EI	DZ	10/16/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-63	EI	DZ	4/14/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127 L	<0.108	<0.127 L	<3.93 LX7	~
MW-63	EI	DZ	10/15/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-63	EI	DZ	4/20/2021	<0.0590	<0.0387	<12.0 X7	<12.0 X7	<12.0 X7	--	--	--	--	--	<0.562	<7.18	<0.658	<3.59	<8.49 X7	~
MW-63	EI	DZ	10/7/2021	0.124	<0.0387	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.553	<3.02	<7.14 X7	~
MW-63	EI	DZ	4/6/2022	<0.0583	<0.0382	<1.14 X7	<0.743 X7	<0.804 X7	--	--	--	--	--	<0.472	<6.03	<0.553	<3.01	<7.13 X7	~
MW-63	EI	DZ	10/6/2022	<0.0523	<0.0343	<1.10 X7	<0.718 X7	<0.776	--	--	--	--	--	<0.456	<5.82	<0.534	<2.91	<6.89 X7	~
MW-63	EI	DZ	4/5/2023	<0.0574	<0.0376	<1.08	<0.707	<0.765	--	--	--	--	--	<0.449	<5.74	<0.526	<2.87	<6.79	~
MW-63	EI	DZ	10/5/2023	<0.0553 U*	<0.0363 U	<1.09 U	<0.732 U	<0.792 U	--	--	--	--	--	<3.86 U	<7.72 U	<4.65 U	<1.19 U	<9.8 U	~
MW-63	EI	DZ	4/8/2024	<0.0608 U	<0.0399 U	<1.07 U	<0.718 U	<0.776 U	--	--	--	--	--	<3.78 U	<7.57 U	<4.56 U	<1.16 U	<9.61 U	~
MW-64	AOC1	SZ	4/10/2003	0.82 J	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-64	AOC1	SZ	10/9/2003	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-64	AOC1	SZ	4/27/2004	6.3 J	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
MW-64	AOC1	SZ	4/18/2005	340	19	<14	<14	<14	--	--	--	--	--	<14	<14	<14	4 J	--	Exceed
MW-64	AOC1	SZ	4/29/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	~
MW-64	AOC1	SZ	10/21/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-64	AOC1	SZ	4/21/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-64	AOC1	SZ	10/23/2009	<3.60	<1.28	<1.30	<1.33	<1.87	--	--	--	--	--	<1.24	<2.00	<1.40	<1.09	--	~
MW-64	AOC1	SZ	4/30/2012	5.39 J	2.06 J	<1.38 J	<1.42 J	<1.99 J	--	--	--	--	--	<1.53 J	<6.66 J	<2.00 J	<1.17 J	--	Exceed
MW-65	TDAL	SZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-65	TDAL	SZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-65	TDAL	SZ	4/19/2004	0.14 J	0.11 J	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	Exceed
MW-65	TDAL	SZ	10/14/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	0.21 J	<0.96	<1.9	~
MW-65	TDAL	SZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-65	TDAL	SZ	10/25/2005	1	0.49	0.23 J	3.2	2	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-65	TDAL	SZ	4/19/2006	0.62 J	0.34 J	<0.96	0.39 J	0.37 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-65	TDAL	SZ	10/31/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-65	TDAL	SZ	4/20/2007	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	~
MW-65	TDAL	SZ	10/11/2007	0.34 J	0.16 J	<0.083	0.49 J	0.28 J	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-65	TDAL	SZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-65	TDAL	SZ	10/15/2008	<0.057	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-65	TDAL	SZ	4/22/2009	<0.0563	0.138 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-65	TDAL	SZ	10/27/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-65	TDAL	SZ	4/6/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-65	TDAL	SZ	10/12/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72	~
MW-65	TDAL	SZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-65	TDAL	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-65	TDAL	SZ	4/11/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-65	TDAL	SZ	10/9/2012	0.712 J	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-65	TDAL	SZ	4/12/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-65	TDAL	SZ	10/15/2013	<0.14 L	<0.089 L	<0.68 L	<1.2 L	<1.2 L	--	--	--	--	--	<0.19 L	<0.14 L	<0.12 L	<0.14 L	<4.5 L	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-65	TDAL	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-65	TDAL	SZ	10/22/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<3.9	~
MW-65	TDAL	SZ	4/15/2015	<0.13	<0.081	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-65	TDAL	SZ	10/7/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-65	TDAL	SZ	4/4/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-65	TDAL	SZ	10/19/2016	<0.129	0.442 J	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 LX7	~
MW-65	TDAL	SZ	4/12/2017	<0.125 L	<0.0769 L	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125 L	<0.106 L	<0.125	R	~
MW-65	TDAL	SZ	10/12/2017	<0.130 L	<0.08 L	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.17 L	R	<0.11 L	<0.13 L	R	~
MW-65	TDAL	USZ	4/11/2018	<0.127 L	<0.0784 L	<0.599 LX7	<1.05 LX7	<1.04 LX7	--	--	--	--	--	<0.167 L	<0.127 L	<0.108 L	<0.127 L	R	~
MW-65	TDAL	USZ	10/11/2018	<0.144	<0.0889	<0.679 LX7	<1.19 LX7	<1.18 LX7	--	--	--	--	--	<0.189 L	<0.144 L	<0.122 L	<0.144 L	<4.46 R	~
MW-65	TDAL	USZ	4/15/2019	<0.138	<0.0851 L	<0.650 LX7	<1.14 LX7	<1.13 LX7	--	--	--	--	--	<0.181 L	<0.138 L	<0.117	<0.138 L	<4.27 R	~
MW-65	TDAL	USZ	10/16/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-65	TDAL	USZ	4/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 RX7	~
MW-65	TDAL	USZ	10/13/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-65	TDAL	USZ	4/15/2021	<0.0618	<0.0405	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.515	<6.58	<0.603	<3.29	<7.79 X7	~
MW-65	TDAL	USZ	10/6/2021	<0.0568	<0.0373	<1.1 X7	<0.721 X7	<0.779 X7	--	--	--	--	--	<0.458	<5.85	<0.536	<2.92	<6.92 X7	~
MW-65	TDAL	USZ	4/6/2022	<0.0594	<0.0390	<1.08 X7	<0.709 X7	<0.767 X7	--	--	--	--	--	<0.450	<5.75	<0.527	<2.88	<6.80 X7	~
MW-65	TDAL	USZ	10/6/2022	<0.0526	<0.0345	<2.16 X7	<1.41 X7	<1.53 X7	--	--	--	--	--	<0.897	<11.5	<1.05	<5.73	<13.6 X7	~
MW-65	TDAL	USZ	4/5/2023	<0.0568	<0.0373	<1.09	<0.717	<0.775	--	--	--	--	--	<0.455	<5.81	<0.533	<2.91	<6.88	~
MW-65	TDAL	USZ	10/5/2023	<0.0551 U*	<0.0361 U	<1.15 U	<0.775 U	<0.838 U	--	--	--	--	--	<4.09 U	<8.17 U	<4.29 U	<1.26 U	<10.4 U	~
MW-65	TDAL	USZ	4/3/2024	0.707	0.226	<1.08 U	<0.727 U	<0.786 U	--	--	--	--	--	<3.83 U	<7.67 U	<4.62 U	<1.18 U	<9.73 U*	~
MW-66	TDAL	SZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-66	TDAL	SZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-66	TDAL	SZ	4/19/2004	0.16 J	0.12 J	<9.5	<9.5	0.065 J	--	--	--	--	--	<9.5	<0.95	0.075 J	<0.95	<1.9	Exceed
MW-66	TDAL	SZ	10/14/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-66	TDAL	SZ	4/5/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-66	TDAL	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-66	TDAL	SZ	4/19/2006	0.54 J	0.29 J	<0.96	0.36 J	0.37 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-66	TDAL	SZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-66	TDAL	SZ	4/20/2007	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	~
MW-66	TDAL	SZ	10/11/2007	9.9	4.3	0.65 J	9.5	6	--	--	--	--	--	<0.067	<0.10	<0.052	0.12 J	--	Exceed
MW-66	TDAL	SZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-66	TDAL	SZ	10/15/2008	0.089 J	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-66	TDAL	SZ	4/22/2009	<0.0569	0.914 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-66	TDAL	SZ	10/27/2009	0.0982 J	0.185 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-66	TDAL	SZ	4/6/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	--	~
MW-66	TDAL	SZ	10/12/2010	<0.0575 J	<0.0831 J	<0.0848 J	<0.0666 J	<0.0752 J	--	--	--	--	--	<0.0685 J	<0.103 J	<0.0533 J	<0.0965 J	<1.74 J	~
MW-66	TDAL	SZ	4/15/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-66	TDAL	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-66	TDAL	SZ	4/11/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-66	TDAL	SZ	10/9/2012	0.716 J	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-66	TDAL	SZ	4/12/2013	<0.0563	<0.0815	<0.0832	0.106 J	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-66	TDAL	SZ	10/15/2013	<0.13 L	<0.078 L	<0.59 L	<1.0 L	<1.0 L	--	--	--	--	--	<0.17 L	<0.13 L	<0.11 L	<0.13 L	<3.9 L	~
MW-66	TDAL	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-66	TDAL	SZ	10/23/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<3.9	~
MW-66	TDAL	SZ	4/15/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-66	TDAL	SZ	10/7/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-66	TDAL	SZ	4/4/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-66	TDAL	SZ	10/19/2016	<0.130 L	<0.0800 L	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.170 L	<0.130 L	<0.110 L	<0.130 L	<4.01 LX7	~
MW-66	TDAL	SZ	4/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-66	TDAL	SZ	10/12/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-66	TDAL	USZ	4/11/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-66	TDAL	USZ	10/11/2018	<0.148	<0.0909	<0.694 X7	<1.22 X7	<1.20 X7	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56 X7	~
MW-66	TDAL	USZ	4/15/2019	<0.141	<0.0870	<0.664 LX7	<1.16 LX7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.12	<0.141	<4.36 X7	~
MW-66	TDAL	USZ	10/16/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-66	TDAL	USZ	4/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-66	TDAL	USZ	10/13/2020	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 X7	~
MW-66	TDAL	USZ	4/15/2021	<0.0598	<0.0392	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.507	<6.47	<0.593	<3.23	<7.65 X7	~
MW-66	TDAL	USZ	10/6/2021	1.24	0.469	<1.12 X7	<0.733 X7	<0.793 X7	--	--	--	--	--	<0.466	<5.95	<0.545	<2.97	<7.04 X7	~
MW-66	TDAL	USZ	4/7/2022	0.327	0.383	<1.19 X7	<0.780 X7	<0.844 X7	--	--	--	--	--	<0.496	<6.33	<0.580	<3.16	<7.49 X7	~
MW-66	TDAL	USZ	10/6/2022	<0.0598	<0.0392	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.87	<6.78 X7	~
MW-66	TDAL	USZ	4/5/2023	<0.0577	<0.0379	<1.10	<0.720	<0.779	--	--	--	--	--	<0.457	<5.84	<0.535	<2.92	<6.91	~
MW-66	TDAL	USZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.10 U	<0.741 U	<0.801 U	--	--	--	--	--	<3.91 U	<7.81 U	<4.71 U	<1.12 U	<9.92 U	~
MW-66	TDAL	USZ	4/3/2024	0.382	0.116	<1.06 U	<0.714 U	<0.772 U	--	--	--	--	--	<3.76U	<7.52 U	<4.53 U	<1.16 U	<9.55 U*	~
MW-67	DNTL	IZ	12/28/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-67	DNTL	IZ	4/4/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-67	DNTL	IZ	10/20/2003	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-67	DNTL	IZ	4/20/2004	1.5	0.6 J	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	0.15 J	<1.9	Exceed
MW-67	DNTL	IZ	10/11/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-67	DNTL	IZ	4/12/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-67	DNTL	IZ	10/14/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-67	DNTL	IZ	4/17/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-67	DNTL	IZ	10/13/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-67	DNTL	IZ	4/9/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-67	DNTL	IZ	10/4/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
MW-67	DNTL	IZ	4/14/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-67	DNTL	IZ	10/24/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-67	DNTL	IZ	4/17/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-67	DNTL	IZ	10/19/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-67	DNTL	IZ	4/12/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-67	DNTL	IZ	10/20/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-67	DNTL	IZ	4/20/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
MW-67	DNTL	IZ	4/23/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-67	DNTL	IZ	4/16/2014	<0.94	0.9 J	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-67	DNTL	IZ	4/12/2016	7.36 J	20.4	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.130	1.99 J	<4.00 X7	Exceed
MW-67	DNTL	IZ	10/28/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-67	DNTL	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-67	DNTL	IZ	4/23/2020	<0.95	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-67	DNTL	IZ	4/21/2022	0.661	1.92	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	Exceed
MW-67	DNTL	IZ	4/11/2024	<0.0598 U	<0.0392 U	<1.09 U	<0.734 U	<0.793 U	--	--	--	--	--	<3.87 U	<7.73 U	<4.66 U	<1.19 U	<9.81 U*	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-68	DNTL	IZ	12/28/2001	4.9 J	4.8 J	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
MW-68	DNTL	IZ	4/17/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-68	DNTL	IZ	10/8/2003	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<20	<9.8	<20	--	~
MW-68	DNTL	IZ	4/20/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-68	DNTL	IZ	10/11/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
MW-68	DNTL	IZ	4/12/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-68	DNTL	IZ	10/14/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-68	DNTL	IZ	4/13/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-68	DNTL	IZ	10/13/2006	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-68	DNTL	IZ	4/9/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-68	DNTL	IZ	10/9/2007	<0.82	<0.84	<1.0	<0.89	<0.97	--	--	--	--	--	<1.3	<0.64	<1.0	<4.2	--	~
MW-68	DNTL	IZ	4/15/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-68	DNTL	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
MW-68	DNTL	IZ	4/17/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-68	DNTL	IZ	10/19/2009	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	~
MW-68	DNTL	IZ	10/20/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-68	DNTL	IZ	4/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-68	DNTL	IZ	4/24/2012	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	--	~
MW-68	DNTL	IZ	4/16/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-68	DNTL	IZ	4/12/2016	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 LX7	~
MW-68	DNTL	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-68	DNTL	IZ	4/23/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-68	DNTL	IZ	4/25/2022	<0.0590	<0.0387	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	~
MW-68	DNTL	IZ	4/11/2024	<0.0608 U	<0.0399 U	<1.22 U	<0.821 U	<0.888 U	--	--	--	--	--	<4.33 U	<8.66 U	<5.22 U	<1.33 U	<11.0 U*	~
MW-69	ASI	SZ	12/18/2003	10 J	21	<9.6	72 J	43 J	--	--	--	--	--	<9.6	1.7	<9.6	<0.96	<1.9	Exceed
MW-69	ASI	SZ	2/3/2004	23	9.8	5.4 J	63 J	34 J	--	--	--	--	--	<9.5	<0.95	<9.5	0.32 J	<1.9	Exceed
MW-69	ASI	SZ	2/4/2004	22	9.1 J	5.4 J	62 J	33 J	--	--	--	--	--	<9.8	<0.98	<9.8	0.26 J	<2	Exceed
MW-69	ASI	SZ	4/28/2004	1.4	1.6	0.95 J	3.8 J	6 J	--	--	--	--	--	<9.5	<0.95	<9.5	0.16 J	<1.9	Exceed
MW-69	ASI	SZ	10/20/2004	1.9	1.1	0.72 J	7 J	4.9 J	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	Exceed
MW-69	ASI	SZ	4/6/2005	0.48	0.57	0.18 J	1.7	1.1	--	--	--	--	--	<0.24	<0.49	<0.24	<0.24	<2	~
MW-69	ASI	SZ	10/26/2005	2.9	1.8	0.43	5.8	3.3	--	--	--	--	--	<0.24	<0.49	<0.24	0.25	<2	Exceed
MW-69	ASI	SZ	4/20/2006	0.48 J	0.31 J	0.12 J	1.3	0.94 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-69	ASI	SZ	11/1/2006	0.59 J	0.46 J	0.11 J	1.1	0.86 J	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	<4.9	~
MW-69	ASI	SZ	4/23/2007	7.1	3.4	0.96 J	12	7.3	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	Exceed
MW-69	ASI	SZ	10/12/2007	12	5.9	1.5	19	12	--	--	--	--	--	<0.067	<0.10	<0.052	0.11 J	--	Exceed
MW-69	ASI	SZ	4/9/2008	3	<0.082	0.37 J	4.4	2.4	--	--	--	--	--	<0.068	0.1 J	<0.053	<0.095	<1.7	Exceed
MW-69	ASI	SZ	10/17/2008	1100	1000	47	330	<0.077	--	--	--	--	--	<0.070	11	0.44 J	79	--	Exceed
MW-69	ASI	SZ	4/23/2009	0.278 J	0.567 J	<0.0856	0.27 J	0.149 J	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	--	~
MW-69	ASI	SZ	10/28/2009	<0.0569	1.21	<0.0840	0.158 J	0.0936 J	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-69	ASI	SZ	4/8/2010	2.12	1.11	0.598 J	6.88	4.68	--	--	--	--	--	<0.0692	0.942 J	<0.0539	<0.0974	--	Exceed
MW-69	ASI	SZ	10/13/2010	<0.563	<0.815	<0.832	<0.653	<0.738	--	--	--	--	--	<0.672 J	<1.01	<0.523	<0.946	<17.1	~
MW-69	ASI	SZ	4/18/2011	0.625 J	0.761 J	1.37	3.29	2.82	--	--	--	--	--	<0.0672	0.711 J	<0.0523	0.127 J	<1.71 J	~
MW-69	ASI	SZ	10/25/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-69	ASI	SZ	4/17/2012	0.423 J	<0.0815	<0.0832	0.265 J	0.174 J	--	--	--	--	--	<0.0672	0.107 J	<0.0523	<0.0946	--	~
MW-69	ASI	SZ	10/26/2012	<0.0563 J	<0.0815 J	<0.0832 J	0.393 J	0.176 J	--	--	--	--	--	<0.0672 J	1.39 J	<0.0523 J	<0.0946 J	<1.71 J	~
MW-69	ASI	SZ	4/18/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 L	~
MW-69	ASI	SZ	10/16/2013	<0.13 L	<0.082 L	<0.62 L	<1.1 L	<1.1 L	--	--	--	--	--	<0.17 L	<0.13 L	<0.11 L	<0.13 L	<4.1 L	~
MW-69	ASI	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-69	ASI	SZ	10/24/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<3.9	~
MW-69	ASI	SZ	4/16/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-69	ASI	SZ	10/9/2015	0.296 J	<0.0899	0.896 J	<1.20	<1.19	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51	~
MW-69	ASI	SZ	4/5/2016	0.164 J	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-69	ASI	SZ	10/24/2016	<0.141	<0.087	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.12	<0.141	<4.36 LX7	~
MW-69	ASI	SZ	4/14/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-69	ASI	SZ	10/17/2017	<0.134	<0.0825	<0.63 X7	<1.1 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 LX7	~
MW-69	ASI	SZ	4/16/2018	<0.125	<0.0769	<0.588 LX7	<1.03 LX7	<1.02 LX7	--	--	--	--	--	<0.163	<0.125 L	<0.106	<0.125 L	<3.86 LX7	~
MW-69	ASI	SZ	10/25/2018	<0.146	<0.0899	<0.687 LX7	<1.20 X7	<1.19 X7	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51 X7	~
MW-69	ASI	SZ	4/11/2019	<0.138 L	<0.0851 L	<0.650 LX7	<1.14 LX7	<1.13 LX7	--	--	--	--	--	<0.181 L	<0.138 L	<0.117 L	<0.138 L	<4.27 LX7	~
MW-69	ASI	SZ	10/24/2019	<0.133 L	<0.0816	<0.623 X7	<1.09 LX7	<1.08 X7	--	--	--	--	--	<0.173	<0.133 L	<0.112	<0.133 L	<4.09 R	~
MW-69	ASI	SZ	4/15/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-69	ASI	SZ	10/14/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-69	ASI	SZ	4/19/2021	0.0698 J	<0.0400	<11.2 X7	<11.2 X7	<11.2 X7	--	--	--	--	--	<0.524	<6.69	<0.614	<3.35	<7.92 X7	~
MW-69	ASI	SZ	10/11/2021	<0.0551	<0.0361	<1.13 X7	<0.740 X7	<0.800 X7	--	--	--	--	--	<0.470	<6.00	<0.550	<3.00	<7.10 X7	~
MW-69	ASI	SZ	4/13/2022	<0.0631	<0.0414	<1.17 X7	<0.767 X7	<0.830 X7	--	--	--	--	--	<0.487	<6.22	<0.570	<3.11	<7.36 X7	~
MW-69	ASI	SZ	10/6/2022	0.390	0.292	<1.13 X7	0.818 J X7	<0.802 X7	--	--	--	--	--	<0.471	<6.01	<0.551	<3.01	<7.12	~
MW-69	ASI	SZ	4/10/2023	<0.0588	<0.0386	<1.17*	<0.765*	<0.827*	--	--	--	--	--	<0.486	<6.20	<0.569	<3.10	<7.34*	~
MW-69	ASI	SZ	10/11/2023	<0.0583 U	<0.0382 U	<1.09 U	<0.733 U	<0.792 U	--	--	--	--	--	<9.81 U*	<3.86 U	<7.73 U	<4.66 U	<1.19 U	~
MW-69	ASI	SZ	4/24/2024	<0.0598 U	<0.0392 U	<1.32 U	<0.889 U	<0.962 U	--	--	--	--	--	<4.69 U	<9.38 U	<5.65 U	<1.44 U	<11.9 U*	~
MW-70	DNTL	IZ	12/29/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-70	DNTL	IZ	4/9/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-70	DNTL	IZ	10/22/2003	<1	2.2	<10	<10	<10	--	--	--	--	--	<10	<1	<10	<1	<2	Exceed
MW-70	DNTL	IZ	2/3/2004	<0.95	0.31 J	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-70	DNTL	IZ	4/20/2004	0.15 J	0.81 J	<9.5	<9.5	0.066 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-70	DNTL	IZ	10/20/2004	<0.97	0.24 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-70	DNTL	IZ	4/6/2005	0.1 J	0.75	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-70	DNTL	IZ	10/25/2005	0.24	0.41	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.47	<0.24	<0.24	<1.9	~
MW-70	DNTL	IZ	4/19/2006	0.94 J	0.47 J	<0.96	0.34 J	0.35 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-70	DNTL	IZ	10/31/2006	<0.97	0.36 J	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-70	DNTL	IZ	4/20/2007	<0.98	0.55 J	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	--	~
MW-70	DNTL	IZ	10/12/2007	<0.056	0.12 J	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-70	DNTL	IZ	4/10/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-70	DNTL	IZ	10/16/2008	<0.057	0.085 J	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-70	DNTL	IZ	4/23/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-70	DNTL	IZ	10/27/2009	<0.0575	0.222 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-70	DNTL	IZ	4/6/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-70	DNTL	IZ	10/12/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-70	DNTL	IZ	4/15/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-70	DNTL	IZ	10/26/2011	<2.88 J	<1.03 J	<1.04 J	<1.06 J	<1.49 J	--	--	--	--	--	<1.15 J	<4.99 J	<1.50 J	<0.875 J	<3.24 J	~
MW-70	DNTL	IZ	4/12/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-70	DNTL	IZ	10/30/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-70	DNTL	IZ	4/19/2013	<0.0586	0.127 J	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77 L	~
MW-70	DNTL	IZ	10/15/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-70	DNTL	IZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-70	DNTL	IZ	10/23/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-70	DNTL	IZ	4/16/2015	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-70	DNTL	IZ	10/7/2015	<0.125	0.244 J	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-70	DNTL	IZ	4/5/2016	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-70	DNTL	IZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-70	DNTL	IZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	10/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	4/11/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	10/12/2018	<0.141	<0.087	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36 X7	~
MW-70	DNTL	IZ	4/15/2019	<0.125	<0.0769	<0.588 LX7	<1.03 LX7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-70	DNTL	IZ	10/17/2019	<0.131 L	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172 L	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-70	DNTL	IZ	4/13/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-70	DNTL	IZ	10/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-70	DNTL	IZ	4/15/2021	<0.0618	<0.0405	<11.3 X7	<11.3 X7	<11.3 X7	--	--	--	--	--	<0.530	<6.77	<0.621	<3.39	<8.01 X7	~
MW-70	DNTL	IZ	10/7/2021	<0.0561	<0.0368	<1.15 X7	<0.756 X7	<0.817 X7	--	--	--	--	--	<0.488	<6.13	<0.562	<3.06	<7.25 X7	~
MW-70	DNTL	IZ	4/7/2022	0.491	0.632	<1.08 X7	<0.706 X7	<0.763 X7	--	--	--	--	--	<0.448	<5.72	<0.525	<2.86	<6.77 X7	~
MW-70	DNTL	IZ	10/6/2022	<0.0535	<0.0351	<1.10 X7	<0.720 X7	<0.779 X7	--	--	--	--	--	<0.457	<5.84	<0.535	<2.92	<6.91 X7	~
MW-70	DNTL	IZ	4/5/2023	<0.0587	<0.0385	<1.10	<0.719	<0.778	--	--	--	--	--	<0.457	<5.83	<0.535	<2.92	<6.90	~
MW-70	DNTL	IZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.06 U	<0.710 U	<0.768 U	--	--	--	--	--	<3.74 U	<7.49 U	<4.51 U	<1.15 U	<9.5 U	~
MW-70	DNTL	IZ	4/3/2024	0.189	0.0399 J	<1.11 U	<0.745 U	<0.805 U	--	--	--	--	--	<3.93 U	<7.85 U	<4.73 U	<1.21 U	<9.96 U*	~
MW-71	ASI	SZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-71	ASI	SZ	4/28/2004	<0.95	<0.95	<9.5	<9.5	0.082 J	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-71	ASI	SZ	10/20/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-71	ASI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-71	ASI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-71	ASI	SZ	4/20/2006	<0.96	<0.96	<0.96	0.3 J	0.23 J	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-71	ASI	SZ	11/1/2006	<0.98	<0.98	<0.98	<0.98	<0.98	--	--	--	--	--	<0.98	<0.98	<0.98	<0.98	<4.9	~
MW-71	ASI	SZ	4/23/2007	20	9.4	2.8	32	21	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	Exceed
MW-71	ASI	SZ	10/12/2007	22	11	2.6	35	22	--	--	--	--	--	<0.067	<0.10	<0.052	0.21 J	--	Exceed
MW-71	ASI	SZ	4/9/2008	1.2	<0.081	<0.083	0.19 J	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-71	ASI	SZ	10/16/2008	4.4	2.3	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	0.19 J	--	Exceed
MW-71	ASI	SZ	4/22/2009	0.259 J	0.732 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-71	ASI	SZ	10/27/2009	<0.0569	0.325 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-71	ASI	SZ	4/7/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-71	ASI	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-71	ASI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-71	ASI	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-71	ASI	SZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-71	ASI	SZ	10/30/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-71	ASI	SZ	4/22/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 L	~
MW-71	ASI	SZ	10/21/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 L	~
MW-71	ASI	SZ	4/10/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-71	ASI	SZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	~
MW-71	ASI	SZ	4/20/2015	<0.13	<0.077	6.5	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-71	ASI	SZ	10/13/2015	<0.146	<0.0899	<0.687	<1.20	<1.19	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51	~
MW-71	ASI	SZ	4/7/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-71	ASI	SZ	10/20/2016	10.7	8.88	<0.611 X7	1.97 J X7	1.41 J X7	--	--	--	--	--	<0.170	<0.130	<0.110	0.759 L	<4.01 LX7	Exceed
MW-71	ASI	SZ	4/17/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	R	~
MW-71	ASI	SZ	10/16/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89L X7	~
MW-71	ASI	SZ	4/12/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-71	ASI	SZ	10/22/2018	<0.140	<0.086	<0.657 LX7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-71	ASI	SZ	4/11/2019	<0.133 L	<0.0816 L	<0.623 LX7	<1.09 LX7	<1.08 LX7	--	--	--	--	--	<0.173 L	<0.133 L	<0.112 L	<0.133 L	<4.09 LX7	~
MW-71	ASI	SZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-71	ASI	SZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-71	ASI	SZ	10/13/2020	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 X7	~
MW-71	ASI	SZ	4/22/2021	<0.0583	<0.0382	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.497	<6.34	<0.581	<3.17	<7.51 X7	~
MW-71	ASI	SZ	10/7/2021	<0.0572	<0.0375	<1.14 X7	<0.744 X7	<0.804 X7	--	--	--	--	--	<0.472	<6.03	<0.553	<3.01	<7.13 X7	~
MW-71	ASI	SZ	4/7/2022	<0.0575	<0.0377	<1.12 X7	<0.731 X7	<0.790 X7	--	--	--	--	--	<0.464	<5.92	<0.543	<2.96	<7.01 X7	~
MW-71	ASI	SZ	10/6/2022	<0.0532	0.151	<1.09 X7	<0.717 X7	<0.775 X7	--	--	--	--	--	<0.455	<5.81	<0.533	<2.91	<6.88 X7	~
MW-71	ASI	SZ	4/6/2023	<0.0583	<0.0382	<1.10	<0.719	<0.777	--	--	--	--	--	<0.457	<5.83	<0.534	<2.91	<6.90	~
MW-71	ASI	SZ	10/5/2023	<0.0555 U*	<0.0364 U	<1.11 U	<0.748 U	<0.808 U	--	--	--	--	--	<3.94 U	<7.88 U	<4.75 U	<1.21 U	<10.0 U	~
MW-71	ASI	SZ	4/15/2024	37.0	68.1	<1.13 U	<0.763 U	<0.824 U	--	--	--	--	--	<4.02 U*	<8.04 U*	<4.84 U*	<1.24 U*	<10.2 U*	Exceed
MW-72	Neut	IZ	12/29/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-72	Neut	IZ	4/8/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
MW-72	Neut	IZ	10/7/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-72	Neut	IZ	4/20/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-72	Neut	IZ	10/12/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-72	Neut	IZ	4/13/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-72	Neut	IZ	10/17/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-72	Neut	IZ	4/17/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-72	Neut	IZ	10/18/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
MW-72	Neut	IZ	4/11/2007	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-72	Neut	IZ	10/9/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
MW-72	Neut	IZ	4/14/2008	<2.9	<1.0	<1.0	<1.1	<1.5	--	--	--	--	--	<0.99	<1.6	<1.1	<0.88	--	~
MW-72	Neut	IZ	10/24/2008	<2.8	<0.98	<1.0	<1.0	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	~
MW-72	Neut	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-72	Neut	IZ	10/19/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-72	Neut	IZ	4/13/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	~
MW-72	Neut	IZ	10/21/2010	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
MW-72	Neut	IZ	4/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-72	Neut	IZ	4/24/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-72	Neut	IZ	4/18/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-72	Neut	IZ	4/21/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-72	Neut	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-72	Neut	IZ	4/23/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-72	Neut	IZ	4/25/2022	<0.0572	<0.0375	<1.12 X7	<0.732 X7	<0.791 X7	--	--	--	--	--	<0.465	<5.93	<0.544	<2.97	<7.02 X7	~
MW-72	Neut	IZ	4/18/2024	12.3	25.2	<1.03 U	<0.694 U	<0.751 U	--	--	--	--	--	<3.66 U	<7.32 U	<4.41 U	<1.13 U	<9.29 U*	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-73	AOC2	SZ	12/18/2003	830	960	27	89	77	--	--	--	--	--	<9.8	<20	0.77 J	91	--	Exceed
MW-73	AOC2	SZ	4/22/2004	93	83	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	66	--	Exceed
MW-73	AOC2	SZ	10/14/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-73	AOC2	SZ	4/11/2005	100	110	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	42	--	Exceed
MW-73	AOC2	SZ	10/13/2005	<20	<20	<20	<20	<20	--	--	--	--	--	<20	<20	<20	<20	--	Exceed
MW-73	AOC2	SZ	4/13/2006	25	41	22	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	23	--	Exceed
MW-73	AOC2	SZ	10/18/2006	9.4 J	19	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	17	--	Exceed
MW-73	AOC2	SZ	4/10/2007	25	41	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	8.2 J	--	Exceed
MW-73	AOC2	SZ	10/4/2007	530	380	<5.2	<4.5	<4.9	--	--	--	--	--	<6.5	<3.2	<5.3	230	--	Exceed
MW-73	AOC2	SZ	4/16/2008	37	58	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	22	--	Exceed
MW-73	AOC2	SZ	10/29/2008	110	100	<1.0	<1.1	<1.5	--	--	--	--	--	<0.98	<1.6	<1.1	61	--	Exceed
MW-73	AOC2	SZ	4/20/2009	21	67.3	<0.998	1.45 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	7.12 J	--	Exceed
MW-73	AOC2	SZ	10/19/2009	21.3	23	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	56.7	--	Exceed
MW-73	AOC2	SZ	4/16/2010	45.4	73.2	<1.02	1.56 J	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	25.9	--	Exceed
MW-73	AOC2	SZ	10/21/2010	25.6	24	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	67	--	Exceed
MW-73	AOC2	SZ	4/21/2011	158	130	5.72 J	1.68 J	5.7 J	--	--	--	--	--	<1.10	<4.80	<1.44	73.6	<3.11 J	Exceed
MW-73	AOC2	SZ	4/26/2012	26.7 J	67.7 J	<1.01 J	<1.03 J	<1.45 J	--	--	--	--	--	<1.11 J	<4.85 J	<1.46 J	26.8 J	--	Exceed
MW-73	AOC2	SZ	4/21/2014	7.2 J	140	<0.59	2.7 J	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-73	AOC2	SZ	4/22/2016	21.3	90.3	<0.598 X7	2.50 J X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	8.76 J	<4.08 X7	Exceed
MW-73	AOC2	SZ	4/20/2018	<47.5	<32.0	<30.5 X7	<53.5 X7	<53.0 X7	--	--	--	--	--	<57.5	<65.5	<59.0	<34.5	<208 X7	~
MW-73	AOC2	SZ	4/22/2020	24.0	19.4	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	36.1	<4.12 X7	Exceed
MW-73	AOC2	SZ	4/27/2021	15.8	15.5	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.507	<6.48	<0.594	8.95 J	<7.66 X7	Exceed
MW-73	AOC2	SZ	4/25/2022	10.9	11.7	1.13 J X7	14.3 X7	5.46 J X7	--	--	--	--	--	<0.453	<5.78	<0.530	6.40 J	<6.85 X7	Exceed
MW-73	AOC2	SZ	4/8/2024	29.9	22.5	6.50 J	78.5	32.2 b	--	--	--	--	--	<4.05 U	<8.10 U	<4.88 U	32.7	<10.3 U	Exceed
MW-74	AOC2	SZ	12/19/2003	4	38	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	Exceed
MW-74	AOC2	SZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-74	AOC2	SZ	10/7/2004	6.2 J	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	Exceed
MW-74	AOC2	SZ	4/11/2005	<9.7	10	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-74	AOC2	SZ	10/13/2005	<9.8	11	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-74	AOC2	SZ	4/13/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
MW-74	AOC2	SZ	10/18/2006	<9.7	8.3 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-74	AOC2	SZ	4/10/2007	1.9 J	11	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-74	AOC2	SZ	10/4/2007	0.81 J	6.1 J	<0.99	<0.86	<0.93	--	--	--	--	--	<1.2	<0.61	<1.0	<4.0	--	Exceed
MW-74	AOC2	SZ	4/14/2008	16	25	<1.0	1.9 J	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	1.4 J	--	Exceed
MW-74	AOC2	SZ	10/21/2008	<2.8	6.7 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-74	AOC2	SZ	4/20/2009	<2.83	8.61 J	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-74	AOC2	SZ	10/20/2009	<2.77	11	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-74	AOC2	SZ	4/16/2010	4.87 J	11	<1.01	1.16 J	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	Exceed
MW-74	AOC2	SZ	10/20/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09 J	<0.850	--	~
MW-74	AOC2	SZ	4/21/2011	<2.83	1.21 J	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-74	AOC2	SZ	10/13/2011	<2.77	11	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed
MW-74	AOC2	SZ	4/24/2012	<2.80	2.51 J	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	--	Exceed
MW-74	AOC2	SZ	10/17/2012	<2.77	1.88 J	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-74	AOC2	SZ	4/29/2013	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<4.85	<1.18	<2.91	<3.14 L	~
MW-74	AOC2	SZ	10/24/2013	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<12 L	~
MW-74	AOC2	SZ	4/16/2014	3.3 J	8.5 J	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	Exceed
MW-74	AOC2	SZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-74	AOC2	SZ	4/21/2015	<0.91	4.0 J	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
MW-74	AOC2	SZ	10/19/2015	<0.125	0.260 J	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-74	AOC2	SZ	4/19/2016	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28 L	<1.16	<0.676 L	<4.08 LX7	~
MW-74	AOC2	SZ	10/26/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
MW-74	AOC2	SZ	4/19/2017	<0.950	0.998 J	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-74	AOC2	SZ	10/18/2017	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.2	<0.704	<4.24 X7	~
MW-74	AOC2	SZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
MW-74	AOC2	SZ	10/26/2018	<1.01	<0.681	<0.649 LX7	<1.14 LX7	<1.13 LX7	--	--	--	--	--	<1.22	<1.39 L	<1.26 L	<0.734	<4.43 R	~
MW-74	AOC2	SZ	4/17/2019	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-74	AOC2	SZ	10/24/2019	1.81 J	1.58 J	<0.587 X7	2.85 J X7	<1.02 X7	--	--	--	--	--	<1.11 L	<1.26	<1.13 L	<0.663 L	<4.00 LX7	Exceed
MW-74	AOC2	SZ	4/22/2020	<0.941	<0.634	<0.604 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	~
MW-74	AOC2	SZ	10/21/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<1.07	<0.130	<4.01 X7	~
MW-74	AOC2	SZ	4/28/2021	0.214	0.674	<10.3 X7	<10.3 X7	<10.3 X7	--	--	--	--	--	<0.486	<6.21	<0.569	<3.10	<7.35 X7	~
MW-74	AOC2	SZ	10/26/2021	4.48	7.86	<1.08 X7	<0.708 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.8 X7	Exceed
MW-74	AOC2	SZ	4/25/2022	<0.0598	0.325	<1.10 X7	<0.718 X7	<0.776 X7	--	--	--	--	--	<0.0456	<5.82	<0.534	<2.91	<6.89 X7	~
MW-74	AOC2	SZ	10/13/2022	2.00	2.95	<1.13 X7	<0.737 X7	1.21 J X7	--	--	--	--	--	<0.468	<5.98	<0.548	<2.99	<7.07 X7	Exceed
MW-74	AOC2	SZ	4/18/2023	<0.0579	0.122	<1.10	<0.723	<0.781	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93	~
MW-74	AOC2	SZ	10/16/2023	<0.0579 U	0.182	<1.06 U	<0.714 U	<0.772 U	--	--	--	--	--	<3.76 U	<7.52 U	<4.53 U	<1.16 U	<9.55 U*	~
MW-74	AOC2	SZ	4/8/2024	<0.0600 U	0.235	<1.15 U	<0.776 U	<0.839 U	--	--	--	--	--	<4.09 U	<8.18 U	<4.93 U	<1.26 U	<10.4 U	~
MW-75	EI	SZ	12/19/2003	<1	<1	<10	<10	<10	--	--	--	--	--	<10	<1	<10	<1	<2.1	~
MW-75	EI	SZ	4/27/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-75	EI	SZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-75	EI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-75	EI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-75	EI	SZ	4/20/2006	0.094 J	<0.99	<0.99	0.12 J	0.09 J	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	<5	~
MW-75	EI	SZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-75	EI	SZ	4/20/2007	7.2	3.1	1	13	8.3	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	Exceed
MW-75	EI	SZ	10/11/2007	160	69	12	180	110	--	--	--	--	--	<0.067	<0.10	<0.052	1.4	--	Exceed
MW-75	EI	SZ	4/8/2008	8.3	<0.081	0.1 J	1.5	0.92 J	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	Exceed
MW-75	EI	SZ	10/17/2008	0.15 J	0.19 J	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-75	EI	SZ	4/22/2009	0.3 J	0.702 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-75	EI	SZ	10/28/2009	0.146 J	0.601 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-75	EI	SZ	4/6/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-75	EI	SZ	10/12/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692 J	<0.104	<0.0539	<0.0974	<1.76	~
MW-75	EI	SZ	4/15/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-75	EI	SZ	10/19/2011	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 J	~
MW-75	EI	SZ	4/11/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-75	EI	SZ	10/23/2012	0.714 J	0.223 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-75	EI	SZ	4/15/2013	<0.0580	<0.0840	<0.0856	0.0963 J	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76	~
MW-75	EI	SZ	10/15/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-75	EI	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-75	EI	SZ	10/23/2014	0.41 J	--	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-75	EI	SZ	4/16/2015	<0.14	<0.087	<0.66	<1.2	<1.2	--	--	--	--	--	<0.18	<0.14	<0.12	<0.14	<4.4	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-75	EI	SZ	10/7/2015	0.369 J	0.919 J	<0.617	<1.08	<1.07	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05	~
MW-75	EI	SZ	4/5/2016	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-75	EI	SZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-75	EI	SZ	4/13/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-75	EI	SZ	10/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-75	EI	SZ	4/11/2018	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 LX7	~
MW-75	EI	SZ	10/11/2018	<0.140	<0.086	<0.657 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-75	EI	SZ	4/10/2019	<0.135	<0.0833	<0.636 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18 X7	~
MW-75	EI	SZ	10/17/2019	<0.125 L	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163 L	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-75	EI	SZ	4/13/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-75	EI	SZ	10/13/2020	.527 J	.318 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-75	EI	SZ	4/15/2021	0.0714 J	<0.0380	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.494	<6.30	<0.578	<3.15	<7.46 X7	~
MW-75	EI	SZ	10/7/2021	0.0735 J	<0.0366	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.86	<6.78 X7	~
MW-75	EI	SZ	4/7/2022	0.618	0.999	<1.26 X7	<0.823 X7	<0.890 X7	--	--	--	--	--	<0.523	<6.67	<0.612	<3.34	<7.90 X7	~
MW-75	EI	SZ	10/10/2022	<0.0594	<0.0390	<1.12 X7	<0.733 X7	<0.792 X7	--	--	--	--	--	<0.465	<5.94	<0.545	<2.97	<7.03 X7	~
MW-75	EI	SZ	4/6/2023	<0.0581	<0.0381	<1.09	<0.711	<0.768	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82	~
MW-75	EI	SZ	10/5/2023	<0.0553 U*	<0.0363 U	<1.20 U	<0.805 U	<0.870 U	--	--	--	--	--	<4.24 U	<8.49 U	<5.11 U	<1.31 U	<10.8 U	~
MW-75	EI	SZ	4/18/2024	1.77	3.83	<1.07 U	0.879 J b	<0.776 U	--	--	--	--	--	<3.78 U	<7.56 U	<4.56 U	<1.16 U	<9.60 U*	Exceed
MW-76	EI	SZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-76	EI	SZ	4/22/2004	0.11 J	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-76	EI	SZ	10/19/2004	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-76	EI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-76	EI	SZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-76	EI	SZ	4/20/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-76	EI	SZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-76	EI	SZ	4/20/2007	14	5.8	1.7	21	13	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	--	Exceed
MW-76	EI	SZ	10/11/2007	13	5.8	1.4	20	13	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	Exceed
MW-76	EI	SZ	4/9/2008	5.7	<0.081	<0.083	0.99	0.64 J	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	Exceed
MW-76	EI	SZ	10/16/2008	1.2	0.44 J	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-76	EI	SZ	4/22/2009	<0.0569	0.207 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-76	EI	SZ	10/27/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-76	EI	SZ	4/8/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-76	EI	SZ	10/12/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-76	EI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-76	EI	SZ	10/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-76	EI	SZ	4/11/2012	<0.0575 J	<0.0831 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	--	~
MW-76	EI	SZ	10/9/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-76	EI	SZ	4/22/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-76	EI	SZ	10/18/2013	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	0.84 J	<4.0 L	~
MW-76	EI	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-76	EI	SZ	10/24/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17 L	<0.13	<0.11	0.17 J	<3.9	~
MW-76	EI	SZ	4/16/2015	<0.14	<0.087	<0.66	<1.2	<1.2	--	--	--	--	--	<0.18	<0.14	<0.12	<0.14	<4.4	~
MW-76	EI	SZ	10/13/2015	<0.137	<0.0842	<0.643	<1.13	<1.12	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22	~
MW-76	EI	SZ	4/5/2016	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-76	EI	SZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.533 L	<3.86 LX7	~
MW-76	EI	SZ	4/13/2017	<0.148	<0.0909	<0.694 X7	<1.22 X7	<1.20 X7	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56 LX7	~
MW-76	EI	SZ	10/12/2017	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.01 LX7	~
MW-76	EI	SZ	4/11/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-76	EI	SZ	10/11/2018	<0.143	<0.0879	<0.671 X7	<1.18 X7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 X7	~
MW-76	EI	SZ	4/10/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-76	EI	SZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-76	EI	SZ	4/13/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-76	EI	SZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-76	EI	SZ	4/15/2021	<0.0631	<0.0414	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.517	<6.60	<0.605	<3.30	<7.81 X7	~
MW-76	EI	SZ	10/7/2021	0.203	<0.0382	<1.09 X7	<0.715 X7	<0.773 X7	--	--	--	--	--	<0.454	<5.8	<0.532	<2.9	<6.86 X7	~
MW-76	EI	SZ	4/7/2022	<0.0590	<0.0387	<1.20 X7	<0.786 X7	<0.850 X7	--	--	--	--	--	<0.499	<6.38	<0.584	<3.19	<7.55 X7	~
MW-76	EI	SZ	10/10/2022	<0.0627	<0.0411	<1.08 X7	<0.706 X7	<0.763 X7	--	--	--	--	--	<0.448	<5.72	<0.525	<2.86	<6.77 X7	~
MW-76	EI	SZ	4/6/2023	<0.0575	<0.0377	<1.09	<0.711	<0.768	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.82	~
MW-76	EI	SZ	10/10/2023	<0.0581 U	<0.0381 U	<1.09 U	<0.734 U	<0.793 U	--	--	--	--	--	<3.87 U	<7.73 U	<4.66 U	<1.19 U	<9.81 U*	~
MW-76	EI	SZ	4/22/2024	0.0962 J	0.0776 J	<1.11 U	4.95 J	3.34 J	--	--	--	--	--	<3.93 U	<7.86 U	<4.74 U	<1.21 U	<9.98 U*	~
MW-77	EI	SZ	12/19/2003	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-77	EI	SZ	4/26/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
MW-77	EI	SZ	10/14/2004	0.96	3.7	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	0.3 J	0.24 J	0.68 J	75	Exceed
MW-77	EI	SZ	4/6/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-77	EI	SZ	10/26/2005	6.9	4.2	0.99	14	7.3	--	--	--	--	--	<0.48	<0.96	<0.48	<0.48	<3.8	Exceed
MW-77	EI	SZ	4/20/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-77	EI	SZ	11/1/2006	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-77	EI	SZ	4/20/2007	7.4	2.9	0.9 J	12	7.5	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	Exceed
MW-77	EI	SZ	10/11/2007	31	14	3.3	45	27	--	--	--	--	--	<0.067	0.13 J	<0.052	0.31 J	--	Exceed
MW-77	EI	SZ	4/9/2008	7.5	<0.081	<0.083	0.98	0.63 J	--	--	--	--	--	<0.067	<0.10	<0.052	0.12 J	<1.7	Exceed
MW-77	EI	SZ	10/17/2008	2.7	1.1	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	Exceed
MW-77	EI	SZ	4/22/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-77	EI	SZ	10/27/2009	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-77	EI	SZ	4/8/2010	<0.0558	<0.0808	<0.0824	<0.0647	<0.0730	--	--	--	--	--	<0.0666	<0.100	<0.0518	<0.0937	--	~
MW-77	EI	SZ	10/14/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-77	EI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-77	EI	SZ	10/19/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-77	EI	SZ	4/12/2012	<0.0575 J	<0.0831 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	--	~
MW-77	EI	SZ	10/9/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-77	EI	SZ	4/15/2013	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77	~
MW-77	EI	SZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-77	EI	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-77	EI	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-77	EI	SZ	4/16/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-77	EI	SZ	10/13/2015	<0.143	<0.0879	<0.671	<1.18	<1.16	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41	~
MW-77	EI	SZ	4/5/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-77	EI	SZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-77	EI	SZ	4/13/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	1.55	<0.112	<0.133	<4.09 LX7	~
MW-77	EI	SZ	10/12/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-77	EI	SZ	4/11/2018	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-77	EI	SZ	10/11/2018	<0.146	<0.0899	<0.687 X7	<1.20 X7	<1.19 X7	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51 X7	~
MW-77	EI	SZ	4/10/2019	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-77	EI	SZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-77	EI	SZ	4/13/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-77	EI	SZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-77	EI	SZ	4/15/2021	<0.0568	<0.0373	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.498	<6.36	<0.583	<3.18	<7.52 X7	~
MW-77	EI	SZ	10/7/2021	<0.0551	<0.0361	<1.22 X7	<0.797 X7	<0.862 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.65 X7	~
MW-77	EI	SZ	4/8/2022	<0.0590	<0.0387	<1.11 X7	<0.728 X7	<0.788 X7	--	--	--	--	--	<0.463	<5.91	<0.541	<2.95	<6.99 X7	~
MW-77	EI	SZ	10/10/2022	<0.0598	<0.0392	<1.09 X7	<0.713 X7	<0.771 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.85 X7	~
MW-77	EI	SZ	4/6/2023	<0.0581	<0.0381	<1.14	<0.746	<0.807	--	--	--	--	--	<0.474	<6.05	<0.555	<3.02	<7.16	~
MW-77	EI	SZ	10/12/2023	<0.0567 U	<0.0372 U	<1.09 U	<0.736 U	<0.796 U	--	--	--	--	--	<3.88 U	<7.76 U	<4.67 U	<1.19 U	<9.84 U*	~
MW-77	EI	SZ	4/18/2024	<0.0625 U	<0.0410 U	<1.22 U	<0.819 U	<0.886 U	--	--	--	--	--	<4.32 U	<8.64 U*	<5.20 U	<1.33 U	<11.0 U*	~
MW-78	Neut	SZ	12/19/2003	<0.96	<0.96	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<0.96	<9.6	<0.96	<1.9	~
MW-78	Neut	SZ	4/26/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-78	Neut	SZ	10/12/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
MW-78	Neut	SZ	4/12/2005	<9.7	7 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-78	Neut	SZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-78	Neut	SZ	4/13/2006	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
MW-78	Neut	SZ	11/7/2006	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-78	Neut	SZ	4/10/2007	<9.6	1.2 J	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
MW-78	Neut	SZ	10/9/2007	3.8 J	4.8 J	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-78	Neut	SZ	4/14/2008	<2.8	2.3 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-78	Neut	SZ	10/24/2008	<2.8	4 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
MW-78	Neut	SZ	4/20/2009	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-78	Neut	SZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
MW-78	Neut	SZ	4/21/2010	5.03 J	8.69 J	<0.998	1.25 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
MW-78	Neut	SZ	10/21/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08 J	<0.841	--	~
MW-78	Neut	SZ	4/21/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
MW-78	Neut	SZ	4/24/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-78	Neut	SZ	4/16/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
MW-78	Neut	SZ	4/21/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.130	<0.663	<4.00 X7	~
MW-78	Neut	SZ	4/20/2018	3.88 J	5.39 J	<0.610 X7	4.92 J X7	2.27 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-78	Neut	SZ	4/23/2020	<0.950	<0.640	<0.610 X7	<1.07 LX7	<1.06 X7	--	--	--	--	--	<1.15 L	<1.31	<1.18	<0.690	<4.16 X7	~
MW-78	Neut	SZ	4/25/2022	<0.0587	0.115	<1.08 X7	<0.706 X7	<0.763 X7	--	--	--	--	--	<0.448	<5.73	<0.525	<2.86	<6.77 X7	~
MW-78	Neut	SZ	4/18/2024	2.45	5.25	<1.04 U	<0.697 U	<0.754 U	--	--	--	--	--	<3.67 U	<7.35 U	<4.43 U	<1.13 U	<9.33 U*	~
MW-79	ASI	SZ	12/12/2005	<0.24	<0.24	<0.24	0.024 J	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-79	ASI	SZ	4/20/2006	0.15 J	0.31 J	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	<4.8	~
MW-79	ASI	SZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-79	ASI	SZ	4/20/2007	<0.96	<0.96	<0.96	<0.96	<0.96	--	--	--	--	--	<0.96	<0.96	<0.96	<0.96	--	~
MW-79	ASI	SZ	10/12/2007	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	~
MW-79	ASI	SZ	4/10/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-79	ASI	SZ	10/17/2008	<0.057	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-79	ASI	SZ	4/23/2009	<0.0558	<0.0808	<0.0824	<0.0647	<0.0730	--	--	--	--	--	<0.0666	<0.100	<0.0518	<0.0937	--	~
MW-79	ASI	SZ	10/28/2009	0.149 J	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-79	ASI	SZ	4/8/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-79	ASI	SZ	10/14/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-79	ASI	SZ	4/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-79	ASI	SZ	10/26/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
MW-79	ASI	SZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-79	ASI	SZ	10/26/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-79	ASI	SZ	4/22/2013	<0.0592	<0.0857	<0.0874	<0.0686	<0.0775	--	--	--	--	--	<0.0706	<0.106	<0.0549	<0.0994	<1.79 L	~
MW-79	ASI	SZ	10/18/2013	<0.15	<0.091	<0.69	<1.2	<1.2	--	--	--	--	--	<0.19	<0.15	<0.13	<0.15	<4.6 L	~
MW-79	ASI	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-80	DNTL	IZ	10/15/2004	<0.97	<0.97	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<0.97	<9.7	<0.97	<1.9	~
MW-80	DNTL	IZ	4/6/2005	0.082 J	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-80	DNTL	IZ	10/25/2005	<0.24	<0.24	<0.24	<0.24	<0.24	--	--	--	--	--	<0.24	<0.48	<0.24	<0.24	<1.9	~
MW-80	DNTL	IZ	4/20/2006	<1	<1	<1	<1	<1	--	--	--	--	--	<1	<1	<1	<1	<5	~
MW-80	DNTL	IZ	11/1/2006	<0.97	<0.97	<0.97	<0.97	<0.97	--	--	--	--	--	<0.97	<0.97	<0.97	<0.97	<4.8	~
MW-80	DNTL	IZ	4/23/2007	<0.99	<0.99	<0.99	<0.99	<0.99	--	--	--	--	--	<0.99	<0.99	<0.99	<0.99	--	~
MW-80	DNTL	IZ	10/12/2007	9.8	4.2	0.91 J	13	8	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	--	Exceed
MW-80	DNTL	IZ	4/8/2008	<0.056	<0.081	<0.083	<0.065	<0.074	--	--	--	--	--	<0.067	<0.10	<0.052	<0.094	<1.7	~
MW-80	DNTL	IZ	10/15/2008	<0.057	<0.082	<0.084	<0.066	<0.074	--	--	--	--	--	<0.068	<0.10	<0.053	<0.095	--	~
MW-80	DNTL	IZ	4/23/2009	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-80	DNTL	IZ	10/27/2009	0.366 J	1.48	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	Exceed
MW-80	DNTL	IZ	4/6/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-80	DNTL	IZ	10/14/2010	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692 J	<0.104	<0.0539	<0.0974	<1.76	~
MW-80	DNTL	IZ	4/15/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-80	DNTL	IZ	10/26/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-80	DNTL	IZ	4/17/2012	0.493 J	0.222 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-80	DNTL	IZ	10/30/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-80	DNTL	IZ	4/19/2013	<0.0569	<0.0823	<0.0840	0.128 J	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 L	~
MW-80	DNTL	IZ	10/17/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-80	DNTL	IZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-80	DNTL	IZ	10/23/2014	0.51 J	1.3	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-80	DNTL	IZ	4/16/2015	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-80	DNTL	IZ	10/7/2015	0.358 J	0.704 J	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-80	DNTL	IZ	4/5/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-80	DNTL	IZ	10/19/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125 L	<3.86 LX7	~
MW-80	DNTL	IZ	4/13/2017	<0.129	<0.0792	<0.605 X7	<1.06 X7	<1.05 X7	--	--	--	--	--	<0.168	<0.129	<0.109	<0.129	<3.97 LX7	~
MW-80	DNTL	IZ	10/12/2017	<0.13	<0.08	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.01 LX7	~
MW-80	DNTL	IZ	4/12/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-80	DNTL	IZ	10/22/2018	<0.140 L	<0.086 L	<0.657 LX7	<1.15 LX7	<1.14 LX7	--	--	--	--	--	<0.183 L	<0.140 L	<0.118 L	<0.140 L	<4.31 R	~
MW-80	DNTL	IZ	4/15/2019	<0.143	<0.0879	<0.671 LX7	<1.18 LX7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 X7	~
MW-80	DNTL	IZ	10/17/2019	<0.133 L	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173 L	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-80	DNTL	IZ	4/15/2020	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131 L	<4.05 RX7	~
MW-80	DNTL	IZ	10/13/2020	0.340 J	0.222 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-80	DNTL	IZ	4/15/2021	<0.0663	<0.0435	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.519	<6.63	<0.607	<3.31	<7.84 X7	~
MW-80	DNTL	IZ	10/11/2021	0.0711 J	<0.0377	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.453	<5.79	<0.530	<2.89	<6.85 X7	~
MW-80	DNTL	IZ	4/8/2002	<0.0606	<0.0397	<1.07 X7	<0.704 X7	<0.761 X7	--	--	--	--	--	<0.447	<5.70	<0.523	<2.85	<6.75 X7	~
MW-80	DNTL	IZ	10/11/2022	1.24	1.57	<1.08 X7	<0.707 X7	<0.764 X7	--	--	--	--	--	<0.449	<5.73	<0.525	<2.87	<6.78 X7	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-80	DNTL	IZ	4/6/2023	<0.0572	<0.0375	<1.14	<0.745	<0.806	--	--	--	--	--	<0.473	<6.04	<0.554	<3.02	<7.15	~
MW-80	DNTL	IZ	10/12/2023	<0.0561 U	<0.0368 U	<1.16 U	<0.777 U	<0.840 U	--	--	--	--	--	<4.10 U	<8.19 U	<4.94 U	<1.26 U	<10.4 U*	~
MW-80	DNTL	IZ	4/3/2024	0.129	<0.0399 U	<1.13 U	<0.763 U	<0.825 U	--	--	--	--	--	<4.02 U	<8.04 U	<4.85 U	<1.24 U	<10.2 U*	~
MW-81	Neut	IZ	12/19/2003	<0.98	<0.98	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<0.98	<9.8	<0.98	<2	~
MW-81	Neut	IZ	4/21/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
MW-81	Neut	IZ	10/22/2004	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<19	<9.6	<19	--	~
MW-81	Neut	IZ	4/13/2005	<9.7	1 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
MW-81	Neut	IZ	10/17/2005	<9.7	8.7 J	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
MW-81	Neut	IZ	4/12/2006	<9.9	13	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
MW-81	Neut	IZ	10/13/2006	<9.8	4.9 J	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-81	Neut	IZ	4/10/2007	<9.8	3 J	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
MW-81	Neut	IZ	10/4/2007	4.7 J	4.8 J	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	Exceed
MW-81	Neut	IZ	4/10/2008	12	6.6 J	<1.0	1.7 J	<1.4	--	--	--	--	--	<0.95	<1.5	<1.1	<0.84	--	Exceed
MW-81	Neut	IZ	10/29/2008	<2.8	4.8 J	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	Exceed
MW-81	Neut	IZ	4/17/2009	<2.85	1.24 J	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
MW-81	Neut	IZ	10/20/2009	<2.83	2.86 J	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-81	Neut	IZ	4/15/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
MW-81	Neut	IZ	10/20/2010	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	<0.875	--	~
MW-81	Neut	IZ	4/21/2011	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<1.13	<4.94	<1.49	<0.866	<3.20 J	~
MW-81	Neut	IZ	4/25/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
MW-81	Neut	IZ	4/21/2014	<0.91	<0.62	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	~
MW-81	Neut	IZ	4/22/2016	<0.969	0.857 J	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-81	Neut	IZ	4/24/2018	<1.00	<0.674	<0.642 X7	3.91 J X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
MW-81	Neut	IZ	5/1/2020	<1.09	<0.736	<0.701 X7	<1.23 X7	<1.22 X7	--	--	--	--	--	<1.32	<1.51	<1.36	<0.793	<4.78 X7	~
MW-81	Neut	IZ	4/26/2022	0.396	0.357	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.553	<3.02	<7.14 X7	~
MW-81	Neut	IZ	4/5/2024	0.0761 J	0.0699 J	<1.37 U	<0.924 U	<0.999 U	--	--	--	--	--	<4.87 U	<9.74 U	<5.87 U	<1.50 U	<12.4 U*	~
MW-82	DNT	SZ	10/26/2005	65000	41000	5900 J	82000	47000	--	--	--	--	--	<20	110	36 J	740	--	Exceed
MW-82	DNT	SZ	4/17/2006	140000	62000	19000 J	270000	160000	--	--	--	--	--	<98	350	79 J	54 J	--	Exceed
MW-82	DNT	SZ	10/18/2006	57000	37000	5500	61000	39000	--	--	--	--	--	<500	440 J	<500	940	--	Exceed
MW-82	DNT	SZ	4/16/2007	15000	11000	1200 J	19000	12000	--	--	--	--	--	<96	6.5 J	<96	260	--	Exceed
MW-82	DNT	SZ	10/10/2007	78000	41000	6300 J	93000	55000	--	--	--	--	--	<13	12 J	29 J	550	--	Exceed
MW-82	DNT	SZ	4/25/2012	3630	1910	323 J	4510	2630	--	--	--	--	--	<1.10	6.47 J	<1.44	35	--	Exceed
MW-82	DNT	SZ	10/25/2013	4400	2600	410	4800	2900	--	--	--	--	--	<1.1	<1.3	<1.1	4.4 J	<4.0	Exceed
MW-82	DNT	SZ	6/3/2014	<4.6	200	22 J	100	30 J	--	--	--	--	--	<5.6	<6.4	<5.7	6.2 J	<20	Exceed
MW-82R	DNTU-AOC1	SZ	4/21/2017	43100	31400	7230 X7	112000 X7	62900 X7	--	--	--	--	--	<11.1	28.6 J	<56.7	1090	<200 X7	Exceed
MW-82R	DNTU-AOC1	SZ	4/20/2018	17,800	10,600	3,060 X7	49,500 X7	24,300 X7	--	--	--	--	--	<57.5	<65.5	<59.0	581	<208 X7	Exceed
MW-82R	DNTU-AOC1	SZ	5/1/2020	45100	20100	15800 X7	155000 X7	108000 X7	--	--	--	--	--	<59.9	1050	<61.5	3290	<217 X7	Exceed
MW-82R	DNTU-AOC1	SZ	4/26/2022	35000	18300	15300 X7	186000 X7	108000 X7	--	--	--	--	--	<2.25	293	49.1	1350	<33.9 X7	Exceed
MW-82R	DNTU-AOC1	SZ	4/24/2024	45800	17700	25300	323000	205000	--	--	--	--	--	<4.12 U	22.9	51.6	5970	<10.5 U	Exceed
MW-83	DNT	SZ	10/26/2005	50000	23000	9300 J	130000	71000	--	--	--	--	--	<100	390	55 J	1900 E	--	Exceed
MW-83	DNT	SZ	4/17/2006	82000	66000	6500 J	93000	56000	--	--	--	--	--	<100	9.1 J	49 J	910	--	Exceed
MW-83	DNT	SZ	10/18/2006	66000	28000	10000 J	140000	90000	--	--	--	--	--	<500	200 J	81 J	5000	--	Exceed
MW-83	DNT	SZ	4/16/2007	77000	25000	12000	140000	87000	--	--	--	--	--	<97	49 J	110	4700	--	Exceed
MW-83	DNT	SZ	10/10/2007	91000	32000	10000 J	160000	98000	--	--	--	--	--	<12	45 J	83 J	2600 J	--	Exceed
MW-84	DNT	SZ	4/22/2010	1700	1090	740	9240	6270	--	--	--	--	--	<0.956	16.6	3.35 J	120	--	Exceed
MW-84	DNT	SZ	10/25/2010	975	495	338	2650	2700	--	--	--	--	--	<9.75	<15.7	<11.0	41.7 J	--	Exceed
MW-84	DNT	SZ	4/26/2011	544 J	335 J	259 J	2310 J	1520 J	--	--	--	--	--	<11.2 J	<49.0 J	<14.7 J	45 J	<31.7 J	Exceed
MW-84	DNT	SZ	4/25/2012	204	205	186 J	3100	1850	--	--	--	--	--	<1.11	289	<1.46	18.8	--	Exceed
MW-84	DNT	SZ	2/19/2013	3700	3500	2870	42100	21800	--	--	--	--	--	<0.956	--	--	390	5930 J	Exceed
MW-84	DNT	SZ	10/25/2013	1000	620	460	7500	4600	--	--	--	--	--	<17	54 J	<17	48 J	1400	Exceed
MW-84	DNT	SZ	6/3/2014	230	150	96 J	1300	900	--	--	--	--	--	<11	<13	<11	<6.7	<40	Exceed
MW-84R	DNTU-AOC1	IZ	4/21/2017	37500	19400	8570 X7	131000 X7	65100 X7	--	--	--	--	--	<11.3	410	<116	2,160	<408 X7	Exceed
MW-84R	DNTU-AOC1	IZ	4/20/2018	49,000	24,700	11,400 X7	184,000 X7	83,400 X7	--	--	--	--	--	<57.5	338 J	<59.0	2,750	<208 X7	Exceed
MW-84R	DNTU-AOC1	IZ	5/1/2020	3580	2360	686 X7	8250 X7	7120 X7	--	--	--	--	--	<1.16	50.4	<1.19	279 J	<4.20 X7	Exceed
MW-84R	DNTU-AOC1	IZ	4/26/2022	12100	8950	4260 X7	46100 X7	36500 X7	--	--	--	--	--	<2.36	<30.1	10.7 J	480	<35.6 X7	Exceed
MW-84R	DNTU-AOC1	IZ	4/24/2024	16100	7950	7620	83000	55900	--	--	--	--	--	<4.10 U	<8.20 U	6.14 J	414	<10.4 U	Exceed
MW-85	DNT	SZ	4/8/2010	<0.0563	0.746 J	0.604 J	8.07	4.54	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	Exceed
MW-85	DNT	SZ	10/13/2010	<0.0569	<0.0823	0.445 J	6.37	3.53	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	Exceed
MW-85	DNT	SZ	4/18/2011	<0.0569	0.575 J	1.5	4.26	3.34	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	Exceed
MW-85	DNT	SZ	10/25/2011	<2.77	<0.987	<0.998	3.81 J	1.98 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-85	DNT	SZ	4/17/2012	<0.0575	<0.0831	0.98	13.4	7.61	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	Exceed
MW-85	DNT	SZ	10/26/2012	<0.0563	<0.0815	0.537 J	8.33	4.17	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	Exceed
MW-85	DNT	SZ	4/18/2013	<0.0586	1.76	0.797 J	12.9	7.19	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77 L	Exceed
MW-85	DNT	SZ	10/18/2013	0.28 J	0.93 J	0.9 J	10	6.3	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 l	Exceed
MW-85	DNT	SZ	4/10/2014	<0.13	1.00	<0.60	7.4	4.3 J	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	Exceed
MW-85	DNT	SZ	10/24/2014	0.42 J	1.10	1.2 J	8.8	5.7	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	Exceed
MW-85	DNT	SZ	4/17/2015	1.2 J	0.60 J	1.4 J	12	6.9	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	Exceed
MW-85	DNT	SZ	10/9/2015	0.448 J	1.37	1.26 J	11.8	7.80	--	--	--	--	--	<0.189	<0.144	<0.122	<0.144	<4.46	Exceed
MW-85	DNT	SZ	4/6/2016	0.715 J	2.03	1.48 J X7	15.6 X7	10.2 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	Exceed
MW-85	DNT	SZ	10/25/2016	<0.133	<0.0816	<0.623 X7	8.56 X7	3.48 J X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	Exceed
MW-85	DNT	SZ	4/14/2017	0.731 J	1.20	1.43 J X7	16.6 X7	9.97 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	Exceed
MW-85	DNT	SZ	10/17/2017	<0.137	<0.0842	<0.643 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<0.179	<0.137	<0.116	<0.137	<4.22 LX7	~
MW-85	DNTU	SZ	4/16/2018	2.47	4.34	2.25 J X7	29.4 X7	16.5 X7	--	--	--	--	--	<0.165	<0.126 L	<0.107	<0.126 L	R	Exceed
MW-85	DNTU	SZ	10/22/2018	3.42	6.56	2.34 JLX7	37.3 X7	16.7 X7	--	--	--	--	--	<0.185	0.147 J	<0.120	<0.141	<4.36 X7	Exceed
MW-85	ASI	SZ	4/10/2019	2.85	3.91	2.45 J X7	26.2 X7	16.3 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	Exceed
MW-85	ASI	SZ	10/23/2019	1.39 J	2.19	1.46 J X7	14.1 X7	8.78 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130 L	<4.01 LX7	Exceed
MW-85	ASI	SZ	4/15/2020	2.38	3.72	2.12 J X7	33.0 X7	14.3 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	Exceed
MW-85	ASI	SZ	10/14/2020	3.40	3.89	2.77 J X7	23.8 X7	18.9 X7	--	--	--	--	--	<0.167	<0.127	<0.108	.370 J	<3.93 X7	Exceed
MW-85	ASI	SZ	4/19/2021	1.86	1.79	<12.2 X7	13.4 X7	<12.2 X7	--	--	--	--	--	<0.574	<7.33	<0.672	<3.67	<8.68X7	Exceed
MW-85	ASI	SZ	10/11/2021	1.74	1.07	<1.13 X7	6.36 J X7	4.48 J X7	--	--	--	--	--	<0.471	<6.01	<0.551	<3.0	<7.11 X7	Exceed
MW-85	ASI	SZ	4/8/2022	2.32	2.33	1.53 J X7	18.2 X7	11.9 X7	--	--	--	--	--	<0.446	<5.69	<0.522	<2.85	<6.74 X7	Exceed
MW-85	ASI	SZ	10/10/2022	3.51	3.03	1.24 J X7	13.6 X7	9.41 J X7	--	--	--	--	--	<0.461	<5.89	<0.540	<2.95	<6.97 X7	Exceed
MW-85	ASI	SZ	4/6/2023	1.59	1.32	<1.15	7.76 J	5.23 J	--	--	--	--	--	<0.477	<6.09	<0.559	<3.05	<7.21	Exceed
MW-85	ASI	SZ	10/11/2023	0.765	0.574	<1.14 U	3.54 J	2.21 J	--	--	--	--	--	<4.05 U	<8.09 U	<4.88 U	<1.24 U	<10.3 U*	~
MW-85	ASI	SZ	4/19/2024	1.42	1.00	<1.05 U	5.47 J	3.97 J	--	--	--	--	--	<3.72 U	<7.43 U*	<4.48 U	<1.14 U	<9.43 U*	Exceed
MW-86	DNT	SZ	10/13/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-86	DNT	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-86	DNT	SZ	10/19/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-86	DNT	SZ	4/16/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	--	~
MW-86	DNT	SZ	10/30/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-86	DNT	SZ	4/17/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-86	DNT	SZ	10/18/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-86	DNT	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-86	DNT	SZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17 L	<0.13	<0.11	<0.13	<4.0	~
MW-86	DNT	SZ	4/16/2015	0.29 J	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-86	DNT	SZ	10/9/2015	<0.133	<0.0816	<0.623	<1.09	<1.08	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09	~
MW-86	DNT	SZ	4/6/2016	<0.125	0.166 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-86	DNT	SZ	10/25/2016	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-86	DNT	SZ	4/14/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-86	DNT	SZ	10/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-86	DNTU	SZ	4/16/2018	2.73 J	4.77 J	2.30 J X7	30.4 J X7	16.9 J X7	--	--	--	--	--	<0.163 J	<0.125 J	<0.106 J	<0.125 J	<3.86 J X7	Exceed
MW-86	DNTU	SZ	5/30/2018	<0.130	<0.0800	<0.617	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.611	<0.131	<0.111	<0.130	<4.05 X7	~
MW-86	DNTU	SZ	10/25/2018	<0.141	<0.087	<0.664 LX7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141 L	<0.120 L	<0.141 L	<4.36 R	~
MW-86	ASI	SZ	4/11/2019	<0.134	<0.0825	<0.630 X7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-86	ASI	SZ	10/23/2019	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131 L	<4.05 LX7	~
MW-86	ASI	SZ	4/15/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-86	ASI	SZ	10/14/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-86	ASI	SZ	4/19/2021	0.336	0.159	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.500	<6.39	<0.585	<3.19	<7.56 X7	~
MW-86	ASI	SZ	10/11/2021	<0.0579	<0.038	<1.16 X7	<0.759 X7	<0.821 X7	--	--	--	--	--	<0.482	<6.16	<0.564	<3.08	<7.28 X7	~
MW-86	ASI	SZ	4/8/2022	<0.0572	<0.0375	<1.08 X7	<0.708 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.80 X7	~
MW-86	ASI	SZ	10/10/2022	<0.0614	<0.0403	<1.08 X7	<0.708 X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.527	<2.87	<6.80 X7	~
MW-86	ASI	SZ	4/10/2023	<0.0588	<0.0386	<1.10*	<0.721*	<0.779*	--	--	--	--	--	<0.458	<5.85	<0.536	<2.92	<6.92*	~
MW-86	ASI	SZ	10/11/2023	<0.0581 U	<0.0381 U	<1.14 U	<0.768 U	<0.831 U	--	--	--	--	--	<4.05 U	<8.10 U	<4.88 U	<1.25 U	<10.3 U*	~
MW-86	ASI	SZ	4/19/2024	<0.0608 U	<0.0399 U	<1.06 U	<0.715 U	<0.773 U	--	--	--	--	--	<3.77 U	<7.54 U*	<4.54 U	<1.16 U	<9.57 U*	~
MW-87	ASI	SZ	4/8/2010	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	--	~
MW-87	ASI	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-87	ASI	SZ	4/18/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-87	ASI	SZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-87	ASI	SZ	4/17/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-87	ASI	SZ	10/26/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-87	ASI	SZ	4/18/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 L	~
MW-87	ASI	SZ	10/18/2013	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-87	ASI	SZ	4/10/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-87	ASI	SZ	10/27/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16 L	<0.13	<0.11	<0.13	<3.9	~
MW-87	ASI	SZ	4/16/2015	0.26 J	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-87	ASI	SZ	10/9/2015	<0.148	<0.0909	<0.694	<1.22	<1.20	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56	~
MW-87	ASI	SZ	4/6/2016	0.132 J	0.439 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-87	ASI	SZ	10/24/2016	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-87	ASI	SZ	4/14/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-87	ASI	SZ	10/17/2017	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 LX7	~
MW-87	ASI	SZ	4/16/2018	<0.130 J	0.353 J	<0.611 J X7	<1.07 J X7	<1.06 J X7	--	--	--	--	--	<0.170 J	<0.130 J	<0.110 J	<0.130	<4.01 J X7	~
MW-87	ASI	SZ	10/25/2018	<0.138	<0.0851	<0.650 LX7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-87	ASI	SZ	4/11/2019	<0.130 L	<0.0800 L	<0.611 LX7	<1.07 LX7	<1.06 LX7	--	--	--	--	--	<0.170 L	<0.130 L	<0.110 L	<0.130 L	<4.01 LX7	~
MW-87	ASI	SZ	10/24/2019	<0.130	<0.0800	<0.611 X7	<1.07 LX7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130 L	<4.01 LX7	~
MW-87	ASI	SZ	4/15/2020	<0.130	<0.0800	<0.611 X7	1.11 J X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-87	ASI	SZ	10/14/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<0.106 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-87	ASI	SZ	4/19/2021	<0.0635	0.0597 J	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.506	<6.47	<0.593	<3.23	<7.65 X7	~
MW-87	ASI	SZ	10/11/2021	<0.0572	0.0581 J	<1.12 X7	<0.734 X7	<0.794 X7	--	--	--	--	--	<0.466	<5.95	<0.546	<2.98	<7.05 X7	~
MW-87	ASI	SZ	4/12/2022	<0.0594	<0.0390	<1.14 X7	<0.747 X7	<0.807 X7	--	--	--	--	--	<0.474	<6.05	<0.555	<3.03	<7.16 X7	~
MW-87	ASI	SZ	10/10/2022	<0.0610	<0.0400	<1.08	0.799 J X7	<0.766 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.80 X7	~
MW-87	ASI	SZ	4/10/2023	<0.0592	<0.0388	<1.18*	<0.771*	<0.834*	--	--	--	--	--	<0.490	<6.26	<0.573	<3.13	<7.40*	~
MW-87	ASI	SZ	10/11/2023	<0.0581 U	0.0546 J	<1.11 U	2.06 J	0.896 J	--	--	--	--	--	<3.94 U	<7.89 U	<4.75 U	<1.21 U	<10.0 U*	~
MW-87	ASI	SZ	4/19/2024	<0.0588 U	0.0522 J	<1.07 U	<0.722 U	<7.80 U	--	--	--	--	--	<3.80 U	<7.61 U*	<4.58 U	<1.17 U	<9.65 U*	~
MW-88	ASI	SZ	4/7/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-88	ASI	SZ	10/13/2010	<0.0563 J	<0.0815 J	<0.0832 J	<0.0653 J	<0.0738 J	--	--	--	--	--	<0.0672 J	<0.101 J	<0.0523 J	<0.0946 J	<1.71 J	~
MW-88	ASI	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-88	ASI	SZ	10/19/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-88	ASI	SZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-88	ASI	SZ	10/25/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-88	ASI	SZ	4/15/2013	<0.0592	<0.0857	<0.0874	<0.0686	<0.0775	--	--	--	--	--	<0.0706	<0.106	<0.0549	<0.0994	<1.79	~
MW-88	ASI	SZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-88	ASI	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-88	ASI	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-88	ASI	SZ	4/16/2015	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-88	ASI	SZ	10/7/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
MW-88	ASI	SZ	4/6/2016	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-88	ASI	SZ	10/20/2016	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	0.110	<0.130 L	<4.01 X7	~
MW-88	ASI	SZ	4/18/2017	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-88	ASI	SZ	10/16/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-88	ASI	SZ	4/12/2018	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-88	ASI	SZ	10/22/2018	<0.141	<0.087	<0.664 LX7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36 X7	~
MW-88	ASI	SZ	4/11/2019	<0.126 L	<0.0777 L	<0.593 LX7	<1.04 LX7	<1.03 LX7	--	--	--	--	--	<0.165 L	<0.126 L	<0.107 L	<0.126 L	<3.89 LX7	~
MW-88	ASI	SZ	10/17/2019	<0.141 L	<0.0870	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185 L	<0.141	<0.120	<0.141	<4.36 LX7	~
MW-88	ASI	SZ	4/13/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-88	ASI	SZ	10/15/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-88	ASI	SZ	4/22/2021	<0.0575	<0.0377	<11.1 X7	<11.1 X7	<11.1 X7	--	--	--	--	--	<0.521	<6.65	<0.610	<3.33	<7.87 X7	~
MW-88	ASI	SZ	10/11/2021	<0.0575	<0.0377	<1.16 X7	<0.763 X7	<0.824 X7	--	--	--	--	--	<0.484	<6.18	<0.567	<3.09	<7.32 X7	~
MW-88	ASI	SZ	4/12/2022	<0.0606	<0.0397	<1.07 X7	<0.703 X7	<0.760 X7	--	--	--	--	--	<0.447	<5.70	<0.523	<2.85	<6.75 X7	~
MW-88	ASI	SZ	10/11/2022	<0.0594	<0.0390	<1.08 X7	<0.710 X7	<0.768 X7	--	--	--	--	--	<0.451	<5.76	<0.528	<2.88	<6.81 X7	~
MW-88	ASI	SZ	4/10/2023	<0.0592	<0.0388	<1.15*	<0.754*	<0.816*	--	--	--	--	--	<0.479	<6.12	<0.561	<3.06	<7.24*	~
MW-88	ASI	SZ	10/11/2023	<0.0581 U	<0.0381 U	<1.15 U	<0.773	<0.835 U	--	--	--	--	--	<4.07 U	<8.15 U	<4.91 U	<1.25 U	<10.3 U*	~
MW-88	ASI	SZ	4/15/2024	<0.0629 U	<0.0412 U	<1.22 U	<0.820 U	<0.887 U	--	--	--	--	--	<4.32 U*	<8.64 U*	<5.21 U*	<1.33 U*	<11.0 U*	~
MW-89	ASI	SZ	4/22/2010	3.28 J	<0.987	1.94 J	23.4	22.4	--	--	--	--	--	<0.956	128	<1.08	7.03 J	--	Exceed
MW-89	ASI	SZ	10/26/2010	<2.85	<1.02	<1.03	2.77 J	3.36 J	--	--	--	--	--	<0.984	40.5	<1.11	<0.866	--	Exceed
MW-89	ASI	SZ	4/27/2011	<2.80	<0.996	6.12 J	3.45 J	8.76 J	--	--	--	--	--	<1.11	<4.85	<1.46	2.66 J	<3.14 J	~
MW-89	ASI	SZ	10/18/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-89	ASI	SZ	4/24/2012	<2.83	<1.01	<1.02	1.49 J	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	--	~
MW-89	ASI	SZ	10/18/2012	<2.83	<1.01	<1.02	1.85 J	<1.46	--	--	--	--	--	<0.975	<4.90	<1.19	<2.94	--	~
MW-89	ASI	SZ	4/25/2013	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	--	--	<0.994	<4.99	<1.21	<3.00	<3.24 L	~
MW-89	ASI	SZ	10/25/2013	12	5.6 J	7.1 J	42	33	--	--	--	--	--	<1.1	1.8 J	<1.1	6.6 J	<4.0	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-89	ASI	SZ	4/21/2014	6.5 J	3.1 J	3.3 J	23	22	--	--	--	--	--	<1.1	<1.3	<1.1	3.4 J	<4.0	Exceed
MW-89	ASI	SZ	10/22/2014	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-89	ASI	SZ	4/22/2015	<0.95	<0.64	<0.61	2.4 J	1.3 J	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<4.2	~
MW-89	ASI	SZ	10/20/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	0.372 J	<0.106	0.253 J	<3.86	~
MW-89	ASI	SZ	4/21/2016	5.18 J	2.61 J	1.86 J X7	17.0 X7	13.2 X7	--	--	--	--	--	<1.13	<1.28	<1.16	1.83 J	<4.08 X7	Exceed
MW-89	ASI	SZ	10/26/2016	<0.96	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-89	ASI	SZ	4/19/2017	<0.990	<0.667	<0.635 X7	<1.11 X7	<1.10 X7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-89	ASI	SZ	10/19/2017	<1.02	<0.688	<0.656 X7	<1.15 X7	<1.14 X7	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47 X7	~
MW-89	ASI	SZ	4/23/2018	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
MW-89	ASI	SZ	10/29/2018	<0.990	<0.667	<0.635 LX7	<1.11 X7	<1.10 LX7	--	--	--	--	--	<1.20	<1.36	<1.23	<0.719	<4.33 X7	~
MW-89	ASI	SZ	4/18/2019	<0.960	<0.646	<0.616 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	<0.697	<4.20 X7	~
MW-89	ASI	SZ	10/28/2019	9.24J	6.64J	<0.610	2.45J	<0.106	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	Exceed
MW-89	ASI	SZ	4/23/2020	<0.931	<0.627	<0.598 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<1.13	<1.28	<1.16	<0.676	<4.08 X7	~
MW-89	ASI	SZ	10/22/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-89	ASi	SZ	4/28/2021	<0.0572	<0.0375	<10.9 X7	<10.9 X7	<10.9 X7	--	--	--	--	--	<0.513	<6.55	<0.601	<3.28	<7.75 X7	~
MW-89	ASi	SZ	10/26/2021	0.356	0.43	<1.14 X7	<0.744 X7	<0.805 X7	--	--	--	--	--	<0.473	<6.04	<0.553	<3.02	<7.14 X7	~
MW-89	ASI	SZ	4/25/2022	<0.598	<0.0392	<1.08 X7	<0.708 X7	<0.765 X7	--	--	--	--	--	<0.450	<5.74	<0.526	<2.87	<6.79 X7	~
MW-89	ASI	SZ	10/14/2022	<0.0568	<0.0373	<1.11 X7	<0.727 X7	<0.786 X7	--	--	--	--	--	<0.462	<5.90	<0.540	<2.95	<6.98 X7	~
MW-89	ASI	SZ	4/18/2023	<0.0565	<0.0370	<1.11	<1.11	<1.11	--	--	--	--	--	<1.11	<1.11	<1.11	<1.11	<1.11	~
MW-89	ASI	SZ	10/18/2023	1.34	0.822	<1.18 U	<0.794 U	<0.858 U	--	--	--	--	--	<4.18 U	<8.37 U	<5.04 U	<1.29 U	<10.6 U*	Exceed
MW-89	ASI	SZ	4/19/2024	<0.0600 U	<0.0393 U	<1.13 U	<0.757 U	<0.818 U	--	--	--	--	--	<3.99 U	<7.98 U*	<4.81 U	<1.23 U	<10.1 U*	~
MW-91	ASI	SZ	4/7/2010	3330	1310	692	7550	5350	--	--	--	--	--	<0.0685	0.13 J	2.37	3.52	--	Exceed
MW-91	ASI	SZ	10/26/2010	53.9	27	15.1	157	88.3	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	Exceed
MW-91	ASI	SZ	4/27/2011	292	114	55.1	476	270	--	--	--	--	--	<1.11	<4.85	<1.46	1.09 J	<3.14 J	Exceed
MW-91	ASI	SZ	10/18/2011	347 J	115	49.8	356 J	272 J	--	--	--	--	--	<1.11	<4.85	<1.46	1.03 J	<3.14	Exceed
MW-91	ASI	SZ	4/27/2012	126	35.2	16	182	149	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	Exceed
MW-91	ASI	SZ	10/17/2012	137	28.5	11.5	146	98.4	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	Exceed
MW-91	ASI	SZ	4/25/2013	96.5	24.3	5.9 J	106	81.4	--	--	--	--	--	<1.01	<5.09	<1.24	8.89 J	<3.30 L	Exceed
MW-91	ASI	SZ	10/25/2013	200	61	38	420	310	--	--	--	--	--	<1.1	<1.3	<1.1	7.8 J	<4.0	Exceed
MW-91	ASI	SZ	4/16/2014	40	17	8.9 J	65	47	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	Exceed
MW-91	ASI	SZ	10/22/2014	--	28	18	--	160	--	--	--	--	--	<1.2	<1.3	<1.2	1.5 J	<4.2	Exceed
MW-91	ASI	SZ	4/22/2015	44	17	7.1 J	75	48	--	--	--	--	--	<1.2	<1.4	<1.3	<0.73	<4.4	Exceed
MW-91	ASI	SZ	10/20/2015	95.3	16.8	19.1	216	179	--	--	--	--	--	<0.189	19.9	<0.122	17.5	<4.46	Exceed
MW-91	ASI	SZ	4/21/2016	46.0	18.9	11.4 X7	129 X7	70.2 X7	--	--	--	--	--	<1.11	<1.26	<1.13	0.976 J	<4.00 X7	Exceed
MW-91	ASI	SZ	10/27/2016	74.3	22.5	15.3 X7	193 X7	103 X7	--	--	--	--	--	<1.11	<1.26	<1.13	1.85 J	<4.00 X7	Exceed
MW-91	ASI	SZ	4/19/2017	72.1	21.4	12.5 X7	156 X7	90.1 X7	--	--	--	--	--	<1.13	<1.28	<1.16	1.12 J	<4.08 X7	Exceed
MW-91	ASI	SZ	10/19/2017	181	65.8	32.5 X7	606 X7	375 X7	--	--	--	--	--	<1.17	20	<1.2	5.21 J	<4.24 X7	Exceed
MW-91	ASI	SZ	4/20/2018	63.7	33.5	11.4 X7	134 X7	79.8 X7	--	--	--	--	--	<1.15	1.51 J	<1.18	<0.690	<4.16 X7	Exceed
MW-91	ASI	SZ	10/29/2018	19.7	5.15 J	3.95 JLX7	52.0 X7	29.9 LX7	--	--	--	--	--	<1.15	<1.31	<1.18	1.29 J	<4.16 X7	Exceed
MW-91	ASI	SZ	4/18/2019	17.5 H	12.5	4.51 J X7	27.2 X7	31.2 X7	--	--	--	--	--	<1.22	<1.39	<1.26	<0.734	<4.43 X7	Exceed
MW-91	ASI	SZ	10/28/2019	40.2	14.8	9.26 J X7	90.5 X7	67.8 X7	--	--	--	--	--	<1.15	<1.31	<1.18	0.777 J	<4.16 X7	Exceed
MW-91	ASI	SZ	4/30/2020	6.27 J	2.26 J	1.68 J X7	20.8 X7	17.7 X7	--	--	--	--	--	<1.14	1.47 J	<1.17	<0.683	<4.12 X7	Exceed
MW-91	ASI	SZ	10/22/2020	22.4	7.96	6.31 X7	63.3 X7	39.4 X7	--	--	--	--	--	<0.175	14.9	<0.113	1.63 J	5.02 X7	Exceed
MW-91	ASI	SZ	4/28/2021	9.13	3.09	<10.6 X7	22.9 X7	14.9 X7	--	--	--	--	--	<0.499	<6.36	<0.583	<3.18	<7.53 X7	Exceed
MW-91	ASI	SZ	10/26/2021	8.19	3.47	<5.47 X7	45.4 J X7	30.3 J X7	--	--	--	--	--	<2.28	<29.1	<2.66	<14.5	<34.4 X7	Exceed
MW-91	ASI	SZ	4/26/2022	8.05	6.06	19.7 X7	35.9 X7	27.6 X7	--	--	--	--	--	<0.901	<11.5	<1.05	<5.75	<13.6 X7	Exceed
MW-91	ASI	SZ	10/14/2022	2.22	1.24	<2.23 X7	9.43 J X7	6.01 J X7	--	--	--	--	--	<0.929	<11.9	<1.09	<5.93	<14 X7	Exceed
MW-91	ASI	SZ	4/18/2023	<0.0581	1.32	<1.11	<1.11	<1.11	--	--	--	--	--	<1.11	<1.11	<1.11	<1.11	<1.11	Exceed
MW-91	ASI	SZ	10/17/2023	4.28	2.08	2.03 J	22.9	18.1	--	--	--	--	--	<3.88 U	<7.77 U	<4.68 U	2.59 J	<9.86 U*	Exceed
MW-91 1st Run	ASI	SZ	4/17/2024	**9.56**	**3.02**	<1.09 U H	37.3 H	51.0 H	--	--	--	--	--	<3.86 U H	16.7 H	<4.66 U H	5.42 U H	<9.81 UH*	Exceed
MW-91-ReSamp-Run	ASI	SZ	5/21/2024	20.7	10.4	5.71 J	53.5	39.7	--	--	--	--	--	<3.97 U	<7.95 U	<4.79 U	3.43 J	<10.1 U*	Exceed
MW-93	DNT	SZ	4/8/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-93	DNT	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	0.0928 J	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-93	DNT	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-93	DNT	SZ	10/26/2011	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	<3.11 J	~
MW-93	DNT	SZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-93	DNT	SZ	10/25/2012	<0.0563 J	<0.0815 J	<0.0832 J	<0.0653 J	<0.0738 J	--	--	--	--	--	<0.0672 J	<0.101 J	<0.0523 J	<0.0946 J	<1.71 J	~
MW-93	DNT	SZ	4/19/2013	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 L	~
MW-93	DNT	SZ	10/16/2013	0.27 J	1.3	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-93	DNT	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-93	DNT	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-93	DNT	SZ	4/16/2015	0.27 J	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-93	DNT	SZ	10/8/2015	<0.141	<0.0870	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-93	DNT	SZ	4/7/2016	<0.130	0.503 J	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.17	<0.130	<0.110	<0.130	<4.01 X7	~
MW-93	DNT	SZ	10/24/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-93	DNT	SZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-93	DNT	SZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125 L	<0.106	<0.125	R	~
MW-93	DNTU	SZ	4/12/2018	<0.131	0.191 J	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-93	DNTU	SZ	10/22/2018	<0.134	<0.0825	<0.630 LX7	<1.10 X7	<1.09 X7	--	--	--	--	--	<0.175	<0.134	<0.113	<0.134	<4.13 X7	~
MW-93	DNTU-AOC1	SZ	4/11/2019	<0.138	<0.0851	<0.650 X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	~
MW-93	DNTU-AOC1	SZ	10/18/2019	<0.131 L	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172 L	<0.131	<0.111	<0.131	<4.05 LX7	~
MW-93	DNTU-AOC1	SZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-93	DNTU-AOC1	SZ	10/15/2020	<0.133	<0.0816	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	~
MW-93	DNTU-AOC1	SZ	4/19/2021	<0.0594	<0.0390	<10.9 X7	<10.9 X7	<10.9 X7	--	--	--	--	--	<0.511	<6.52	<0.597	<3.26	<7.71 X7	~
MW-93	DNTU-AOC1	SZ	10/12/2021	0.0699 J	<0.0366	<1.2 X7	<0.786 X7	<0.850 X7	--	--	--	--	--	<0.499	<6.37	<0.584	<3.19	<7.54 X7	~
MW-93	DNTU-AOC1	SZ	4/12/2022	<0.0602	<0.0395	<1.13 X7	<0.737 X7	<0.797 X7	--	--	--	--	--	<0.468	<5.98	<0.548	<2.99	<7.07 X7	~
MW-93	DNTU-AOC1	SZ	10/11/2022	<0.0594	<0.0390	<1.10 X7	<0.723 X7	<0.782 X7	--	--	--	--	--	<0.459	<5.86	<0.538	<2.93	<6.94 X7	~
MW-93	DNTU-AOC1	SZ	4/11/2023	<0.0598	<0.0392	<2.25*	<1.48*	<1.59*	--	--	--	--	--	<0.937	<12.0	<1.10	<5.98	<14.2*	~
MW-93	DNTU-AOC1	SZ	10/10/2023	<0.0583 U	<0.0382 U	<1.1 U	<0.738 U	<0.797 U	--	--	--	--	--	<3.89 U	<7.78 U	<4.69 U	<1.2 U	<9.87 U*	~
MW-93	DNTU-AOC1	SZ	4/15/2024	<0.0618 U	<0.0405 U	<1.08 U	<0.724 U	<0.783 U	--	--	--	--	--	<3.82 U*	<7.64 U*	<4.60 U*	<1.17 U*	<9.69 U*	~
MW-94	DNT	SZ	4/7/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-94	DNT	SZ	10/13/2010	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	<1.71	~
MW-94	DNT	SZ	4/18/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-94	DNT	SZ	10/26/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-94	DNT	SZ	4/13/2012	<0.0569 J	<0.0823 J	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	--	~
MW-94	DNT	SZ	10/25/2012	<0.0580 J	<0.0840 J	<0.0856 J	<0.0672 J	<0.0759 J	--	--	--	--	--	<0.0692 J	<0.104 J	<0.0539 J	<0.0974 J	<1.76 J	~
MW-94	DNT	SZ	4/19/2013	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76 L	~
MW-94	DNT	SZ	10/16/2013	<0.13 L	<0.077 L	<0.59 L	<1.0 L	<1.0 L	--	--	--	--	--	<0.16 L	<0.13 L	<0.11 L	<0.13 L	<3.9 L	~
MW-94	DNT	SZ	4/8/2014	<0.26	<0.16	<1.2	<2.1	<2.1	--	--	--	--	--	<0.34	<0.26	<0.22	<0.26	<8.0	~
MW-94	DNT	SZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-94	DNT	SZ	4/16/2015	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-94	DNT	SZ	10/8/2015	<0.141	0.403 J	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-94	DNT	SZ	4/7/2016	<0.125	0.219 J	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-94	DNT	SZ	4/13/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-94	DNT	SZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-94	DNTU	SZ	4/12/2018	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-94	DNTU	SZ	10/22/2018	<0.141	<0.087	<0.664 LX7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36 X7	~
MW-94	DNTU-AOC1	SZ	4/11/2019	<0.157	<0.0964	<0.736 X7	<1.29 X7	<1.28 X7	--	--	--	--	--	<0.205	<0.157	<0.133	<0.157	<4.83 X7	~
MW-94	DNTU-AOC1	SZ	10/18/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-94	DNTU-AOC1	SZ	4/14/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	~
MW-94	DNTU-AOC1	SZ	10/15/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-94	DNTU-AOC1	SZ	4/19/2021	<0.0618	<0.0405	<10.7 X7	<10.7 X7	<10.7 X7	--	--	--	--	--	<0.503	<6.42	<0.588	<3.21	<7.59 X7	~
MW-94	DNTU-AOC1	SZ	10/13/2021	<0.0568	<0.0373	<1.16 X7	<0.759 X7	<0.820 X7	--	--	--	--	--	<0.482	<6.15	<0.564	<3.08	<7.28 X7	~
MW-94	DNTU-AOC1	SZ	4/12/2022	<0.0622	<0.0408	<1.08 X7	<0.705 X7	<0.762 X7	--	--	--	--	--	<0.488	<5.72	<0.524	<2.86	<6.77 X7	~
MW-94	DNTU-AOC1	SZ	10/11/2022	<0.0587	<0.0385	<1.09 X7	<0.712 X7	<0.770 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.89	<6.83 X7	~
MW-94	DNTU-AOC1	SZ	4/11/2023	<0.0585	<0.0383	<1.13*	<0.740*	<0.800*	--	--	--	--	--	<0.470	<6.00	<0.550	<3.00	<7.10*	~
MW-94	DNTU-AOC1	SZ	10/10/2023	<0.0583 U	<0.0382 U	<1.16 U	<0.781 U	<0.845 U	--	--	--	--	--	<4.12 U	<8.23 U	<4.96 U	<1.27 U	<10.5 U*	~
MW-94	DNTU-AOC1	SZ	4/15/2024	<0.0629 U	<0.0412 U	<1.05 U	<0.707 U	<0.764 U	--	--	--	--	--	<3.72 U*	<7.45 U*	<4.49 U*	<1.15 U*	<9.45 U*	~
MW-95	ASI	IZ	4/7/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	0.112 J	<0.0528	<0.0955	--	~
MW-95	ASI	IZ	10/14/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-95	ASI	IZ	4/19/2011	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72 J	~
MW-95	ASI	IZ	12/8/2011	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71 J	~
MW-95	ASI	IZ	4/13/2012	<0.0563 J	<0.0815 J	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672 J	<0.101	<0.0523	<0.0946	--	~
MW-95	ASI	IZ	10/25/2012	<0.0580	<0.0840	<0.0856	<0.0672	<0.0759	--	--	--	--	--	<0.0692	<0.104	<0.0539	<0.0974	<1.76	~
MW-95	ASI	IZ	4/17/2013	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	<0.105	<0.0544	<0.0984	<1.77	~
MW-95	ASI	IZ	10/18/2013	<0.13	<0.078	<0.59	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9 L	~
MW-95	ASI	IZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-95	ASI	IZ	10/23/2014	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-95	ASI	IZ	4/17/2015	0.18 J	<0.082	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-95	ASI	IZ	10/13/2015	<0.146	<0.0899	<0.687	<1.20	<1.19	--	--	--	--	--	<0.191	<0.146	<0.124	<0.146	<4.51	~
MW-95	ASI	IZ	4/7/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 X7	~
MW-95	ASI	IZ	10/24/2016	<0.141	<0.087	<0.664 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<0.185	<0.141	<0.12	<0.141	<4.36 LX7	~
MW-95	ASI	IZ	10/16/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-95	ASI	IZ	4/12/2018	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-95	ASI	IZ	10/12/2018	<0.140	<0.086	<0.657 LX7	<1.15 X7	<1.14 X7	--	--	--	--	--	<0.183	<0.140	<0.118	<0.140	<4.31 X7	~
MW-95	ASI	IZ	4/15/2019	<0.143	<0.0879	<0.671 LX7	<1.18 LX7	<1.16 X7	--	--	--	--	--	<0.187	<0.143	<0.121	<0.143	<4.41 X7	~
MW-95	ASI	IZ	10/18/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-95	ASI	IZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-95	ASI	IZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-95	ASI	IZ	4/19/2021	<0.0561	<0.0368	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.515	<6.58	<0.603	<3.29	<7.79 X7	~
MW-95	ASI	IZ	10/12/2021	<0.0568	<0.0373	<1.19 X7	<0.781 X7	<0.844 X7	--	--	--	--	--	<0.496	<6.33	<0.581	<3.17	<7.49 X7	~
MW-95	ASi	IZ	4/12/2022	<0.0627	<0.0411	<1.18 X7	<0.775 X7	<0.837 X7	--	--	--	--	--	<0.492	<6.28	<0.576	<3.14	<7.43 X7	~
MW-95	ASI	IZ	10/11/2022	0.0977 J	<0.0408	<1.15 X7	<0.751 X7	<0.812 X7	--	--	--	--	--	<0.477	<6.09	<0.558	<3.05	<7.21 X7	~
MW-95	ASI	IZ	4/11/2023	<0.0577	<0.0379	<1.17*	<0.765*	<0.827*	--	--	--	--	--	<0.486	<6.20	<0.569	<3.10	<7.34*	~
MW-95	ASI	IZ	10/10/2023	<0.0581 U	<0.0381 U	<1.09 U	<0.730 U	<0.789 U	--	--	--	--	--	<3.85 U	<7.70 U	<4.64 U	<1.18 U	<9.77 U*	~
MW-95	ASI	IZ	4/8/2024	<0.0585 U	0.0809 J	<1.07 U	<0.722 U	<0.781 U	--	--	--	--	--	<3.81 U	<7.61 U	<4.59 U	<1.17 U	<9.66 U	~
MW-96	ASI	DZ	4/7/2010	<0.0586	<0.0848	<0.0865	<0.0679	<0.0767	--	--	--	--	--	<0.0699	0.935 J	<0.0544	<0.0984	--	~
MW-96	ASI	DZ	10/13/2010	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679 J	<0.102	<0.0528	<0.0955	<1.72	~
MW-96	ASI	DZ	4/19/2011	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-96	ASI	DZ	10/26/2011	<2.83 J	<1.01 J	<1.02 J	<1.04 J	<1.46 J	--	--	--	--	--	<1.12 J	<4.90 J	<1.47 J	<0.858 J	<3.17 J	~
MW-96	ASI	DZ	4/16/2012	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	--	~
MW-96	ASI	DZ	10/23/2012	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74 J	~
MW-96	ASI	DZ	4/17/2013	<0.0563	<0.0815	<0.0832	<0.0653	<0.0738	--	--	--	--	--	<0.0672	<0.101	<0.0523	<0.0946	<1.71	~
MW-96	ASI	DZ	10/16/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-96	ASI	DZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-96	ASI	DZ	10/24/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0 L	~
MW-96	ASI	DZ	4/17/2015	<0.13	<0.081	<0.62	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.1	~
MW-96	ASI	DZ	10/8/2015	<0.133	<0.0816	<0.623	<1.09	<1.08	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09	~
MW-96	ASI	DZ	4/6/2016	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-96	ASI	DZ	10/24/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-96	ASI	DZ	4/13/2017	<0.130	<0.080	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-96	ASI	DZ	10/16/2017	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-96	ASI	DZ	4/16/2018	<0.131	<0.0808	<0.617 LX7	<1.08 LX7	<1.07 LX7	--	--	--	--	--	<0.172	<0.131 L	<0.111	<0.131 L	<4.05 LX7	~
MW-96	ASI	DZ	10/12/2018	<0.149	<0.092	<0.702 X7	<1.23 X7	<1.22 X7	--	--	--	--	--	<0.195	<0.149	<0.126	<0.149	<4.61 X7	~
MW-96	ASI	DZ	4/11/2019	<0.126	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 X7	~
MW-96	ASI	DZ	10/18/2019	<0.130 L	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170 L	<0.130	<0.110	<0.130	<4.01 LX7	~
MW-96	ASI	DZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-96	ASI	DZ	10/20/2020	<0.127	<0.0784	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 X7	~
MW-96	ASI	DZ	4/19/2021	<0.0627	<0.0411	<11.0 X	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.519	<6.63	<0.607	<3.31	<7.84 X7	~
MW-96	ASI	DZ	10/12/2021	<0.0602	<0.0395	<1.10 X7	<0.720 X7	<0.779 X7	--	--	--	--	--	<0.458	<5.84	<0.535	<2.92	<6.91 X7	~
MW-96	ASI	DZ	4/12/2022	<0.0610	<0.0400	<1.09 X7	<0.713 X7	<0.770 X7	--	--	--	--	--	<0.453	<5.78	<0.530	<2.89	<6.84 X7	~
MW-96	ASI	DZ	10/11/2022	<0.0594	<0.0390	<1.09 X7	<0.716 X7	<0.774 X7	--	--	--	--	--	<0.455	<5.80	<0.532	<2.90	<6.87 X7	~
MW-96	ASI	DZ	4/11/2023	<0.0588	<0.0386	<1.13*	<0.739*	<0.799*	--	--	--	--	--	<0.469	<5.99	<0.549	<3.00	<7.09*	~
MW-96	ASI	DZ	10/10/2023	<0.0581 U	<0.0381 U	<1.11 U	<0.750 U	<0.810 U	--	--	--	--	--	<3.95 U	<7.90 U	<4.76 U	<1.22 U	<10.0 U*	~
MW-96	ASI	DZ	4/8/2024	<0.0600 U	<0.0393 U	<1.05 U	<0.709 U	<0.767 U	--	--	--	--	--	<3.74 U	<7.48 U	<4.51 U	<1.15 U	<9.49 U	~
MW-97	AOC2	SZ	4/7/2010	10.2	144	94	698	28.3	--	--	--	--	--	<0.0685	2.27	<0.0533	14.2	--	Exceed
MW-97	AOC2	SZ	10/12/2010	<0.575	31.1	8.44 J	48.4	36.8	--	--	--	--	--	<0.685 J	<1.03	<0.533	5.73 J	<17.4	Exceed
MW-97	AOC2	SZ	4/18/2011	5.17 J	37.8 J	3.35 J	9.36 J	6.21 J	--	--	--	--	--	<0.0685 J	0.605 J	<0.0533 J	4.77 J	<1.74 J	Exceed
MW-97	AOC2	SZ	10/26/2011	<2.80 J	5.62 J	<1.01 J	13.1 J	7.16 J	--	--	--	--	--	<1.11 J	9.2 J	<1.46 J	<0.850 J	20.6 J	Exceed
MW-97	AOC2	SZ	4/16/2012	1.11	8.43	0.901 J	12.3	6.55	--	--	--	--	--	<0.0672	0.6 J	<0.0523	1.15	--	Exceed
MW-97	AOC2	SZ	10/23/2012	0.854 J	3.29	0.209 J	1.52	0.609 J	--	--	--	--	--	<0.0685	0.484 J	<0.0533	0.153 J	<1.74 J	Exceed
MW-97	AOC2	SZ	4/17/2013	1.86	4.54	0.297 J	1.46	0.797 J	--	--	--	--	--	<0.0706	<0.106	<0.0549	2.07	<1.79	Exceed
MW-97	AOC2	SZ	10/17/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	11	<0.11	<0.13	--	~
MW-97	AOC2	SZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-97	AOC2	SZ	10/24/2014	0.19 J	0.69 J	0.67 J	1.6 J	1.1 J	--	--	--	--	--	<0.17	4.9	<0.11	<0.13	19	Exceed
MW-97	AOC2	SZ	4/20/2015	2.3	0.37 J	0.78 J	1.9 J	<1.1	--	--	--	--	--	<0.17	0.36 J	<0.11	0.13 J	<4.0	Exceed
MW-97	AOC2	SZ	10/8/2015	0.266 J	3.57	<0.611	1.69 J	1.07 J	--	--	--	--	--	<0.170	0.436 J	<0.110	0.224 J	5.98 J	Exceed
MW-97	AOC2	SZ	4/6/2016	0.366 J	6.45	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.165 J	<3.86 X7	Exceed
MW-97	AOC2	SZ	10/19/2016	0.217 J	4.27	<0.588 X7	1.81 J X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	0.388 J	<3.86 LX7	Exceed
MW-97	AOC2	SZ	4/13/2017	0.716 J	9.10	<0.599 X7	1.47 J X7	1.46 J X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
MW-97	AOC2	SZ	10/13/2017	0.682 J	9.33	<0.588 X7	2.63 J X7	1.38 J X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	Exceed
MW-97	AOC2	SZ	4/12/2018	0.377 J	4.07	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	10/12/2018	0.469 J	4.87	<0.650 X7	1.36 J X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	Exceed
MW-97	AOC2	SZ	4/11/2019	<0.133	2.00	<0.623 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<0.173	<0.133	<0.112	<0.133	<4.09 X7	Exceed
MW-97	AOC2	SZ	10/17/2019	<0.127 L	1.74	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167 L	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	4/14/2020	<0.127	2.54	<0.599 X7	<1.05 X7	<1.04 X7	--	--	--	--	--	<0.167	<0.127	<0.108	<0.127	<3.93 LX7	Exceed
MW-97	AOC2	SZ	10/13/2020	<0.153	.453 J	<0.719 X7	<1.26 X7	<1.25 X7	--	--	--	--	--	<0.200	<0.153	<0.129	<0.153	<4.72 X7	~
MW-97	AOC2	SZ	4/20/2021	0.327	5.31	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.509	<6.50	<0.596	<3.25	<7.70 X7	Exceed
MW-97	AOC2	SZ	10/13/2021	0.198	1.11	<1.16 X7	1.5 J X7	<0.821 X7	--	--	--	--	--	<0.482	<6.16	<0.564	<3.08	<7.28 X7	~
MW-97	AOC2	SZ	4/13/2022	0.281	5.62	<1.18 X7	1.10 J X7	<0.838 X7	--	--	--	--	--	<0.492	<6.28	<0.576	<3.14	<7.44 X7	Exceed
MW-97	AOC2	SZ	10/12/2022	0.0746 J	1.02	<1.10 X7	<0.722 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.85	<0.537	<2.93	<6.93 X7	~
MW-97	AOC2	SZ	4/11/2023	<0.0579	2.86	<1.09*	<0.711*	<0.769*	--	--	--	--	--	<0.452	<5.77	<0.529	<2.88	<6.82*	Exceed
MW-97	AOC2	SZ	10/5/2023	<0.0553 U*	0.299	<1.04 U	<0.703 U	<0.760 U	--	--	--	--	--	<3.70 U	<7.41 U	<4.46 U	<1.14 U	<9.4 U	~
MW-97	AOC2	SZ	4/8/2024	0.421	7.25	<1.13 U	1.37 J	1.04 J b	--	--	--	--	--	<3.99 U	<7.98 U	<4.81 U	<1.23 U	<10.1 U	Exceed
MW-98	DNT	IZ	10/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
MW-98	DNT	IZ	4/12/2012	<0.0575 J	<0.0831 J	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685 J	<0.103	<0.0533	<0.0965	--	~
MW-98	DNT	IZ	10/23/2012	<0.0569	<0.0823	<0.0840	<0.0659	<0.0745	--	--	--	--	--	<0.0679	<0.102	<0.0528	<0.0955	<1.72	~
MW-98	DNT	IZ	4/17/2013	<0.0575	<0.0831	<0.0848	<0.0666	<0.0752	--	--	--	--	--	<0.0685	<0.103	<0.0533	<0.0965	<1.74	~
MW-98	DNT	IZ	10/17/2013	<0.13	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9 L	~
MW-98	DNT	IZ	4/9/2014	<0.13	<0.078	<0.60	<1.0	<1.0	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<3.9	~
MW-98	DNT	IZ	10/23/2014	<0.13	<0.080	<0.61	<1.1	<1.1	--	--	--	--	--	<0.17	<0.13	<0.11	<0.13	<4.0	~
MW-98	DNT	IZ	4/17/2015	0.27 J	<0.077	<0.59	<1.0	<1.0	--	--	--	--	--	<0.16	<0.13	<0.11	<0.13	<3.9	~
MW-98	DNT	IZ	10/8/2015	<0.141	<0.0870	<0.664	<1.16	<1.15	--	--	--	--	--	<0.185	<0.141	<0.120	<0.141	<4.36	~
MW-98	DNT	IZ	4/5/2016	<0.131	<0.0808	<0.617 X7	<1.08 X7	<1.07 X7	--	--	--	--	--	<0.172	<0.131	<0.111	<0.131	<4.05 X7	~
MW-98	DNT	IZ	10/24/2016	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-98	DNT	IZ	4/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	3.57	<0.106	<0.125	<3.86 LX7	~
MW-98	DNT	IZ	10/13/2017	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-98	DNTU	IZ	4/12/2018	<0.126	0.110 J	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-98	DNTU	IZ	10/12/2018	<0.148	<0.0909	<0.694 X7	<1.22 X7	<1.20 X7	--	--	--	--	--	<0.193	<0.148	<0.125	<0.148	<4.56 X7	~
MW-98	DNTU	IZ	4/15/2019	<0.135	<0.0833	<0.636 LX7	<1.11 LX7	<1.10 X7	--	--	--	--	--	<0.177	<0.135	<0.115	<0.135	<4.18 X7	~
MW-98	DNTU	IZ	10/17/2019	<0.126 L	<0.0777	<0.593 X7	<1.04 X7	<1.03 X7	--	--	--	--	--	<0.165 L	<0.126	<0.107	<0.126	<3.89 LX7	~
MW-98	DNTU	IZ	4/14/2020	<0.125	<0.0769	<0.588 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86 LX7	~
MW-98	DNTU	IZ	10/14/2020	<0.130	<0.0800	<0.611 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<0.170	<0.130	<0.110	<0.130	<4.01 X7	~
MW-98	DNTU	IZ	4/21/2021	<0.0663	<0.0435	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.506	<6.46	<0.592	<3.23	<7.64 X7	~
MW-98	DNTU	IZ	10/13/2021	<0.0568	<0.0373	<1.09 X7	<0.716 X7	<0.774 X7	--	--	--	--	--	<0.455	<5.81	<0.532	<2.9	<6.87 X7	~
~~MW-98~~	DNTU	IZ	4/13/2022	3.96	6.83	<1.10 X7	<0.723 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93 X7	~~Exceed~~
~~MW-98~~Re-Samp-ReRu	DNTU	IZ	5/26/2022	<0.0594	<0.0390	<1.11 X7	<0.727 X7	<0.786 X7	--	--	--	--	--	<0.462	<5.90	<0.541	<2.95	<6.98 X7	~
MW-98	DNTU	IZ	10/12/2022	<0.0538	<0.0353	<1.10 X7	<0.723 X7	<0.781 X7	--	--	--	--	--	<0.459	<5.86	<0.537	<2.93	<6.93 X7	~
MW-98	DNTU	IZ	4/11/2023	<0.0587	<0.0385	<2.20*	<1.44*	<1.56*	--	--	--	--	--	<0.914	<11.7	<1.07	<5.83	<13.8*	~
MW-98	DNTU	IZ	10/10/2023	<0.0579 U	<0.0380 U	<1.12 U	<0.753 U	<0.814 U	--	--	--	--	--	<3.97 U	<7.93 U	<4.78 U	<1.22 U	<10.1 U*	~
MW-98	DNTU	IZ	4/8/2024	<0.0592 U	<0.0388 U	<1.09 U	<0.734 U	<0.794 U	--	--	--	--	--	<3.87 U	<7.74 U	<4.66 U	<1.19 U	<9.82 U	~
MW-100	--	--	10/13/2015	0.234 J	<0.0851	<0.650	<1.14	<1.13	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27	~
RL-1	ASI	SZ	10/11/2000	1700	130	<100	57 J	63 J	--	--	--	--	--	--	--	--	--	--	Exceed
RL-1	ASI	SZ	4/28/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
RL-1	ASI	SZ	10/26/2001	<10	<10	<10	1.1 J	<10	--	--	--	--	--	<10	<20	<10	<20	--	~
RL-1	ASI	SZ	10/8/2002	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<20	<9	<20	--	~
RL-1	ASI	SZ	4/8/2003	<11	<11	<11	<11	<11	--	--	--	--	--	<11	<22	<11	<22	--	~
RL-1	ASI	SZ	10/3/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
RL-1	ASI	SZ	4/19/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
RL-1	ASI	SZ	10/6/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
RL-1	ASI	SZ	4/7/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
RL-1	ASI	SZ	10/12/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
RL-1	ASI	SZ	4/11/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
RL-1	ASI	SZ	11/3/2006	1.9 J	<9.7	<9.7	4.5 J	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
RL-1	ASI	SZ	4/10/2007	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	~
RL-1	ASI	SZ	10/2/2007	<0.81	<0.83	<1.0	<0.88	<0.96	--	--	--	--	--	<1.3	<0.63	<1.0	<4.2	--	~
RL-1	ASI	SZ	4/10/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
RL-1	ASI	SZ	10/15/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RL-1	ASI	SZ	4/13/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
RL-1	ASI	SZ	10/18/2010	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<0.965	<1.56	<1.09	<0.850	--	~
RL-1	ASI	SZ	4/19/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17 J	~
RL-1	ASI	SZ	10/13/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14	~
RL-1	ASI	SZ	4/18/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
RL-1	ASI	SZ	10/11/2012	<2.77	<0.987	<0.998	1.32 J	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	~
RL-1	ASI	SZ	4/23/2013	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<4.90	<1.19	<2.94	<3.17 L	~
RL-1	ASI	SZ	10/21/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13	~
RL-1	ASI	SZ	4/10/2014	<0.99	<0.67	<0.64	<1.1	<1.1	--	--	--	--	--	<1.2	<1.4	<1.2	<0.72	<4.3	~
RL-1	ASI	SZ	4/20/2015	<1.10	<0.72	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
RL-1	ASI	SZ	10/14/2015	<1.02	<0.688	<0.656	<1.15	<1.14	--	--	--	--	--	<1.24	<1.41	<1.27	<0.742	<4.47	~
RL-1	ASI	SZ	4/8/2016	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
RL-1	ASI	SZ	10/25/2016	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 LX7	~
RL-1	ASI	SZ	4/18/2017	1.89 J	1.47 J	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	Exceed
RL-1	ASI	SZ	10/17/2017	<1.12	<0.753	<0.718 X7	<1.26 X7	<1.25 X7	--	--	--	--	--	<1.35	<1.54	<1.39	<0.812	<4.89 X7	~
RL-1	ASI	SZ	4/18/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RL-1	ASI	SZ	10/25/2018	<0.969	<0.653	<0.622 LX7	<1.09 X7	<1.08 LX7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
RL-1	ASI	SZ	4/17/2019	<1.00	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	<0.726	<4.38 X7	~
RL-1	ASI	SZ	10/24/2019	<0.922	0.859 J	<0.592	<1.04	<1.03	--	--	--	--	--	<1.12	<1.27	<1.15	<0.670	<4.04	~
RL-1	ASI	SZ	4/20/2020	<0.969	<0.653	<0.622 X7	<1.09 X7	<1.08 X7	--	--	--	--	--	<1.17	<1.34	<1.20	<0.704	<4.24 X7	~
RL-1	ASI	SZ	10/21/2020	9.11	8.36	<0.650 X7	2.59 J X7	<1.13 X7	--	--	--	--	--	<0.181	<0.138	<0.117	<0.138	<4.27 X7	Exceed
RL-1	ASI	SZ	4/26/2021	<0.0602	<0.0395	<10.6 X7	<10.6 X7	<10.6 X7	--	--	--	--	--	<0.498	<6.35	<0.582	<3.18	<7.52 X7	~
RL-1	ASI	SZ	10/25/2021	0.394	0.233	<1.19 X7	<0.782 X7	<0.845 X7	--	--	--	--	--	<0.497	<6.34	<0.581	<3.17	<7.5 X7	~
RL-1	ASI	SZ	4/18/2022	0.158	0.141	<1.18 X7	<0.771 X7	<0.833 X7	--	--	--	--	--	<0.490	<6.25	<0.573	<3.13	<7.40 X7	~
RL-1	ASI	SZ	10/13/2022	2.73	1.68	<1.13 X7	<0.741 X7	<0.802 X7	--	--	--	--	--	<0.471	<6.01	<0.551	<3.01	<7.11 X7	Exceed
RL-1	ASI	SZ	4/13/2023	0.787	<0.192	<1.24	<0.814	<0.880	--	--	--	--	--	<0.517	<6.60	<0.605	<3.30	<7.81	~
RL-1	ASI	SZ	10/18/2023	4.41	3.25	<1.24 U	4.06 J	9.80 J	--	--	--	--	--	<4.39 U	<8.78 U	<5.29 U	<1.35 U	<11.1 U*	Exceed
~~RL-1~~	ASI	SZ	4/17/2024	<0.0583 U	<0.0382 U	<1.14 U	<0.767 U	<0.829 U	--	--	--	--	--	<4.04 U	<8.08 U	<4.87 U	<1.24 U	<10.3 U*	~
RL-1-ReSa,p-ReRun	ASI	SZ	5/21/2024	<0.0583 U	<0.0382 U	<1.14 U	<0.767 U	<0.829 U	--	--	--	--	--	<4.04 U	<8.08 U	<4.87 U	<1.24 U	<10.3 U*	~
RW-15	EI	SZ	5/4/1994	1900	2000	72	570	450	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/22/1993	49000	40000	1600	14000	9300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	6/20/1994	33000	32000	810	7400	8300	--	--	--	--	--	--	--	--	--	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-21	EI	SZ	10/10/1994	41000	30000	1000	12000	5500	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	4/26/1995	40000	38000	1300	11000	6800	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/21/1995	35000	29000	<0	11000	7400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	4/27/1996	31000	39000	10000	2100	<0	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/20/1996	32000 D	26000 D	970	7900 D	2600	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	7/1/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
RW-21	EI	SZ	7/8/1997	36000 D	27000 D	810	7900 D	5800 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	11/1/1997	27000 D	27000 D	750	7800	<520	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	5/14/1998	4300 D	21000 D	590 D	6400 D	160	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/29/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-21	EI	SZ	4/24/1999	25000 D	26000 D	620	4900 D	1900	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/27/1999	13000	17000	550	5900 D	<50	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	6/7/2000	21000 D	23000 D	500	410	<200	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	10/9/2000	32000 D	25000 D	740	6500 D	1400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-21	EI	SZ	4/10/2001	26000	28000	1000 J	8900	<2000	--	--	--	--	--	<2000	<4000	<2000	<4000	--	Exceed
RW-21	EI	SZ	10/27/2001	25000 D	20000 D	550 D	5300 D	3200 D	--	--	--	--	--	<50	<100	<50	14 J	--	Exceed
RW-21	EI	SZ	4/23/2002	21000 D	19000 D	720	7800 D	3100 D	--	--	--	--	--	<99	<200	8.2 J	22 J	--	Exceed
RW-21	EI	SZ	10/7/2002	18000 D	17000 D	650 D	6400 D	56	--	--	--	--	--	<9	2.1 J	6.8 J	7 J	--	Exceed
RW-21	EI	SZ	4/3/2003	10000	16000 D	450 J	4500	230 J	--	--	--	--	--	<950	<1900	<950	<1900	--	Exceed
RW-21	EI	SZ	10/3/2003	9100	9900	<4800	3000 J	<4800	--	--	--	--	--	<4800	<9500	<4800	<9500	--	Exceed
RW-21	EI	SZ	4/19/2004	8300	14000	270	2200	42 J	--	--	--	--	--	<200	<390	<200	<390	--	Exceed
RW-21	EI	SZ	10/22/2004	12000	15000	540	3200	<110	--	--	--	--	--	<110	<21	<110	<210	--	Exceed
RW-21	EI	SZ	4/7/2005	5100	6900	320	2500	<100	--	--	--	--	--	<100	<100	<100	12 J	--	Exceed
RW-21	EI	SZ	10/12/2005	12000	14000	490 J	4600	98 J	--	--	--	--	--	<960	<960	<960	<960	--	Exceed
RW-21	EI	SZ	4/11/2006	10000	17000	330	3600	410	--	--	--	--	--	<110	<110	<110	<110	--	Exceed
RW-21	EI	SZ	11/2/2006	11000	14000	390	3900	<97	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-21	EI	SZ	4/6/2007	7100	15000	420	4600	11 J	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-21	EI	SZ	10/2/2007	17000	13000	510	5200	1300	--	--	--	--	--	<13	<6.4	<10	<42	--	Exceed
RW-21	EI	SZ	10/21/2008	5300	4300	170	1600	1300	--	--	--	--	--	<9.9	130	<11	190	--	Exceed
RW-21	EI	SZ	10/12/2009	1210	1570	64.1 J	586	357	--	--	--	--	--	<9.75	41.9 J	<11.0	50.7 J	--	Exceed
RW-21	EI	SZ	4/9/2010	19700	16700	584	5290	4170	--	--	--	--	--	<9.75	<15.7	<11.0	22.8 J	--	Exceed
RW-21	EI	SZ	10/18/2010	9590	11500	406	2270	<14.8	--	--	--	--	--	<9.84	<15.9	<11.1	16.4 J	--	Exceed
RW-21	EI	SZ	4/19/2011	11700	12000	359	2590	1150	--	--	--	--	--	<11.3	<49.4	<14.9	19.7 J	<32.0 J	Exceed
RW-21	EI	SZ	10/13/2011	6020	11100	303 J	2520	<14.5 J	--	--	--	--	--	<11.1 J	<48.5 J	<14.6 J	11 J	<31.4 J	Exceed
RW-21	EI	SZ	4/18/2012	10700	12400	412	4090	<14.4	--	--	--	--	--	<11.0	<48.0	<14.4	9.26 J	--	Exceed
RW-21	EI	SZ	10/11/2012	14400	11700	277	2370	980	--	--	--	--	--	<10.0	<50.4	<12.3	<30.3	--	Exceed
RW-21	EI	SZ	4/23/2013	1230	11800	104	20.4 J	<14.4	--	--	--	--	--	<9.56	<48.0	<11.7	85.9 J	<31.1 L	Exceed
RW-21	EI	SZ	10/21/2013	6600	5400	160	1100	460	--	--	--	--	--	<12	<14	<12	<7.3	<130	Exceed
RW-21	EI	SZ	4/10/2014	13000	12000	380	3800	250	--	--	--	--	--	<1.2	<1.4	3.8 J	<0.73	<4.4	Exceed
RW-21	EI	SZ	10/21/2014	290	3.9 J	39	43	11	--	--	--	--	--	<1.2	<1.4	<1.3	4.1 J	<4.5	Exceed
RW-21	EI	SZ	4/20/2015	8,100	9100	130	380	<1.1	--	--	--	--	--	<1.2	<1.4	<1.2	<0.73	<4.4	Exceed
RW-21	EI	SZ	10/19/2015	946	510	13.7 J	119	108	--	--	--	--	--	<1.89	<1.44	<1.22	22.9 J	<44.6	Exceed
RW-21	EI	SZ	4/21/2016	345	221	4.55 J X7	40.4 X7	39.8 X7	--	--	--	--	--	<1.11	2.79 J	<1.13	19.9	78.8 X7	Exceed
RW-21	EI	SZ	10/20/2016	367	354	6.44 J X7	62.3 X7	47.3 X7	--	--	--	--	--	<1.15	2.17 J	<1.18	17.5	80.7 X7	Exceed
RW-21	EI	SZ	4/21/2017	176	30.3	2.33 J X7	34.5 X7	16.8 X7	--	--	--	--	--	<1.11	1.28 J	<1.13	15.4	18.1 J X7	Exceed
RW-21	EI	SZ	10/19/2017	163	179	3.85 J X7	43.5 X7	29.7 X7	--	--	--	--	--	<1.39	<1.58	<1.42	4.75 J	49.7 X7	Exceed
RW-21	EI	SZ	4/19/2018	76.0	10.3	<0.610 X7	1.61 J X7	1.57 J X7	--	--	--	--	--	<1.15	<1.31	<1.18	7.22 J	<4.16 X7	Exceed
RW-21	EI	SZ	10/29/2018	57.2	7.79 J	<0.622 LX7	<1.09 X7	<1.08 LX7	--	--	--	--	--	<1.17	<1.34	<1.20	2.12 J	<4.24 X7	Exceed
RW-21	EI	SZ	4/18/2019	84.4 H	98.3	3.55 J X7	33.3 X7	29.1 X7	--	--	--	--	--	<1.16	<1.32	<1.19	6.81 J	15.5 J X7	Exceed
RW-21	EI	SZ	10/28/2019	42.4	6.54 J	<0.629 X7	1.35 J X7	1.45 J X7	--	--	--	--	--	<1.19	<1.35	<1.22	2.23 J	6.29 J X7	Exceed
RW-21	EI	SZ	4/29/2020	12.5	<0.674	<0.642 X7	<1.13 X7	<1.12 X7	--	--	--	--	--	<1.21	<1.38	<1.24	5.00 J	5.69 J X7	Exceed
RW-21	EI	SZ	10/22/2020	17.2	3.77	<0.630 X7	5.47 X7	3.83 J X7	--	--	--	--	--	<0.175	.297 J	<0.113	2.04 J	16.2 X7	Exceed
RW-21	EI	SZ	4/28/2021	10.1	1.91	<11.0 X7	<11.0 X7	<11.0 X7	--	--	--	--	--	<0.516	<6.59	<0.604	<3.29	9.29 J X7	Exceed
RW-21	EI	SZ	10/26/2021	31.1	8.75	<1.26 X7	1.08 J X7	0.905 J X7	--	--	--	--	--	<0.522	<6.67	<0.611	<3.33	<7.89 X7	Exceed
RW-21	EI	SZ	4/27/2022	4.77	1.37	<1.09 X7	<0.714 X7	<0.772 X7	--	--	--	--	--	<0.453	<5.79	<0.531	<2.89	<6.85 X7	Exceed
RW-21	EI	SZ	11/4/2022	4.71	1.09	<1.07 X7	1.04 J X7	0.938 J	--	--	--	--	--	<0.447	<5.70	<0.523	6.05 J	<6.75 X7	Exceed
RW-21	EI	SZ	4/19/2023	23.0	6.76	<1.15	1.46 J	1.66 J	--	--	--	--	--	<0.480	<6.12	<0.561	<3.06	<7.24	Exceed
RW-21	EI	SZ	10/18/2023	84	8.99	<1.18 U	1.64 J	1.02 J	--	--	--	--	--	<4.18 U	<8.36 U	<5.04 U	<1.29 U	<10.6 U*	Exceed
RW-21	EI	SZ	4/4/2024	18.4	10.4	<1.27 U	3.30 J	2.76 J	--	--	--	--	--	<4.51 U	<9.03 U*	<5.44 U	1.66 J	<11.5 U*	Exceed
RW-22	ASI	IZ	11/10/1993	<0	<0	<0	22	13	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	6/20/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-22	ASI	IZ	10/30/1994	<0	<0	21	88	<0	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/26/1995	<0	14	81	1000	820	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	11/21/1995	17	53	88	240	770	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/22/1996	<0	<0	<0	3100	2300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/29/1996	<0	96	210	1800	1300	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	5/2/1996	<0	<0	150	1300	440	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	11/27/1996	120	79	130	410 D	260	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/22/1997	34	21	45	<10	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/29/1997	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	~
RW-22	ASI	IZ	11/1/1997	110	<56	95	130	210	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	5/14/1998	70	38	99	150 D	41	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	10/27/1998	100	38	72	25	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	10/7/1999	460 E	78	420 E	2200 D	2100 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	6/13/2000	37 J	<50	27 J	170	380	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	10/12/2000	32 J	26 J	<100	<100	48 J	--	--	--	--	--	--	--	--	--	--	Exceed
RW-22	ASI	IZ	4/28/2001	290 D	78	130 J D	1800 D	1300 D	--	--	--	--	--	<10	2400 D	<10	350 J D	--	Exceed
RW-22	ASI	IZ	10/26/2001	310	81	160	2000 D	1400 D	--	--	--	--	--	<50	2400 D	<50	320	--	Exceed
RW-22	ASI	IZ	4/23/2002	350	99 J	220	2100 D	1500	--	--	--	--	--	<110	850	<110	370	--	Exceed
RW-22	ASI	IZ	10/7/2002	310 D	74	120	1300 D	1100 D	--	--	--	--	--	<10	2100 D	1.2 J	310 D	--	Exceed
RW-22	ASI	IZ	4/3/2003	120 J	<950	88 J	1100	1400	--	--	--	--	--	<950	3600	<950	310 J	--	Exceed
RW-22	ASI	IZ	10/3/2003	320 J	<950	190 J	1900	1700	--	--	--	--	--	<950	4400	<950	480 J	--	Exceed
RW-22	ASI	IZ	4/19/2004	340	54 J	140	1500	1400	--	--	--	--	--	<100	3200	<100	410	--	Exceed
RW-22	ASI	IZ	10/22/2004	330	64	140	1800	1600	--	--	--	--	--	<10	2900	<10	470	--	Exceed
RW-22	ASI	IZ	4/7/2005	160	28 J	110	930	870	--	--	--	--	--	<98	2400	<98	260	--	Exceed
RW-22	ASI	IZ	10/12/2005	460	97 J	210	2000	1600	--	--	--	--	--	<190	3900	<190	550	--	Exceed
RW-22	ASI	IZ	4/11/2006	520	100	250	3300	2600	--	--	--	--	--	<100	3000	<100	680	--	Exceed
RW-22	ASI	IZ	11/2/2006	600	120	220	2400	2000	--	--	--	--	--	<98	6000	<98	580	--	Exceed
RW-22	ASI	IZ	4/6/2007	370	62 J	200	1500	1600	--	--	--	--	--	<98	1700	<98	800	--	Exceed
RW-22	ASI	IZ	10/2/2007	370	110	170	1000	1800	--	--	--	--	--	<13	880	<10	550	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-22	ASI	IZ	4/10/2008	430	110	190	1200	1100	--	--	--	--	--	<0.95	500	<1.1	590	--	Exceed
RW-23	ASI	IZ	11/10/1993	<0	<0	<0	11	12	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	6/20/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	10/30/1994	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	4/26/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	11/21/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	5/31/1996	<0	<0	<0	14	<0	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	11/27/1996	<10	<10	<10	17	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	4/22/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	11/1/1997	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	5/14/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	10/27/1998	<10	<10	<10	13	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	4/24/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-23	ASI	IZ	10/7/1999	<10	<10	<10	21	<10	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	6/13/2000	<10	<10	<10	10	7.5 J	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	10/12/2000	<10	<10	<10	12	7.7 J	--	--	--	--	--	--	--	--	--	--	Exceed
RW-23	ASI	IZ	4/10/2001	4.9 J	3.3 J	3.1 J	48	13	--	--	--	--	--	<10	8.5 J	<10	<20	--	Exceed
RW-23	ASI	IZ	10/26/2001	2 J	<10	2.8 J	37	30	--	--	--	--	--	<10	<20	<10	<20	--	Exceed
RW-23	ASI	IZ	4/23/2002	7.4 J	5.2 J	14	130	110	--	--	--	--	--	<10	81	<10	10 J	--	Exceed
RW-23	ASI	IZ	10/7/2002	8.2 J	7.8 J	2.8 J	29	11	--	--	--	--	--	<9	5.6 J	<9	1.1 J	--	Exceed
RW-23	ASI	IZ	4/3/2003	<9	<9	<9	<9	<9	--	--	--	--	--	<9	<19	<9	<19	--	~
RW-23	ASI	IZ	1/7/2004	<0.95	<0.95	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<0.95	<9.5	<0.95	<1.9	~
RW-23	ASI	IZ	4/28/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	~
RW-23	ASI	IZ	10/22/2004	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<19	<9.7	<19	--	~
RW-23	ASI	IZ	4/12/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
RW-23	ASI	IZ	10/18/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	~
RW-23	ASI	IZ	4/13/2006	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	--	~
RW-23	ASI	IZ	10/18/2006	<9.9	<9.9	<9.9	0.93 J	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	~
RW-23	ASI	IZ	4/10/2007	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	~
RW-23	ASI	IZ	10/10/2007	<0.79	<0.81	<1.0	<0.86	<0.94	--	--	--	--	--	<1.2	<0.62	<1.0	<4.1	--	~
RW-23	ASI	IZ	4/17/2008	<2.8	1.6 J	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
RW-23	ASI	IZ	10/23/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	~
RW-23	ASI	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-23	ASI	IZ	10/21/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-23	ASI	IZ	4/9/2010	<2.77	<0.987	<0.998	2.08 J	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-23	ASI	IZ	10/21/2010	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<0.975	<1.57	<1.10	<0.858	--	~
RW-23	ASI	IZ	4/26/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	<4.85	<1.46	<0.850	<3.14 J	~
RW-23	ASI	IZ	10/18/2011	<2.83	<1.01	<1.02	<1.04	<1.46	--	--	--	--	--	<1.12	<4.90	<1.47	<0.858	<3.17	~
RW-23	ASI	IZ	4/27/2012	<2.77 J	<0.987 J	<0.998 J	<1.02 J	<1.44 J	--	--	--	--	--	<1.10 J	<4.80 J	<1.44 J	<0.841 J	--	~
RW-23	ASI	IZ	10/17/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<4.80	<1.17	<2.88	--	~
RW-23	ASI	IZ	4/25/2013	<2.88	<1.03	<1.04	<1.06	<1.49	--	--	--	--	--	<0.994	<4.99	<1.21	<3.00	<3.24 L	~
RW-23	ASI	IZ	10/22/2013	<0.95	<0.64	<0.61	<1.1	<1.1	--	--	--	--	--	<1.2	<1.3	<1.2	<0.69	<13 L	~
RW-23	ASI	IZ	4/18/2014	13	31	<0.59	<1.0	<1.0	--	--	--	--	--	<1.1	<1.3	<1.1	<0.66	<4.0	Exceed
RW-23	ASI	IZ	10/21/2014	<0.94	<0.63	<0.60 L	<1.1 L	<1.0 L	--	--	--	--	--	<1.1	<1.3 L	<1.2	<0.68	<4.1 L	~
RW-23	ASI	IZ	4/22/2015	<1.1	<0.72	<0.69	<1.2	<1.2	--	--	--	--	--	<1.3	<1.5	<1.3	<0.78	<4.7	~
RW-23	ASI	IZ	10/19/2015	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
RW-23	ASI	IZ	4/20/2016	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-23	ASI	IZ	10/26/2016	<0.95	<0.64	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.69	<4.16 X7	~
RW-23	ASI	IZ	4/19/2017	15.9	9.04 J	2.45 J X7	40.2 X7	17 X7	--	--	--	--	--	<1.40	41.0	<1.44	2.81 J	<5.07 X7	Exceed
RW-23	ASI	IZ	5/31/2017	<0.125	<0.0769	<0.588	<1.03	<1.02	--	--	--	--	--	<0.163	<0.125	<0.106	<0.125	<3.86	~
RW-23	ASI	IZ	10/18/2017	2.13 J	1.89 J	<0.693 X7	<1.22 LX7	<1.2 X7	--	--	--	--	--	<1.31 L	<1.49 L	<1.34 L	<0.784	R	Exceed
RW-23	ASI	IZ	4/20/2018	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-23	ASI	IZ	10/29/2018	<0.950	<0.640	<0.610 LX7	<1.07 X7	<1.06 LX7	--	--	--	--	--	<1.15	<1.31 L	<1.18	<0.690 L	<4.16 X7	~
RW-23	ASI	IZ	4/17/2019	<1.03	<0.696	<0.663 X7	<1.16 X7	<1.15 X7	--	--	--	--	--	<1.25	<1.42	<1.28	<0.750	<4.52 X7	~
RW-23	ASI	IZ	10/28/2019	<0.913	<0.615	<0.587 X7	<1.03 X7	<1.02 X7	--	--	--	--	--	<1.11	<1.26	<1.13	<0.663	<4.00 X7	~
RW-23	ASI	IZ	4/22/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-23	ASI	IZ	10/22/2020	.301 J	<0.0816	<0.623 X7	4.02 J X7	2.08 J X7	--	--	--	--	--	<0.173	0.286 J	<0.112	<0.133	<4.09 X7	~
RW-23	ASI	IZ	4/27/2021	0.107	0.0517 J	<10.8 X7	<10.8 X7	<10.8 X7	--	--	--	--	--	<0.505	<6.45	<0.592	<3.23	<7.64 X7	~
RW-23	ASI	IZ	10/14/2021	0.0848 J	<0.037	<1.13 X7	<0.738 X7	<0.798 X7	--	--	--	--	--	<0.469	<5.98	<0.548	<2.99	<7.08 X7	~
RW-23	ASI	IZ	4/25/2022	<0.0583	<0.0382	<1.10 X7	<0.719 X7	<0.777 X7	--	--	--	--	--	<0.457	<5.83	<0.534	<2.91	<6.90 X7	~
RW-23	ASI	IZ	10/13/2022	1.05	1.05	<1.13 X7	<0.739 X7	<0.799 X7	--	--	--	--	--	<0.469	<5.99	<0.549	<3.00	<7.09 X7	~
RW-23	ASI	IZ	4/18/2023	<0.0575	<0.0377	<1.20	<0.783	<0.846	--	--	--	--	--	<0.497	<6.35	<0.582	<3.17	<7.51	~
RW-23	ASI	IZ	10/16/2023	<0.0583 U	<0.0382 U	<1.21 U	<0.817 U	<0.883 U	--	--	--	--	--	<4.31 U	<8.61 U	<5.19 U	<1.33 U	<10.9 U*	~
RW-23	ASI	IZ	4/19/2024	0.776	1.62	<1.08 U	<0.724 U	<0.783 U	--	--	--	--	--	<3.82 U	<7.64 U*	<4.60 U	<1.17 U	<9.69 U*	Exceed
RW-24	EI	IZ	9/2/1992	44	190	13	140	101	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	6/20/1994	38	150	11	96	93	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	10/30/1994	27	98	<0	76	55	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	4/12/1995	45	140	12	95	85	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	11/9/1995	<0	<0	<0	<0	<0	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	5/3/1996	170	540	26	330	230	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	11/20/1996	120	320	<50	190	150	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	4/29/1997	12	31	<10	13	18	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	11/1/1997	190	440	<50	280	210	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	5/7/1998	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	10/21/1998	16	21	14	220 E	68	--	--	--	--	--	--	--	--	--	--	Exceed
RW-24	EI	IZ	4/23/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	10/20/1999	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	5/18/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	10/6/2000	<10	<10	<10	<10	<10	--	--	--	--	--	--	--	--	--	--	~
RW-24	EI	IZ	4/3/2001	<10	<10	<10	<10	<10	--	--	--	--	--	<10	4.9 J	<10	<20	--	~
RW-24	EI	IZ	10/24/2001	<50	<50	<50	<50	<50	--	--	--	--	--	<50	<100	<50	<100	--	Exceed
RW-24	EI	IZ	4/25/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<21	<10	<21	--	Exceed
RW-24	EI	IZ	10/7/2002	<11	<11	<11	<11	<11	--	--	--	--	--	<11	<21	<11	<21	--	Exceed
RW-24	EI	IZ	4/2/2003	<48	<48	<48	<48	<48	--	--	--	--	--	<48	<95	<48	<95	--	Exceed
RW-24	EI	IZ	10/7/2003	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	0.78 J	<9.5	<19	--	Exceed
RW-24	EI	IZ	4/22/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	<19	<9.5	<19	--	Exceed
RW-24	EI	IZ	10/22/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<21	<10	<21	--	~
RW-24	EI	IZ	10/23/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	<21	<10	<21	--	~
RW-24	EI	IZ	4/11/2005	<9.7	<9.7	<9.7	<9.7	<9.7	--	--	--	--	--	<9.7	<9.7	<9.7	<9.7	--	Exceed
RW-24	EI	IZ	10/13/2005	<9.6	<9.6	<9.6	<9.6	<9.6	--	--	--	--	--	<9.6	<9.6	<9.6	<9.6	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-24	EI	IZ	4/12/2006	<9.9	<9.9	<9.9	<9.9	<9.9	--	--	--	--	--	<9.9	<9.9	<9.9	<9.9	--	Exceed
RW-24	EI	IZ	10/18/2006	<9.8	<9.8	<9.8	2.8 J	2 J	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
RW-24	EI	IZ	4/10/2007	<9.8	<9.8	<9.8	<9.8	<9.8	--	--	--	--	--	<9.8	<9.8	<9.8	<9.8	--	Exceed
RW-24	EI	IZ	10/4/2007	<0.80	<0.82	<1.0	<0.87	<0.95	--	--	--	--	--	<1.3	<0.62	<1.0	<4.1	--	Exceed
RW-24	EI	IZ	4/17/2008	<2.8	<1.0	<1.0	<1.0	<1.4	--	--	--	--	--	<0.96	<1.6	<1.1	<0.85	--	Exceed
RW-24	EI	IZ	10/24/2008	<2.8	<1.0	<1.0	<1.0	<1.5	--	--	--	--	--	<0.97	<1.6	<1.1	<0.86	--	Exceed
RW-24	EI	IZ	4/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-24	EI	IZ	10/20/2009	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
RW-24	EI	IZ	4/22/2010	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	~
RW-24	EI	IZ	10/21/2010	<2.85	<1.02	<1.03	<1.05	<1.48	--	--	--	--	--	<0.984	<1.59	<1.11	<0.866	--	~
RW-24	EI	IZ	4/25/2011	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11 J	~
RW-24	EI	IZ	4/24/2012	<2.77	<0.987	<0.998	<1.02	<1.44	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	--	~
RW-24	EI	IZ	4/16/2014	<0.94	<0.63	<0.60	<1.1	<1.0	--	--	--	--	--	<1.1	<1.3	<1.2	<0.68	<4.1	~
RW-24	EI	IZ	4/19/2016	<0.950	0.772 J	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-24	EI	IZ	4/23/2018	<0.913	<0.615	<0.587 LX7	<1.03 LX7	<1.02 LX7	--	--	--	--	--	<1.11 L	<1.26 L	<1.13 L	<0.663 L	R	~
RW-24	EI	IZ	5/1/2020	<0.950	<0.640	<0.610 X7	<1.07 X7	<1.06 X7	--	--	--	--	--	<1.15	<1.31	<1.18	<0.690	<4.16 X7	~
RW-24	EI	IZ	4/28/2021	<0.0658	<0.0432	<10.5 X7	<10.5 X7	<10.5 X7	--	--	--	--	--	<0.495	<6.33	<0.580	<3.16	<7.48 X7	~
RW-24	EI	IZ	4/25/2022	<0.0602	<0.0395	<1.09 X7	<0.712 X7	<0.770 X7	--	--	--	--	--	<0.452	<5.77	<0.529	<2.89	<6.83 X7	~
RW-24	EI	IZ	4/18/2024	<0.0622	<0.0408	<1.19 U	<0.802 U	<0.867 U	--	--	--	--	--	<4.23 U	<8.46 U	<5.10 U	<1.30 U	<10.7 U*	~
RW-25	EI	LSZ	8/30/1995	24000	46000	2100	24000	18000	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	9/24/1995	19000 D	34000 D	1200	18000 D	13000 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	10/28/1998	16000 D	7500 D	370	3800 D	2800 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	4/24/1999	2200 D	4400 D	140	1300 D	210	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	10/27/1999	910 D	2800 D	150	1900 D	33	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	6/13/2000	2900	2500	<500	1000	820	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	10/9/2000	240	100	<100	390	400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-25	EI	LSZ	12/28/2001	2900 D	3200 D	180	1400	930	--	--	--	--	--	<100	<200	<100	<200	--	Exceed
RW-25	EI	LSZ	4/23/2002	3400 D	3400 D	220	2000 D	1400	--	--	--	--	--	<100	320	<100	680	--	Exceed
RW-25	EI	LSZ	4/17/2003	2500 D	1500 D	71	640 D	430 J D	--	--	--	--	--	<9	<19	<9	7.3 J	--	Exceed
RW-25	EI	LSZ	10/3/2003	660	380	25 J	250	180	--	--	--	--	--	<95	310	<95	120 J	--	Exceed
RW-25	EI	LSZ	4/19/2004	1300	930	35 J	350	230	--	--	--	--	--	<98	<200	<98	<200	--	Exceed
RW-25	EI	LSZ	10/22/2004	<10	<10	<10	<10	<10	--	--	--	--	--	<10	470	<10	<20	--	Exceed
RW-25	EI	LSZ	10/23/2004	<9.5	<9.5	<9.5	<9.5	<9.5	--	--	--	--	--	<9.5	340	<9.5	<19	--	Exceed
RW-25	EI	LSZ	4/7/2005	<97	1200	58 J	57 J	<97	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-25	EI	LSZ	10/13/2005	1300	2200	88	880	520	--	--	--	--	--	<49	<49	<49	<49	--	Exceed
RW-25	EI	LSZ	4/11/2006	1100	3600	120	630	<100	--	--	--	--	--	<100	<100	<100	<100	--	Exceed
RW-25	EI	LSZ	11/2/2006	250	5400	220	530	25 J	--	--	--	--	--	<97	<97	<97	<97	--	Exceed
RW-25	EI	LSZ	4/6/2007	<98	3400	93 J	<98	<98	--	--	--	--	--	<98	<98	<98	<98	--	Exceed
RW-25	EI	LSZ	10/2/2007	4500	3400	160	1700	1300	--	--	--	--	--	<13	<6.3	<10	<42	--	Exceed
RW-25	EI	LSZ	10/12/2009	3360	2710	128	1250	812	--	--	--	--	--	<9.47	<15.3	<10.7	13.1 J	--	Exceed
RW-25	EI	LSZ	4/9/2010	3560	4510	232	1770	927	--	--	--	--	--	<9.65	<15.6	<10.9	18.4 J	--	Exceed
RW-25	EI	LSZ	10/18/2010	49 J	895	47.3 J	<10.6	<14.9	--	--	--	--	--	<9.94	<16.0	<11.2	<8.75	--	Exceed
RW-25	EI	LSZ	4/19/2011	111	5630	157	<10.4	841	--	--	--	--	--	<11.2	<49.0	<14.7	39.7 J	<31.7 J	Exceed
RW-25	EI	LSZ	4/26/2012	482	311	18.3	160	152	--	--	--	--	--	<1.10	559	<1.44	57.5	--	Exceed
RW-25	EI	LSZ	10/24/2013	11000	9500	330	3600	3200	--	--	--	--	--	<1.2	71	<1.2	66	670	Exceed
RW-25	EI	LSZ	10/21/2014	1400	870	34	150	90	--	--	--	--	--	<1.1	<1.3	<1.1	<0.67	<4.0	Exceed
RW-25	EI	LSZ	4/20/2015	830	2,600	87	790	380	--	--	--	--	--	<1.2	<1.3	<1.2	<0.70	<4.2	Exceed
RW-25	EI	LSZ	10/14/2015	6,050	9,680	344	3,390	2,350	--	--	--	--	--	<11.7	<13.4	<12.0	<7.04	<42.4	Exceed
RW-25	EI	LSZ	4/8/2016	9370	9780	345 X7	3160 X7	2590 X7	--	--	--	--	--	<12.1	<13.8	<12.4	9.43 J	<43.8 X7	Exceed
RW-25	EI	LSZ	10/25/2016	13,400	12,900	365 X7	4,340 X7	2,680 X7	--	--	--	--	--	<1.15	<1.31	<1.18	14	<4.16 LX7	Exceed
RW-25	EI	LSZ	4/18/2017	10,200	9,750	296 X7	3,190 X7	2,070 X7	--	--	--	--	--	<1.32	<1.51	<1.36	5.71 J	<4.78 X7	Exceed
RW-25	EI	LSZ	10/17/2017	11900	10700	344 X7	3780 X7	2740 X7	--	--	--	--	--	<1.26	<1.44	2.65 J	5.58 J	<4.57 X7	Exceed
RW-25	EI	LSZ	4/18/2018	4,790	8,340	188 J X7	2,560 X7	28.5 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	Exceed
RW-25	EI	LSZ	10/25/2018	311	6,300	255 LX7	2310 X7	26.7 LX7	--	--	--	--	--	<1.26	<1.44	2.06 J	<0.758	<4.57 X7	Exceed
RW-25	EI	LSZ	4/17/2019	482 JH	6,410	266 J X7	1,730 X7	<57.0 X7	--	--	--	--	--	<61.8	<70.4	<63.4	<37.1	<224 X7	Exceed
RW-25	EI	LSZ	10/24/2019	<96.0	7440	<61.6 X7	79.5 X7	<1.07 X7	--	--	--	--	--	<1.16	<1.32	<1.19	29.5	<4.20 X7	Exceed
RW-25	EI	LSZ	4/20/2020	368 J	6330	159 J X7	<1.14 X7	<1.13 X7	--	--	--	--	--	<1.22	<1.39	<1.26	20.0	<4.43 X7	Exceed
RW-25	EI	LSZ	10/21/2020	9,350	8,650	201 J X7	2740 X7	1620 X7	--	--	--	--	--	<8.59	<6.57	<5.56	32.7 J	<203 X7	Exceed
RW-25	EI	LSZ	4/26/2021	8,400	6,430	169 X7	2840 X7	1640 X7	--	--	--	--	--	<0.527	<6.73	3.64 J	12.3	<7.96 X7	Exceed
RW-25	EI	LSZ	10/25/2021	6,500	4,350	317 X7	3470 X7	2580 X7	--	--	--	--	--	<0.492	<6.28	3.95 J	9.73 J	<7.43 X7	Exceed
RW-25	EI	LSZ	4/18/2022	5530	5960	281 X7	2690 X7	2020 X7	--	--	--	--	--	<0.996	<12.7	2.86 J	20.9 J	<15.0 X7	Exceed
RW-25	EI	LSZ	10/13/2022	5470	6150	253 X7	2200 X7	626 X7	--	--	--	--	--	<0.468	<5.97	2.75 J	7.01 J	<7.07 X7	Exceed
RW-25	EI	LSZ	4/13/2023	7710	5570	246	2160	1840	--	--	--	--	--	<0.977	<12.5	2.01 J	8.61 J	<14.8	Exceed
RW-25	EI	LSZ	10/18/2023	8550	7900	149	1960	1360	--	--	--	--	--	<3.89 U	<7.78 U	<4.69 U	20.2	<9.87 U*	Exceed
RW-25	EI	LSZ	4/12/2024	6980	5920	215	2230	1740	--	--	--	--	--	<3.91 U	<7.81 U	<4.71 U	10.3	<9.92 U	Exceed
RW-26	EI	IZ	8/30/1995	520	2400	<0	1800	1000	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	9/24/1995	600	2600 D	190	2000 D	1100 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	10/28/1998	11	36	<10	86	140	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	4/24/1999	790 D	1200 D	70	690 D	440 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	10/27/1999	600 D	980 D	69	720 D	410 D	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	6/13/2000	520	850	57 J	570	400	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	10/9/2000	640	860	52 J	610	420	--	--	--	--	--	--	--	--	--	--	Exceed
RW-26	EI	IZ	4/10/2001	340 D	600 D	33	450 D	200 D	--	--	--	--	--	<10	9.1 J	<10	4.9 J	--	Exceed
RW-26	EI	IZ	10/27/2001	190 D	250 D	17	200 D	130	--	--	--	--	--	<10	9.2 J	<10	5.8 J	--	Exceed
RW-26	EI	IZ	4/23/2002	150 D	220 D	20	120	1.4 J	--	--	--	--	--	<10	7.7 J	<10	6.2 J	--	Exceed
RW-26	EI	IZ	10/7/2002	<10	<10	<10	<10	<10	--	--	--	--	--	<10	110	<10	<20	--	Exceed
RW-26	EI	IZ	4/2/2003	<480	<480	<480	<480	<480	--	--	--	--	--	<480	30 J	<480	<950	--	Exceed
RW-26	EI	IZ	10/3/2003	97	100	6.5 J	81	62	--	--	--	--	--	<9.5	4.6 J	<9.5	4.5 J	--	Exceed
RW-26	EI	IZ	4/19/2004	63	78	3.9 J	36	<9.7	--	--	--	--	--	<9.7	1.6 J	<9.7	4.9 J	--	Exceed
RW-26	EI	IZ	10/22/2004	57	63	4.7 J	57	38	--	--	--	--	--	<9.6	2.6 J	<9.6	4.4 J	--	Exceed
RW-26	EI	IZ	10/23/2004	65	63	4.9 J	59	40	--	--	--	--	--	<10	4.1 J	<10	5.4 J	--	Exceed
RW-26	EI	IZ	4/7/2005	60	65	6.1 J	65	45	--	--	--	--	--	<9.7	2.6 J	<9.7	4 J	--	Exceed
RW-26	EI	IZ	10/12/2005	61	70	5.5 J	64	43	--	--	--	--	--	<9.5	2.4 J	<9.5	4.9 J	--	Exceed
RW-26	EI	IZ	4/11/2006	57	54	4.3 J	52	36	--	--	--	--	--	<19	1.8 J	<19	<19	--	Exceed
RW-26	EI	IZ	11/2/2006	55	47	4.1 J	51	33	--	--	--	--	--	<9.7	1.4 J	<9.7	<9.7	--	Exceed
RW-26	EI	IZ	4/6/2007	45	46	3.3 J	44	30	--	--	--	--	--	<9.6	1.1 J	<9.6	<9.6	--	Exceed
RW-26	EI	IZ	10/2/2007	31	29	2.7 J	30	16	--	--	--	--	--	<1.3	3 J	<1.1	<4.3	--	Exceed
RW-26	EI	IZ	4/16/2008	43	40	3.5 J	47	30	--	--	--	--	--	<0.95	1.9 J	<1.1	4.1 J	--	Exceed
RW-26	EI	IZ	10/20/2008	42	47	3.9 J	53	35	--	--	--	--	--	<0.98	<1.6	<1.1	2.3 J	--	Exceed
RW-26	EI	IZ	4/17/2009	51.1	50.4	3.85 J	56.4	36.5	--	--	--	--	--	<0.975	<1.57	<1.10	5.19 J	--	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RW-26	EI	IZ	10/12/2009	59	53.8	3.47 J	43.2	29.9	--	--	--	--	--	<0.975	<1.57	<1.10	2.54 J	--	Exceed
RW-26	EI	IZ	4/9/2010	44.3	44.1	2.89 J	37.6	24.9	--	--	--	--	--	<0.975	<1.57	<1.10	1.73 J	--	Exceed
RW-26	EI	IZ	10/18/2010	43	40.5	2.9 J	37.2	25.4	--	--	--	--	--	<0.975	<1.57	<1.10	1.43 J	--	Exceed
RW-26	EI	IZ	4/19/2011	44.2	46.5	8.12 J	30.7	23	--	--	--	--	--	<1.13	<4.94	<1.49	2.44 J	23 J	Exceed
RW-26	EI	IZ	10/13/2011	33.4	37.2	2.65 J	27.4	14.4	--	--	--	--	--	<1.12	<4.90	<1.47	1.39 J	14.2 J	Exceed
RW-26	EI	IZ	4/18/2012	35.2	37.3	2.64 J	38.4	23.4	--	--	--	--	--	<1.10	<4.80	<1.44	1.89 J	--	Exceed
RW-26	EI	IZ	10/11/2012	39.8 J	44.8 J	2.58 J	37.9	21.3	--	--	--	--	--	<0.975	<4.90	<1.19	<2.94	--	Exceed
RW-26	EI	IZ	4/23/2013	51.5	56.6	1.14 J	30	16.1	--	--	--	--	--	<0.975	<4.90	<1.19	8.95 J	31.6 J	Exceed
RW-26	EI	IZ	10/21/2013	46	50	3.3 J	38	25	--	--	--	--	--	<1.2	<1.3	<1.2	2.3 J	<13	Exceed
RW-26	EI	IZ	4/10/2014	49	54	3.7 J	40	26	--	--	--	--	--	<1.2	<1.4	<1.3	1.9 J	<4.5	Exceed
RW-26	EI	IZ	10/21/2014	40	46	3.6 J	39	27	--	--	--	--	--	<1.2	<1.4	<1.2	1.6 J	<4.4	Exceed
RW-26	EI	IZ	4/20/2015	34	37	1.7 J	25	16	--	--	--	--	--	<1.2	<1.4	<1.2	1.7 J	5.5 J	Exceed
RW-26	EI	IZ	10/14/2015	29.8	34.9	1.96 J	25.5	15.0	--	--	--	--	--	<1.24	<1.41	<1.27	1.37 J	8.88 J	Exceed
RW-26	EI	IZ	4/8/2016	35.7	37.9	2.41 J X7	28.5 X7	18.6 X7	--	--	--	--	--	<1.22	<1.39	<1.26	1.88 J	<4.43 X7	Exceed
RW-26	EI	IZ	10/25/2016	37.5	42.1	2.48 J X7	34.4 X7	17.9 X7	--	--	--	--	--	<1.16	<1.32	<1.19	1.45 J	18.2 J X7	Exceed
RW-26	EI	IZ	4/18/2017	29.8	32.9	1.94 J X7	27.6 X7	14.6 X7	--	--	--	--	--	<1.26	<1.44	<1.30	1.22 J	<4.57 X7	Exceed
RW-26	EI	IZ	10/17/2017	32.7	35.7	2.9 J X7	36.3 X7	21.5 X7	--	--	--	--	--	<1.31	<1.49	<1.34	1.43 J	<4.73 X7	Exceed
RW-26	EI	IZ	4/18/2018	29	33.1	1.98 J X7	28.9 X7	14 X7	--	--	--	--	--	<1.14	<1.30	<1.17	<0.683	<4.12 X7	Exceed
RW-26	EI	IZ	10/25/2018	24.1	27.7	1.51 JLX7	23.3 X7	11.5 LX7	--	--	--	--	--	<1.28	<1.46	<1.31	<0.767	<4.62 X7	Exceed
RW-26	EI	IZ	4/17/2019	22.3 H	21.2	1.92 J X7	22.6 X7	13.7 X7	--	--	--	--	--	<1.34	1.88 J	<1.37	1.87 J	<4.84 X7	Exceed
RW-26	EI	IZ	10/24/2019	20.1	21.5	<0.604 X7	16.0 X7	12.9 X7	--	--	--	--	--	<1.14	2.53 J	<1.17	1.93 J	5.32 J X7	Exceed
RW-26	EI	IZ	4/20/2020	10.5	17.4	1.91 J X7	<1.10 X7	17.0 X7	--	--	--	--	--	<1.19	<1.35	<1.22	5.79 J	<4.29 X7	Exceed
RW-26	EI	IZ	10/21/2020	15.8	21.0	1.42 J X7	15.5 X7	12.1 X7	--	--	--	--	--	<0.170	3.93	<0.110	2.02 J	38.5 X7	Exceed
RW-26	EI	IZ	4/26/2021	17.6	21.8	<10.7 X7	23.4 X7	13.9 X7	--	--	--	--	--	<0.502	<6.41	<0.588	<3.21	<7.59 X7	Exceed
RW-26	EI	IZ	10/25/2021	12.8	18.6	1.47 J X7	17.3 X7	11.7 J X7	--	--	--	--	--	<0.592	<7.56	<0.693	<3.78	<8.94 X7	Exceed
RW-26	EI	IZ	4/18/2022	9.41	18.1	1.59 J X7	18.9 X7	13.1 X7	--	--	--	--	--	<0.483	<6.16	<0.565	<3.08	<7.29 X7	Exceed
RW-26	EI	IZ	10/13/2022	12.2	20.7	3.07 J X7	21.9 X7	17.4 X7	--	--	--	--	--	<0.480	<6.13	<0.562	<3.06	<7.25	Exceed
RW-26	EI	IZ	4/13/2023	12.2	18.6	1.47 J	18.1	13.6	--	--	--	--	--	<0.458	<5.84	<0.536	<2.92	<6.91	Exceed
RW-26	EI	IZ	10/18/2023	29.5	31.1	<1.14 U	12.2	6.33 J	--	--	--	--	--	<4.04 U	<8.08 U	<4.87 U	<1.24 U	<10.3 U*	Exceed
RW-26	EI	IZ	4/12/2024	16.4	19.8	<1.13 U	13.1	9.39 J	--	--	--	--	--	<4.01 U	<8.01 U	<4.83 U	2.24 J	<10.2 U	Exceed
RW-27	ASI	SZ	4/13/2010	26500	7720	4690	43700	28900	--	--	--	--	--	<19.5	<31.4	<22.0	<17.2	--	Exceed
RW-27	ASI	SZ	10/18/2010	14200	4340	3370	33900	16300	--	--	--	--	--	<19.5	<31.4	<22.0	<17.2	--	Exceed
RW-27	ASI	SZ	4/19/2011	18500	6590	3600	36600	24100	--	--	--	--	--	<22.9	<99.9	<30.0	<17.5	<64.7 J	Exceed
RW-27	ASI	SZ	10/13/2011	14600	5250	3740 J	27000	13900	--	--	--	--	--	<22.3 J	<97.0 J	<29.1 J	18.5 J	<62.8 J	Exceed
RW-27	ASI	SZ	4/18/2012	15800	4710	2910	34000	19500	--	--	--	--	--	<1.13	136	12.8	8.13 J	--	Exceed
RW-27	ASI	SZ	10/11/2012	26400	8710	3850	43300	24500	--	--	--	--	--	<96.5	<485	<118	<291	--	Exceed
RW-27	ASI	SZ	4/23/2013	16100	7760	2360	26600	12200	--	--	--	--	--	<1.00	23.2	9.07 J	245	<3.27 L	Exceed
RW-27	ASI	SZ	10/21/2013	18000	4900	2700	35000	24000	--	--	--	--	--	<6.1	2100	<6.2	370	<66	Exceed
RW-27	ASI	SZ	4/10/2014	20000	6500	3600	27000	18000	--	--	--	--	--	<12	<14	<13	<7.4	<45	Exceed
RW-27	ASI	SZ	10/21/2014	18000	7700	3900	39000	24000	--	--	--	--	--	<13	<15	<13	<7.8	<47	Exceed
RW-27	ASI	SZ	4/20/2015	17,000	7,500	3,300	43,000	8,600	--	--	--	--	--	<12	<13	<12	<7.0	<42	Exceed
RW-27	ASI	SZ	10/14/2015	16,500	6,400	3,390	38,500	23,600	--	--	--	--	--	<12.8	<14.6	<13.1	74.4 J	<46.2	Exceed
RW-27	Tech	IZ	4/8/2016	9200	5930	3130 X7	15000 X7	6040 X7	--	--	--	--	--	<14.0	<16.0	<14.4	14.5 J	<50.7 X7	Exceed
RW-27	Tech	IZ	10/25/2016	25,400	7,880	3,860 X7	50,500 X7	26,000 X7	--	--	--	--	--	<11.5	20.8 J	<11.8	34.4 J	<41.6 LX7	Exceed
RW-27	Tech	IZ	4/20/2017	19,900	6,280	2,680 X7	34,700 X7	17,600 X7	--	--	--	--	--	<12.8	72.1 J	13.8 J	29.4 J	<46.2 X7	Exceed
RW-27	Tech	IZ	10/17/2017	12300	4350	1490 X7	21000 X7	11500 X7	--	--	--	--	--	<6.93	518	<7.11	169	<25.1 X7	Exceed
RW-27	ASI	SZ	4/18/2018	9,230	5,470	2,170 X7	36,600 X7	6,350 X7	--	--	--	--	--	<1.15	3.57 J	<1.18	73.4	<4.16 X7	Exceed
RW-27	ASI	SZ	10/25/2018	14,200	4,790	2000 LX7	27600 X7	9870 LX7	--	--	--	--	--	<61.8	<70.4	<63.4	<37.1	<224 X7	Exceed
RW-27	ASI	SZ	4/17/2019	14000 H	5,030	2,450 X7	29,000 X7	5,750 X7	--	--	--	--	--	<68.5	<78.0	<70.2	<41.1	<248 X7	Exceed
RW-27	ASI	SZ	10/24/2019	17800	5340	2320 X7	23200 X7	<113 X7	--	--	--	--	--	<122	<139	<126	<73.4	<443 X7	Exceed
RW-27	ASI	SZ	4/20/2020	4690	2880	1880 X7	14300 X7	<1.10 X7	--	--	--	--	--	<1.20	30.2	<1.23	75.8	<4.33 X7	Exceed
RW-27	ASI	SZ	10/22/2020	15,700	4,950	1,860 X7	28700 X7	19100 X7	--	--	--	--	--	<17.5	<13.4	<11.3	<13.4	<413 X7	Exceed
RW-27	ASI	SZ	4/26/2021	14,200	4,500	1550 X7	29200 X7	44.2 X7	--	--	--	--	--	<0.581	<7.41	4.64 J	14.6	<8.77 X7	Exceed
RW-27	ASI	SZ	10/25/2021	1,730	802	135 X7	68.7 X7	36.5 J X7	--	--	--	--	--	<2.93	<37.4	<3.43	44.0 J	<44.2 X7	Exceed
RW-27	ASI	SZ	4/18/2022	9580	4280	2830 X7	28600 X7	5740 X7	--	--	--	--	--	<2.52	<32.2	11.8 J	23.8 J	<38.1 X7	Exceed
RW-27	ASI	SZ	10/13/2022	11100	4550	2400 X7	22100 X7	7330 X7	--	--	--	--	--	<2.68	<34.2	10.6 J	19.2 J	<40.5 X7	Exceed
RW-27	ASI	SZ	4/13/2023	10500	3380	430	25200	9370	--	--	--	--	--	<2.45	<31.2	6.75 J	<15.6	<36.9	Exceed
RW-27	ASI	SZ	10/18/2023	12700	4900	3370	32600	20100	--	--	--	--	--	<3.94 U	12.4	9.84 J	23.9	<10.0 U*	Exceed
RW-27	ASI	SZ	4/17/2024	**11900**	**3840**	1890 H	17700 H	11400 H	--	--	--	--	--	<4.01 U H	<8.02 U H	5.44 J H	19.6 H	<10.2 U H*	Exceed
RW-27-ReSamp-ReRu	ASI	SZ	5/21/2024	**15000**	**7150**	8160	43500	21000	--	--	--	--	--	<4.80 U	<9.61 U	<5.79 U	19.9	<12.2 U*	Exceed
RW-28	ASI	IZ	4/13/2010	<2.88	<1.03	31.7	1.47 J	<1.49	--	--	--	--	--	<0.994	<1.60	<1.12	<0.875	--	Exceed
RW-28	ASI	IZ	10/18/2010	<2.77	<0.987	<0.998	7.46 J	3.81 J	--	--	--	--	--	<0.956	<1.54	<1.08	<0.841	--	Exceed
RW-28	ASI	IZ	4/19/2011	<2.80	<0.996	<1.01	<1.03	<1.45	--	--	--	--	--	<1.11	971	<1.46	<0.850	238 J	Exceed
RW-28	ASI	IZ	10/13/2011	<2.77	1.32 J	8.29 J	98.1	61.5	--	--	--	--	--	<1.10	4210 J	<1.44	8.32 J	935 J	Exceed
RW-28	ASI	IZ	4/18/2012	<2.85	<1.02	6.92 J	99.9	72.3	--	--	--	--	--	<1.13	3990	<1.49	10.4	--	Exceed
RW-28	ASI	IZ	10/11/2012	<2.77	<0.987	1.24 J	22.1 J	14.7	--	--	--	--	--	<0.956	3540	<1.17	2.94 J	--	Exceed
RW-28	ASI	IZ	4/23/2013	<2.83	<1.01	<1.02	26.4	15.8	--	--	--	--	--	<0.975	3090	<1.19	9.72 J	948 J	Exceed
RW-28	ASI	IZ	10/21/2013	<0.96	<0.65	<0.62	<1.1	<1.1	--	--	--	--	--	<1.2	320	<1.2	<0.70	1800	Exceed
RW-28	ASI	IZ	4/10/2014	9.4 J	1.5 J	75	800	790	--	--	--	--	--	<1.2	3500	<1.2	400	1200	Exceed
RW-28	ASI	IZ	10/21/2014	6 J	<0.69	94 J	520	590	--	--	--	--	--	<1.2	3000	<1.3	260	790	Exceed
RW-28	ASI	IZ	4/20/2015	16	<0.64	64	830	690	--	--	--	--	--	<1.2	3,000	<1.2	390	1,200	Exceed
RW-28	ASI	IZ	10/14/2015	18.3 J	<7.03	49.3 J	615	526	--	--	--	--	--	<12.6	2,380	<13.0	282	1,150	Exceed
RW-28	ASI	IZ	4/8/2016	47.9 J	<7.03	48.9 J X7	486 X7	456 X7	--	--	--	--	--	<12.6	3110	<13.0	245	1080 J X7	Exceed
RW-28	ASI	IZ	10/25/2016	66.8	7.76 J	56.5 X7	697 X7	485 X7	--	--	--	--	--	<1.15	1,910	<1.18	256	997 LX7	Exceed
RW-28	ASI	IZ	4/18/2017	131	18.2	74.7 X7	952 X7	579 X7	--	--	--	--	--	<1.28	2,150	<1.31	313	573 X7	Exceed
RW-28	ASI	IZ	10/17/2017	<1.07	<0.719	<0.685 X7	1.96 J X7	<1.19 X7	--	--	--	--	--	<1.29	769	<1.33	<0.775	1150 X7	Exceed
RW-28	ASI	IZ	4/18/2018	246 J	51.9	104 X7	1,460 X7	814 X7	--	--	--	--	--	<1.15	1,100	<1.18	33.2	<208 X7	Exceed
RW-28	ASI	IZ	10/25/2018	222	34.6 J	91.7 JLX7	1120 X7	761 LX7	--	--	--	--	--	<24.5	1,590	<25.1	306	737 X7	Exceed
RW-28	ASI	IZ	4/17/2019	68.6 JH	58.2 J	79.6 J X7	808 X7	786 X7	--	--	--	--	--	<67.6	<77.1	<69.4	239 J	416 J X7	Exceed
RW-28	ASI	IZ	10/24/2019	221	30.6 J	91.9 J X7	745 X7	743 X7	--	--	--	--	--	<23.7	968	<24.3	203 J	<85.8 X7	Exceed
RW-28	ASI	IZ	4/20/2020	141 J	43.0	88.0 J X7	4.06 J X7	980 X7	--	--	--	--	--	<1.16	4.79 J	<1.19	299	135 J X7	Exceed
RW-28	ASI	IZ	10/22/2020	168	27.3	73.2 X7	597 X7	578 X7	--	--	--	--	--	<0.181	1,220	.539 J	175	2190 X7	Exceed
RW-28	ASI	IZ	4/26/2021	202	30.9	90.1 X7	787 X7	666 X7	--	--	--	--	--	<0.544	1,290	<0.637	186	561 X7	Exceed
RW-28	ASI	IZ	10/25/2021	126	21	108 X7	653 X7	460 X7	--	--	--	--	--	<0.498	2,170	0.792 J	177	695 X7	Exceed
RW-28	ASI	IZ	4/18/2022	95	19.4	52.7 X7	600 X7	482 X7	--	--	--	--	--	<0.907	1530	<1.06	122	1290 X7	Exceed
RW-28	ASI	IZ	10/13/2022	136	35.8	103 X7	762 X7	606 X7	--	--	--	--	--	<0.986	1580	<1.15	164	1080 X7	Exceed
RW-28	ASI	IZ	4/13/2023	128	23.0	60.0	521	450	--	--	--	--	--	<1.03	1200	<1.21	140	842	Exceed
RW-28	ASI	IZ	10/18/2023	118	23.2	<1.20 U	86.1	66.2	--	--	--	--	--	<4.24 U	192	<5.11 U	45.7	<10.8 U*	Exceed
RW-28	ASI	IZ	4/17/2024	**79**	**11.4**	27.2 H	**223 H**	**225 H**	--	--	--	--	--	<4.30 U H	**605 H**	<5.18 U H	80.2 H	<10.9 U H*	Exceed
RW-28-ReSamp-ReRu	ASI	IZ	5/21/2024	**105**	**20**	49.8	**281**	**333**	--	--	--	--	--	<3.81 U	**1140**	<4.59 U	101	<9.66 U*	Exceed

TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT (g/L)	2,6-DNT (g/L)	m-MNT (g/L)	o-MNT (g/L)	p-MNT (g/L)	4,6-DNOC	SR	ZN	2,4-TDA (g/L)	2,6-TDA (g/L)	1,3-DCB (g/L)	Toluidine (g/L)	NB (g/L)	5-N-o-T (g/L)	TDAs	Exceed
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		
RWC-1	ASI	SZ	4/18/1990	23000	8100	5600	52000	36000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	7/12/1990	19000	7700	4300	39000	30000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/3/1990	13000	3500	2700	30000	22000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/7/1991	18000	6000	2900	33000	28000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/1/1991	14000	5000	3600	43000	31000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/7/1992	12000	4500	2100	27000	17000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/3/1992	20000	6100	3000	38000	26000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/18/1993	18000	7200	3400	32000	21000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	7/20/1993	18000	4700	3000	25000	23000	<0	0.69	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/10/1993	18000	4700	3000	25000	23000	<0	0.69	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/17/1994	14000	6900	3000	29000	24000	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/27/1994	14000	4500	1800	27000	18000	<0	0.76	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/30/1995	13000	5400	2500	29000	21000	<0	0.66	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/21/1995	10000	4000	2000	23000	15000	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/27/1996	19000	6900	3200	45000	25000	<0	0.55	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/27/1996	16000	5300	2600	24000 D	9100	--	1.2	0.064	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/9/1997	10000	3400	1400	9700	6000	--	0.66	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	11/1/1997	9300 D	3900	1500	15000 D	5900 D	--	0.62	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	5/14/1998	11000	4000	<2000	20000	11000	--	0.58	<0	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/27/1998	9700	3100	1200	14000	3300	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/23/1999	12000 D	5300	2400	19000 D	11000 D	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/28/1999	11000	4600	2500	27000 D	15000	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	6/12/2000	13000 D	6400 D	2300	23000 D	17000 D	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	10/11/2000	1.9 J	9.2 J	5.5 J	31	7.5 J	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-1	ASI	SZ	4/10/2001	9700 J D	3700 J D	1900 J D	34000 D	18000 D	<50	--	--	<20	<20	<10	<20	20	<20	--	Exceed
RWC-1	ASI	SZ	10/25/2001	15000 D	4700 D	2600 D	28000 D	17000 D	<250	--	--	<100	<100	<50	<100	12 J	<100	--	Exceed
RWC-1	ASI	SZ	4/23/2002	14000 D	4400 D	2800 D	25000 D	15000 D	<530	--	--	<210	<210	<110	<210	13 J	14 J	--	Exceed
RWC-1	ASI	SZ	10/7/2002	12000 D	4900 D	2800 D	22000 D	14000 D	<49	--	--	<20	<20	<9	<20	13	4.7 J	--	Exceed
RWC-1	ASI	SZ	4/3/2003	18000 D	5600	2900	33000 D	22000 D	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
RWC-1	ASI	SZ	10/3/2003	10000	3100 J	2000 J	20000	14000	<24000	--	--	<9500	<9500	<4800	<9500	<4800	<9500	--	Exceed
RWC-1	ASI	SZ	4/19/2004	13000	3600	1700 J	19000	12000	<480	--	--	<190	<190	<95	<190	9.1 J	<190	--	Exceed
RWC-1	ASI	SZ	10/6/2004	14000	4300 J	2200 J	25000	15000	<480	--	--	<190	<190	<95	<190	10 J	<190	--	Exceed
RWC-1	ASI	SZ	4/7/2005	11000	3700	2300	19000	13000	--	--	--	<190	<190	<96	5.1 J	10 J	17 J	--	Exceed
RWC-1	ASI	SZ	10/12/2005	15000	5400	2600	26000	15000	--	--	--	<200	<200	<100	11 J	11 J	<100	--	Exceed
RWC-1	ASI	SZ	4/11/2006	16000	6600	3000	32000	17000	--	--	--	<200	<200	<100	<100	<100	43 J	--	Exceed
RWC-1	ASI	SZ	11/2/2006	11000	3200	2000	22000	14000	--	--	--	<390	<390	<200	18 J	<200	<200	--	Exceed
RWC-1	ASI	SZ	4/6/2007	7500	3000	1700	13000	7200	--	--	--	<200	<200	<99	11 J	<99	220	--	Exceed
RWC-1	ASI	SZ	10/2/2007	12000	3600	2300	25000	16000	--	--	--	<72	<53	<13	<6.4	<10	120	--	Exceed
RWC-1	ASI	SZ	4/10/2008	9300	3100	1900	22000	13000	--	--	--	<16	<15	<9.6	<15	<11	72 J	--	Exceed
RWC-1	ASI	SZ	10/20/2008	5900	2700	1600	11000	6700	--	--	--	<16	<16	<9.7	<16	<11	30 J	--	Exceed
RWC-1	ASI	SZ	4/17/2009	11500	4310	2740	30600	17400	--	--	--	<1.65	<1.57	<0.975	<1.57	10.5	21.1	--	Exceed
RWC-1	ASI	SZ	10/12/2009	12600	3910	2330	25000	16300	--	--	--	<16.2	<15.4	<9.56	<15.4	11 J	29.9 J	--	Exceed
RWC-1	ASI	SZ	4/13/2010	5260	1400	890	9800	4970	--	--	--	<16.3	58.5 J	<9.65	1040	<10.9	306	--	Exceed
RWC-1	ASI	SZ	10/13/2011	598	494	237	101	423	--	--	--	--	--	<11.3	2260	<14.9	15.9 J	522	Exceed
RWC-2	EI	SZ	1/22/1991	19000	23000	700	6500	5300	180	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	5/7/1991	32000	31000	840	8800	8600	1500	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	7/23/1991	36000	32000	700	6700	5800	600	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/7/1991	41000	30000	1200	17000	14000	350	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	2/9/1992	61000	46000	1200	11000	8800	210	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/10/1993	31000	26000	520	3700	3500	<0	0.35	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/17/1994	37000	36000	880	6700	6100	<0	0.5	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/26/1994	32000	25000	370	4100	2900	<0	0.59	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/19/1995	41000	31000	970	6000	7100	<0	0.54	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/21/1995	28000	27000	610	4700	3500	<0	<0	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/27/1996	38000	39000	950	7900	4300	<0	0.46	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/20/1996	27000 D	25000 D	620	4000 E	1100	--	0.41	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	5/9/1997	29000 D	24000 D	670	5800 D	3900	--	0.54	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	11/1/1997	27000 D	25000 D	<500	4000	3000	--	0.71	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	5/14/1998	26000 D	26000 D	580 D	3300 D	1500 D	--	0.89	<0	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/27/1998	31000 D	32000 D	390	3800 D	420	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/24/1999	29000 D	27000 D	<1000	2700	1500	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/28/1999	26000 D	28000 D	<1000	7900	3400	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	6/13/2000	20000 D	22000 D	680	3500	3000	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	10/12/2000	31000 D	27000 D	780	7300 D	4400 D	--	--	--	--	--	--	--	--	--	--	Exceed
RWC-2	EI	SZ	4/10/2001	33000	26000	550 J	8600	6100	<25000	--	--	<10000	<10000	<5000	<10000	<5000	<10000	--	Exceed
RWC-2	EI	SZ	10/25/2001	33000 D	27000 D	730	8601	5700 D	<500	--	--	<200	<200	<100	<200	<100	<200	--	Exceed
RWC-2	EI	SZ	4/23/2002	580	2400 D	85 J	8602	130	<500	--	--	<200	<200	<99	<200	<99	<200	--	Exceed
RWC-2	EI	SZ	10/8/2002	<9	290 D	11	8603	2.3 J	<48	--	--	<19	<19	<9	<19	<9	0.56 J	--	Exceed
RWC-2	EI	SZ	4/3/2003	4300	2400	53 J	8604	480	<2400	--	--	<950	<950	<480	<950	<480	<950	--	Exceed
RWC-2	EI	SZ	10/3/2003	69	54	3.2 J	8605	1.5 J	<48	--	--	<19	<19	<9.5	<19	<9.5	3.3 J	--	Exceed
RWC-2	EI	SZ	12/19/2003	3900	2600	92	8606	530	<48	--	--	<19	<19	<9.5	<19	2.1 J	2.9 J	--	Exceed
RWC-2	EI	SZ	4/19/2004	4900	2900	77 J	8607	<95	<480	--	--	<190	<190	<95	<190	<95	<190	--	Exceed
RWC-2	EI	SZ	10/6/2004	2600	1200	30 J	8608	140	<480	--	--	<190	<190	<96	<190	<96	<190	--	Exceed
RWC-2	EI	SZ	4/7/2005	240	840	28 J	8609	<95	--	--	--	<190	<190	<95	<95	<95	<95	--	Exceed
RWC-2	EI	SZ	10/12/2005	1800	1200	35 J	8610	210	--	--	--	<190	<190	<96	<96	<96	<96	--	Exceed
RWC-2	EI	SZ	4/11/2006	3800	2700	60 J	8611	150	--	--	--	<190	<190	<97	<97	<97	<97	--	Exceed
RWC-2	EI	SZ	11/2/2006	2700	1600	42 J	8612	220	--	--	--	<190	<190	<96	<96	<96	<96	--	Exceed
RWC-2	EI	SZ	4/6/2007	<98	660	23 J	8613	<98	--	--	--	<200	<200	<98	<98	<98	<98	--	Exceed
RWC-2	EI	SZ	10/2/2007	1400	800	24 J	8614	160	--	--	--	<70	<52	<13	<6.3	<10	<41	--	Exceed
RWC-2	EI	SZ	10/23/2009	3.2 J	3.95 J	<0.998	8615	<1.44	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	Exceed
RWC-2	EI	SZ	4/9/2010	21.7	12.6	<0.998	8616	2.7 J	--	--	--	<1.62	<1.54	<0.956	<1.54	<1.08	<0.841	--	Exceed
RWC-2	EI	SZ	10/26/2010	8.09 J	1.64 J	<1.02	8617	<1.46	--	--	--	<1.65 J	<1.57 J	<0.975	<1.57	<1.10	<0.858	--	Exceed
RWC-2	EI	SZ	4/21/2011	13.6	81.1	8.21 J	8618	6.37 J	--	--	--	--	--	<1.10	<4.80	<1.44	1.4 J	<3.11 J	Exceed
RWC-2	EI	SZ	10/13/2011	5.4 J	5.27 J	<0.998	8619	1.7 J	--	--	--	--	--	<1.10	<4.80	<1.44	<0.841	<3.11	Exceed

Notes/Abbreviations:

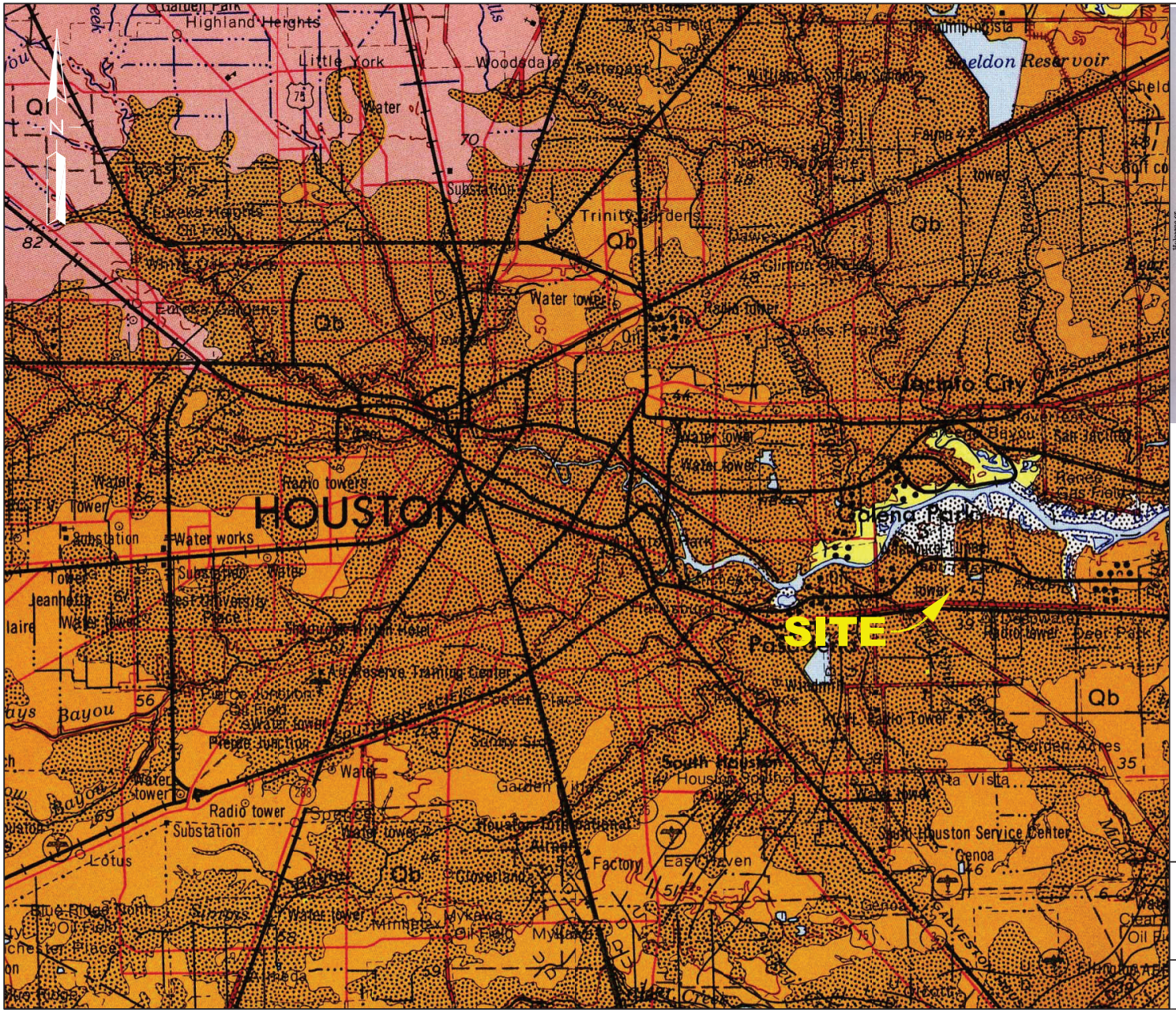
AOC1 = Area of Concern No. 1
ASI = Acid Spill Impoundment
DNTL = DNT Loading Area
DNT = DNT Production Unit Area
DZ = Deep Zone
DNT = Dinitrotoluene
MNT = Mononitrotoluene
TDA = Toluendiamine
DCB = Dichlorobenzene
NB = Nitrobenzene

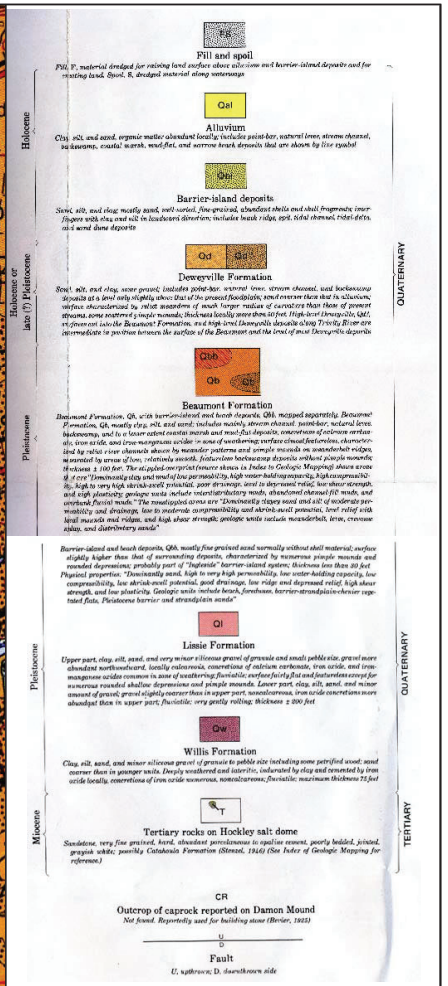
TABLE XI.A.4.g3
HISTORICAL GROUNDWATER RESULTS
Air Products LLC
Pasadena, Texas
(all concentrations in micrograms per liter)

Well Number	Unit	Zone	Date	2,4-DNT	2,6-DNT	m-MNT	o-MNT	p-MNT	4,6-DNOC	SR	ZN	2,4-TDA	2,6-TDA	1,3-DCB	Toluidine	NB	5-N-o-T	TDAs	Exceed
				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)				(g/L)	(g/L)	(g/L)	(g/L)	(g/L)	(g/L)		
Groundwater Protection Standard (GWPS)				**1.3**	**1.3**	**240**	**4.1**	**57**				**0.29**	**730**	**730**	**30**	**49**	**---**		

EI = Effluent Impoundment
5-N-o-T=5-Nitro-o-Toluene
"Exceed" indicates a detected concentration is greater than the GWPS.
IZ = Intermediate Zone
LSZ = Lower Shallow Zone
Neut = Area of Neutralization Pit
RL-1 = Recovery Pump Below Plastic Liner
RWC-1 = Recovery Wells RW-1 to RW-10
RWC-2 = Recovery Wells RW-11 to RW-20
SR = Strontium
SZ = Shallow Zone
TDA = Total toluenediamines, individal isomers not separated during low-level analysis.
TDAL = TDA Loading Area
SZ = Upper Shallow Zone
ZN = Zinc
"~" Indicates all detected COCs in sample are in compliance with GWPS.
" < " = concentration is less than the sample-specific detection limit shown.
E = The analyte concentration exceeds the upper calibration range; the reslt is considered an estimate
D = The analyte concentration is reported from a dilution
J = The concentration is an estimate becase the detection is less than the sample-specific quantitation limit.
L = The concentration is an estimate with a possible low bias due to srrogate recoveries or other quality control isses.
R = The result is rejected
H = Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
X7 = The laboratory is not NELAC accredited under the Texas Laboratory Accreditation Program for this analyte in this matrix analyzed by this method. The TCEQ does not offer accreditation for this analyte, in this matrix, analyzed by this method.
b = The compound was found in the blank and sample.
! = concentration may be a combination of 2,4- and 2,6-TDA isomers.
* RPD of the LCS and LCSD exceeds the control limits.
* LCS or LCSD is outside acceptance limits.

FIGURES





DRAWING NOT TO SCALE

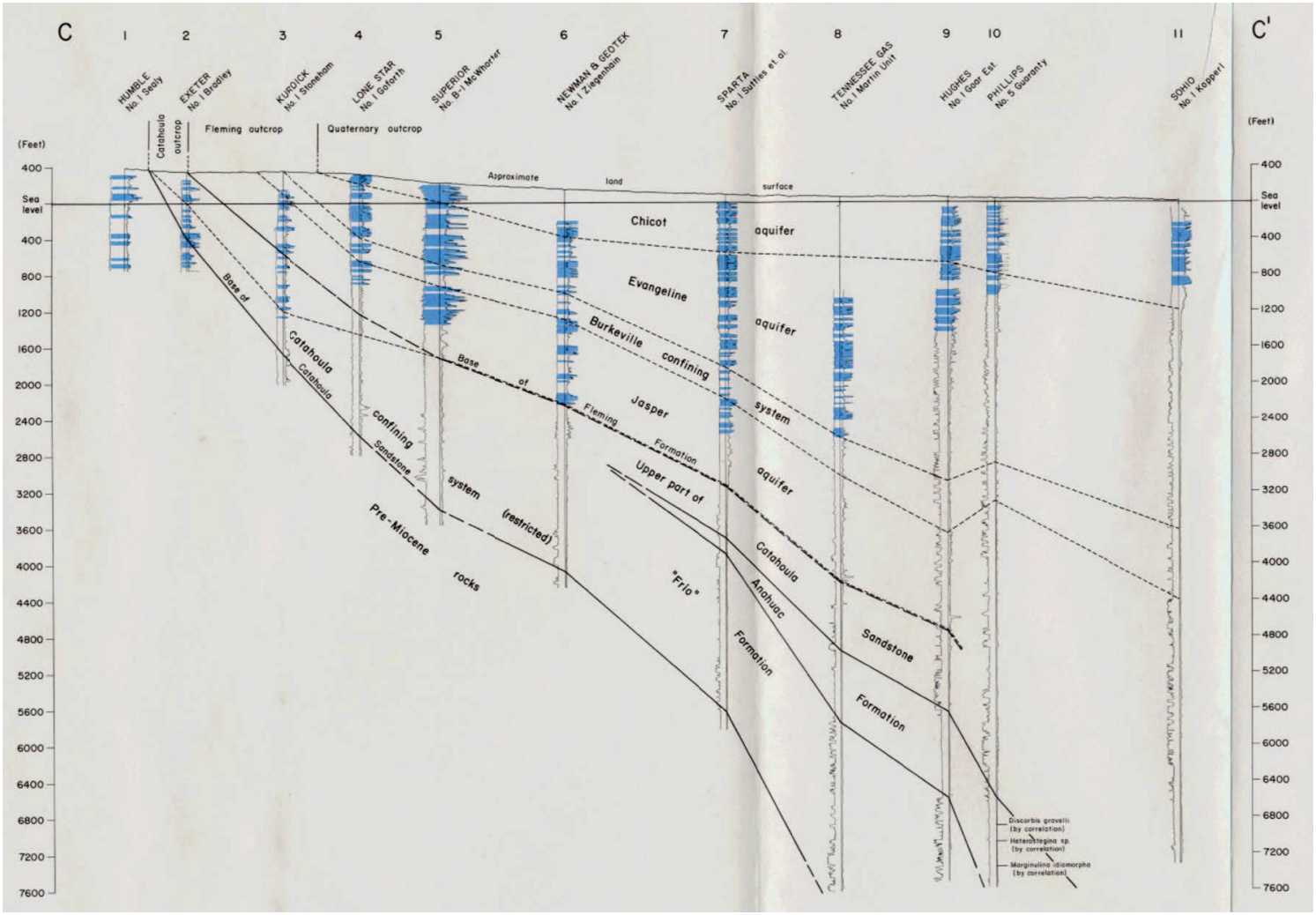
REGIONAL GEOLOGIC MAP

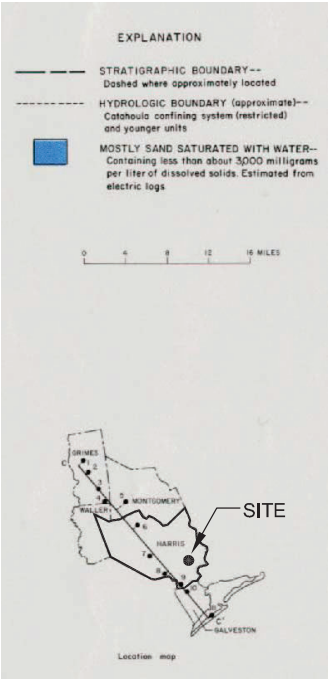
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PASADENA, TEXAS

amec

Project No	Figure
4487	X.I.A.4.A

4487-A01.DWG





NOTE:

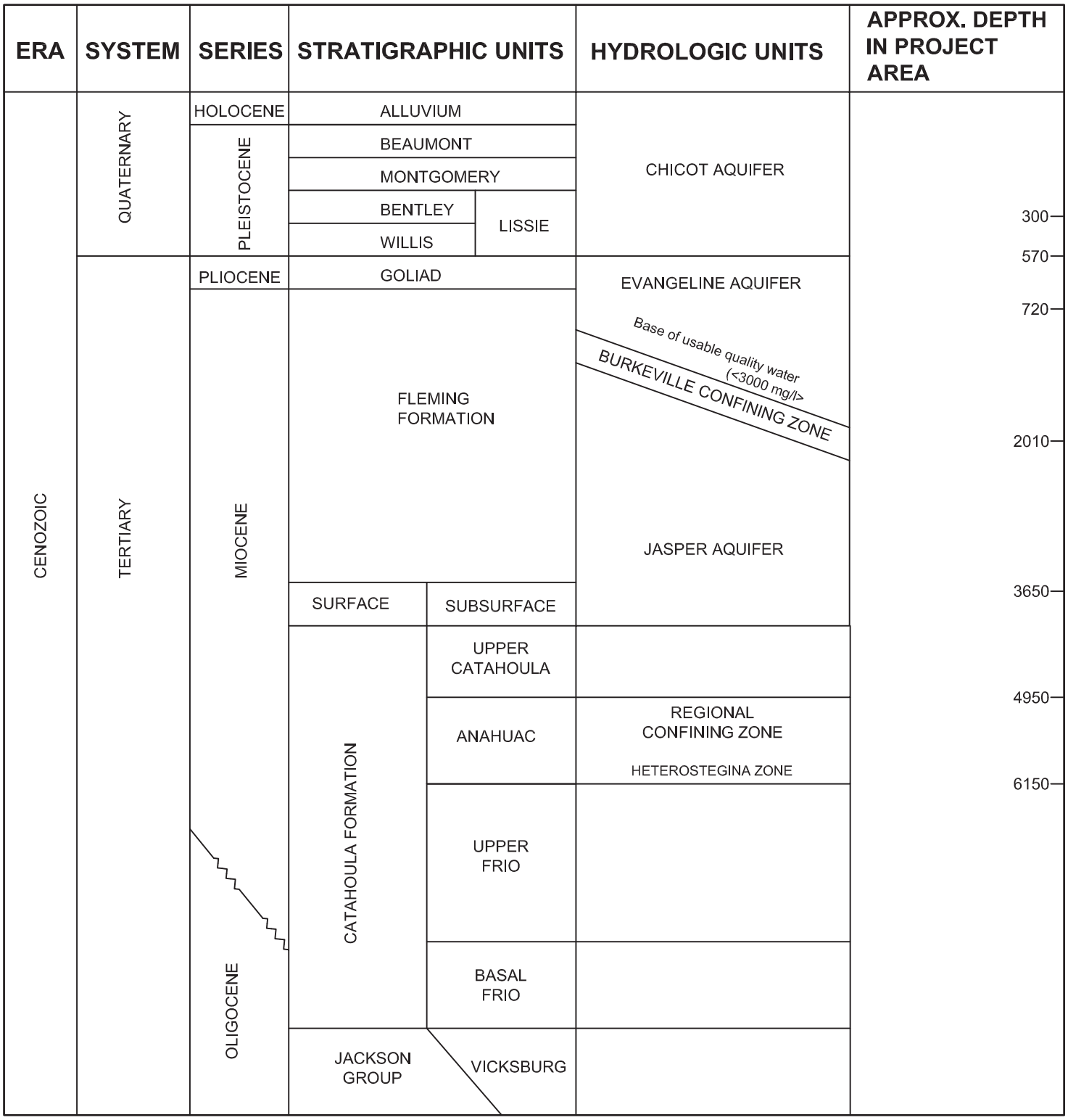
MODIFIED FROM HYDROLOGY OF THE JASPER AQUIFER IN THE SOUTHEAST TEXAS COASTAL PLAIN, BY E.T. BAKER, JR., OCTOBER 1986.

REGIONAL GEOLOGIC CROSS SECTION

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PASADENA, TEXAS

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4487B01.DWG



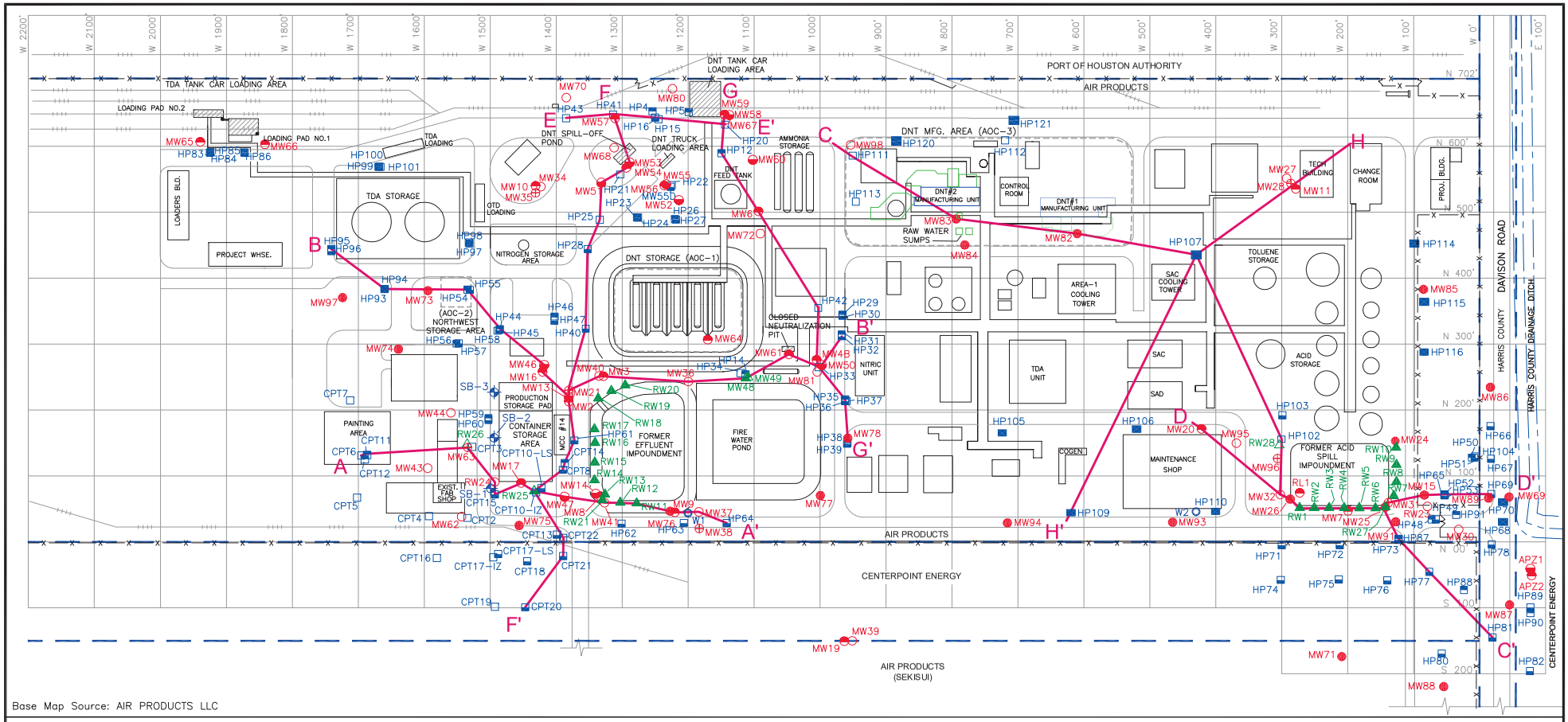
After Baker (1978)

HYDROSTRATIGRAPHIC COLUMN

AIR PRODUCTS LLC
PASADENA, TEXAS

By: JLH	Date: 08/26/08	Project No. 4487
amec		Figure XI.A.4.C

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Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- HP107 — SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP44 — UPPER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP45 — LOWER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP65 — INTERMEDIATE ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT14 — UPPER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT13 — LOWER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT22 — INTERMEDIATE ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- SB-1 — SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- W1 — PLANT WATER WELL
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY
- A—A' LINE OF CROSS SECTION

0 50 100 150 APPROXIMATE SCALE (FEET)

N

LOCATIONS OF WELLS, GROUNDWATER SAMPLES, AND CROSS SECTIONS

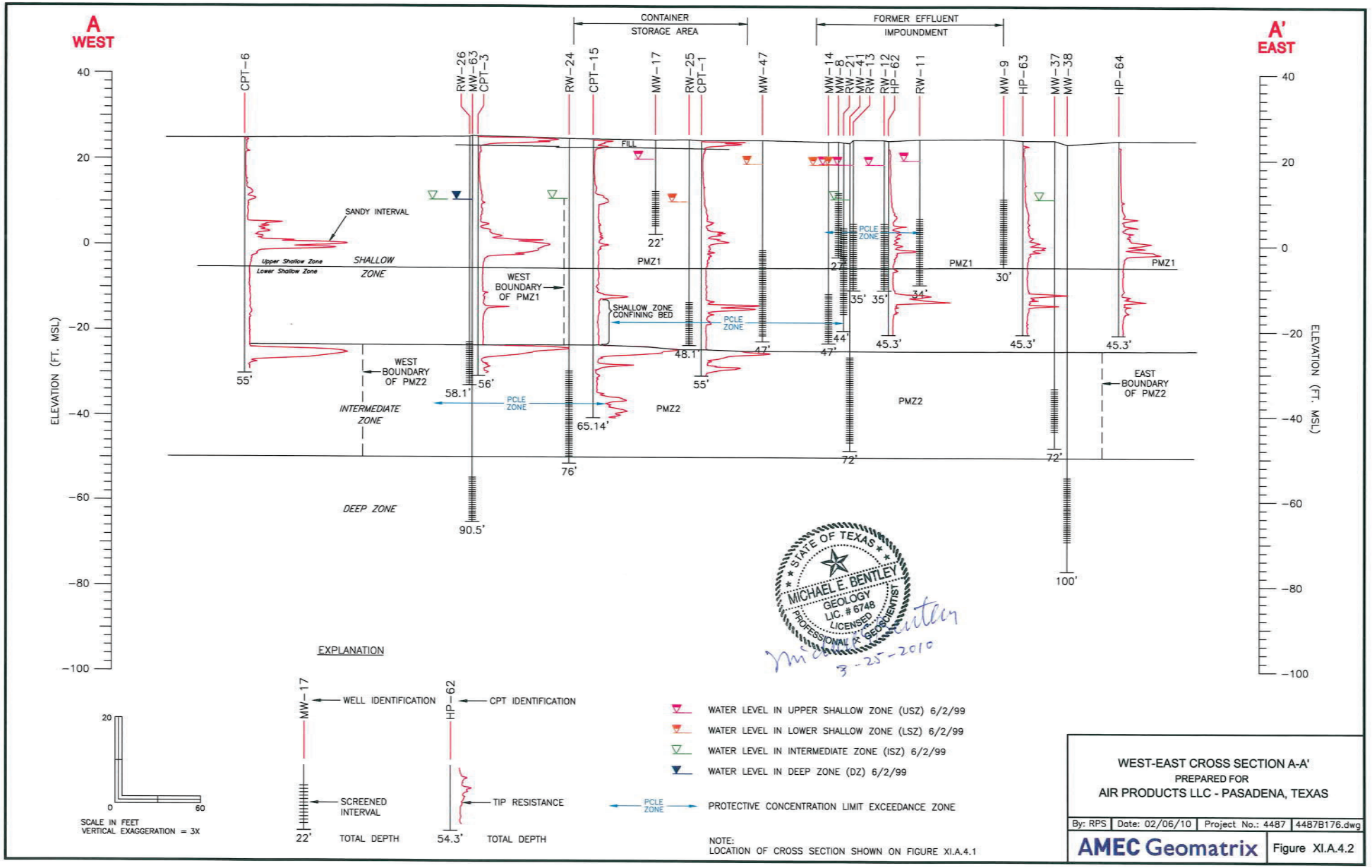
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By: RPS	Date: 01/10/10	Project No.: 4487	4487B175.dwg

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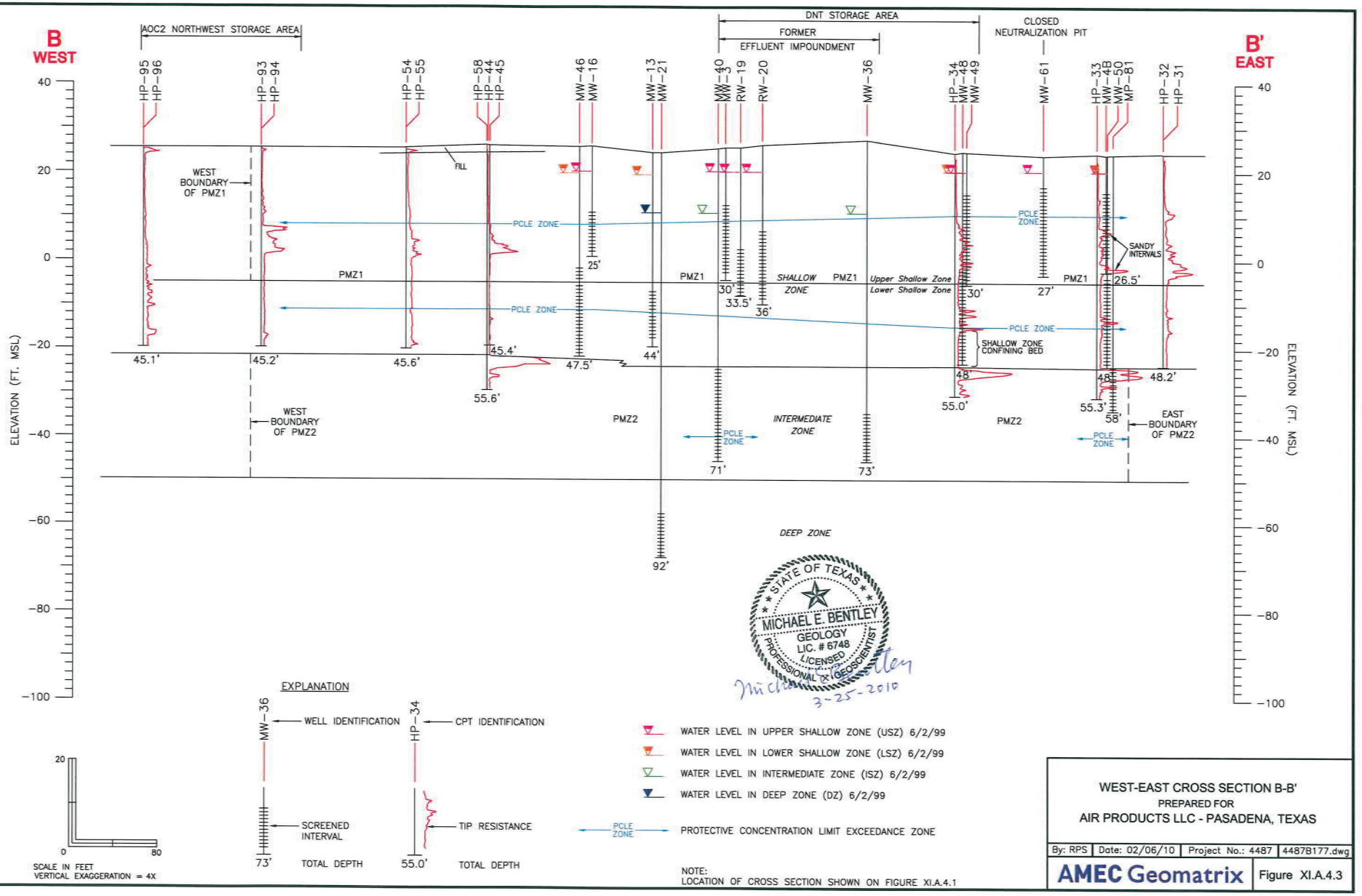
Figure XI.A.4.1



WEST-EAST CROSS SECTION A-A'
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By: RPS	Date: 02/06/10	Project No.: 4487	4487B176.dwg

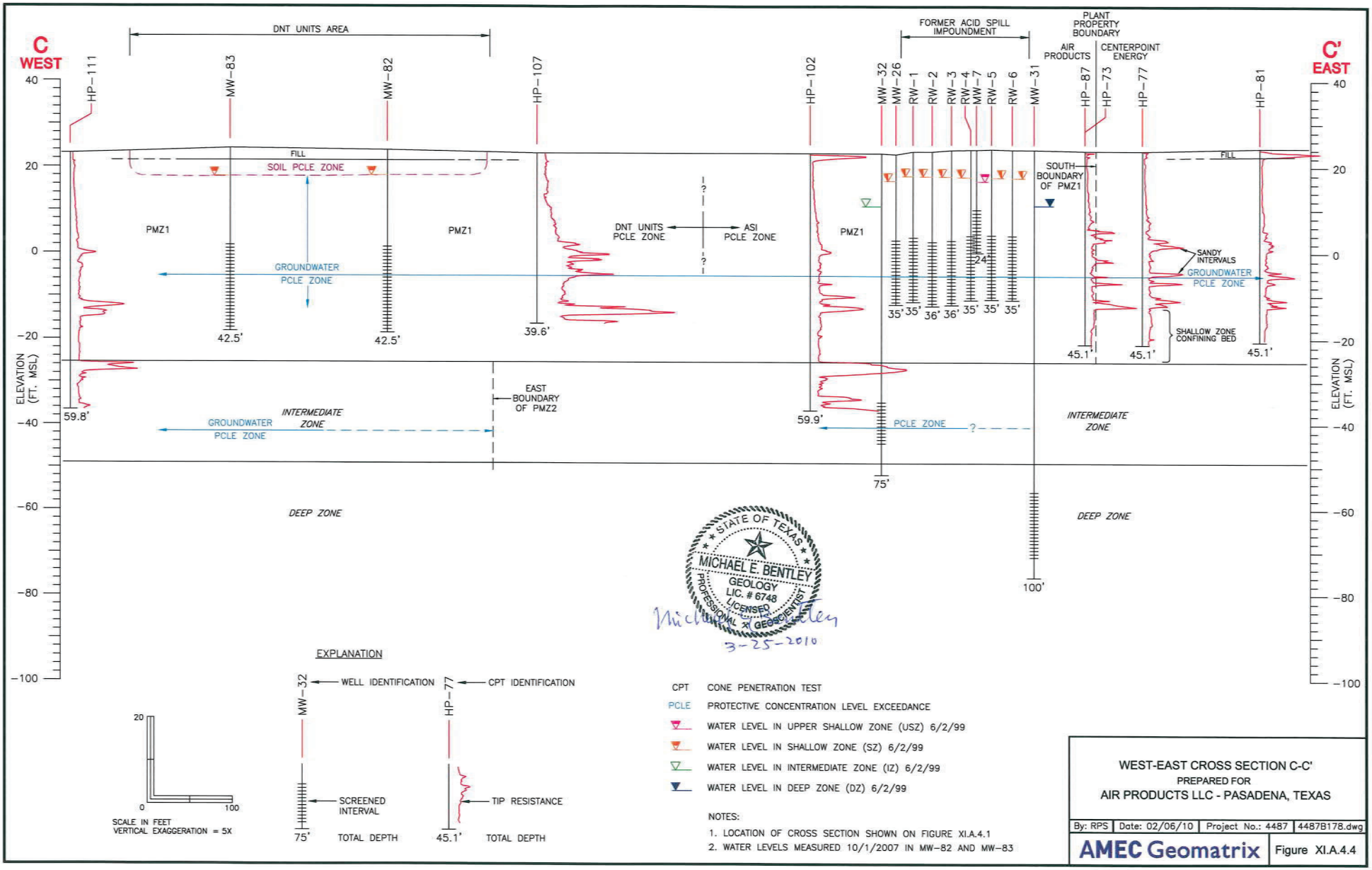
AMEC Geomatrix | Figure XI.A.4.2



WEST-EAST CROSS SECTION B-B'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B177.dwg

AMEC Geomatrix | Figure XI.A.4.3



STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED PROFESSIONAL GEOSCIENTIST

3-25-2010

EXPLANATION

MW-32 ← WELL IDENTIFICATION
HP-77 ← CPT IDENTIFICATION
SCREENED INTERVAL
TIP RESISTANCE
75' TOTAL DEPTH
45.1' TOTAL DEPTH

20
0
100
SCALE IN FEET
VERTICAL EXAGGERATION = 5X

CPT CONE PENETRATION TEST
PCLE PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE
WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99
WATER LEVEL IN SHALLOW ZONE (SZ) 6/2/99
WATER LEVEL IN INTERMEDIATE ZONE (IZ) 6/2/99
WATER LEVEL IN DEEP ZONE (DZ) 6/2/99

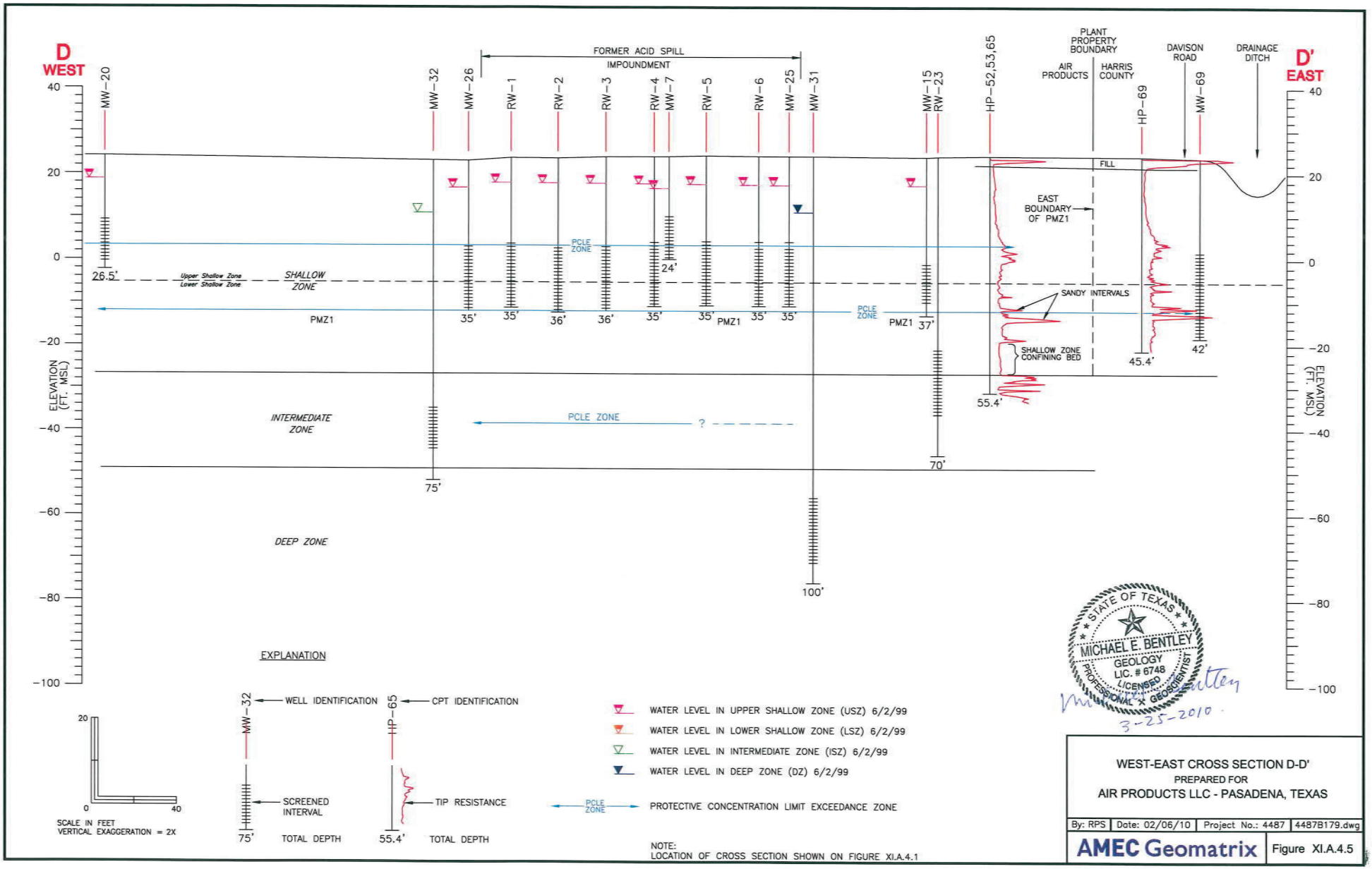
NOTES:
1. LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1
2. WATER LEVELS MEASURED 10/1/2007 IN MW-82 AND MW-83

WEST-EAST CROSS SECTION C-C'

PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B178.dwg

AMEC Geomatrix | Figure XI.A.4.4



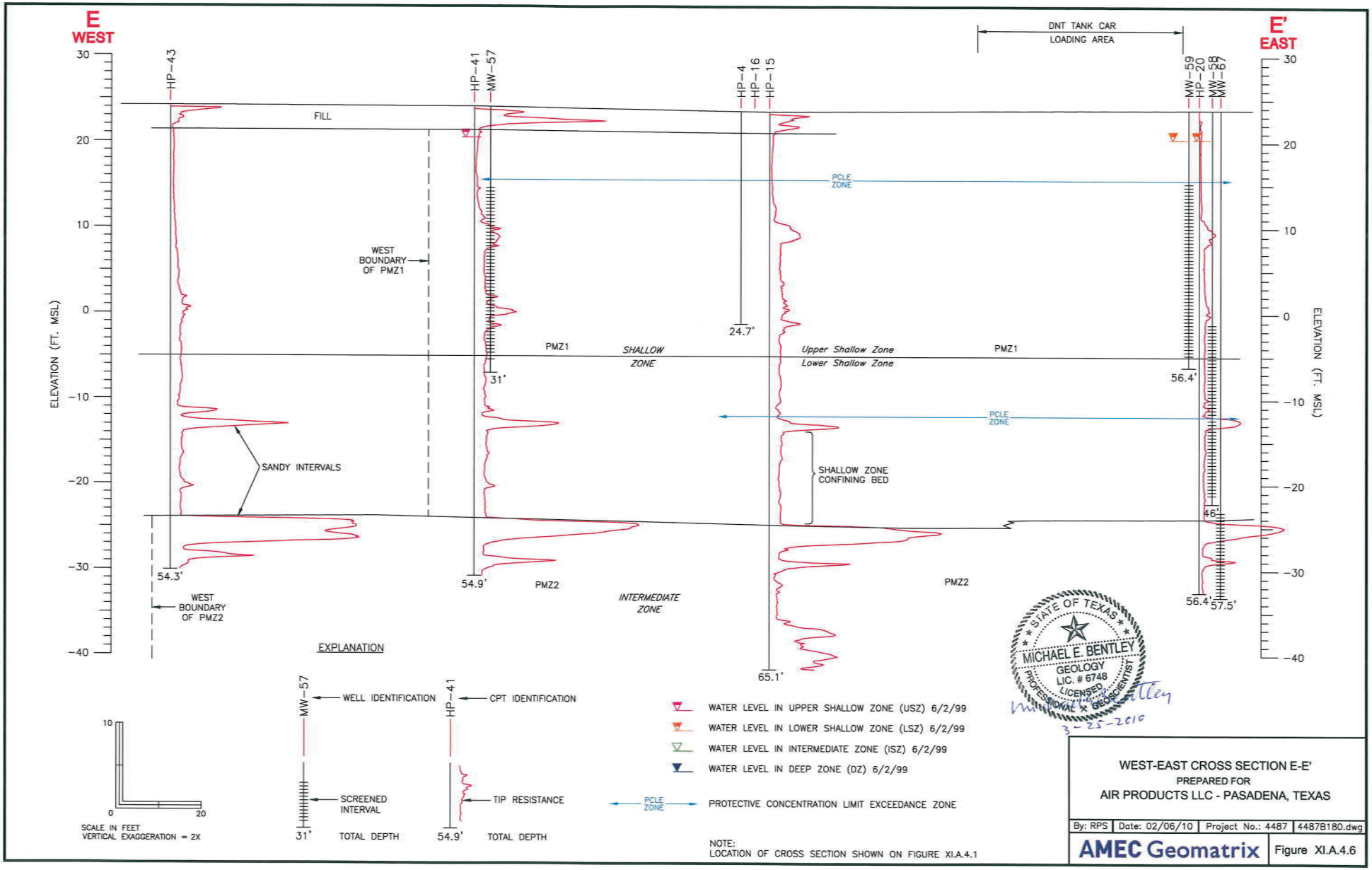
NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE XI.A.4.1

STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED PROFESSIONAL GEOSCIENTIST
3-25-2010

WEST-EAST CROSS SECTION D-D'
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/06/10	Project No.: 4487	4487B179.dwg

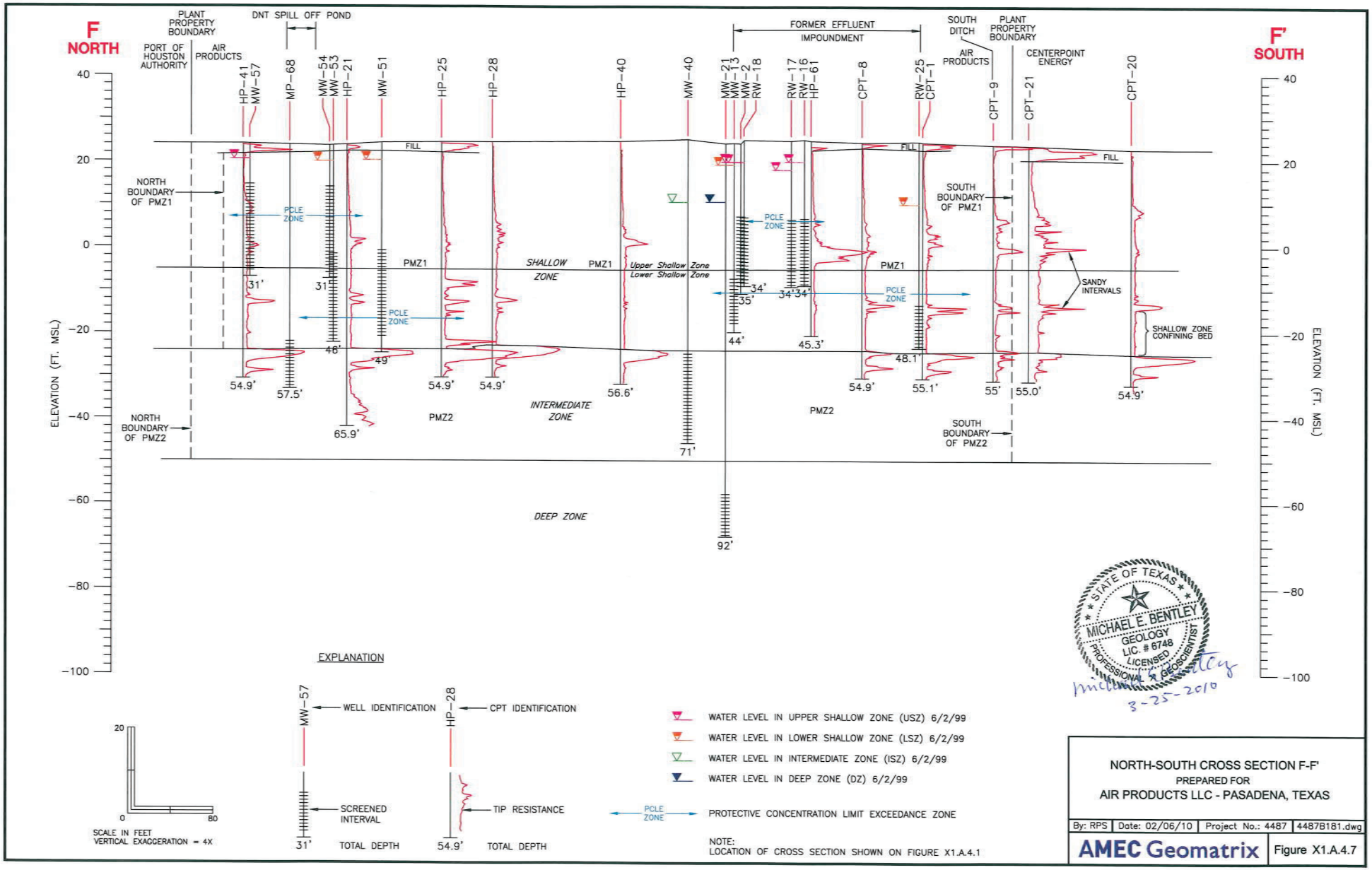
AMEC Geomatrix | Figure XI.A.4.5



WEST-EAST CROSS SECTION E-E'
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AMEC Geomatrix | Figure XI.A.4.6



EXPLANATION

SCALE IN FEET
VERTICAL EXAGGERATION = 4X

WATER LEVEL IN UPPER SHALLOW ZONE (USZ) 6/2/99

WATER LEVEL IN LOWER SHALLOW ZONE (LSZ) 6/2/99

WATER LEVEL IN INTERMEDIATE ZONE (ISZ) 6/2/99

WATER LEVEL IN DEEP ZONE (DZ) 6/2/99

PCLE ZONE — PROTECTIVE CONCENTRATION LIMIT EXCEEDANCE ZONE

NOTE:
LOCATION OF CROSS SECTION SHOWN ON FIGURE X1.A.4.1

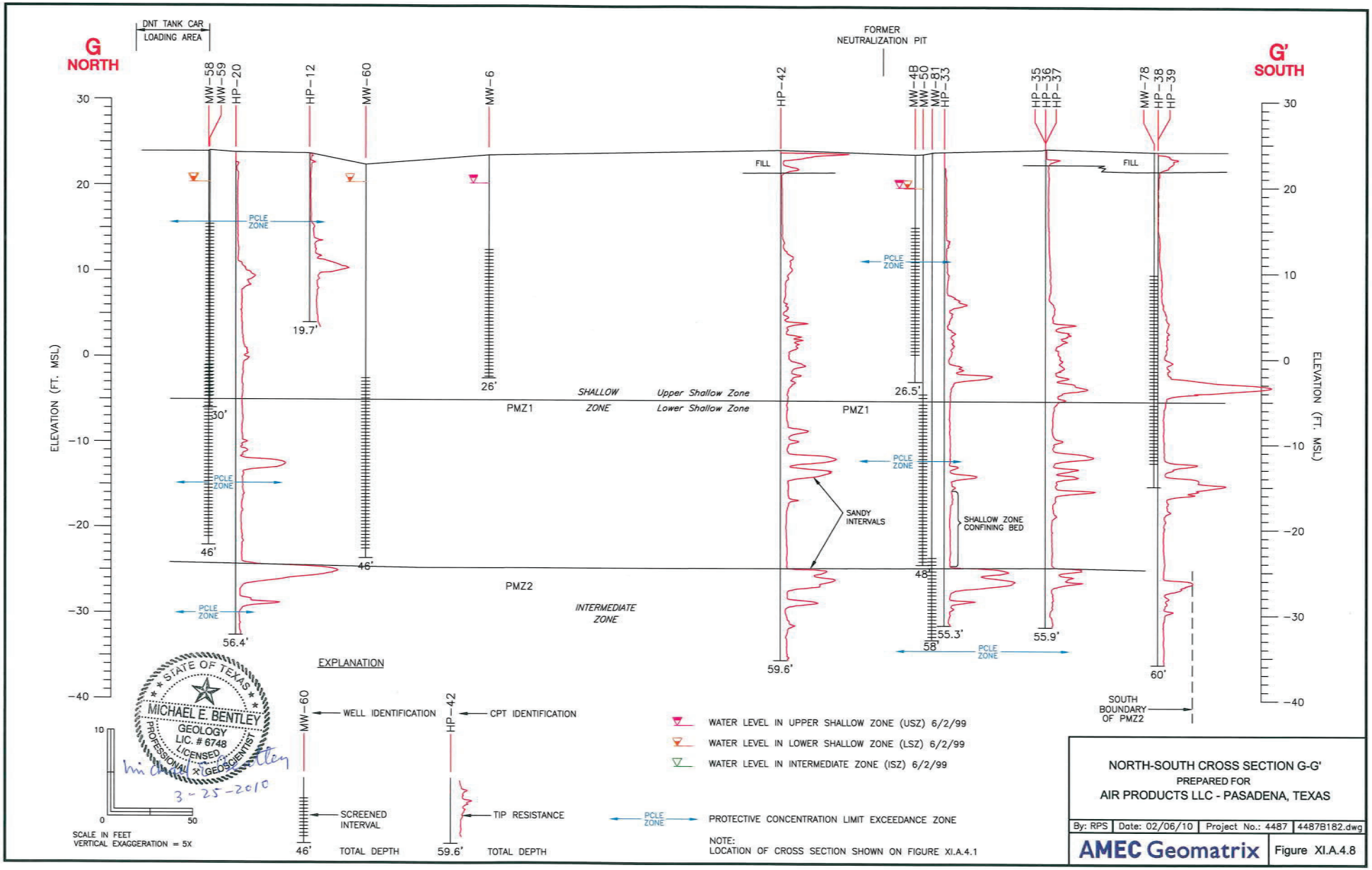
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LIC. # 6748
LICENSED
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NORTH-SOUTH CROSS SECTION F-F'
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By: RPS	Date: 02/06/10	Project No.: 4487	4487B181.dwg

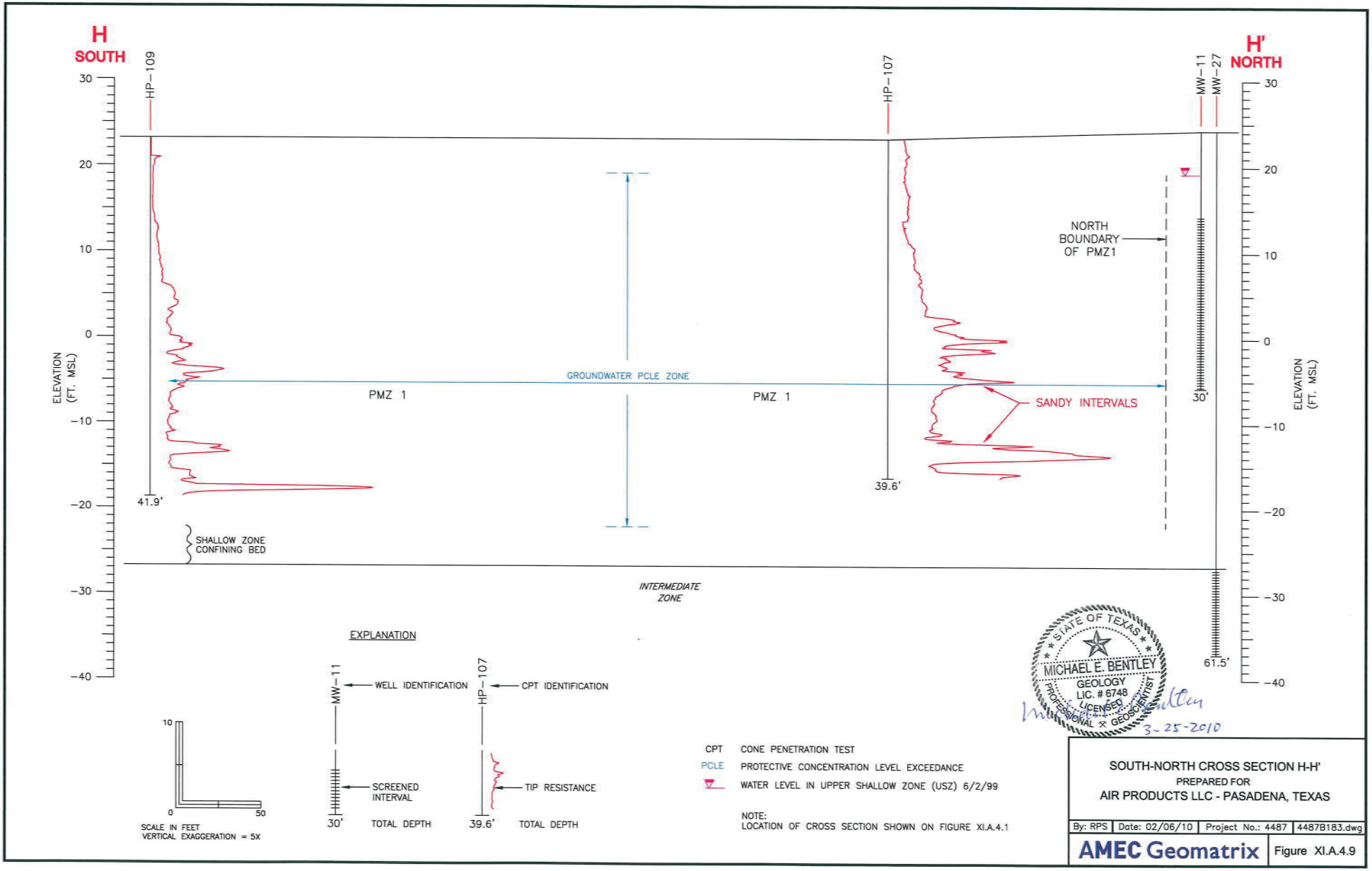
AMEC Geomatrix | Figure X1.A.4.7



NORTH-SOUTH CROSS SECTION G-G'
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By: RPS	Date: 02/06/10	Project No.: 4487	4487B182.dwg

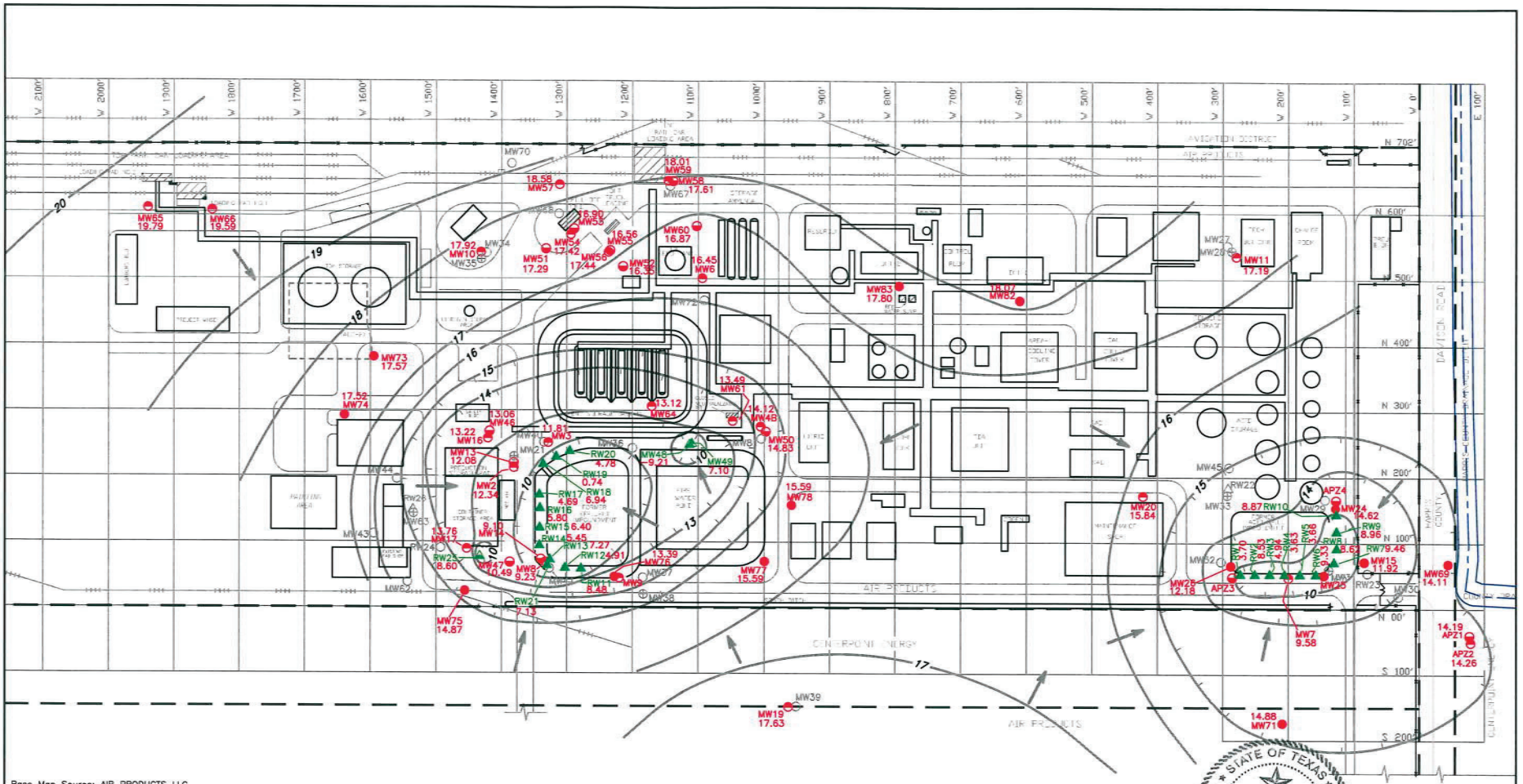
AMEC Geomatrix | Figure XI.A.4.8



SOUTH-NORTH CROSS SECTION H-H'
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AMEC Geomatrix | Figure XI.A.4.9



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 12.34 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW14 9.10 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW15 11.92 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 7.10 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW25 8.60 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW9 8.96 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 15 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (10/1/2007)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

NOTE:
CONTOUR INTERVAL VARIABLE TO SHOW DETAIL

0 50 100 150
APPROXIMATE SCALE (FEET)

N

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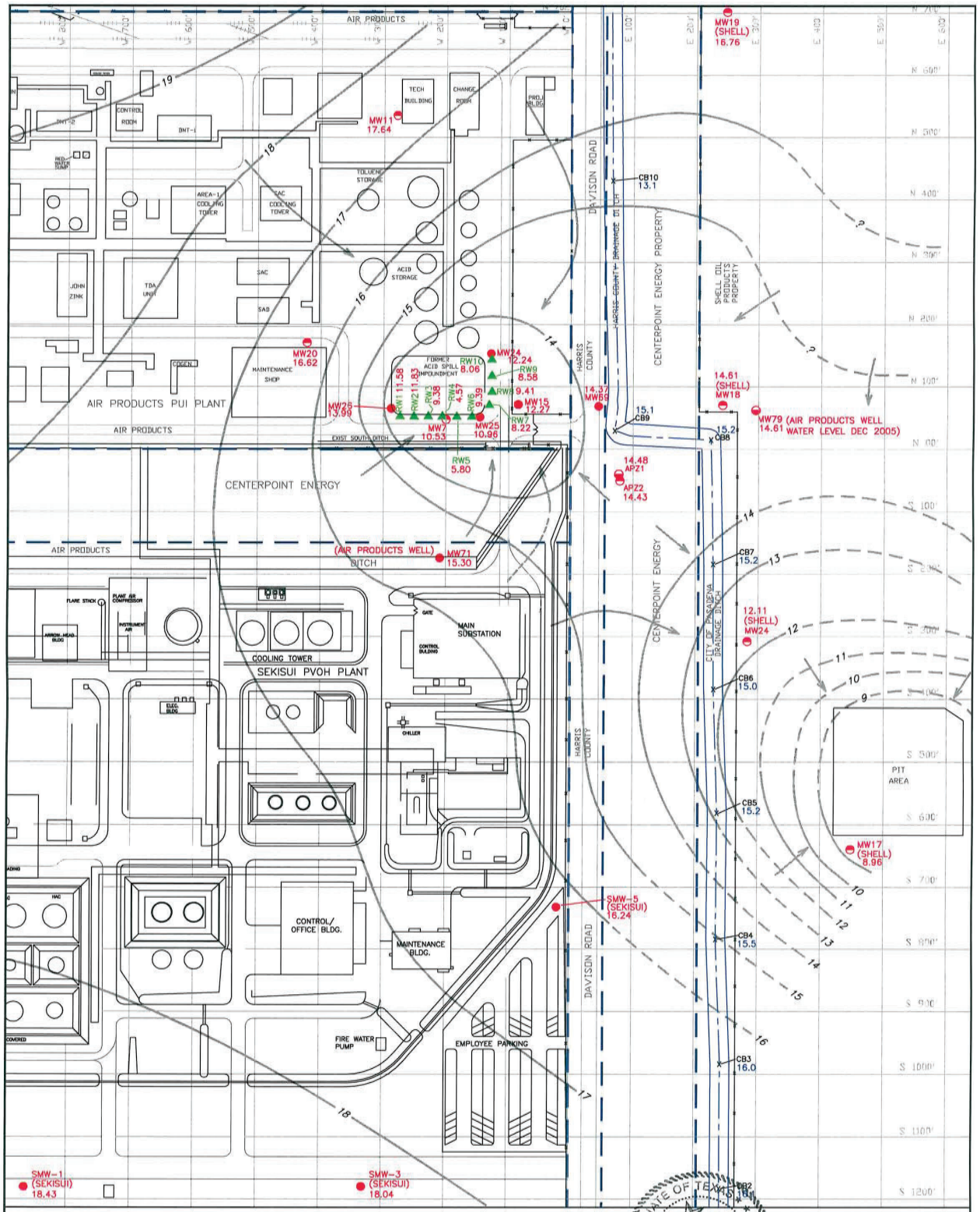
WATER LEVELS IN THE SHALLOW ZONE

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

AMEC Geomatrix	Project No. 4487	Figure No. XI.A.4.10

4487B186.DWG



Base Map Source: Air Products, LLC Area East of E-W 0' Line From Harris County Appraisal District and Aerial Photos. Locations are Approximate.

EXPLANATION

- MW7 10.53 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW79 14.61 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW15 12.27 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW9 8.58 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)

AIR PRODUCTS WATER LEVELS (APRIL 2005)
SHELL WATER LEVELS (MAY 2005)
SEKISUI WATER LEVELS (JULY 2001)

- 15 — ESTIMATED CONTOUR LINE OF WATER ELEVATION (FT MSL) (DASHED WHERE INFERRED)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- x CB3 16.0 — DITCH SURVEY LOCATION AND ELEVATION OF BOTTOM OF CHANNEL (FT MSL)
- SOLID WASTE MANAGEMENT UNIT
- PROPERTY BOUNDARY
- FENCE

NOTE:
WATER LEVELS ARE FROM PROPERTY OWNERS. LOCATIONS OF OFF-SITE OWNERS' WELLS ARE APPROXIMATE.

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0 50 100 150
APPROXIMATE SCALE (FEET)

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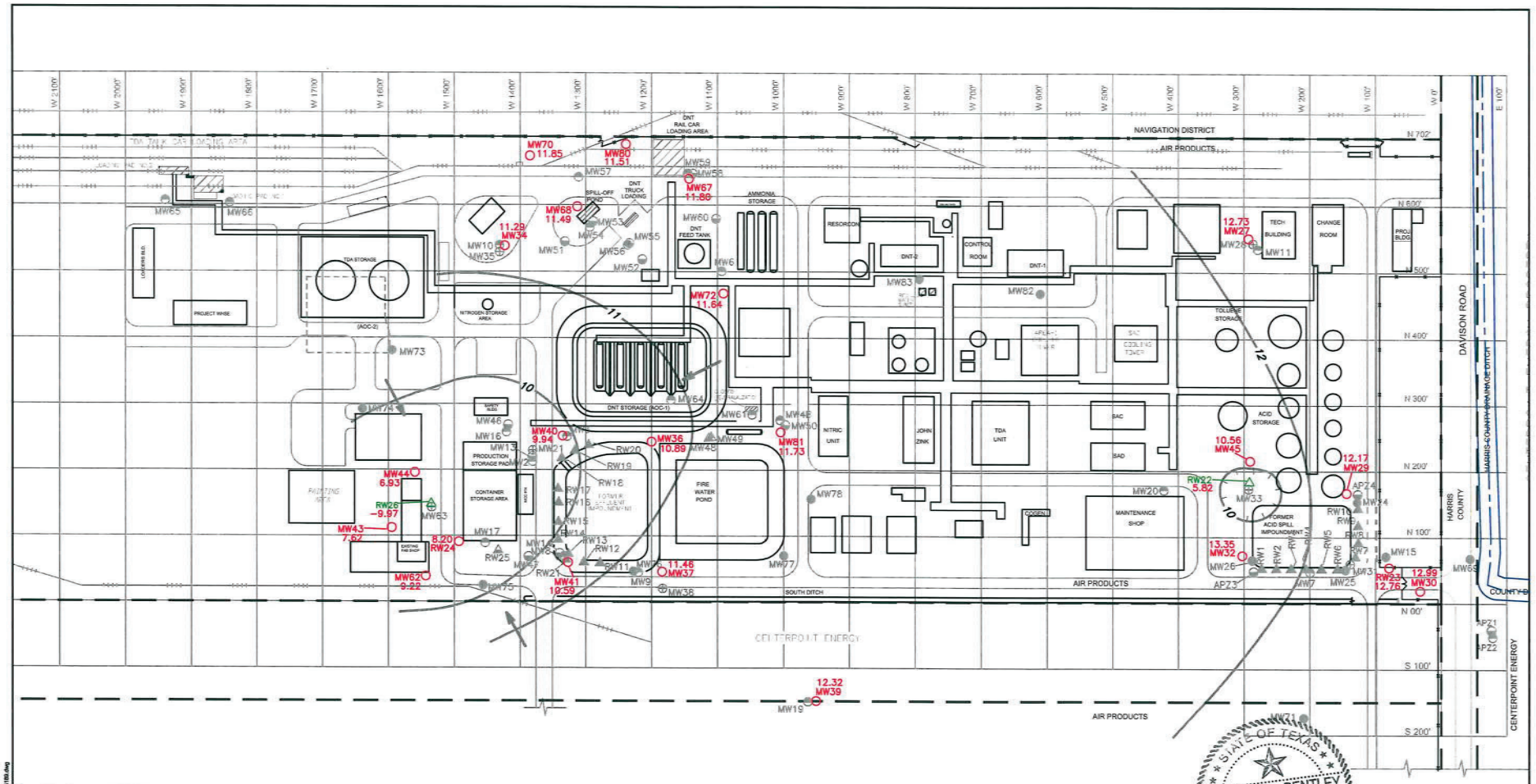
SHALLOW ZONE WATER LEVELS SOUTHEAST OF FACILITY

PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/15/10	Project No.: 4487	4487B211.dwg

AMEC Geomatrix

Figure XI.A.4.11



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 9.94 — INTERMEDIATE ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 −9.97 — INTERMEDIATE ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FTMSL)
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 10 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (10/1/2007)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

NOTE:
CONTOUR INTERVAL VARIABLE TO SHOW DETAIL

0 50 100 150
APPROXIMATE SCALE (FEET)

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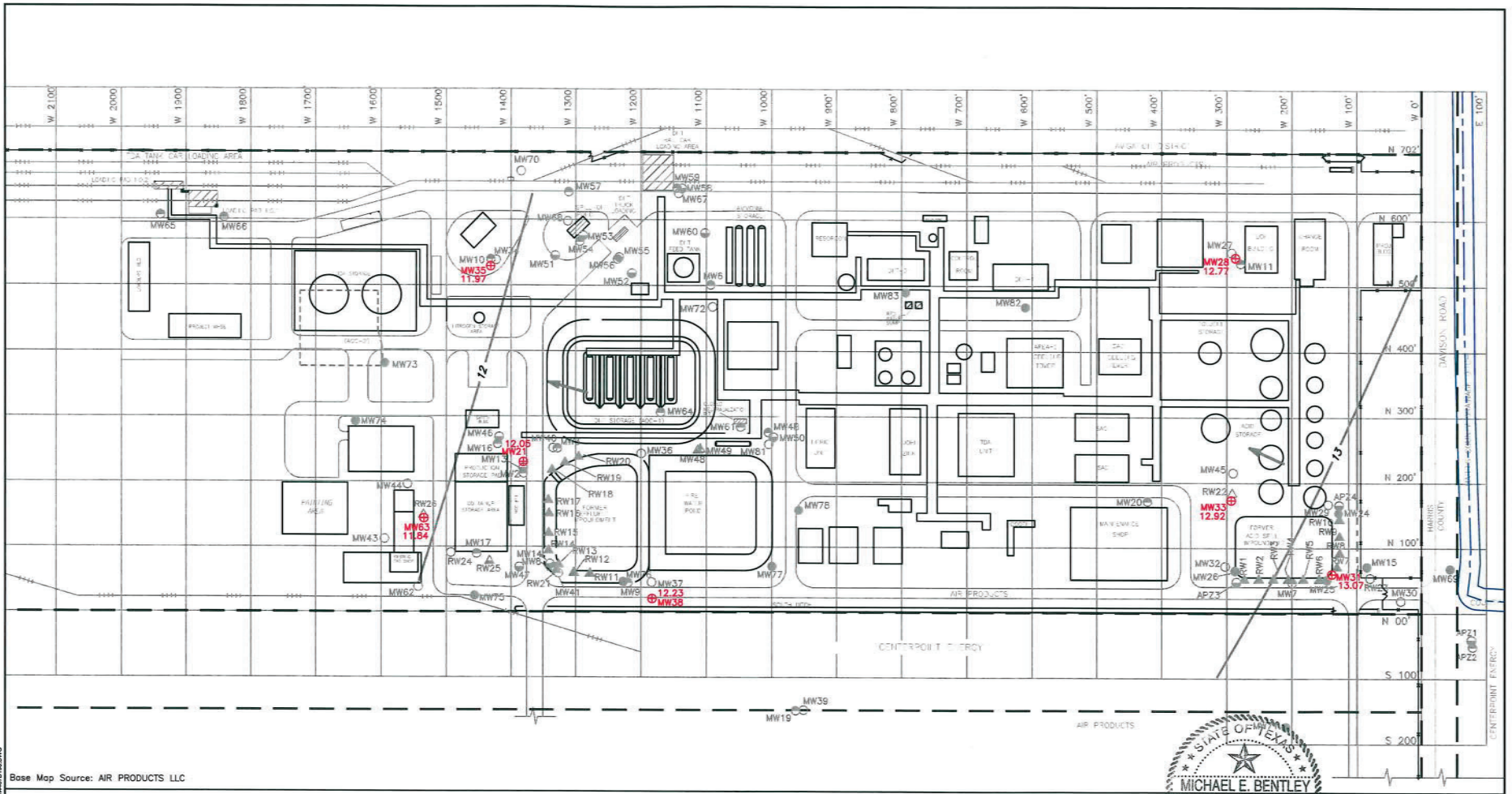
WATER LEVELS IN THE INTERMEDIATE ZONE

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

AMEC Geomatrix	Project No. 4487	Figure No. XI.A.4.12

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4487I18.DWG



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 12.05 — DEEP ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 12 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (10/1/2007)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

NOTE:
CONTOUR INTERVAL VARIABLE TO SHOW DETAIL

0 50 100 150
APPROXIMATE SCALE (FEET)

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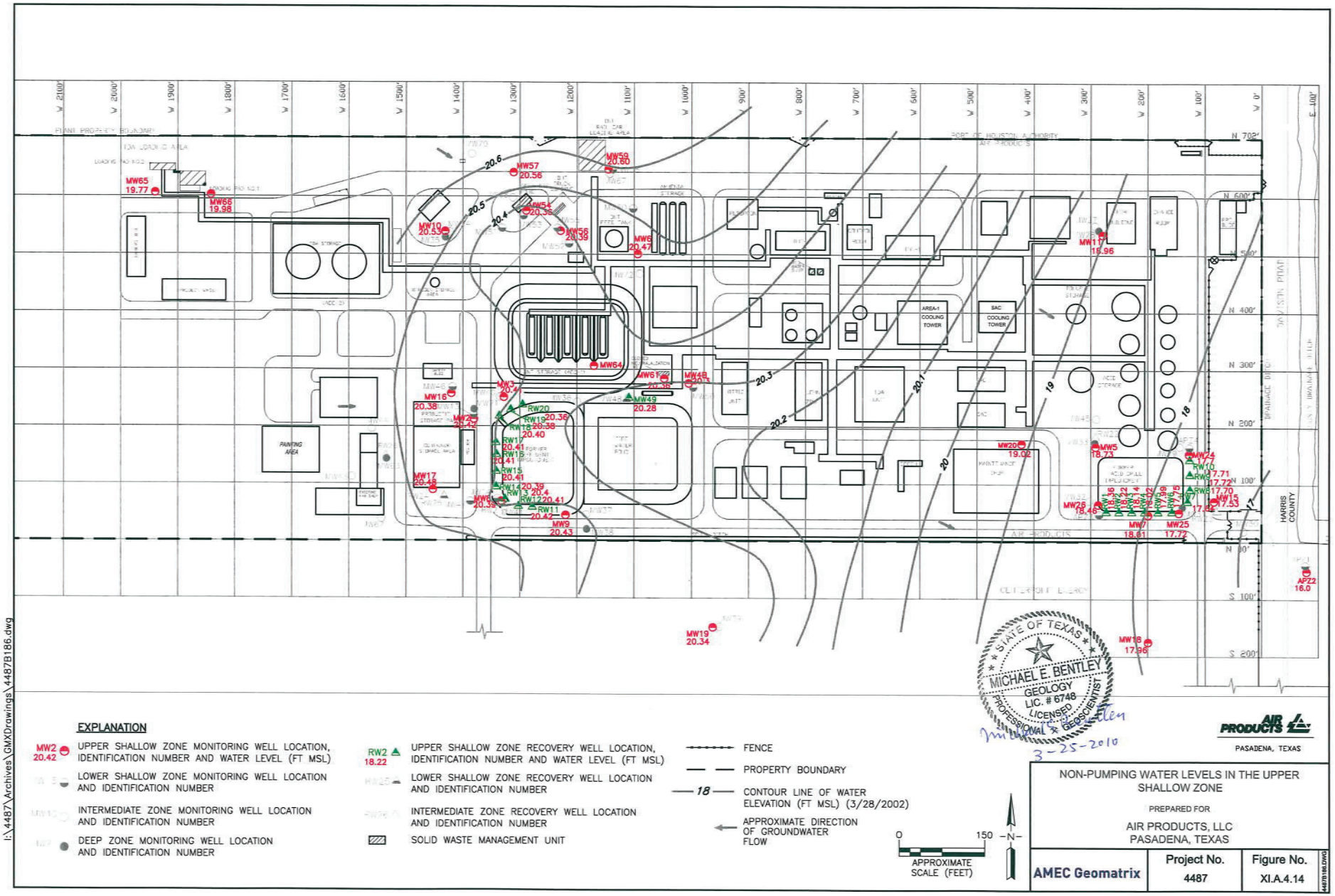
WATER LEVELS IN THE DEEP ZONE

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AMEC Geomatrix	Project No. 4487	Figure No. XI.A.4.13

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EXPLANATION

- MW2 20.42 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- RW2 18.22 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 18 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (3/28/2002)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

0 150 APPROXIMATE SCALE (FEET)

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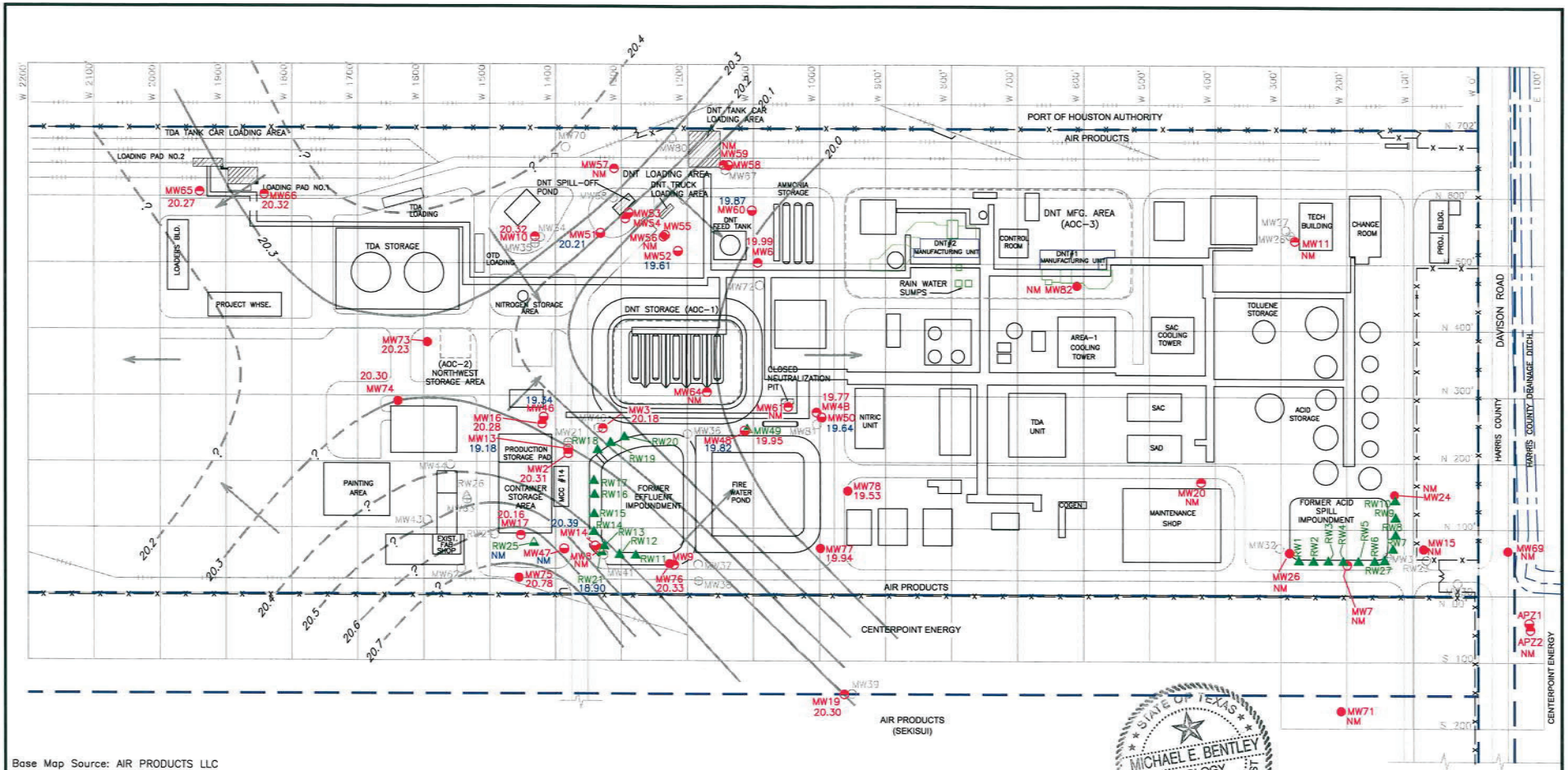
NON-PUMPING WATER LEVELS IN THE UPPER SHALLOW ZONE

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AMEC Geomatrix	Project No. 4487	Figure No. XI.A.4.14

4487B186.DWG



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 20.31 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW14 20.39 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW75 20.78 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 19.95 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW21 18.90 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- NM — NOT MEASURED
- 20.2 — CONTOUR LINE OF WATER ELEVATION IN SZ/USZ (FT MSL) (4/27/2009) (LSZ NOT CONTOURED) (DASHED WHERE INFERRED)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

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NOTES:
CONTOUR INTERVAL VARIABLE TO SHOW DETAIL

NON-PUMPING WATER LEVELS IN THE SHALLOW ZONE 2009

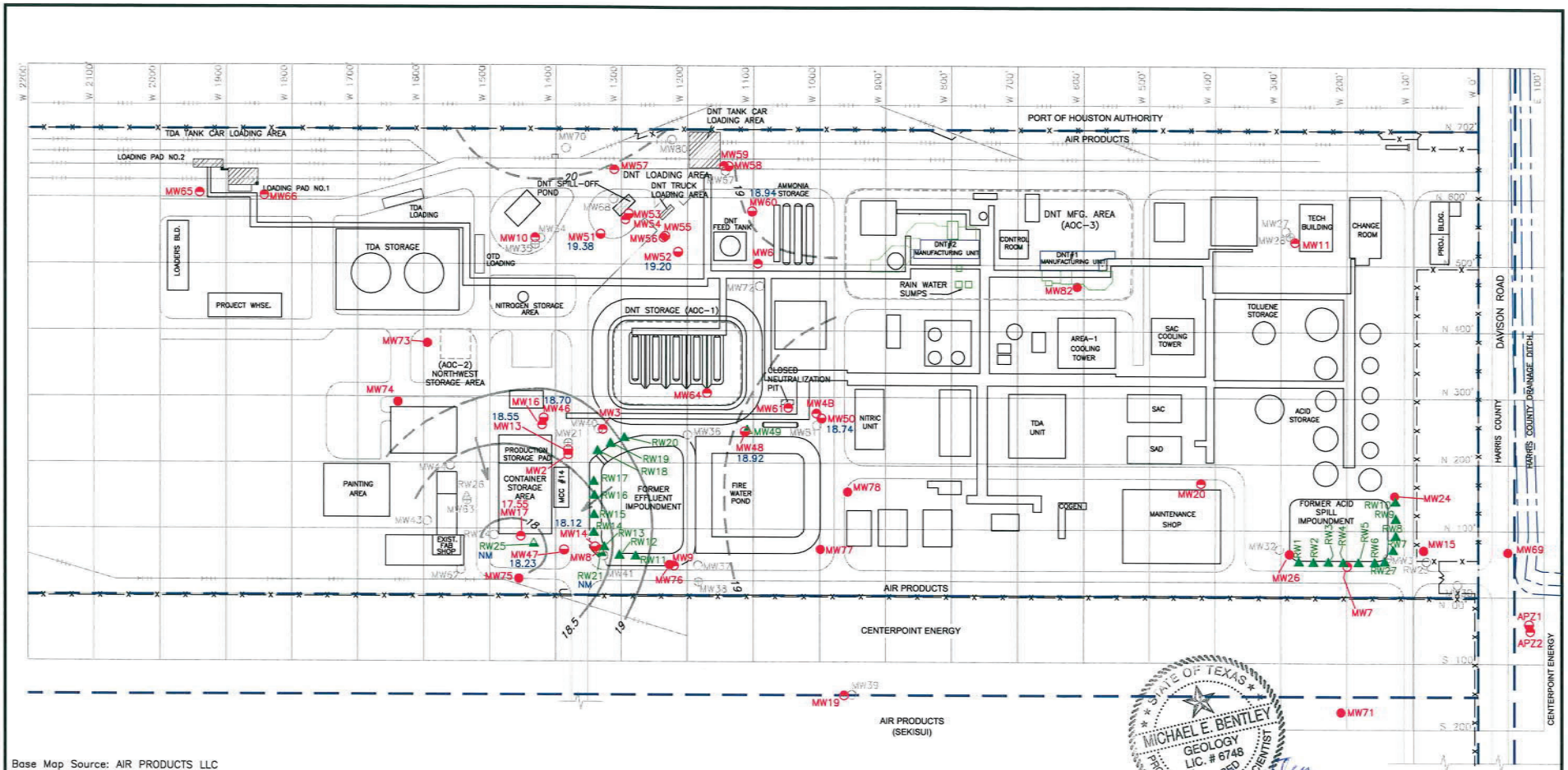
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Figure XI.A.4.15



Base Map Source: AIR PRODUCTS LLC

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EXPLANATION

- MW17 17.55 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW13 18.55 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 NM — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- NM — NOT MEASURED
- 19 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (1/16/2009) (DASHED WHERE INFERRED)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)
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NON-PUMPING WATER LEVELS IN THE LOWER SHALLOW ZONE 2009

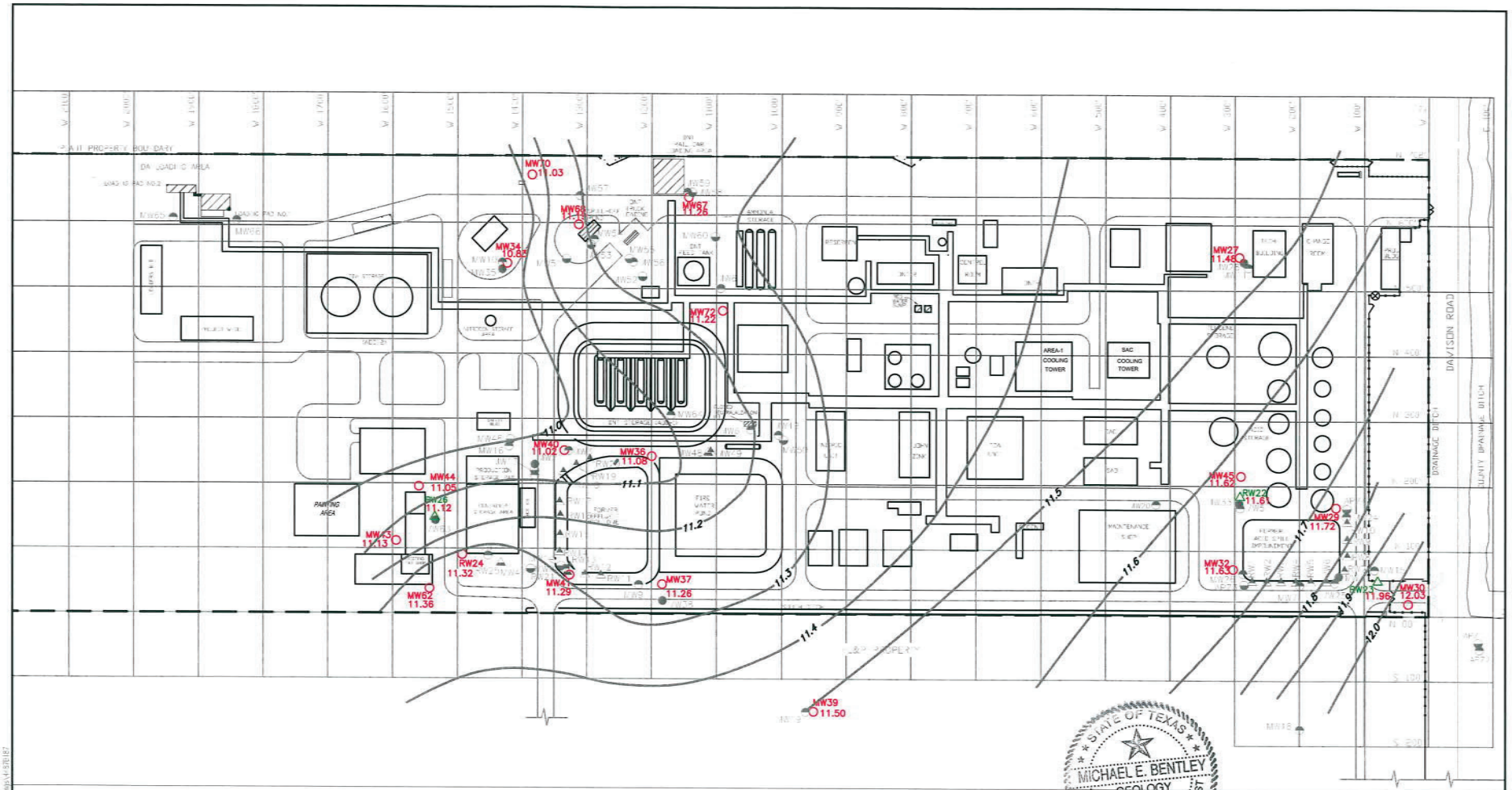
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Figure XI.A.4.16



EXPLANATION

- UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 11.02 — INTERMEDIATE ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 11.12 — INTERMEDIATE ZONE RECOVERY WELL LOCATION IDENTIFICATION NUMBER, AND WATER LEVEL (FT MSL)
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 11.1 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (3/28/2002)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

0 150 APPROXIMATE SCALE (FEET)

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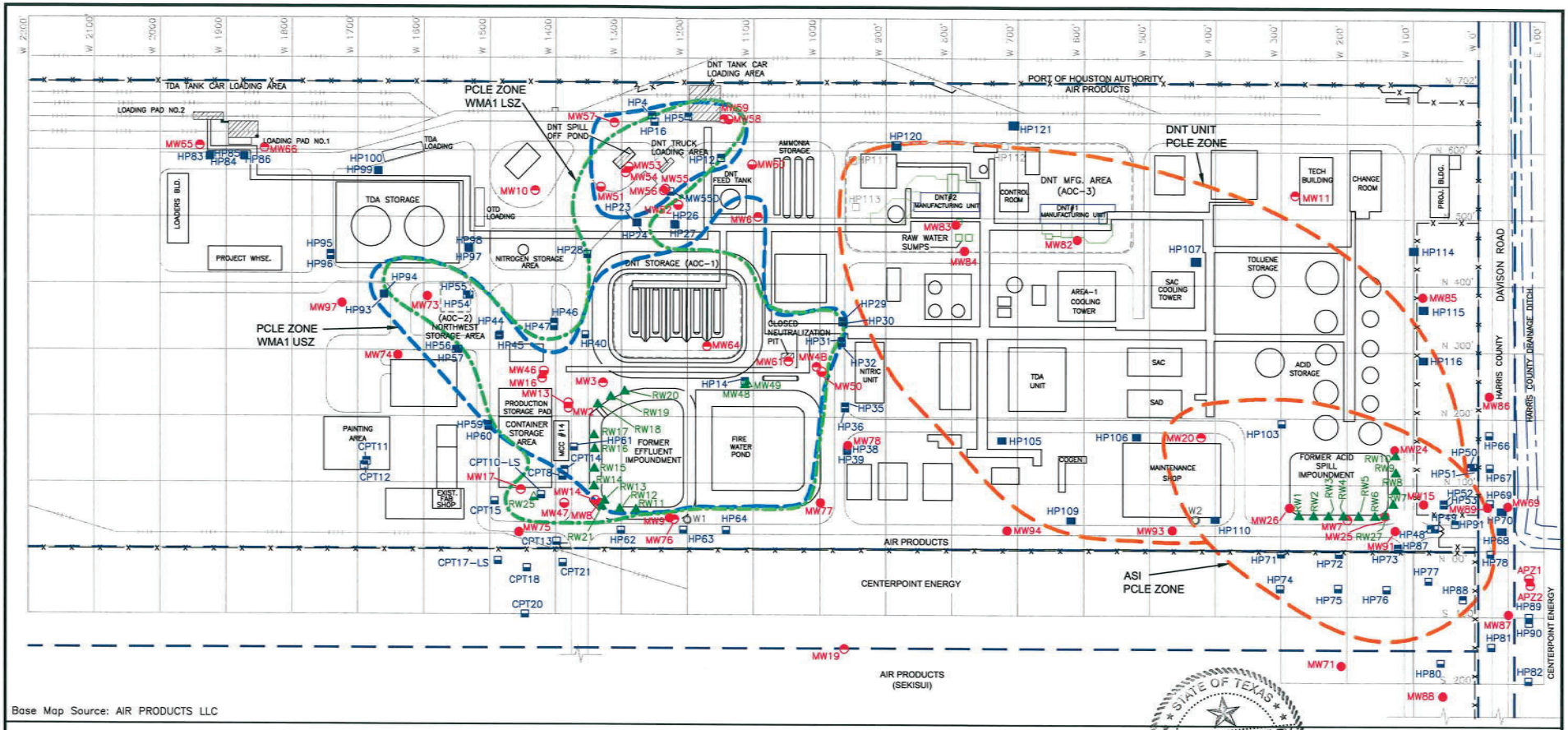
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NON-PUMPING WATER LEVELS IN THE INTERMEDIATE ZONE

PREPARED FOR

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PASADENA, TEXAS

AMEC Geomatrix	Project No. 4487	Figure No. XI.A.4.17



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- HP107 — SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP44 — UPPER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- HP45 — LOWER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT14 — UPPER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT13 — LOWER SHALLOW ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- W1 — PLANT WATER WELL
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- PCLE ZONE IN UPPER SHALLOW ZONE
- PCLE ZONE IN LOWER SHALLOW ZONE
- PCLE ZONE IN SHALLOW ZONE

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APPROXIMATE SCALE (FEET)
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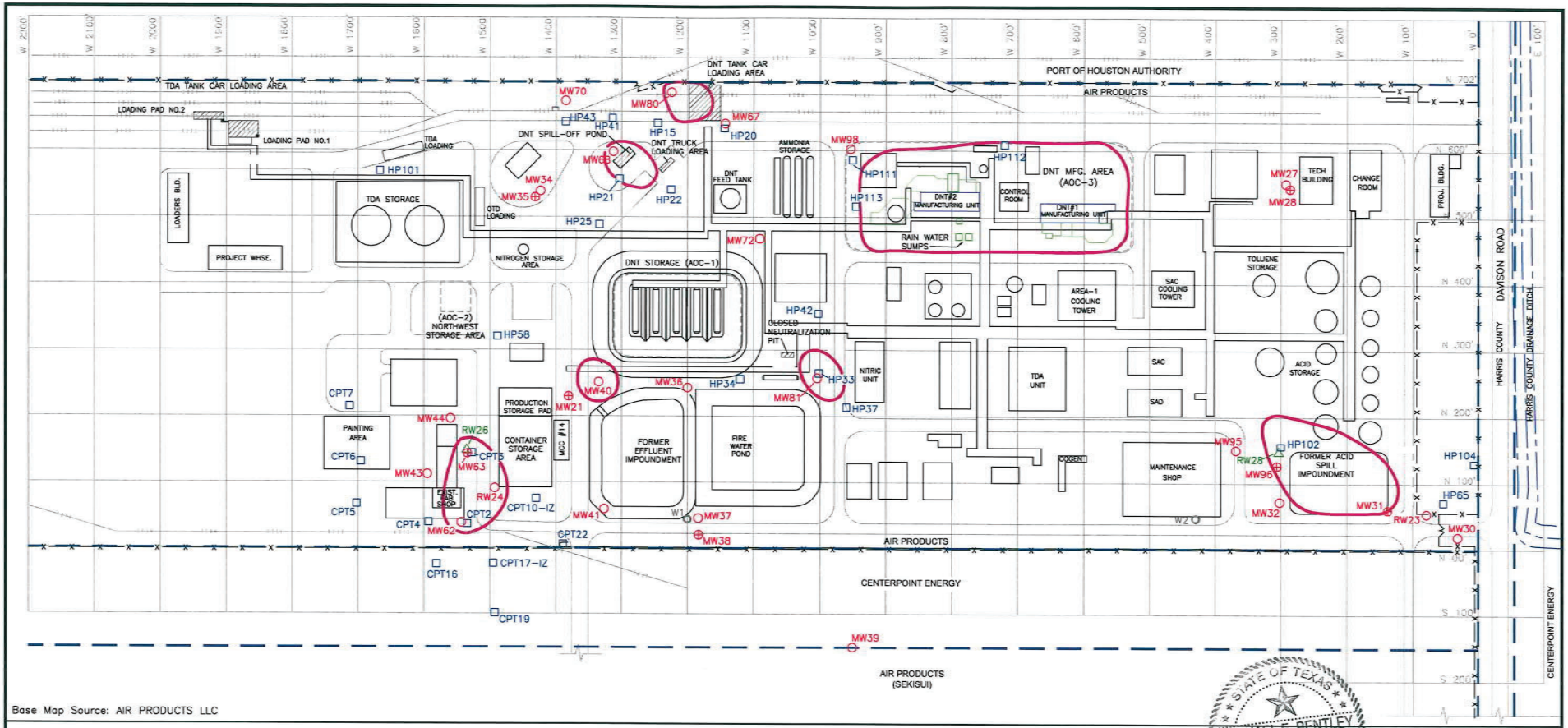
LOCATIONS OF GROUNDWATER SAMPLES, MONITORING WELLS, AND PCLE ZONES SHALLOW ZONE

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 01/10/10	Project No.: 4487	4487B184.dwg

AMEC Geomatrix | Figure XI.A.4.18



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW40 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 ⊕ DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 △ INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- HP65 □ INTERMEDIATE ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- CPT22 □ INTERMEDIATE ZONE GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- W1 ○ PLANT WATER WELL
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x—x— FENCE
- PROPERTY BOUNDARY
- PCLE ZONE IN INTERMEDIATE ZONE

0 50 100 150 APPROXIMATE SCALE (FEET)

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3-25-2010

LOCATIONS OF GROUNDWATER SAMPLES, MONITORING WELLS, AND PCLE ZONES INTERMEDIATE AND DEEP ZONES

PREPARED FOR

AIR PRODUCTS LL. - PASADENA, TEXAS

By: RPS	Date: 01/10/10	Project No.: 4487	4487B185.dwg

AMEC Geomatrix

Figure XI.A.4.19

ATTACHMENT – XI.A.4.d

WATER WELL REPORT

Air Products, LLC Pasadena, TX

1423 Hwy 225

Pasadena, TX 77506

Inquiry Number: 8005662.1

June 6, 2025

The EDR TX Water Well Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Environmental Data Resources, Inc.
Water Well Review Report

EDR reviewed available records made public by the state of Texas at the Texas Water Development Board (TWDB) and the Texas Commission Environmental Quality (TCEQ) and obtained information identifying the approximate location of public and private water wells within the requested Area of Review (AOR). EDR researched the located and plotted water wells identified on county highway maps or USGS 7.5 minute topographic maps at the TWDB. EDR transferred the approximate water well locations onto a map for the client's review.

EDR cannot guarantee the accuracy of the information provided by state agencies. This review is intended to provide the user with a "working approximation" of reported well locations. The following are guidelines used to review available driller logs for water wells associated with client site information within the AOR.

- Identify Located Wells within the AOR according to the TWDB maps.
- Identify Plotted Wells within the AOR according to the TWDB maps.
- Identify Partially Numbered Wells within the AOR according to the TCEQ files containing records submitted by the well driller.
- Identify Unnumbered Wells within the AOR according to the TCEQ files containing records submitted by the well driller.

Description of Terms

Area of Review-(AOR):
Area of review is a 1/2 mile radius around client specified coordinate of target property.

Located Water Well:
Well locations that have been field checked by a TWDB or USGS staff member, spotted on a USGS 7.5' Topographical or county highway map, assigned a unique identification number, and filed at the TWDB.

Plotted Water Well:
Approximate well locations spotted on county highway maps by the TWDB staff members according to information submitted on the driller's log. The accuracy of the location for these wells is dependent on the driller. The state assigned unique identification numbers to these wells, but in high-density areas, a single identification number may represent multiple well locations. The TWDB eliminated this plotting activity in June 1986.

Partially Numbered Water Well:
Water well locations established to within a 2.5 minute topographic quadrangle and identified by the TCEQ according to maps submitted with the driller's log. Each water well was assigned a State ID number by the TCEQ. **Note:** This method for recording water well locations was procedure from 1986 to 1991.

Unnumbered Water Well:
Well locations identified on the driller's logs and corresponding driller's maps maintained by the TCEQ records. **Note:** The TCEQ implemented this procedure in 1991.

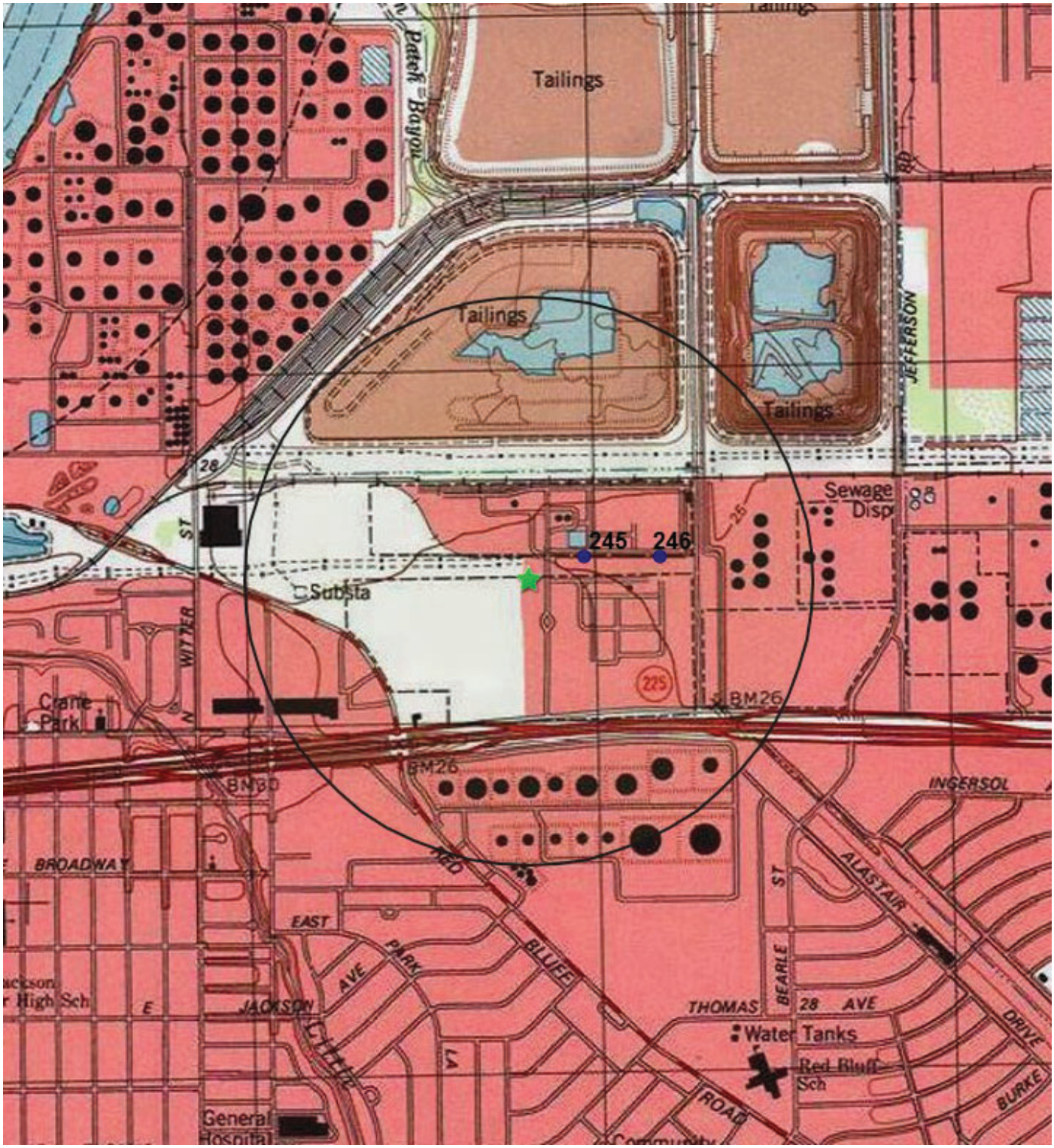
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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SEARCH DISTANCES SHOWN
.5 MILE

WATER WELL LOCATION MAP
WELLS WITHIN 1/2 MILE RADIUS
AIR PRODUCTS LLC PASADENA, TX
1423 HWY 225
PASADENA, TX 77506
HARRIS COUNTY
USGS 7.5 MINUTE QUADRANGLE
PASADENA

EDR Environmental Data Resources Inc

ENVIRONMENTAL DATA RESOURCES
6 ARMSTRONG ROAD
SHELTON, CT 06484
800-352-0050 FAX: 800-231-6802

Environmental Data Resources, Inc.

Water Well Review

Site Name: Air Products LLC Pasadena, TX **Inquiry #: 8005662.1**

Site Address: 1423 Hwy 225

City: Pasadena **State: TX** **Zip: 77506**

WELL CLASSIFICATION	NUMBER IDENTIFIED WITHIN AOR
LOCATED	2
PLOTTED	0
PARTIALLY NUMBERED	0
UNNUMBERED	0
TOTAL NUMBER IDENTIFIED	2

LOCATED WELLS: SEARCHED TWDB STATE GRIDS 65-23-2, 5 – IDENTIFIED WATER WELL LOGS 245, 246

PLOTTED WELLS: SEARCHED TCEQ STATE GRIDS 65-23-2, 5 – NO WATER WELL LOGS IDENTIFIED IN 1/2 MILE RADIUS

PARTIALLY NUMBERED WELLS: SEARCHED TCEQ STATE GRIDS 65-23-2, 5 – NO WATER WELL LOGS IDENTIFIED IN 1/2 MILE RADIUS

UNNUMBERED WELLS: SEARCHED TCEQ UNNUMBERED WELL FILES FOR HARRIS COUNTY – NO WATER WELL LOGS IDENTIFIED IN 1/2 MILE RADIUS

TEXAS WATER DEVELOPMENT BOARD (TWDB)

LOCATED WELL LOG EXHIBIT

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 65-23-245

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	6523245
County	Harris
River Basin	San Jacinto
Groundwater Management Area	14
Regional Water Planning Area	H - Region H
Groundwater Conservation District	Harris-Galveston Subsidence District
Latitude (decimal degrees)	29.717222
Latitude (degrees minutes seconds)	29° 43' 02" N
Longitude (decimal degrees)	-95.191945
Longitude (degrees minutes seconds)	095° 11' 31" W
Coordinate Source	+/- 1 Second
Aquifer Code	121EVGL - Evangeline Aquifer
Aquifer	Gulf Coast
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	37
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1300
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	10/12/1972
Drilling Method	
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Industrial
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Turbine
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Air Products & Chemicals, Inc.
Driller	Layne-Texas Co.
Other Data Available	Drillers Log; Specific Capacity
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	4/30/2008
Last Update Date	10/14/2014

Remarks	Owners well #1. Measured yield 1266 GPM with 125 feet drawdown after pumping 12 hours in 1972. Pumping level 542 feet. Specific capacity 10.13 GPM/ft. Cemented from 0 to 898 feet. Gravel packed and under- reamed from 898 to 1300 feet. Pump set at 610 feet. Well was originally drilled to 1500 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
16	Blank	Steel			0	898
11	Blank	Steel			820	914
11	Screen	Stainless Steel			914	944
11	Blank	Steel			944	960
11	Screen	Stainless Steel			960	995
11	Blank	Steel			995	1015
11	Screen	Stainless Steel			1015	1045
11	Blank	Steel			1045	1055
11	Screen	Stainless Steel			1055	1065
11	Blank	Steel			1065	1080
11	Screen	Stainless Steel			1080	1090
11	Blank	Steel			1090	1115
11	Screen	Stainless Steel			1115	1125
11	Blank	Steel			1125	1135
11	Screen	Stainless Steel			1135	1170
11	Blank	Steel			1170	1180
11	Screen	Stainless Steel			1180	1190
11	Blank	Steel			1190	1215
11	Screen	Stainless Steel			1215	1250
11	Blank	Steel			1250	1260
11	Screen	Stainless Steel			1260	1285
11	Blank	Steel			1285	1300

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	12/6/1972		417		-380	1	Registered Water Well Driller	Air Line		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 12/12/1972 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Registered Water Well Driller

Sampled Aquifer: Evangeline Aquifer

Analyzed Lab: **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		277.31	mg/L as CACO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		338.41	mg/L	
00910	CALCIUM (MG/L)		2.7	mg/L	
00405	CARBON DIOXIDE (MG/L AS CO2)		8	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		18.4	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1.2	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		9	mg/L as CACO3	
01045	IRON, TOTAL (UG/L AS FE)		0.11	ug/L	
00920	MAGNESIUM (MG/L)		0.6	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)	<	0.01	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0.02	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		7.85	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		5.36		
00955	SILICA, DISSOLVED (MG/L AS SI02)		18	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		22.72		
32017	SODIUM CHLORIDE (NACL), MG/L		30.3	mg/L	
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		158.5	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		610	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		9.6	mg/L as SO4	
00010	TEMPERATURE, WATER (CELSIUS)		26	C	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		375	mg/L	
82079	TURBIDITY, LAB, NEPHELOMETRIC TURBIDITY UNITS, NTU	<	1	NTU	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 65-23-245

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (https://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team [redacted]

TEXAS DEPARTMENT OF WATER RESOURCES

WELL SCHEDULE

Aquifer(s) Evangeline Project No. _____ State Well No. 65-23-245

_____ Field No./Owner's Well No. 1 County HARRIS

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey _____, Lat. _____, Long. _____

2. Owner: Air Products & Chemicals, Inc. Address: _____

Tenant (other): _____ Address: _____

Driller: Layne-Texas Co. Address: _____

3. Land Surface Elevation: 28 ft. above msl determined by _____

4. Drilled: 10-12 19 72; Dug, Cable Tool, (Rotary) Air, _____

5. Depth: Rept. 1300 ft. Meas. _____ ft.

6. Borehole Completion: Open Hole, Straight Wall, (Underreamed, Gravel Packed)

7. Pump: Mfr. _____ Type T

No. Stages _____, Bowls Diam. ____ in., Setting _____ ft.

Column Diam. _____ in., Length Tailpipe _____ ft.

8. Motor: Mfr. _____ Fuel G HP. ____

9. Yield: Flow ____ gpm, Pump ____ gpm, Meas., Rept., Est. ____ Date ___

10. Performance Test: Date 12/6/72 Length of Test ____ Made by L-T

Static Level 417 ft. Pumping Level ____ ft. Drawdown 125 ft.

Production 1266 gpm Specific Capacity _____ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) _____

Analyses

Date _____ Laboratory _____ TDS ___ Sp Cond ____

Date _____ Laboratory _____ TDS ___ Sp Cond ____

12. Other data available (as circled): Pumping Test, Power & Yield Test, (Drillers Log,

Formation Samples (Geophysical Log(s)) Q 1757 _____ (type)

CASING, BLANK PIPE & WELL SCREEN
Cemented From 0 ft. to 898 ft.

Diam. (In.)	Type	Setting (feet) from	to
16	Steel	0	898
10			1300

13. Water Level(s): _____ ft. rept. meas. _____ 19___ above below _____ which is ____ ft. above below Land Surface

_____ ft. rept. meas. _____ 19___ above below _____ which is ____ ft. above below Land Surface

14. Use: Dom., Stock, Public Supply, (Ind.) Irr., Observation, Other (Test Hole, Oil Test, etc.) _____

15. Recorded by: _____ Source of data: _____ Date: _____

16. Remarks: _____

17. Location or Sketch:

Q 1757

W/L Obs. Well ___ W/Q Obs. Well ___

State Well No. 65-23-245

TDWR-0308

nd original copy by
rtified mail to the
xas Water Development Board
O. Box 12386
stin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No. [illegible]
Located on map
Received:

)OWNER:
Person having well drilled Rio Products & Chemicals Co Address 1434 Jackson Rd Pasadena Tx
(Name) (Street or RFD) (City) (State)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

)LOCATION OF WELL:
County Harris, _____ miles in _____ direction from _____
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

See attached map

North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

)TYPE OF WORK (Check):
New Well | Deepening | Reconditioning | Plugging

4)PROPOSED USE (Check):
Domestic | Industrial | Municipal | Irrigation | Test Well | Other

5)TYPE OF WELL (Check):
Rotary | Driven | Dug | Cable | Jetted | Bored

)WELL LOG:
Diameter of hole _____ in. Depth drilled _____ ft. Depth of completed well _____ ft. Date drilled _____

All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
		See attached Completion Report

(Use reverse side if necessary)

9) Casing:
Type: Old New Steel Plastic Other

Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type _____

Perforated Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size

7) COMPLETION (Check):
Straight wall | Gravel packed | Other
Under reamed | Open Hole

8) WATER LEVEL:
Static level _____ ft. below land surface Date _____

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.

11) WELL TESTS:
Was a pump test made? Yes No If yes, by whom? _____

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Gaston Alciatore Water Well Drillers Registration No. 1201
(Type or Print)

ADDRESS PO Box 9465 Houston 77011
(City) (State)

GASTON (GAS) ALCIATORE

(Signed) _____ Pasadena Texas Co
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

Q-1757

TWDBE-GW-53

65-23-245

FORM NO. 28 State

65-23-2H

LAYNE TEXAS COMPANY.

HOUSTON -:- DALLAS

REPORT NO. 939
S O 1104 -317
PAGE 1 of 2
FILE NO. 3627
DATE 10/16/72

WELL LOG

CUSTOMER LOCATION	WELL DATA
FOR Air Products & Chemicals, Inc.	NAME WELL — WELL NO. 1
LOCATION WELL 400' N. of Jackson Road	ELEVATION 36.53' DATUM
SURVEY — FIELD	RT C GR
COUNTY Harris STATE Texas	TEST HOLE SIZE 9-7/8" TD 1500'
OTHER LAND MARKS 27' from Plant Rd. #33	DATE STARTED DRILLING 10- 9-72
	DATE FINISHED DRILLING 10-12-72
	DRILLER F.R. Wall RIG NO. 2
	TYPE MUD Gel NO SACKS 27
	ELECTRIC LOG Yes TYPE Schlumberger
	SURVEY Eastman TYPE Single-shot
	OTHER driller: G.D. Tech

DEPTH STRATA	EACH STRATUM	DESCRIPTION FORMATION	SAMPLES DEPTH	SAMPLES TYPE	SAMPLES NUMBER
0		Surface			
50	50	Clay			
70	20	Clay & sandy clay			
101	31	Sand & shale streaks			
133	32	Shale & sand streaks			
173	40	Sand & shale breaks			
209	36	Shale			
226	17	Sand & sandy shale			
300	74	Shale			
390	90	Sandy shale			
450	60	Sand			
488	38	Sandy shale			
514	26	Sand & sandy shale			
585	71	Shale & sand streaks			
630	45	Hard shale			
638	8	Shale & sand streaks			
664	26	Hard shale			
688	24	Sand & hard shale			
706	18	Shale & sand streaks			
730	24	Sandy shale			
765	35	Sand			
800	35	Hard shale			
820	20	Shale & sand streaks			
870	50	Sand			
898	28	Hard shale			
928	30	Sand & shale streaks			
949	21	Sandy shale & sand			
961	12	Sand			
986	25	Shale & sand layers			
1007	21	Sand & shale breaks			
1017	10	Sandy shale			
1043	26	Hard shale			
1061	18	Sticky shale			
1088	27	Hard sand & shale			
1108	20	Shale			
1124	16	Sand			
1134	10	Shale			
1160	26	Sand			
1230	70	Shale			

65-23-245

FORM NO. 2a

LAYNE TEXAS COMPANY,
HOUSTON -:- DALLAS

WELL LOG

REPORT NO 8939
S O 110 817
PAGE 2 of 2
FILE NO. 3627
DATE 10/16/72

CUSTOMER LOCATION

FOR Air Products & Chemicals, Inc.

LOCATION WELL 400' N. of Jackson Road

SURVEY FIELD

COUNTY Harris STATE Texas

OTHER LAND MARKS 27' from Plant Rd. #33

WELL DATA

NAME WELL WELL NO. 1
ELEVATION 36.53' DATUM
RT C GR
TEST HOLE SIZE 9-7/8" TD 1500'
DATE STARTED DRILLING 10- 9-72
DATE FINISHED DRILLING 10-12-72
DRILLER F.R. Wall RIG NO 2
TYPE MUD Gel NO. SACKS 27
ELECTRIC LOG Yes TYPE Schlumberger
SURVEY Eastman TYPE Single-shot
OTHER driller: G. Tech

DEPTH STRATA	EACH STRATUM	DESCRIPTION FORMATION	SAMPLES DEPTH	SAMPLES TYPE	SAMPLES NUMBER
1230					
1240	10	Sand			
1260	20	Shale			
1296	36	Sand			
1312	16	Shale			
1371	59	Sand & shale breaks			
1381	10	Shale & sand streaks			
1400	19	Shale			
1410	10	Sand			
1426	16	Shale			
1432	6	Sand			
1439	7	Shale			
1484	45	Sand			
1500	16	Sandy shale & shale			

Total depth 1500 ft.

65-23-245

FORM NO. 1202 - 1M - 8-61 - B&L

THE LAYNE TEXAS COMPANY, LTD.

HOUSTON -:- DALLAS

REPORT NO. 8940
S. O. 1104-2317
PAGE 1 OF 1
FILE NO. 3627
DATE 12/7/72

MATERIAL SETTING

CUSTOMER LOCATION

FOR Air Products & Chemicals, Inc.

LOCATION WELL 400' N. of Jackson Road

SURVEY FIELD

COUNTY Harris STATE Texas

OTHER LAND MARKS 27' from Plant Rd. #33

WELL DATA

NAME WELL WELL NO. 1

ELEVATION DATUM

TYPE WELL Gravel wall

SURFACE CASING CEMENTED Yes NO. SACKS 445+8% Gel

SIZE HOLE UNDERREAMED 30" DEPTH 900-1300'

GRAVEL TYPE 112-113-165-121 NO. CU. YDS. 152

TYPE SCREEN SS WW Rib GAGE .045"

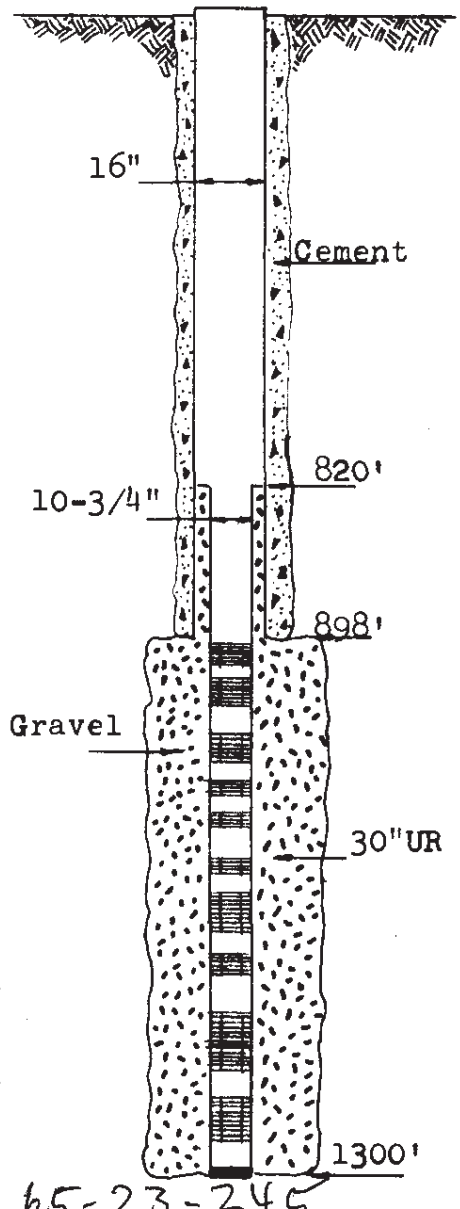
DRILLER F. R. Wall RIG NO. 2

OTHER G. D. Tesch

DEPTH	LENGTH	SIZE. KIND. WEIGHT MATERIAL
+2'		16" O.D. surface casing 62.58#
0		Surface
40'		22" O.D. 1/4" wall conductor pipe
820'		Top of 10-3/4" liner
898'	900'	16" O.D. surface casing 62.58#
914'	94'	10-3/4" O.D. blank liner 31.20#
944'	30'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
960'	16'	10-3/4" O.D. blank liner 31.20#
995'	35'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1015'	20'	10-3/4" O.D. blank liner 31.20#
1045'	30'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1055'	10'	10-3/4" O.D. blank liner 31.20#
1065'	10'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1080'	15'	10-3/4" O.D. blank liner 31.20#
1090'	10'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1115'	25'	10-3/4" O.D. blank liner 31.20#
1125'	10'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1135'	10'	10-3/4" O.D. blank liner 31.20#
1170'	35'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1180'	10'	10-3/4" O.D. blank liner 31.20#
1190'	10'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1215'	25'	10-3/4" O.D. blank liner 31.20#
1250'	35'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1260'	10'	10-3/4" O.D. blank liner 31.20#
1285'	25'	10-3/4" O.D. S.S. W.W. Rib screen .045" ga.
1298'	13'	10-3/4" O.D. blank liner 31.20#
1300'	2'	10-3/4" O.D. set nipple & back pressure valve

Total depth 1300'

SKETCH



65-23-245

LAYNE TEXAS COMPANY

HOUSTON -:- DALLAS

WATER WELL TEST

REPORT NO 8941
S. O. 1104-2317
PAGE 1 of 2
FILE NO. 3627
DATE 12/7/72

CUSTOMER LOCATION

TEST FOR Air Products & Chemicals, Inc.

LOCATION OF WELL 400' N. of Jackson Road

SURVEY FIELD

COUNTY Harris STATE Texas

DESCRIPTION OF LAND MARKS

27' from Plant R#33

WELL DATA

NAME WELL WELL NO. 1

ELEVATION DATUM

WELL SIZE 16" x10-3/4" x 30"UR

TOTAL DEPTH 1300' TOP SCREEN 914-944'

GRAVEL WELL Yes STRAIGHT WELL

TYPE SCREEN S.S. W.W. GAGE .045" Rib

TEMPERATURE OF WATER

WATER CONDITION Clear

WATER MEASURING DEVICE

ORIFICE SIZE 10"x7" LENGTH 25'

OTHER

TEST PUMP DATA

DEPTH SETTING TOP OF BOWL 610'

LENGTH AIR LINE 610' SIZE 1/4"

TYPE BOWL TLC 8" NO STAGES 6

LENGTH BOWL SUCTION LT.

SAND CONTENT 0 OZ. PER 100 GAL.

WATER SAMPLE TAKEN Yes NO. SAMPLES 1

BACTERIOLOGICAL SAMPLE TAKEN

DRAWDOWN SPECIFIC CAPACITY

ACTIVE STATIC HEAD AFTER PUMP STOPPED

5 MIN.	436 FT.	20 MIN.	429 FT.
10 MIN.	433 FT.	25 MIN.	428 FT.
15 MIN.	431 FT.	30 MIN.	427 FT.

S.L. before start 417 ft.

DATE HOUR	AIR LINE GAGE	PUMPING LEVEL	DISCH. PRESS.	HEAD ON ORIFICE INCHES	GPM	RPM	OPERATOR	REMARKS
12/6/72	- Started test	at 4:00 P.M.						
4:30 PM	77	533		37	1266			
5:00	74	536		37	1266			
5:30	72	538		37	1266			
6:00	72	538		37	1266			
6:30	72	538		37	1266			
7:00	71	539		37	1266			
7:30	71	539		37	1266			
8:00	71	539		37	1266			
8:30	71	539		37	1266			
9:00	70	540		37	1266			
9:30	70	540		37	1266			
10:00	70	540		37	1266			
10:30	70	540		37	1266			
11:00	69	541		37	1266			
11:30	69	541		37	1266			
12:00 M	69	541		37	1266			12/7/72
12:30 AM	69	541		37	1266			
1:00	69	541		37	1266			
1:30	69	541		37	1266			
2:00	68	542		37	1266			
2:30	68	542		37	1266			
3:00	68	542		37	1266			
3:30	68	542		37	1266			
4:00	68	542		37	1266			Shut down
Recovery on Page 2								

OBSERVERS

FOR OWNER

F.R. Wall
FOR LAYNE TEXAS CO.

65-23-245

FORM NO. 25 -

LAYNE TEXAS COMPANY

HOUSTON -:- DALLAS

WATER WELL TEST

REPORT NO. 8941
S O 1104-2317
PAGE 2 of 2
FILE NO. 3627
DATE 12/7/72

CUSTOMER LOCATION

TEST FOR Air Products & Chemicals, Inc.

LOCATION OF WELL 400' N. of Jackson Road

SURVEY FIELD

COUNTY Harris STATE Texas

DESCRIPTION OF LAND MARKS

WELL DATA

NAME WELL WELL NO. 1

ELEVATION DATUM

WELL SIZE 16" x 10-3/4" x 30" UR

TOTAL DEPTH 1300' TOP SCREEN 914-944'

GRAVEL WEI Wes STRAIGHT WELL

TYPE SCREEN SS WW Rib GAGE .045"

TEMPERATURE OF WATER

WATER CONDITION Clear

WATER MEASURING DEVICE

ORIFICE SIZE 10"x7" LENGTH 25'

OTHER

TEST PUMP DATA

DEPTH SETTING TOP OF BOWL 610'

LENGTH AIR LINE 610' SIZE 1/4"

TYPE BOWL TLC 8" NO. STAGES 6

LENGTH BOWL SUCTION LT.

SAND CONTENT OZ. PER 100 GAL.

ACTIVE STATIC HEAD AFTER PUMP STOPPED

5 MIN.	FT.	20 MIN.	FT.
10 MIN.	FT.	25 MIN.	FT.
15 MIN.	FT.	30 MIN.	FT.

WATER SAMPLE TAKEN NO. SAMPLES

BACTERIOLOGICAL SAMPLE TAKEN

DRAWDOWN SPECIFIC CAPACITY

DATE HOUR	AIR LINE GAGE	PUMPING LEVEL	DISCH. PRESS.	HEAD ON ORIFICE INCHES	GPM	RPM	OPERATOR	REMARKS
12/7/72	-							
RECOVERY		W.L.						
4:05AM	174	436						
4:10	177	433						
4:15	179	431						
4:20	181	429						
4:25	182	428						
4:30	183	427						

OBSERVERS

FOR OWNER

F. R. Wall
FOR LAYNE TEXAS CO.

FORM NO. 25 -

TECHNOLOGY INCORPORATED
LIFE SCIENCES DIVISION
17311 El Camino Real, Houston, Texas 77058
Tel. (713) 488-5970

TO: Layne Texas Company SO
Houston, Texas
Sample Marked: Air Products & Chemical, Well #1, Pasadena, Texas
Technology Incorporated Lab Number C-825

Received: December 12, 1972

WATER ANALYSIS

		mg/l		mg/l
Total Dissolved Solids		439.1	Color Units	5
Calcium*	Ca	2.7	Turbidity, Units	Less than 1
Magnesium*	Mg	0.6	As Calcium Carbonate $CaCO_3$	-
Sodium*	Na	158.5	Phenol Alkalinity	-
Carbonate	CO_3	0	Total Alkalinity	277.31
Bicarbonate	HCO_3	338.31	Total Hardness	Less than 1
Sulfate	SO_4	9.60	Free Carbon Dioxide, CO_2 (Calculated)	8
Chloride	Cl	18.4	pH. . . 7.85 at 26°C	
Total Iron*	Fe	0.11	Silica	18
Manganese*	Mn	Less than .01	HYPOTHETICAL COMBINATIONS	
Fluoride	F	1.20	Calcium Bicarbonate	10.9
			Magnesium Bicarbonate	3.6
Nitrate	NO_3	0.025	Sodium Bicarbonate	450.4
			Sodium Sulfate	14.2
Specific Conductivity, micromhos		610	Sodium Chloride	30.3
			NaF	1.5

*Atomic Absorption Method

REMARKS: No odor, exceptionally good water sample.

65-23-245

By: Robert J. Ehrlich

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 65-23-246

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	6523246
County	Harris
River Basin	San Jacinto
Groundwater Management Area	14
Regional Water Planning Area	H - Region H
Groundwater Conservation District	Harris-Galveston Subsidence District
Latitude (decimal degrees)	29.717222
Latitude (degrees minutes seconds)	29° 43' 02" N
Longitude (decimal degrees)	-95.189722
Longitude (degrees minutes seconds)	095° 11' 23" W
Coordinate Source	+/- 1 Second
Aquifer Code	121EVGL - Evangeline Aquifer
Aquifer	Gulf Coast
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	37
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	1300
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	12/21/1972
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Gravel Pack w/Screen

Well Type	Withdrawal of Water
Well Use	Industrial
Water Level Observation	Miscellaneous Measurements
Water Quality Available	Yes
Pump	Turbine
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Air Products & Chemicals, Inc.
Driller	Layne-Texas Co.
Other Data Available	Drillers Log; Specific Capacity
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	5/18/1999
Last Update Date	10/14/2014

Remarks	Owners well #2. Measured yield 1266 GPM with 62 feet drawdown after pumping 12 hours in 1973. Pumping level 477 feet. Specific capacity 20.42 GPM/ft. Cemented from 0 to 902 feet. Gravel packed and under- reamed from 902 to 1300 feet. Pump set at 610 feet. Well originally drilled to 1300 feet.

Casing

Diameter (in.)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft.)	Bottom Depth (ft.)
16	Blank	Steel			0	902
11	Blank	Steel			820	914
11	Screen	Stainless Steel			914	944
11	Blank	Steel			944	960
11	Screen	Stainless Steel			960	995
11	Blank	Steel			995	1015
11	Screen	Stainless Steel			1015	1045
11	Blank	Steel			1045	1055
11	Screen	Stainless Steel			1055	1065
11	Blank	Steel			1065	1080
11	Screen	Stainless Steel			1080	1090
11	Blank	Steel			1090	1115
11	Screen	Stainless Steel			1115	1125
11	Blank	Steel			1125	1135
11	Screen	Stainless Steel			1135	1170
11	Blank	Steel			1170	1180
11	Screen	Stainless Steel			1180	1190
11	Blank	Steel			1190	1215
11	Screen	Stainless Steel			1215	1250
11	Blank	Steel			1250	1260
11	Screen	Stainless Steel			1260	1285
11	Blank	Steel			1285	1300

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change value in ( ) indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	2/2/1973		415		-378	1	Registered Water Well Driller	Air Line		

Code Descriptions

Status Code	Status Description
P	Publishable

Water Quality Analysis

Sample Date: 2/3/1973 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Registered Water Well Driller

Sampled Aquifer: Evangeline Aquifer

Analyzed Lab: Edna Wood Lab **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00415	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		263.93	mg/L as CACO3	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		322.08	mg/L	
00910	CALCIUM (MG/L)		3	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		41	mg/L	
00950	FLUORIDE, DISSOLVED (MG/L AS F)		1	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		12	mg/L as CACO3	
01045	IRON, TOTAL (UG/L AS FE)		100	ug/L	
00920	MAGNESIUM (MG/L)		1	mg/L	
01055	MANGANESE, TOTAL (UG/L AS MN)		0	ug/L	
71851	NITRATE NITROGEN, DISSOLVED, CALCULATED (MG/L AS NO3)		0.2	mg/L as NO3	
00400	PH (STANDARD UNITS), FIELD		8	SU	
71860	RESIDUAL SODIUM CARBONATE, CALCULATED		5.04		
00955	SILICA, DISSOLVED (MG/L AS SI02)		15	mg/L as SIO2	
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		19.16		
00932	SODIUM, CALCULATED, PERCENT		97	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		150	mg/L	
00094	SPECIFIC CONDUCTANCE, FIELD (UMHOS/CM AT 25C)		620	MICR	
00945	SULFATE, TOTAL (MG/L AS SO4)		7	mg/L as SO4	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		377	mg/L	

** Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork..*

GWDB DISCLAIMER: Except where noted, all of the information provided in the Texas Water Development Board (TWDB) Groundwater Database (https://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp) is believed to be accurate and reliable; however, the TWDB assumes no responsibility for any errors appearing in rules or otherwise. Further, TWDB assumes no responsibility for the use of the information provided. PLEASE NOTE that users of these data are responsible for checking the accuracy, completeness, currency and/or suitability of all information themselves. TWDB makes no guarantees or warranties as to the accuracy, completeness, currency, or suitability of the information provided via the Groundwater Database (GWDB). TWDB specifically disclaims any and all liability for any claims or damages that may result from providing GWDB data or the information it contains. For additional information or answers to questions concerning the TWDB GWDB, contact the Groundwater Data Team [redacted]

TEXAS DEPARTMENT OF WATER RESOURCES

WELL SCHEDULE

Aquifer(s) Evangeline Project No. _____ State Well No. 65-23-246

_____ Field No./Owner's Well No. 2 County Harris

1. Location: ___ ¼, ___ ¼, Section ___, Block ___, Survey _____, Lat. _____, Long. _____

2. Owner: Air Products & Chemicals, Inc. Address: _____

Tenant (other): _____ Address: _____

Driller: Layne Texas Address: _____

3. Land Surface Elevation: 28 ft. above msl determined by TOPO

4. Drilled: 12-21 19 72; Dug, Cable Tool, (Rotary), Air, _____

5. Depth: Rept. 1300 ft. Meas. _____ ft.

6. Borehole Completion: Open Hole, Straight Wall, (Underreamed, Gravel Packed)

7. Pump: Mfr. _____ Type T

No. Stages _____, Bowls Diam. ___ in., Setting _____ ft.

Column Diam. _____ in., Length Tailpipe _____ ft.

8. Motor: Mfr. _____ Fuel E HP. ___

9. Yield: Flow ___ gpm, Pump ___ gpm, Meas., Rept., Est. ___ Date ___

10. Performance Test: Date 2/2/73 Length of Test 12 hr Made by LT

Static Level 415 ft. Pumping Level 477 ft. Drawdown 62 ft.

Production 1266 gpm Specific Capacity _____ gpm/ft.

11. Quality: (Remarks on taste, odor, color, etc.) _____

Analyses

Date _____ Laboratory _____ TDS ___ Sp Cond ___

Date _____ Laboratory _____ TDS ___ Sp Cond ___

12. Other data available (as circled): Pumping Test, Power & Yield Test, (Drillers Log), Formation Samples, (Geophysical Log(s)) Q 1757 (type)

CASING, BLANK PIPE & WELL SCREEN Cemented From 0 ft. to 902 ft.

Diam. (in.)	Type	Setting (feet) from	to
16	Steel	0	902
10			1300

13. Water Level(s): ___ ft. rept. meas. _____ 19 ___ above below _____ which is ___ ft. above below Land Surface

_____ ft. rept. meas. _____ 19 ___ above below _____ which is ___ ft. above below Land Surface

14. Use: Dom., Stock, Public Supply, (Ind.), Irr., Observation, Other (Test Hole, Oil Test, etc.) _____

15. Recorded by: _____ Source of data: _____ Date: _____

16. Remarks: _____

17. Location or Sketch:

Q 1757

W/L Obs. Well ___ W/Q Obs. Well ___

State Well No. 65 23-246

TDWR-0308

id original copy by
rtified mail to the
as Water Development Board
O. Box 12386
stin, Texas 78711

State of Texas

WATER WELL REPORT

For TWDB use only
Well No.
Located on map
Received:

)OWNER:
Person having well drilled A.C Products & Chemicals Co. Address 1438 Jackson Rd Pasadena Tex
(Name) (Street or RFD) (City) (State)

Landowner _____ Address _____
(Name) (Street or RFD) (City) (State)

)LOCATION OF WELL:
County Harris, _____ miles in _____ direction from _____
(N.E., S.W., etc.) (Town)

Locate by sketch map showing landmarks, roads, creeks, hiway number, etc.*

See attached map North

(Use reverse side if necessary)

or

Give legal location with distances and directions from adjacent sections or survey lines.

Labor _____ League _____

Block _____ Survey _____

Abstract No. _____

(NW¼ NE¼ SW¼ SE¼) of Section _____

)TYPE OF WORK (Check):
New Well | Deepening | Reconditioning | Plugging

4)PROPOSED USE (Check):
Domestic | Industrial | Municipal | Irrigation | Test Well | Other

5)TYPE OF WELL (Check):
Rotary | Driven | Dug | Cable | Jetted | Bored

)WELL LOG:
Diameter of hole _____ in. Depth drilled _____ ft. Depth of completed well _____ ft. Date drilled _____

All measurements made from _____ ft. above ground level.

From (ft.)	To (ft.)	Description and color of formation material
		See attached Completion report

(Use reverse side if necessary)

9) Casing:
Type: Old | New | Steel | Plastic | Other

Cemented from _____ ft. to _____ ft.

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Gage

10) SCREEN:
Type _____

Perforated | Slotted

Diameter (inches)	Setting From (ft.)	Setting To (ft.)	Slot Size

) COMPLETION (Check):
Straight wall | Gravel packed | Other
Under reamed | Open Hole

) WATER LEVEL:
Static level _____ ft. below land surface Date _____

Artesian pressure _____ lbs. per square inch Date _____

Depth to pump bowls, cylinder, jet, etc., _____ ft. below land surface.

11) *WELL TESTS:*
Was a pump test made? Yes No If yes, by whom? _____

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

Bailer test _____ gpm with _____ ft. drawdown after _____ hrs.

Artesian flow _____ gpm

Temperature of water _____

12) WATER QUALITY:
Was a chemical analysis made? Yes No

Did any strata contain undesirable water? Yes No

Type of water? _____ depth of strata _____

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Gaston Logsdon (Type or Print) Water Well Drillers Registration No. 1206

ADDRESS P.O. Box 57665 (Street or RFD) Houston (City) 77011 (State)

(Signed) GASTON LOGSDON (Water Well Driller) Logsdon Texas Co (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.

*Additional instructions on reverse side.

Q-1757

TWDBE-GW-53

65-23-246

FORM NO. 88 Stahl

65-23-2J

LAYNE TEXAS COMPANY,
HOUSTON -:- DALLAS

WELL LOG

REPORT NO 978
S. O. 110 317
PAGE 1 of 2
FILE NO. 3627
DATE 1/2/73

CUSTOMER LOCATION

FOR Air Products & Chemicals, Inc.

LOCATION WELL Jackson Road & F.M. 225

SURVEY FIELD

COUNTY Harris STATE Texas

OTHER LAND MARKS

WELL DATA

NAME WELL WELL NO. 2
ELEVATION DATUM
RT C GR
TEST HOLE SIZE 9-7/8" TD 1300'
DATE STARTED DRILLING 12-16-72
DATE FINISHED DRILLING 12-21-72
DRILLER F.R. Wall RIG NO. 2
TYPE MUD Gel NO. SACKS 15
ELECTRIC LOG Yes TYPE Schlumberger
SURVEY Eastman TYPE Single shot
OTHER

DEPTH STRATA	EACH STRATUM	DESCRIPTION FORMATION	SAMPLES DEPTH	SAMPLES TYPE	SAMPLES NUMBER
0		Surface			
60	60	Clay			
75	15	Sandy clay			
104	29	Sand & shale streaks			
140	36	Shale			
180	40	Sandy shale			
230	50	Shale			
254	24	Sand & sandy shale			
298	44	Shale			
351	53	Sand & streaks of shale			
362	11	Shale			
394	32	Sandy shale			
461	67	Sand			
490	29	Shale			
520	30	Sand & shale streaks			
576	56	Shale & sand streaks			
593	17	Sand & sandy shale			
624	31	Shale			
631	7	Sand			
658	27	Shale			
722	64	Sand & shale breaks			
741	19	Shale			
763	22	Sand			
773	10	Shale			
794	21	Sand & sandy shale			
805	11	Sandy shale			
815	10	Sand			
850	35	Shale			
890	40	Shale & sand streaks			
915	25	Shale			
940	25	Sand			
959	19	Sandy shale			
1002	43	Sand & shale streaks			
1011	9	Shale			
1027	16	Sand			
1042	15	Sand & sandy shale			
1062	20	Sand			
1074	12	Sand & sandy shale			
1105	31	Sandy shale			

65-23-246

FORM NO. 28

LAYNE TEXAS COMPANY,
HOUSTON -:- DALLAS

REPORT NO. 8978
S. O. 110[illegible]17
PAGE 2 of 4
FILE NO. 3627
DATE 1/2/73

WELL LOG

CUSTOMER LOCATION

FOR Air Products & Chemicals, Inc.

LOCATION WELL Jackson Road & F.M. 225

SURVEY FIELD

COUNTY Harris STATE Texas

OTHER LAND MARKS

WELL DATA

NAME WELL WELL NO. 2
ELEVATION DATUM
RT C GR
TEST HOLE SIZE 9-7/8" TD 1300'
DATE STARTED DRILLING 12-16-72
DATE FINISHED DRILLING 12-21-72
DRILLER F. R. Wall RIG NO. 2
TYPE MUD Gel NO. SACKS 15
ELECTRIC LOG Yes TYPE Schlumberger
SURVEY Eastman TYPE Single shot
OTHER

DEPTH STRATA	EACH STRATUM	DESCRIPTION FORMATION	SAMPLES DEPTH	SAMPLES TYPE	SAMPLES NUMBER
1105					
1145	40	Sand			
1179	34	Sandy shale			
1185	6	Sand			
1201	16	Shale			
1234	33	Sand			
1247	13	Shale			
1275	28	Sandy shale			
1282	7	Sand			
1300	18	Shale			
Total depth 1300 ft.					

65-23-246

FORM NO. 1202 - IN - 8-61 - 50L

THE LAYNE TEXAS COMPANY, LTD.

HOUSTON -:- DALLAS

REPORT NO. 8979
S. O. 1104-2317
PAGE 1 OF 1
FILE NO. 3627
DATE 2/12/73

MATERIAL SETTING

CUSTOMER LOCATION

FOR Air Products & Chemicals, Inc.

LOCATION WELL Jack Rd. & F.M. 225

SURVEY FIELD

COUNTY Harris STATE Texas

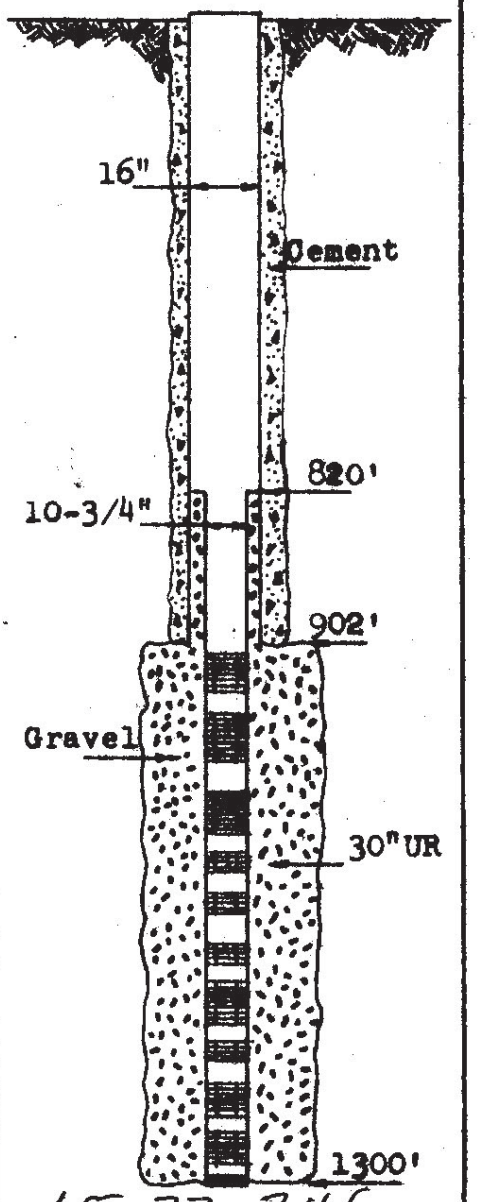
OTHER LAND MARKS

WELL DATA

NAME WELL WELL NO. 2
ELEVATION DATUM
TYPE WELL Gravel-Wall
SURFACE CASING CEMENTED Yes NO. SACKS 350+8% Gel
SIZE HOLE UNDERREAMED 30" DEPTH 902-1300'
GRAVEL TYPE 112-113- NO. CU. YDS. 140
TYPE SCREEN SS WW Ribbed GAGE .045"
DRILLER F.R. Wall RIG NO. 2
OTHER Mr. Tesch

DEPTH	LENGTH	SIZE, KIND, WEIGHT MATERIAL
+2'		16" O.D. surface casing 62.58#
0		Surface
820'	820'	Top of 10-3/4" O.D. liner
902'	904'	16" O.D. surface casing 62.58#
914'	94'	10-3/4" O.D. blank liner 31.20#
944'	30'	10-3/4" OD S.S. W.W. ribbed screen .045" ga.
960'	16'	10-3/4" O.D. blank liner 31.20#
995'	35'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1015'	20'	10-3/4" O.D. blank liner 31.20#
1045'	30'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1055'	10'	10-3/4" O.D. blank liner 31.20#
1065'	10'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1080'	15'	10-3/4" O.D. blank liner 31.20#
1090'	10'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1115'	25'	10-3/4" O.D. blank liner 31.20#
1125'	10'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1135'	10'	10-3/4" O.D. blank liner 31.20#
1170'	35'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1180'	10'	10-3/4" O.D. blank liner 31.20#
1190'	10'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1215'	25'	10-3/4" O.D. blank liner 31.20#
1250'	35'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1260'	10'	10-3/4" O.D. blank liner 31.20#
1285'	25'	10-3/4" O.D. S.S. W.W. ribbed screen .045" ga.
1298'	13'	10-3/4" O.D. blank liner 31.20#
1300'	2'	10-3/4" O.D. set nipple & back pressure valve

SKETCH



65-23-246

REPORT NO 8980
S. O. 1104-2317
PAGE 1 of
FILE NO. 3627
DATE 2/12/73

LAYNE TEXAS COMPANY
HOUSTON -:- DALLAS
WATER WELL TEST

CUSTOMER LOCATION

TEST FOR Air Products & Chemicals Co.

LOCATION OF WELL Jackson Rd. & F.M. 225

SURVEY FIELD

COUNTY Harris STATE Texas

DESCRIPTION OF LAND MARKS

WELL DATA

NAME WELL WELL NO. 2

ELEVATION DATUM

WELL SIZE 16" x10-3/4" x 30"UR

TOTAL DEPTH 1300' TOP SCREEN 914-944'

GRAVEL WELL Yes STRAIGHT WELL

TYPE SCREEN S.S. W.W. GAGE .045" Ribbed

TEMPERATURE OF WATER

WATER CONDITION Clear

WATER MEASURING DEVICE

ORIFICE SIZE 10"x7" LENGTH 25'

OTHER

TEST PUMP DATA

DEPTH SETTING TOP OF BOWL 610'

LENGTH AIR LINE 610' SIZE 1/4"

TYPE BOWL NO. STAGES

LENGTH BOWL SUCTION LT.

SAND CONTENT 0 OZ. PER 100 GAL.

WATER SAMPLE TAKEN Yes NO. SAMPLES 1

BACTERIOLOGICAL SAMPLE TAKEN

DRAWDOWN SPECIFIC CAPACITY

ACTIVE STATIC HEAD AFTER PUMP STOPPED

5 MIN.	421 FT.	40 MIN.	418 FT.
10 MIN.	420 FT.	60 MIN.	417 FT.
15 MIN.	419 FT.	90 MIN.	417 FT.

S.L. before start- 415 ft.

DATE HOUR	AIR LINE GAGE	PUMPING LEVEL	DISCH. PRESS.	HEAD ON ORIFICE INCHES	GPM	RPM	OPERATOR	REMARKS
2/2/73	- Started test at 10:00 A.M.							
10:30AM	136	474		37.5	1274			
11:00	136	474		37	1266			
11:30	136	474		37	1266			
12:00 N	135	475		37.5	1274			
12:30 PM	135	475		37.5	1274			
1:00	135	475		37	1266			
1:30	135	475		37	1266			
2:00	135	475		37	1266			
2:30	135	475		37	1266			
3:00	135	475		37	1266			
3:30	135	475		37	1266			
4:00	135	475		37	1266			
4:30	135	475		37	1266			
5:00	134	476		37	1266			
5:30	134	476		37	1266			
6:00	134	476		37	1266			
6:30	134	476		37	1266			
7:00	134	476		37.5	1274			
7:30	134	476		37	1266			
8:00	134	476		37	1266			
8:30	134	476		37	1266			
9:00	134	476		37	1266			
9:30	133	477		37	1266			
10:00	133	477		37	1266			

OBSERVERS

FOR OWNER

F. R. Vall
FOR LAYNE TEXAS CO.

FORM NO. 25

65-23-246

EDNA WOOD LABORATORIES INC.

WATER TECHNOLOGISTS . . CHEMISTS . . MICROBIOLOGISTS

7 February 1973

To: Layne Texas Company
Houston, Texas

SO #1104-2317

Sample marked: Well No. 2, Air Products and Chemical Incorporated
Taken: 2-3-73 after 12 hours pumping at 1266 gpm.
Static Head: 410' 10 min. 420' 30 min. recovery 417'
Pumping Level: 477' Screened: 900-1284' 30 inch underreamed hole.

Received: 2-5-73

WATER ANALYSIS

results in parts per million (mg/l) except as noted

Dissolved Residue at 350°C		369	Conductance, micromhos/cm, 25°C		620
Total Dissolved Solids, actual†		533	Color, units		0
Total Dissolved Solids, calc.		539	Turbidity, units		0
Silica	SiO_2	15	As Calcium Carbonate, $CaCO_3$:		
Calcium	Ca	3	Phenolphthalein Alkalinity		0
Magnesium	Mg	1	Total Alkalinity		266
Sodium (diff.) Na + K as	Na	148	Total Hardness		10
Carbonate	CO_3	0	Free Carbon Dioxide	CO_2	5
Bicarbonate	HCO_3	322	pH . . . 7.99		
Sulfate	SO_4	7	HYPOTHETICAL COMBINATIONS		
Chloride	Cl	41	Calcium Bicarbonate		12
Total Fluoride	F	1.0	Magnesium Bicarbonate		4
Total Nitrate	NO_3	0.9	Sodium Bicarbonate		427
Total Manganese	Mn	< 0.02	Sodium Sulfate		10
Total Iron	Fe	0.07	Sodium Chloride		68
Iron, filtered sample	Fe		Sodium Fluoride		2
			Sodium Nitrate		1
			Silica		15
			Total Dissolved Solids, Calc.		539

†Total Dissolved Solids, actual = Dissolved Residue + 50.8% of bicarbonate (HCO_3) ion

EDNA WOOD LABORATORIES, INC.

2306
edp

By: Edna Wood

65-23-2 #6

Tel: (713) 747-7271 • P. O. BOX 14175 • 4620 OLD SPANISH TRAIL • HOUSTON, TEXAS 77021

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

PLOTTED WELL LOG EXHIBIT

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No plotted wells identified in TCEQ files within ½ mile radius

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

PARTIALLY NUMBERED WELL LOG EXHIBIT

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No partially numbered wells identified in TCEQ files within ½ mile radius

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

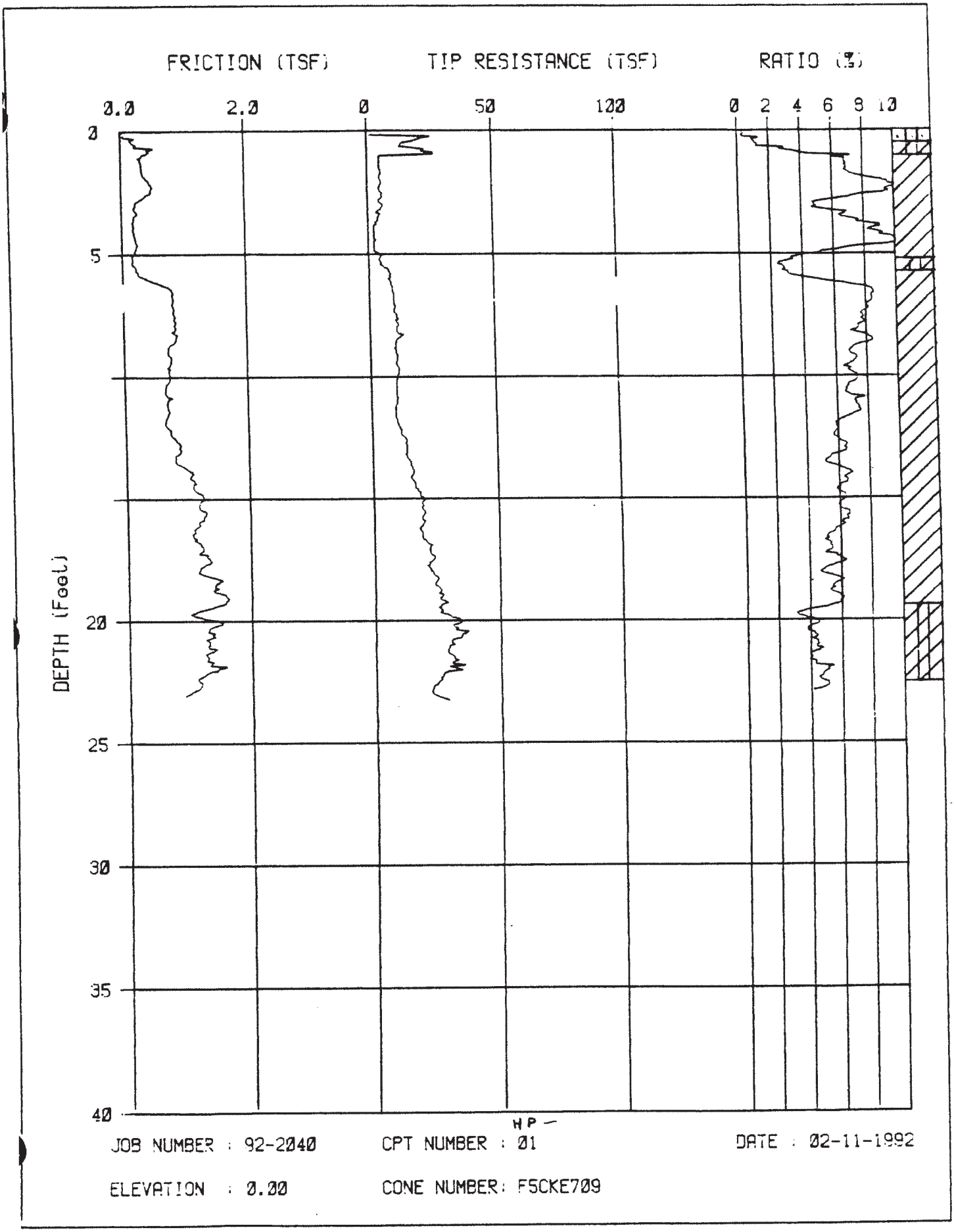
UNNUMBERED WELL LOG EXHIBIT

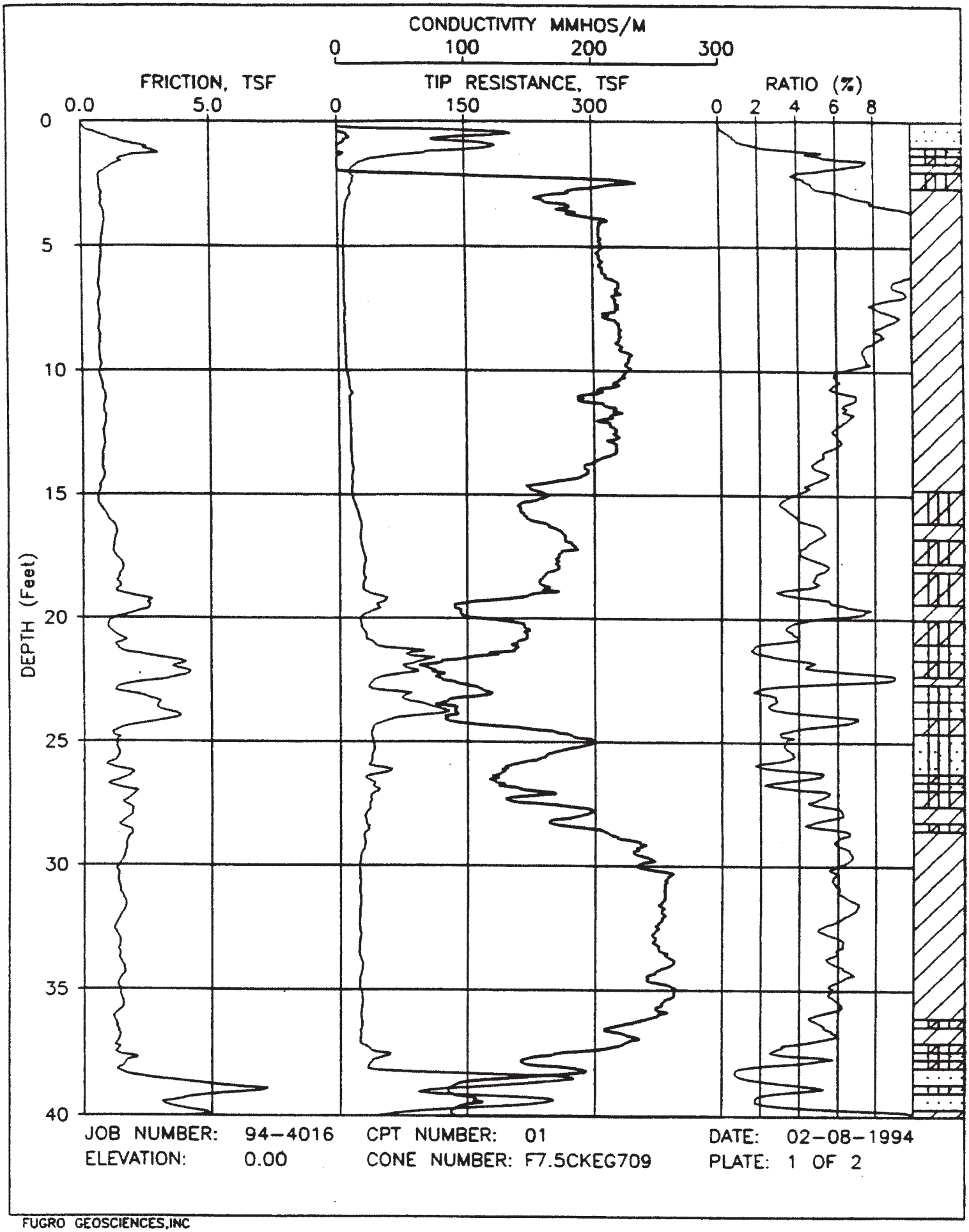
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No unnumbered wells identified in TCEQ files within ½ mile radius

ATTACHMENT – XI.A.4.i

WELL LOGS AND CONE PENETROMETER TEST LOGS

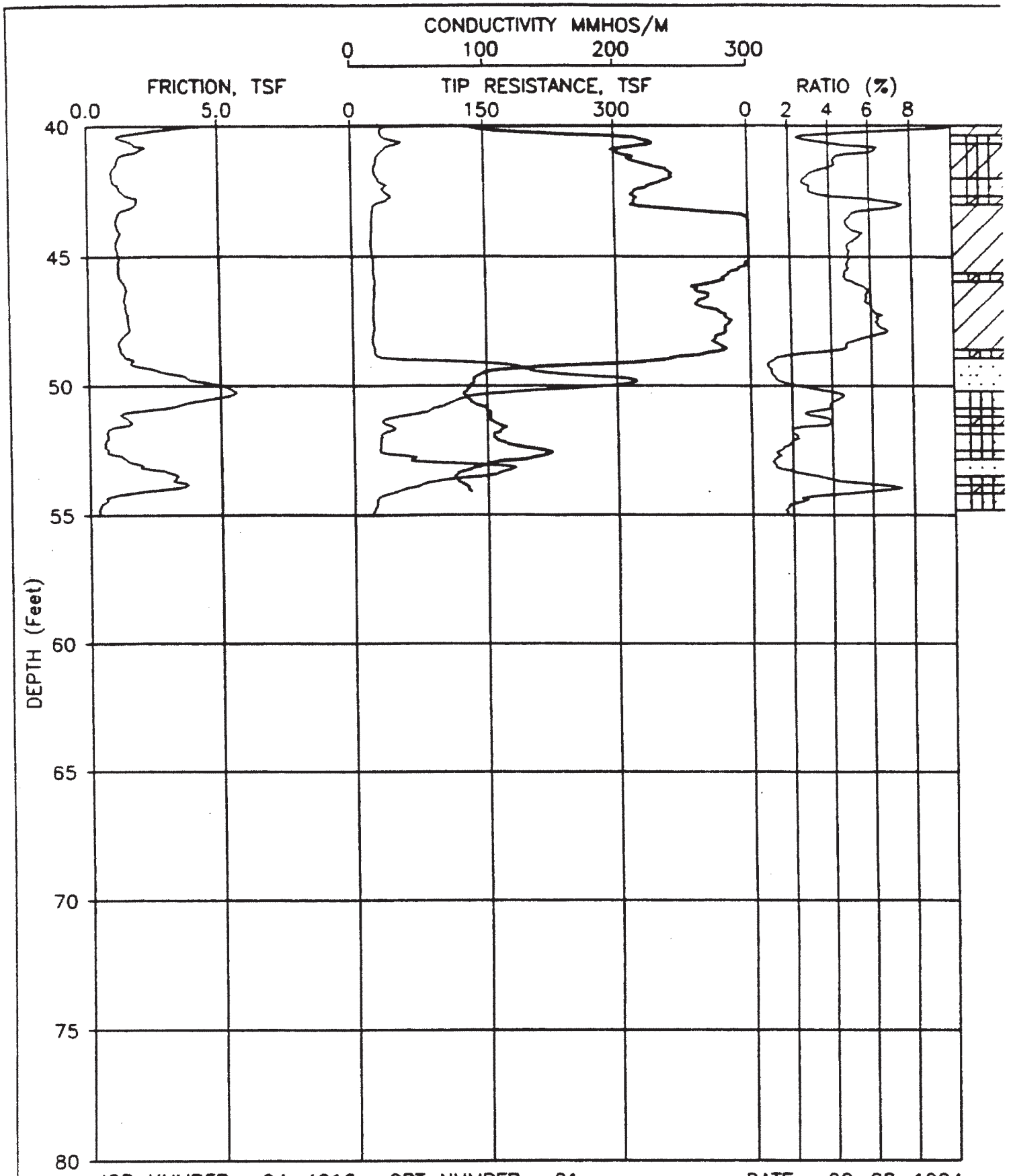

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
20
25
30
35
40
DEPTH (Feet)
HP
JOB NUMBER : 92-2040
CPT NUMBER : 01
DATE : 02-11-1992
ELEVATION : 0.00
CONE NUMBER: F5CKE709



JOB NUMBER: 94-4016 CPT NUMBER: 01 DATE: 02-08-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

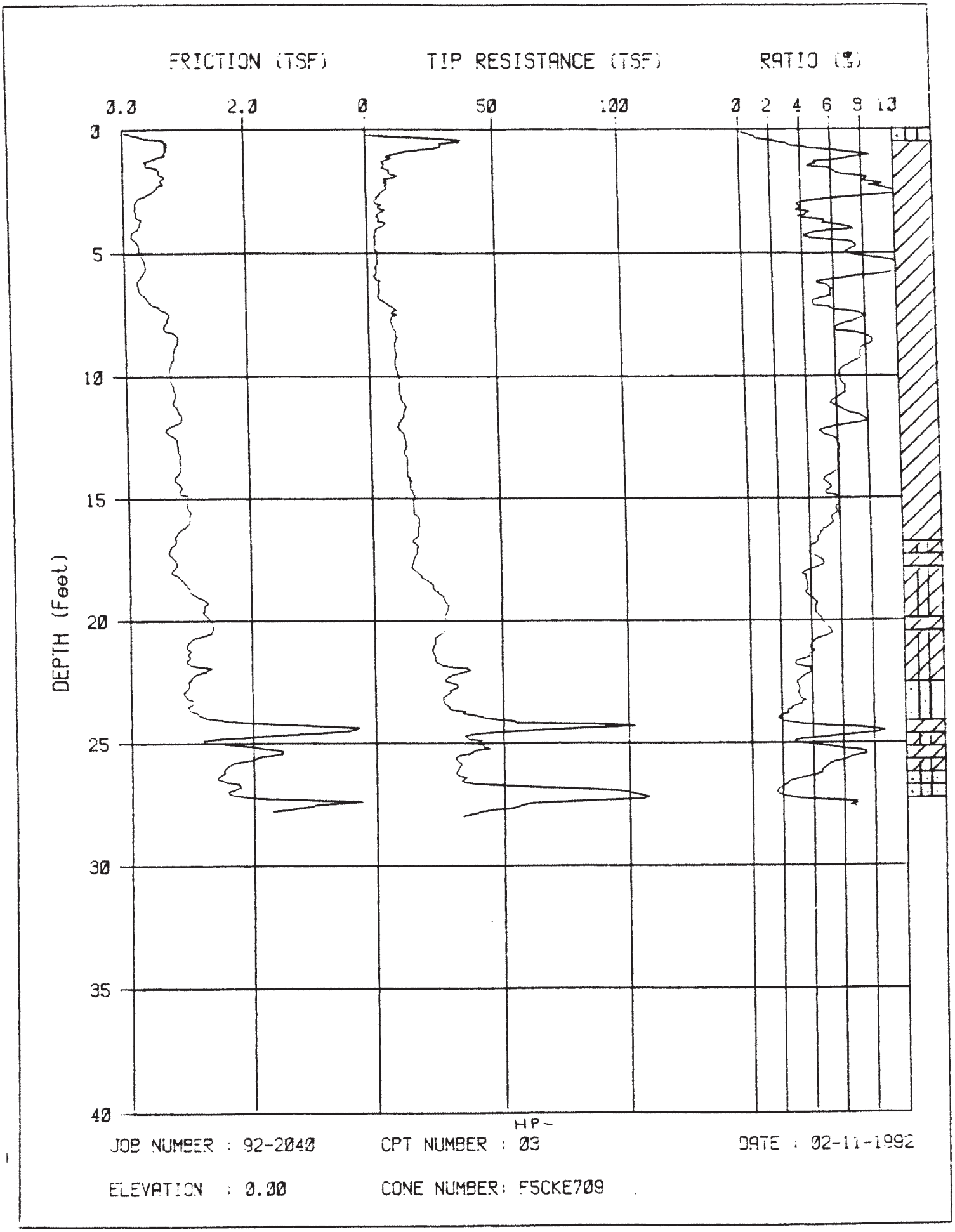
FUGRO GEOSCIENCES,INC

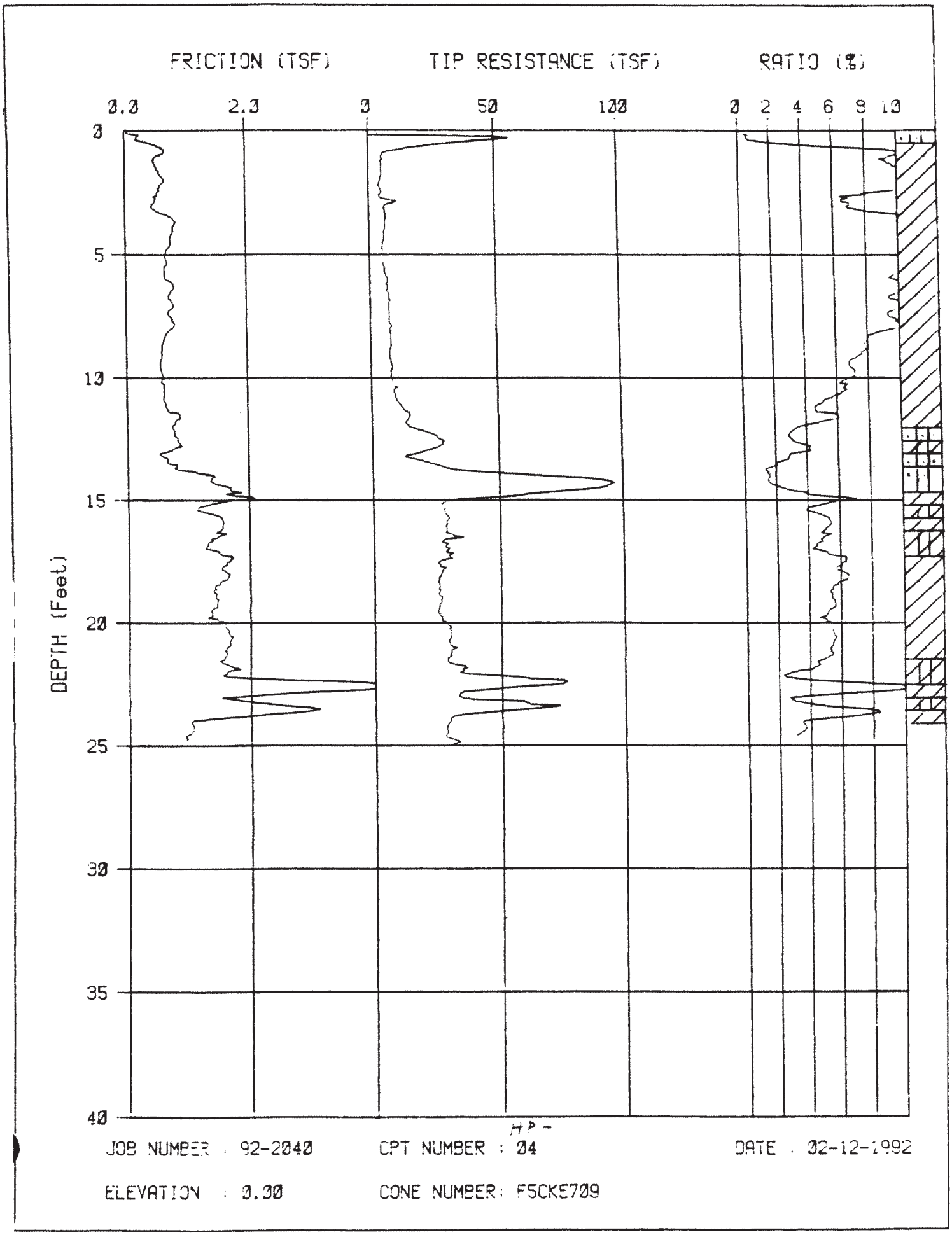


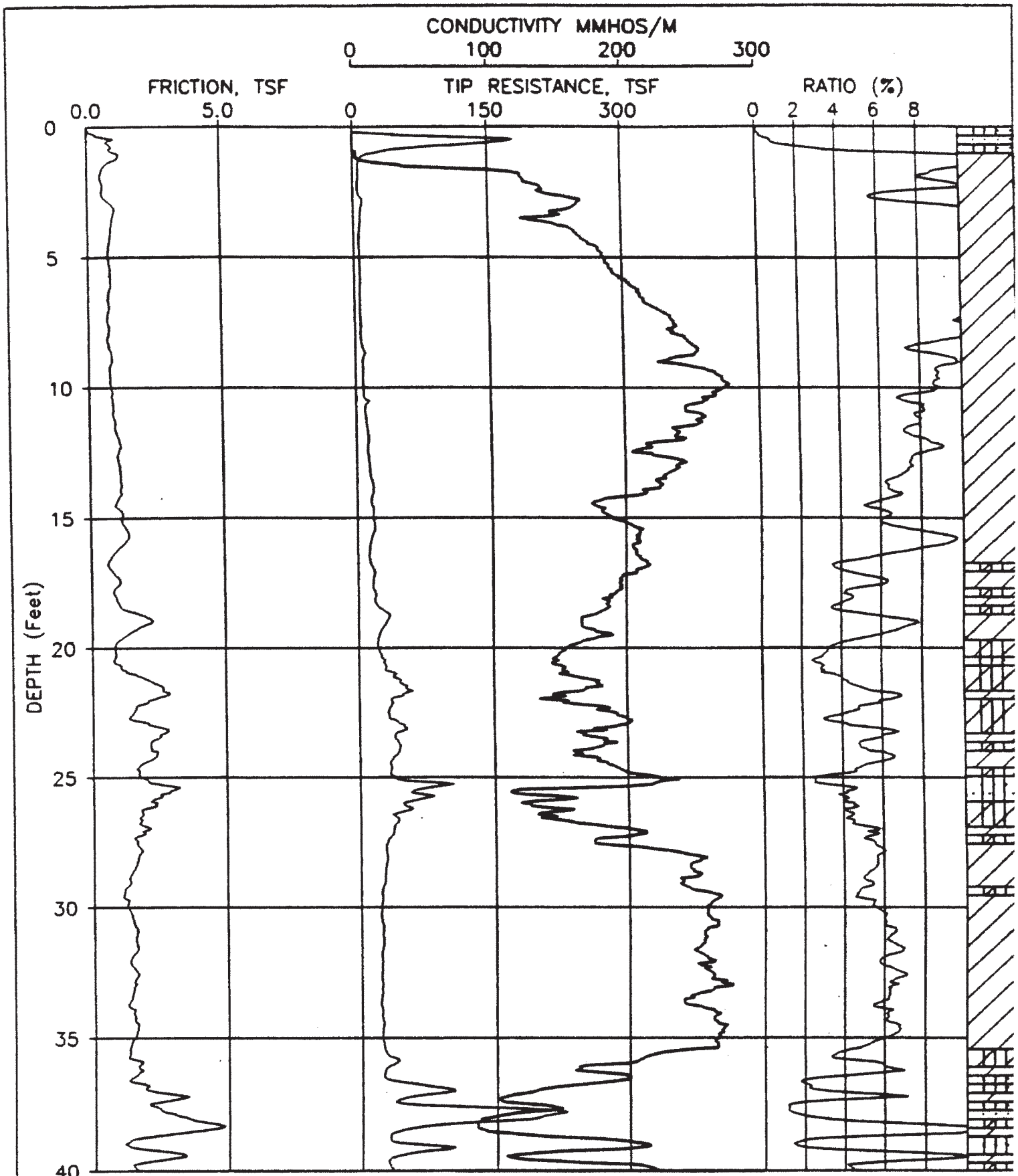
JOB NUMBER: 94-4016 CPT NUMBER: 01 DATE: 02-08-1994

ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 2 OF 2

FUGRO GEOSCIENCES,INC


FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER : 92-2040
CPT NUMBER : 03
DATE : 02-11-1992
ELEVATION : 0.00
CONE NUMBER: F5CKE709

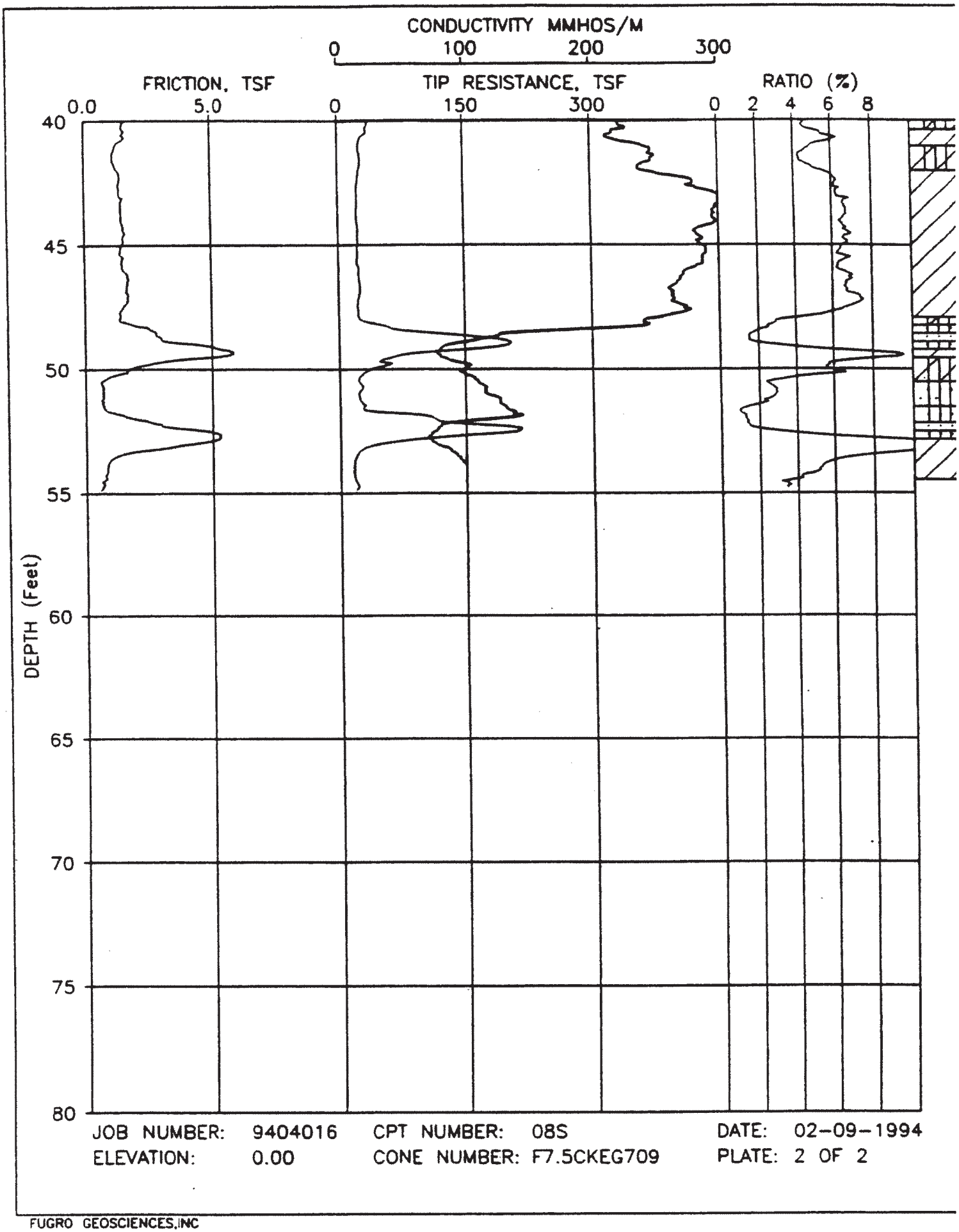

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP -
JOB NUMBER : 92-2040
CPT NUMBER : 04
DATE : 02-12-1992
ELEVATION : 0.00
CONE NUMBER: FSCKE709



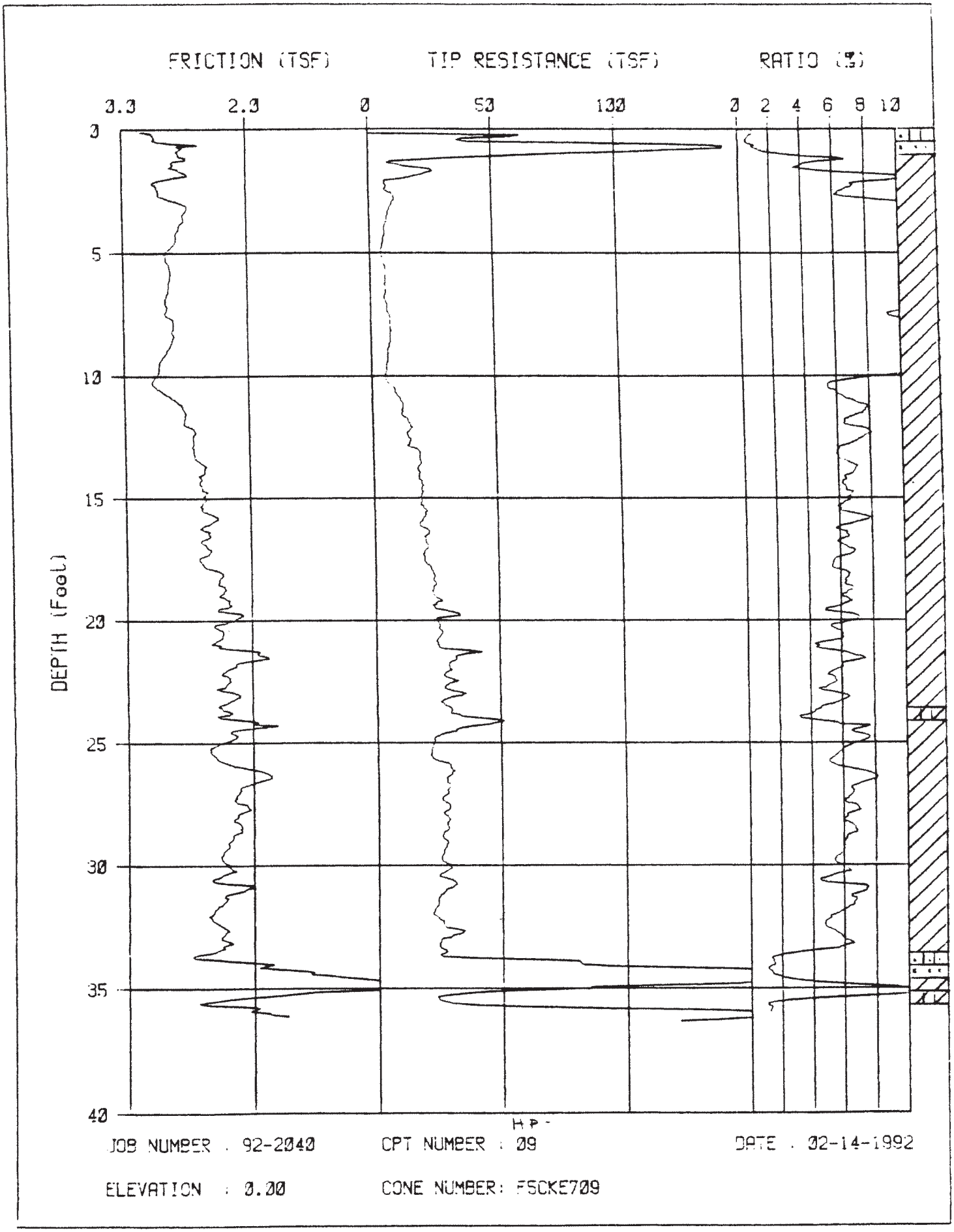
JOB NUMBER: 9404016 CPT NUMBER: 08S DATE: 02-09-1994

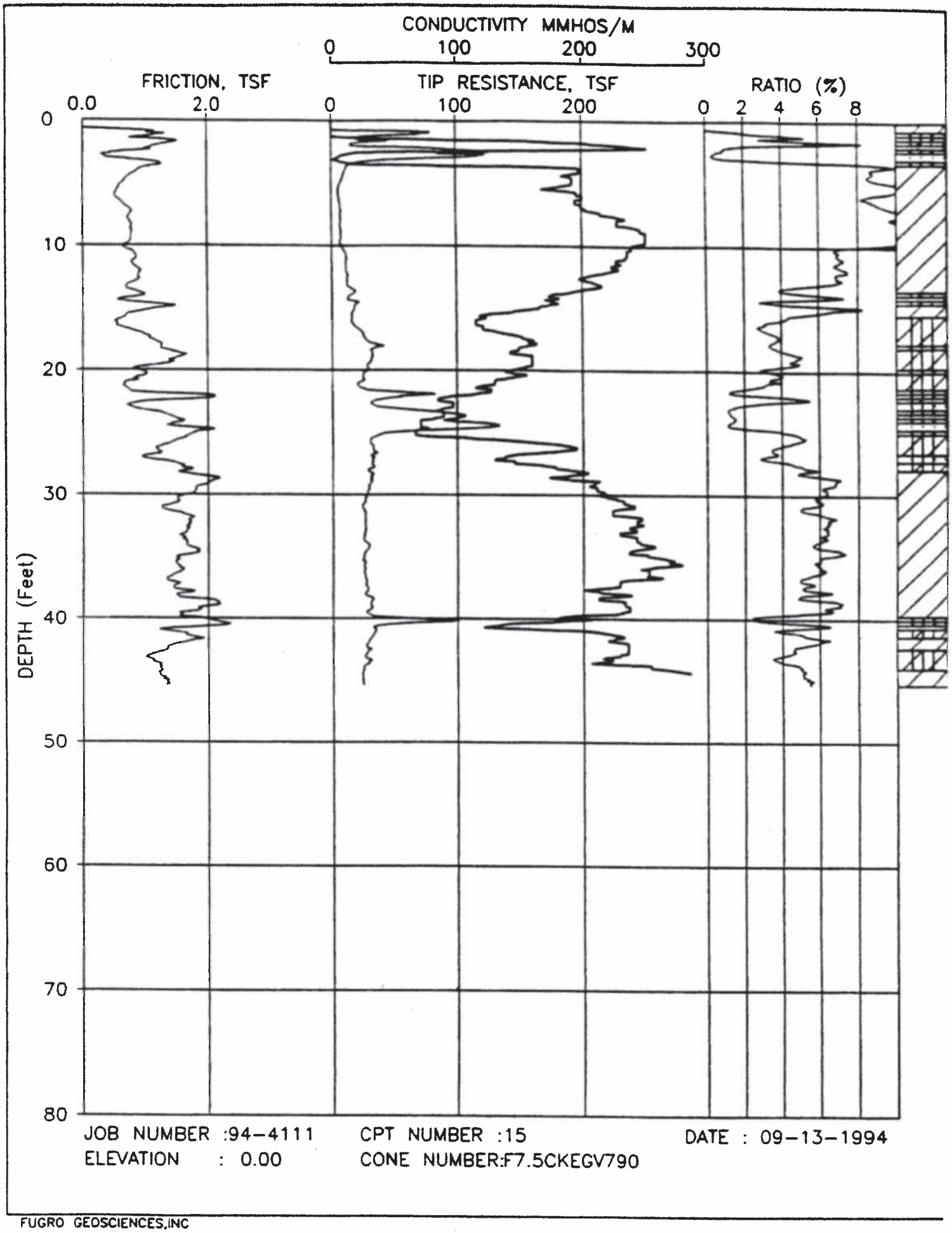
ELEVATION: 0.00 CONE NUMBER: F7.5CKEG709 PLATE: 1 OF 2

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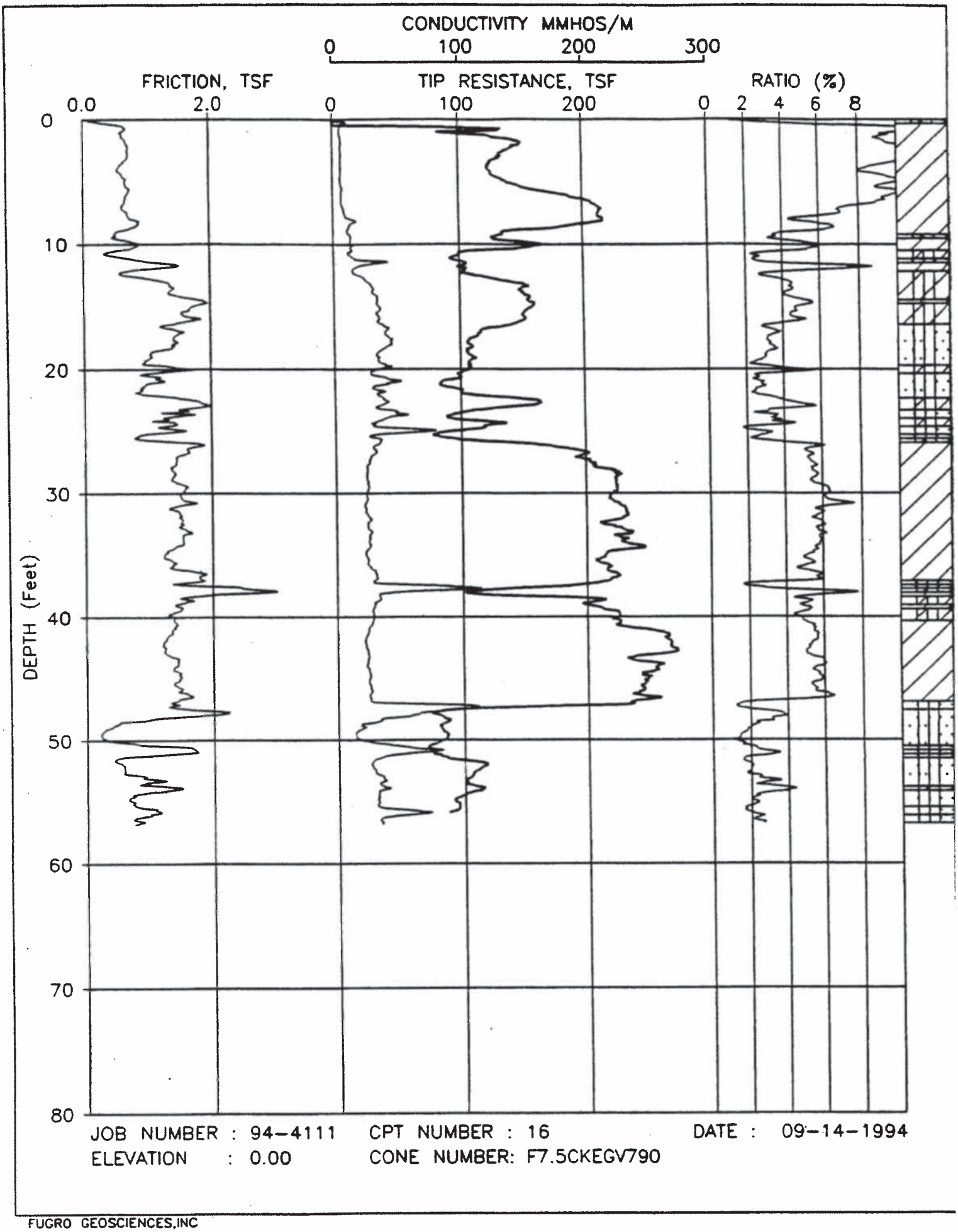


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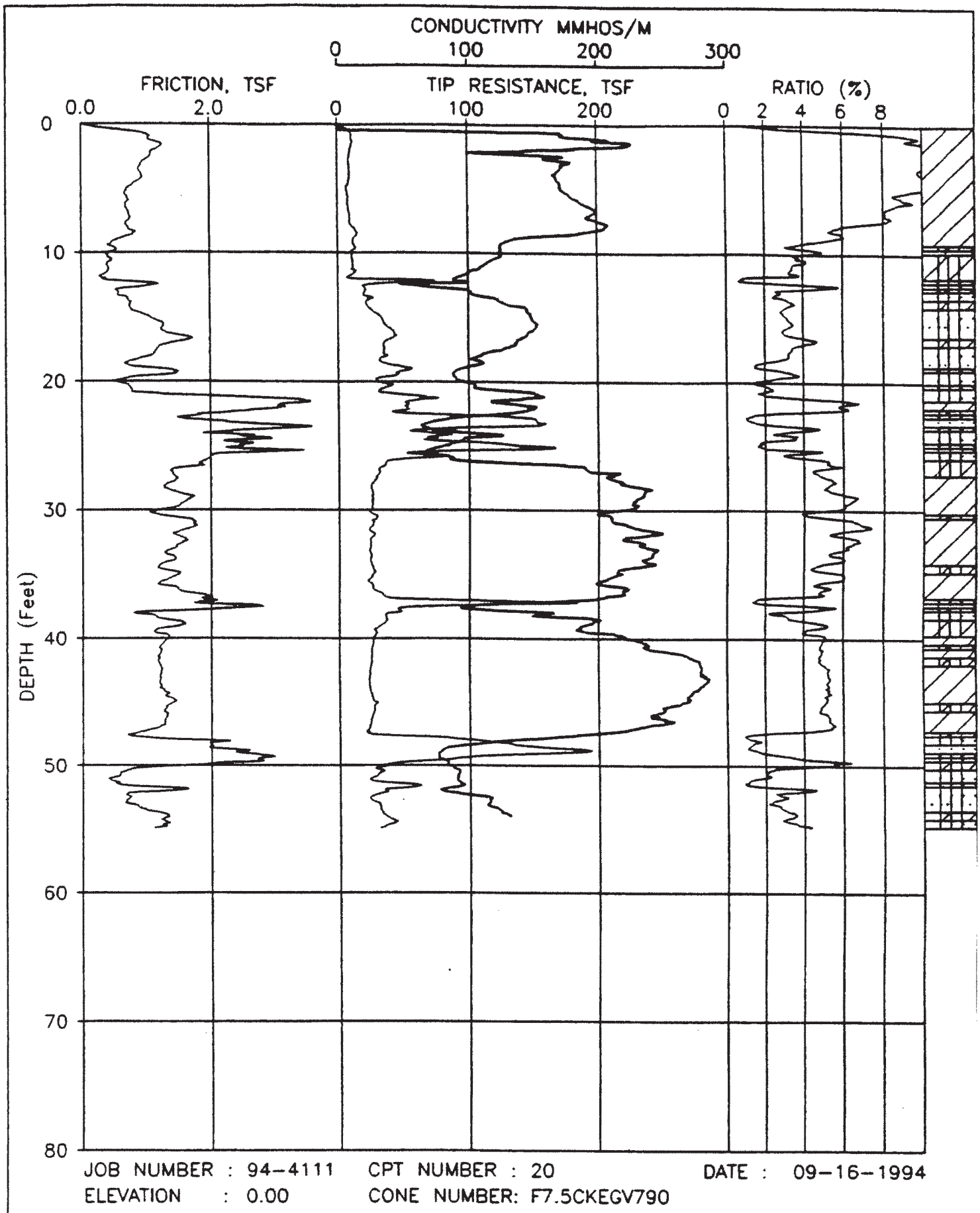

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
3.3
2.3
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP
JOB NUMBER : 92-2040
CPT NUMBER : 09
DATE : 02-14-1992
ELEVATION : 0.00
CONE NUMBER: FSCKE709



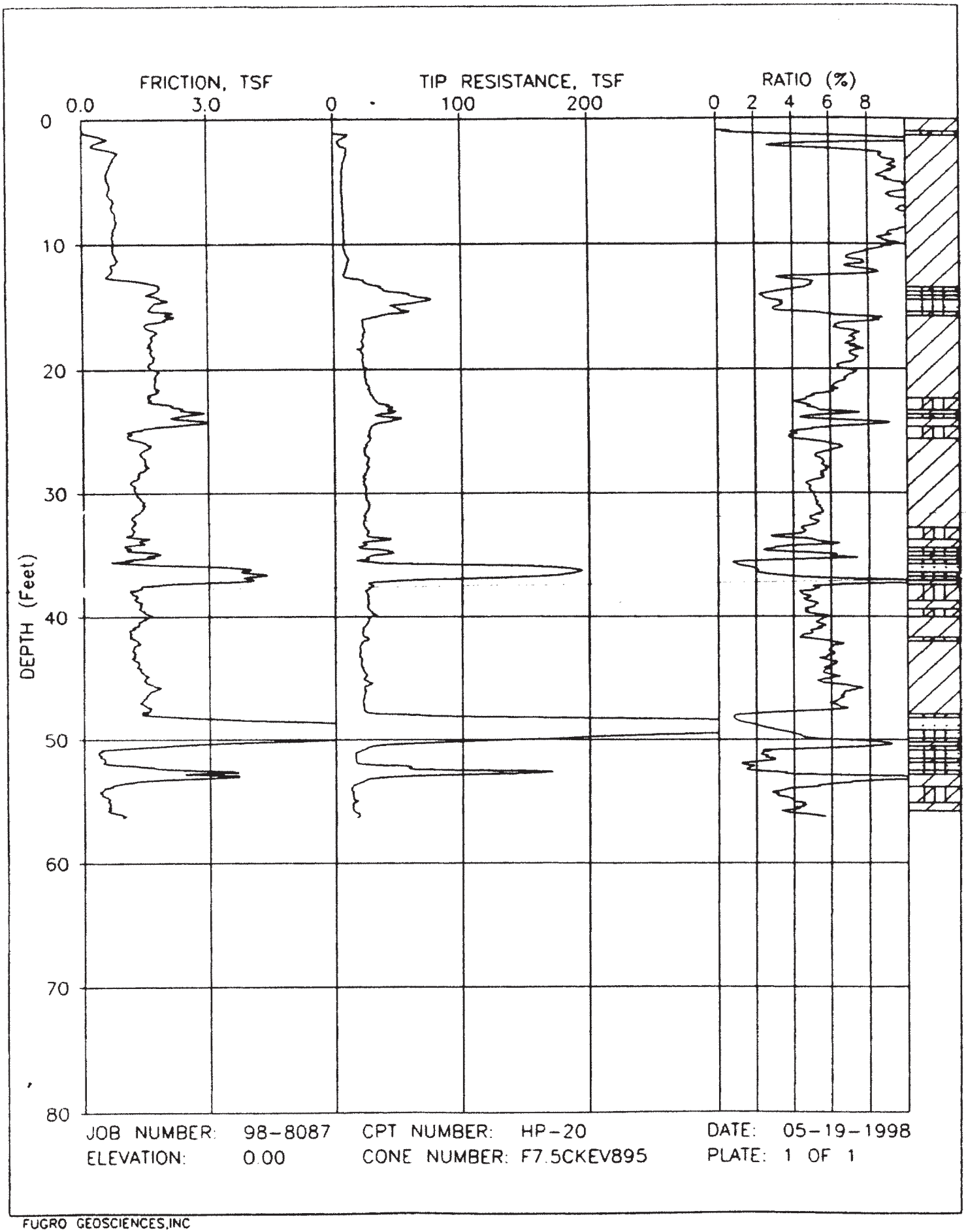
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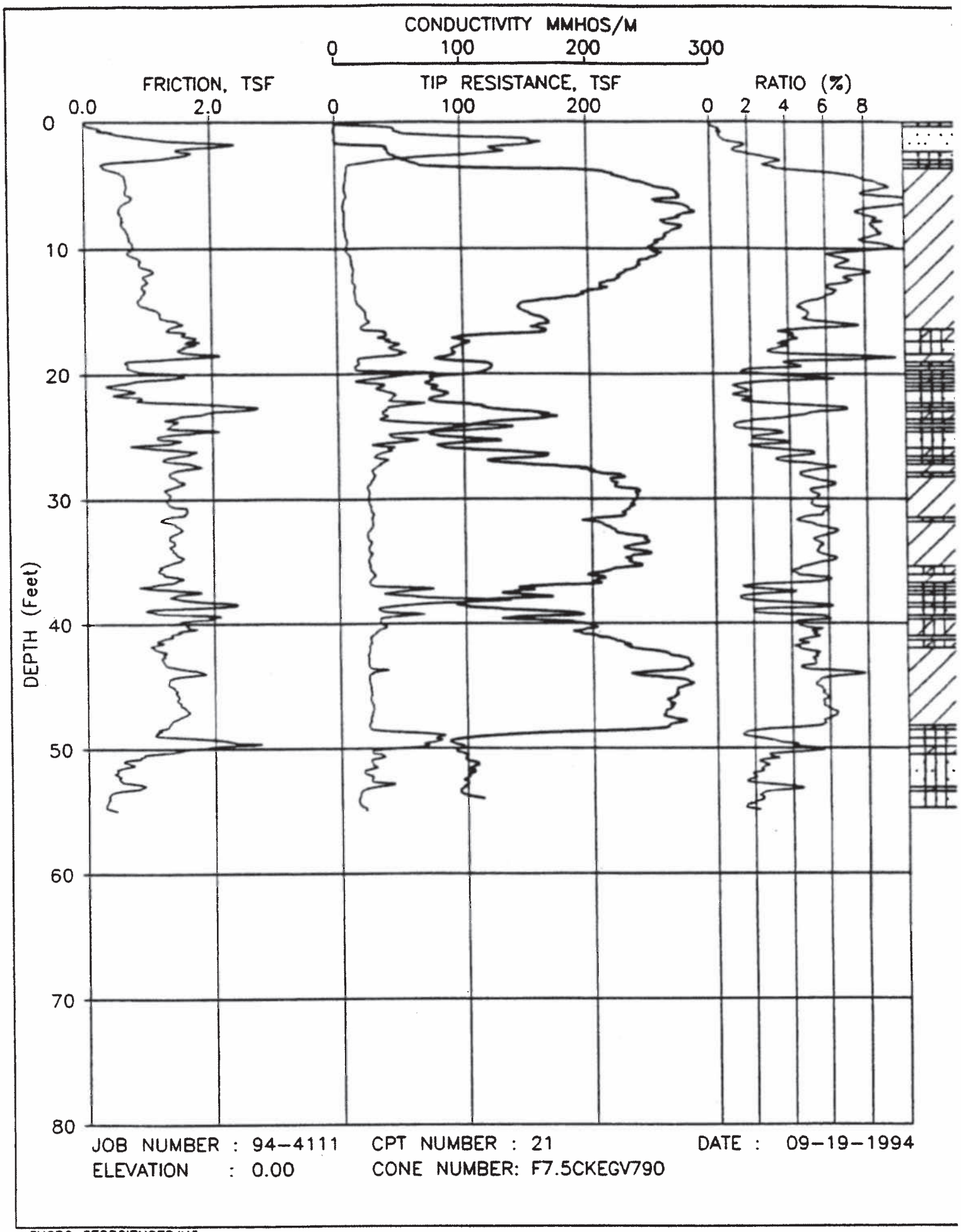
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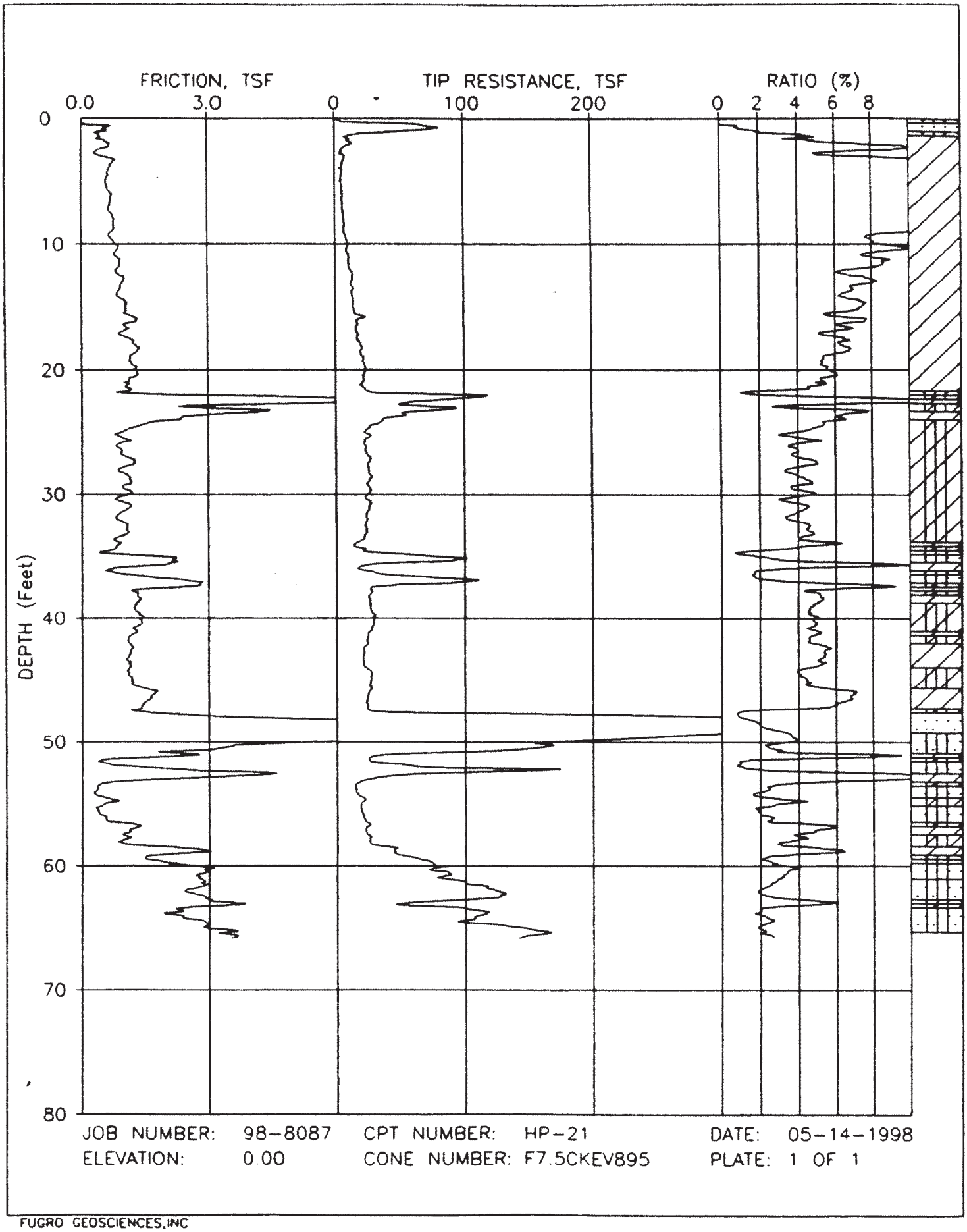
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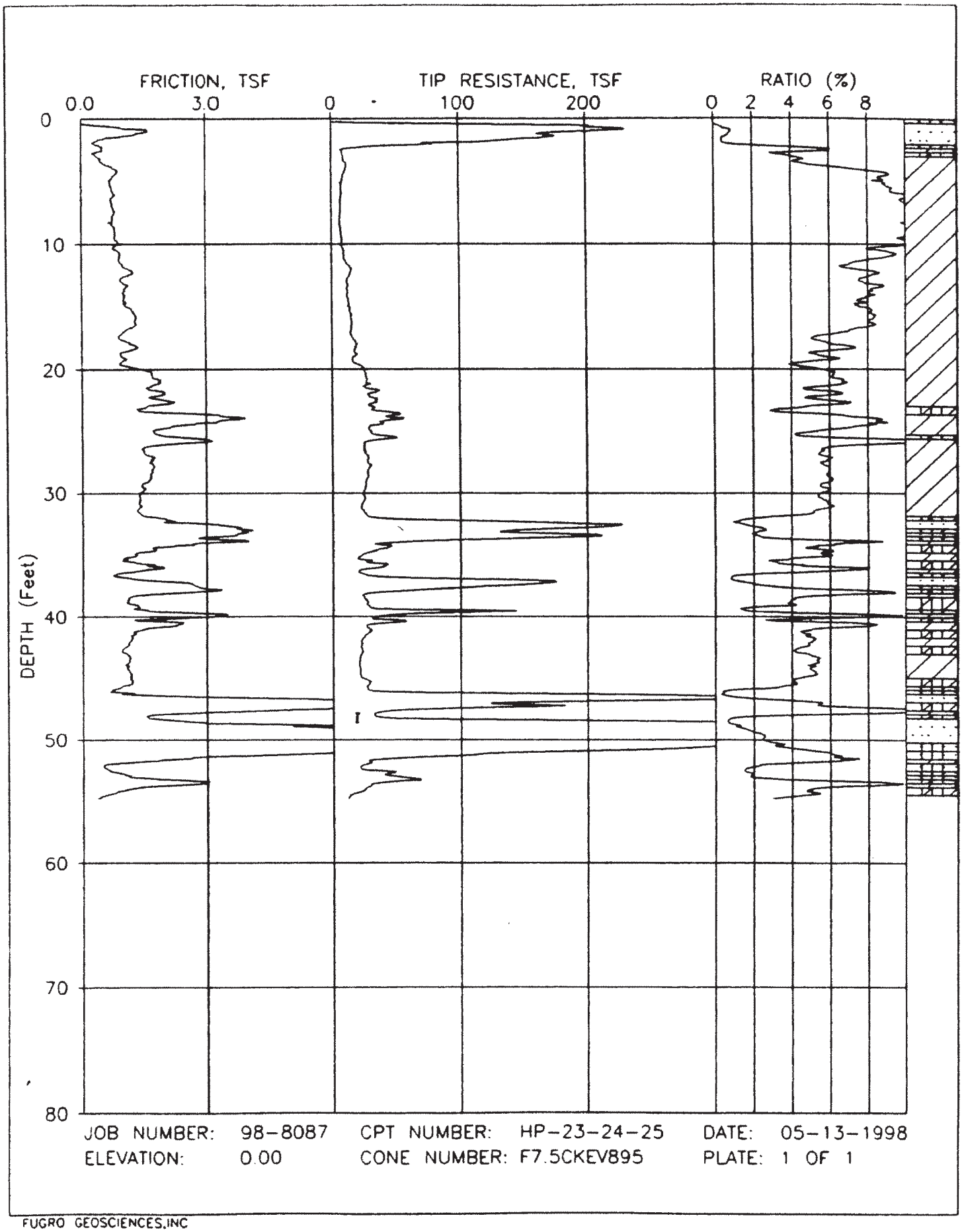
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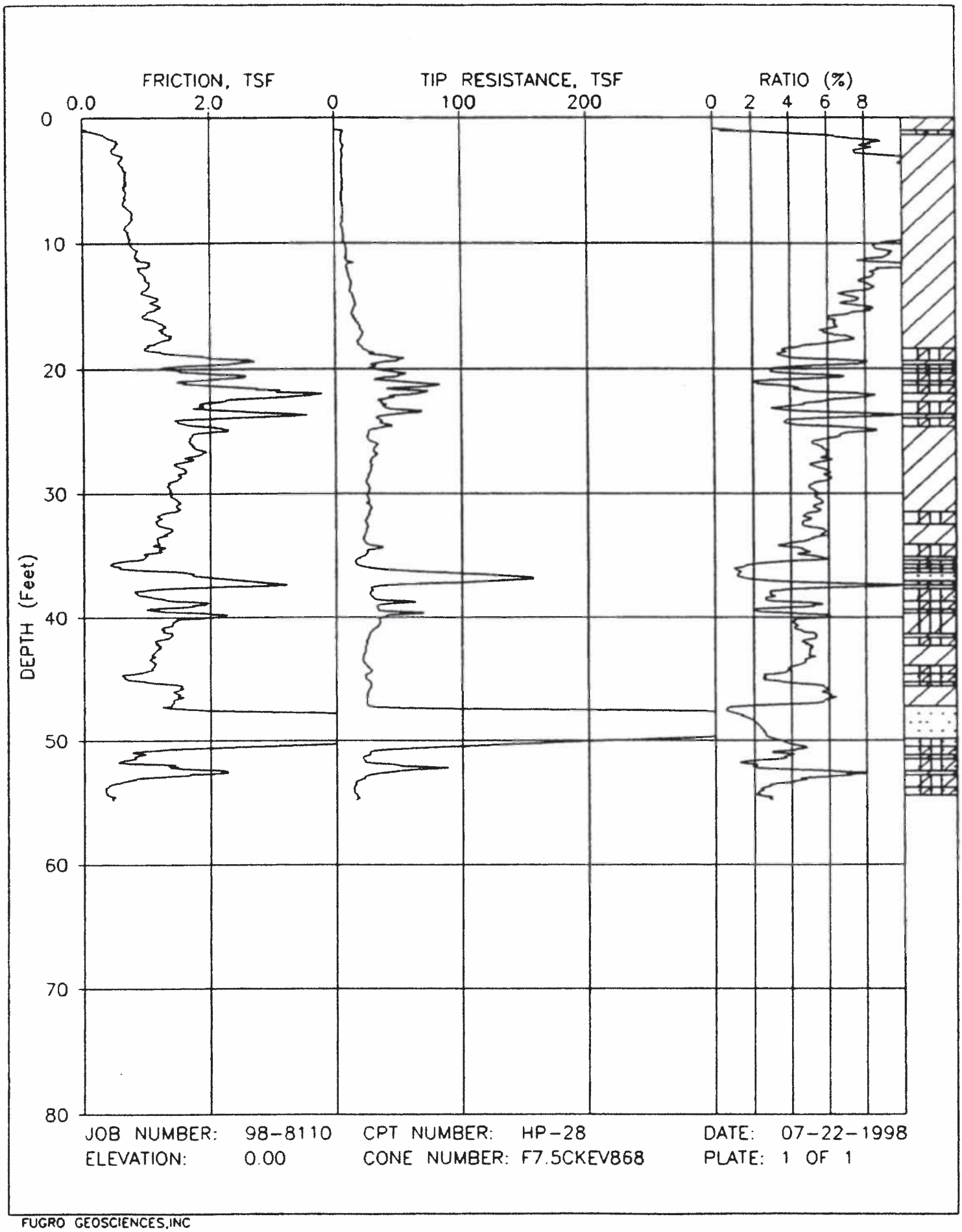
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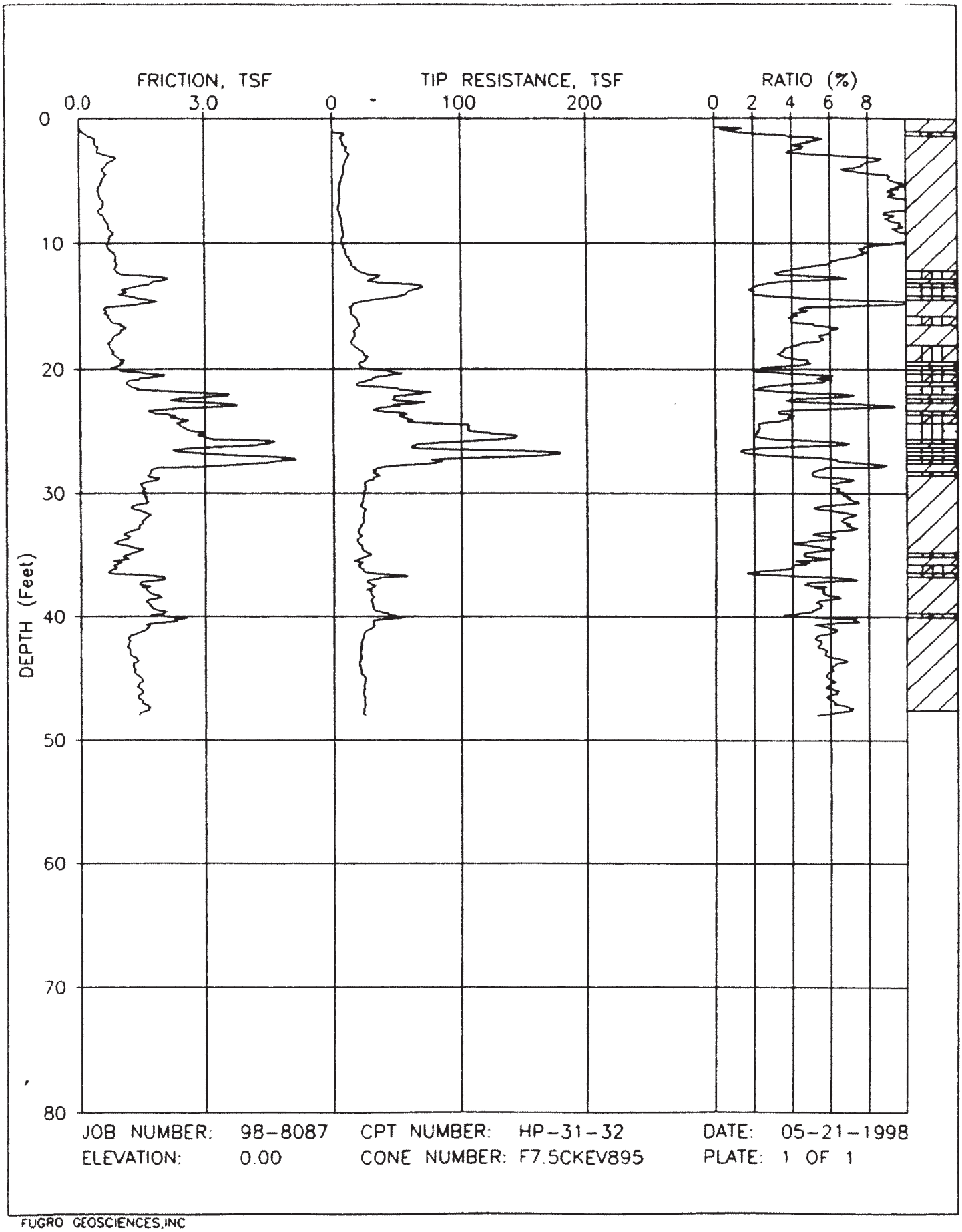
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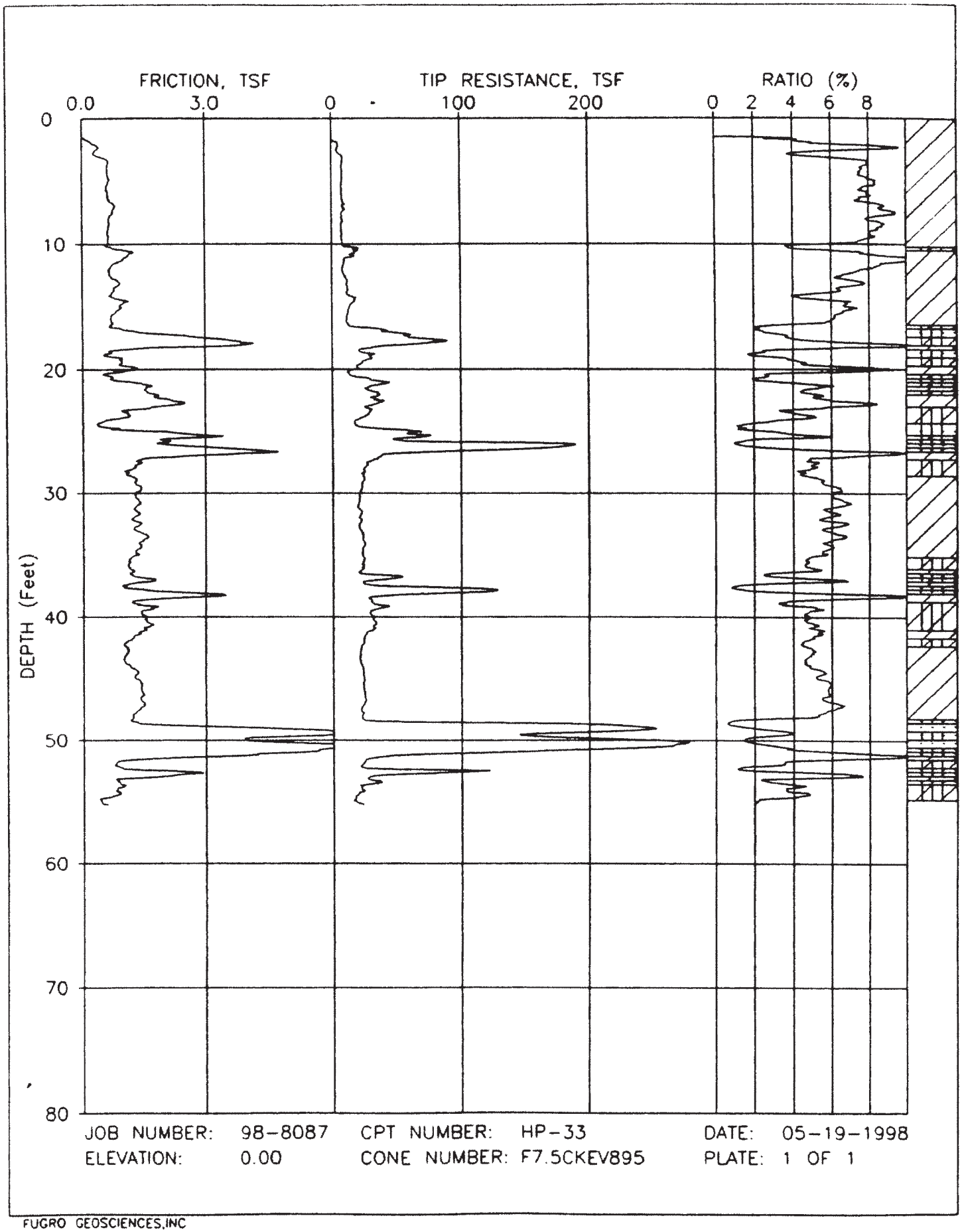
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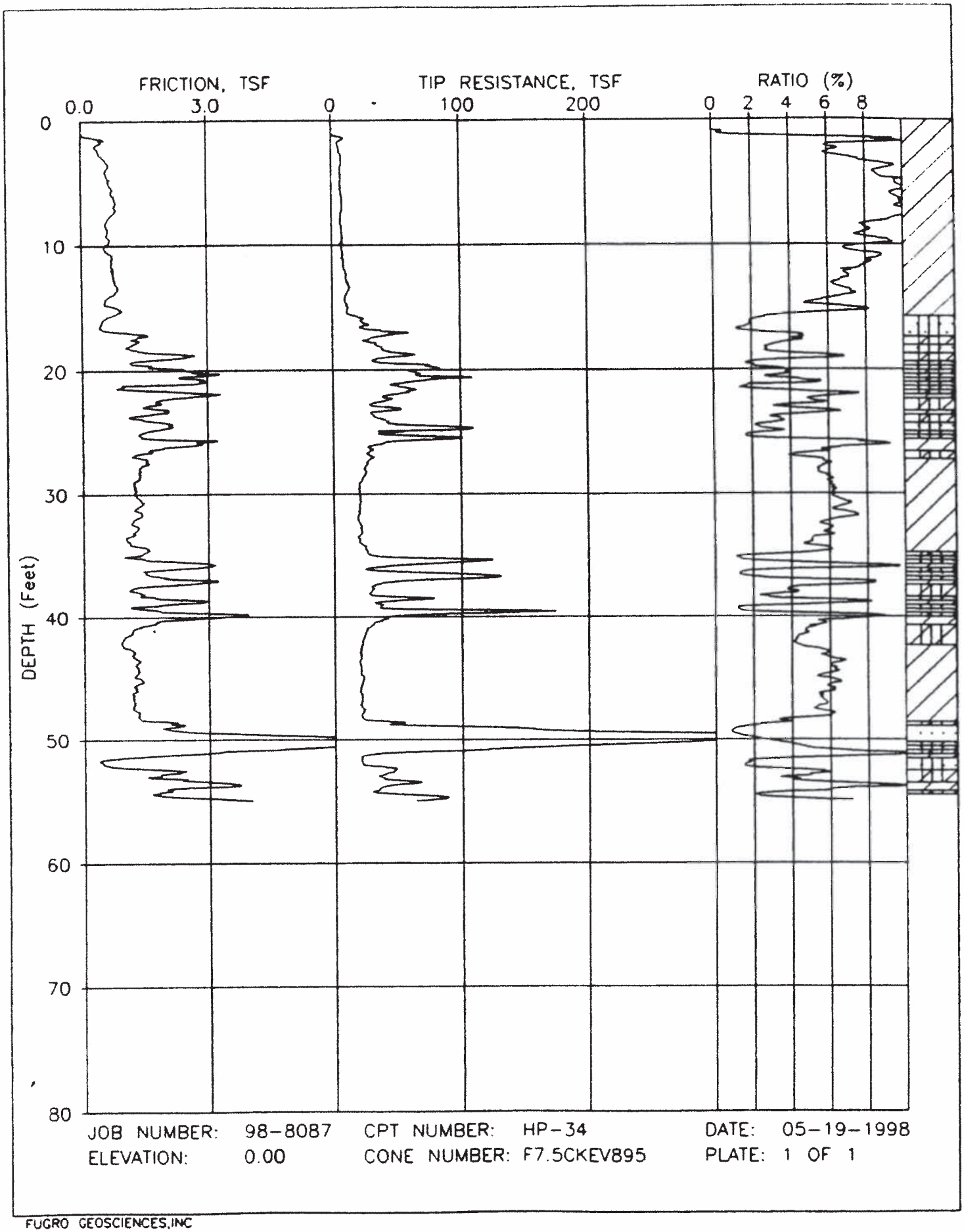
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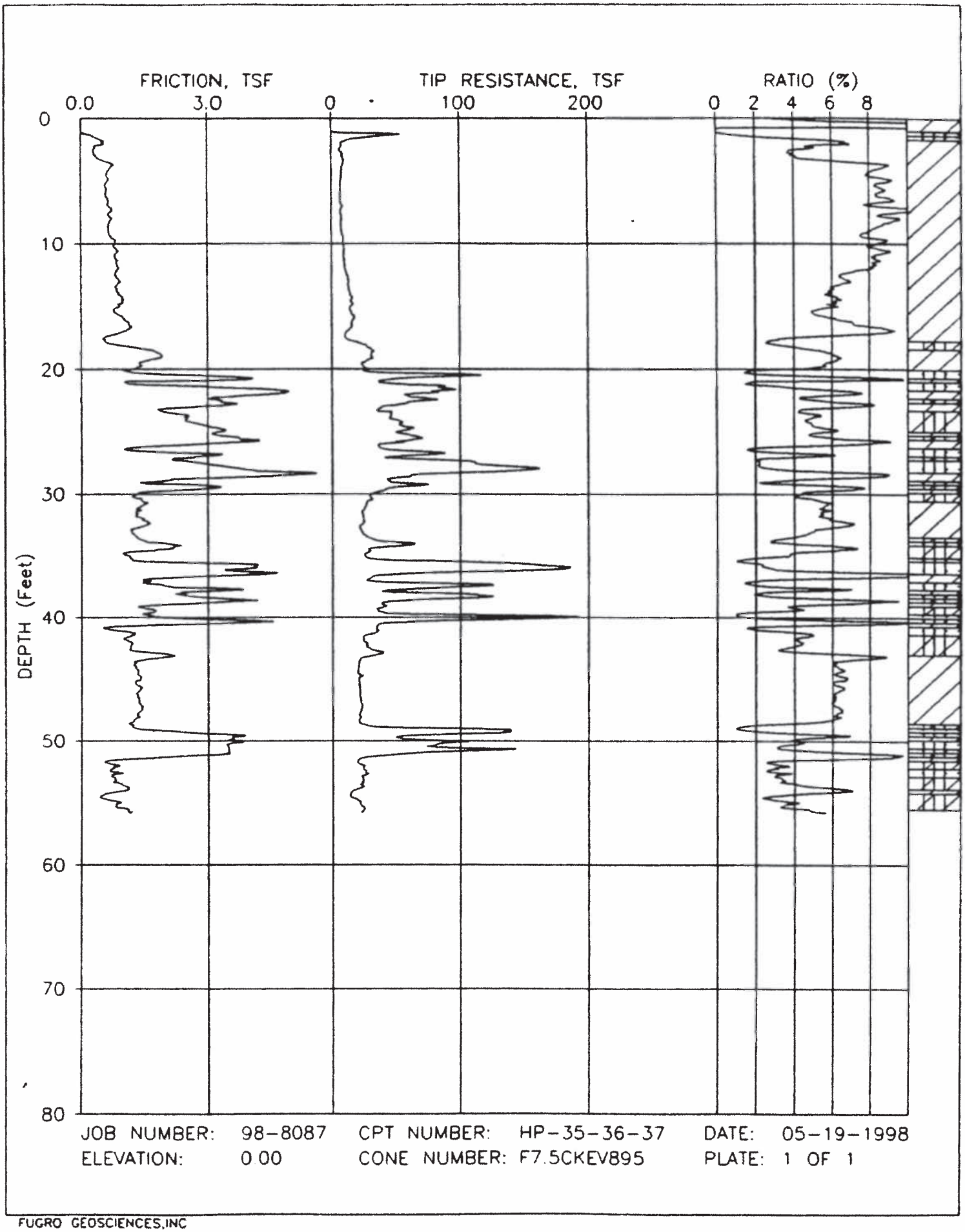
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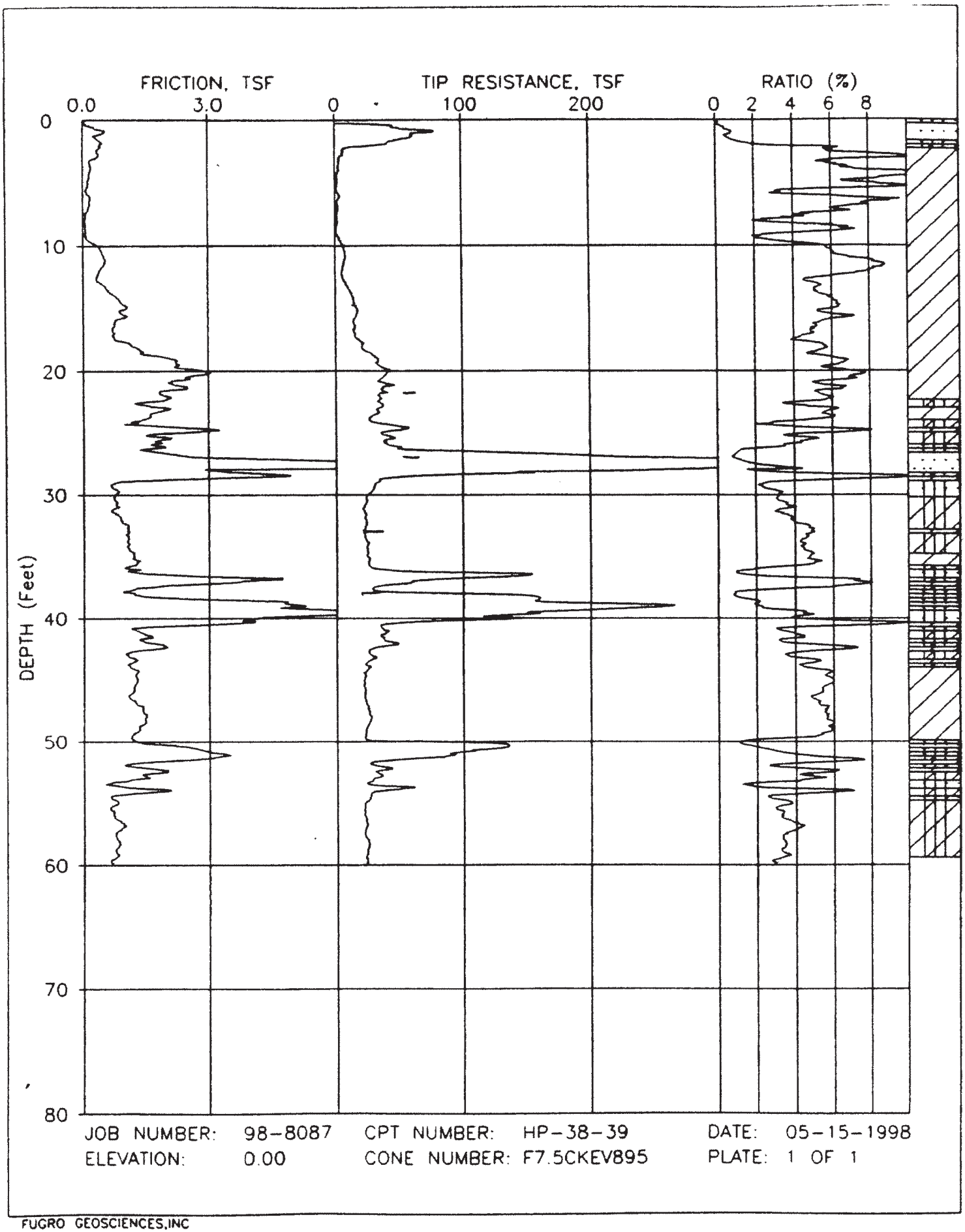
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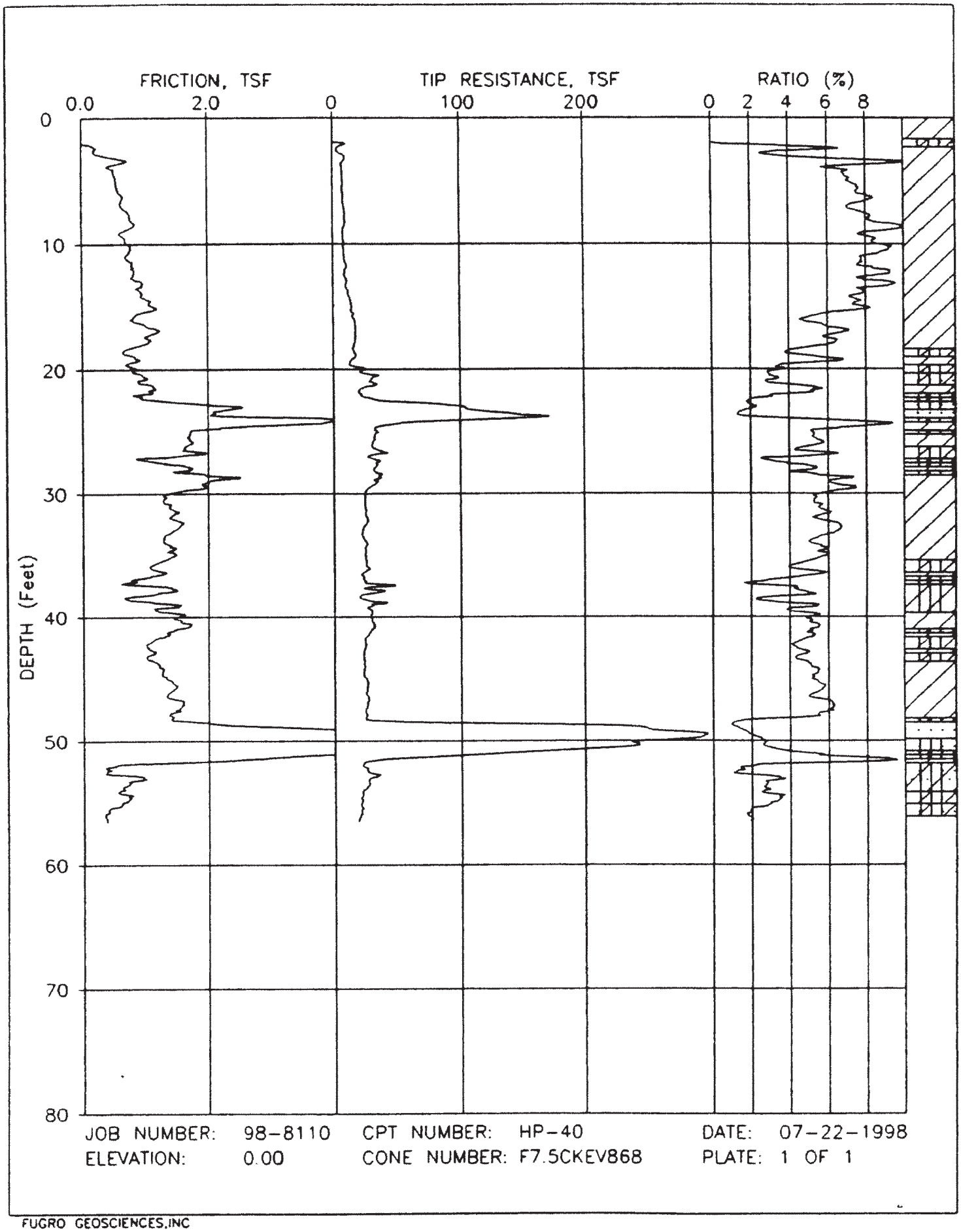
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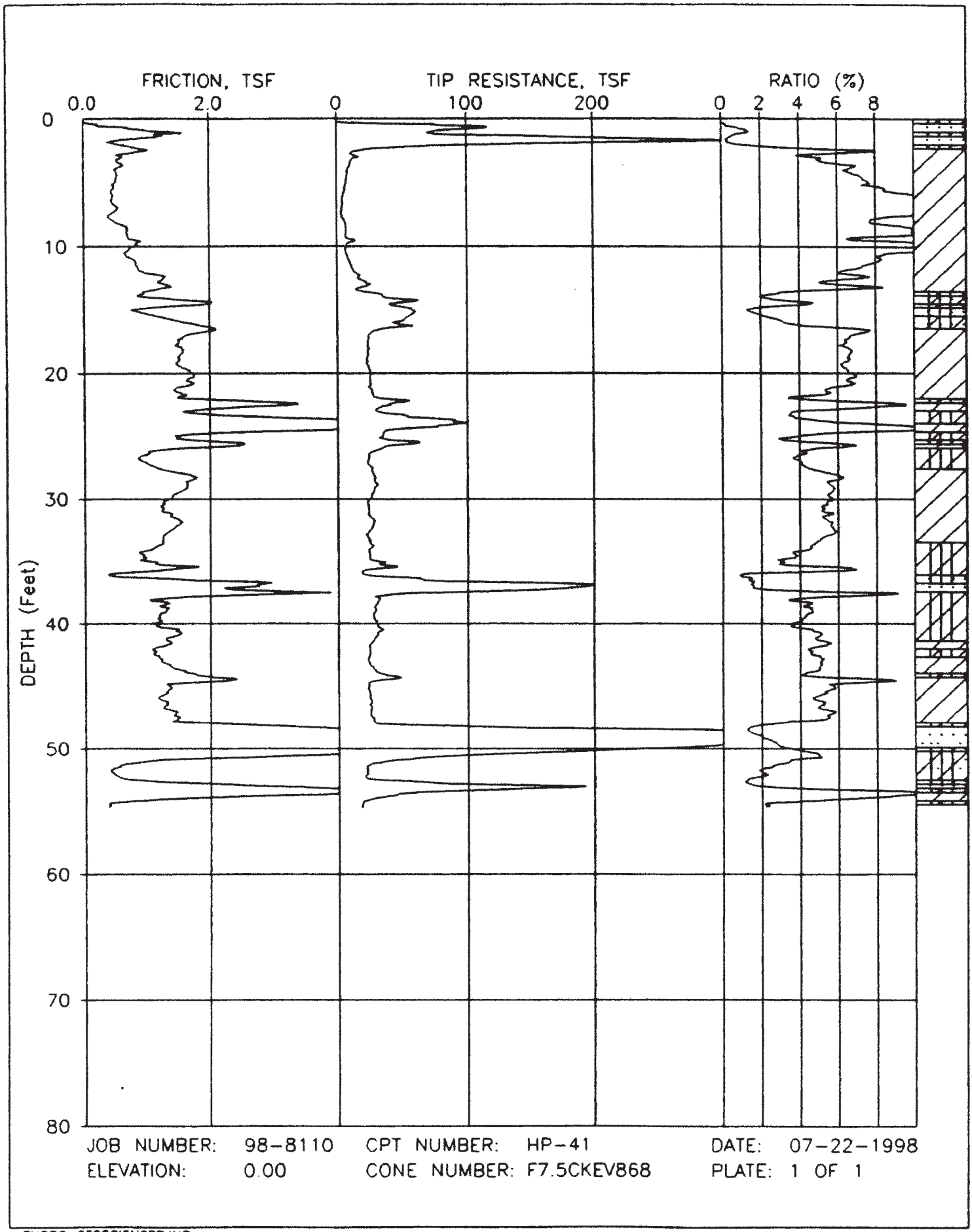
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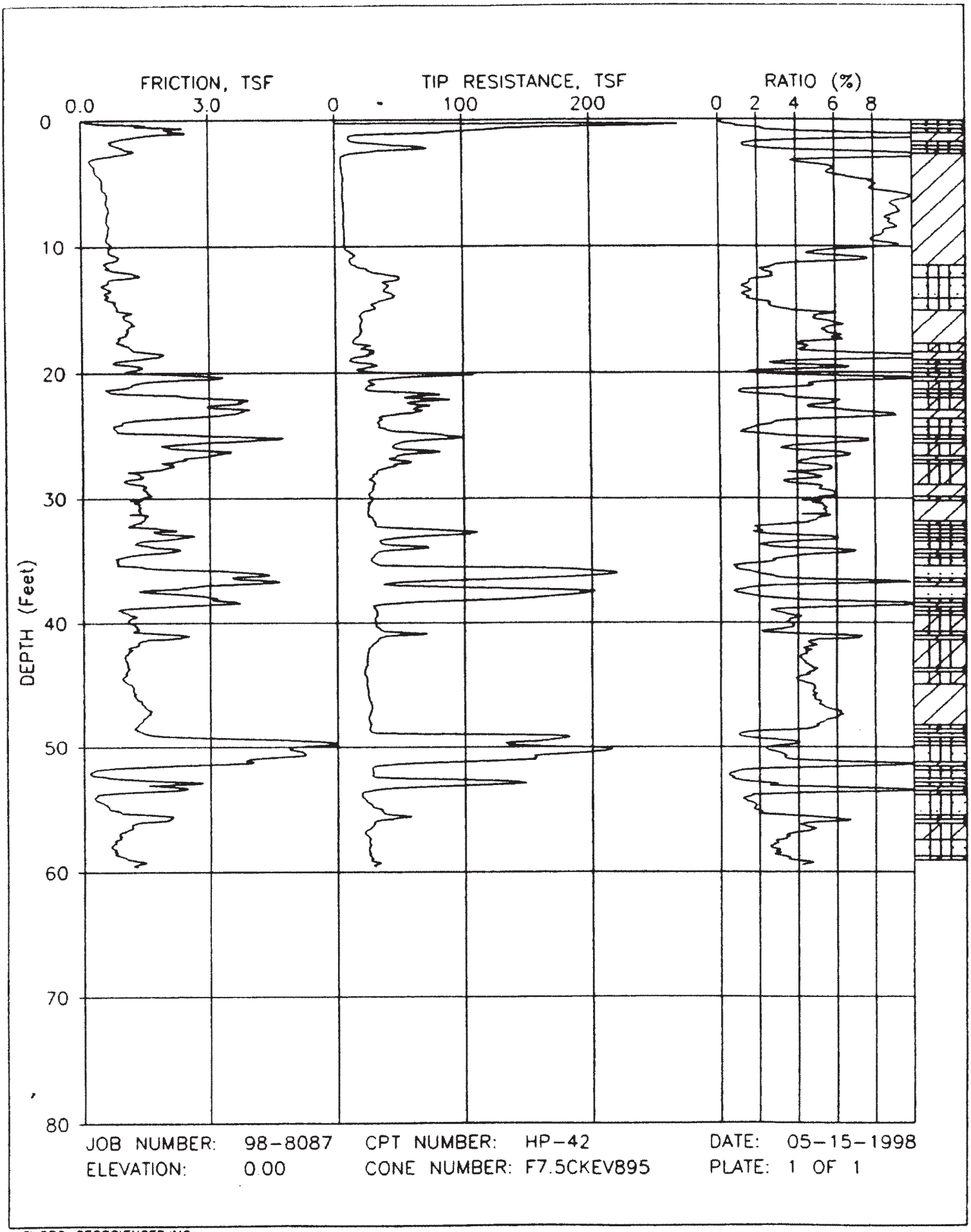
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FUGRO GEOSCIENCES,INC



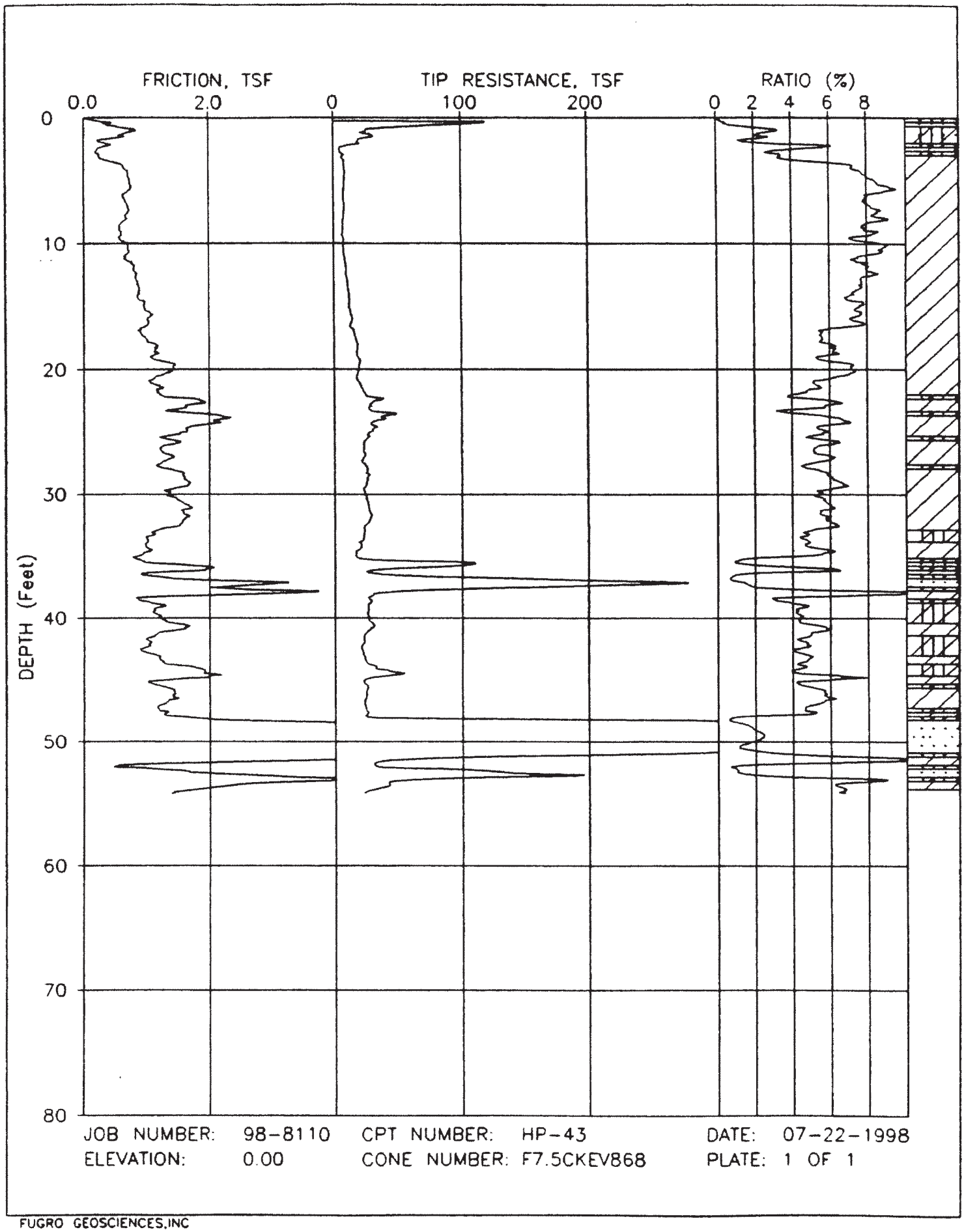
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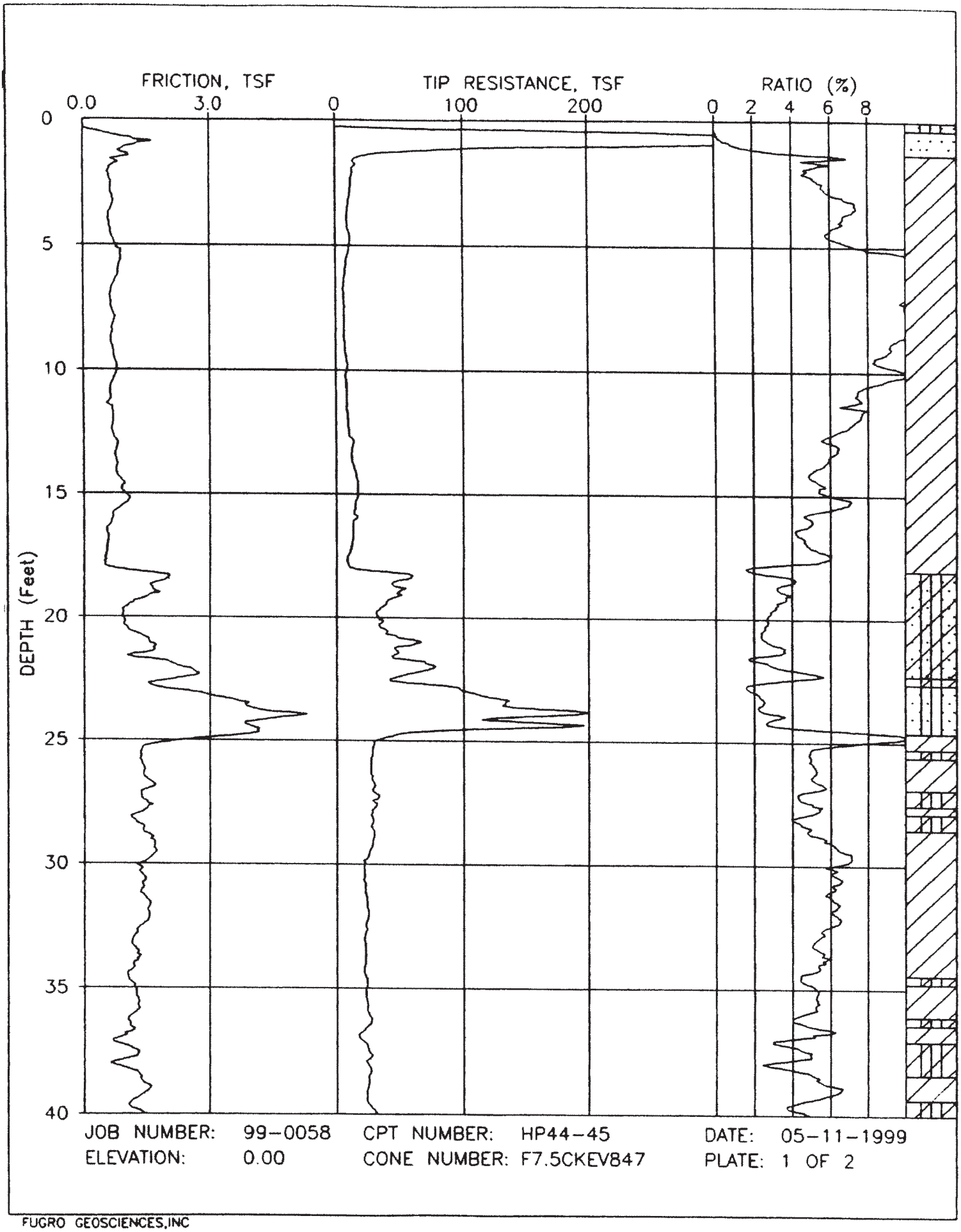
JOB NUMBER: 98-8087 CPT NUMBER: HP-42 DATE: 05-15-1998

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV895 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



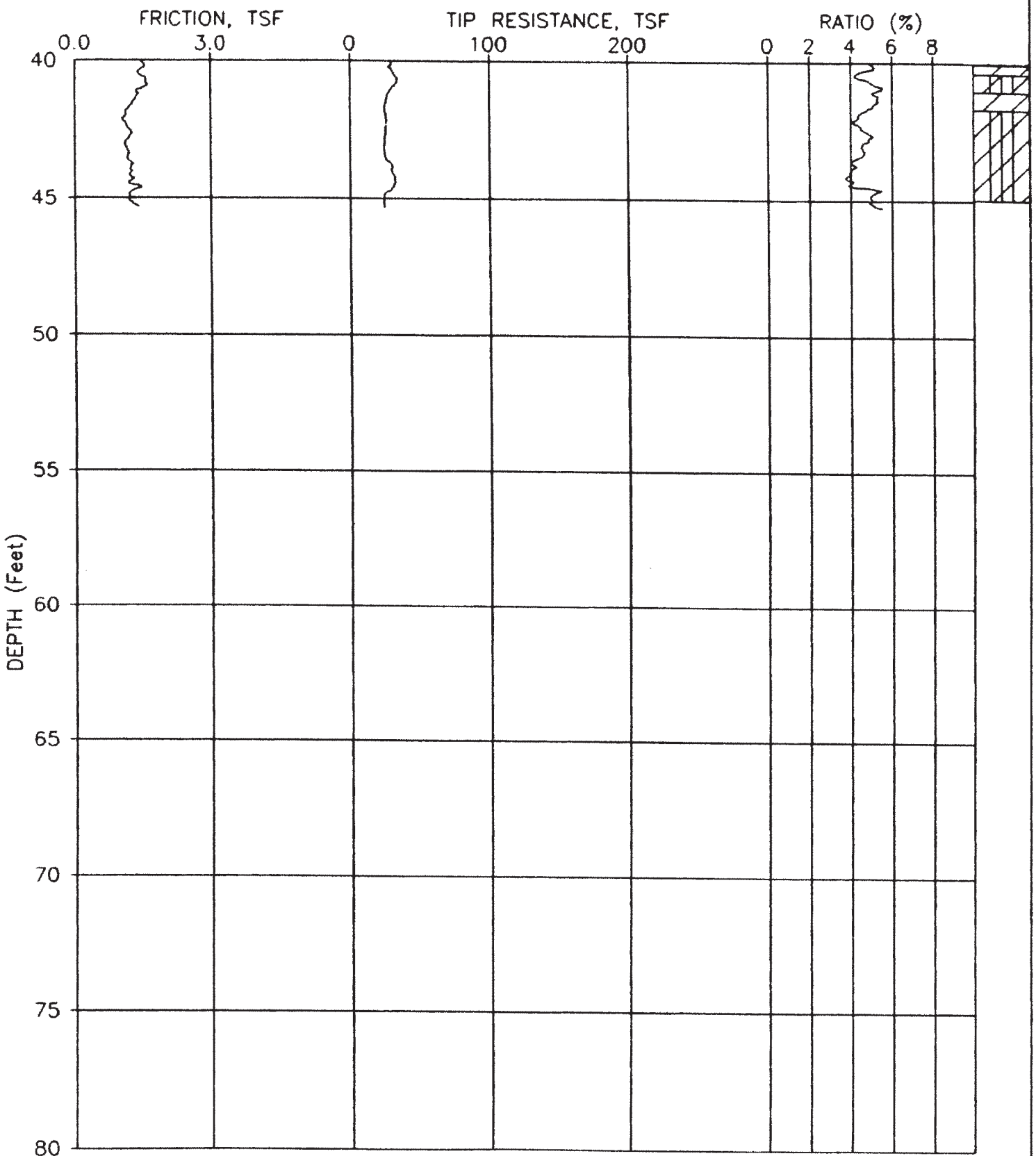
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP44-45 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 2

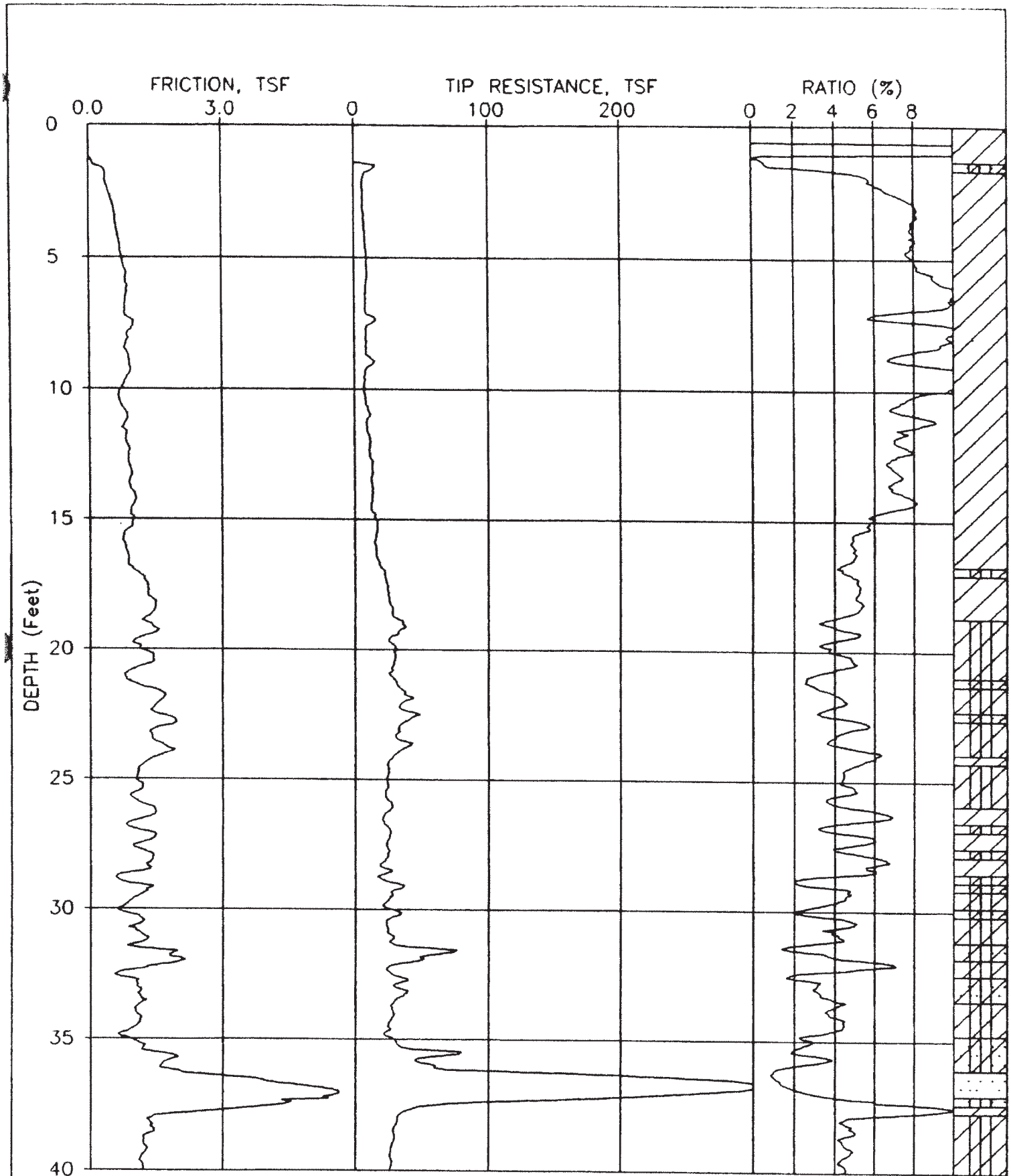
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP44-45 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2

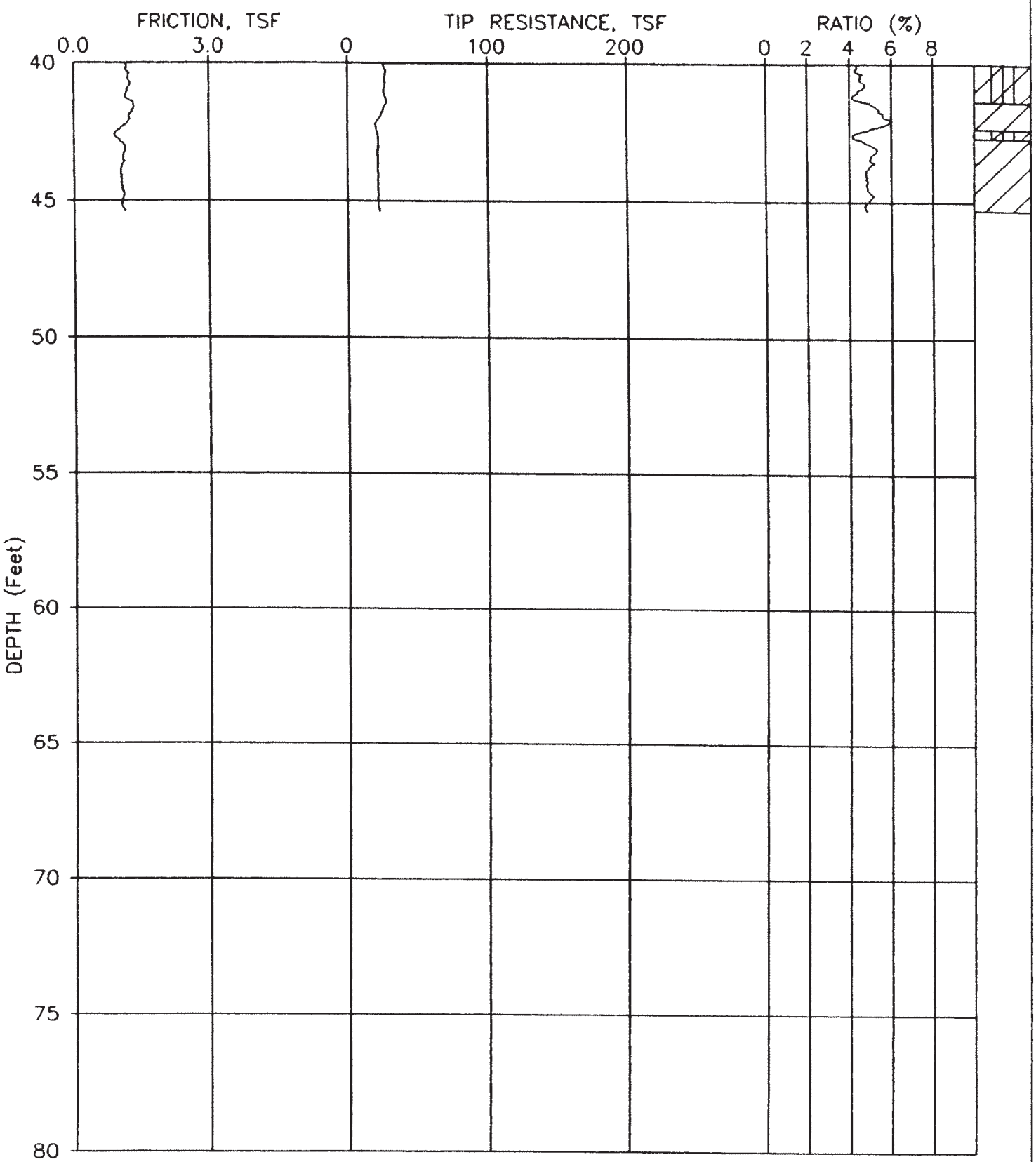
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP52-53 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 2

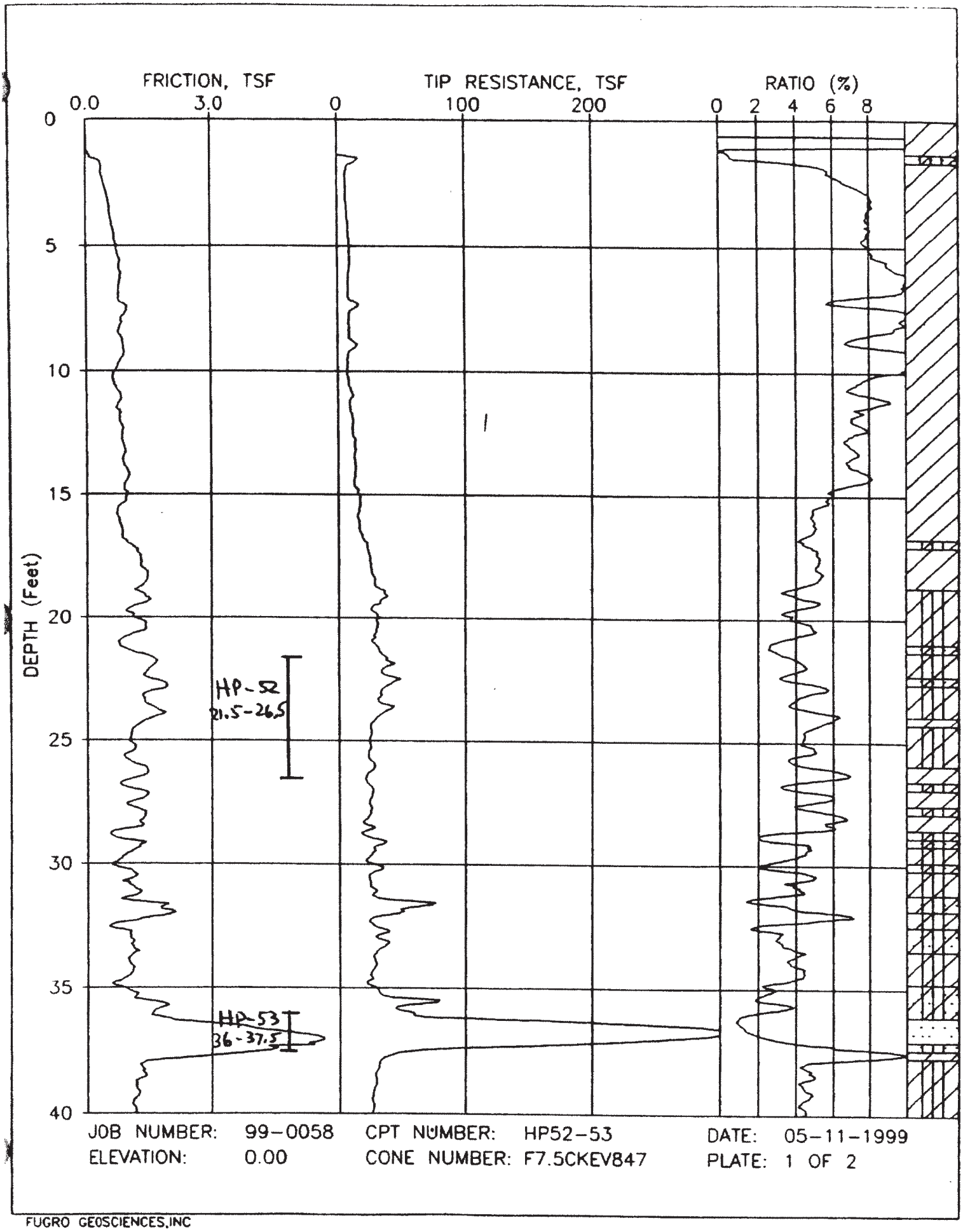
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0058 CPT NUMBER: HP52-53 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 2 OF 2

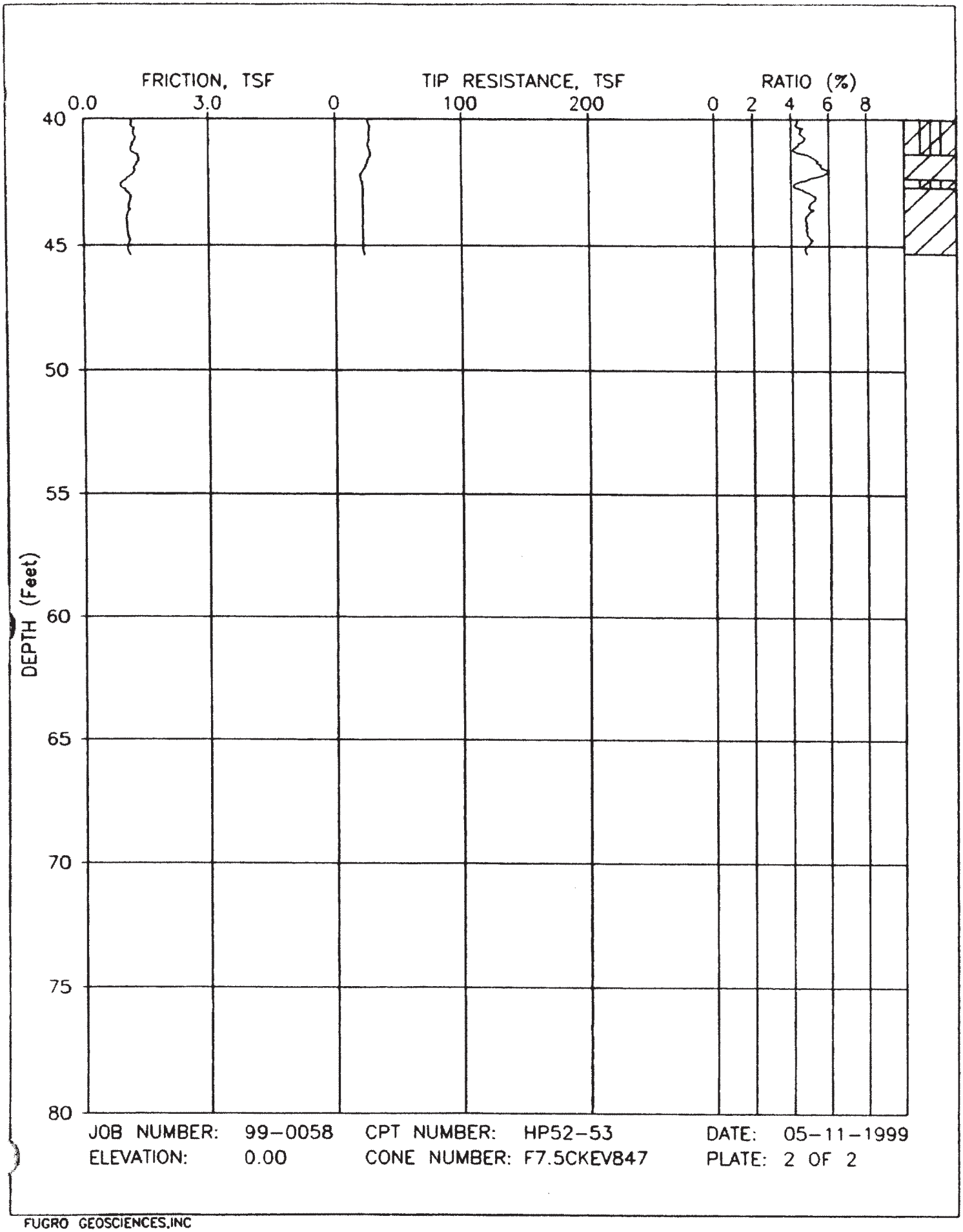
FUGRO GEOSCIENCES,INC



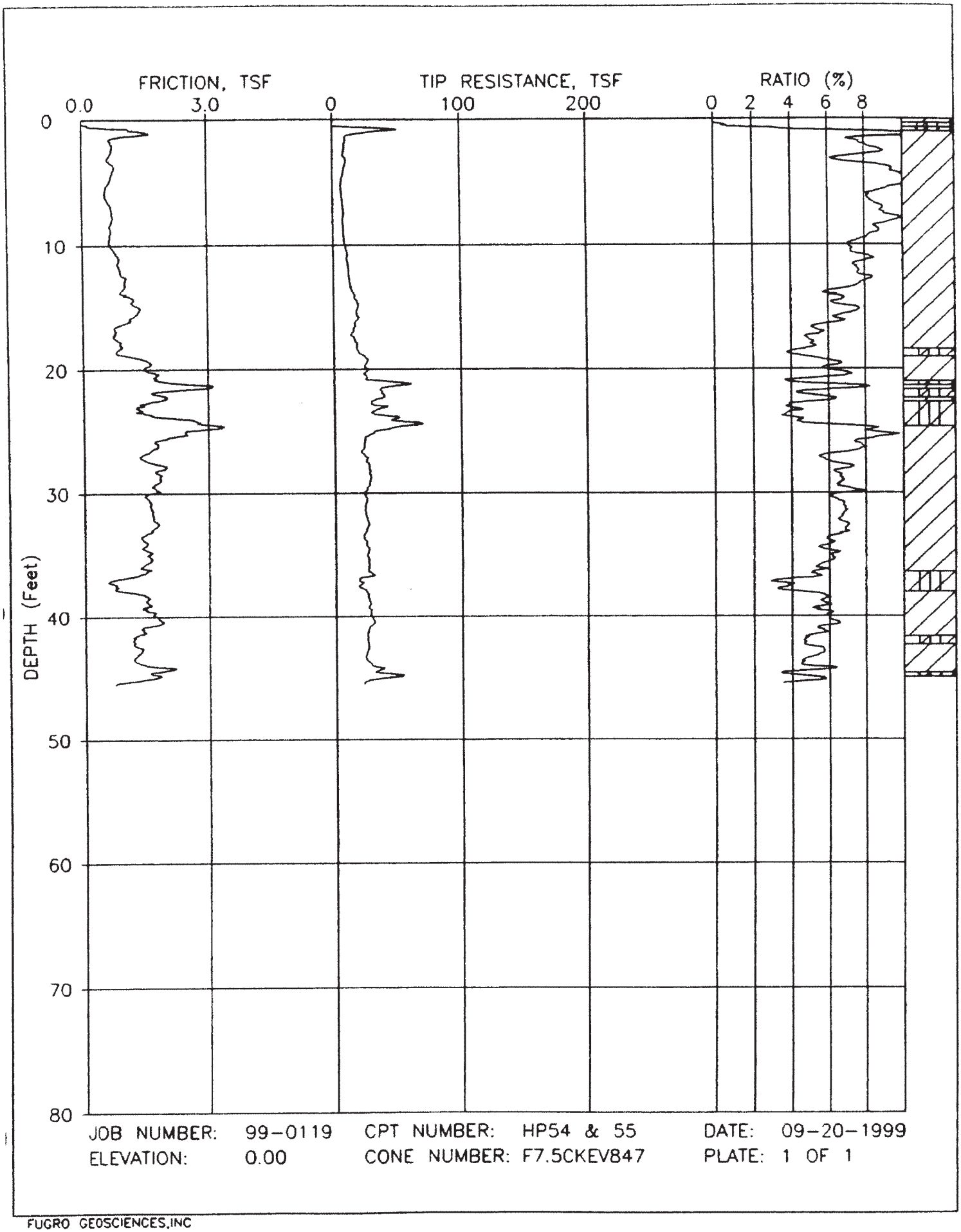
JOB NUMBER: 99-0058 CPT NUMBER: HP52-53 DATE: 05-11-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 2

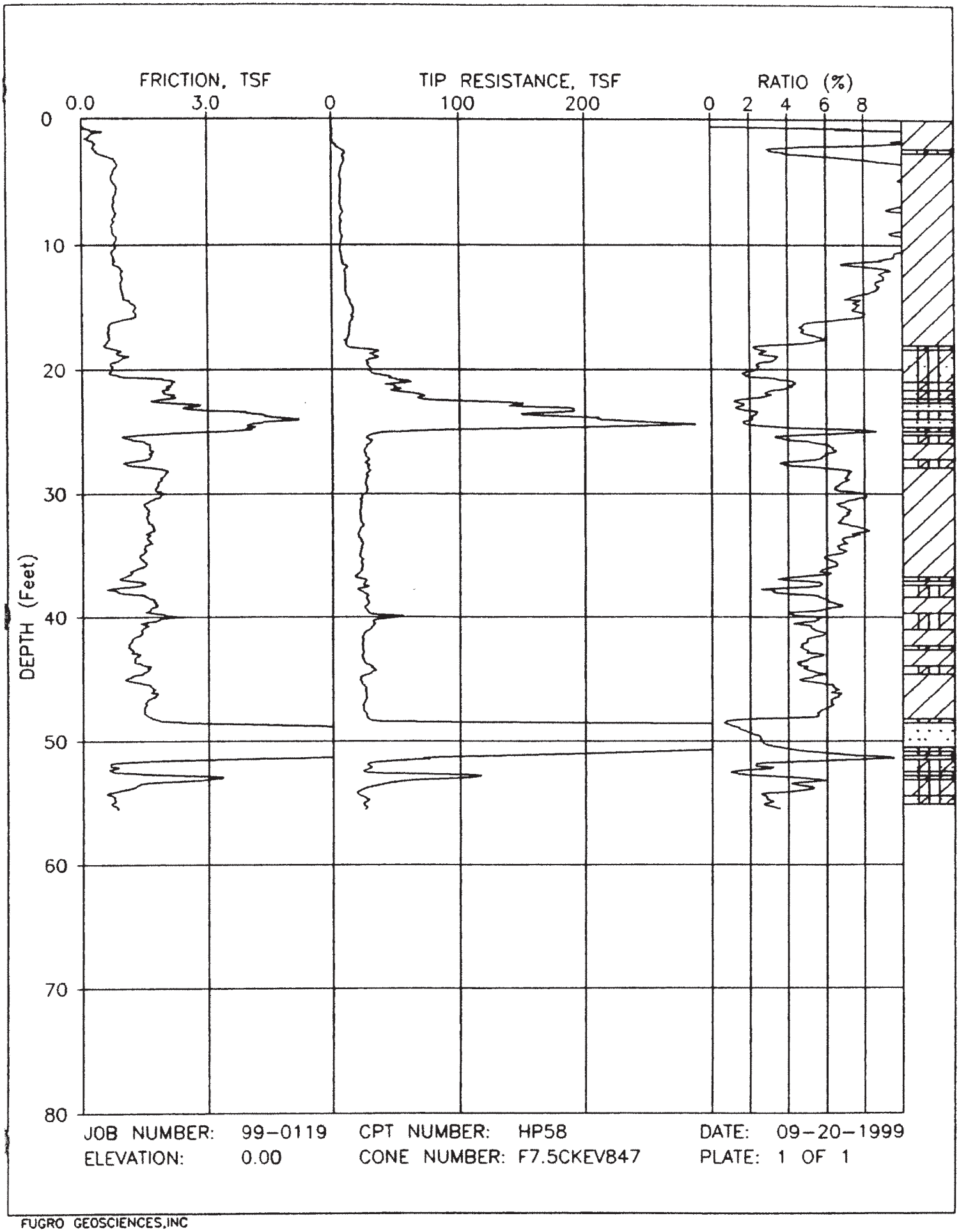
FUGRO GEOSCIENCES,INC



FUGRO GEOSCIENCES,INC



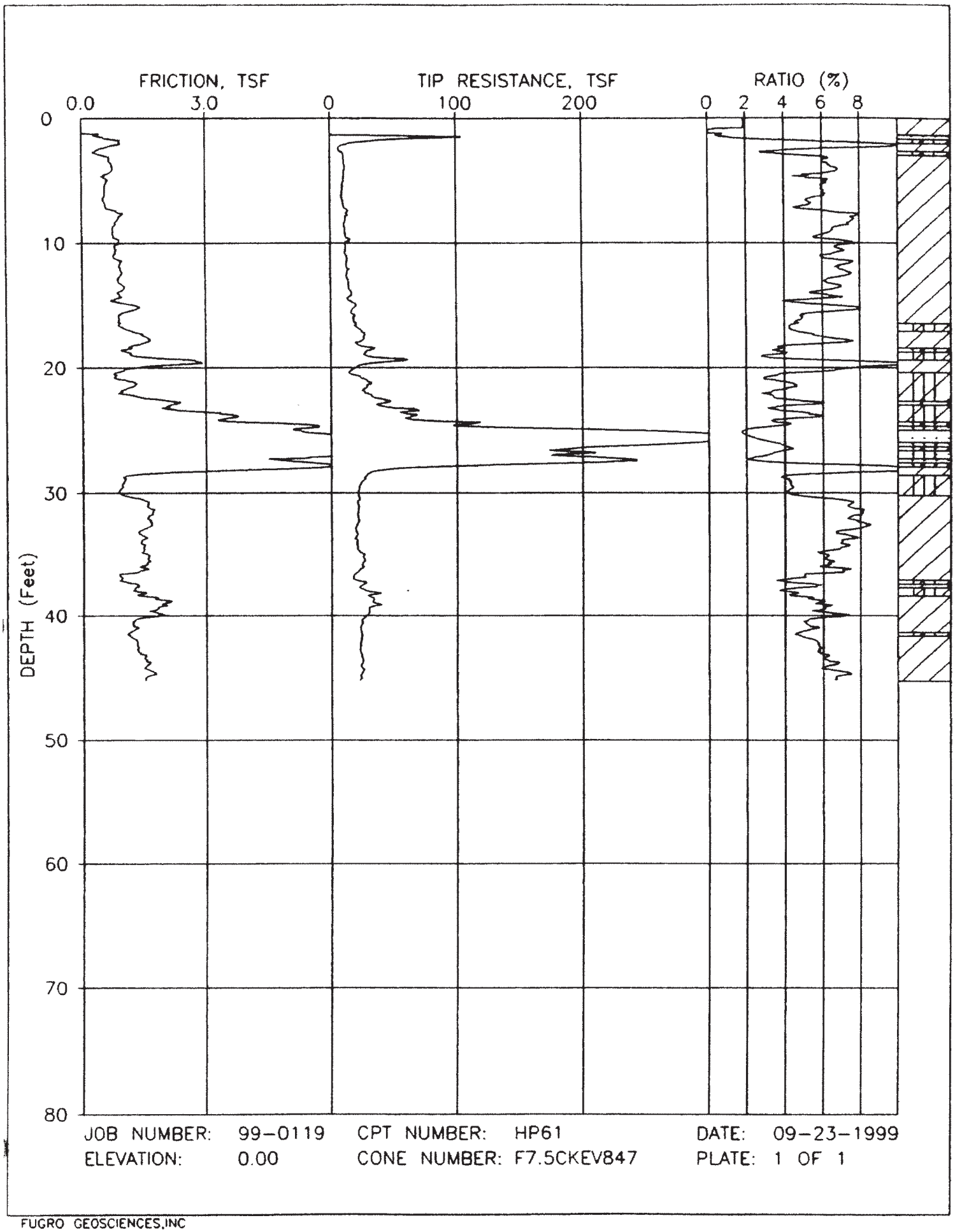
FUGRO GEOSCIENCES,INC



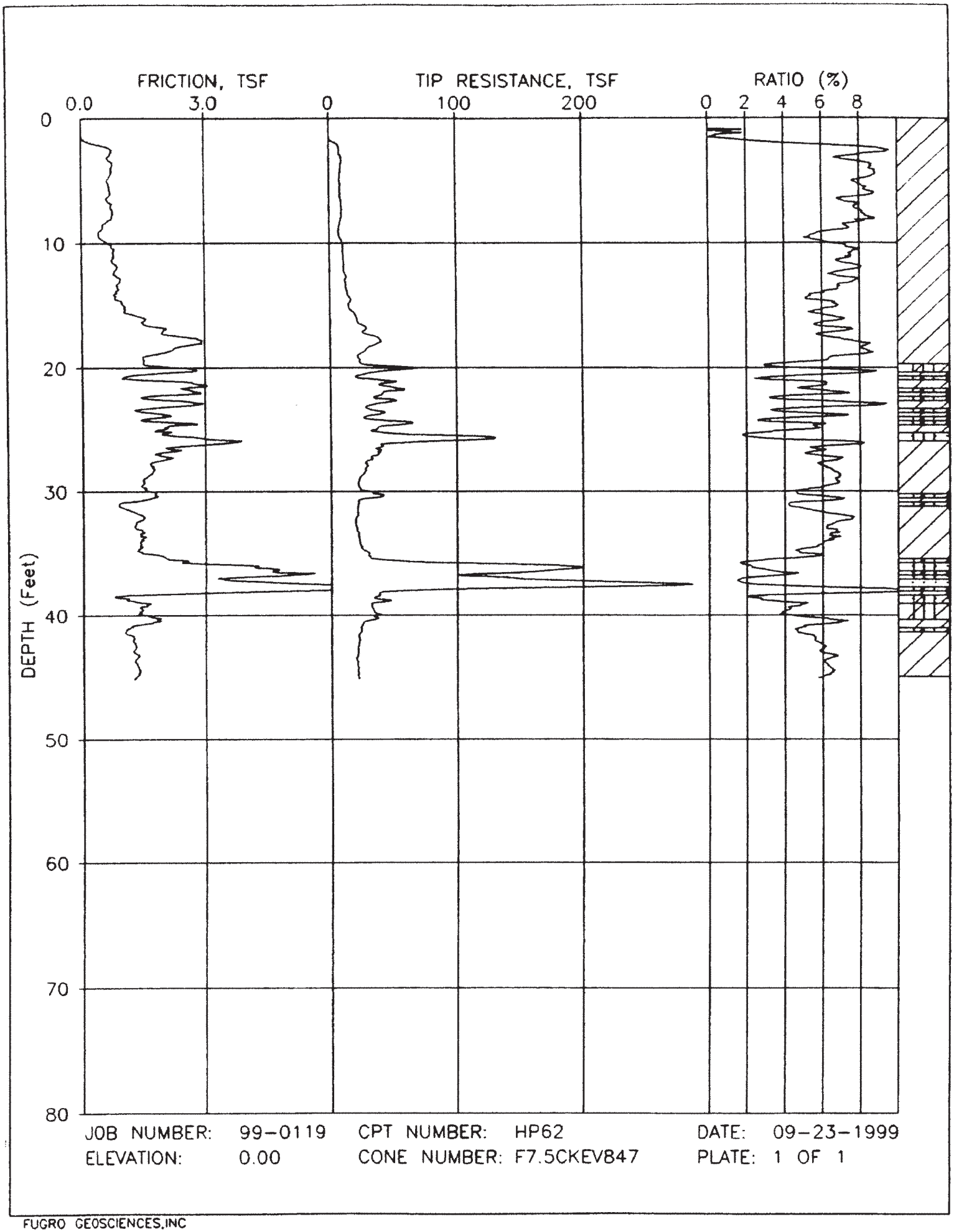
JOB NUMBER: 99-0119 CPT NUMBER: HP58 DATE: 09-20-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



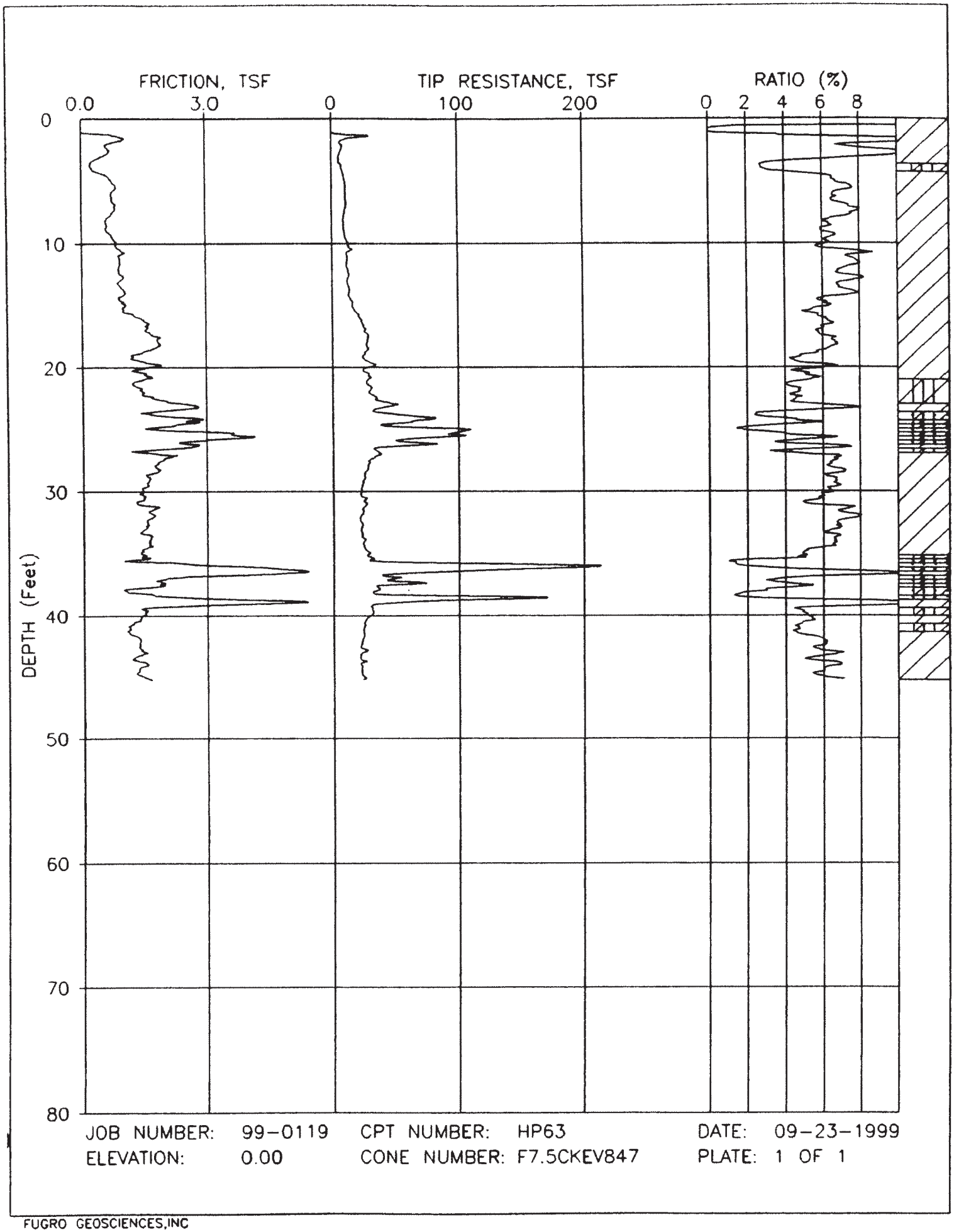
FUGRO GEOSCIENCES,INC



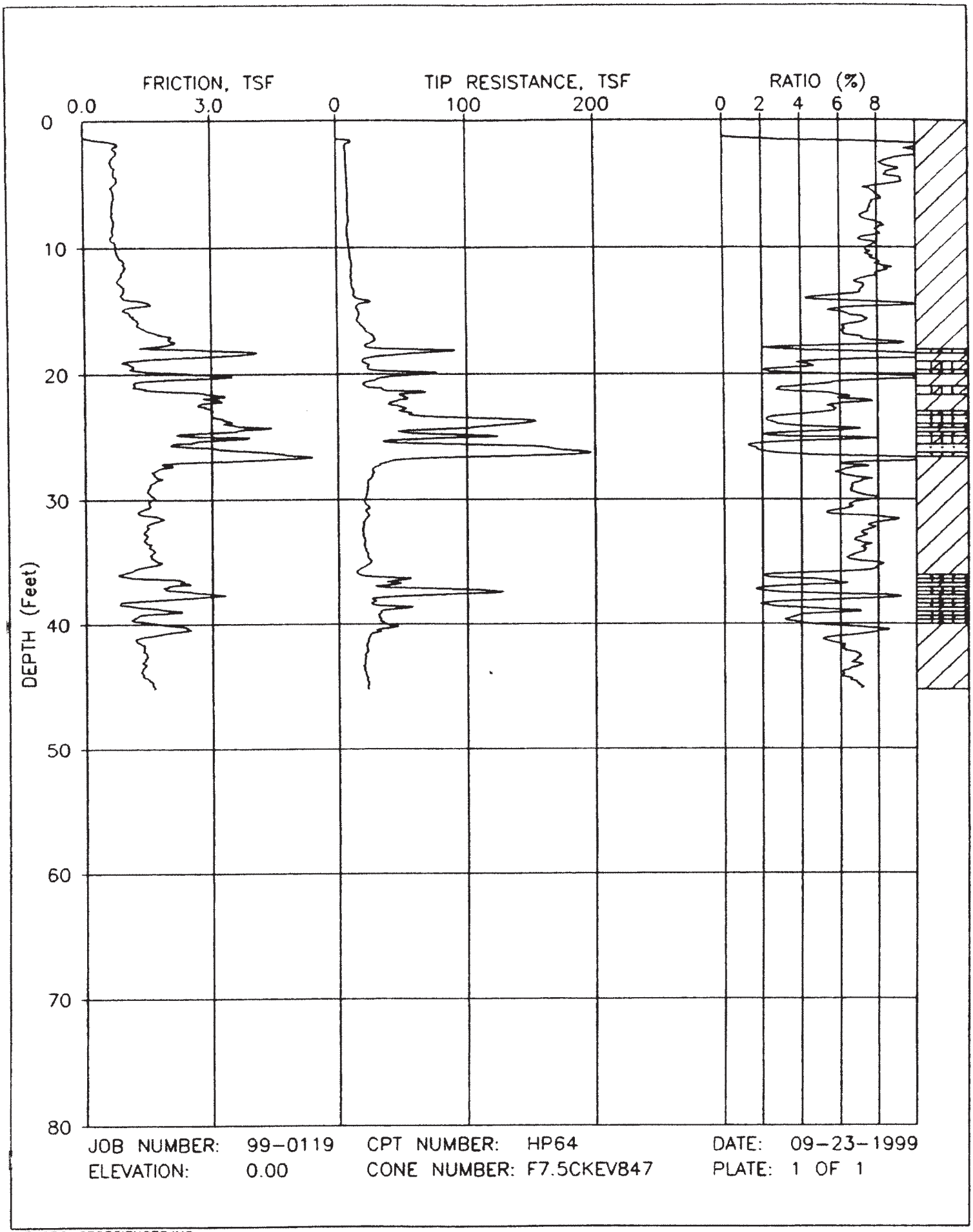
JOB NUMBER: 99-0119 CPT NUMBER: HP62 DATE: 09-23-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

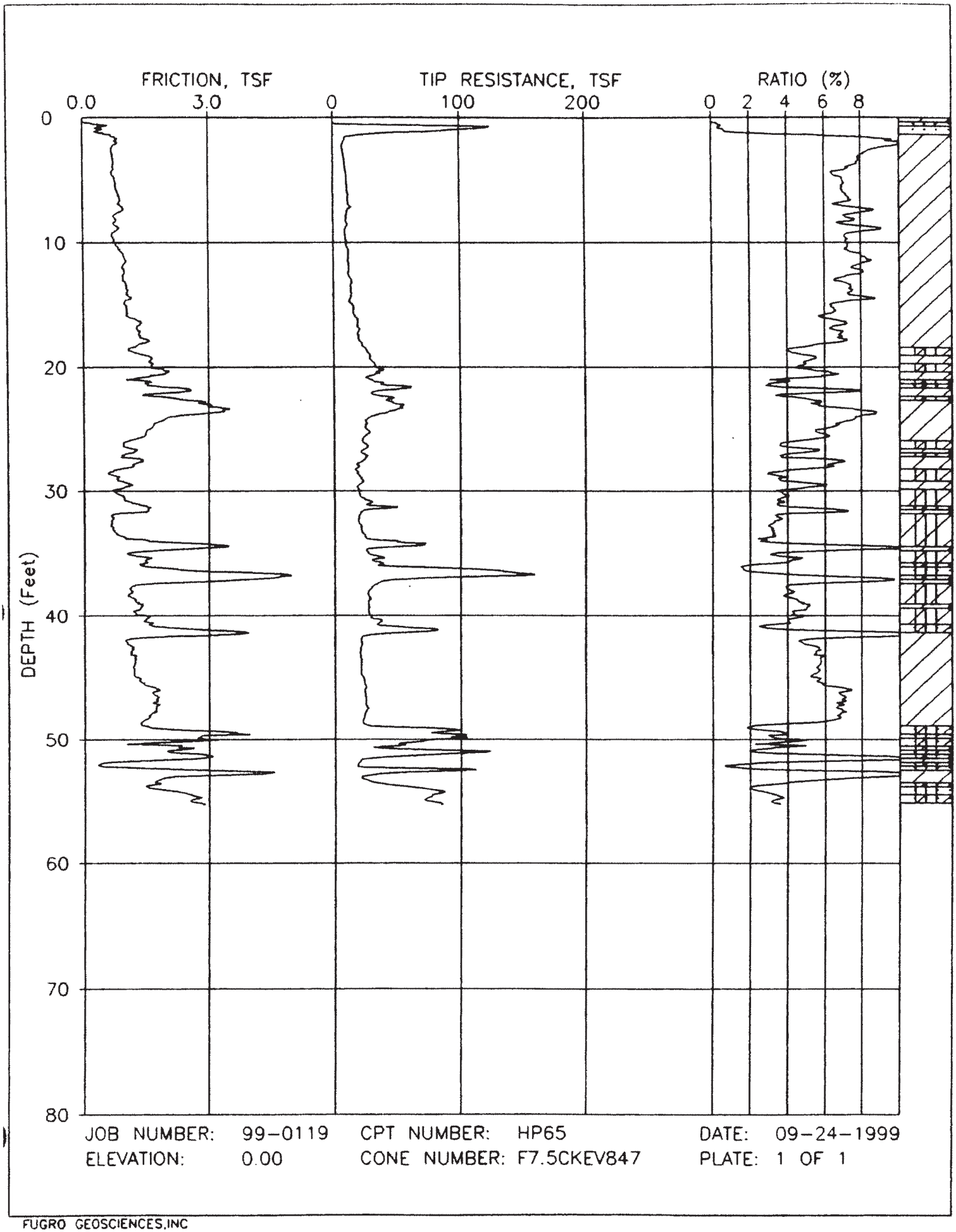
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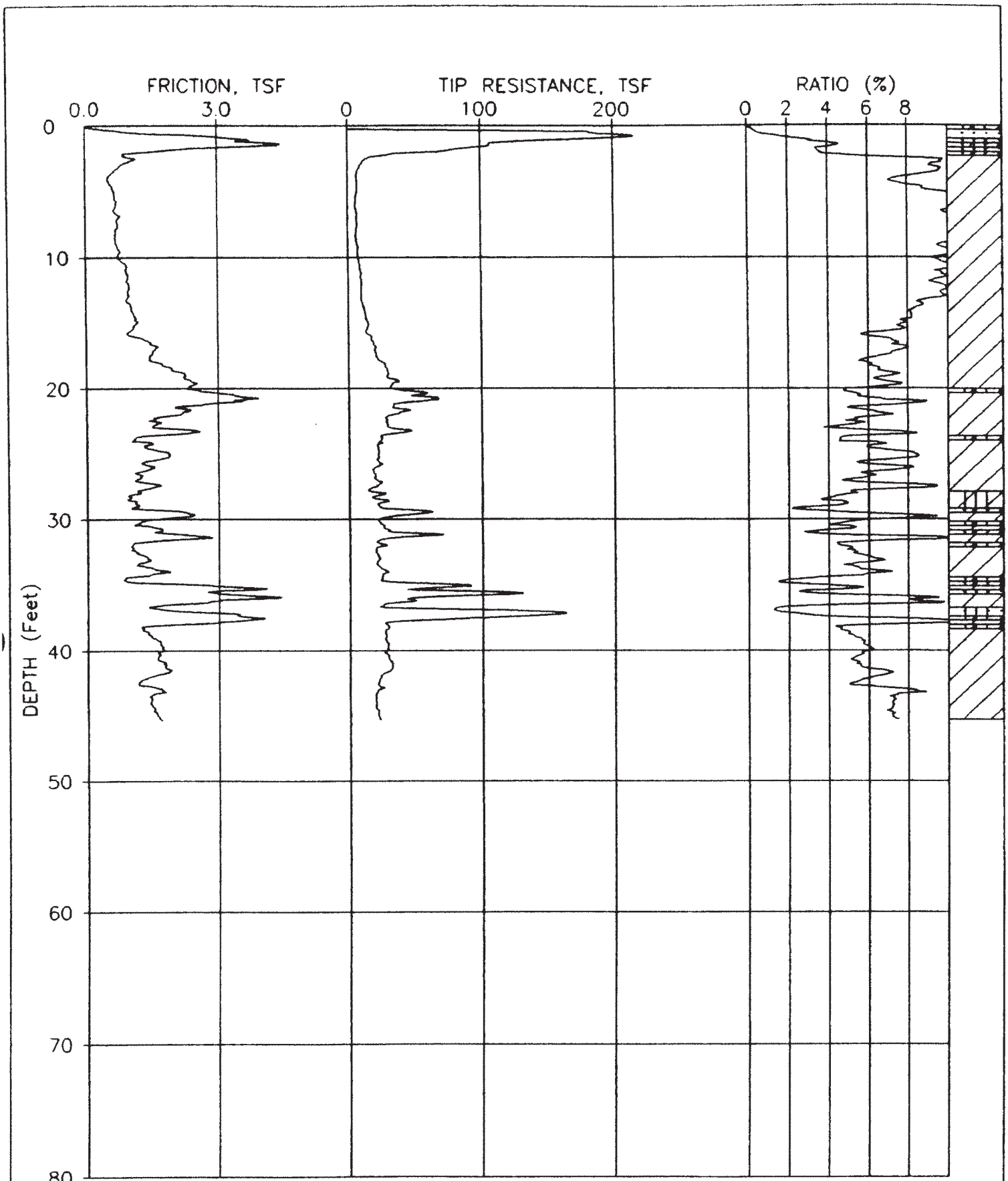
FUGRO GEOSCIENCES,INC



FUGRO GEOSCIENCES,INC



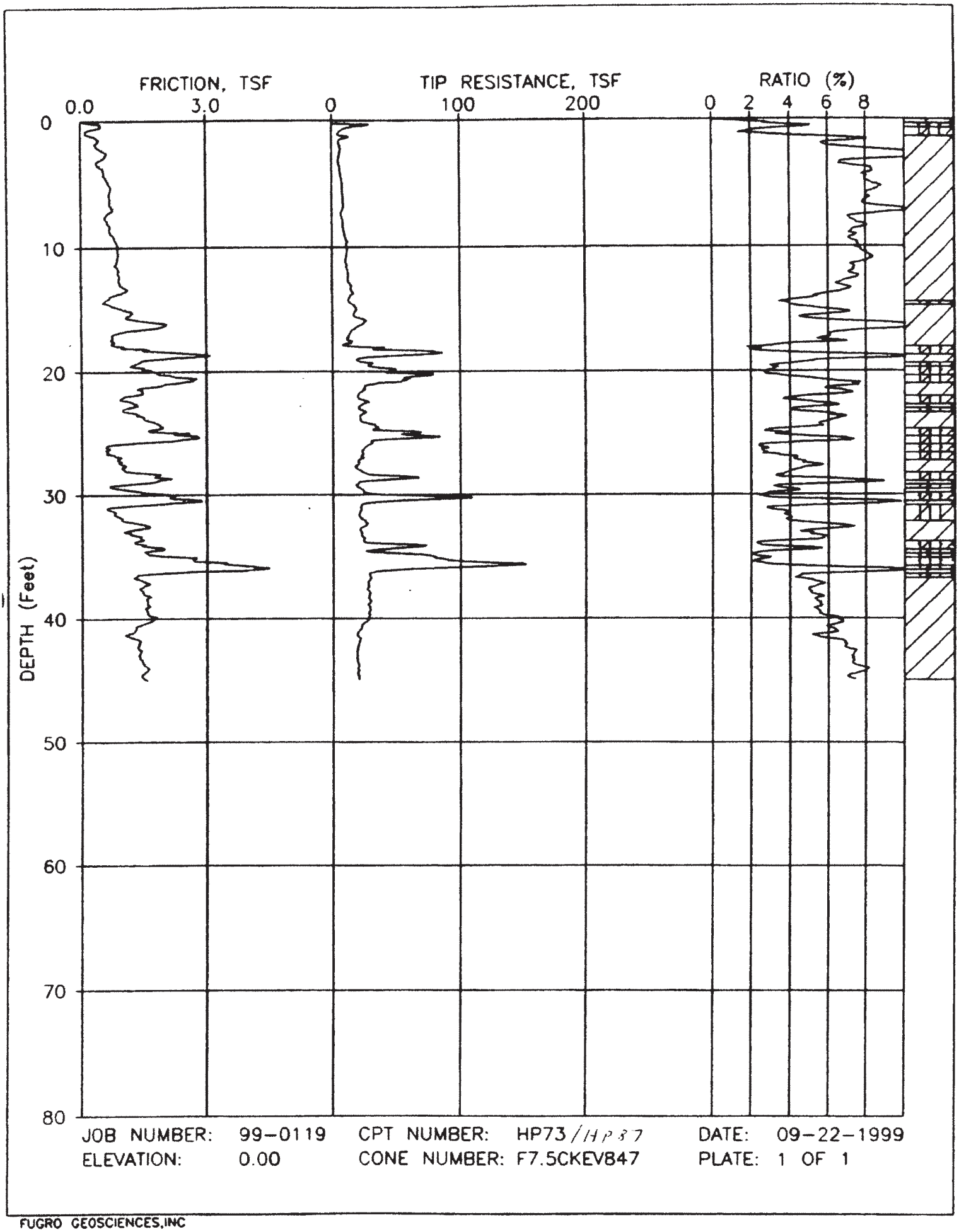
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0119 CPT NUMBER: HP69 DATE: 09-27-1999

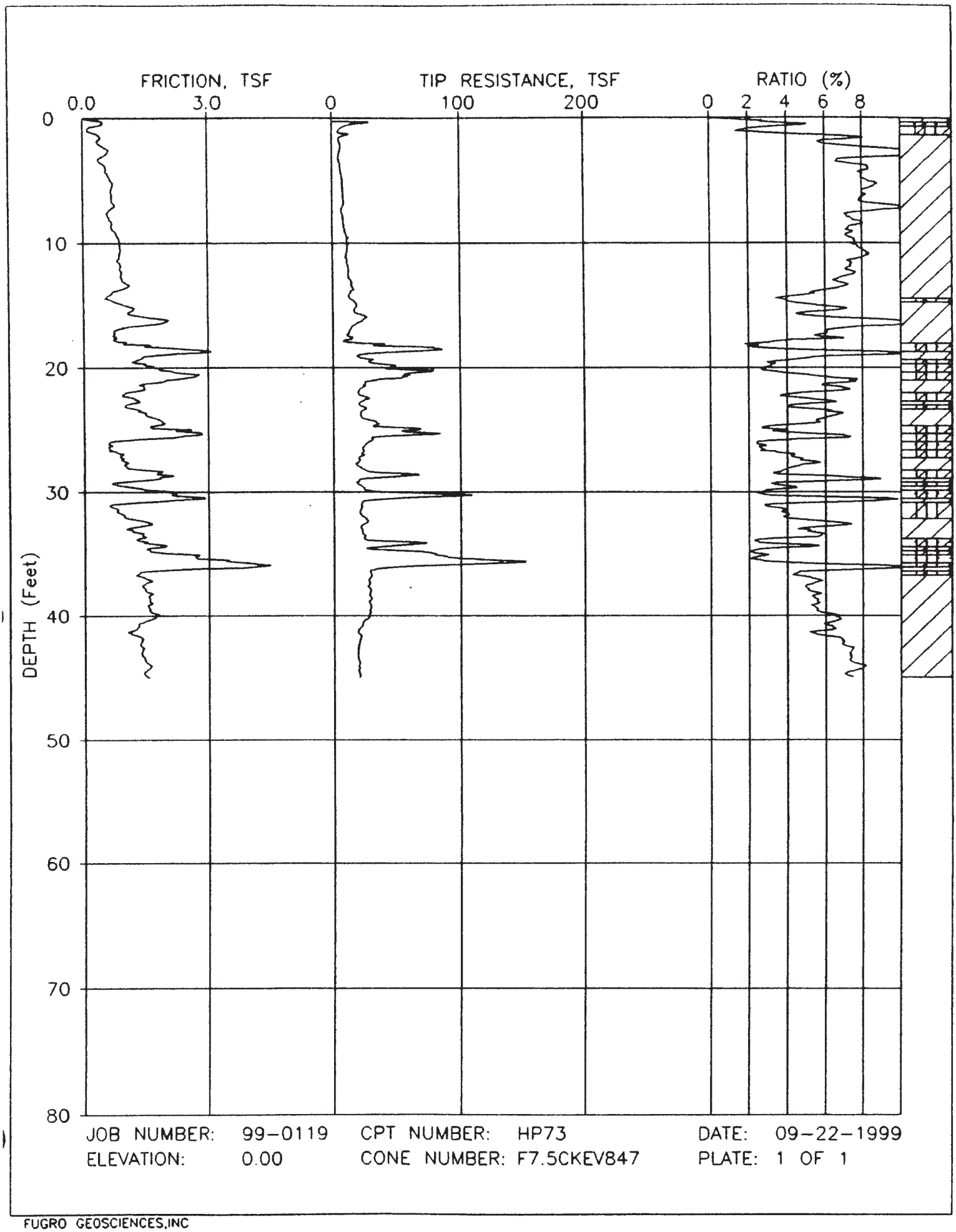
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0119 CPT NUMBER: HP73 / HP87 DATE: 09-22-1999
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

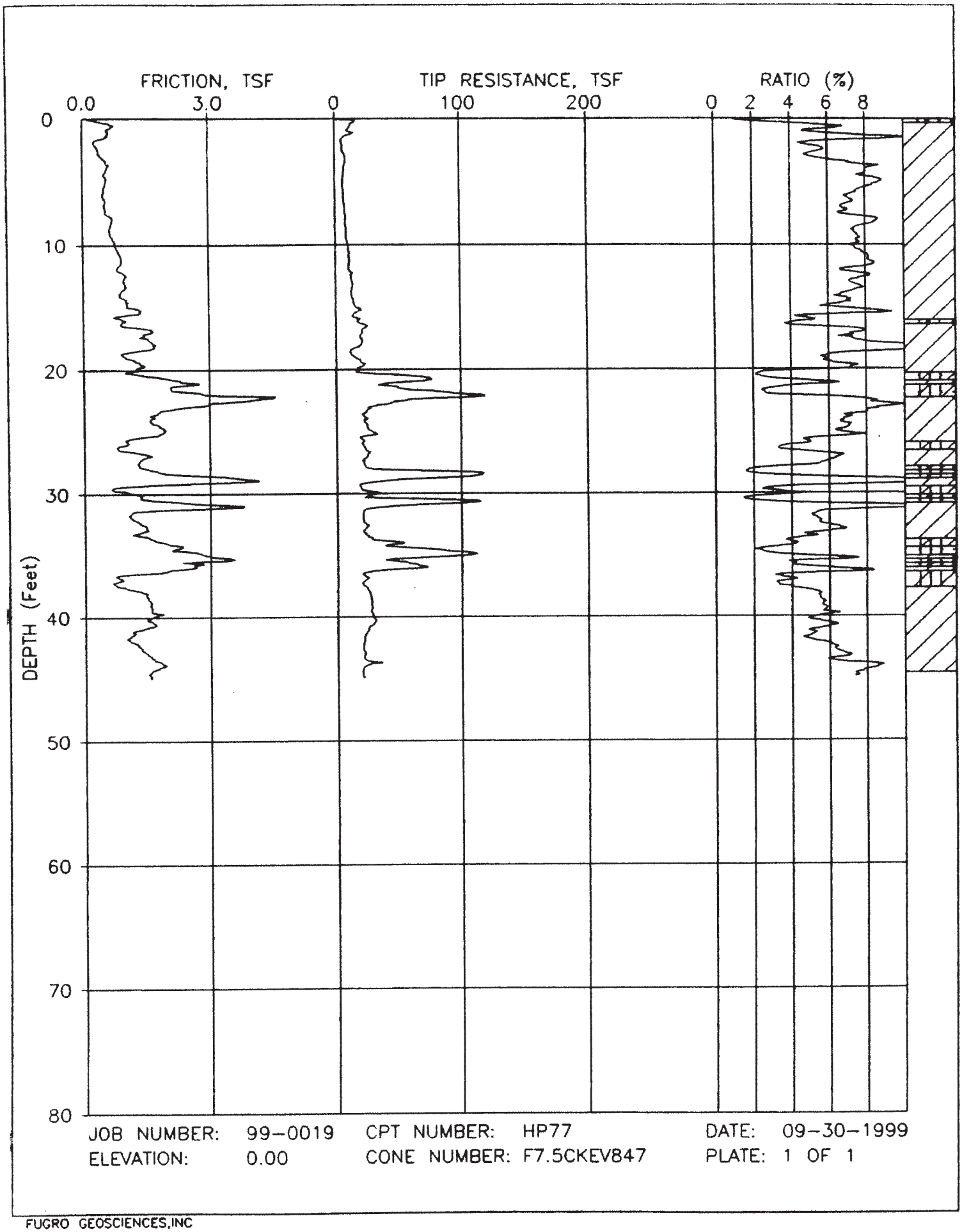
FUGRO GEOSCIENCES, INC



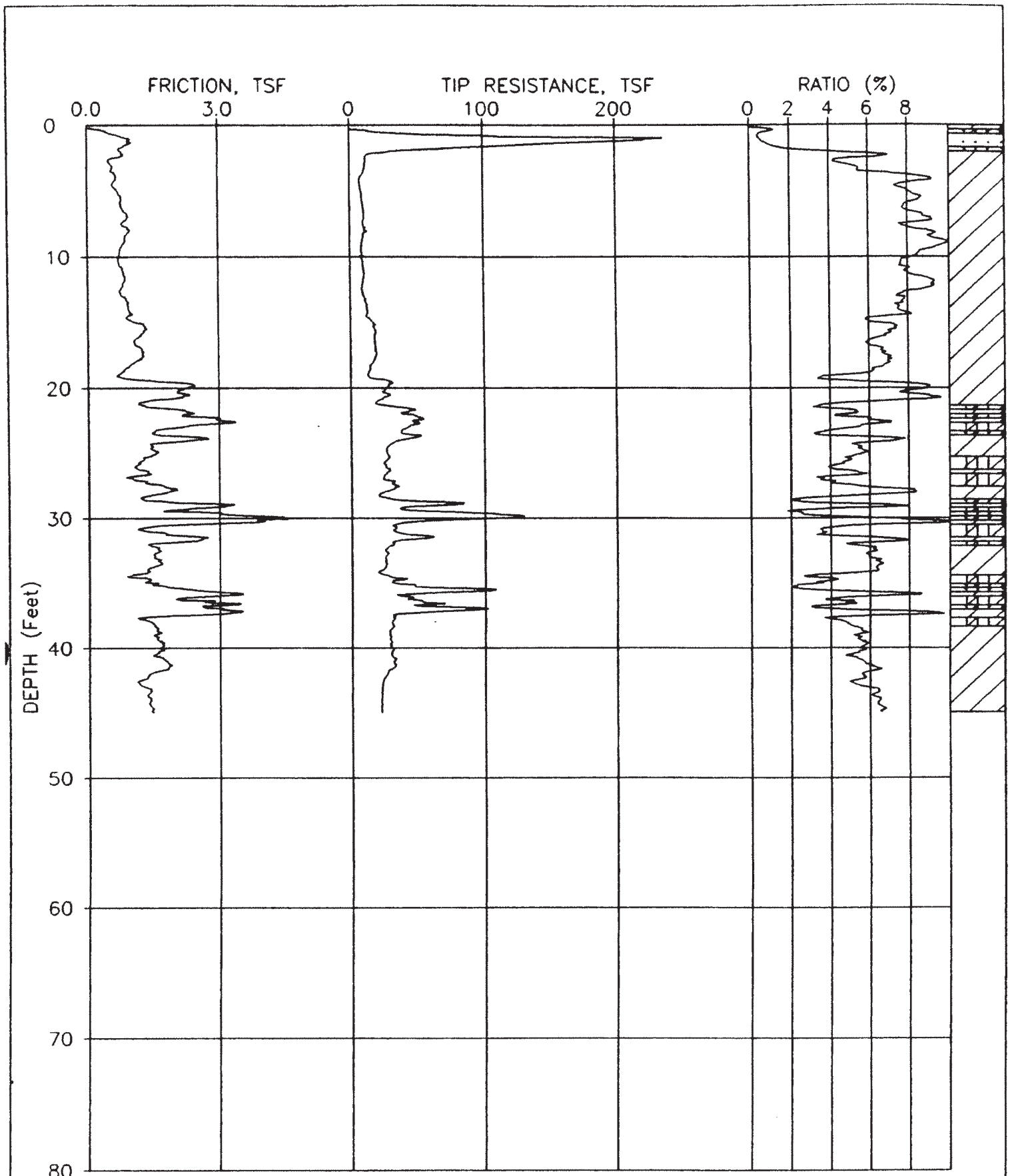
JOB NUMBER: 99-0119 CPT NUMBER: HP73 DATE: 09-22-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC



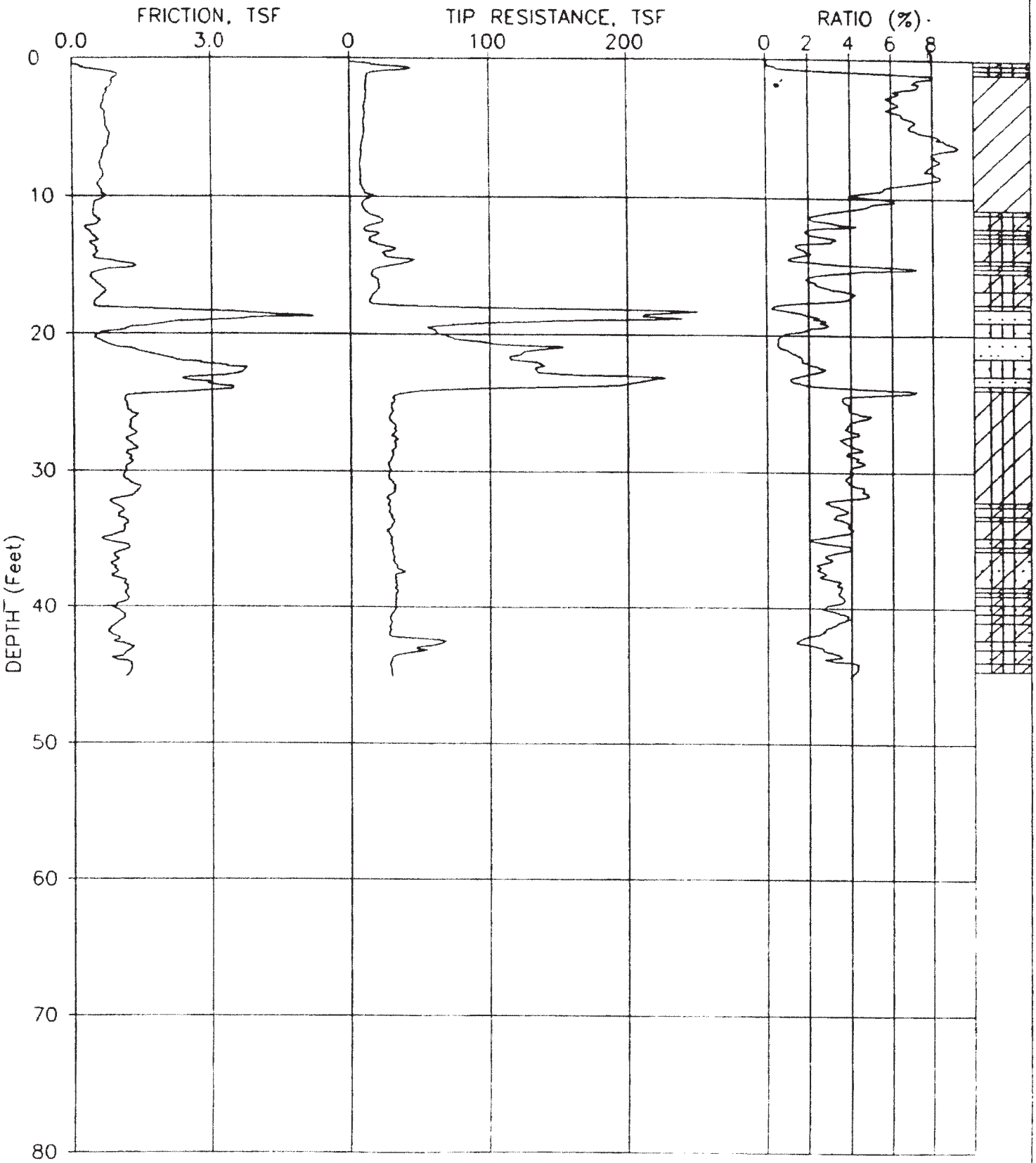
FUGRO GEOSCIENCES,INC



JOB NUMBER: 99-0019 CPT NUMBER: HP81 DATE: 09-30-1999

ELEVATION: 0.00 CONE NUMBER: F7.5CKEV847 PLATE: 1 OF 1

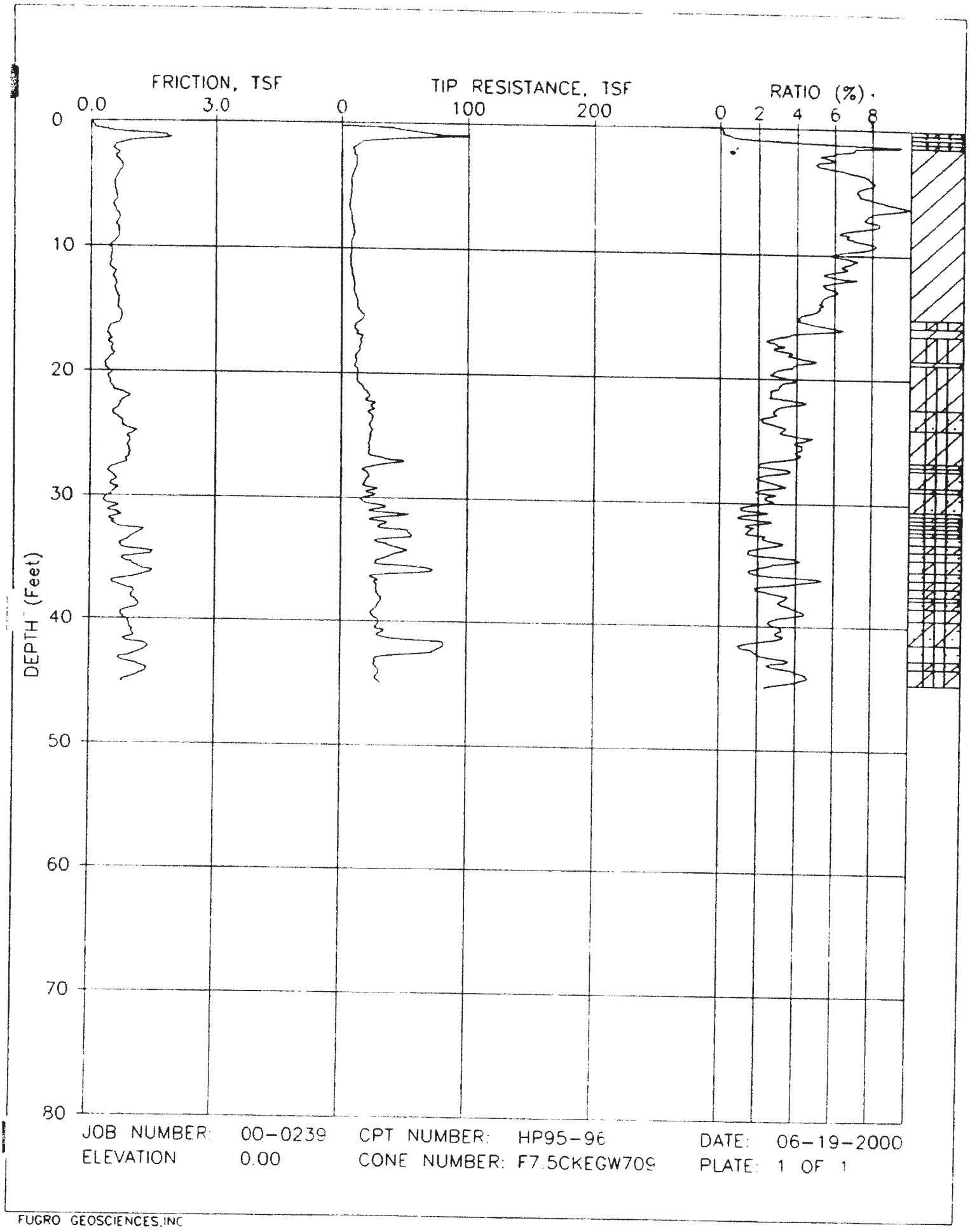
FUGRO GEOSCIENCES,INC



JOB NUMBER 00-0239 CPT NUMBER HP93-94 DATE: 06-19-2000

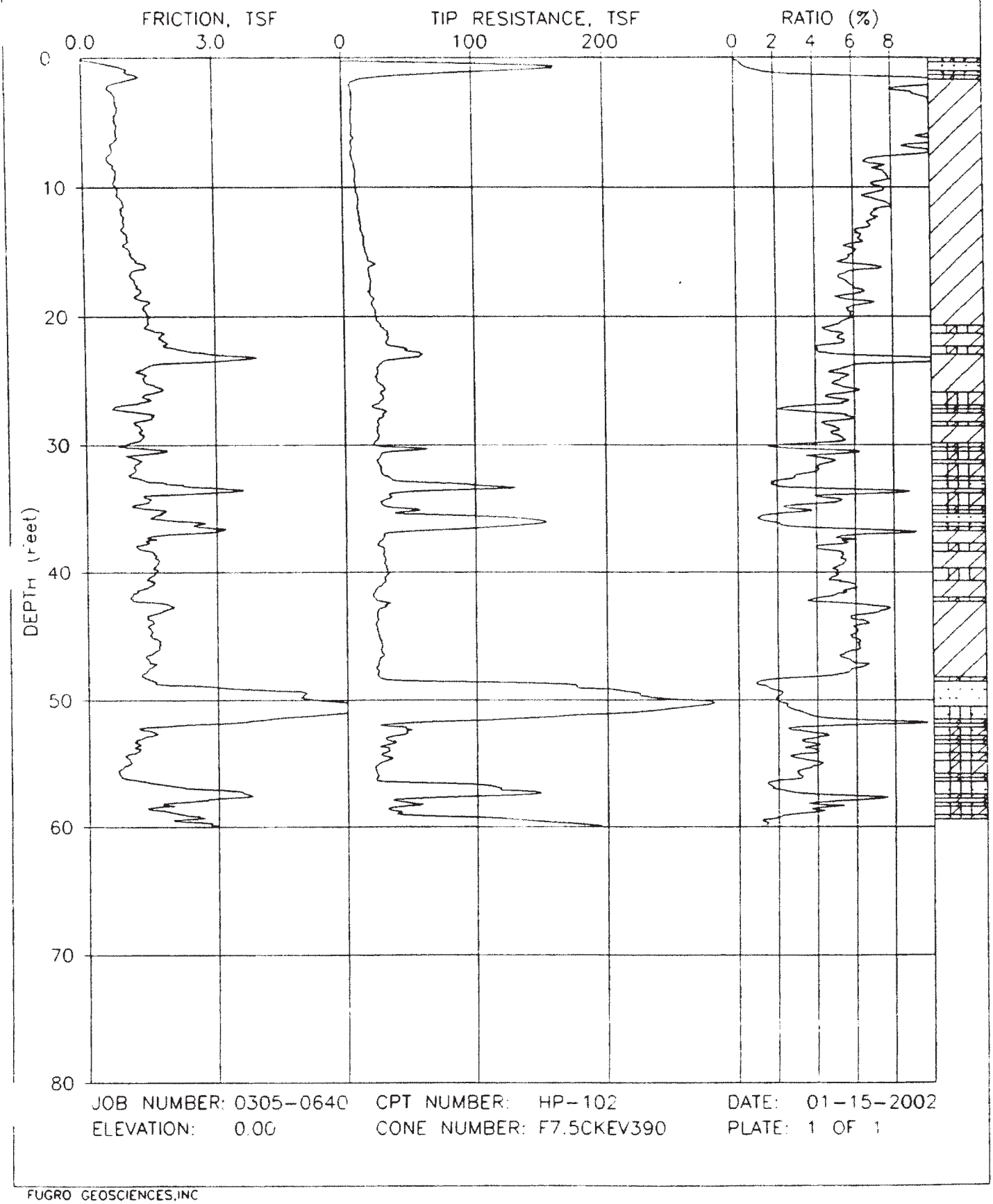
ELEVATION 0.00 CONE NUMBER: F7.5CKEGW709 PLATE: 1 OF 1

FUGRO GEOSCIENCES, INC

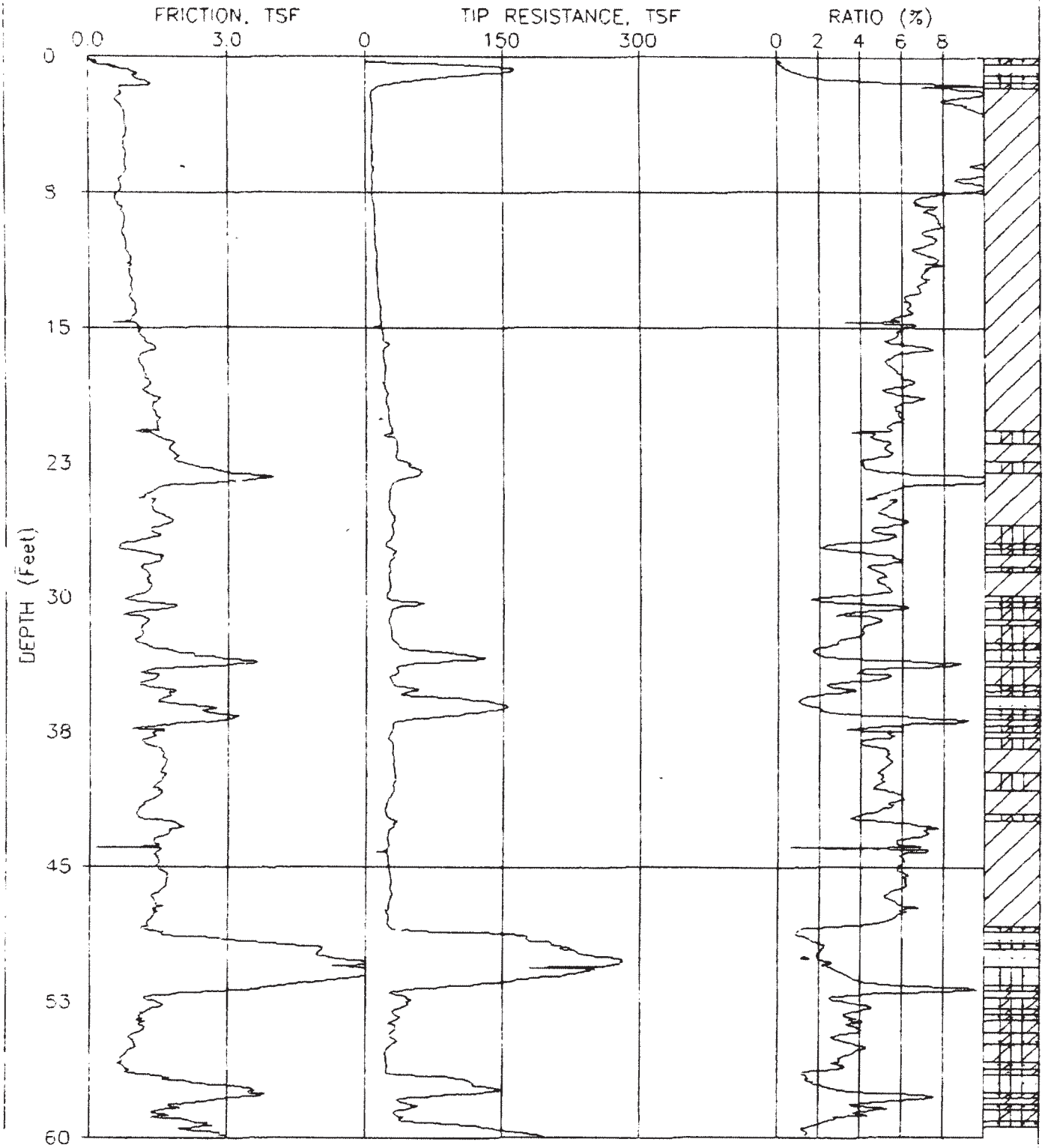


JOB NUMBER: 00-0239 CPT NUMBER: HP95-96 DATE: 06-19-2000
ELEVATION 0.00 CONE NUMBER: F7.5CKEGW709 PLATE: 1 OF 1

FUGRO GEOSCIENCES, INC

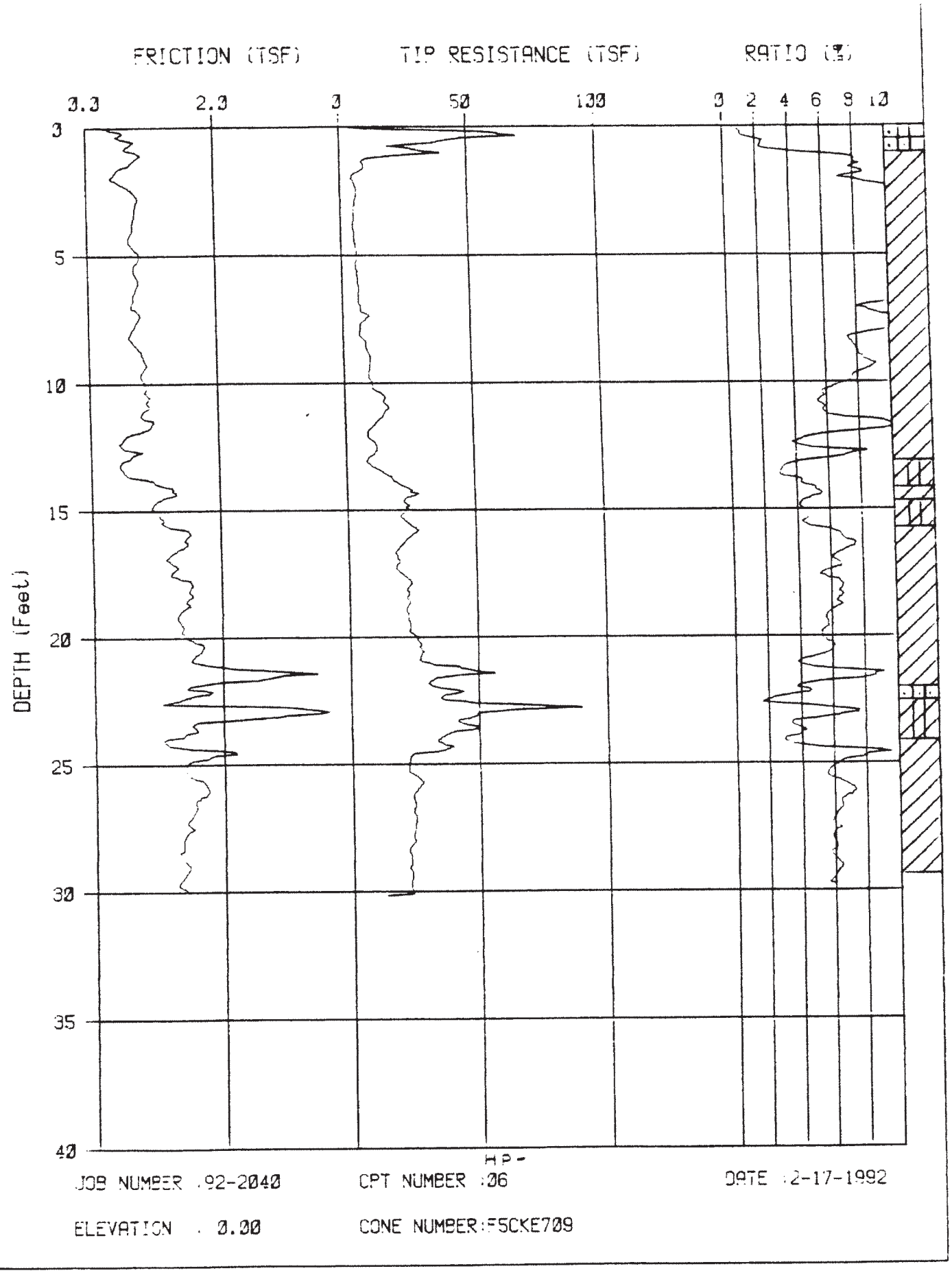


FUGRO GEOSCIENCES,INC



JOB NUMBER: 0305-0640 CPT NUMBER: HP-102 DATE: 01-15-2002
ELEVATION: 0.00 CONE NUMBER: F7.5CKEV390 PLATE: 1 OF 1

FUGRO GEOSCIENCES,INC

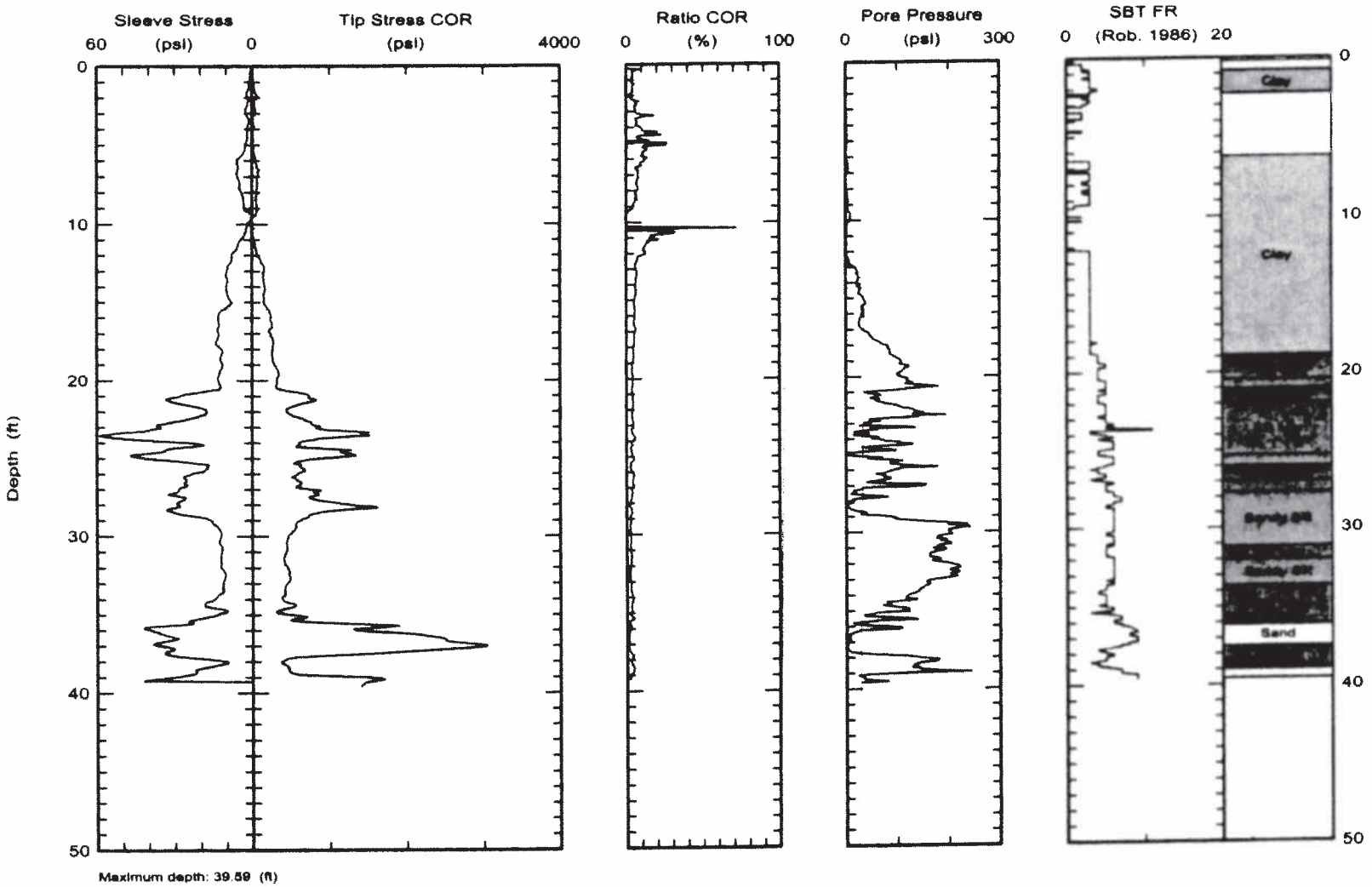

FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER : 92-2040
CPT NUMBER : 06
DATE : 2-17-1992
ELEVATION : 0.00
CONE NUMBER : FSCKE709

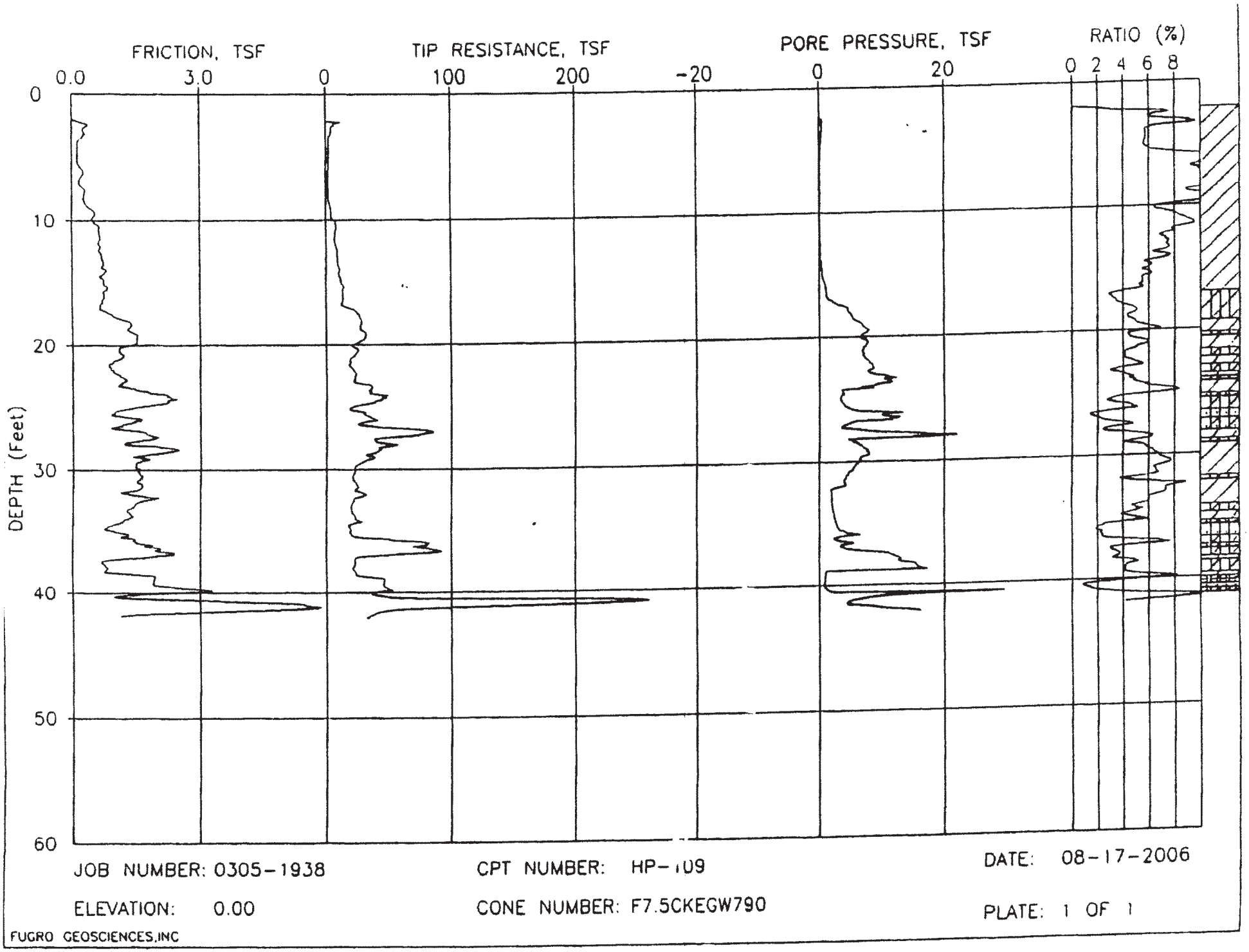
Applied Research Associates
South Royalton, VT 05068
802-763-8348
cpt@ned.ara.com
www.ara.com

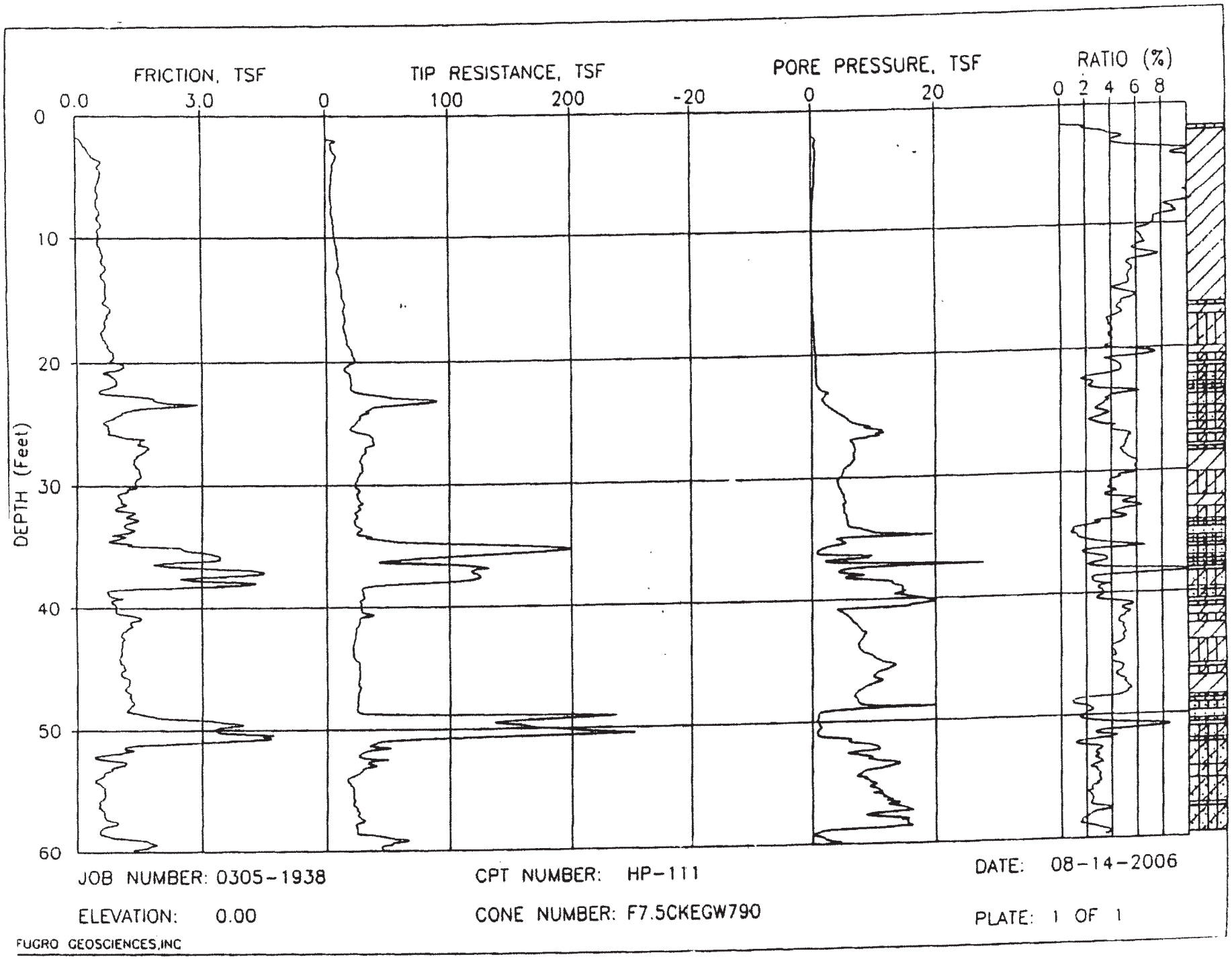
Northing:
Easting:
Elevation:

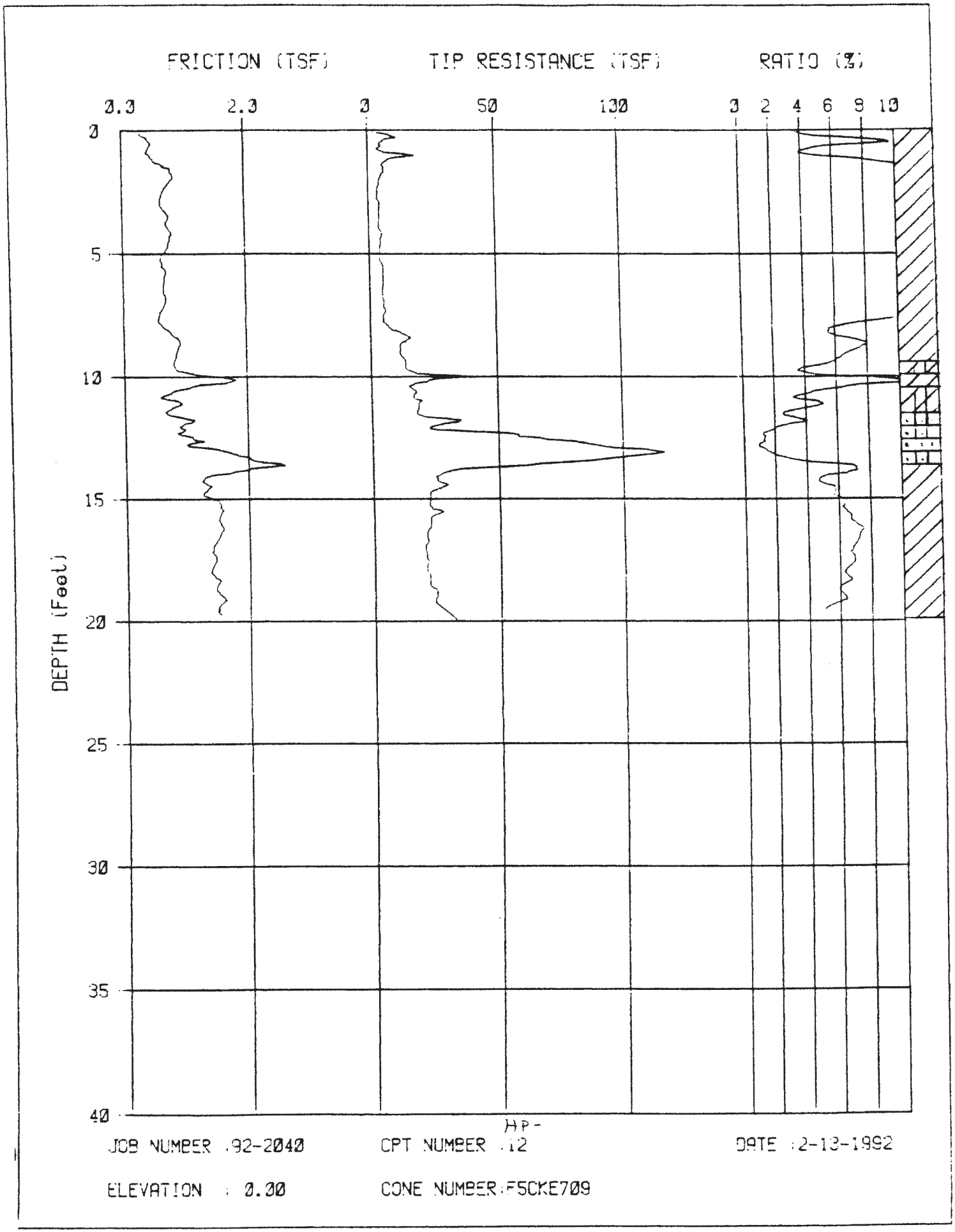
Date: 29/May/2007
Test ID: HP-107
Project: AIR PRODUCTS PHASE I

Client: GEOMATRIX
Site: PASADENA




FRICTION, TSF
0.0
3.0
TIP RESISTANCE, TSF
0
100
200
PORE PRESSURE, TSF
-20
0
20
RATIO (%)
0
2
4
6
8
DEPTH (Feet)
0
10
20
30
40
50
60
JOB NUMBER: 0305-1938
CPT NUMBER: HP-109
DATE: 08-17-2006
ELEVATION: 0.00
CONE NUMBER: F7.5CKEGW790
PLATE: 1 OF 1
FUGRO GEOSCIENCES,INC


FRICTION, TSF
0.0
3.0
TIP RESISTANCE, TSF
0
100
200
PORE PRESSURE, TSF
-20
0
20
RATIO (%)
0
2
4
6
8
DEPTH (Feet)
0
10
20
30
40
50
60
JOB NUMBER: 0305-1938
ELEVATION: 0.00
CPT NUMBER: HP-111
CONE NUMBER: F7.5CKEGW790
DATE: 08-14-2006
PLATE: 1 OF 1
FUGRO GEOSCIENCES,INC


FRICTION (TSF)
TIP RESISTANCE (TSF)
RATIO (%)
0.0
2.0
0
50
100
0
2
4
6
8
10
0
5
10
15
20
25
30
35
40
DEPTH (Feet)
HP-
JOB NUMBER :92-2040
CPT NUMBER :12
DATE :2-13-1992
ELEVATION : 0.00
CONE NUMBER:F5CKE709

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.99 ft. **Well Head** 38.80 ft.

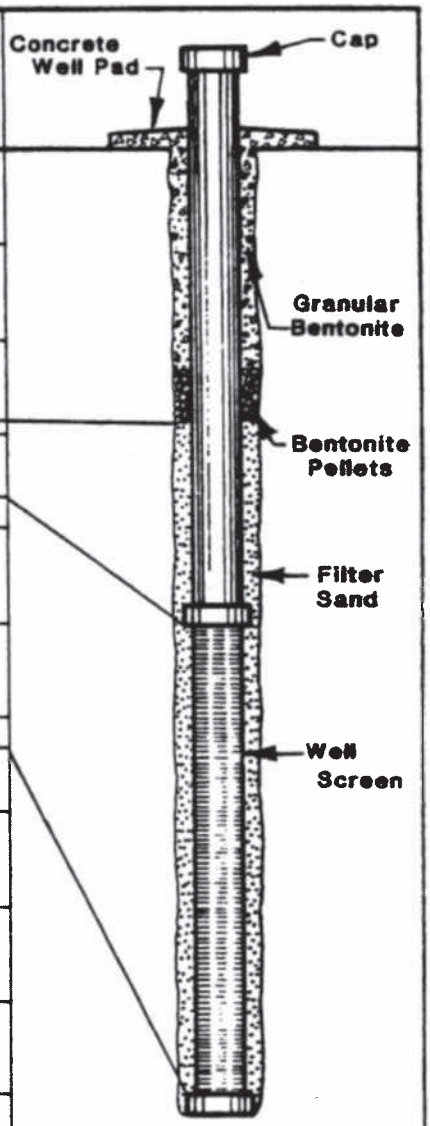
Well No.: MW 2

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. PVC, 0.008 gauge slotted x 15' (filter cloth)

Date Drilled: 4/8/81

Depth	Symbol	Description of Stratum	Material Setting
5		CLAY, highly plastic, 5-15% very fine sand, firm, moist, dark greenish grey with black mottling (CH).	1
10		CLAY, similar to above, except stiff, mottled orange and green with black streaks, calcareous fragments many slickensides (CH).	5
15		CLAYEY SILT, low plasticity, 20-30% very fine sand, very compact saturated (some free water), greenish grey with orange mottling, with pockets red and black (ML).	14 15
20		SAND, poorly graded, fine to very fine, 5-10% clay fines, loose, saturated (free water), rust brown (SP).	17 20
25		Top 8" SAND, similar to above, except grading into CLAYEY SAND, highly plastic, 5-10% very fine sand, very stiff, moist.	25
30		Bottom 12" CLAY, highly plastic, 5-10% very fine sand very stiff, moist, dark rust orange mottled with green and white (calcareous) and black (SP/CH).	30 32
35		CLAY, similar to above, except rust brown (CH).	35
40		SILTY CLAY, highly plastic, 0-10% very fine sand, 10-25% silt, firm, very moist, rust brown (CH).	40
		Boring Terminated at 35 ft.	



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 36.79 ft. **Well Head** 39.86 ft.

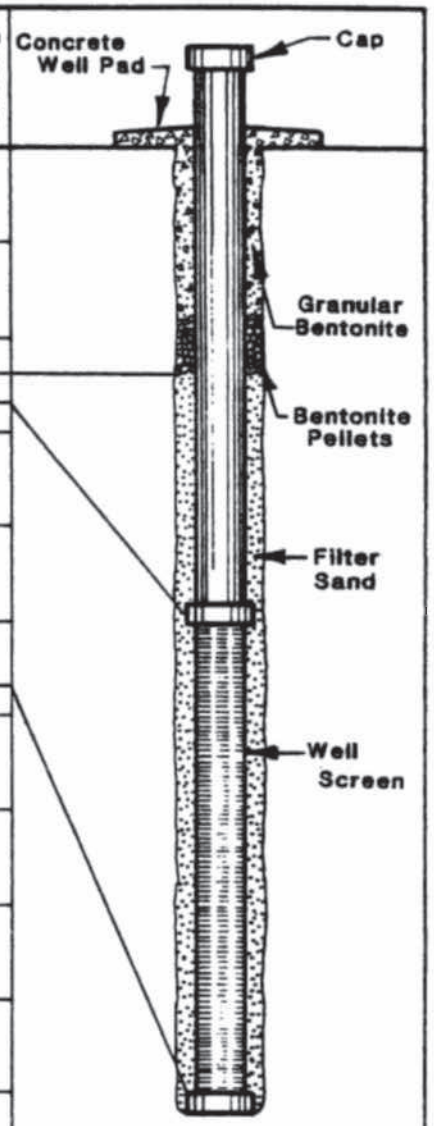
Well No.: MW 3

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. PVC, 0.008 gauge slotted x 15'

Date Drilled: 4/9/81

Depth	Symbol	Description of Stratum	Material Setting
5		CLAY FILL, with shells.	1
10		SANDY CLAY, highly plastic, 20-30% fine to very fine sand, stiff, very moist to saturated, orange to tan mottled with green , and with black and white (calcareous) pockets (CH).	10
15		CLAYEY SAND, poorly graded, fine to very fine, 30-45% plastic fines, very compact, very moist, mottled grey green and tan with pockets and streaks of orange and black (SP).	12
20		CLAYEY SAND, similar to above, except very hard, moist, with many nodules of hard black, rock-like precipitate to 1/4", calcareous nodules, and some pockets sandy clay (SP).	13
25		SANDY CLAY, highly plastic, 15-25% very fine sand, stiff, moist, rust to brown with green mottling. Large pockets (up to 35% of sample) of CLAYEY SAND, poorly graded, fine to very fine, 25-40% plastic fines, hard, moist, green. (CH/SP).	15
30		Bottom 2" CLAYEY SILT, moderately plastic, 10-25% clay fines, firm, damp, rust-orange (ML).	20
35		CLAY, highly plastic, 0-15% very fine sand, very stiff, moist, dark rust brown with some green and black (CH).	25
40		Boring Terminated at 30 ft.	28
			30



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 34.59 ft. **Well Head** 37.47 ft.

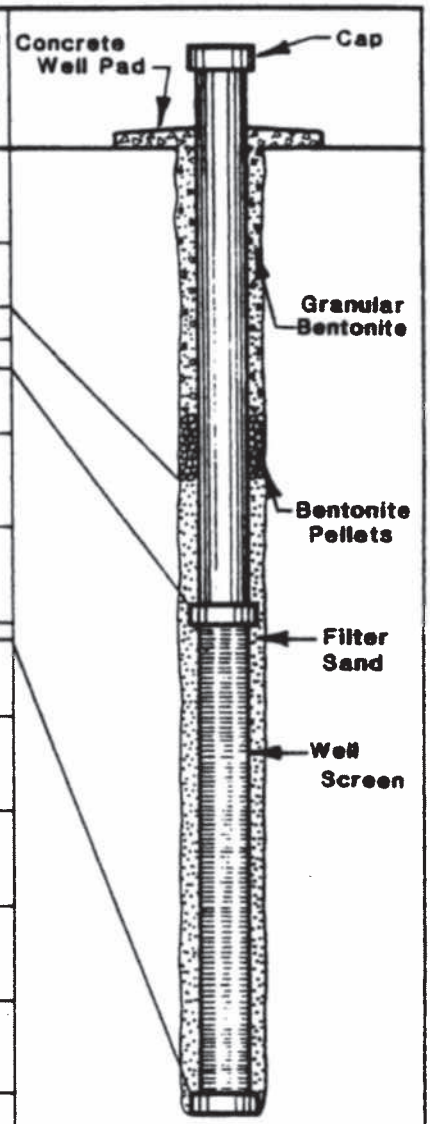
Well No.: MW 6

Casing Size & Type: 2" I.D. PVC

Screen Type: .010 gauge 2" I.D. PVC x 10' (filter cloth bottom 5") + .008 gauge x 5' 2" I.D.

Date Drilled: 6/3/81

Depth	Description of Stratum	Material Setting
	FILL (shells)	1
	SILTY CLAY, orange.	
5	SANDY CLAY, moderate to highly plastic, 15-25% very fine sand, firm, very moist, blue-greenish grey with gold staining (CL-CH).	8
10	CLAYEY SILT/SILTY CLAY, moderately plastic, 30-40% plastic fines to 25-35% silt, firm, very moist, mottled orange (silt) and light green (clay), abundant calcareous fragments, black stains (MH/CH-CL).	10
15	SILTY SAND, poorly graded, very fine sand, 20-35% silt, 10-20% clay fines, saturated, (free water), orange (CH-CL).	11
20	SANDY CLAY, moderately plastic, 35-50% very fine sand, very firm, moist, light green with orange mottling, calcareous fragments, black stains.	
25	SANDY CLAY, similar to above, except stiff, pockets of CLAYEY SAND, 1 mm layers of sand (CH).	26
30	CLAY, highly plastic, 5-15% very fine sand, stiff, moist, mottled rust to red and light green with black streaks, many slickensides (CH).	
35	Boring terminated at 26 ft.	



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.29 ft. **Well Head** 38.24 ft.

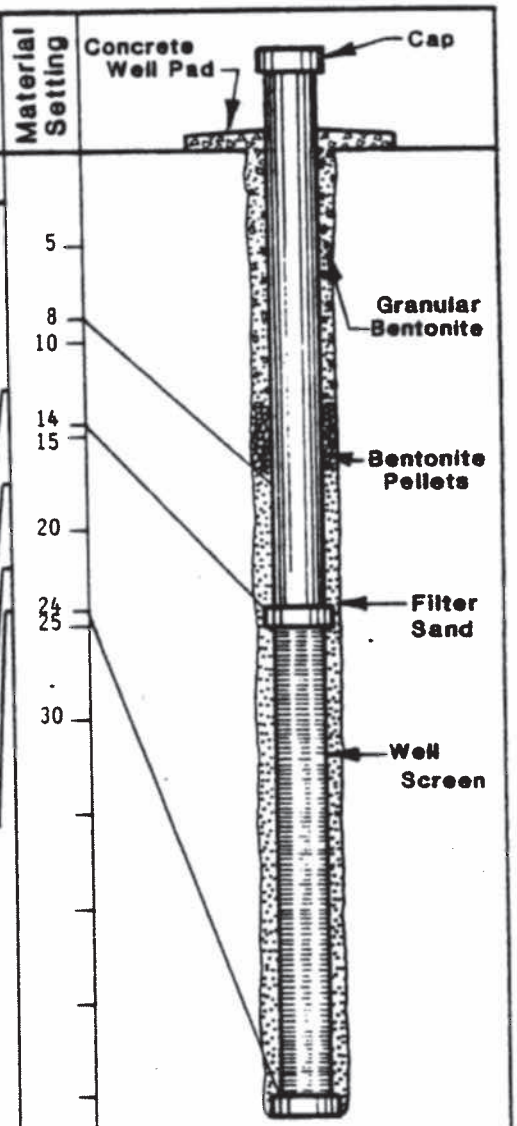
Well No.: MW 7

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. .008 gauge screen x 10

Date Drilled: 6/3/81

Depth	Symbol	Description of Stratum
		FILL, with shells.
5		SANDY CLAY, moderate to highly plastic, 5-20% very fine sand, firm, very moist, bluish grey with gold stains, calcareous nodules to 1/8" (CH).
10		SANDY CLAY, moderate to highly plastic, 5-20% very fine sand, firm, very moist, mottled tan to orange and light green, calcareous nodules, slickensides (CL-CH).
15		CLAY, highly plastic, 0-15% very fine sand, stiff, moist, rust to red with black and green splotches, calcareous nodules to 1/2", slickensides (CH).
20		SANDY CLAY, moderate to highly plastic, 30-45% very fine sand, stiff, moist, mottled green and orange, calcareous fragments, slickensides (CH).
25		SANDY CLAY, similar to above, except with calcareous pockets (CH).
30		CLAY, highly plastic, 5-15% very fine sand, stiff, moist, rust orange mottled with green and black, slickensides, calcareous fragments (CH).
		Boring terminated at 24 ft.



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 36.19 ft. **Well Head** 39.41 ft.

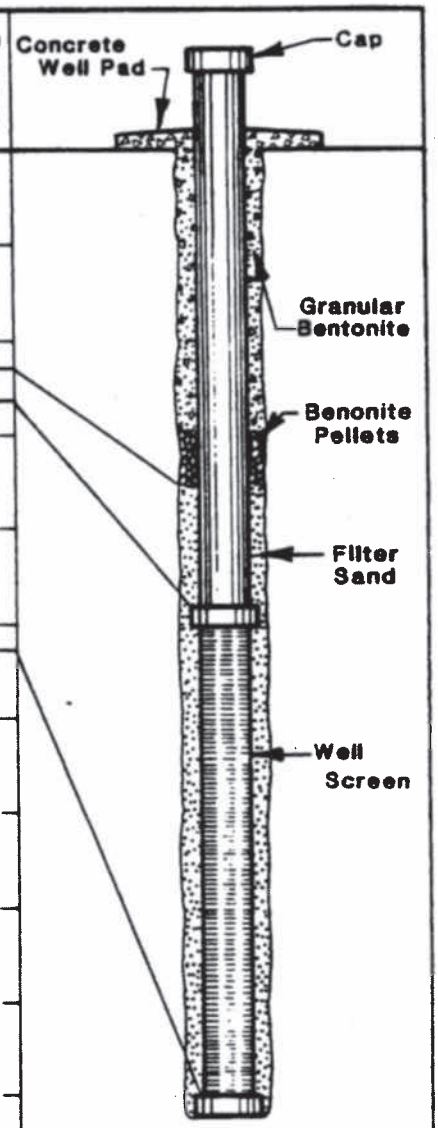
Well No.: MW 8

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D. .010 gauge PVC x 15'

Date Drilled: 6/4/81

Depth	Symbol	Description of Stratum
		CLAY FILL, with shells.
5		CLAY, moderate to highly plastic, 5-15% very fine sand, firm, very moist to saturated, bluish green-ish grey with gold spots, calcareous fragments (CH)
10		SANDY CLAY, highly plastic, 15-25% very fine sand, firm, very moist to saturated, orange with green and grey mottling, calcareous fragments and nodules to 1" (CH).
15		SANDY CLAY, moderately plastic, 30-45% very fine sand, stiff, very moist to saturated, greenish tan with orange and black stains, calcareous (CH-CL).
20		SANDY CLAY, similar to above, except moist to very moist (CH-CL).
25		Top 6" SANDY CLAY, similar to above.
		Bottom 6" CLAYEY SILT, low to moderately plastic, 25-40% plastic fines, 5-15% very fine sand, dense, very moist, rust to orange with black and light green, calcareous fragments and nodules to 1/2" (ML).
30		CLAYEY SAND, poorly graded, very fine, 5-15% clay fines, dense, very moist, light green with tan and orange stains, calcareous (SP).
35		CLAY, highly plastic, 5-10% very fine sand, stiff, moist, rust red with light green mottling, black stains, calcareous pockets.
		Boring terminated at 27 ft.



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (81)

Project: J81-807

Client: Air Products and Chemicals, Inc.

Elev.: **Surface** 35.99 ft. **Well Head** 38.69 ft.

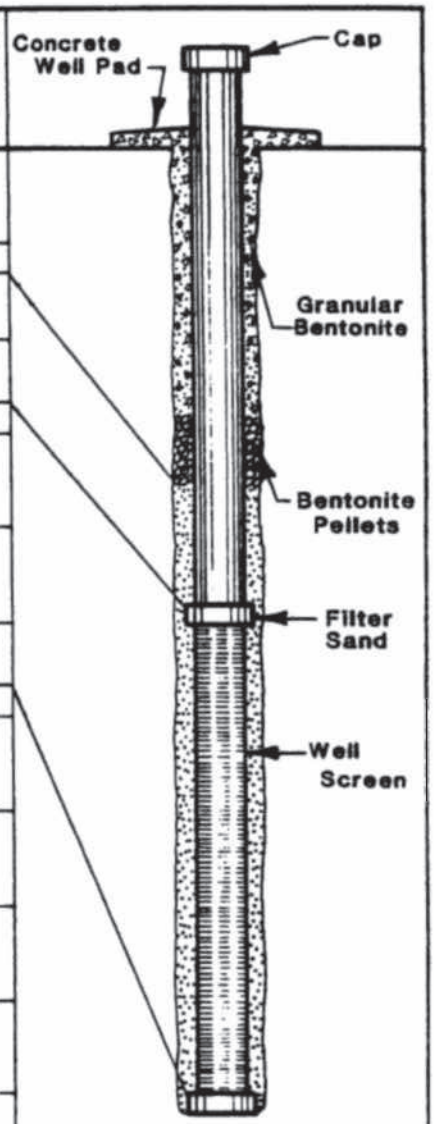
Well No.: MW 9

Casing Size & Type: 2" I.D. PVC

Screen Type: 2" I.D., .010 gauge slotted PVC x 15'

Date Drilled: 6/4/81

Depth	Symbol	Description of Stratum	Material Setting
		CLAY FILL, with shells.	
5		CLAY, moderate to highly plastic, 5-15% very fine sand, firm, very moist, dark grey with gold stains (CL-CH).	5
10		CLAY, moderate to highly plastic, 5-20% very fine sand, stiff, very moist, mottled orange and green with large black stains, calcareous fragments (CL-CH).	6 10 14
15		SANDY CLAY, moderately plastic, 25-40% very fine sand to silt, stiff, very moist, mottled light green and orange with black stains, calcareous (CL).	15
20		Top 2" CLAY. SANDY CLAY, similar to above (CL).	20
25		Top 1' SANDY (SILTY) CLAY, similar to above, mostly orange (CL).	25
30		Middle 11" SILT, low plastic, 5-15% fines, 5-15% very fine sand, loose, saturated (free water), orange with some light green (ML-CH).	29 30
35		Bottom 1" CLAY, highly plastic, 5-15% very fine sand, stiff to very stiff, moist, orange (rust), with mottled light green and black, calcareous. CLAY, similar to above (CH).	
		Boring terminated at 30 ft.	



UNDERGROUND RESOURCE MANAGEMENT, INC.
Austin, Texas

Monitor Well Installation and Log of Boring URM (83)

Client: Air Products and Chemicals, Inc. Job No.: J83-817 Date Drilled: 3-3-83 Well No.: 11

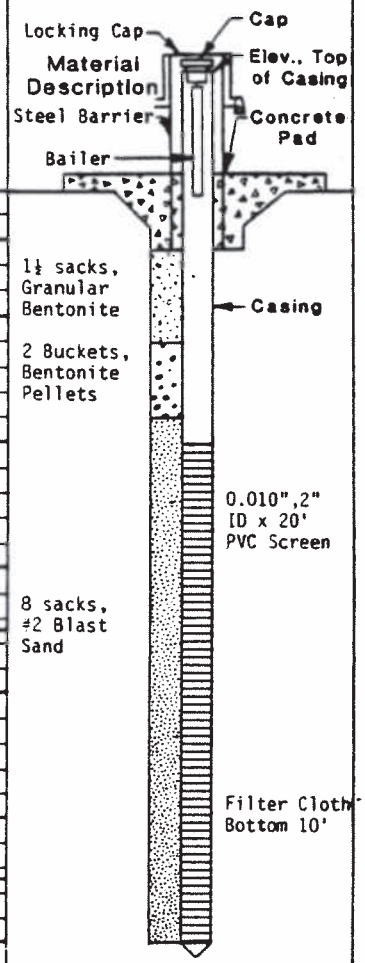
Site: Northeast Corner of Pasadena Plant Elevation: Pad 35.92' Top of PVC Casing 38.63'

Total Depth: 30' Casing Size & Type: 2" I.D. Sch. 80 PVC Screen Size: 0.010" x 20'

Comments:

Depth	Symbol	Stratigraphy	Sample Description
			SHELL FILL
5	CH		CLAY, highly plastic, 0-10% very fine sand, soft, very moist to saturated, dark grey.
10	CH		CLAY, similar to above except 10-20% very fine sand, firm to stiff, orange with green and black mottling and streaks.
15	CH		CLAY, similar to above except dark orange.
20	CH		SANDY CLAY, highly plastic, 30-45% fine to very fine sand, stiff, very moist, light green with orange pockets and veins, black streaks, and red clay nodules to 0.5 cm, calcareous nodules to 2.0 cm.
25	CH		SANDY CLAY, similar to above except very moist to saturated (free water in shelby tube taken in this interval), green and orange, calcareous pockets, interbedded silty layers.
30	CH		CLAY, highly plastic, 0-10% very fine sand, stiff, moist to very moist, dark orange with green and black mottling and streaking.
			Total Depth 30 ft.

Completion Data



Underground Resource Management, Inc.
Austin, Texas

Monitor Well MW-27

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena (Town) Texas

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Survey No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

Date drilled Sept. 11, 1990 Completed Oct. 19, 1990

From (ft.)	To (ft.)	Description and color of formation material
0	16	Dark Gray and Reddish Brown Silty Clay
16	28	Reddish Stiff Clay
28	30	Reddish Silt
30	38	Reddish and Gray Silty Clay
38	50	Reddish Stiff Clay
50	62	Brownish Gray Clayey Silt
62	69	Grayish Green Silty Sand
69	72	Gray Silty Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 51 ft. to 72 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screw Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	PVC Blank Pipe	0	61.5	Sch40
4	N	PVC Slotted Screen w/cap (Western Well)	61.5	71.5	Sch40

CEMENTING DATA
Cemented from 0 ft. to 68 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 17 ft. below land surface Date 10/19/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc. 67.75 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller)

(Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 9-27-82) DEPARTMENT OF WATER RESOURCES COPY

Monitor Well Installation and Log of Boring

URM (85)

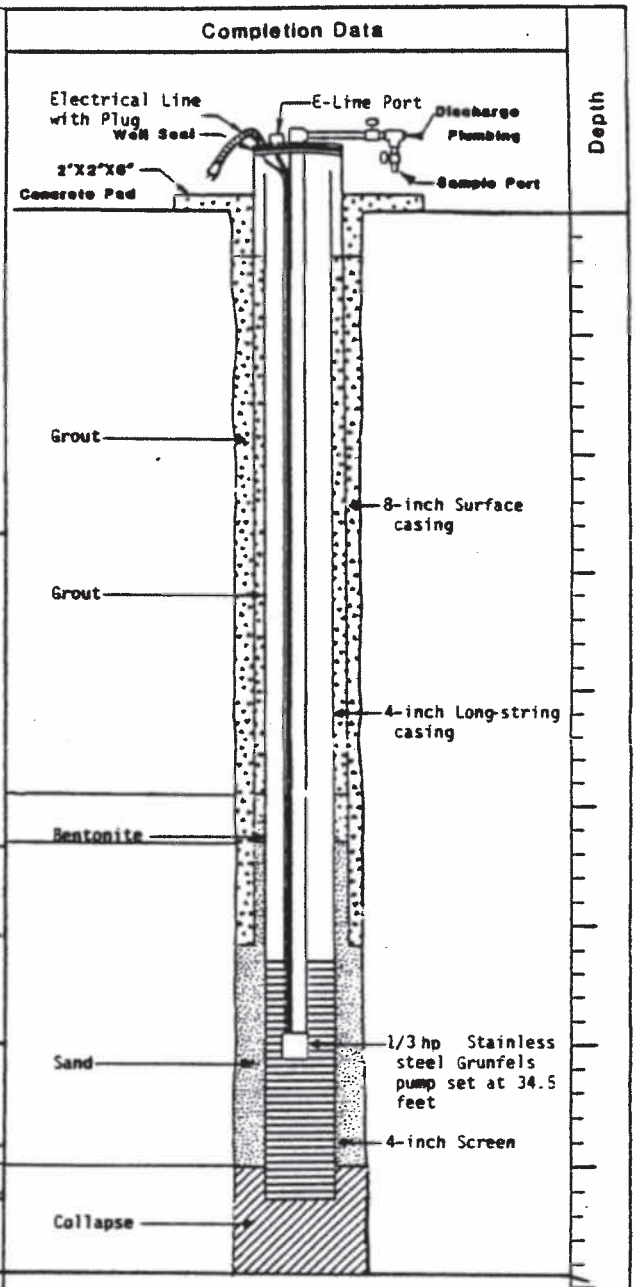
Client: Air Products Job No.: 85-624 Date Drilled: 4/1/85 Well No.: MW-13

Site: Pasadena, Texas Elevation: GL ____ Top of Casing: ____

Total Depth: 43.5 Feet Casing Size & Type: Surface: 8 in. Bell-end Sch. 40 PVC; Long-string: 4 in. Flush-joint Threaded Sch. 40 PVC Screen Size: .010 inch Mill Slot Flush-joint Threaded Sched. 40 PVC

Comments: Water encountered at 26.5 feet.

Depth	Symbol	Stratigraphy	Lithologic Description
0	CH		CLAY, disturbed, gravel, roots, moist.
5	CH		CLAY, high plasticity, stiff, moist, black, roots, iron stains.
10	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining.
15	CL		SANDY CLAY, low plasticity, stiff, wet, tan and red mottled, 30 to 40% very fine sand, iron stains in pockets, iron nodules, black mineral deposition (dendritic).
20	CL		SANDY CLAY, similar to above.
25	CL		SANDY CLAY/CLAYEY SAND, saturated, tan and red mottled.
	CH		CLAY, high plasticity, stiff, moist, dark red, caliche nodules, blackmineral deposition (dendritic), minor slickensides.
30	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining, slightly sandy.
35	SM		CLAYEY SAND, 70 to 80% very fine sand, compact, light red to brown, wet.
40	CH		CLAY, high plasticity, stiff, moist, dark red, some minor black staining.
	CH		CLAY, high plasticity, stiff, moist, green iron staining.
45			TOTAL DEPTH = 43.5 Feet
50			
55			



Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM-R3e

Monitor Well Installation and Log of Boring

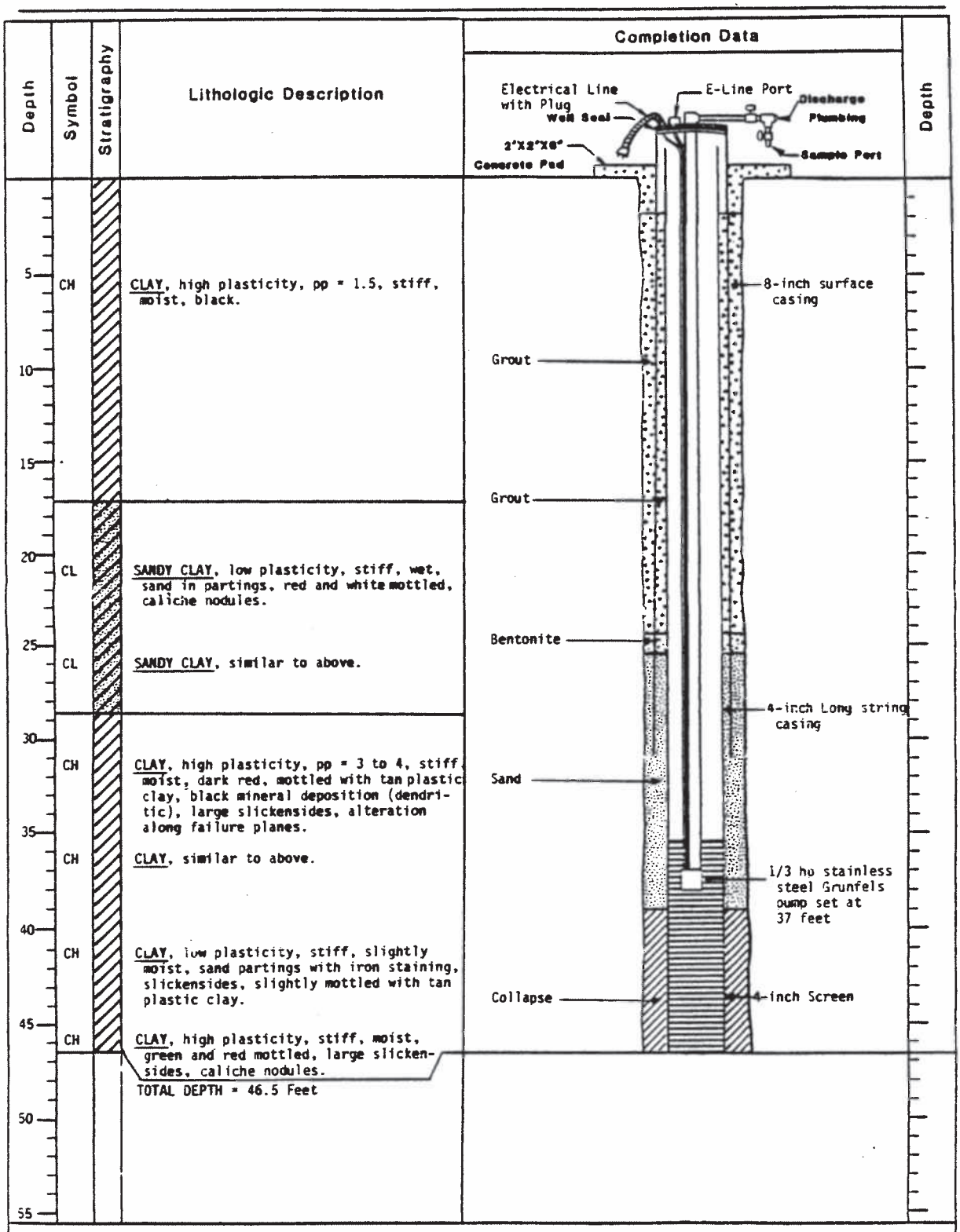
URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/4/85 Well No.: MW-14

Site: Pasadena, Texas Elevation: GL Top of Casing:

Total Depth: 46.5 feet Casing Size & Type: Surface: 8 in. Bell-end Sch. 40 PVC; Long-string: 4 in. Flush-joint Threaded Sch. 40 PVC Screen Size: .010 inch Mill Slot Flush-joint Threaded Sched. 40 PVC

Comments:



Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM-R3e

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 3/29/85 Well No.: MW-15

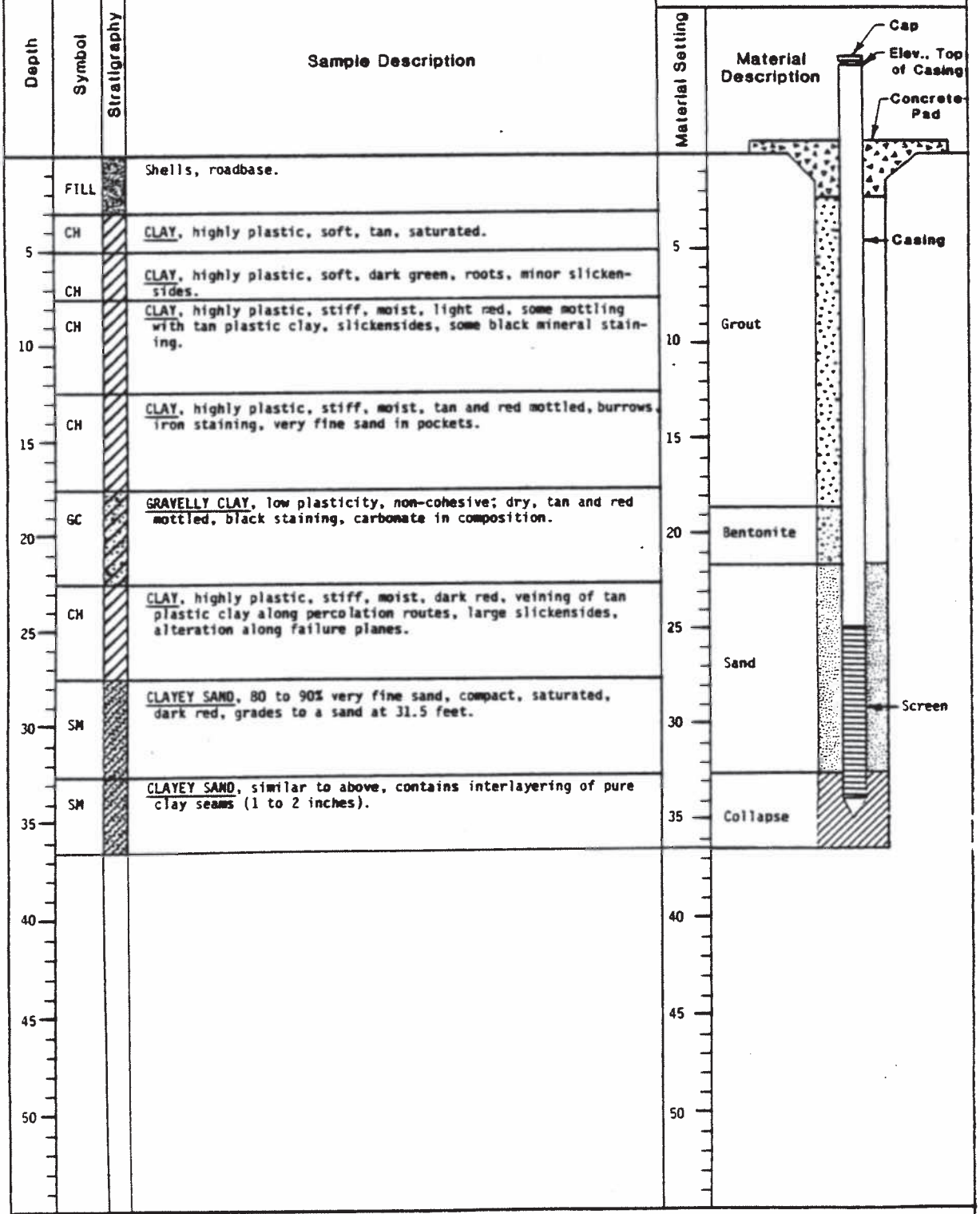
Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 36.5 Feet Casing Size & Type: 2-in. Flush-joint Threaded, Sch. 80 PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
	FILL		Shells, roadbase.
5	CH		CLAY, highly plastic, soft, tan, saturated.
	CH		CLAY, highly plastic, soft, dark green, roots, minor slickensides.
10	CH		CLAY, highly plastic, stiff, moist, light red, some mottling with tan plastic clay, slickensides, some black mineral staining.
15	CH		CLAY, highly plastic, stiff, moist, tan and red mottled, burrows, iron staining, very fine sand in pockets.
20	GC		GRAVELLY CLAY, low plasticity, non-cohesive; dry, tan and red mottled, black staining, carbonate in composition.
25	CH		CLAY, highly plastic, stiff, moist, dark red, veining of tan plastic clay along percolation routes, large slickensides, alteration along failure planes.
30	SM		CLAYEY SAND, 80 to 90% very fine sand, compact, saturated, dark red, grades to a sand at 31.5 feet.
35	SM		CLAYEY SAND, similar to above, contains interlayering of pure clay seams (1 to 2 inches).
40			
45			
50			

Completion Data



Underground Resource Management, Inc.

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/4/85 Well No.: MW-16

Site: _____ Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 25 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

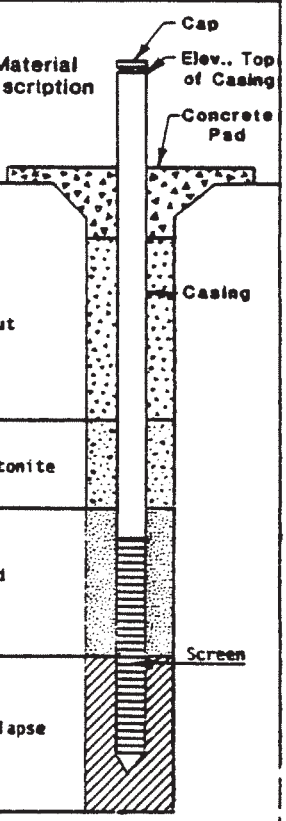
Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
0	FILL		Shells, roadbase.
	CH		CLAY, highly plastic, soft, black, moist, iron staining, iron nodules.
5			
	CH		CLAY, highly plastic, soft, moist, red and tan mottled, dendritic black mineral deposition.
10			
	CH		CLAY, highly plastic, stiff, moist, dark red, grades to a sandy clay at 16.5 feet.
15			
	CL		SANDY CLAY, low plasticity, stiff, 40 to 50% very fine sand, wet, tan and brown, iron stains, black mineral clasts.
20			
25	CL		SANDY CLAY, similar to above except mottled red and tan, sand in pockets.
30			
35			
40			
45			
50			

Completion Data

Material Setting

Material Description



Underground Resource Management, Inc.

Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/9/85 Well No.: MW-17

Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

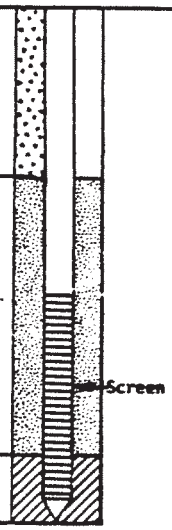
Total Depth: 21.5 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
			Shells, roadbase.
5	CH		CLAY, highly plastic, soft, moist, black, iron stains.
10	CH		CLAY, highly plastic, stiff, moist, red and tan mottled, dendritic black mineral deposition, slickensides, alteration along failure planes, isolated caliche nodules.
15	CL		SANDY CLAY, 20 to 30% very fine sand in pockets, low plasticity, soft, tan, wet, iron staining, some caliche nodules.
20	CL		GRAVELLY CLAY, 20 to 30% caliche nodules, low plasticity, stiff, moist, red, some clayey sand in pockets.

Completion Data

Material Setting	Material Description
5	Grout
10	Sand
15	Screen
20	Collapse



Monitor Well Installation and Log of Boring

URM (85)

Client: Air Products Job No.: 85-624 Date Drilled: 4/10/85 Well No.: MW-20

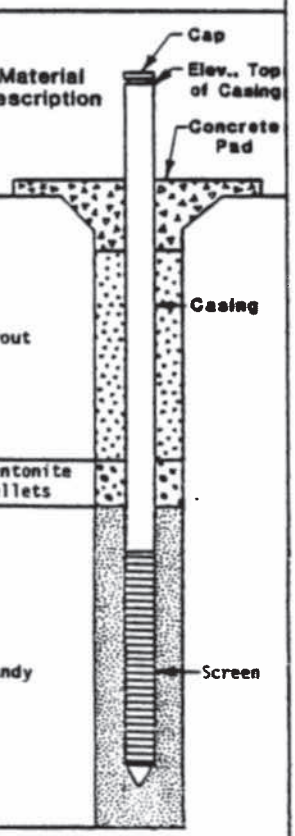
Site: Pasadena, Texas Elevation: Pad _____ Top of PVC Casing _____

Total Depth: 26.5 Feet Casing Size & Type: 2-in. Sch. 80 Flush-joint Threaded PVC Screen Size: .010 inch

Comments: _____

Depth	Symbol	Stratigraphy	Sample Description
			Asphalt cover
5	CH		CLAY, highly plastic, soft, moist, black, iron staining.
10	CH		CLAY, highly plastic, stiff, moist, red and tan mottled, slickensides, slightly sandy.
15			
20	CH		GRAVELLY CLAY, 20 to 30% gravel-sized caliche nodules, stiff, wet, tan and pink mottled, some dendritic black staining, iron "birdseyes".
25	CH		CLAY, high to moderate plasticity, stiff, moist, dark red mottled with tan plastic clay, black dendritic mineral staining, large slickensides, alteration along failure planes, sand in pockets.
30			
35			
40			
45			
50			

Completion Data



Underground Resource Management, Inc.
Austin, Texas

Recovery Well Installation

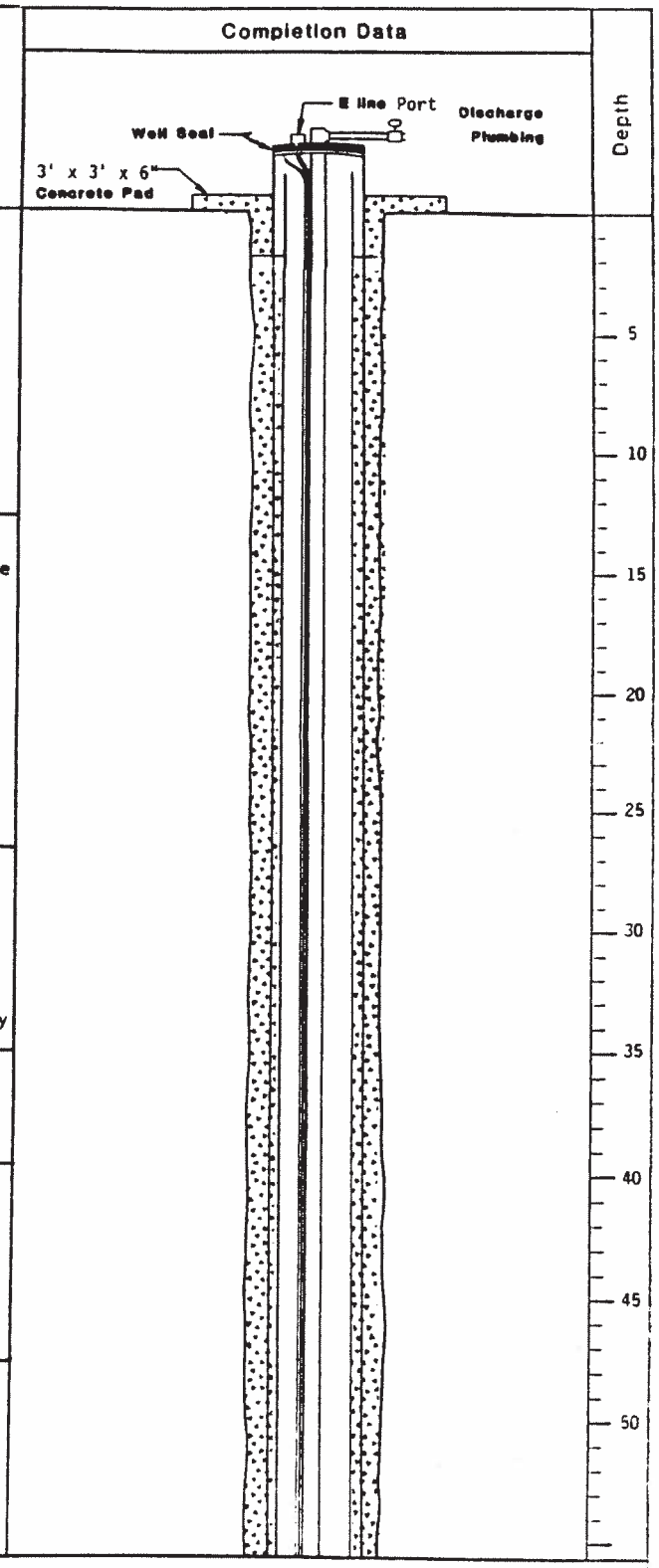
Client: Air Products Job No.: 85-624 Date Drilled: 5/20/85 Well No.: MW-21

Site: Pasadena, Texas Elevation: GL 24.57' Top of Casing: 26.99'

Total Depth: 91.5 feet Casing Size & Type: Surface: 8-inch Bell-end Sch. 40 PVC; Longstring: 4-inch Flush-joint Threaded Sch. 40 PVC Screen Size: .010 Mill Slot

Comments:

Depth	Symbol	Stratigraphy	Lithologic Description
0	CH		CLAY, disturbed, gravel, roots, moist.
5	CH		CLAY, high plasticity, stiff, moist, black roots, iron stains.
10	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining.
15	CL		SANDY CLAY, low plasticity, stiff, wet, tan and red mottled, 30 to 40% very fine sand, iron stains in pockets, iron nodules, black mineral deposition (dendritic).
20	CL		SANDY CLAY, similar to above.
25	CL		SANDY CLAY/CLAYEY SAND, saturated, tan and red mottled.
30	CH		CLAY, high plasticity, stiff, moist, dark red, carbonate inclusions, black mineral deposition (dendritic) minor, slickensides.
35	CH		CLAY, high plasticity, stiff, moist, red and tan mottled, iron staining, slightly sandy.
40	SM		CLAYEY SAND, 70 to 80% very fine sand, compact, light red to brown, wet.
45	CH		CLAY, high plasticity, stiff, moist, dark red, some minor black staining.
	CH		CLAY, high plasticity, stiff, moist, green, iron staining.
	CH		CLAY, high plasticity, stiff, moist, green with red mottling, large slickensides, some calcareous nodules, gravel sized materials.
50	SM		SILTY SAND, uniform very fine, compact, saturated, tan, some iron staining, locally slightly clayey.



Prepared by
Underground Resource Management, Inc.
Austin, Texas

Recovery Well Installation

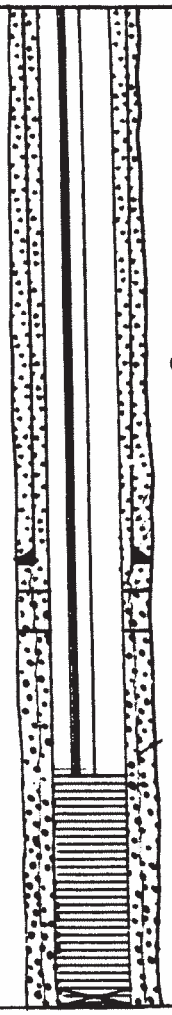
Client: Air Products Job No.: 85-624 Date Drilled: 5/20/85 Well No.: MW-21

Site: Pasadena, Texas Elevation: GL 24.57' Top of Casing: 26.99'
Surface: 8-inch Bell-end Sch. 40 PVC

Total Depth: 91.5 feet Casing Size & Type: Longstring: 4-inch Flush-joint Threaded Sch. 40 PVC Screen Size: .010 Mill Slot

Comments:

Depth	Symbol	Stratigraphy	Lithologic Description
55	SM		SILTY SANDY, 70 to 80% very fine sand, compact, saturated, iron staining, cohesive.
60	SM		SILTY SAND, 80 to 90% very fine sand, compact, saturated, decreased iron staining.
65	SM		SILTY SAND, similar to above.
70	SC		SANDY CLAY, 20 to 30% very fine sand, low plasticity, compact, moist, green, contains organic matter.
75	CL		CLAY, moderate plasticity, stiff, slightly moist, red, some green silty sand in pockets, minor slickensides.
80	SP		SAND, uniform fine to very fine, compact, saturated, gray, some isolated cemented zones.
85	SP		SAND, uniform fine to very fine, compact, saturated, red, slightly silty.
90	SM		SILTY SAND, 80 to 85% very fine, compact, saturated, red.
95			
100			
110			



Completion Data (con't)

Depth

Prepared by
Underground Resource Management, Inc.
Austin, Texas

URM R3e

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-23

DRILLING AND SAMPLING INFORMATION

Boring Location: ± 5' WEST OF MW-23 (PLUGGED)
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT, REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 70.0
Date Started: 4/20/92
Date Completed: 4/24/92

Sampling Method: SHELBY TUBE

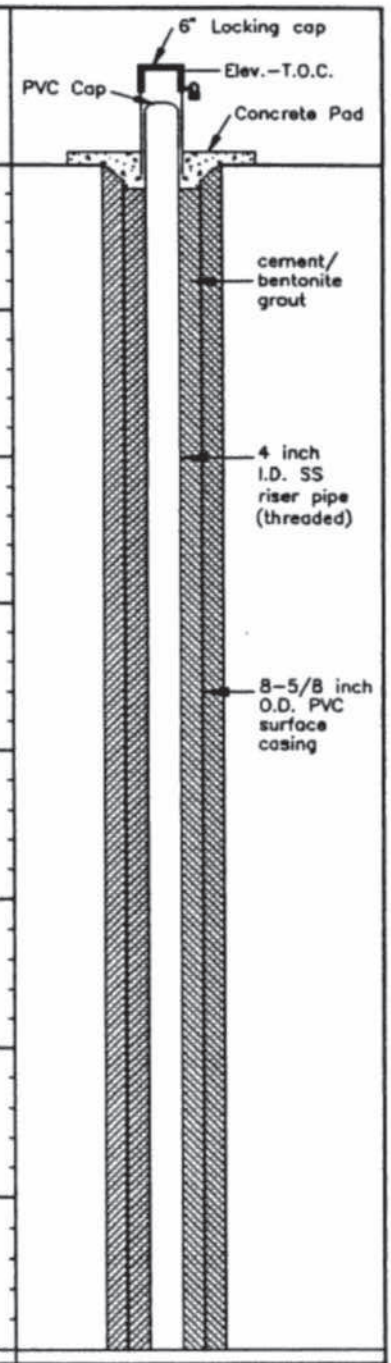
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.51
Ref. Datum: MSL

1. Surf Casing-O.D.(in.) 8-5/8
   Centralizers-Type: -
   Depth(ft.): 46.0 Type: Sch 40 PVC
   Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4
   Centralizers-Type: -
   Depth(ft.): 50.0 Type: S.Stl.
   Depths(ft.): -
3. Screen Dia.(in.): 4
   Depth Interval(ft.): -
   Centralizers-Type: -
   Type: Sch 40 S.Stl. WIRE WRAPPED
   Slot Size(in.): .010
   Depths(ft.): -
4. Filter Pack Type: Silica Sand
   Conc. Pad Size: 2'x2'x6"
   Depth Interval(ft.): 48.5-70.0

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - limestone; subangular; light gray - silt, clay, very fine grained sand and shell fragments; medium to dark gray; wet to moist; no noticeable odor		12/12, 24/24, 24/20, 24/12				0
- silt, clay and very fine grained sand; occasional shell fragments; moderate plasticity; moist		24/15, 24/24, 24/24, 24/24, 24/18		ch		5
- silty clay and shell; dark gray; wet; no odor; (too much fill for cave-in, this site is possibly a filled pit)		24/20, 24/18, 24/3, 24/12		cl		10
SILTY CLAY - very plastic; slickensides along 40 degree fractures; irregular, discomformable surface contact at approximately 9.5 feet; occasional white concretions (calcareous?); occasional dark gray and reddish brown iron stained concretions; red and yellowish brown with light to medium gray mottling; moist; no odor - yellowish brown with occasional black mottling; occasional light gray; occasional reddish brown		24/20, 24/18, 24/20, 24/24, 24/14		ch		15
SANDY SILTY CLAY - slight to moderate plasticity; very fine grained sand; occasional white concretions; light gray to reddish brown; occasional black along fractures; moist; no odor - moderate plasticity; mottled		24/24, 24/24, 24/24, 24/24		sc		20
SILTY CLAYEY SAND - very fine grained sand; well sorted; abrupt upper contact; light gray to light reddish brown (mottled); moist; no odor		24/24, 24/24, 24/24, 24/24		ch		25
SILTY CLAY - very plastic; occasional, minor white concretions; very light reddish brown with light brown mottling; occasional fractures, mottled light gray; moist; no odor		24/24, 24/24, 24/24, 24/24		sm		30
CLAYEY SILTY SAND - very fine grained sand; well sorted; gradational upper contact; abrupt lower contact; very light reddish brown, mottled light gray; moist; no odor		24/24, 24/24, 24/24, 24/24		ch		35
SILTY CLAY - high plasticity; stiff; occasional slickensides; occasional burrows filled with clay; reddish brown, mottled yellowish brown and light gray; moist; sweet odor (may be gloves?)		24				40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A20 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-23

DRILLING AND SAMPLING INFORMATION

Boring Location: ±5' WEST OF MW-23 (PLUGGED)
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 70.0
Logged By: G. ROBERTSON
Date Started: 4/20/92
Drilled By: W. WRIGHT, REED AND MORRIS
Date Completed: 4/24/92
Drill Rig Type: MUD ROTARY
Drilling Method:

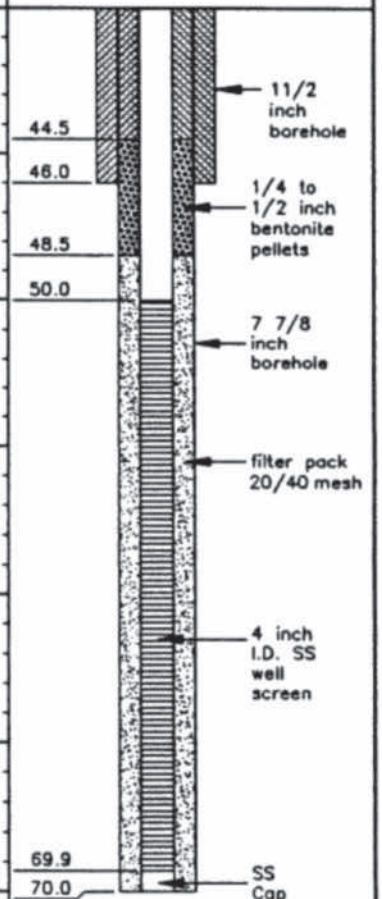
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 26.51 Ref. Datum: MSL
1. Surf Casing–O.D.(in.): 8-5/8 Depth(ft.): 46.0 Type: Sch 40 PVC
   Centralizers–Type: – Depths(ft.): –
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 50.0 Type: S.Stl.
   Centralizers–Type: – Depths(ft.): –
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): – Slot Size(in.): .010
   Centralizers–Type: – Depths(ft.): –
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.5–70.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
– occasionally micaceous – slickensides along intersecting (diagonal) 45 degree fractures; occasional white concretions; no mica noted; light gray to reddish brown; no odor		24/24, 24/24, 24/24, 24/19, 24/24, 24/24, 24/24				
SILTY SAND – very fine grained sand; well sorted; mottling/staining along burrows; bioturbated; compact; light gray with occasional orangish brown mottling; moist to wet; no odor – coarsening downward/fining upward; abrupt contact		24/11		sp		
CLAYEY SANDY SILT – slight plasticity; very fine grained sand; well sorted; compact; bioturbated; light gray with orangish brown mottling; wet; no odor – 5Y 7/1; iron staining		24/24, 24/24, 24/24, 24/24		ml		
SILTY SAND – very fine to fine grained; approximately 35% silt; 5Y 7/1; saturated; no odor		24/24		ml		
CLAYEY SANDY SILT – large clay lenses; 5Y 7/1; wet		24/17		ml		
SILTY SAND – very fine to fine grained; 15% silt; 5Y 7/3; saturated; no odor – 5 to 10% silt; clayey zones at approximately 62 feet; 2.5Y 7/0 – slightly clayey		24/11, 24/14		ml		
SILTY CLAYEY SAND – wet; no odor; large chunks of burnt wood in core – increase in amount of clay		24/20, 24/20		ml		
CLAYEY SILT – 10YR 5/1; wet; no odor; chunks of burnt wood		24/20		ml		
SILTY CLAY – low plasticity; stiff				ml		
CLAYEY SILT – moist				ml		
CLAY – slightly silty; stiff; crumbly; 5G 6/1; no odor		20		cl		
TOTAL DEPTH = 70.0 FEET						



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A20 Sheet 2 of 2

Revised 7/7/92

LOG OF BORING NO. MW-25

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

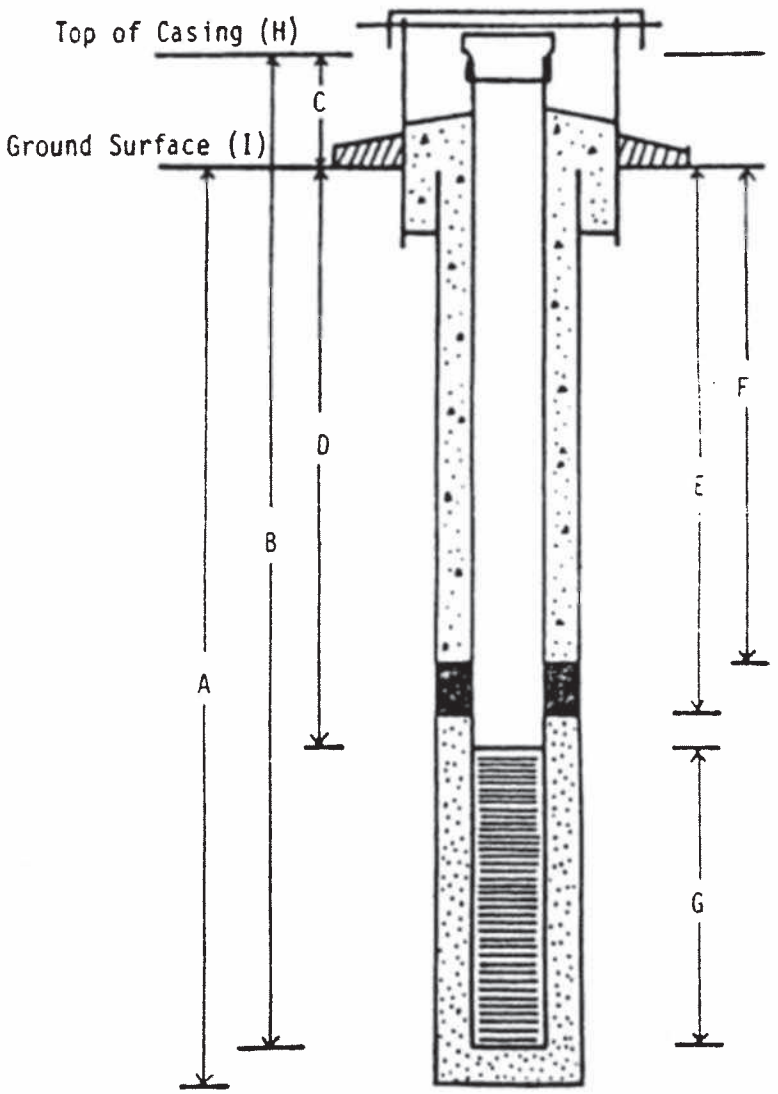
TYPE BORING: Undisturbed sample LOCATION

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown clay w/gravel						
			Dark gray clay w/sand seams						
5									
10			- tan						
			- brown						
15									
20			- tan and light gray						
25			- brown & light gray w/silt seams						
30			Brown and light gray clayey sand w/silt pockets						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: July 12, 1988

DEPTH TO WATER: 8.3'
DATE: 7/14/88

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 38.0
(C)	Casing stickup above ground surface, feet	: 3.0
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN MW-25

PLATE 35

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-26

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 58.1
Date Started: 6/26/95
Date Completed: 8/4/95

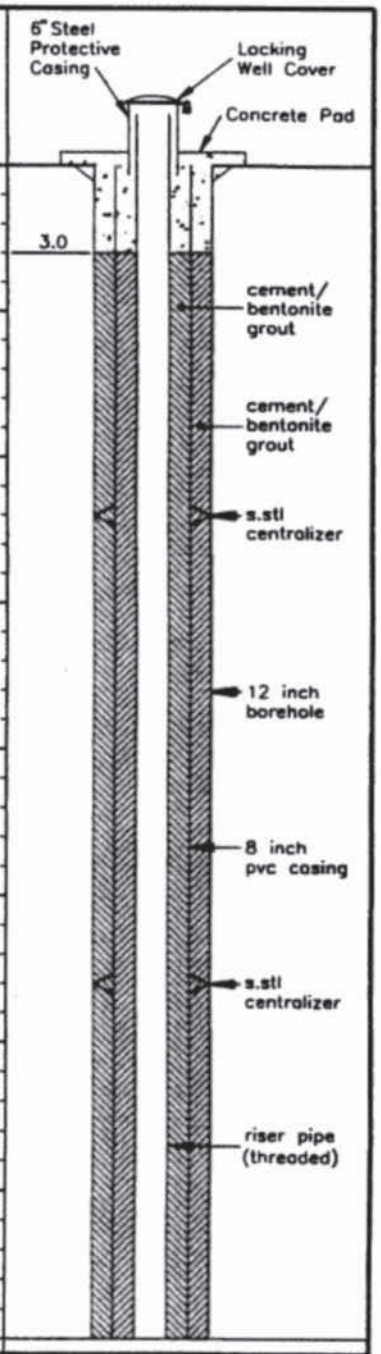
Sampling Method: 2' SHELBY TUBE (ST)

Notes: REAM TO 12" BOREHOLE TO 45'
WATER LEVEL AT 14.70 BGL ON 7/6/95

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.18
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
Depth(ft.): 45.0 Type: Sch 40 PVC
Centralizers-Type: S.Stl
Depths(ft.): 12, 28, 43
2. Riser Pipe-I.D.(in.): 4
Depth(ft.): 48.0 Type: Sch 40 S.Stl
Centralizers-Type:
Depths(ft.):
3. Screen Dia.(in.): 4
Type: Sch 40 S.Stl Wire Wrapped
Depth Interval(ft.): 48.0-58.0
Slot Size(in.): .010
Centralizers-Type:
Depths(ft.):
4. Filter Pack Type: Silica Sand
Depth Interval(ft.): 46.5-58.0
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravels; shells; white to gray						0
CLAY WITH SAND - 15% to 20% very fine grained sand; moderately plastic; firm; damp; yellowish red (5YR-5/6); grayish green mottled clay; black stains; no odor	ST	24/24		cl		5
CLAY WITH GRAVEL - trace <5% fine grained sand; highly plastic; 20% to 25% carbonate gravel; firm to stiff; damp; yellowish red (5YR-5/6); greenish dark gray mottled dendritic clays; no odor	ST	24/24		ch		10
SANDY CLAY - 25% to 30% fine grained sand; slightly plastic; carbonate nodules; 5% gravels; stiff; moist; reddish yellow (5YR-6/8); dark dendritic patterns on bedding planes	ST	24/24		cl		15
SILTY SAND - fine uniform grained sand; 15% to 20% fines; loose; wet; strong brown (7.5YR-5/8); traces (<5%) of green and gray mottling; well cemented carbonate nodules from 20.3-20.7'	ST	24/24		sm		20
CLAYEY SAND WITH GRAVEL - 10% to 15% cemented white to tan carbonate gravel, 20% to 25% clay fines, fine uniform grained sand; moderately well sorted; loose to compact; wet; strong brown (7.5YR-5/6); green clay seams	ST	24/10		sc		25
CLAY WITH GRAVEL - cemented carbonate gravel; highly plastic; stiff; moist; yellowish red (5YR-5/6); green dendritic clay throughout; possible fractures or cracks; 10% to 15% coarsed grained sand	ST	24/20		ch		30
CLAY - 5% to 10% gravel; moderately plastic; stiff to hard; decreasing in green dendritic clay; mottling	ST	24/24		cl		35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	9/1/95	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A13 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-26

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 58.1
Date Started: 6/26/95
Date Completed: 8/4/95

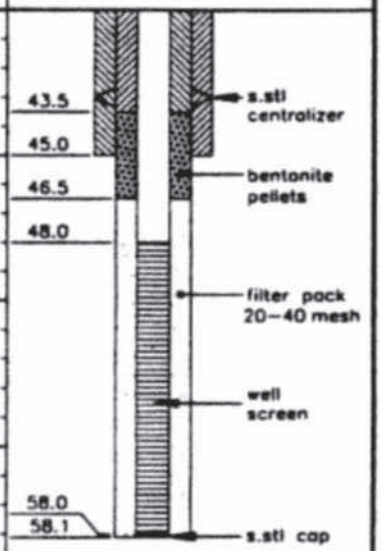
Sampling Method: 2" SHELBY TUBE (ST)

Notes: REAM TO 12" BOREHOLE TO 45'
WATER LEVEL AT 14.70 BGL ON 7/6/95

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.18 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 Depth(ft.): 45.0 Type: Sch 40 PVC
Centralizers-Type: S.Stl Depths(ft.): 12, 28, 43
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 48.0 Type: Sch 40 S.Stl
Centralizers-Type: Depths(ft.):
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl Wire Wrapped
Depth Interval(ft.): 48.0-58.0 Slot Size(in.): .010
Centralizers-Type: Depths(ft.):
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 46.5-58.0
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY WITH SAND - 15% to 20% medium grained poorly sorted sand; slightly plastic; hard; dry; red (2.5YR-4/6)	ST		24/24		cl		
SILTY SAND - fine to medium grained sand; angular; firm; 15% to 20% fines; damp; light brownish gray (10YR-6/2); interbedded with clay	ST		12/12		sm		
CLAY - slightly plastic; hard; dense; damp; reddish brown (5YR-5/3) and 40% grayish green; dendrites; nodules; trace of sand; approx. 5% gravels	ST		24/20		cl		45
SANDY CLAY - 25% to 30% very fine grained sand; loose; wet; poor recovery	ST		24/8		sm		50
SANDY SILT - 25% to 30% fine to very fine grained sand; slightly plastic; moderately well graded; firm; wet; light gray (10YR-7/1); lens of mottled yellowish reddish brown clay; fracture and bioturbation; root casts and burrow filled with carbonate and iron stained - decreasing sand; stiff	ST		24/24		ml		55
TOTAL DEPTH = 58.1 FEET							60 65 70 75 80



IT	INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	7/11/95	PROJ. CHK	9/1/95	APPRV. BY.	9/1/95	DWG. NO.	448339-A13 Sheet 2 of 2

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711 — Please use Black Ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) OWNER Air Products Inc (Name) ADDRESS 1423 Hwy. 225 (Street or RFD) Pasadena (City) Tx. (State) 77506 (Zip)

2) LOCATION OF WELL:
County Harris . 1 miles in E (NE, SW, etc.) direction from Pasadena (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☐ Other _____

6) WELL LOG:
Date Drilling: Started 6/26 19 95 Completed 6/28/95 19 95

DIAMETER OF HOLE	Dia. (in.)	From (ft.)	To (ft.)
	12"	Surface	45'
	8"	45'	58'

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other _____
If Gravel Packed give interval ... from 46.5' ft. to 58' ft.

From (ft.)	To (ft.)	Description and color of formation material
		FW-21 Boring Log Attached

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8"	N	P.V.C.	0	45'	
4"	N	Stainless Steel	0	48'	
4"	N	Stainless Screen	48'	58'	.010

(Use reverse side if necessary)

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 0 ft. to 45' ft. No. of Sacks Used bulk
0 ft. to 46.5 ft. No. of Sacks Used bulk
Method used Pump/Tremi
Cemented by Reed Environmental Drilling

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL:
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Reed Environmental Drilling (Type or print) WELL DRILLER'S LICENSE NO. 2255W

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Tx. (State) 75941 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

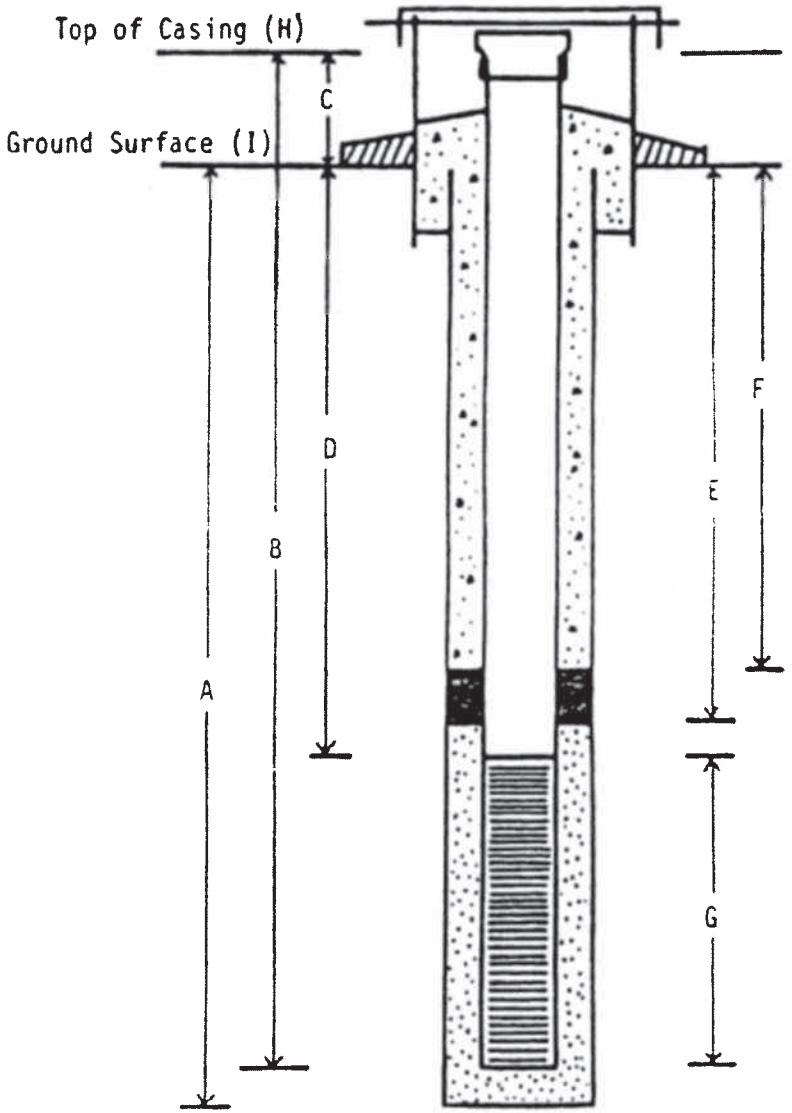
Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 37.6
(C)	Casing stickup above ground surface, feet	: 2.6
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN MW-26

PLATE 36

Monitor Well MW-31

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1623 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in – (N, E, S, W, etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☐ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Diameter of Hole Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	100

Date drilled Sept. 21, 1990 Completed Oct. 22, 1990

From (ft.)	To (ft.)	Description and color of formation material
0	29	Dark Gray and Reddish Brown Silty Clay
29	31	Brown and Light Gray Silty Sand
31	48	Reddish Brown Stiff Clay
48	65	Light Gray Silty-Sand Silty Clay
65	77	Brownish Orange Sandy Silty Clay
77	94	Reddish Silty Sand
94	100	Stiff Reddish Clay

(Use reverse side if necessary)

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 77 ft. to 100 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	SS Blank Pipe	0	80	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	80	95	Sch40

CEMENTING DATA
Cemented from 0 ft. to 74 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15.5 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 91 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Read & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS PO Box 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 6-27-82)

DEPARTMENT OF WATER RESOURCES COPY

MW32

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Sept. 28, 1990 Completed Oct. 22, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack

If Gravel Packed give interval . . . from 55 ft. to 72 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	9	Dark Gray Silty Clay
9	20	Brown-Orange Silty Clay
20	21	Red Sand
21	36	Brown-Orange Silty Clay
36	49	Reddish Brown Stiff Clay
49	50	Light Gray Sand
50	60	Gray Clayey Silt to Silty Clay
60	68	Fine Grained Silty Sand
68	74	Reddish Brown Silty Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	SS Blank Pipe	0	58	Sch40
4	N	SS-Wire Wrapped Screen	58	68	Sch40
		w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 51.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 15.2 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc. 63.5 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS Rt 1818 (Route or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0382 (Rev. 8-27-82) DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-36

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena (Town) Texas

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	73

Date drilled Sept. 28, 1990 Completed Oct. 10, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 60 ft. to 73 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	8	Dark Gray Silty Clay
8	19	Reddish Brown and Light Gray Stiff Clay
19	28	Brown and Light Gray Clayey Sand
28	40	Reddish Brown Stiff Clay
40	55	Reddish Brown Silty Clay
55	64	Light Gray Sandy to Clayey Silt
64	74	Light Gray Silty Sand
74	76	Light Gray and Red Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	SS Blank Pipe	0	62	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	62	72	Sch40

CEMENTING DATA
Cemented from 0 ft. to 55 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 21 ft. below land surface Date 10/19/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 66.5 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0382 (Rev 5-27-82) DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-37

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER: Air Products Corporation (Name) Address: 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County: Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☐ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 1, 1990
Completed Oct. 22, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	30
8	30	72

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 53.5 ft. to 72 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy Silty Clay
30	41	Reddish Stiff Clay
41	42	Light Brown Sand
42	50	Gray-Brown Stiff Clay
50	64	Light Gray Silty-Clayey Sand
64	69	Greenish Gray Sand
69	72	Light Gray Silty Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	30	Sch40
4	N	SS Blank Pipe	0	58	Sch40
4	N	SS Wire Wrapped Screen	58	68	Sch40
		w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 50.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 16 ft. below land surface Date 10/22/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., 63.75 ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No _____
Located on map _____

TDWR 0382 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Monitor Well MW-38

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER: Air Products Corporation (Name) Address: 1423 highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County: Harris 0 miles in – (N E . S W . etc.) direction from Pasadena, Texas (Town)

☐ Legal description:

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to the form.

Section No. _____ Block No. _____ Township _____

Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Monitor

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 5, 1990
Completed Oct. 11, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	75
8	75	94

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack

If Gravel Packed give interval . . . from 75 ft. to 94 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	12	Dark Gray Silty Clay
12	17	Reddish BRown Stiff Clay
17	22	Brown Sandy Clay
22	26	Red Brown Silty Clay
26	40	Reddish Brown Stiff Clay with Some Sand
40	48	Brown and Gray Stiff Clay
48	62	Gray Sandy Silt
62	68	Gray Silty Sand
68	75	Brown Gray Silty Clay
75	92	Reddish Brown Silty Sand
92	100	Reddish Brown Silty Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfgr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC Casing	0	75	Sch40
4	N	SS Blank Pipe	0	78	
4	N	SS Wire Wrapped Screen w/cap (western Well)	79	93	

CEMENTING DATA

Cemented from 0 ft. to 71 ft.

Method used Tremie

Cemented by Driller (Company or Individual)

9) WATER LEVEL:

Static level 14.9 ft. below land surface Date 10/22/90

Artesian flow N/A gpm. Date N/A

10) PACKERS: Type: None Depth:

11) TYPE PUMP: ☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____

Depth to pump bowls, cylinder, jet, etc., 87 ft.

(Use reverse side if necessary)

12) WELL TESTS: None

☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No

If yes, submit "REPORT OF UNDESIRABLE WATER"

Type of water? _____ Depth of strata _____

Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

For TDWR use only

Work No. _____

Located on map _____

Please attach electric log, chemical analysis, and other pertinent information, if available.

TDWR-0382 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-40

DRILLING AND SAMPLING INFORMATION

Boring Location: 8' NW OF CAPPED EFFLUENT IMPOUNDMENT AREA
Surface Elev.(ft): 24.9
Total Depth(ft.): 71.0
Logged By: S. PULLEN
Date Started: 8/29/91
Drilled By: J. LANDEROS
Date Completed: 9/10/91

Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY
Sampling Method: 5' CONTINUOUS CORE BARREL AND 2' SPLIT SPOON

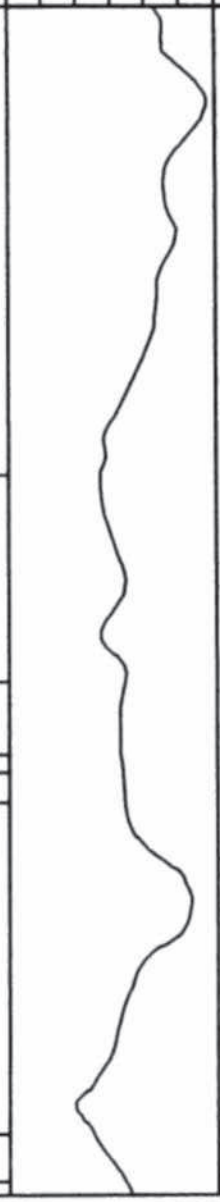
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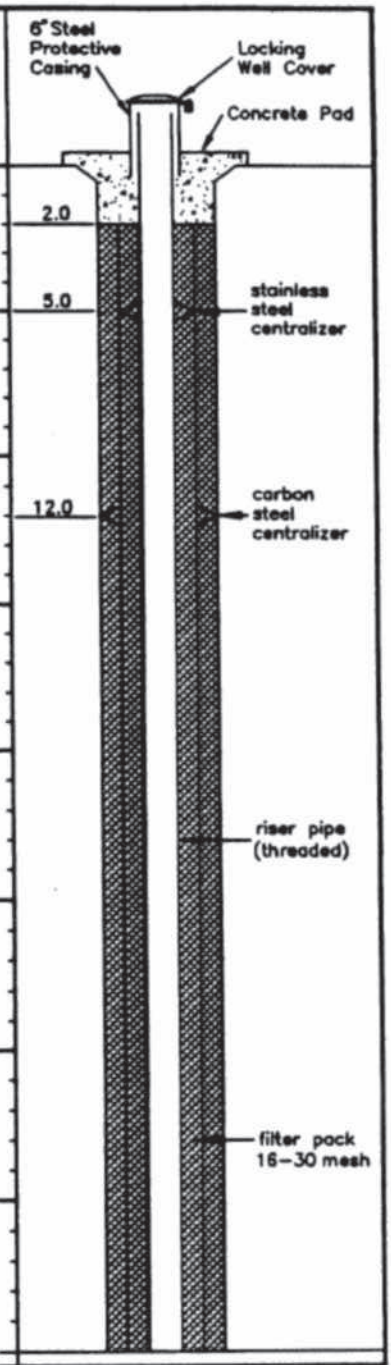
WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.38 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8 5/8 Depth(ft.): 47.5 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 44
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6-71
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - highly plastic, stiff; much shell hash; very dark gray; damp	CS		60				0
- few small oxidized pockets; no odor	SS		60 / 24 / 12				5
- very stiff; very few carbonate nodules; predominantly dark brown (mottled)	CS		60				10
SILTY CLAY - slightly plastic; 20% silt; no odor; few large iron stained nodules; light gray; saturated	CS		60 / 56				15
- dense; 30% silt; scattered black stains; predominantly light gray and brownish yellow; damp	CS		60 / 50				20
SILTY SAND - 70% very fine sand, 30% silt; loose; no odor; predominantly dark brown; saturated	CS		60				25
CLAY - highly plastic, very stiff; no odor; moderate number of carbonate nodules; dark brown; damp	CS		60				30
SILTY SAND - 70% very fine sand, 30% silt; loose; no odor; approximately one foot thick; dark brown; saturated	CS		60				35
CLAY - highly plastic, very stiff; dark brown; damp - very highly plastic; no odor; yellowish red - dark brown	CS		60 / 60				40
SILTY SAND - 70% very fine sand, 30% silt; loose; dark brown; saturated	CS		60				
SAND - very fine to fine sand; loose; no odor; light brown; saturated	CS		60				

GEOPHYSICAL LOG (GAMMA)





INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A3 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-40

DRILLING AND SAMPLING INFORMATION

Boring Location: 8' NW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 71.0
Logged By: S. PULLEN
Date Started: 8/29/91
Drilled By: J. LANDEROS
Date Completed: 9/10/91

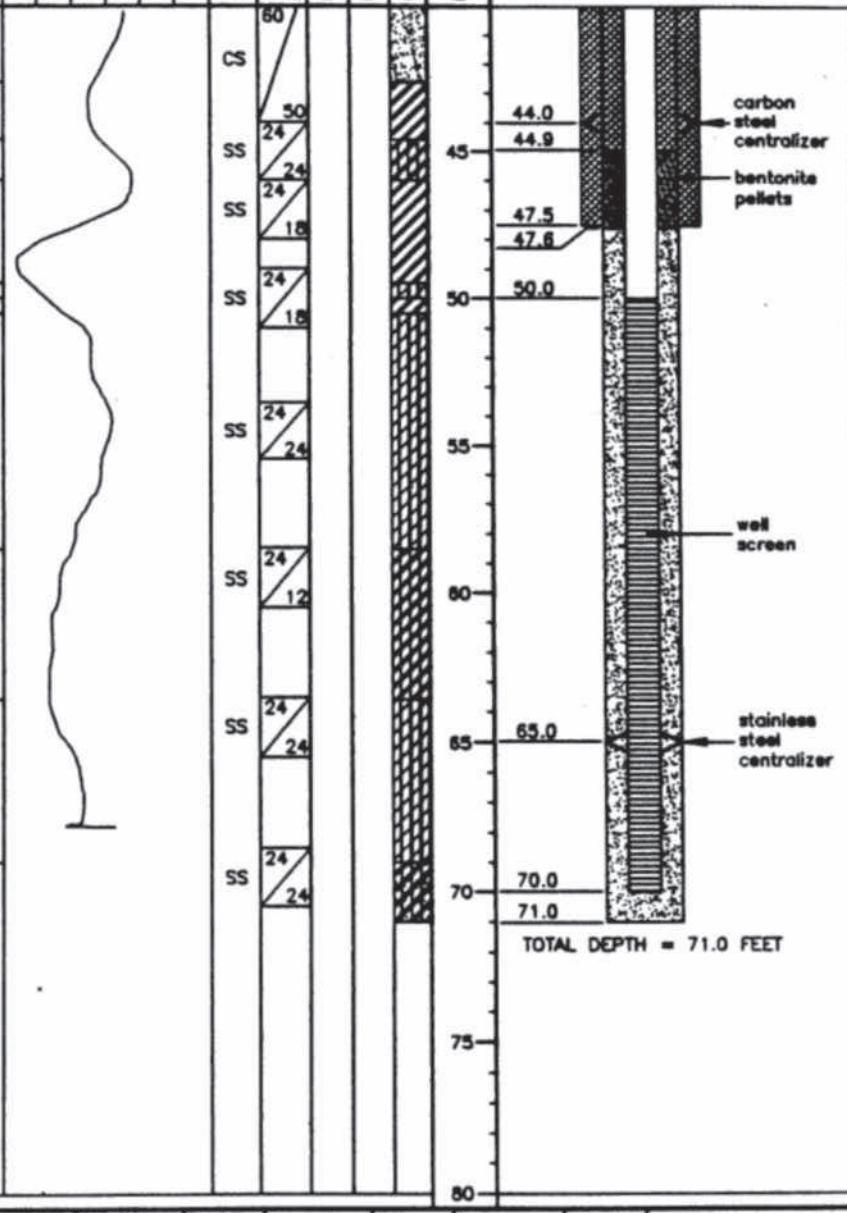
Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY
Sampling Method: 5' CONTINUOUS CORE BARREL AND 2' SPLIT SPOON

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 26.38 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8 5/8 Depth(ft.): 47.5 Type: Sch 40 PVC
   Centralizers–Type: Carbon Stl Depths(ft.): 12, 44
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers–Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50–70 Slot Size(in.): .010
   Centralizers–Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 47.6–71
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	GEOPHYSICAL LOG (GAMMA)	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND – very fine to fine sand; loose; no odor; light brown; saturated		CS		60 / 50				
CLAY – very highly plastic, very stiff; yellowish red; damp		SS		24 / 24				
SILTY CLAY – light gray, mottled		SS		24 / 18				
CLAY – very highly plastic; hard; no odor; yellowish brown, mottled with thin light gray; damp – plastic; very stiff; damp		SS		24 / 18				
CLAYEY SILT – nonplastic; stiff; yellowish brown; saturated		SS		24 / 24				
CLAY – yellowish brown								
CLAYEY SILT – yellowish brown – moderately plastic; stiff; no odor; very few iron stains in micro fractures; saturated		SS		24 / 12				
SILTY CLAY – moderately plastic; 30% silt, 70% clay; very stiff; light gray, few brown stained "spots" at 59.0 to 59.5; damp		SS		24 / 24				
CLAYEY SILT – moderately plastic; 40% clay, 60% silt; very stiff; no odor; light gray, few brown stains; damp		SS		24 / 24				
SILTY SANDY CLAY – 40% clay, 40% silt, 20% fine sand; laminations vary from 1 to 6 inches; light brownish gray; thin black organic deposits at 70.0								



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A3 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-41

DRILLING AND SAMPLING INFORMATION

Boring Location: SW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 23.9
TOTAL DEPTH(FT.): 72
Logged By: S. PULLEN
Date Started: 8/30/91
Drilled By: J. LANDEROS
Date Completed: 9/11/91

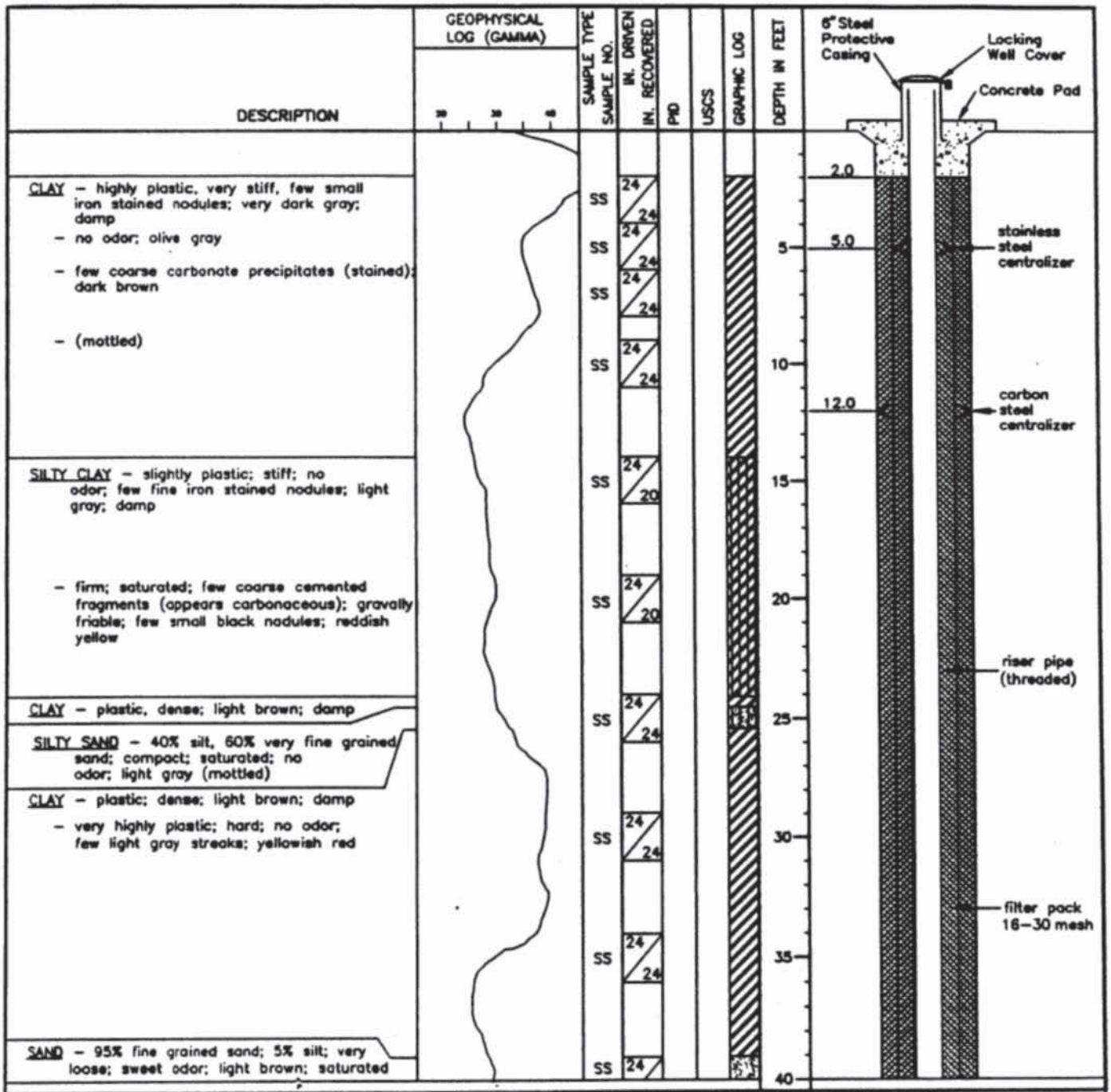
Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS AND MUD ROTARY

Sampling Method: 2' SPLIT SPOON

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 25.43 Ref. Datum: MSL
1. Surf Casing–I.D.(in.): 8–5/8 Depth(ft.): 45 Type: Sch 40 PVC
   Centralizers–Type: Carbon Stl Depths(ft.): 12, 41.5
2. Riser Pipe–I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers–Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50–70 Slot Size(in.): .010
   Centralizers–Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.2–72
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A4 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-41

DRILLING AND SAMPLING INFORMATION

Boring Location: SW OF CAPPED EFFLUENT IMPOUNDMENT AREA
SURFACE ELEV.(FT): 23.9
TOTAL DEPTH(FT.): 72
Logged By: S. PULLEN
Date Started: 8/30/91
Drilled By: J. LANDEROS
Date Completed: 9/11/91

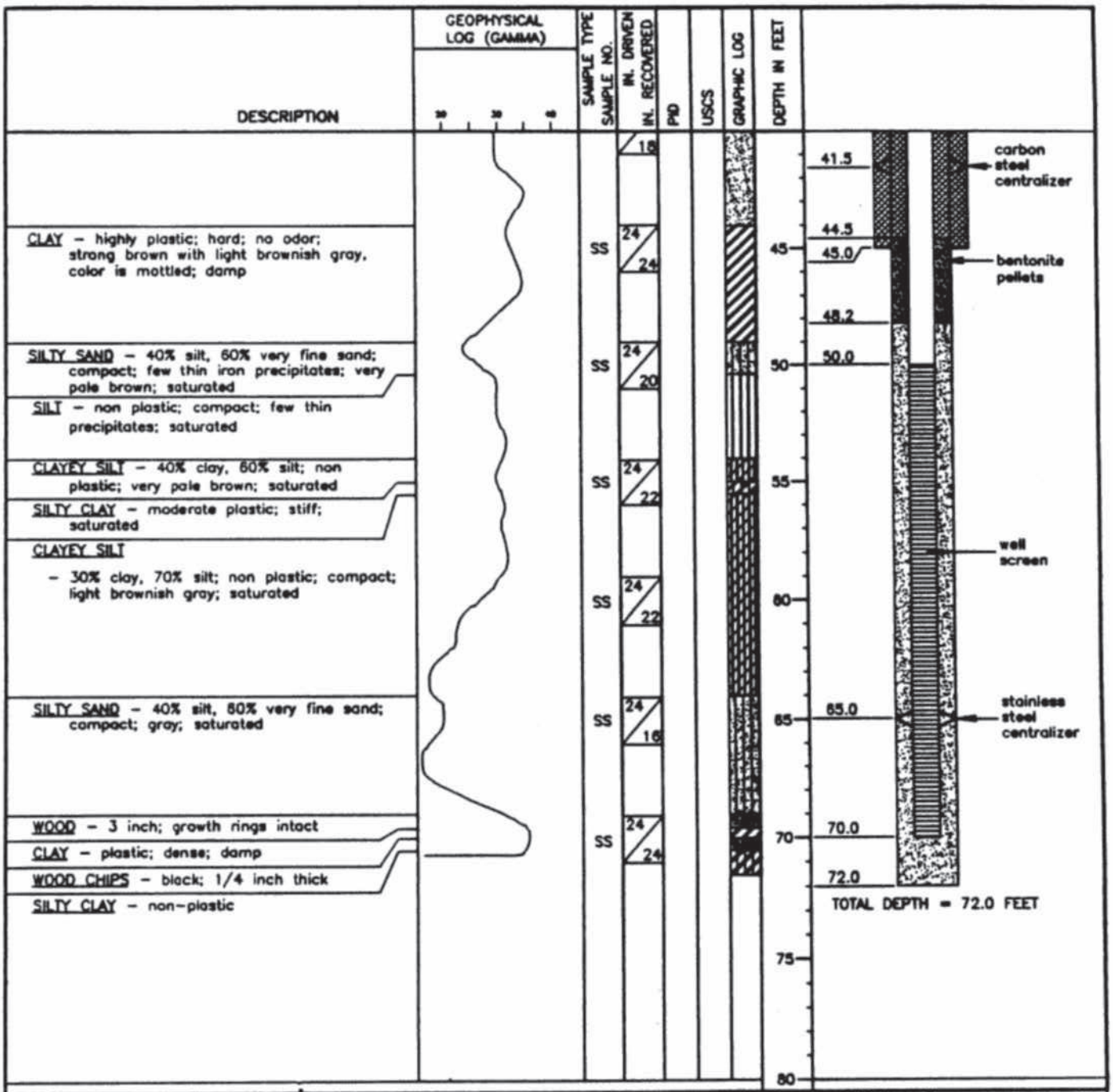
Drill Rig Type: MOBIL B-57
Drilling Method: HOLLOW STEM AUGERS

Sampling Method: 2' SPLIT SPOON

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.43 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8-5/8 Depth(ft.): 45 Type: Sch 40 PVC
   Centralizers-Type: Carbon Stl Depths(ft.): 12, 44.5
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 50 Type: Sch 40 S.S.
   Centralizers-Type: S.Stl Depths(ft.): 5
3. Screen Dia.(in.): 4 Type: S.Stl Wire Wrapped
   Depth Interval(ft.): 50-70 Slot Size(in.): .010
   Centralizers-Type: S.Stl Depths(ft.): 65
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 48.2-72
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 10/4/91	DRAFT CHK		PROJ. CHK		APPRV. BY		DWG. NO.	448053-A4 Sheet 2 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-46

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF DRUM STORAGE
SURFACE ELEV.(FT): 26.1
TOTAL DEPTH(FT.): 47.5
Logged By: K. HENKE
Date Started: 6/2/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 6/3/92
Drill Rig Type: MOBILE DRILL B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER

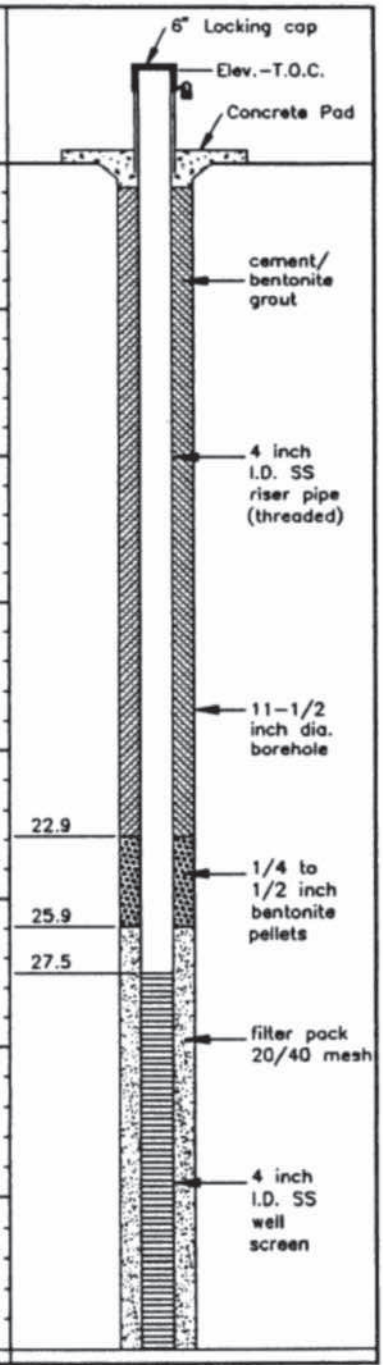
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 28.10
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): -
   Depth(ft.): - Type: -
   Centralizers-Type: -
   Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 27.5 Type: S.Stl.
   Centralizers-Type: S.Stl
   Depths(ft.): -
3. Screen Dia.(in.): 4
   Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 27.5-47.4
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
4. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 25.9-47.5
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - white rocks mixed with reddish brown clay and silt						
CLAY - stiff; large pieces of shell; dark gray (5YR 3/1)		24/18		ch		
SAND - some black clay and reddish silt stringers; 10YR 5/2		24/18		sc		
CLAY - very stiff; some organic matter; some silty orange lenses; 5YR 3/1		24/18		ch		5
- 10YR 3/1; wet; no odor		24/18				
- plastic; moderately stiff; very little silt; calcareous nodules; 7.5YR 5/2 and 7.5YR 5/4		24/18				
- fewer nodules; 5YR 5/4, 5YR 5/6 and 5Y 6/2; gray and reddish brown mottling		24/18				10
- more red than above		24/18				
SILTY CLAY - 50% clay, 50% gray silty stringers; 5YR 5/4 and 5YR 5/6		24/18		ch		15
SILT AND CLAYEY SILT - very fine grained; some calcareous nodules; 10YR 6/2 and 10YR 7/2		24/24		cl-ml		
CLAYEY SILT TO CLAYEY SAND - very fine grained sand; organics; some iron staining; 10YR 7/2		24/24		sc		20
SILTY CLAYEY SAND - very fine grained sand; organics; some iron staining; 10YR 7/2		24/24		sc		
CLAYEY SILT AND SAND - very fine grained sand; very friable; organics; some iron staining; 10YR 7/2		24/24		sc-sm		22.9
- 50% red clay		24/18				25
CLAY - very stiff; some calcareous nodules; some gray silty lenses; 2.5YR 4/6		24/18		ch		25.9
- some organic matter and gray clay nodules; 2.5YR 4/6 and 2.5YR 5/6		24/18				27.5
- red and gray mottling		24/24				30
- less gray areas		24/24				
CLAYEY SILT - friable; some gray veins of siltier material; no odor		24/18		cl		35
CLAY - very stiff; reddish brown		24/20		ch		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A27 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-46

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF DRUM STORAGE
SURFACE ELEV.(FT): 26.1
TOTAL DEPTH(FT.): 47.5
Logged By: K. HENKE
Date Started: 6/2/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 6/3/92
Drill Rig Type: MOBILE DRILL B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER

Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 28.10 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): - Depth(ft.): - Type: -
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 27.5 Type: S.Stl.
   Centralizers-Type: S.Stl Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 27.5-47.4 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 25.9-47.5
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- reddish gray from 40 to 40.5 feet - minor yellowish gray silty layers		18/24 24/24 24/24		ch		45
CLAYEY SILT - very stiff; 5Y 5/2 and 5Y 6/1; olive and gray mottling		24/24		cl		
CLAY - very stiff; mottled with gray silty lenses; 10YR 6/3 and 7.5YR 5/4		?/24		ch		
TOTAL DEPTH = 47.5 FEET						50 55 60 65 70 75 80

47.4 SS
47.5 Cap

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A27 Sheet 2 of 2

Revised 7/7/92

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711 — Please use black ink.

Attention Owner Confidentiality Privilege Notice on Reverse Side

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

LOCATION OF WELL:
County Harris , _____ miles in (see attached map) (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Driven ☐ Air Rotary ☐ Cable Tool ☒ XXXX Other Auger

6) Well Log:
Date Drilling:
Started: Jun 2, 19 92
Completed: Jun3, 19 92

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	47.5

See attached diagram.

7) BOREHOLE COMPLETION: See attached well completion diagram.
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other _____
If Gravel Packed, give interval . . . from 26.0 ft. to 47.5 ft.

From (ft.) To (ft.) Description and color of formation material

MW-46
See attached well log.

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
See attached well completion diagram.					

9) CEMENTING DATA (Rule 287.44(1)) See attached well completion diagram.
Cemented from 0 ft. to _____ ft. No of Sacks Used _____
_____ ft. to _____ ft. No of Sacks Used _____
Method used _____
Cemented by Reed and Morris Drilling

10) SURFACE COMPLETION See attached well completion diagram.
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3)(A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

12) Packers: Type Depth
None

13) TYPE PUMP: NONE
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) TX (State) 75941 (Zip)

(Signed) Mike Wilson (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90) TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-47

DRILLING AND SAMPLING INFORMATION

Boring Location: SE OF DRUM STORAGE PAD
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 47.0
Logged By: V. CRNICH
Date Started: 4/16/92
Drilled By: R. REED REED AND MORRIS
Date Completed: 4/20/92
Drill Rig Type: MOBILE B-61
Drilling Method: HOLLOW STEM AUGER

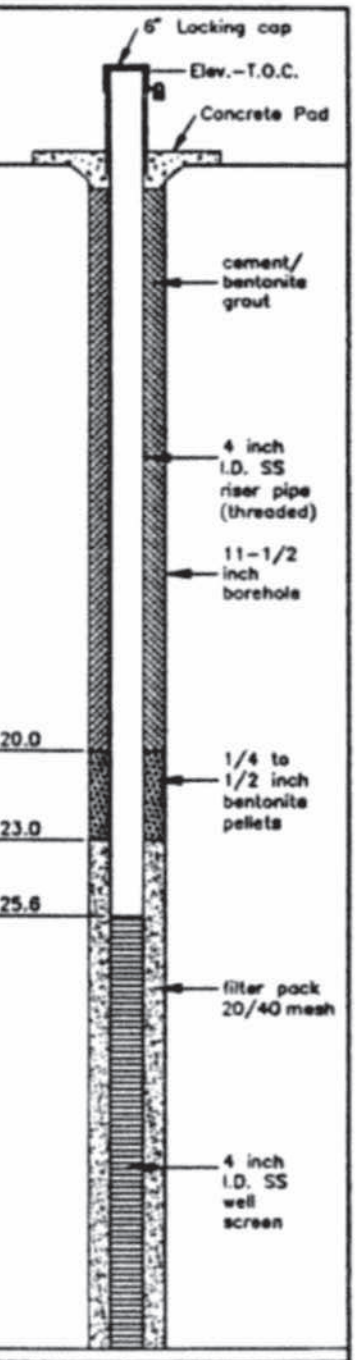
Sampling Method: 5' CONTINUOUS SAMPLER

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.09 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.6 Type: Sch 40 S.SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.SS WIRE WRAPPED
   Depth Interval(ft.): 25.6-45.6 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.0-47.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell; brown, white and gray						
SILTY CLAY - very plastic; moderately stiff; approximately 5% silt; trace of fill material; grayish black; iron staining; no odor		60		ch		
- dark green and gray; yellowish brown mottling		60		cl		5
- moderate plasticity; occasional dark brown and black nodules		60				
- sandy; friable; dark red; greenish yellow mottling; occasional black staining; damp		60				
- occasional white nodules (carbonate?)		30				10
- very stiff; reddish brown; medium green along fractured planes; moist		36				
- carbonate nodules and stringers; iron staining; approximately 3 inches of silt from 16.7 to 17 feet		60				
- slight plasticity; black nodules and staining; green; approximately 4 inches of silt from 17 to 17.4 feet; damp		36				15
SAND - very fine grained; green				sm		
SILTY CLAY - occasional carbonate nodules; green				cl		
SILTY SAND - 85% fine to medium grained sand, 15% silt; green with brownish yellow mottling; some black staining; wet		60		sm		20
- increase in percentage of silt (25 to 20%), 70% fine grained sand; dark brownish red						
- green with brownish yellow mottling; iron staining						
- carbonate nodules						
CLAY - approximately 1 foot of clay; dark reddish brown with green mottling; black staining		60		cl		25
SILTY SAND - approximately 75% very fine grained sand, 25% silt; small carbonate nodules; iron staining; wet; no odor				sm		
CLAY - small zone (approximately 6 inches) of very plastic clay; very stiff; crumbly; dark reddish brown; green mottling; rare black stains; weak odor				cl		
- moderate plasticity; stiff; 2.5YR 5/4 with 5.6Y 7/1 mottling; minor black staining		60				30
- iron staining; mild odor		60				
SILTY SAND - very fine grained sand, approximately 30% silt; 5YR 6/3; wet		60		sm		35
CLAY - stiff; minor carbonate nodules; 2.5YR 5/4; weak odor		60		cl		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A24 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

MONITOR WELL MW-47

DRILLING AND SAMPLING INFORMATION

Boring Location: SE OF DRUM STORAGE PAD
SURFACE ELEV.(FT): 24.9
TOTAL DEPTH(FT.): 47.0
Logged By: V. CRNICH
Date Started: 4/16/92
Drilled By: R. REED
REED AND MORRIS
Date Completed: 4/20/92
Drill Rig Type: MOBILE B-61
Drilling Method: HOLLOW STEM AUGER

Sampling Method: 5' CONTINUOUS SAMPLER

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.09 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.6 Type: Sch 40 S.Stl
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl WIRE WRAPPED
Depth Interval(ft.): 25.6-45.6 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.0-45.6
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - very fine to fine grained sand; occasional clay lens; 5YR 6/3; wet; mild odor		60		sm		
CLAY - stiff; 2.5YR 5/4; minor black stains; mild odor				cl		
SILTY SAND - 5YR 6/3				sm		
CLAY - nonplastic; stiff; fine grained sand lens (5.6Y 7/1); 2.5YR 5/4; faint odor - moderate plasticity; firm; occasional carbonate nodules; 5.6Y 7/1; 5YR 5/4 mottling; no odor		60 24 20		cl		45
TOTAL DEPTH = 47 FEET						50, 55, 60, 65, 70, 75, 80

45.6 SS
45.6 Cap
47.0

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A24 Sheet 2 of 2

Revised 7/7/92

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711 — Please use black ink.

Attention Owner Confidentiality Privilege Notice on Reverse Side

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

LOCATION OF WELL:
County Harris . _____ miles in (see attached map) (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Driven ☐ Air Rotary ☐ Cable Tool ☒ Other Auger ☐ Bored

6) Well Log:
Date Drilling:
Started: April 16, 19 92
Completed: April 20, 19 92

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	46.08

See attached diagram.

7) BOREHOLE COMPLETION: See attached well completion diagram.
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other
If Gravel Packed, give interval . . . from 23.0 ft. to 46.1 ft.

From (ft.) To (ft.) Description and color of formation material

MW-47
See attached well log.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
See attached well completion diagram.					

(Use reverse side if necessary)

9) CEMENTING DATA (Rule 287.44(1)) See attached well completion diagram.
Cemented from 0 ft. to _____ ft. No of Sacks Used _____
_____ ft. to _____ ft. No of Sacks Used _____
Method used _____
Cemented by Reed and Morris Drilling

13) TYPE PUMP: NONE
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

10) SURFACE COMPLETION See attached well completion diagram.
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3) (A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) Packers: Type Depth
None

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) TX (State) 75941 (Zip)

(Signed) Ray Reed (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-48

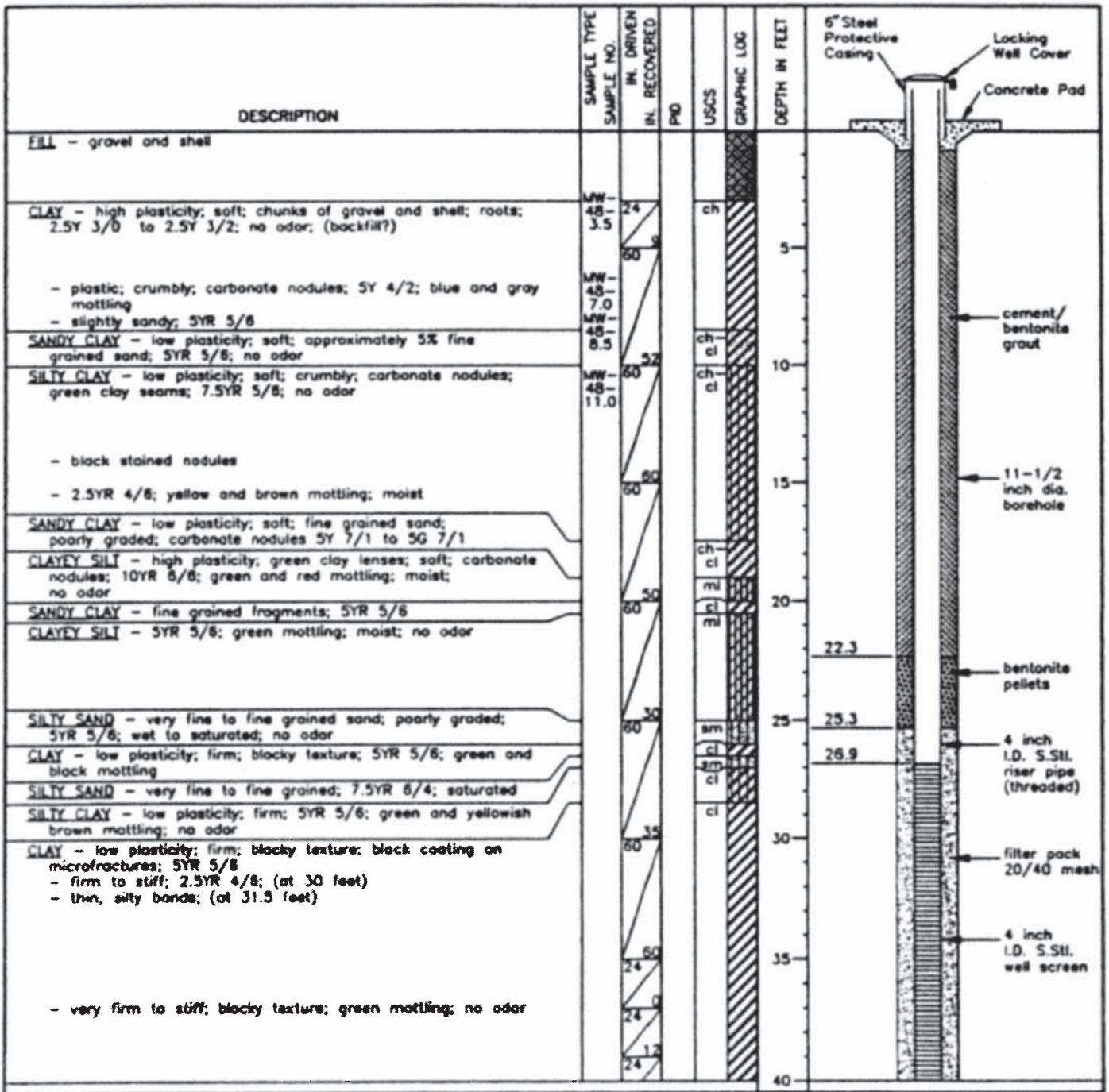
DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF FIRE WATER POND
SURFACE ELEV.(FT): 25.0
TOTAL DEPTH(FT.): 48.0
Logged By: V. CRNICH
Date Started: 5/14/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 5/18/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER

Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.62
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 26.8 Type: Sch 40 S.Stl.
   Centralizers-Type: -
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Type: Sch 40 S.Stl. Millslotted
   Depth Interval(ft.): 26.9-46.8
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 25.3-48.0
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A50 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-48

DRILLING AND SAMPLING INFORMATION

Boring Location: NORTH OF FIRE WATER POND
SURFACE ELEV.(FT): 25.0
TOTAL DEPTH(FT.): 48.0
Logged By: V. CRNICH
Date Started: 5/14/92
Drilled By: M. WILSON REED AND MORRIS
Date Completed: 5/18/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.62
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
Depth(ft.): 26.8 Type: Sch 40 S.Stl.
Centralizers-Type: -
Depths(ft.): -
2. Screen Dia.(in.): 4
Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 26.9-46.8
Slot Size(in.): .010
Centralizers-Type: -
Depths(ft.): -
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 25.3-48.0
Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SAND - very fine to fine grained; poorly graded (less than 6 inches); slightly silty; 5YR 6/4; moist; no odor		24 / 0		sp		0
CLAY - low plasticity; very firm to stiff; thin sandy stringers; 2.5YR 4/6		24 / 10		cl		
SAND - approximately 6 inches of very fine to fine grained sand; slightly silty; 5YR 6/4; green mottling; wet		24 / 0		sm		45
CLAY - low plasticity; very firm to stiff; blocky text; sandy stringers; 2.5YR 4/6; green mottling		24 / 12		cl		
TOTAL DEPTH = 48.0 FEET		24 / 17				50

46.8
46.9
48.0
S.Stl. cap

55
60
65
70
75
80

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A50 Sheet 2 of 2

Revised 7/13/92

Monitor Well Installation

Client: Air Products and Chemicals, Inc. Job No.: 146080 Date Drilled: 11/12/86 Well No.: MW-4B

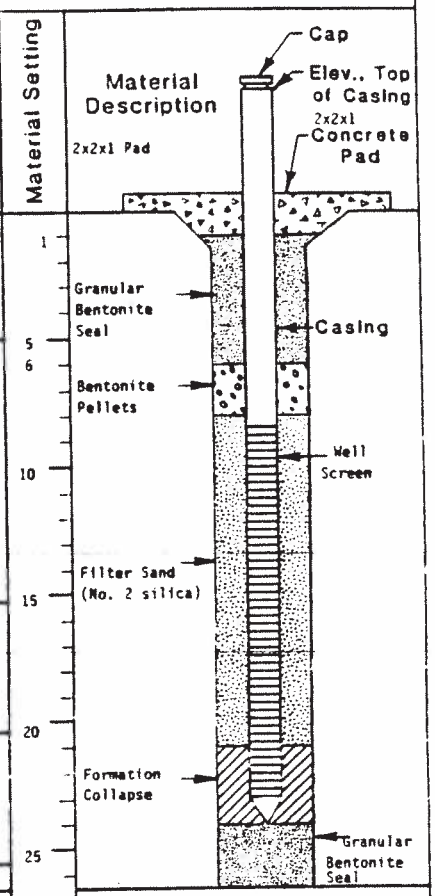
Site: Pasadena, Texas Elevation: GL _____ Top of PVC Casing _____

Total Depth: 24' Casing Size & Type: 2" I.D. PVC Screen Size: .010 Gauge 2"I.D. PVC

Comments: Replacement Monitor Well for MW-4

Depth	Symbol	Stratigraphy	Sample Description
0	CH		SILTY CLAY FILL, high plasticity, 20 to 25% fine silt, wet, dark brown, shell hash.
5	CH		CLAY, high plasticity, very stiff (pocket penetrometer, 1.0, 1.2, 1.3), wet, dark gray to brown and mottled, small rust nodules throughout.
10	CH		CLAY, high plasticity, very stiff (pocket penetrometer, 2.0, 2.1, 2.5), moist, red brown with gray green veins and black specks, calcareous nodules.
15	MH		CLAYEY SILT, moderately plastic, 10 to 20% clay, very stiff, (pocket penetrometer, 2.5, 2.0, 2.2), gray with rust mottles and spots.
	MH		SILT, nonplastic, hard (pocket penetrometer 4.5+), dry to damp, beige, pink and orange, large calcareous nodules to 1".
20	CH		SILTY CLAY, moderately plastic, very hard (pocket penetrometer, 4.5+), red brown, scattered silt laminae with black, gray, green and pink splotches.
	CH		SILTY CLAY, similar to above, .5 to 15% silt, areas of no silt, moist.
25	ML		SANDY SILT, stiff, 40 to 50% very fine sand, coarse silt, wet, orange pink and gray.
			BORING TERMINATED AT 26.5 FEET.

Completion Data



INTERNATIONAL TECHNOLOGY CORPORATION

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711 — Please use black ink.

Attention Owner Confidentiality Privilege Notice on Reverse Side

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

LOCATION OF WELL:
County Harris , _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

...legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official ...use County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening
☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply
☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored
☐ Air Rotary ☐ Cable Tool ☒ Other Auger ☐ Driven

6) Well Log:
Date Drilling:
Started: April 28, 19 92
Completed: April 28, 19 92

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	31.0

See attached diagram.

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other
If Gravel Packed, give interval . . . from 8.5 ft. to 31.0 ft.
See attached well completion diagram.

From (ft.)	To (ft.)	Description and color of formation material
MW-54		
See attached well log.		

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
See attached well completion diagram.					

9) CEMENTING DATA (Rule 287.44(1))
Cemented from 0 ft. to 5.30 ft. No of Sacks Used N/A
_____ ft. to _____ ft. No of Sacks Used _____
Method used Tremmie pipe
Cemented by Reed and Morris

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3) (A))
☐ Pitless Adapter Used (Rule 287.44(3) (B))
☐ Approved Alternative Procedure Used (Rule 287.71)

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS : N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

12) Packers: Type Depth
none

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling, Inc. (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

...ed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-54

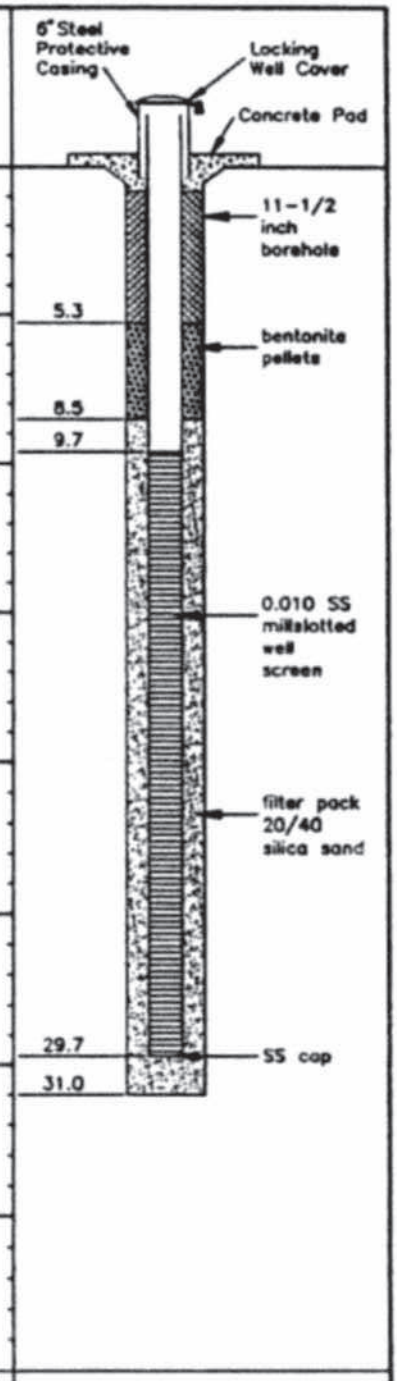
DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTHEAST OF SPILL OFF PIT
SURFACE ELEV.(FT): 24.2
TOTAL DEPTH(FT.): 31.0
Logged By: V. CRNICH
Date Started: 4/28/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 4/28/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 INCH DIA. X 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.89 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 9.7 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 9.7-29.7 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 8.5-31.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel/shell - fill material(?) falls out of samplers; wet		12 0 24 0				0
CLAY- high plasticity; soft; brown mottling; no odor; 7.5YR 5/0 - shell and gravel; fill fragments		24 10 24 12				5
SILTY CLAY - high plasticity; soft; slightly silty; carbonate nodules; iron-stained nodules; green mottling; green clay on fracture faces - low plasticity at 9 feet; firm; yellow/brown mottling; iron staining; 5YR 4/4 - low plasticity; firm; black staining; green mottling and clay coating on fracture faces; carb. nodules; 7.5YR 5/4 - slightly silty; no odor - very firm; traces of carbonate nodules; 2.5YR 4/6 - increase in silt; stiff; slightly sandy		24 12 24 12 24 15 24 15 24 17				10
SILTY SANDY CLAY - low plasticity; stiff; 20% silt, 10% very fine grained sand; mottled orange-brown; green clay coating on fractures; 2.5YR 4/6 - 15% silt; 30% fine to very fine-gr. sand; occasional iron stain.; mottled yellow-brown; rare black stains; no odor; 5Y 7/1		24 16 24 15				15
SANDY CLAY -low plast.; stiff; 40% fine-vfg sand; orange/brown mottling; black stained nod.; carb. nodules; no odor; 5Y 7/1		24 17				
SILTY SANDY CLAY - low plast.; stiff; 40% silt and sand; mottled orange-bn; iron stain.; carb. nods.; no odor; 5Y 7/1		24 12				20
SILTY SAND - 30% silt; 70% vfg sand; grn clay stringers and lenses; slightly moist; no odor; 7.5YR 5/8		24 18				
CLAY - low plast.; stiff; blocky text.; grn mottling; occ. Fe stains 2.5YR 5/4 - sm sand lenses; tr carb nod; red/brown mottling; slightly moist; no odor; 5Y 7/1 - slightly silty; green mottling; slt moist; 5YR 4/6		24 15 24 17				25
SILTY CLAY - low plast.; stiff; 15% silt; grn. mottling and coat. on frc. faces; blk. staining (Mg?); no odor; 5YR 4/6 - at 30 feet 15-20% silt; blk. stained stringers						30
TOTAL DEPTH 31.0 FEET						35 40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A36 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: RFI
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-57

DRILLING AND SAMPLING INFORMATION

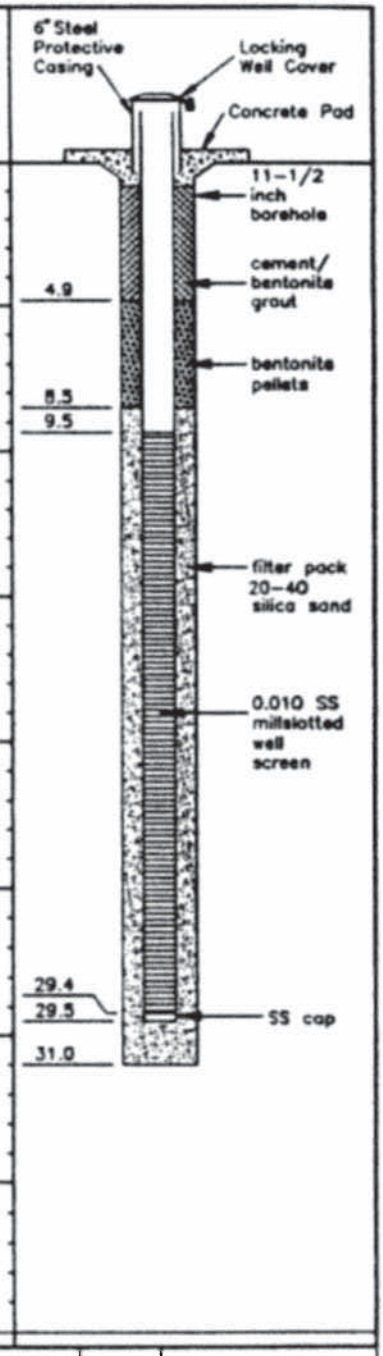
Boring Location: NE CORNER OF MAIN & NORTH ST
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 31.0
Logged By: V. CRNICH
Date Started: 5/5/92
Drilled By: W.WRIGHT REED AND MORRIS
Date Completed: 5/5/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4 INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2-INCH DIA. X 2-FOOT SHELBY TUBE

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.20 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 9.5 Type: Sch 40 SS
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 SS Millslotted
   Depth Interval(ft.): 9.5-29.4 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 8.5-31.0
   Conc. Pad Size: 2'x2'x6"

Notes: SS = STAINLESS STEEL

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel	MW-57-1.5	24/12				
CLAY - plastic; firm; 5BG 4/1-5B 4/1; no odor; backfill?	MW-57-3.0	24/11		ch		
- soft; crumbly; roots	MW-57-5.0	24/10				5
- soft; yellow mottling; 5Y 4/2 to 2.5Y 6/0	MW-57-7.0	24/12				
- 5YR 5/6	MW-57-9.0	24/14		ch/cl		
- low plasticity; slightly silty; slightly crumbly; magnesium staining; orange/brown mottling; 5G 7/1		24/17		cl		10
SANDY CLAY - low plasticity; soft; vfg-fg sands; 20% sand; green mottling; 5YR 5/8; no odor		24/16		sc		
CLAYEY SAND - vfg-fg sand; 5YR 5/6; moist; no odor		24/23		sm		15
SILTY SAND - vfg-fg sand; well rounded grains; poorly graded; green mottling; 5YR 5/8; wet; no odor		24/15		cl		
SANDY CLAY - stiff; fg sand; trace of carbonate nodules; some sand seams; 5YR 5/6; stiff at 17 feet; vfg sand (20-25%); orange/brown mottling; 5Y 7/2; magnesium coated nodules; saturated; low plasticity; no odor		24/17				20
- increase in sand (about 35%); sand coatings on fracture faces; occasional carbonate nodules; black (magnesium?) staining		24/18				
- zones of clayey fine grained sand; small zones of highly plastic clay		24/18		sc		
CLAYEY SAND - fine grained sand; poorly graded; crumbly; tr. very fine gr. sand; 7.5YR 5/4; dry; no odor; vfg-fg sand at 23.5 ft; green mottling; moist; no odor; decrease in clay at 24.5 ft; wet		24/15		cl		25
SANDY CLAY - low plasticity; very firm; vfg-fg sand (15%) green mottling; rare small sandy lenses; no odor; decrease in sand at 28.5 feet; blocky texture		24/17				
CLAY - low plasticity; very firm; 2.5YR 4/8; green clay coating on fracture faces; green mottling; black staining on micro-fractures; blocky texture		24/17		cl		30
TOTAL DEPTH = 31.0 FEET						35
						40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/11/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A39 Sheet 1 of 1

Revised 7/13/92

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State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

LOCATION OF WELL:
County Harris . _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Driven ☐ Air Rotary ☐ Cable Tool ☒ Other Auger ☐ Bored

6) Well Log:
Date Drilling:
Started: May 7, 19 92
Completed: May 7, 19 92

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	46.0

See attached diagram.

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other
If Gravel Packed, give interval . . . from 23.1 ft. to 46.0 ft.
See attached well completion diagram.

From (ft.) To (ft.) Description and color of formation material

MW-58
See attached well log.

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
See attached well completion diagram.					

9) CEMENTING DATA (Rule 287.44(1))
Cemented from 0 ft. to 19.76 ft. No of Sacks Used N/A
_____ ft. to _____ ft. No of Sacks Used _____
Method used Tremmie pipe
Cemented by Reed and Morris

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3)(A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

14) WELL TESTS : N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

15) WATER QUALITY: N/A (Environmental investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) Packers: Type Depth
none

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling, Inc. (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Well Driller) (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

WD-012 (Rev. 05-18-90) TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-58

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF DNT TANK CAR LOADING
Logged By: V. CRNICH
Drilled By: W. WRIGHT REED AND MORRIS
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE

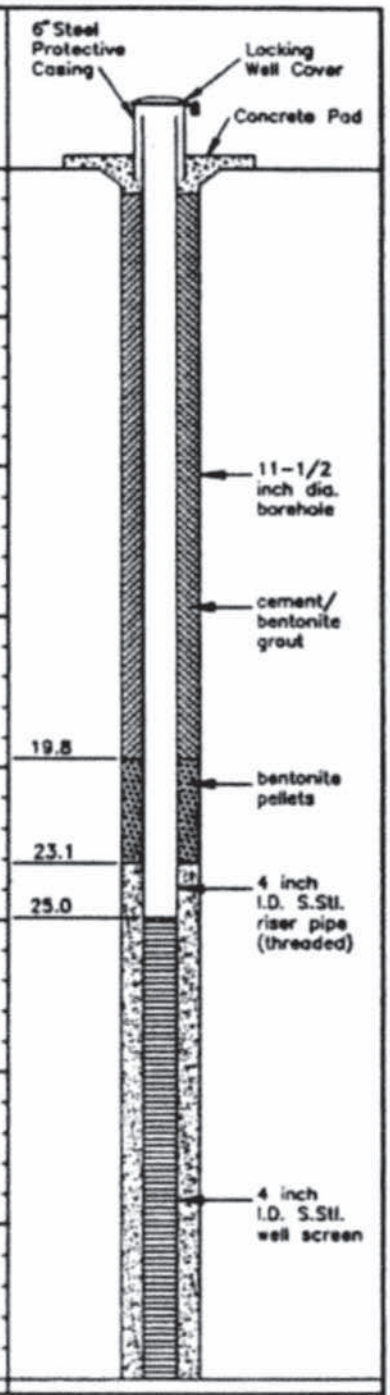
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 46.0
Date Started: 5/7/92
Date Completed: 5/7/92

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.52 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 25.0 Type: Sch 40 S.Stl.
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl.Milkslotted
   Depth Interval(ft.): 25.0-44.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.1-46.0
   Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell		24		ch		0
CLAY - high plasticity; soft; roots; 10YR 2/1; no odor; (backfill material?)		13				
- 10YR 2/1 to 10YR 3/1; slight odor		24				
- 2.5Y 4/2; black and gray mottling		9				
- slightly silty; iron and magnesium stained nodules; 10YR 6/8; green mottling; no odor		24				
- plastic; firm; occasional carbonate nodules; green clay on fractured faces; odor		11				
		24				
		12				
		24				
SILTY CLAY - plastic; firm; approximately 10% silt; 10YR 6/8; magnesium staining; green mottling; mild odor		11		cl		
CLAYEY SILT - soft; 7.5YR 5/6; dry; slight odor		24				
SANDY CLAY - low plasticity; very firm; approximately 30% very fine to fine grained sand; 7.5YR 5/6; slight odor		17		cl		
CLAYEY SAND - fine to very fine grained sand; well rounded grains; minor amounts of carbonate nodules; green clay lenses; orangish brown mottling; dry; mild odor		24		cl		
- slight increase in clay content; large, highly plastic, soft, green clay lenses; 10YR 6/6; greenish red mottling		10				
- indurated; abundant carbonate nodules; 2.5Y 6/4; green mottling		24		sc		
- orangish brown mottling; no odor		14				
- fine grained sand; minor amounts of carbonate nodules; stiff, green clay lenses and seams; white staining; 5YR 5/8 to 4/6		24				
		16				
		24				
SILTY SAND - small interval (approximately 6 inches); 5YR 5/6 to 5YR 4/6; moist		14				
		24				
CLAY - low plasticity; stiff; blocky texture; trace of sand; 5YR 5/6 to 5YR 4/6		13		sm		
		24		cl		
SILTY SAND - very fine grained sand; approximately 1 inch of stiff clay; green clay seams; 7.5YR 5/6; green mottling; moist; no odor		14		sm		
		24				
CLAY - low plasticity; very firm; small sandy seams; carbonate nodules; 7.5YR 5/6		14		cl		
- green sandy clay lenses; trace amounts of carbonate nodules; black coating on microfractures; 5YR 4/6; no odor		24				
- stiff; (at 28 feet)		14				
- rare, small sand seams		24				
		15				
SILTY SAND - very fine grained sand; well rounded grains; poorly graded; 7.5YR 5/4; green mottling; moist to wet; no odor		24				
- saturated		16		sm		
SAND - very fine to fine grained; well rounded grains; saturated; no odor		24		sp		
		16		sm		
SILTY SAND - very fine grained sand; saturated; no odor		24				
SILT - slightly clayey; 7.5YR 5/4; moist; no odor		20		ml		
CLAY - low plasticity; stiff; blocky texture; very thin silty seams (rare); 2.5YR 4/6; no odor		24		cl		
- very stiff; no silty seams		14				40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A52 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-58

DRILLING AND SAMPLING INFORMATION

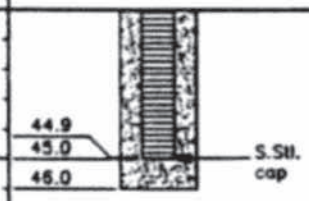
Boring Location: EAST OF DNT TANK CAR LOADING
SURFACE ELEV.(FT): 24.4
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 5/7/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 5/7/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 26.52
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
Depth(ft.): 25.0 Type: Sch 40 S.Stl.
Centralizers-Type: -
Depths(ft.): -
2. Screen Dia.(in.): 4
Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 25.0-44.9
Slot Size(in.): .010
Centralizers-Type: -
Depths(ft.): -
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 23.1-46.0
Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
- small sandy lenses and stringers - green clay coated burrows(?): 2.5YR 4/6 to 5YR 5/4; - very firm; slightly blocky texture; green clay stringers; 2.5Y 6/4 to2.5Y 5/4 - trace amounts of carbonate nodules		24/15, 24/16, 24/14				45
TOTAL DEPTH = 46.0 FEET						50, 55, 60, 65, 70, 75, 80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A52 Sheet 2 of 2

Revised 7/13/92

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State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

LOCATION OF WELL:
County Harris , _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☒ Other Auger

6) Well Log:
Date Drilling:
Started: May 8, 19 92
Completed: May 8, 19 92

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	30.0

See attached diagram.

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other _____
If Gravel Packed, give interval . . . from 7.3 ft. to 30.0 ft.
See attached well completion diagram.

From (ft.) To (ft.) Description and color of formation material
MW-59
See attached well log.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
See attached well completion diagram.					

(Use reverse side if necessary)

9) CEMENTING DATA (Rule 287.44(1))
Cemented from 0 ft. to 4.21 ft. No of Sacks Used N/A
_____ ft. to _____ ft. No of Sacks Used _____
Method used Tremmie pipe
Cemented by Reed and Morris

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3)(A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

14) WELL TESTS : N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) Packers: Type Depth
none

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling, Inc. (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

WMD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-59

DRILLING AND SAMPLING INFORMATION

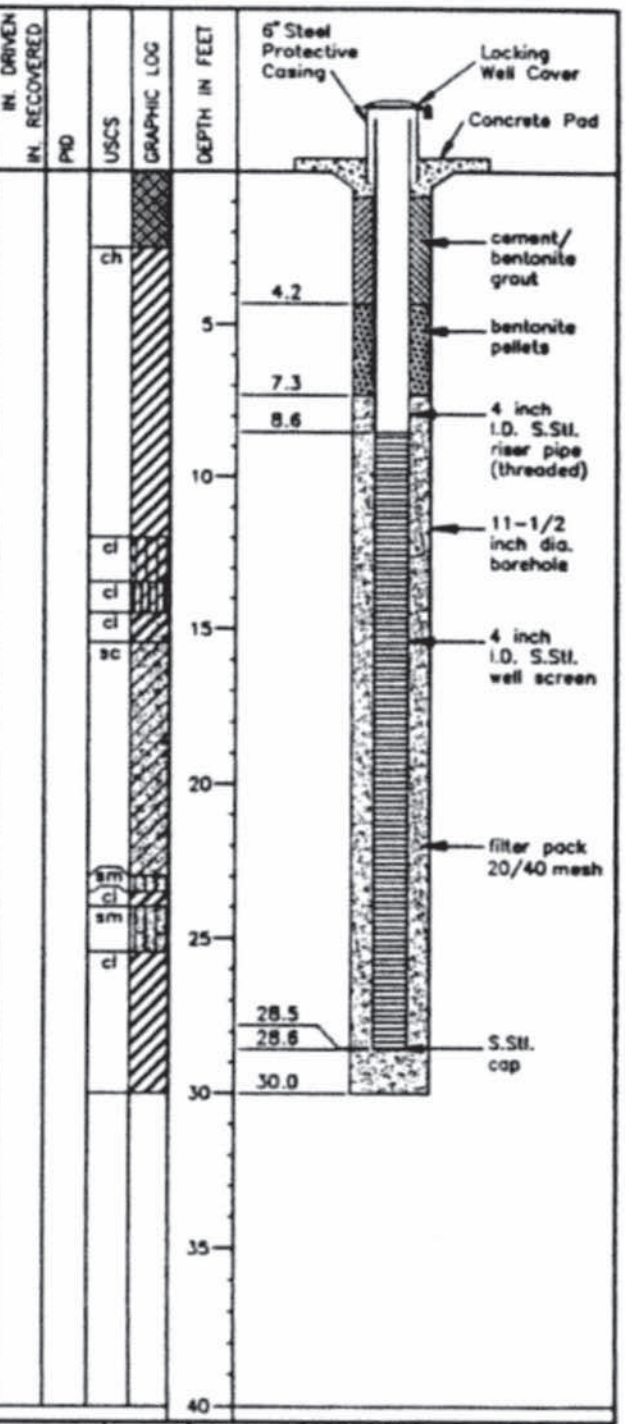
Boring Location: EAST OF DNT TANK CAR LOADING
SURFACE ELEV.(FT): 24.7
TOTAL DEPTH(FT.): 30.0
Logged By: V. CRNICH
Date Started: 5/8/92
Drilled By: W. WRIGHT REED AND MORRIS
Date Completed: 5/8/92
Drill Rig Type: MOBILE B-61
Drilling Method: 10-1/2 INCH O.D. HOLLOW STEM AUGER WITH 11 1/2 INCH BIT
Sampling Method: NO SAMPLES COLLECTED

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.76 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 8.6 Type: Sch 40 S.Stl.
Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl.Millslotted
Depth Interval(ft.): 8.6-28.5 Slot Size(in.): .010
Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 7.3-30.0
Conc. Pad Size: 2'x2'x6"

Notes: -

DESCRIPTION	USCS
FILL - gravel and shell	
CLAY - high plasticity; soft; roots; 10YR 2/1; no odor; (backfill material?)	ch
- 10YR 2/1 to 10YR 3/1; slight odor	
- 2.5Y 4/2; black and gray mottling	
- slightly silty; iron and magnesium stained nodules; 10YR 6/8; green mottling; no odor	
- plastic; firm; occasional carbonate nodules; green clay on fractured faces; odor	
SILTY CLAY - plastic; firm; approximately 10% silt; 10YR 6/8; magnesium staining; green mottling; mild odor	cl
CLAYEY SILT - soft; 7.5YR 5/6; dry; slight odor	cl
SANDY CLAY - low plasticity; very firm; approximately 30% very fine to fine grained sand; 7.5YR 5/6; slight odor	cl
CLAYEY SAND - fine to very fine grained sand; well rounded grains; minor amounts of carbonate nodules; green clay lenses; orangish brown mottling; dry; mild odor	sc
- slight increase in clay content; large, highly plastic, soft, green clay lenses; 10YR 6/6; greenish red mottling	
- indurated; abundant carbonate nodules; 2.5Y 6/4; green mottling	
- orangish brown mottling; no odor	
- fine grained sand; minor amounts of carbonate nodules; stiff, green clay lenses and seams; white staining; 5YR 5/6 to 4/6	
SILTY SAND - small interval (approximately 6 inches); 5YR 5/6 to 5YR 4/6; moist	sm
CLAY - low plasticity; stiff; blocky texture; trace of sand; 5YR 5/6 to 5YR 4/6	cl
SILTY SAND - very fine grained sand; approximately 1 inch of stiff clay; green clay seams; 7.5YR 5/6; green mottling; moist; no odor	sm
CLAY - low plasticity; very firm; small sandy seams; carbonate nodules; 7.5YR 5/6	cl
- green sandy clay lenses; trace amounts of carbonate nodules; black coating on micro fractures; 5YR 4/6; no odor	
- stiff; (at 28 feet)	
TOTAL DEPTH = 30.0 FEET	



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A53 Sheet 1 of 1

Revised 7/13/92

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State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

LOCATION OF WELL:
County Harris , _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines _____

☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☒ Other Auger ☐ Driven

6) Well Log:
Date Drilling:
Started: May 11, 19 92
Completed: May 12, 19 92

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	46.0

See attached diagram.

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other _____
If Gravel Packed, give interval . . . from 23.5 ft. to 45.0 ft.
See attached well completion diagram.

From (ft.) To (ft.) Description and color of formation material

MW-60
See attached well log.

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (In.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
See attached well completion diagram.					

9) CEMENTING DATA (Rule 287.44(1))
Cemented from 0 ft. to 20.37 ft. No of Sacks Used N/A
_____ ft. to _____ ft. No of Sacks Used _____
Method used Tremmie pipe
Cemented by Reed and Morris

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3)(A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

12) Packers: Type Depth
none

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling, Inc. (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-60

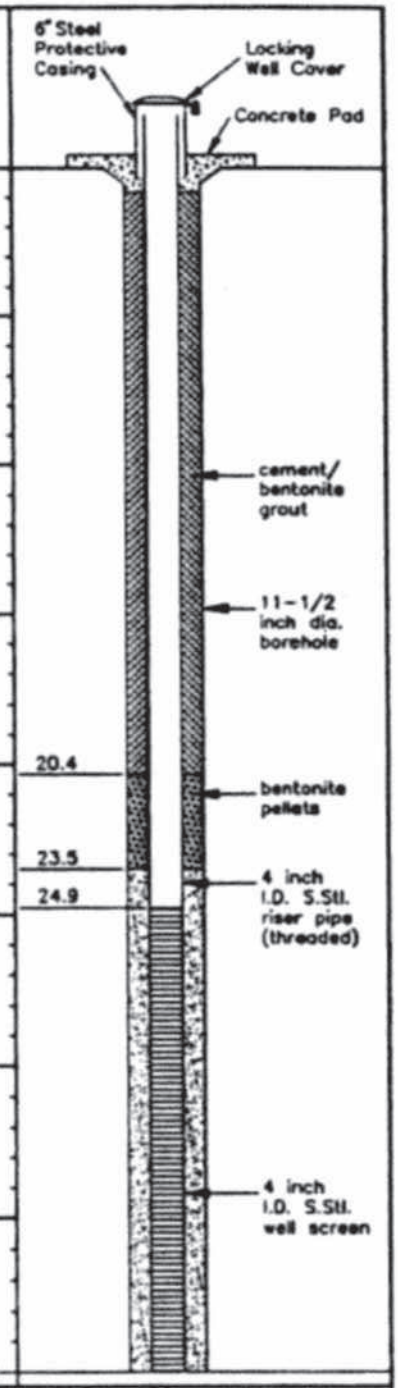
DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF AMMONIA TANKS
SURFACE ELEV.(FT): 23.1
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 5/11/92
Drilled By: R. REED REED AND MORRIS
Date Completed: 5/12/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.36 Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 24.9 Type: Sch 40 S.Stl.
   Centralizers-Type: - Depths(ft.): -
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. Millslotted
   Depth Interval(ft.): 24.9-44.8 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 23.5-45.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel and shell	MW-60-1.5	24		ch		0
CLAY - high plasticity; soft; trace of gravel and shell fill; 5Y 3/1; greenish brown mottling; (backfill material?)		10				
- iron stained nodules	MW-60-2.5	18				
	MW-60-5.0	9				5
SILTY CLAY - plastic; soft; approximately 10% silt; abundant carbonate and iron stained nodules; 5Y 3/1 to 5Y 4/3; no odor		60		ch-cl		
- 10YR 5/6; green mottling		57				
CLAYEY SILT - bands of highly plastic green clay; trace amounts of carbonate nodules; 7.5YR 5/4 to 7.5YR 5/6; moist; no odor		60		mi-ch		10
SILTY SAND - very fine to fine grained sand; poorly graded; small, thin bands of pinkish brown fine grained sand; 7.5YR 5/4; wet; no odor				mi		
- approximately 30% silt; lense of iron stained nodules; 10YR 7/8; green mottling; moist to wet		78				
CLAYEY SAND - very fine to fine grained sand; small vugs of fine grained white sand; rare silty stringers; iron stains; 5Y 7/1 to 5GY 7/1; no odor		60		mi		15
- increase in clay		80				
SANDY CLAY - low plasticity; firm; approximately 40% very fine to fine grained sand; small zone of clayey sand (fine grained; moist); 5Y 7/1 to 5GY 7/1; orangish brown mottling; no ododr		60		cl		20
- lenses of moist silty sand						
SILTY SAND - very fine to fine grained sand; magnesium stains; green sandy clay mottling; 7.5YR 5/8; moist; no odor		60		mi		
CLAY - soft to firm; crumbly zones; blocky texture; 5YR 5/6; greenish white mottling		60		cl		25
- slightly sandy; silty bands						
- more firm; green clay coating on fractured faces; silty coating on fractured faces; 5YR 4/6						
- clay more crumbly; larger silty lenses and seams		58				
CLAYEY SAND - very fine to fine grained sand; well sorted; 5YR 4/6; no odor		60		mi		30
SANDY CLAY - low plasticity; firm; blocky texture; green mottling				cl		
- silty, sandy seams and lenses						
SILTY SAND - very fine to fine grained sand; slightly clayey; 5YR 5/4; green mottling; saturated; no odor		80		mi		35
- decrease in silt (approximately 1 foot)		60				
- small clay lense						
CLAY - low plasticity; stiff; 2.5YR 4/6; no odor		60		cl		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A54 Sheet 1 of 2

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

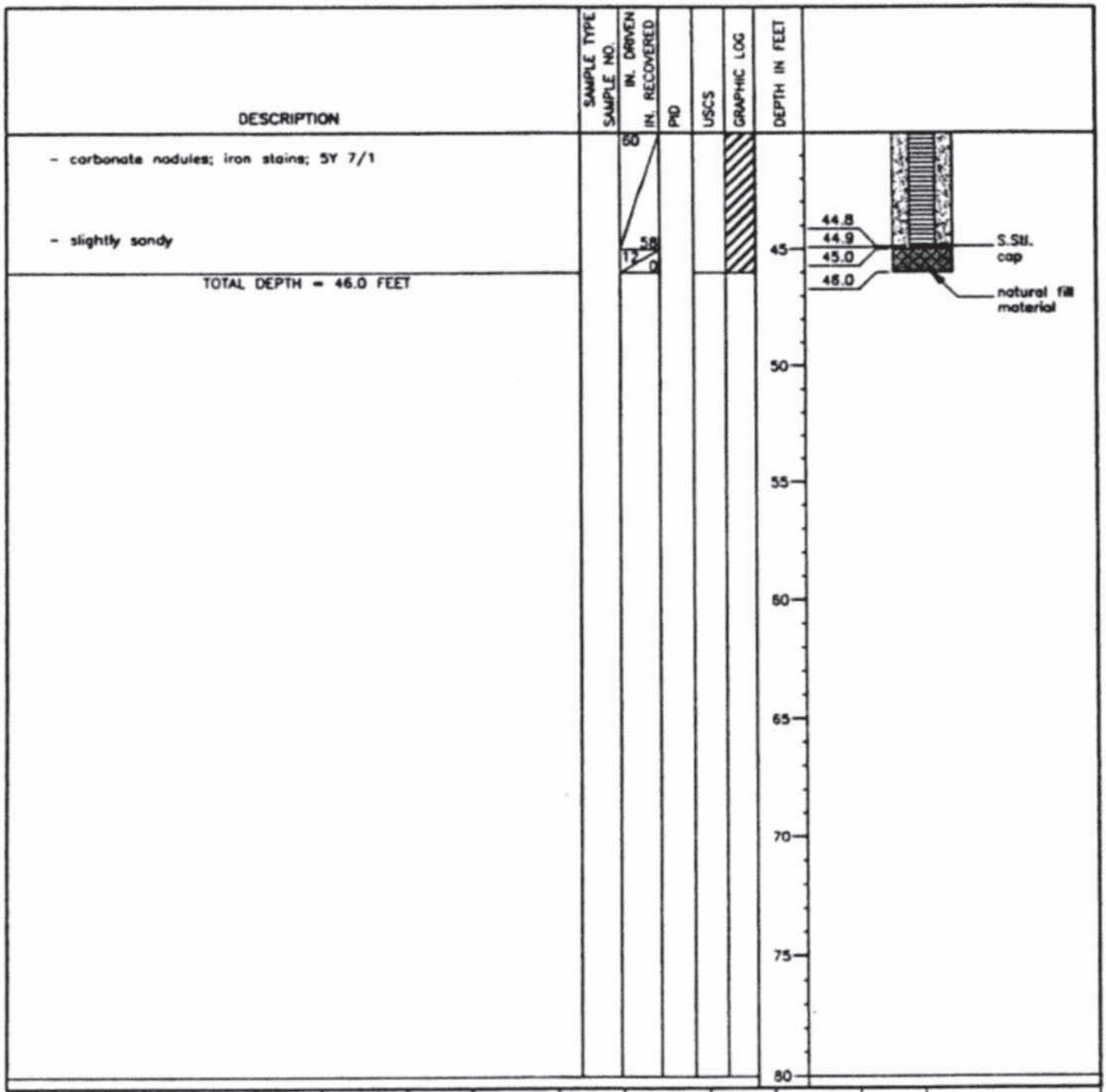
MONITOR WELL MW-60

DRILLING AND SAMPLING INFORMATION

Boring Location: WEST OF AMMONIA TANKS
SURFACE ELEV.(FT): 23.1
TOTAL DEPTH(FT.): 46.0
Logged By: V. CRNICH
Date Started: 5/11/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 5/12/92
Drill Rig Type: MOBILE B-61
Drilling Method: 4-INCH I.D. HOLLOW STEM AUGERS AND 10 1/2 INCH O.D. HOLLOW STEM AUGERS WITH 11 1/2 INCH BIT
Sampling Method: 2 FOOT SHELBY TUBE AND 5 FOOT CONTINUOUS SAMPLER
Notes: -

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 25.36
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
   Depth(ft.): 24.9 Type: Sch 40 S.Stl.
   Centralizers-Type: -
   Depths(ft.): -
2. Screen Dia.(in.): 4
   Type: Sch 40 S.Stl.Millslotted
   Depth Interval(ft.): 24.9-44.8
   Slot Size(in.): .010
   Centralizers-Type: -
   Depths(ft.): -
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 23.5-45.0
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A54 Sheet 2 of 2

Revised 7/13/92

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711 — Please use black ink.

Attention Owner Confidentiality Privilege Notice on Reverse Side

State of Texas WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

LOCATION OF WELL:
County Harris , _____ miles in _____ (NE, SW, etc.) direction from _____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☐ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☒ Other Auger ☐ Driven

6) Well Log:
Date Drilling:
Started: June 1, 19 92
Completed: June 1, 19 92

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
6.0	Surface	27.0

See attached diagram.

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other
If Gravel Packed, give interval . . . from 5.0 ft. to 27.0 ft.
See attached well completion diagram.

From (ft.)	To (ft.)	Description and color of formation material
MW-61		
See attached well log.		

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
See attached well completion diagram.					

9) CEMENTING DATA (Rule 287.44(1))
Cemented from 0 ft. to 1.50 ft. No of Sacks Used N/A
_____ ft. to _____ ft. No of Sacks Used _____
Method used Tremmie pipe
Cemented by Reed and Morris

10) SURFACE COMPLETION
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3)(A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

11) WATER LEVEL: N/A
Static level _____ ft. below land surface. Date: _____
Artesian flow _____ gpm. Date: _____

12) Packers: Type Depth
none

13) TYPE PUMP:
☐ Turbine ☐ Jet ☒ Submersible ☐ Cylinder
☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling, Inc. (Type or print) WELL DRILLER'S LICENSE NO. _____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

_____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available. For TWC use only: Well No. _____ Located on map _____

012 (Rev. 05-18-90) TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 446809

MONITOR WELL MW-61

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST END OF NEUTRAL PIT
SURFACE ELEV.(FT): 23.9
TOTAL DEPTH(FT.): 27.0
Logged By: K. HENKE
Date Started: 6/1/92
Drilled By: W. WRIGHT, REED AND MORRIS
Date Completed: 6/1/92
Drill Rig Type: BACKHOE
Drilling Method: HAND AUGER WITH 5 INCH BIT

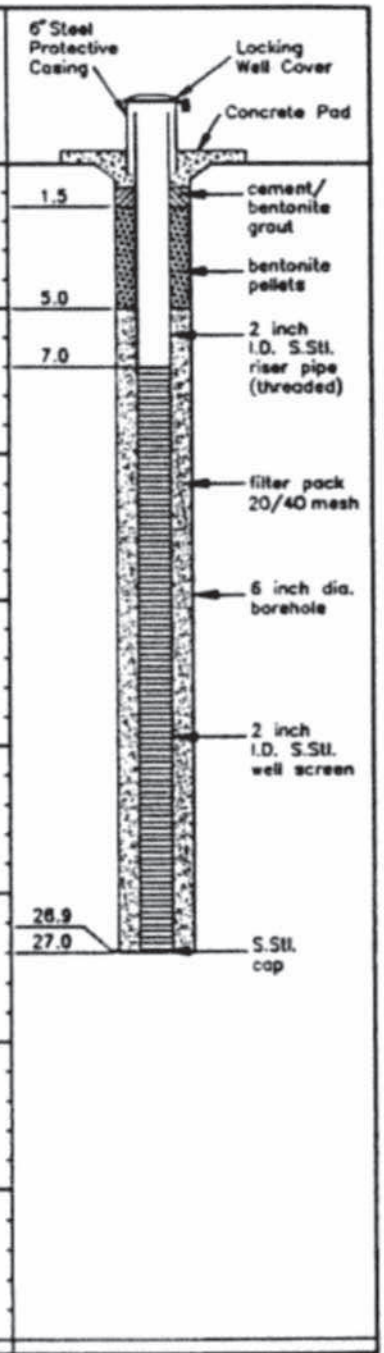
Sampling Method: DESCRIBE CUTTINGS OFF AUGER FLIGHTS

Notes: –

WELL COMPLETION DATA

Elev–Top of Casing(ft.): 26.77
Ref. Datum: MSL
1. Riser Pipe–I.D.(in.): 2
   Depth(ft.): 7.0 Type: Sch 40 S.Stl.
   Centralizers–Type: –
   Depths(ft.): –
2. Screen Dia.(in.): 2
   Type: Sch 40 S.Stl.Milslotted
   Depth Interval(ft.): 7.0–26.9
   Slot Size(in.): .010
   Centralizers–Type: –
   Depths(ft.): –
3. Filter Pack Type: Silica Sand
   Depth Interval(ft.): 5.0–27.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL						
CLAY – slightly silty with some sand lenses; dark gray				cl		
– increase in sand stringers with depth						
SILTY CLAY – some sandier stringers; brownish gray				ch		
– smelled DNT odor while drilling						
CLAY – some siltier lenses; dark gray and red				cl		
– slight DNT odor						
– some silt or sand; very difficult to see sandy zones						
TOTAL DEPTH = 27.0 FEET						



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 6/1/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	446809-A55 Sheet 1 of 1

Revised 7/13/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-63

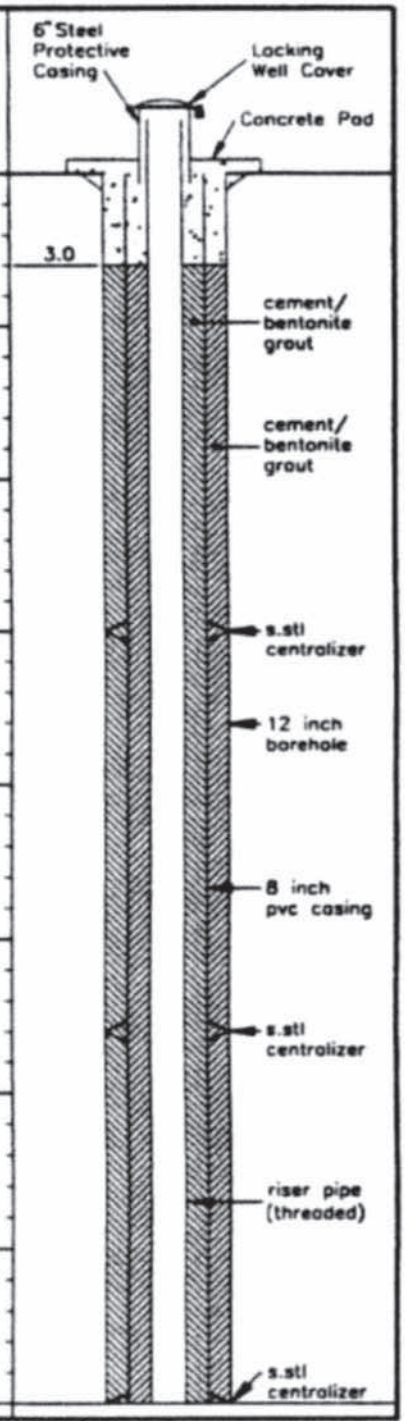
DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 90.5
Logged By: M. NEWTON
Date Started: 6/28/95
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Date Completed: 8/4/95
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY
Sampling Method: 2' SHELBY TUBE (ST) AND
2' SPLIT SPOON (SS)
Notes: REAM TO 12" BOREHOLE TO 75'
LITHOLOGIC DESCRIPTIONS AND SAMPLE INTERVALS/RECOVERIES FROM SURFACE TO 60 FEET IN DEPTH ARE TAKEN FROM RECOVERY WELL RW-26

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.66
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
Depth(ft.): 75.0 Type: Sch 40 PVC
Centralizers-Type: S.Stl
Depths(ft.): 15, 40, 58, 74
2. Riser Pipe-I.D.(in.): 4
Depth(ft.): 80.0 Type: Sch 10 S.Stl
Centralizers-Type:
Depths(ft.):
3. Screen Dia.(in.): 4
Type: Sch 10 S.Stl Wire Wrapped
Depth Interval(ft.): 80.0-90.0
Slot Size(in.): .010
Centralizers-Type:
Depths(ft.):
4. Filter Pack Type: Silica Sand
Depth Interval(ft.): 78.0-90.5
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravels; shells; white to gray							0
CLAY WITH SAND - 15% to 20% very fine grained sand; moderately plastic; firm; damp; yellowish red (5YR-5/6); grayish green mottled clay; black stains; no odor	ST		24/24		cl		5
CLAY WITH GRAVEL - trace <5% fine grained sand; highly plastic; 20% to 25% carbonate gravel; firm to stiff; damp; yellowish red (5YR-5/6); greenish dark gray mottled dendritic clays; no odor	ST		24/24		ch		10
SANDY CLAY - 25% to 30% fine grained sand; slightly plastic; carbonate nodules; 5% gravels; stiff; moist; reddish yellow (5YR-6/8); dark dendritic patterns on bedding planes	ST		24/24		cl		15
SILTY SAND - fine uniform grained sand; 15% to 20% fines; loose; wet; strong brown (7.5YR-5/8); traces (<5%) of green and gray mottling; well cemented carbonate nodules from 20.3-20.7'	ST		24/24		sm		20
CLAYEY SAND WITH GRAVEL - 10% to 15% cemented white to tan carbonate gravel, 20% to 25% clay fines, fine uniform grained sand; moderately well sorted; loose to compact; wet; strong brown (7.5YR-5/6); green clay seams	ST		24/10		sc		25
CLAY WITH GRAVEL - cemented carbonate gravel; highly plastic; stiff; moist; yellowish red (5YR-5/6); green dendritic clay throughout; possible fractures or cracks; 10% to 15% coarsed grained sand	ST		24/20		ch		30
CLAY - 5% to 10% gravel; moderately plastic; stiff to hard; decreasing in green dendritic clay; mottling	ST		24/24		cl		35
							40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	7/15	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A15 Sheet 1 of 3

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-63

DRILLING AND SAMPLING INFORMATION

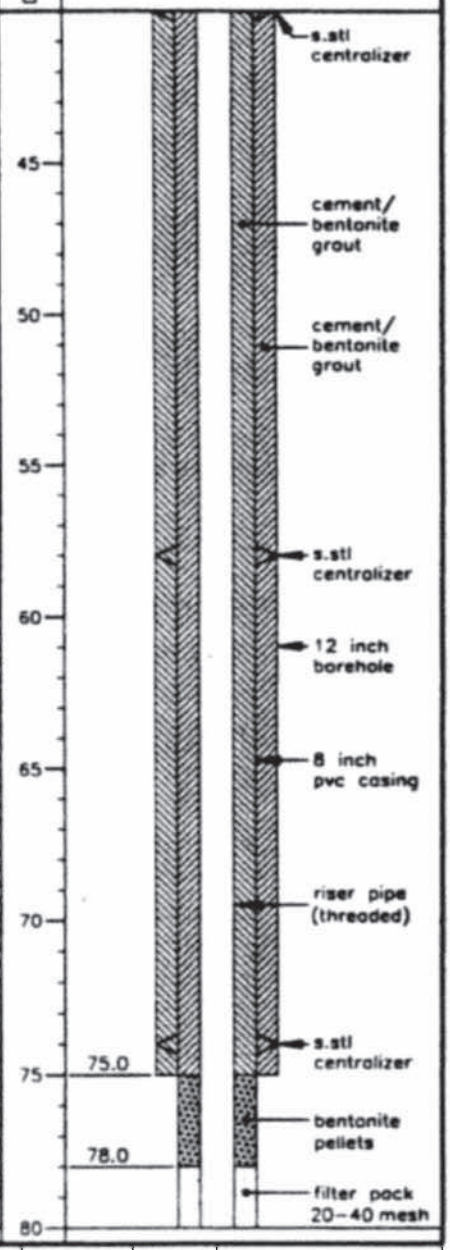
Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY
Sampling Method: 2' SHELBY TUBE (ST) AND
2' SPLIT SPOON (SS)
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 90.5
Date Started: 6/28/95
Date Completed: 8/4/95

Notes: REAM TO 12" BOREHOLE TO 75'
LITHOLOGIC DESCRIPTIONS AND SAMPLE INTERVALS/RECOVERIES FROM SURFACE TO 60 FEET IN DEPTH ARE TAKEN FROM RECOVERY WELL RW-26

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.66
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
Depth(ft.): 75.0 Type: Sch 40 PVC
Centralizers-Type: S.Stl
Depths(ft.): 15, 40, 58, 74
2. Riser Pipe-I.D.(in.): 4
Depth(ft.): 80.0 Type: Sch 10 S.Stl
Centralizers-Type:
Depths(ft.):
3. Screen Dia.(in.): 4
Type: Sch 10 S.Stl Wire Wrapped
Depth Interval(ft.): 80.0-90.0
Slot Size(in.): .010
Centralizers-Type:
Depths(ft.):
4. Filter Pack Type: Silica Sand
Depth Interval(ft.): 78.0-90.5
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY WITH SAND - 15% to 20% medium grained poorly sorted sand; slightly plastic; hard; dry; red (2.5YR-4/6)	ST	24/24		cl		
SILTY SAND - fine to medium grained sand; angular; firm; 15% to 20% fines; damp; light brownish gray (10YR-6/2); interbedded with clay	ST	12/12		sm		
CLAY - slightly plastic; hard; dense; damp; reddish brown (5YR-5/3) and 40% grayish green; dendrites; nodules; trace of sand; approx. 5% gravels	ST	24/20		cl		45
SAND WITH SILT - fine grained sand; 20% to 25% fines; loose; moderately well sorted; wet; light gray (10YR-7/2); traces of black rock fragments; thin beds of clay and gravel	SS	24/24		sm		50
SANDY SILT - 25% to 30% fine to very fine grained sand; slightly plastic; moderately well graded; firm; wet; light gray (10YR-7/1); lens of mottled yellowish reddish brown clay; fracture and bioturbation; root casts and burrow filled with carbonate and iron stains	SS	24/24		ml		55
SANDY CLAY - 25% to 30% fine grained sand; moderate to highly plastic; firm; wet; light gray (10YR-7/1); approx. 30% to 40% yellowish red mottled clay	SS	24/24		ch		60
- moist; 20% to 25% mottled clay	SS	24/24				65
CLAY - 15% to 20% fine grained sand; highly plastic; stiff; wet; trace of yellowish red mottled clay	SS	24/24		ch		70
- contact between clay and sand with solid chunk of wood						
SAND WITH SILT - fine medium to coarse grained sand; 20% to 25% fines; compact; well graded; poorly sorted; angular; wet; dark gray (10YR-4/1); black staining; abundant organic matter; wood chips and debris; thin yellow clay lens	ST	24/24		sm		
CLAYEY SILT WITH SAND - 10% to 15% fine grained sand; slightly plastic; stiff; dry to slightly damp; 20% gray (10YR-5/1) and 80% brown (10YR-4/3); mottled; burrows and root casts filled with clays, sands and iron stains	ST	24/24		ml		75
- increasing fine grained sand; brown (10YR-4/3) at 76'	ST	24/24				78.0
SILTY SAND - fine to medium grained sand; 25% to 30% fines;	ST	24		sm		80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	[illegible] 8/11/95	PROJ. CHK	[illegible] 9/1/95	APPRV. BY	[illegible] 9/1/95	DWG. NO.	448339-A15 Sheet 2 of 3

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

MONITORING WELL MW-63

DRILLING AND SAMPLING INFORMATION

Boring Location: EAST OF LUNCH ROOM
WEST OF FORMER WASTE PONDS
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 90.5
Logged By: M. NEWTON
Date Started: 6/28/95
Drilled By: W. WRIGHT
Date Completed: 8/4/95
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 8" MUD ROTARY
Sampling Method: 2' SHELBY TUBE (ST) AND
2' SPLIT SPOON (SS)
Notes: REAM TO 12" BOREHOLE TO 75'
LITHOLOGIC DESCRIPTIONS AND SAMPLE INTERVALS/RECOVERIES FROM SURFACE TO 60 FEET IN DEPTH ARE TAKEN FROM RECOVERY WELL RW-26

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.66
Ref. Datum: MSL
1. Surf Casing-I.D.(in.): 8
Depth(ft.): 75.0 Type: Sch 40 PVC
Centralizers-Type: S.Stl
Depths(ft.): 15, 40, 58, 74
2. Riser Pipe-I.D.(in.): 4
Depth(ft.): 80.0 Type: Sch 10 S.Stl
Centralizers-Type:
Depths(ft.):
3. Screen Dia.(in.): 4
Type: Sch 10 S.Stl Wire Wrapped
Depth Interval(ft.): 80.0-90.0
Slot Size(in.): .010
Centralizers-Type:
Depths(ft.):
4. Filter Pack Type: Silica Sand
Depth Interval(ft.): 78.0-90.5
Conc. Pad Size: 4'x4'x6"

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
compact; well graded; poorly sorted; subangular to round; wet; gray (GLEY-6/N) to brown (10YR-4/3); mottled; lens of grayish green clays; black to red rock fragments			24				
SAND WITH SILT - 15% to 20% fines; brown (10YR-4/3)	ST		24/24		sm		
TOTAL DEPTH = 90.5 FEET							

80.0
90.0
90.1
90.5
filter pack 20-40 mesh
well screen
s.stl cap
85
90
95
100
105
110
115
120

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/20/95	DRAFT CHK	RPS 9/1/95	PROJ. CHK	MSK 9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A15 Sheet 3 of 3

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711

Please use black ink.

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) OWNER Air Products (Name) ADDRESS 1423 Hwy. 225 (Street or RFD) Pasadena (City) Tx. (State) 77506 (Zip)

2) LOCATION OF WELL:
County Harris . 1 miles in E (NE, SW, etc.) direction from Pasadena (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ LEGAL DESCRIPTION:
Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____ ☐ Driven

6) WELL LOG:
Date Drilling: Started 6/28 19 95 Completed 7/7 19 95

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12"	Surface	75'
8"	75'	90'

7) BOREHOLE COMPLETION:
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other _____
If Gravel Packed give interval . . . from 78' ft. to 90' ft.

From (ft.) To (ft.) Description and color of formation material

MW-13 Boring Log Attached

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
12"	N	P.V.C.	0	75'	
4"	N	Stainless Steel	0	80'	
4"	N	Stainless Screen	80'	90'	.010

9) CEMENTING DATA [Rule 287.44(1)]
Cemented from 0 ft. to 75' ft. No. of Sacks Used bulk
0 ft. to 78' ft. No. of Sacks Used bulk
Method used Pump/Tremi
Cemented by Reed Environmental Drilling

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed [Rule 287.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]
☐ Pitless Adapter Used [Rule 287.44(3)(B)]
☐ Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL:
Static level _____ ft. below land surface Date _____
Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

13) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Reed Environmental Drilling (Type or print) WELL DRILLER'S LICENSE NO. 2255W

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Tx. (State) 75941 (Zip)

(Signed) Roy Reed (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

INTERNATIONAL TECHNOLOGY CORPORATION

WELL DIAGRAM

Sheet 1 o

Client: Air Products Project Location: Pasadena, Tx Well ID: MW-63

Project Name: Project Number: 448339 Well Type: Monitoring Wells

DRILLING AND SAMPLING INFORMATION

Surface Elev.(Ft): NA Total Depth(Ft): 90.5

Start Date: 6/28/95 Finish Date: 7/7/95

Drilled By: Wayne Wright - Reed Env.

Logged By: Monty Newton - IT Corp.

Drill Rig Type: Failing 1250

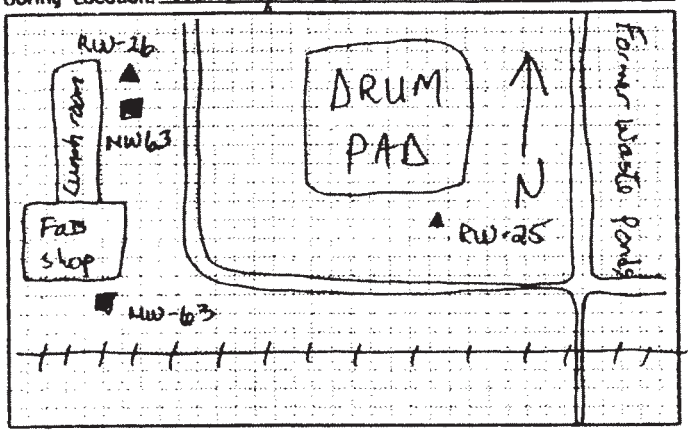
Drilling Method: MUD ROTARY

Borehole Diameter: 12 inch to 75', 8 inch to

Sampling Method: 1"x 2' split spoon and 3 inch x 2' shelby TUBE

Water Level(s):

Boring Location: WEST of former waste Ponds



Notes:

NOTE: All depths are from ground surface.

WELL COMPLETION DATA

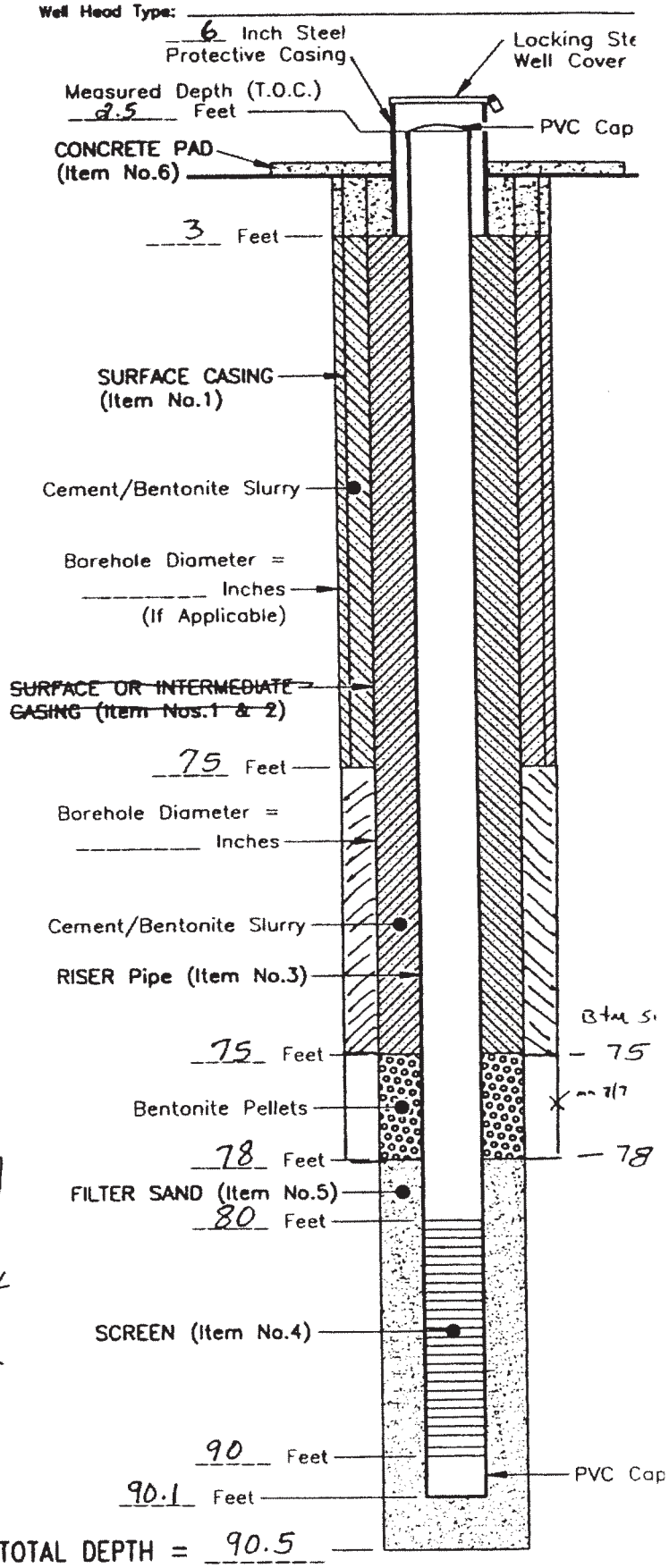
Elev-Top of Casing(ft.): NA Ref. Datum: NA

1. Surf Casing-I.D.(in.): 8 Depth(ft.): 75 Type: Sch 40 PVC
   Centralizers-Type: SS BAND Depths(ft.): 74, 58, 40, 15
2. Int Casing-I.D.(in.): Depth(ft.): Type: (A)
   Centralizers-Type: Depths(ft.):
3. Riser Pipe-I.D.(in.): 4 Depth(ft.): 80 Type: Sch 40 SS
   Centralizers-Type: NA Depths(ft.): NA
4. Screen Dia.(in.): 4 Type: Sch. 40 Stainless steel
   Depth Interval(ft.): 80-90 Slot Size(in.): .010
   Centralizers-Type: NA Depths(ft.): NA
5. Filter Pack Type: 20/40 Blast SAND Depth Interval(ft.): 78-90.5
6. Conc. Pad Size:

NOTES:

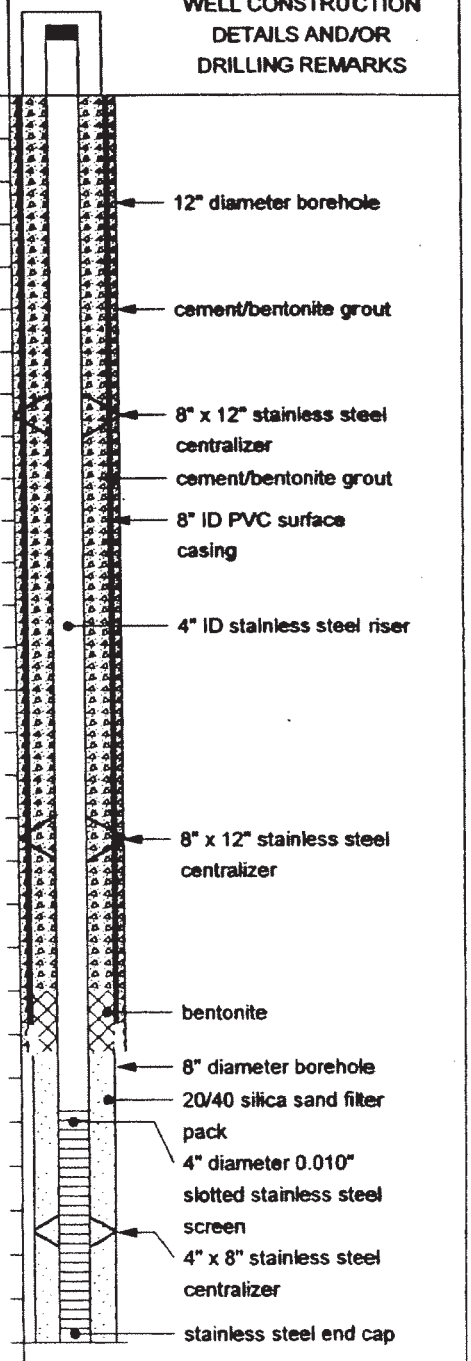
A. Draw in centralizers
B. Sketch in any collapse
C. Please add any additional information needed or scratch out information not needed

Well Head Type:



PROJECT: Air Products, Inc.	**Log of Well No. MW-67**
BORING LOCATION: East Side of DNT Loading Area	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Fugro	DATE STARTED: 12/4/00 / DATE FINISHED: 12/8/00
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 58.0 / SCREEN INTERVAL (ft.): 47.5 - 57.5'
DRILLING EQUIPMENT: Failing 250/ CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
0					CLAY * Note: Lithology interpreted from Cone Penetrometer Testing (CPT) Log HP-20, located approximately 12 feet south of monitoring well MW-67.
10					SILTY SAND
					CLAY
20					CLAYEY SILT
					CLAY
30					SILTY CLAY
					SAND and CLAYEY SAND
					SILTY CLAY
40					CLAY
50					CLAYEY SAND
					CLAY and SILTY CLAY
					base of CPT log
60					



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State of Texas WELL REPORT

TDLR
P.O. Box 12157
Austin, TX 78711
512-239-0630

1) OWNER Air Products, Inc. (Name) ADDRESS 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

2) ADDRESS OF WELL: County Harris 1423 Hwy 225 (Street or RFD) Houston (City) TX (State) 77506 (Zip) GRID # _____

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5) N: 703298.88 E: 3208613.32 Elev.: 26.91 N

6) WELL LOG: MW-67
Date Drilling:
Started December 4, 2000
Completed December 8, 2000

DIAMETER OF HOLE

Dia.. (in.)	From (ft.)	To (ft.)
12	Surface	57.5
4	Surface	57.5

7) DRILLING METHOD (Check): ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other _____

From (ft.)	To (ft.)	Description and color of formation material
0	13	clay
13	17	silty sand
17	22	clay
22	26	clayey silt
26	33	clay
33	36	silty clay
36	37	sand and clayey sand
37	40	silty clay
40	48	clay
48	53	clayey sand
53	55	clay and silty clay

8) Borehole Completion (Check): ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☑ Other 20/40 Sand filter pack
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
8	N	PVC casing	0	43	
4	N	SS Riser	0	47.5	
4	N	SS Screen	47.5	57.5	0.01

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 0 ft. to 42 ft. No. of sacks used 8.24
_____ ft. to _____ ft. No. of sacks used _____
Method used tremie
Cemented by Fugro Geosciences
Distance to septic system field lines or other concentrated contamination _____ ft.
Method of verification of above distance _____

Fugro Job # 0305-0310
(Use reverse side if necessary)

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed (Rule 338.44(2)(A))
☐ Specified Steel Sleeve Installed (Rule 338.44(3)(A))
☐ Pitless Adapter Used (Rule 338.44(3)(b))
☑ Approved Alternative Procedure Used (Rule 338.71)

13) TYPE PUMP: N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

11) WATER LEVEL
Static Level 15 ft. below land surface Date 01/25/01
Artesian flow _____ gpm Date _____

15) WATER QUALITY: N/A
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) PACKERS:

Type	Depth
Bentonite	12-15

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Fugro Geosciences, Inc. (Type or print) WELL DRILLER'S LICENSE NO. 4926-M Bruce Milton

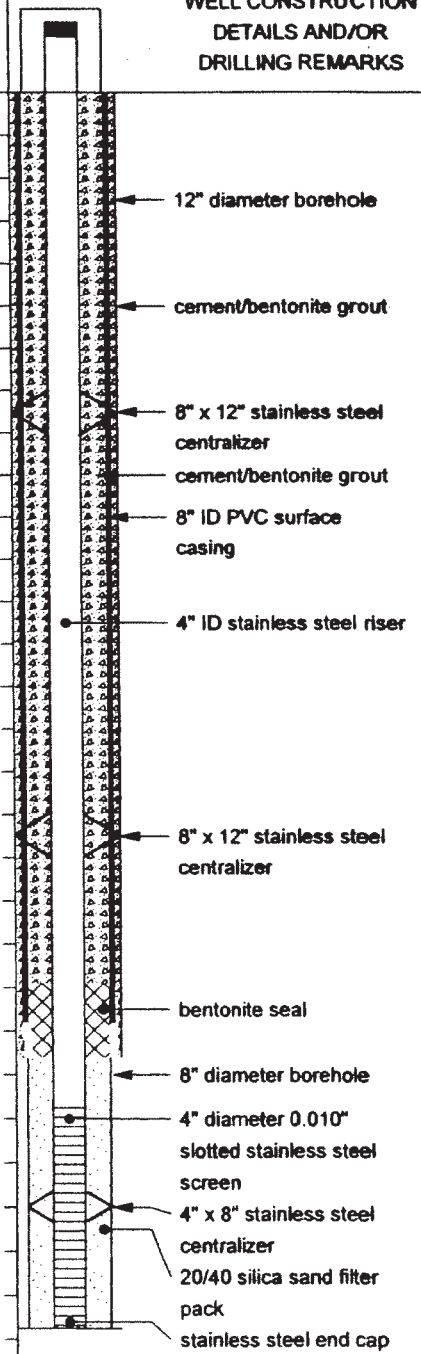
ADDRESS 6105 Rookin (Street or RFD) Houston (City) Texas (State) 77074 (Zip)

(Signed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

PROJECT: Air Products, Inc.	**Log of Well No. MW-68**
BORING LOCATION: West Side of Spill Off Pond	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Fugro	DATE STARTED: 11/30/00 / DATE FINISHED: 12/8/00
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 57.5 / SCREEN INTERVAL (ft.): 47.5 - 57.5'
DRILLING EQUIPMENT: Failing 25 / CME 75	DEPTH TO WATER ATD: / CASING:
SAMPLING METHOD: Not Applicable (NA)*	LOGGED BY: P. Bullock
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO.

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
					SANDY FILL
					CLAY and SILTY CLAY
					* Note: Lithology interpreted from Cone Penetrometer Testing (CPT) Log HP-21, located approximately 40 feet south of monitoring well MW-68.
10					
20					SILTY SANDY CLAY
					SILTY CLAY
30					
					SILTY SAND
					SILTY CLAY
40					
					CLAY
					SILTY CLAY
					CLAY
					SAND
50					
					CLAY and SANDY CLAY
60					



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ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas WELL REPORT

TDLR
P.O. Box 12157
Austin, TX 78711
512-239-0530

1) OWNER Air Products, Inc. (Name) ADDRESS 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77506 (Zip)

2) ADDRESS OF WELL: County Harris 1423 Hwy 225 (Street or RFD) Houston (City) TX (State) 77506 (Zip) GRID # _____

3) TYPE OF WORK (Check): ☑ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☑ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell
If Public Supply well, were plans submitted to the TNRCC? ☐ Yes ☐ No

5) N: 703184.34 E: 3208480.41 Elev.: 26.14

6) WELL LOG: MW-6S
Date Drilling:
Started November 30, 2000
Completed December 8, 2000

DIAMETER OF HOLE

Dia.. (in.)	From (ft.)	To (ft.)
12	Surface	57.5
4	Surface	57.5

7) DRILLING METHOD (Check): ☐ Driven ☐ Air Rotary ☑ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other _____

From (ft.)	To (ft.)	Description and color of formation material
0	2	sandy fill
2	21	clay and silty clay
21	24	silty, sandy clay
24	34	silty clay
34	37	silty sand
37	42	silty clay
42	44	clay
44	46	silty clay
46	48	clay
48	53	sand
53	57.5	clay and sandy clay

Fugro Job # 0305-0310

(Use reverse side if necessary)

8) Borehole Completion (Check): ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☑ Other 20/40 Sand filter pack
If Gravel Packed give interval ... from _____ ft. to _____ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
8	N	PVC casing	0	43	
4	N	SS Riser	0	47.5	
4	N	SS Screen	47.5	57.5	0.01

9) CEMENTING DATA [Rule 338.44(1)]
Cemented from 0 ft. to 42 ft. No. of sacks used 8.24
_____ ft. to _____ ft. No. of sacks used _____
Method used tremie
Cemented by Fugro Geosciences
Distance to septic system field lines or other concentrated contamination _____ ft.
Method of verification of above distance _____

10) SURFACE COMPLETION
☐ Specified Surface Slab Installed (Rule 338.44(2)(A)]
☐ Specified Steel Sleeve Installed [Rule 338.44(3)(A)]
☐ Pitless Adapter Used [Rule 338.44(3)(b)]
☑ Approved Alternative Procedure Used [Rule 338.71]

11) WATER LEVEL
Static Level 15 ft. below land surface Date 01/25/01
Artesian flow _____ gpm Date _____

12) PACKERS:

Type	Depth
Bentonite	12-15

13) TYPE PUMP: N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS: N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY: N/A
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Fugro Geosciences, Inc. (Type or print) WELL DRILLER'S LICENSE NO. 4926-M Bruce Milton

ADDRESS 6105 Rookin (Street or RFD) Houston (City) Texas (State) 77074 (Zip)

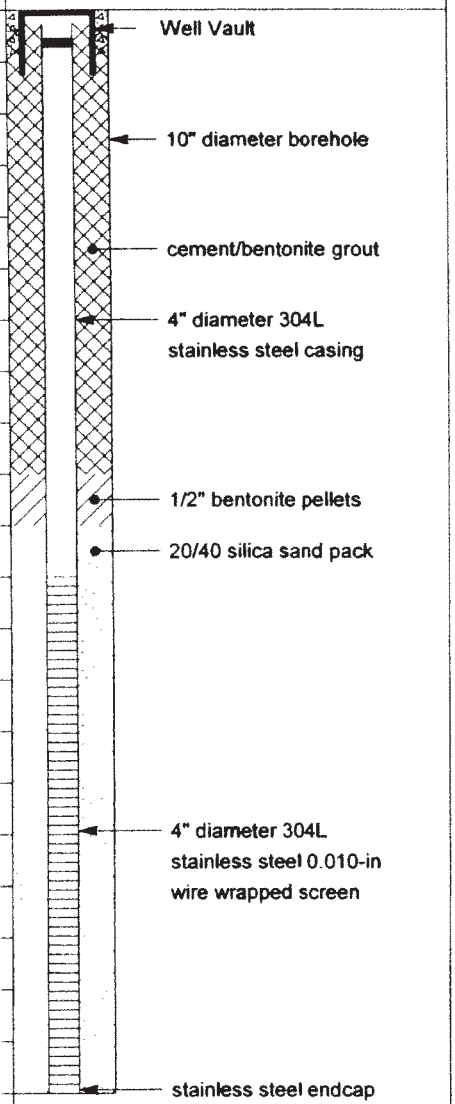
(Signed) _____ (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-69**
BORING LOCATION: Davison Road	GROUND SURFACE ELEVATION AND DATUM: TOC = 22.98 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/24/03 / DATE FINISHED: 11/24/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

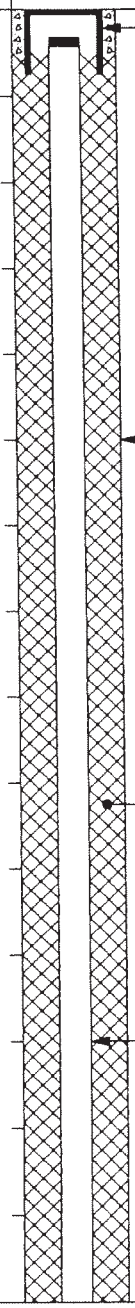
DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.
					Surface Elevation: TOC = 22.98 ft. (MSL)
					GRAVEL: dark gray clay, sand, rootlets, moist
					CLAY (CL): grayish brown (10yr 5/2), mottled with yellowish brown (10YR 5/6)
					Moist, medium stiff to stiff, roots and rootlets
10					CLAY (CL): yellowish red (5YR 5/6) mottled with gray (5YR 6/1) red (10YR 4/8) and black, slightly moist, stiff to very stiff
					CLAY (CL): fine sandy, yellowish red (5YR 5/6) and gray (5YR 6/1), sand, slightly moist, very stiff
20					
					CLAY (CL): Fine sandy, strong brown (7.5 YR 4/6), sand, slightly moist, medium stiff
30					
					CLAYEY SAND (SC): fine grained, strong brown, saturated
					CLAY (CL): strong brown (7.5 YR 4/6), moist, very stiff
					CLAY (CL): and CLAYEY SAND (SC): strong brown, saturated, fine grained
40					CLAY (CL): strong brown (7.5 YR 4/6), slightly moist, very stiff
					Total Depth: 42 feet below ground surface
50					

WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS



PROJECT: Air Products, L.P., Pasadena, Texas	**Log of Well No. MW-69**
BORING LOCATION: Davison Road	GROUND SURFACE ELEVATION AND DATUM: TOC = 22.98 ft. (MSL)
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/24/03 / DATE FINISHED: 11/24/03
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: Mobil Drill B-59	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrel Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION: NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
					Surface Elevation: TOC = 22.98 ft. (MSL)	
					GRAVEL: dark gray clay, sand, rootlets, moist	Well Vault
					CLAY (CL): grayish brown (10yr 5/2), mottled with yellowish brown (10YR 5/6)	
5					Moist, medium stiff to stiff, roots and rootlets	10" diameter borehole
10					CLAY (CL): yellowish red (5YR 5/6) mottled with gray (5YR 6/1) red (10YR 4/8) and black, slightly moist, stiff to very stiff	cement/bentonite grout
						4" diameter 304L stainless steel casing
15						



WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-69 (cont'd)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
20					CLAY (CL): fine sandy, yellowish red (5YR 5/6) and gray (5YR 6/1), sand, slightly moist, very stiff	1/2" bentonite pellets 20/40 silica sand pack
25					CLAY (CL): Fine sandy, strong brown (7.5 YR 4/6), sand, slightly moist, medium stiff	
30						4" diameter 304L stainless steel 0.010-in wire wrapped screen

WELL3

PROJECT: Air Products, L.P., Pasadena, Texas

Log of Well No. MW-69 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					CLAYEY SAND (SC): fine grained, strong brown, saturated CLAY (CL): strong brown (7.5 YR 4/6), moist, very stiff	
40					CLAY (CL): and CLAYEY SAND (SC): strong brown, saturated, fine grained CLAY (CL): strong brown (7.5 YR 4/6), slightly moist, very stiff	stainless steel endcap
45					Total Depth: 42 feet below ground surface	
50						

WELL3

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512) 463-7880 FAX (512) 463-8616
Toll free (800) 803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name	Address	City	State	Zip
Air Products, L.P.	1423 Hwy 225	Pasadena	TX	77506

2) WELL LOCATION MW-69

County	Physical Address	City	State	Zip
Harris	1423 Hwy 225	Pasadena	TX	77506

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

Lat. Long. Grid #

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply
If Public Supply well, were plans submitted? ☐ Yes ☐ No

5) N↑

6) Drilling Date
Started 11/24/2003
Completed 11/24/2003

Diameter of Hole

Dia. (in)	From (ft)	To (ft)
10.58	SURFACE	42.0

7) Drilling Method (check) ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Other Hollow Stem Auger

From (ft)	To (ft)	Description and color of formation material
0	.5	Gravel & drk. gray CLAY, sand
.5	10	CLAY, grayish brown
10	16	CLAY, yellowish red
16	33	CLAY, sandy, strong brown
33	33.5	CLAYEY SAND, strong brown
33.5	38	CLAY, strong brown
38	39.5	CLAY & clayey sand, strong brown
39.5	42	CLAY, strong brown

(Use reverse side of Well Owner's copy, if necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Packed ☐ Other
If Gravel Packed give the interval from 19.11 ft. to 42.0 ft.

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
4	N	STAINLESS STEEL	0	22	
4	N	STAINLESS STEEL	22	42	0.010

9) Cementing Data
Cementing from 0 ft. to 17.10 ft. # of sacks used 1
____ ft. to ____ ft. # of sacks used ____
Method Used TREMIE
Cementing By BEST DRILLING SERVICES, INC.
Distance to septic system field or other concentrated contamination ____ ft.
Method of verification of above distance ____

13) Plugged ☐ Well plugged within 48 hours
Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	Sacks used

10) Surface Completion
☒ Specified Surface Slab Installed
☐ Specified Surface Sleeve Installed
☐ Pitless Adapter Used
☐ Approved Alternative Procedure Used

14) Typepump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., ft.

11) Water Level
Static level ____ ft. below Date ____
Artesian Flow ____ gpm. Date ____

15) Water Test
Typetest ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

16) Water Quality
Did you knowingly penetrate any strata which contain undesirable constituents?
☐ Yes ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER?
Type of water ____ Depth of Strata ____
Was a chemical analysis made? ☐ Yes ☐ No

12) Packers

Type	Depth
BENTONITE	17.10 TO 19.11

Company or Individual's Name (type or print) BEST DRILLING SERVICES, INC. Lic. No. 3026-M

Address P.O. BOX 845 City FRIENDSWOOD State TX Zip 77549

Signature	Date	Signature	Date
Licensed Driller/Pump Installer	1/16/04	Apprentice	

TDLR [illegible] OWNER

Copies to TDLR - Owner - Driller/Pump Installer

Form provided by Forms On-A-Disk, Inc. (Dallas, Texas ((214) 340-9429

LOG OF BORING NO. RW-1

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray clay w/cgravel						
			Dark gray clay						
5									
10			- tan						
15			- brown and light gray w/sand seams						
20			- w/calcareous nodules						
25			- tan						
30			Brown and light gray clayey sand w/calcareous and ferrous nodules						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'

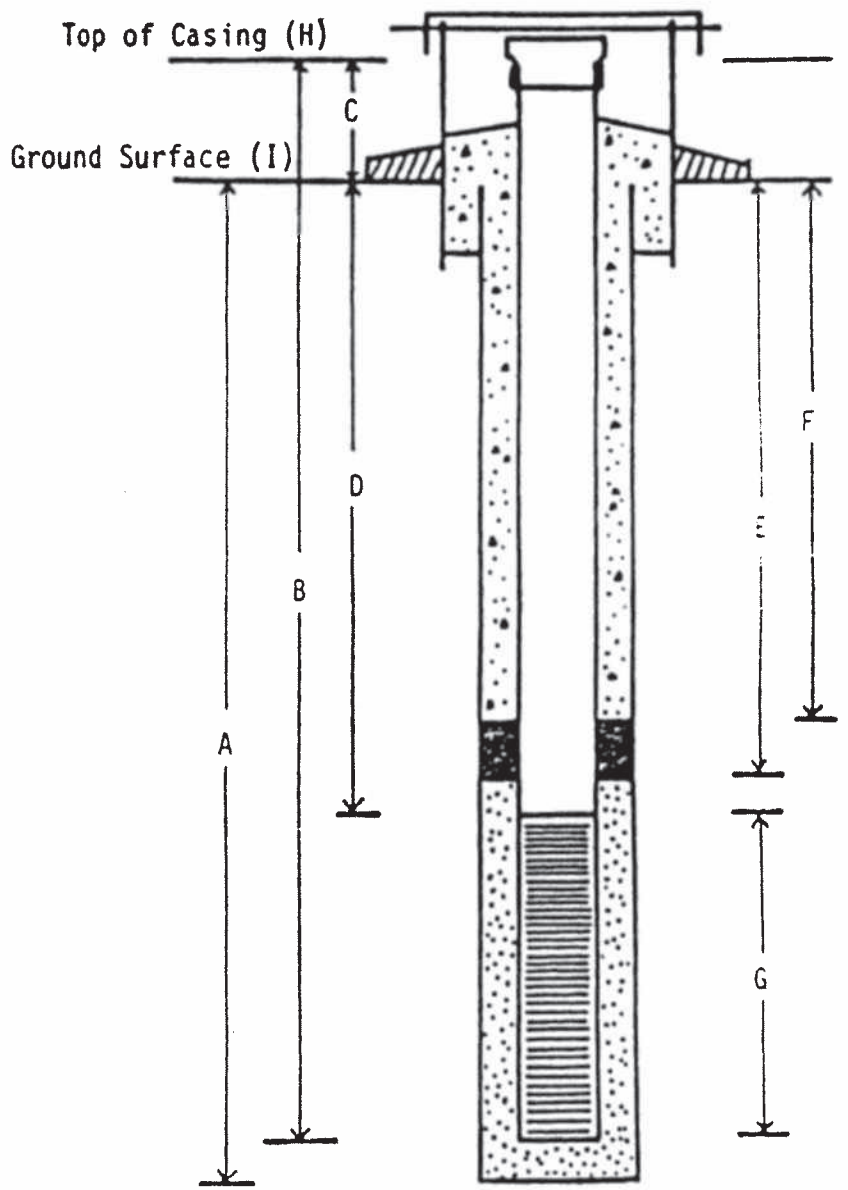
DATE: June 21 & 22, 1988

DEPTH TO WATER: 8.3'

DATE: 7/14/88

PLATE 2

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 38.3
(C)	Casing stickup above ground surface, feet	: 3.3
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-1

PLATE 22

LOG OF BORING NO. RW-2

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

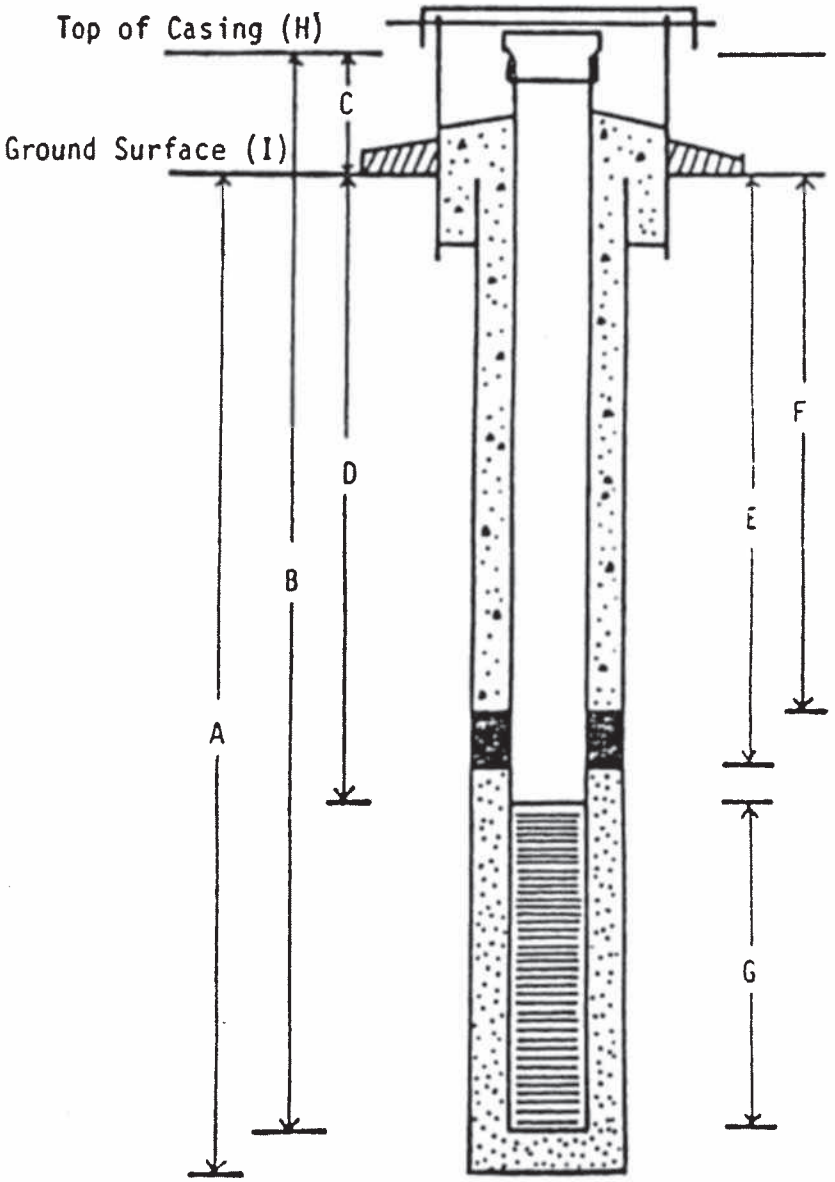
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray w/gravel						
			Dark gray clay						
5									
10			- w/sand seams						
15			- brown and light gray w/sand seams						
20			- tan						
25									
			Brown and gray clayey sand w/calcareous & ferrous nodules						
30			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 36'
DATE: June 21, 1988

DEPTH TO WATER: 7.8'
DATE: 7/14/88

PLATE 3

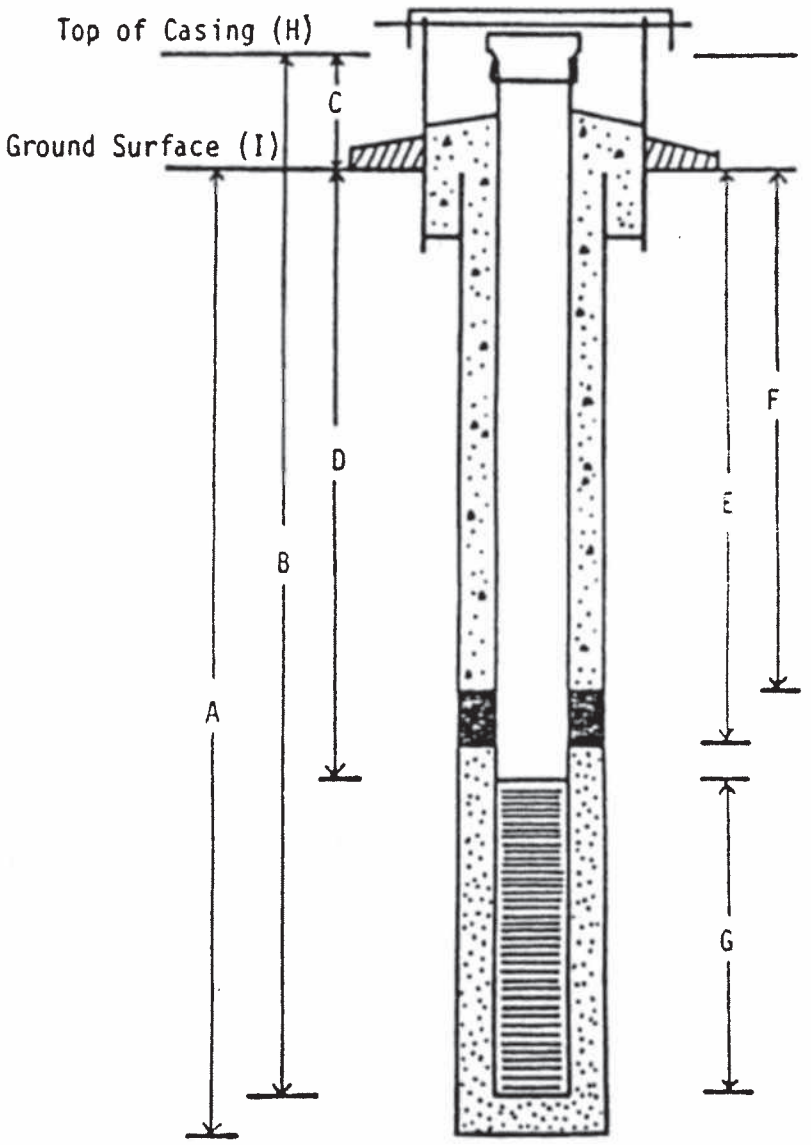
(A) Borehole depth, feet : 36.0
(B) Total casing length, feet : 38.2
(C) Casing stickup above ground surface, feet : 2.2
(D) Depth to top of screen, feet : 21.0
(E) Depth to top of sand pack, feet : 19.0
(F) Depth to top of bentonite seal, feet: 17.0
(G) Screen length, feet : 15.0
(H) Top of casing elevation, feet
(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-2

PLATE 23

(A)	Borehole depth, feet	: 36.0
(B)	Total casing length, feet	: 38.2
(C)	Casing stickup above ground surface, feet	: 2.2
(D)	Depth to top of screen, feet	: 21.0
(E)	Depth to top of sand pack, feet	: 19.0
(F)	Depth to top of bentonite seal, feet	: 17.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-3

PLATE24

LOG OF BORING NO. ~~MW-3~~ RW-3

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray clay w/gravel						
			Dark gray clay w/ferrous nodules						
5									
10			- tan and light gray						
15			- w/calcareous nodules & slickensides						
			Tan and gray sandy clay w/calcareous and ferrous nodules						
20									
			Brown and light gray clay w/ferrous stains						
25									
30			Brown and light gray clayey sand w/silt seams						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 36'
DATE: June 23, 1988

DEPTH TO WATER: 8.4'
DATE: 7/14/88

PLATE 4

LOG OF BORING NO. RW-4

RECOVERY & MONITOR WELLS - PHASE II
AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

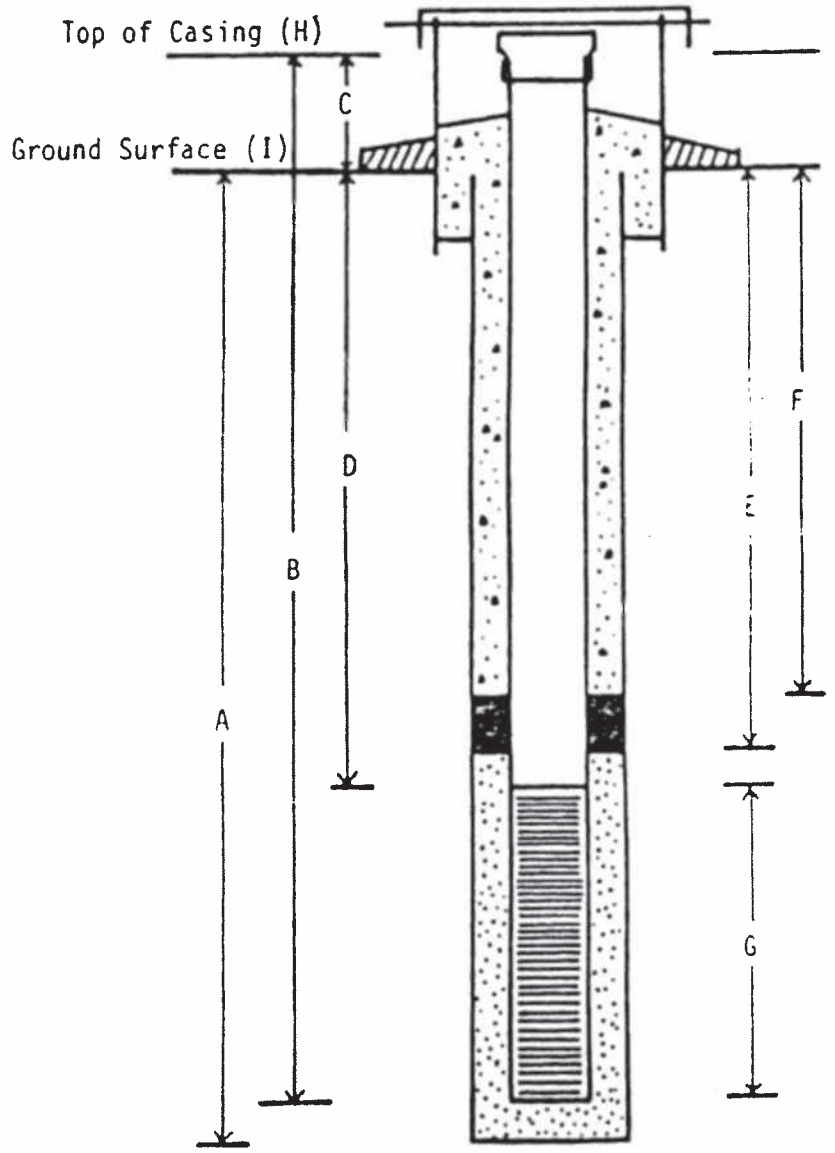
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - dark gray clay w/gravel						
5			Dark gray and tan clay w/ferrous nodules						
10									
15			- brown and light gray						
20									
25			- tan and light gray w/calcareous nodules						
30			Brown and light gray clayey sand w/ calcareous and ferrous nodules						
35			Brown clay						
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 21 & 22, 1988

DEPTH TO WATER: 8.4'
DATE: 7/14/88

PLATE 5

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 38.3
(C)	Casing stickup above ground surface, feet	: 3.3
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-4

PLATE 25

LOG OF BORING NO. RW-5

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - gray and brown clay w/gravel						
			Dark gray clay						
5									
10									
15									
20			- tan and light gray w/calcareous nodules						
25			- brown and light gray w/calcareous and ferrous stains and sand seams						
30			Brown and light gray clayey sand						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 21, 1988

DEPTH TO WATER: 7.7'
DATE: 7/14/88

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 38.2

(C) Casing stickup above ground surface, feet : 3.2

(D) Depth to top of screen, feet : 20.0

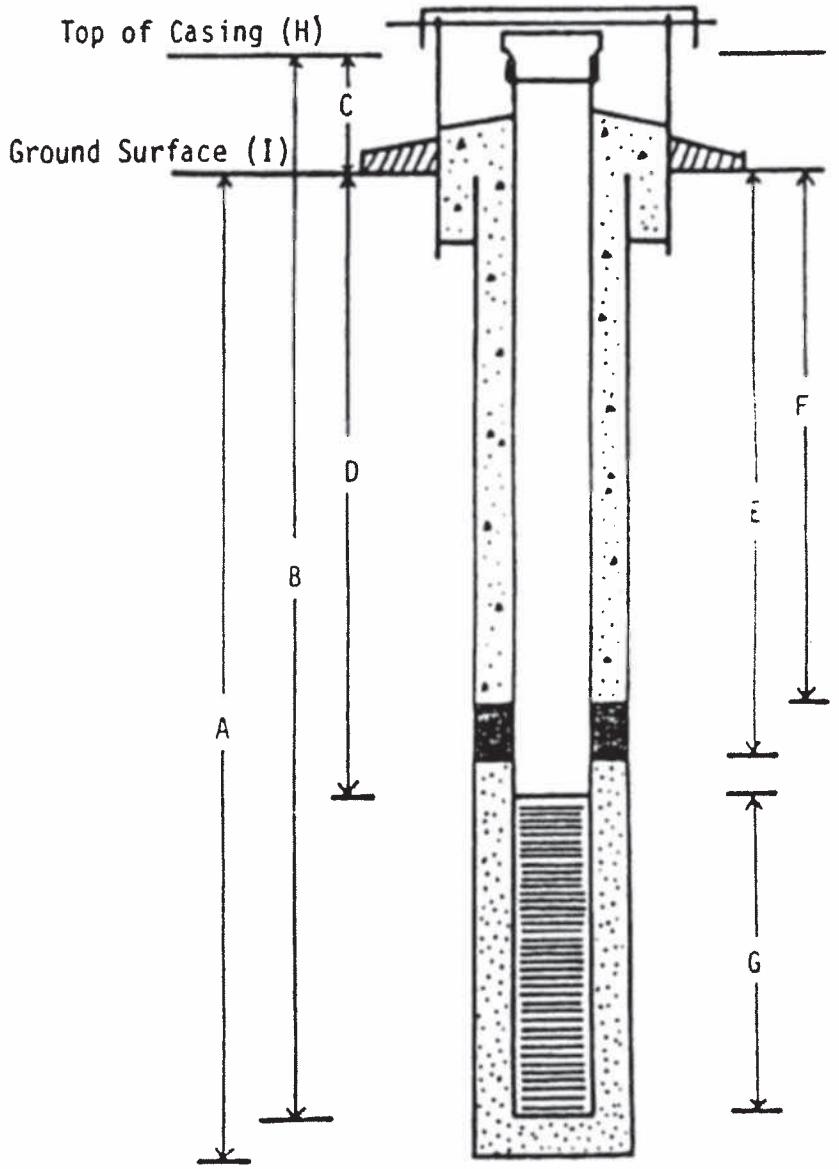
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-5

PLATE 26

LOG OF BORING NO. RW-6

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown and gray clay w/gravel and sand						
5			Dark gray clay w/ferrous nodules						
10			- dark brown						
15			- w/sand seams						
20			- tan and brown w/sand seams and calcareous nodules						
25			- brown						
30			Brown clayey sand w/silt seams						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 22, 1988

DEPTH TO WATER: 8.6'
DATE: 7/14/88

(A) Borehole depth, feet : 35.0

(B) Total casing length, feet : 38.0

(C) Casing stickup above ground surface, feet : 3.0

(D) Depth to top of screen, feet : 20.0

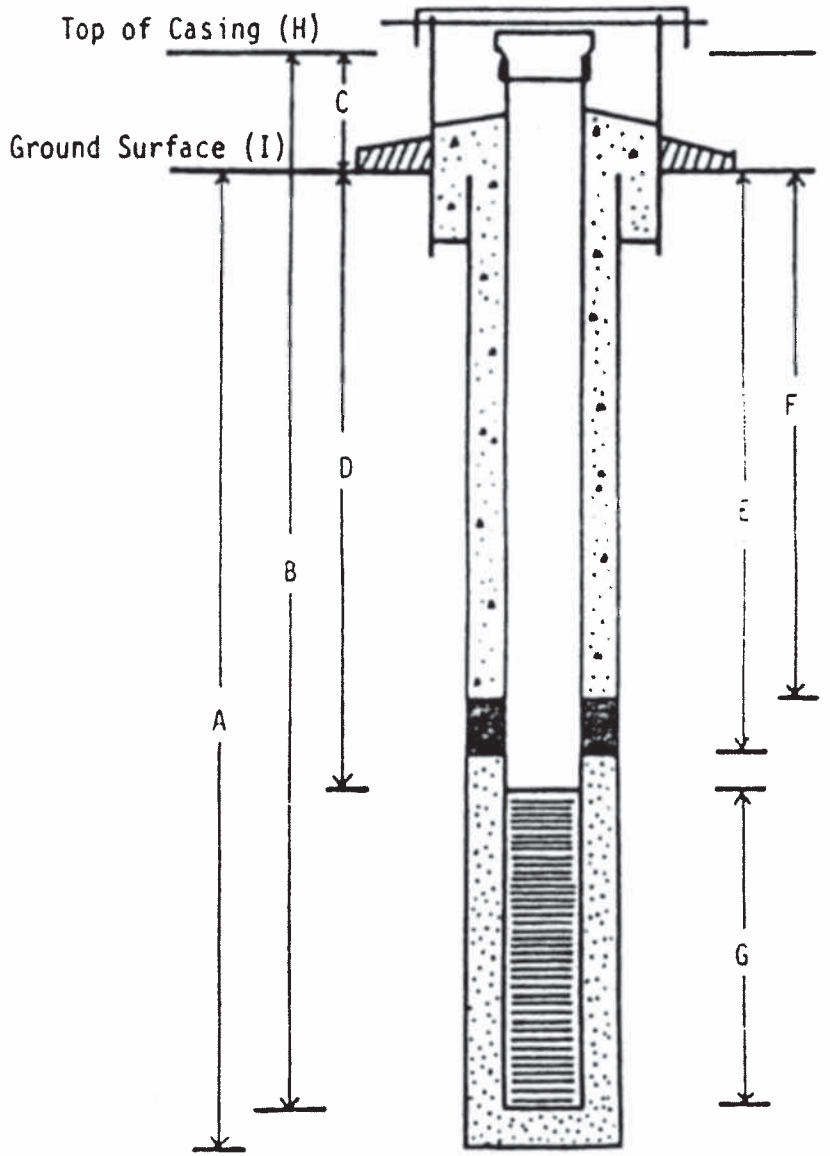
(E) Depth to top of sand pack, feet : 18.0

(F) Depth to top of bentonite seal, feet : 16.0

(G) Screen length, feet : 15.0

(H) Top of casing elevation, feet

(I) Ground surface elevation, feet



MONITOR WELL DESIGN RW-6

PLATE 27

LOG OF BORING NO. RW-7

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION

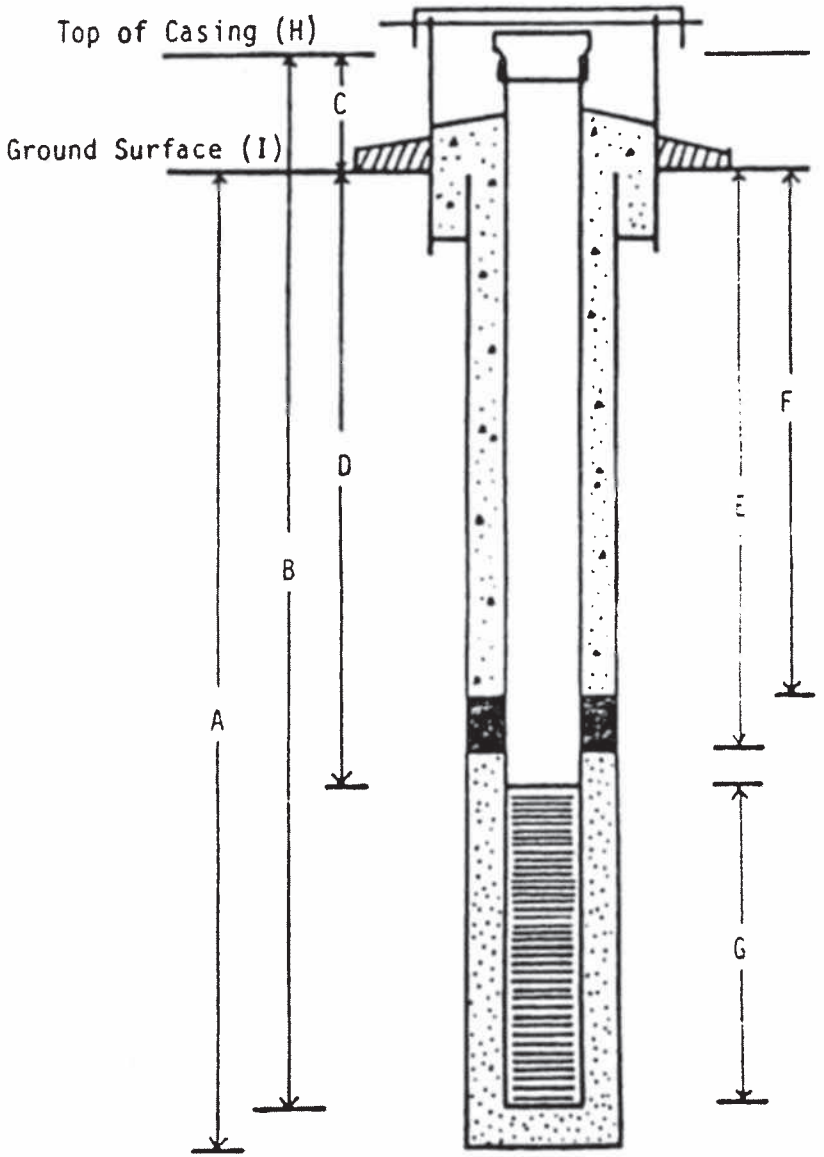
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown clay w/gravel						
			Dark gray clay w/ferrous stains						
5									
			- w/fine sand						
10			- tan and light gray w/sand seams						
15									
20									
25									
			Brown clayey sand w/silt layer						
30									
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35.3'
DATE: June 17, 1988

DEPTH TO WATER: 8.8'
DATE: 7/14/88

PLATE 8

(A)	Borehole depth, feet	: 35.3
(B)	Total casing length, feet	: 38.3
(C)	Casing stickup above ground surface, feet	: 3.0
(D)	Depth to top of screen, feet	: 20.3
(E)	Depth to top of sand pack, feet	: 18.3
(F)	Depth to top of bentonite seal, feet	: 16.3
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-7

PLATE 28

LOG OF BORING NO. RW-8

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

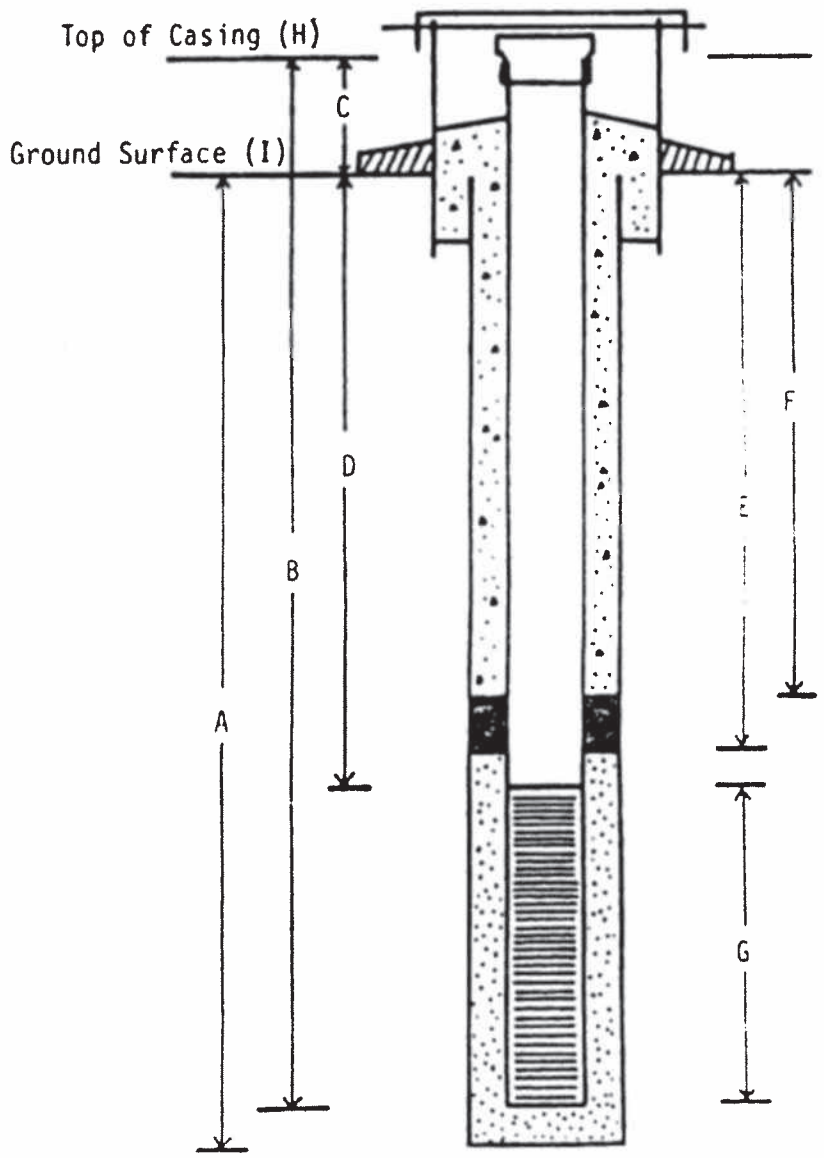
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:						
			Fill - brown and gray clay w/gravel						
			Dark gray clay w/ferrous stains						
5									
10			- tan and light gray w/calcareous nodules						
15									
			- brown w/calcareous nodules						
20									
			- w/sand seams and silt seams						
25									
30			Brown clayey sand w/silt seams						
			Brown clay						
35									
40									
45									
50									

COMPLETION DEPTH: 35'
DATE: June 16, 1988

DEPTH TO WATER: 7.8'
DATE: 7/14/88

PLATE 9

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 38.0
(C)	Casing stickup above ground surface, feet	: 3.0
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	: 16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-8

PLATE 29

LOG OF BORING NO. RW-9

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

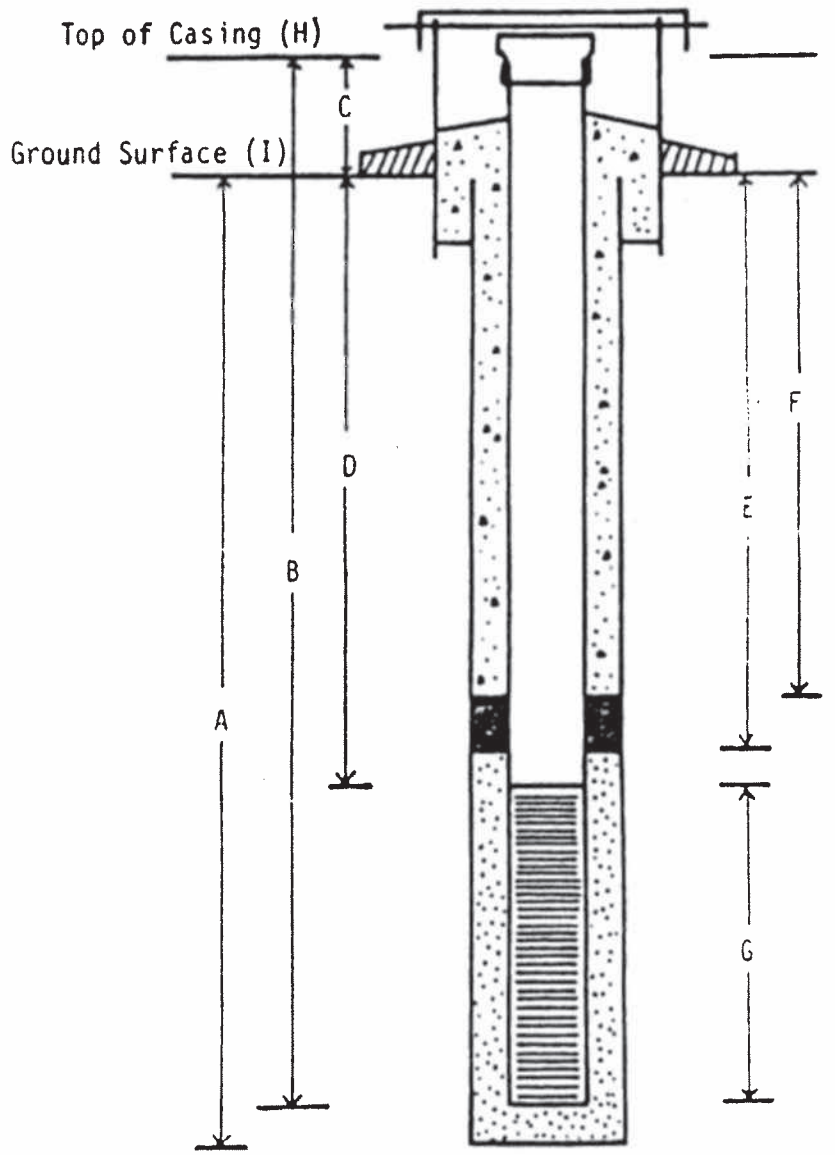
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS / SQ. FT. (0.5 1.0 1.5)	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:							
			Fill - brown clay w/gravel							
5			Dark gray clay w/ferrous nodules							
10			- tan and light gray w/calcareous nodules							
15										
20			- w/sand seams							
25										
30			Brown clayey sand w/silt seams							
35			Brown clay							
40										
45										
50										

COMPLETION DEPTH: 35.3' DEPTH TO WATER: 8.3'

DATE: June 15, 1988 DATE: 7/14/88

PLATE 10

(A)	Borehole depth, feet	: 35.3
(B)	Total casing length, feet	: 38.0
(C)	Casing stickup above ground surface, feet	: 2.7
(D)	Depth to top of screen, feet	: 20.3
(E)	Depth to top of sand pack, feet	: 18.3
(F)	Depth to top of bentonite seal, feet	: 16.3
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-9

PLATE 30

LOG OF BORING NO. RW-10

RECOVERY & MONITOR WELLS - PHASE II

AIR PRODUCTS MANUFACTURING PLANT - PASADENA, TEXAS

TYPE BORING: Undisturbed Sample LOCATION:

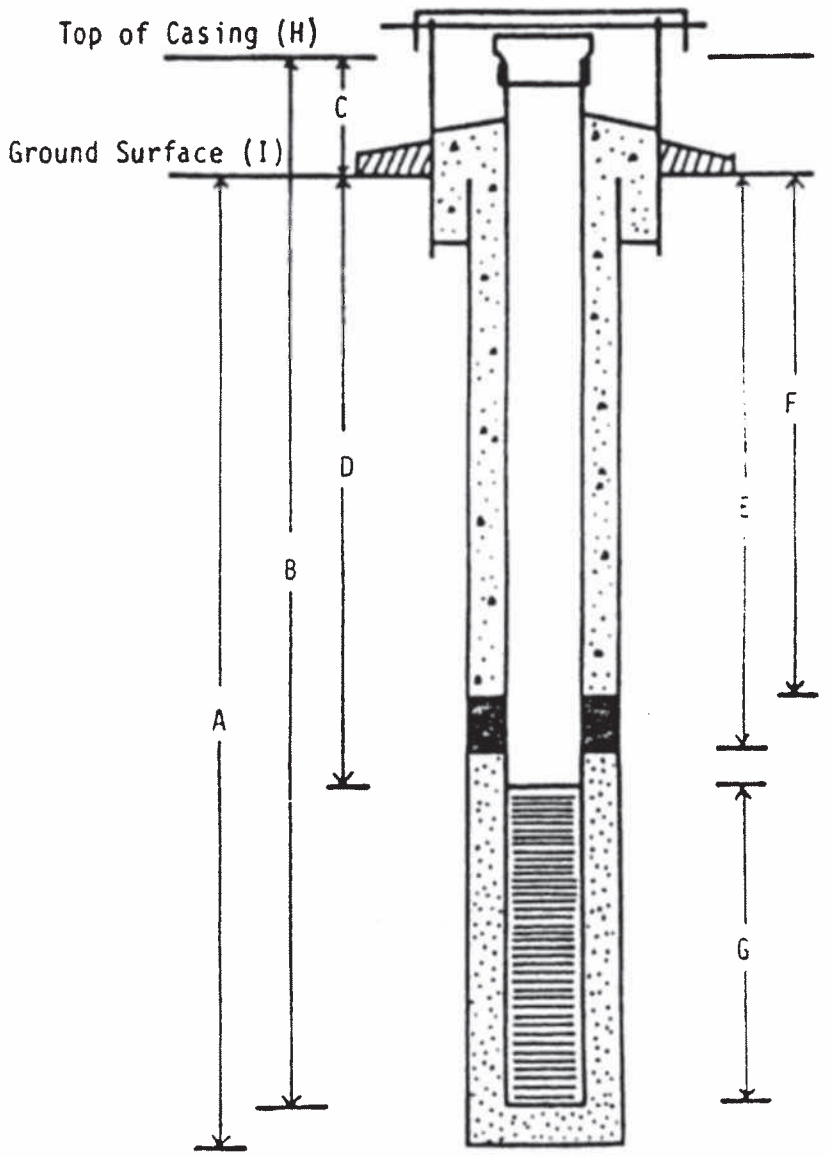
DEPTH, FT.	SYMBOL	SAMPLES	SOIL DESCRIPTION	% PASSING #200 SIEVE	BLOWS PER FT.	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT, %	SHEAR STRENGTH IN TONS/SQ.FT. 0.5 1.0 1.5	UNIT DRY WT. LB/CU FT.
			SURF. ELEV.:							
			Fill - brown and light gray clay w/gravel							
5			Dark gray clay w/ferrous nodules							
10			- tan and light gray w/calcareous nodules							
15										
20			- brown and light gray w/calcareous nodules							
25			- w/silt seams							
30			Brown and light gray clayey sand w/silt seams							
35			Brown clay							
40										
45										
50										

COMPLETION DEPTH: 35'
DATE: June 14, 1988

DEPTH TO WATER: 8.0'
DATE: 7/15/88

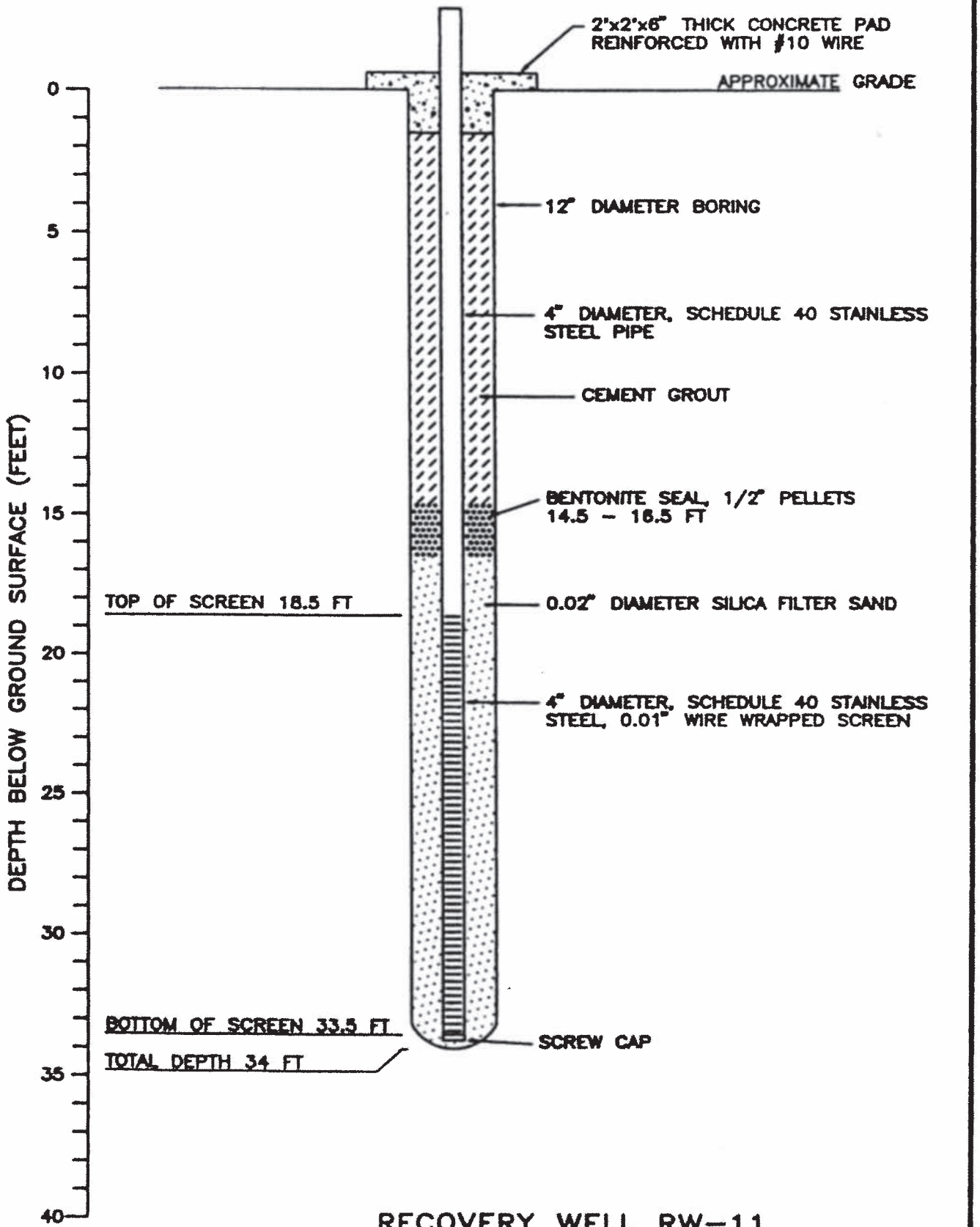
PLATE 11

(A)	Borehole depth, feet	: 35.0
(B)	Total casing length, feet	: 37.8
(C)	Casing stickup above ground surface, feet	: 2.8
(D)	Depth to top of screen, feet	: 20.0
(E)	Depth to top of sand pack, feet	: 18.0
(F)	Depth to top of bentonite seal, feet	16.0
(G)	Screen length, feet	: 15.0
(H)	Top of casing elevation, feet	
(I)	Ground surface elevation, feet	



MONITOR WELL DESIGN RW-10

PLATE 31



RECOVERY WELL RW-11
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-11

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0- miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to the form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34

Date drilled Oct. 8, 1990
Completed Oct. 15, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 16.5 ft. to 34 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	348	Stiff Reddish Clay

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	23.5	Sch40
4	N	SS Wire Wrap Screen	18.5	33.5	Sch40
		w/cap			
		(Western Well Screen)			

CEMENTING DATA
Cemented from 0 ft. to 14.5 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other Low volume by owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

13) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

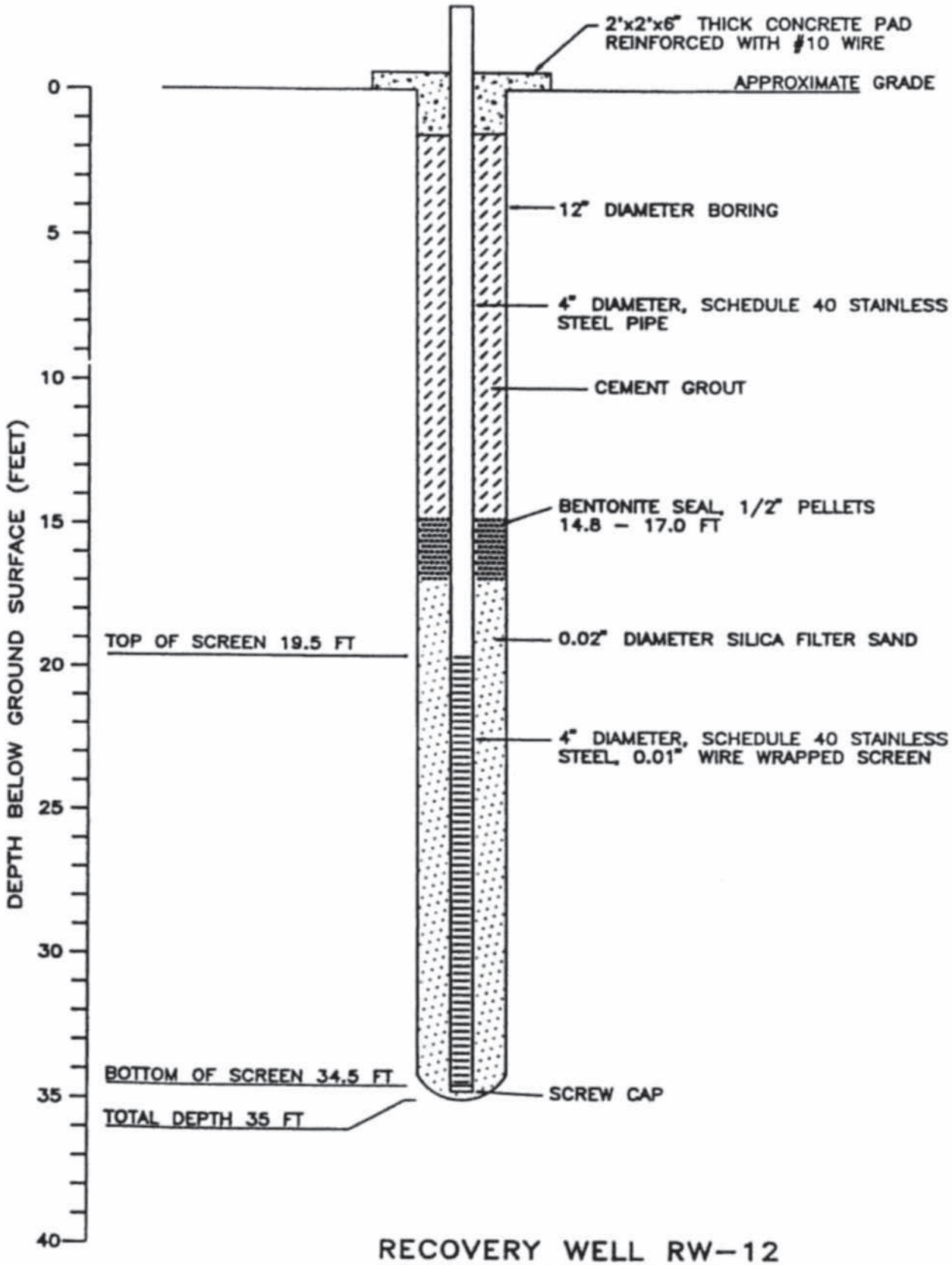
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW–12
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1623 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☐ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other

6) WELL LOG:

Date drilled Oct. 5, 1990
Completed Oct. 15, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	35

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 17 ft. to 35 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	35	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	19.5	Sch40
4	N	SS Wire Wrapped	19.5	34.5	Sch40
		Screen w/cap			
		(Western Well Screen)			

CEMENTING DATA
Cemented from 0 ft. to 14.8 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9.5 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

12) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

13) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

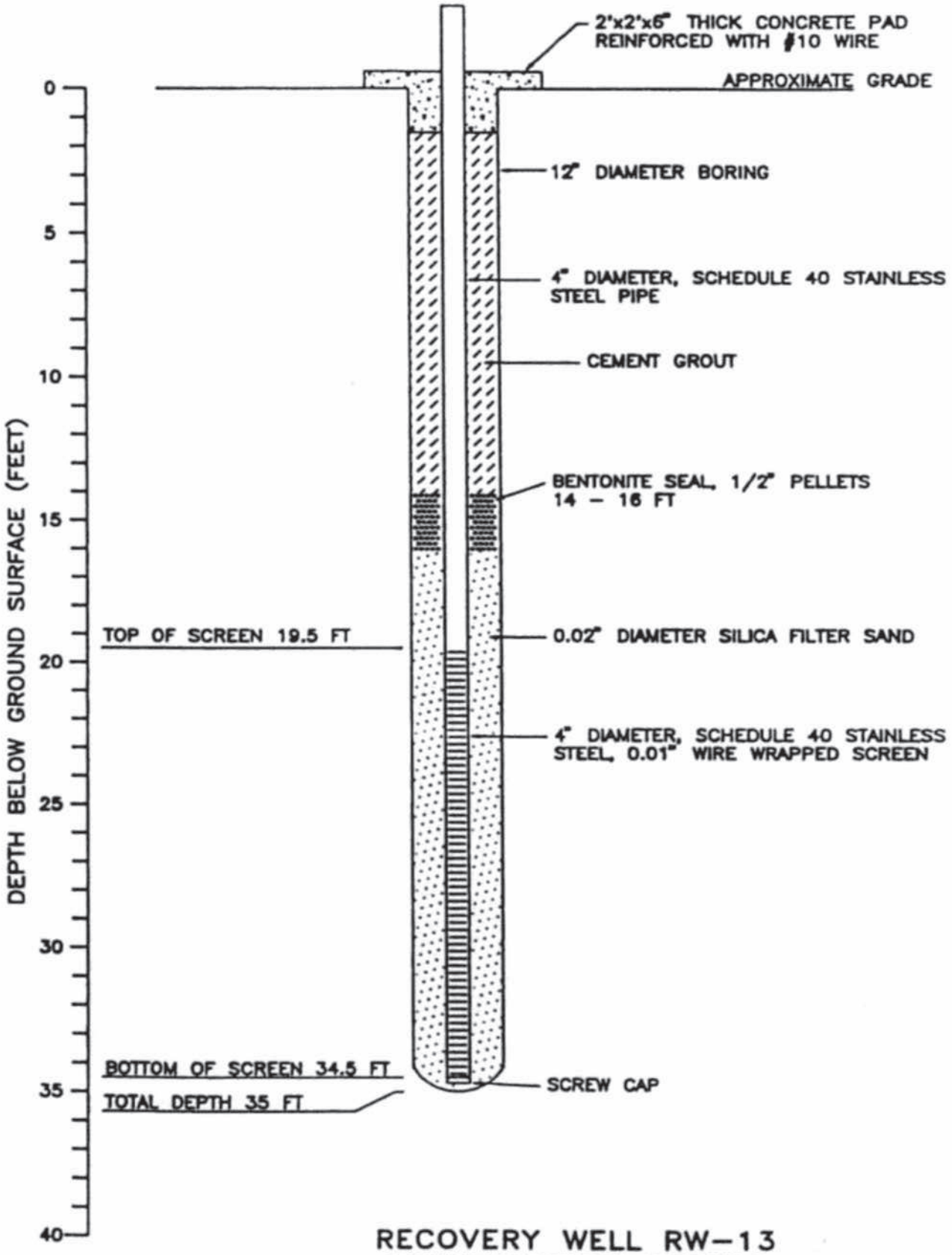
(Signed) R. Reed (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0382 (Rev. 8-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-13
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-13

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in – (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	35

Date drilled Oct. 2, 1990 Completed Oct. 15, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 16 ft. to 35 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	35	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	19.5	SCH40
4	N	SS Wire Wrapped	19.5	34.5	SCH40
		Screen w/cap (Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 14 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type None Depth

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc. _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1819 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

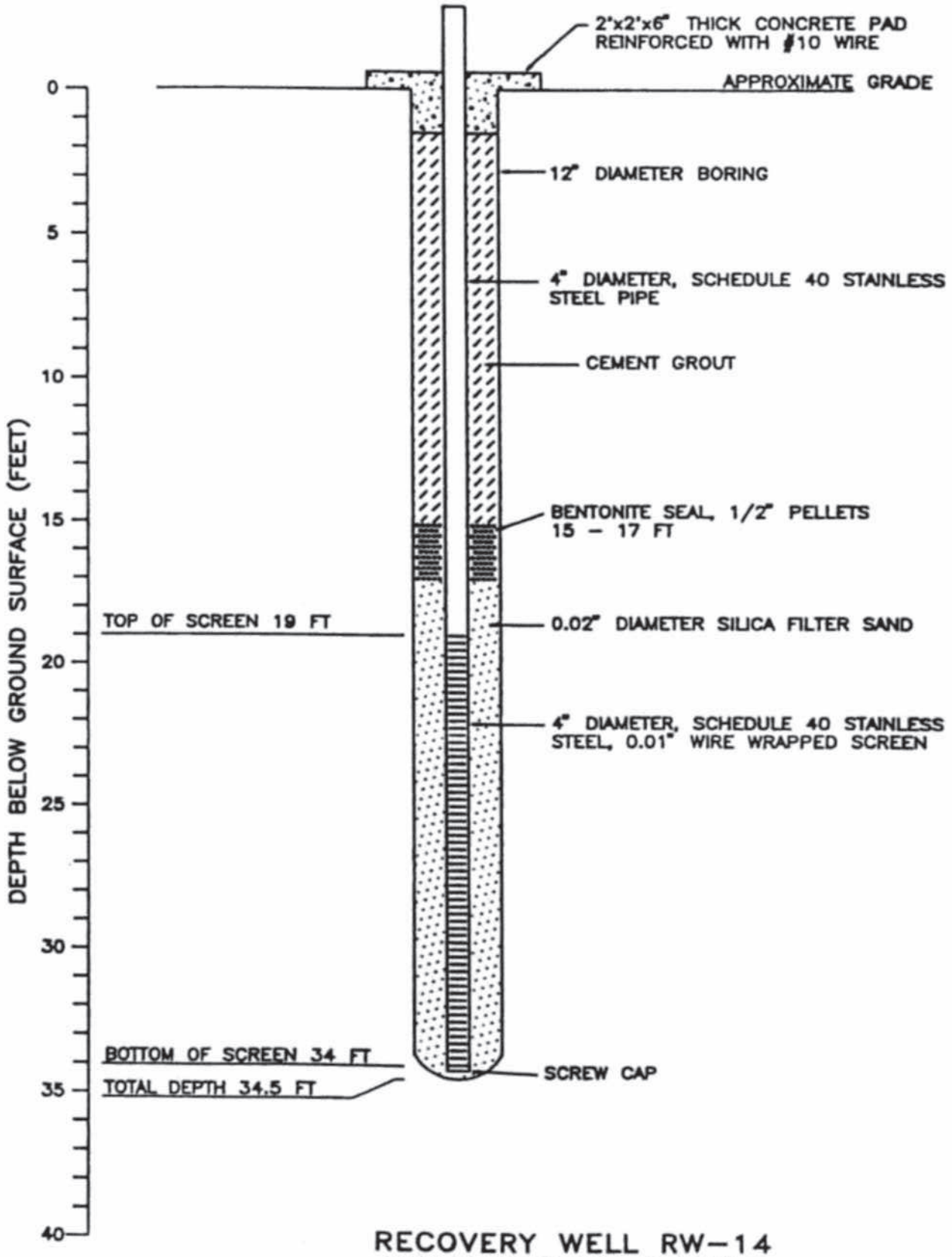
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-14
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Plate B-17

Recovery Well RW-14

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) 77087 (State) (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34.5

Date drilled Oct. 4, 1990
Completed Oct. 18, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 17 ft. to 34.5 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34.5	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	19	Sch40
4	N	SS Wire Wrapped	19	34	Sch40
		Screen w/cap (Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 15 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

12) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

13) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

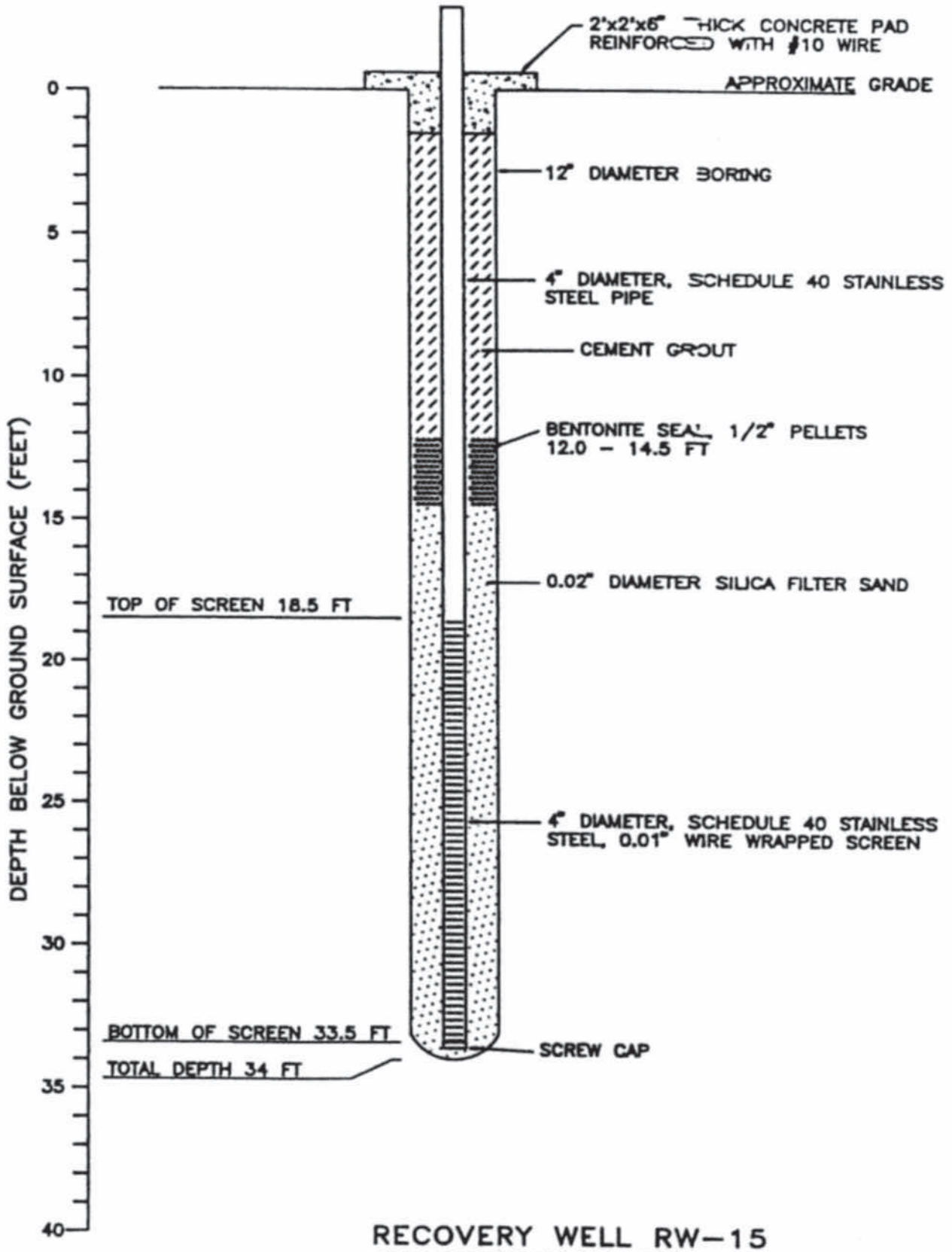
ADDRESS FM 1918 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-15
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-15

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34

Date drilled Oct. 4, 1990 Completed Oct. 15, 1990

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34	Stiff Reddish Clay

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 14.5 ft. to 34 ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18.5	Sch40
4	N	SS Wire Wrapped Screen w/cap (Western Well)	18.5	35.5	Sch40

CEMENTING DATA
Cemented from 0 ft. to 12 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9.5 ft. below land surface Date 10/15/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc. _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

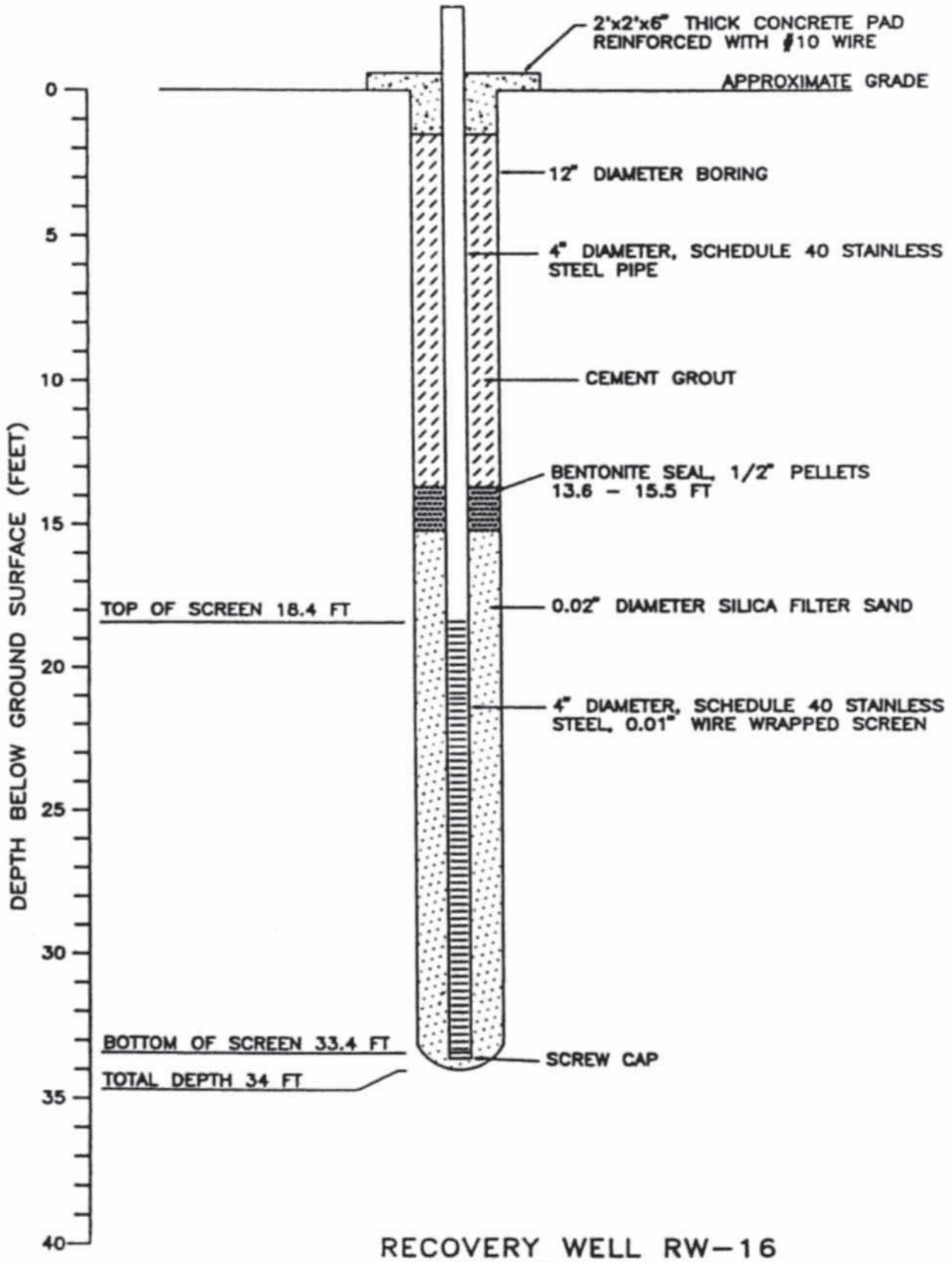
ADDRESS FM 1810 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev 5-27-82) DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-16
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-16

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N E., S W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☐ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	34

Date drilled Oct. 3, 1990
Completed Oct. 18, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 15.5 ft. to 34 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18.9	Sch40
4	N	SS Wire Wrapped	18.9	33.4	Sch40
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 13.6 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 9.5 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

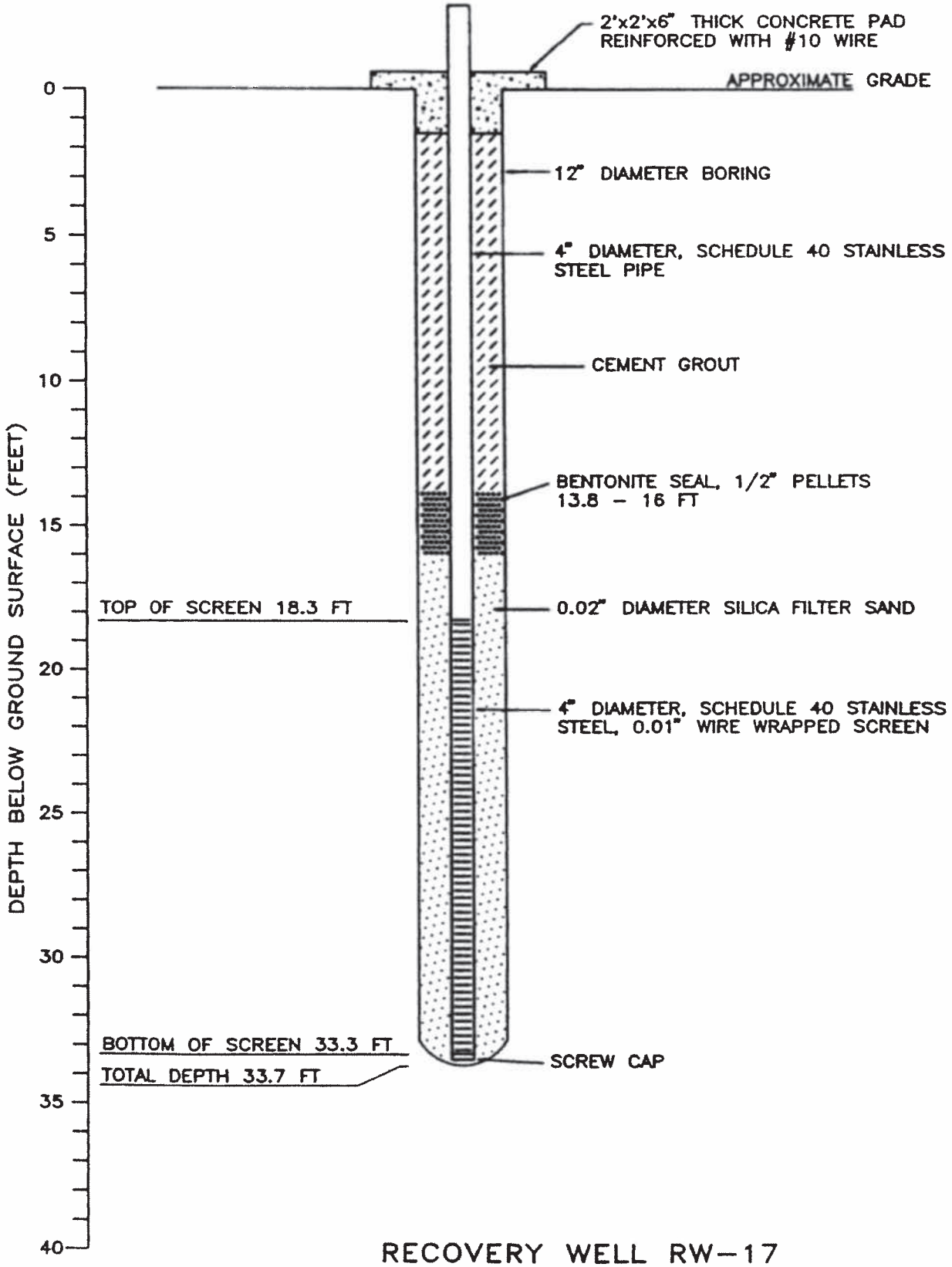
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0382 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-17
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-17

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1623 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena (Town) Texas

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

DIAMETER OF HOLE Dia. (in.)	From (ft.)	To (ft.)
12	Surface	33.7

Date drilled Oct. 1, 1990
Completed Oct. 1, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 16 ft. to 33.7 ft.

From (ft.)	To (ft.)	Description and color of formation material
0	20	Dark Gray and Orange Brown Silty Clay
20	30	Orange Brown Sandy and Silty Clay
30	34	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18.8	Sch40
4	N	SS Wire Wrapped	18.8	33.3	Sch40
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 13.8 ft.
Method used Tremie
Cemented by DRILLER (Company or Individual)

9) WATER LEVEL:
Static level 9.3 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

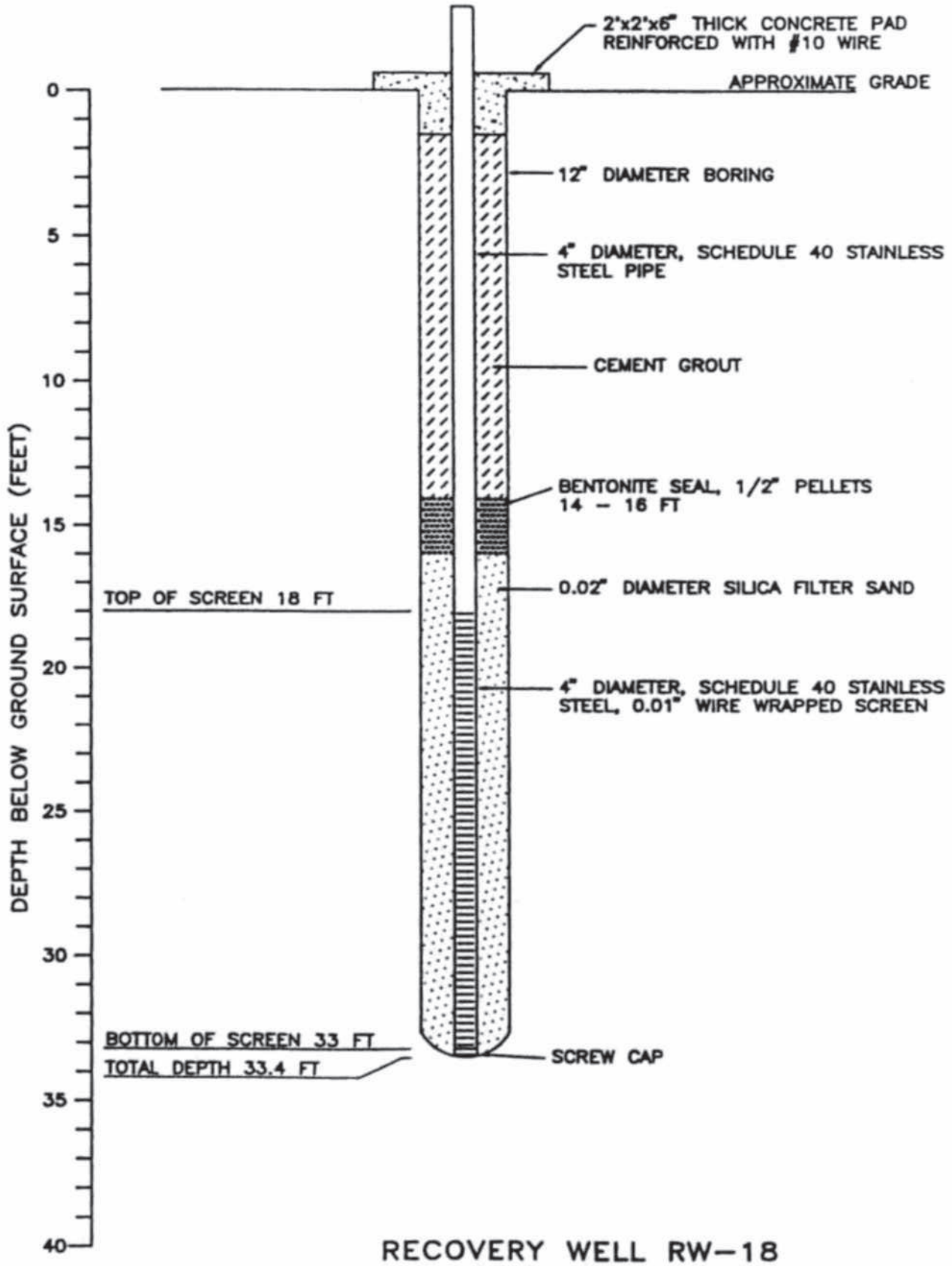
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No _____
Located on map _____

TDWR-0382 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW-18
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well Rw-18

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in – (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Date drilled Oct. 2, 1990
Completed Oct. 18, 1990

DIAMETER OF HOLE

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	33.4

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Undereamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval . . . from 14 ft. to 33.4 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	34	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	18	
4	N	SS Wire Wrapped	18	33	
		Screen w/cap			
		(Western Well)			

(Use reverse side if necessary)

CEMENTING DATA
Cemented from 0 ft. to 14 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

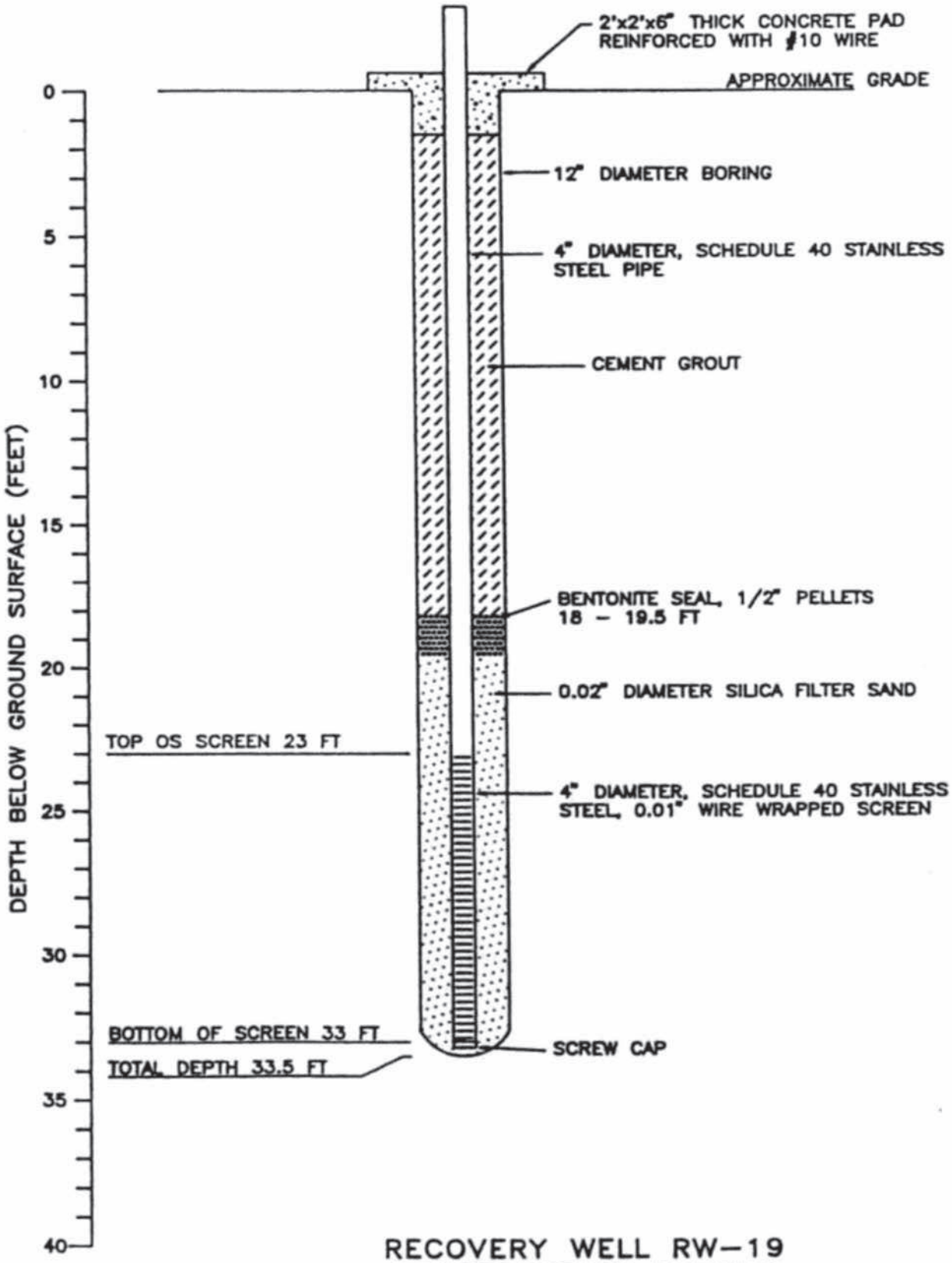
(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0382 (Rev. 9-27-82)

DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW–19
CONSTRUCTION DETAILS
AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Plate B-22

Recovery Well RW-17

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____

☒ See attached map.

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Diameter of Hole Dia. (in.)	From (ft.)	To (ft.)
12	Surface	33.5

Date drilled Sept. 25, 1990 Completed Oct. 18, 1990

7) BOREHOLE COMPLETION: ☐ Open Hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pac'
If Gravel Packed give interval . . . from 19.5 ft. to 33.5 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	33.5	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mgf., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	23	Sch40
4	N	SS Wire Wrapped	23	33	Sch40
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 18 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10.5 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP:
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

(Use reverse side if necessary)

12) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

13) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

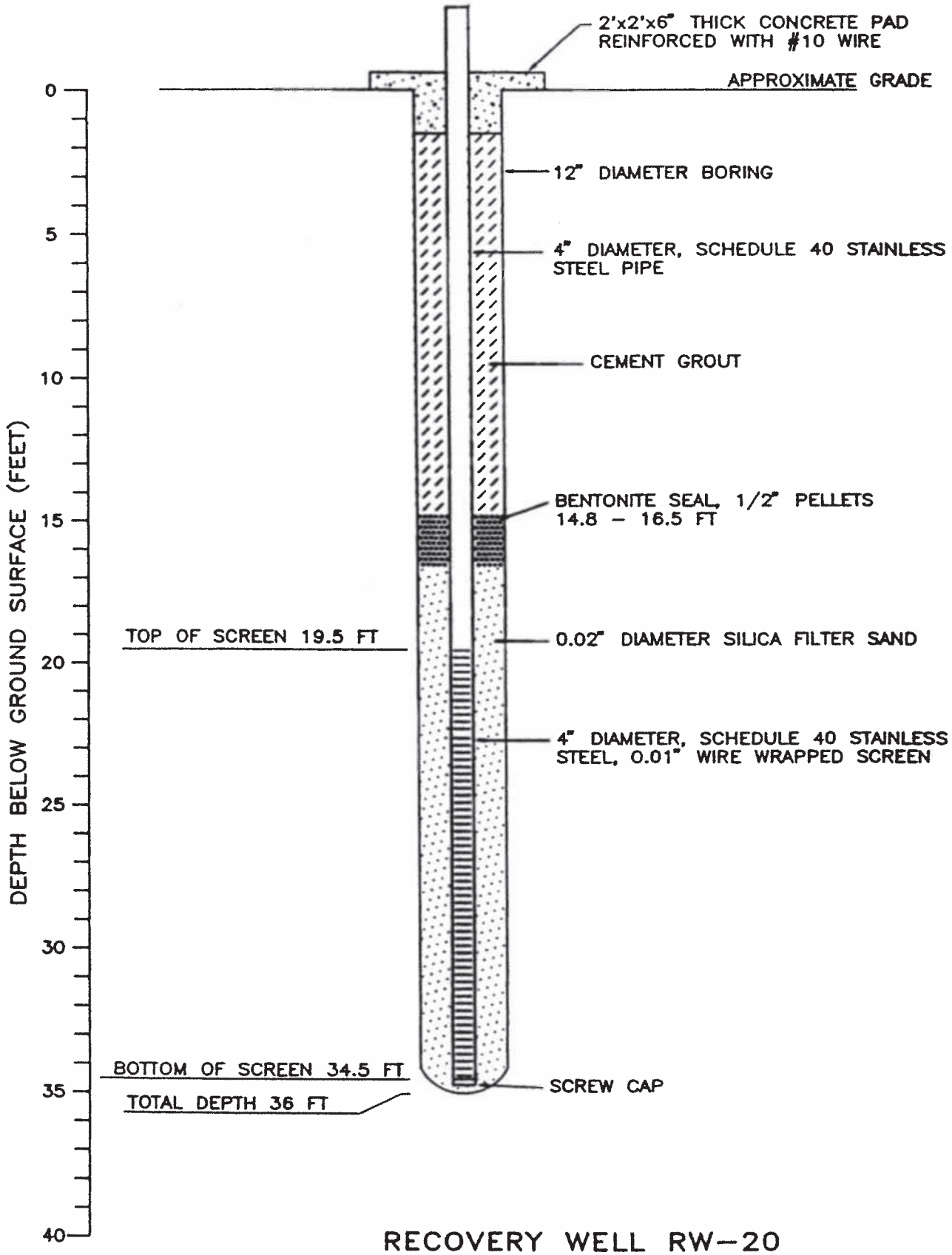
ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82) DEPARTMENT OF WATER RESOURCES COPY



RECOVERY WELL RW–20
CONSTRUCTION DETAILS

AIR PRODUCTS MANUFACTURING CORPORATION
CHEMICALS GROUP
PASADENA, TEXAS

Dames & Moore

Recovery Well RW-20

Send original copy by certified mail to the Texas Department of Water Resources P. O. Box 13087 Austin, Texas 78711

State of Texas
WATER WELL REPORT

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

Texas Water Well Drillers Board P. O. Box 13087 Austin, Texas 78711

1) OWNER Air Products Corporation (Name) Address 1423 Highway 225 (Street or RFD) Pasadena, Texas (City) 77087 (State) (Zip)

2) LOCATION OF WELL: County Harris 0 miles in - (N.E., S.W., etc.) direction from Pasadena, Texas (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal description:
Section No. _____ Block No. _____ Township _____
Abstract No. _____ Survey Name _____
Distance and direction from two intersecting section or survey lines _____
☒ See attached map.

3) TYPE OF WORK (Check): ☐ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☐ Public Supply ☐ Irrigation ☐ Test Well ☒ Other Recovery

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Driven ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Jetted ☐ Other _____

6) WELL LOG:

Dia. (in.)	From (ft.)	To (ft.)
12	Surface	35

Date drilled Sept. 26, 1990 Completed Oct. 18, 1990

7) BOREHOLE COMPLETION: ☐ Open hole ☐ Straight Wall ☐ Underreamed ☐ Gravel Packed ☒ Other Sand Pack
If Gravel Packed give interval ... from 16.5 ft. to 35 ft.

From (ft.)	To (ft.)	Description and color of formation material
0 -	20	Dark Gray and Orange Brown Silty Clay
20 -	30	Orange Brown Sandy and Silty Clay
30 -	35	Stiff Reddish Clay

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfr., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4	N	SS Blank Pipe	0	20.5	Sch40
4	N	SS Wire Wrapped	20.5	34.5	Sch40
		Screen w/cap			
		(Western Well)			

CEMENTING DATA
Cemented from 0 ft. to 14.8 ft.
Method used Tremie
Cemented by Driller (Company or Individual)

9) WATER LEVEL:
Static level 10.5 ft. below land surface Date 10/18/90
Artesian flow N/A gpm. Date N/A

10) PACKERS: Type Depth
None

11) TYPE PUMP: ☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☒ Other Low volume by Owner
Depth to pump bowls, cylinder, jet, etc., _____ ft.

12) WELL TESTS: None
☐ Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

(Use reverse side if necessary)

13) WATER QUALITY:
Did you knowingly penetrate any strata which contained undesirable water? ☐ Yes ☐ No
If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? _____ Depth of strata _____
Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

COMPANY NAME Reed & Morris Drilling, Inc. (Type or Print) Water Well Driller's License No. 2255

ADDRESS FM 1818 (Street or RFD) Diboll (City) Texas (State) 75941 (Zip)

(Signed) _____ (Licensed Water Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TDWR use only
Well No. _____
Located on map _____

TDWR-0392 (Rev. 5-27-82)

DEPARTMENT OF WATER RESOURCES COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-21

DRILLING AND SAMPLING INFORMATION

Boring Location: CORNER OF MAIN AND POWERLINE DRIVE
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 44.0
Logged By: S. INGRAM
Date Started: 6/2/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 6/2/92
Drill Rig Type: MUD ROTARY
Drilling Method:

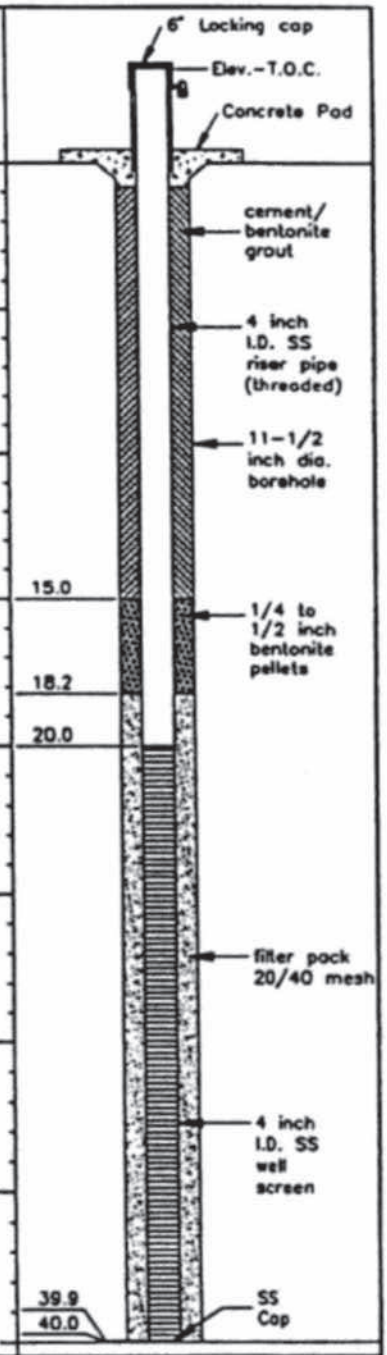
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.53 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): - Depth(ft.): - Type: -
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 20.0 Type: S.Stl.
   Centralizers-Type: Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 20.0-39.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 18.2-44.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL						
CLAY - firm; rootlets; black (5YR 2.5/1); moist		24		cl		
		12/24				
- dark reddish brown (5YR 3/2); grades to mottled gray and yellowish red		12/24				5
- 5YR 5/1 with 5YR 5/6		20/24				
coarser layer followed by firmer, redder (5YR 5/8), mottled clay; occasional pockets of black clay and gray clay		24/24				10
- red and gray mottling		17/24				
		24/24				
		24/24				15
		24/24				
- gray (5YR 5/1); grades into silt		24/24				
SILTY CLAY		24/24		cl		
SILT - crumbly; white calcareous material; light reddish brown (5YR 6/4)		24/24		ml		20
CLAY - firm; gray (5YR 5/1); yellow and red mottling; black inclusions at 20.8 feet; moist		24/24		cl		
- white calcareous material at 22.5 feet; 5YR 5/1 with 5YR 5/8		16/24				
		24/24				
- white calcareous material at 24.8 feet; darker red (2.5YR 4/8)		24/24				25
CLAYEY SILT - moderately friable; 5YR 6/4; moist		24/24		ml		
CLAY - 5YR 5/1 with 5YR 5/8		24/24		cl		
- alternating silt and clay layers from 27.5 to 28 feet		24/24				
- very firm; less silt; calcareous materials; red (2.5YR 4/8) with gray; slightly dry		24/24				
		24/24				30
- 2 inch soft layer		24/24				
		24/24				
		24/24				
- 7 inch soft layer		24/24				35
- very firm; friable; very dry		24/24				
- gray mottling		24/24				
SILT - friable; light reddish brown (5YR 6/4); moist		24/24		ml		
CLAY - firm; light reddish brown (5YR 6/4); moist		24/24		cl		
SANDY SILT - friable; light reddish brown (5YR 6/4); moist		24		ml		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A26 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-21

DRILLING AND SAMPLING INFORMATION

Boring Location: CORNER OF MAIN AND POWERLINE DRIVE
SURFACE ELEV.(FT): 24.6
TOTAL DEPTH(FT.): 44.0
Logged By: S. INGRAM
Date Started: 6/2/92
Drilled By: R. REED, REED AND MORRIS
Date Completed: 6/2/92
Drill Rig Type: MUD ROTARY
Drilling Method:

Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.53 Ref. Datum: MSL
1. Surf Casing-I.D.(in.): - Depth(ft.): - Type: -
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 20.0 Type: S.Stl.
   Centralizers-Type: Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 20.0-39.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 18.2-44.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
CLAY - very firm; dark red (2.5YR 3/6); dry		24 / 24		cl		0
- soft; light reddish brown (5YR 6/4); moist		24 / 24				
- very firm; dark red (2.5YR 3/6); gray mottling at 43.8 feet; dry						44.0
TOTAL DEPTH = 44.0 FEET						45, 50, 55, 60, 65, 70, 75, 80

INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A26 Sheet 2 of 2

Revised 7/7/92

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711 — Please use black ink.

Attention Owner Confidentiality
Privilege Notice on Reverse Side

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, TX 78711

1) OWNER: Air Products Manufacturing (Name) ADDRESS: 1423 Hwy 225 (Street or RFD) Pasadena (City) Texas (State) 77087 (Zip)

LOCATION OF WELL:
County Harris , ____ miles in (see attached map) (NE, SW, etc.) direction from ____ (Town)

Driller must complete the legal description below with distance from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ Legal Description:
Section No. ____ Block No. ____ Township ____ Abstract No. ____ Survey Name ____
Distance and direction from two intersecting section or survey lines ____
☒ SEE ATTACHED MAP

3) TYPE OF WORK (Check):
☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check):
☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-watering

5) DRILLING METHOD (Check):
☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other ____ ☐ Driven

6) Well Log:
Date Drilling:
Started: Jun 2, 19 92
Completed: Jun 2, 19 92

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
10.5	Surface	44

See attached diagram.

7) BOREHOLE COMPLETION: See attached well completion diagram.
☐ Open Hole ☐ Straight Wall ☐ Underreamed
☒ Gravel Packed ☐ Other ____
If Gravel Packed, give interval . . . from 18.2 ft. to 44.0 ft.

From (ft.)	To (ft.)	Description and color of formation material
RW-21		
See attached well log.		

(Use reverse side if necessary)

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia (in.)	New or Used	Steel, Plastic, etc. Perf., slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casting Screen
See attached well completion diagram.					

9) CEMENTING DATA (Rule 287.44(1)) See attached well completion diagram.
Cemented from 0 ft. to ____ ft. No of Sacks Used ____
____ ft. to ____ ft. No of Sacks Used ____
Method used ____
Cemented by Reed and Morris Drilling

10) SURFACE COMPLETION See attached well completion diagram.
☒ Specified Surface Slab Installed (Rule 287.44 (2) (A))
☐ Specified Steel Sleeve Installed (Rule 287.44 (3) (A))
☐ Pitless Adapter Used (Rule 287.44(3)(B))
☐ Approved Alternative Procedure Used (Rule 287.71)

13) TYPE PUMP: NONE
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☐ Other ____
Depth to pump bowls, cylinder, jet, etc., ____ ft.

14) WELL TESTS : N/A
Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Est.
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

15) WATER QUALITY: N/A (Environmental Investigation)
Did you knowingly penetrate any strata which contained undesirable constituents?
☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"
Type of water? ____ Depth of strata ____
Was a chemical analysis made? ☐ Yes ☐ No

11) WATER LEVEL: N/A
Static level ____ ft. below land surface. Date: ____
Artesian flow ____ gpm. Date: ____

12) Packers: Type Depth
None

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the logs(s) being returned for completion and resubmittal.

COMPANY NAME Reed and Morris Drilling (type or print) WELL DRILLER'S LICENSE NO. ____

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) TX (State) 75941 (Zip)

(Signed) Ray Reed (Licensed Well Driller) (Signed) ____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available

For TWC use only: Well No. ____ Located on map ____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-24

DRILLING AND SAMPLING INFORMATION

Boring Location: SW CORNER OF DRUM PAD AREA
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:

SURFACE ELEV.(FT): 25.4
TOTAL DEPTH(FT.): 76.0
Date Started: 4/22/92
Date Completed: 4/28/92

Sampling Method: SHELBY TUBE

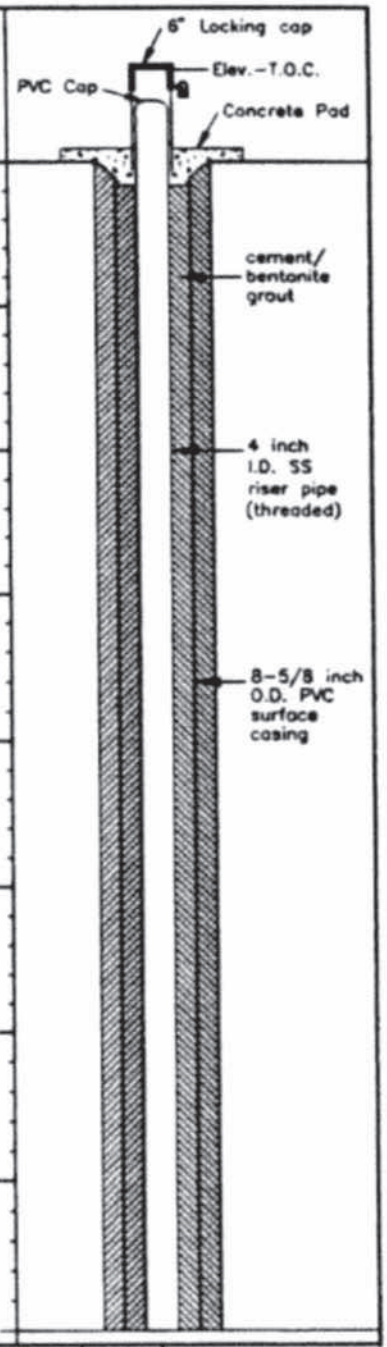
Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.44 Ref. Datum: MSL

1. Surf Casing-O.D.(in.)8-5/8 Depth(ft.): 48.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 55.0 Type: S.Stl.
   Centralizers-Type: - Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 55.0-74.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 53.3-76.0
   Conc. Pad Size: 2'x2'x6"

DESCRIPTION	SAMPLE TYPE SAMPLE NO.	IN. DRIVEN IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravel; granule to pebble sized; subangular; light gray						
SILTY CLAY - moderate to high plasticity; occasional shell fragments from 1 to 3 feet; dark to medium gray; moist to dry; no odor		12/24 0 24 6		ch		
SILTY SAND - slight plasticity; very fine grained sand; medium gray; moist; no odor		24 12 24 24		cl		5
SILTY CLAY - slight to moderate plasticity; granule sized pink calcareous concretions; yellowish brown with light gray mottling; moist to wet; no odor - high plasticity; less silt; occasional iron (red) concretions; occasional slickensides; fractures at approximately 33 degrees; reddish brown with light bluish gray mottling; occasionally black; moist - moderate to high plasticity; occasional white to pink calcareous concretions; light gray to reddish brown; occasionally yellowish brown; moist to wet		20/24 24 24 24 24 24 24 24 24		cl ch		10 15
SANDY SILTY CLAY - nonplastic to slightly plastic; very fine grained sand; light gray with occasional orangish brown mottling		?/24		cl		20
SILTY CLAY - moderate to high plasticity; occasional slickensides; frequent granule to pebble sized concretions and fillings (white); reddish brown to light gray; occasionally white; moist to dry; no odor		24 24 24 24		ch		
SILTY SAND - very fine grained; well sorted; compact; (abrupt contact); reddish brown with occasional light gray mottling; moist; no odor		14/24		ch		25
SANDY SILTY CLAY - slight to moderate plasticity; very fine grained sand; occasional mica; orangish to yellowish brown with light gray mottling; dry; no odor		16/24		ch		
CLAY - very plastic; occasionally slightly silty; no mica; occasional slickensides along 45 degree fractures; occasionally black along fillings; occasional light gray and black fillings; reddish to yellowish brown; moist to dry; no odor - occasional white concretions; moist to slightly moist; (at 36.5 feet) - no concretions; (at 38.5 feet)		24 24 24 24 24 24 24 24		ch		30 35
SILTY SAND - very fine grained sand; well sorted; light gray to brown; possible sweet odor		24 24				
SILTY CLAY - high plasticity; occasional silty, very fine grained sand lamination; occasional black fillings; reddish brown with occasional light gray mottling		20/24		ch		40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A25 Sheet 1 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TEXAS
Project Number: 448053

RECOVERY WELL RW-24

DRILLING AND SAMPLING INFORMATION

Boring Location: SW CORNER OF DRUM PAD AREA
Logged By: G. ROBERTSON
Drilled By: W. WRIGHT REED AND MORRIS
Drill Rig Type: MUD ROTARY
Drilling Method:

SURFACE ELEV.(FT): 25.4
TOTAL DEPTH(FT.): 76
Date Started: 4/22/92
Date Completed: 4/28/92

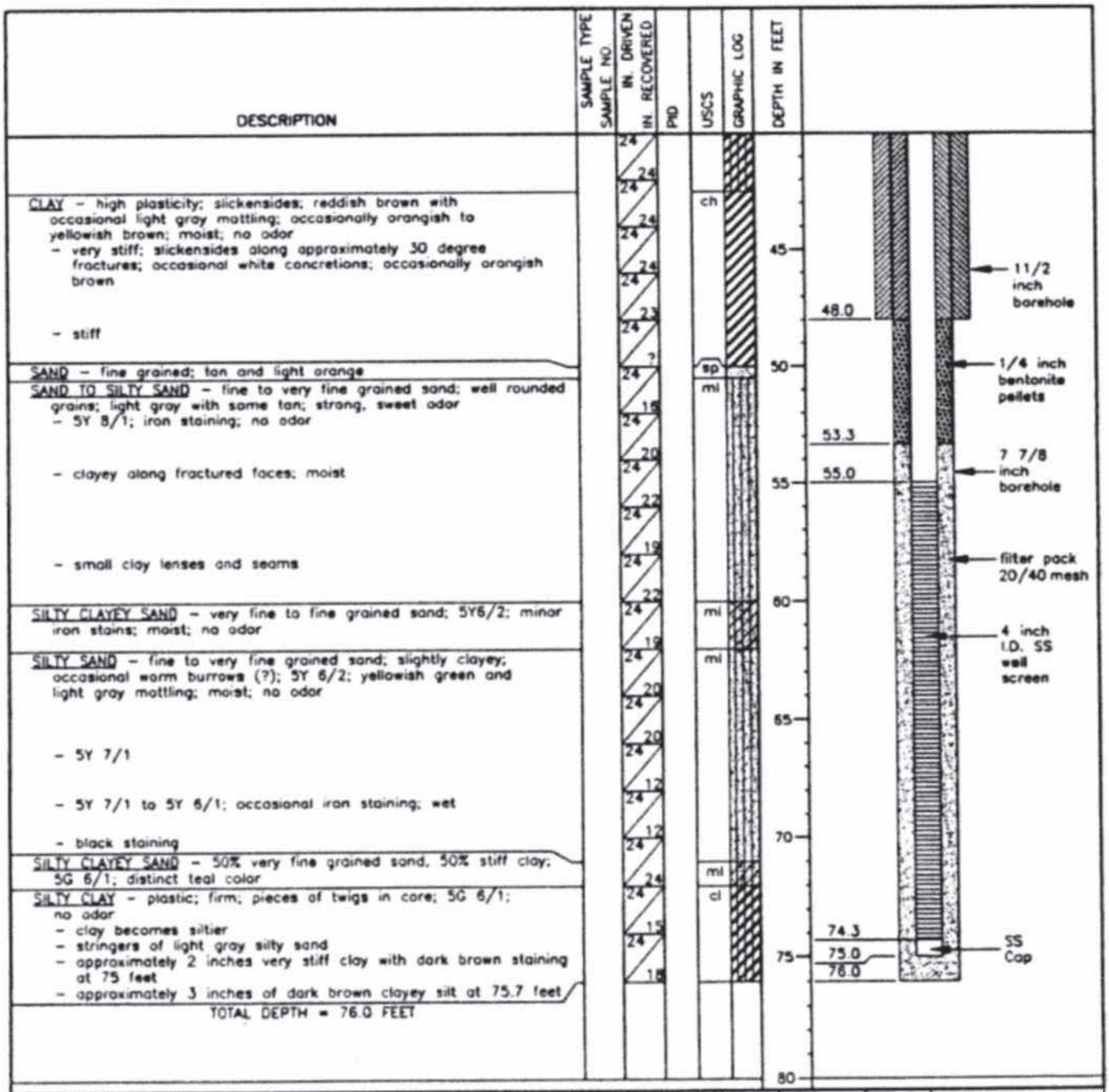
Sampling Method: SHELBY TUBE

Notes: SS = STAINLESS STEEL

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.44
Ref. Datum: MSL

1. Surf Casing-O.D.(in.)8-5/8 Depth(ft.): 48.0 Type: Sch 40 PVC
   Centralizers-Type: - Depths(ft.): -
2. Riser Pipe-I.D.(in.): 4 Depth(ft.): 55.0 Type: S.Stl.
   Centralizers-Type: - Depths(ft.): -
3. Screen Dia.(in.): 4 Type: Sch 40 S.Stl. WIRE WRAPPED
   Depth Interval(ft.): 55.0-74.9 Slot Size(in.): .010
   Centralizers-Type: - Depths(ft.): -
4. Filter Pack Type: Silica Sand Depth Interval(ft.): 53.3-76
   Conc. Pad Size: 2'x2'x6"



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	SGC 5/22/92	DRAFT CHK	SGC 7/3/92	PROJ. CHK	KAH 7/3/92	APPRV. BY	KAH 7/3/92	DWG. NO.	448053-A25 Sheet 2 of 2

Revised 7/7/92

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-25

DRILLING AND SAMPLING INFORMATION

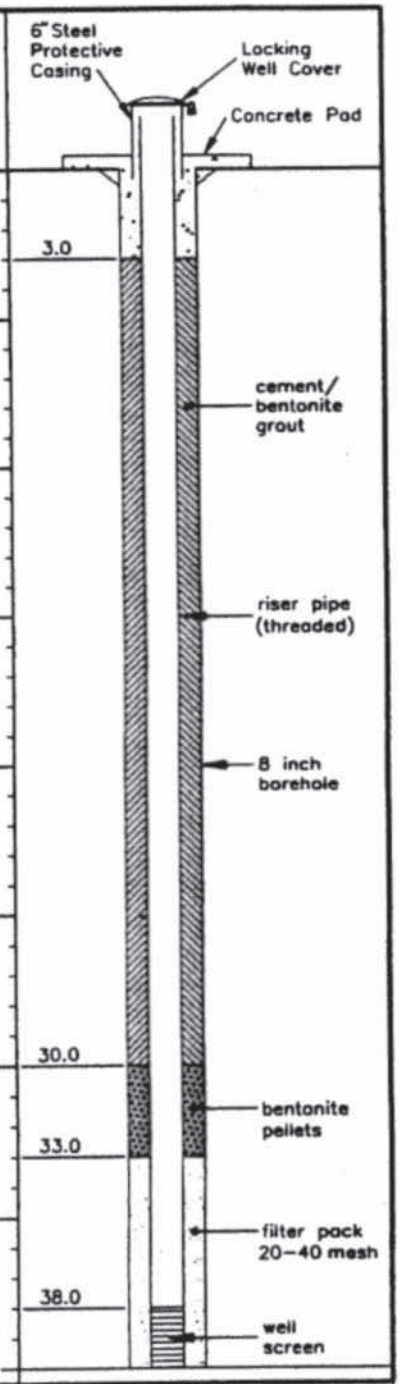
Boring Location: SOUTH OF DRUM PAD
WEST OF FORMER EFFLUENT POND
SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 48.1
Logged By: M. NEWTON
Date Started: 6/22/95
Drilled By: W. WRIGHT
Date Completed: 8/4/95
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 4" WET ROTARY
REAM TO 8" TO SET WELL
Sampling Method: 2' SHELBY TUBE (ST)

WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.42
Ref. Datum: MSL
1. Riser Pipe-I.D.(in.): 4
Depth(ft.): 38.0 Type: Sch 40 S.Stl
Centralizers-Type:
Depths(ft.):
2. Screen Dia.(in.): 4
Type: Sch 40 S.Stl Wire Wrapped
Depth Interval(ft.): 38.0-48.0
Slot Size(in.): .010
Centralizers-Type:
Depths(ft.):
3. Filter Pack Type: Silica Sand
Depth Interval(ft.): 33.0-48.0
Conc. Pad Size: 4'x4'x6"

Notes:

DESCRIPTION	SAMPLE TYPE	SAMPLE NO.	IN. DRIVEN	IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
FILL - gravels; shells; white to gray	ST		24					0
CLAY - 10% to 15% fine grained sand; highly plastic; firm; damp; dark grayish brown (10YR-4/2); yellow to tan mottling; traces of black staining	ST		24	10		ch		10
- 20% to 25% fine sands; yellowish red mottled clay; 10% to 15% greenish clay	ST		24	24		sc		15
CLAYEY SAND - fine grained sand; 25% to 30% fines; well sorted; angular; compact; dry; light greenish gray (1-7/10)						ch		
CLAY - 10% to 15% fine grained sand; highly plastic; firm; damp; dark grayish brown (10YR-4/2); yellow to tan mottling; traces of black staining								
CLAYEY SAND - fine to medium grained sand; 15% to 20% fines; moderately sorted; firm; moist; light yellowish brown (2.5YR-6/6)	ST		24	24		sc		20
SAND WITH SILT - fine grained sand; 10% to 15% fines; firm to hard; well sorted; moist; reddish yellow (7.5YR-6/6); greenish mottled clayey sand	ST		24	24		sm		25
CLAY WITH SAND - 15% to 20% fine grained sand; moderately plastic; stiff; wet; dark red (2.5YR-4/6); green mottled clay with nodules and dendrites; no odor	ST		24	24		cl		30
SANDY CLAY - 20% to 25% fine grained sand; moderately plastic; hard; wet	ST		24	24		cl		35
								40



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/19/95	DRAFT CHK	9/1/95	PROJ. CHK	9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A12 Sheet 1 of 2

Client: AIR PRODUCTS
Project Name: AIR PRODUCTS
Project Location: PASADENA, TX.
Project Number: 448339

RECOVERY WELL RW-25

DRILLING AND SAMPLING INFORMATION

Boring Location: SOUTH OF DRUM PAD
WEST OF FORMER EFFLUENT POND
Logged By: M. NEWTON
Drilled By: W. WRIGHT
REED ENVIRONMENTAL
Drill Rig Type: FAILING 1250
Drilling Method: 4" WET ROTARY
REAM TO 8" TO SET WELL
Sampling Method: 2' SHELBY TUBE (ST)

SURFACE ELEV.(FT):
TOTAL DEPTH(FT.): 48.1
Date Started: 6/22/95
Date Completed: 8/4/95

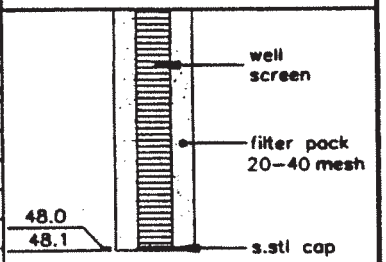
WELL COMPLETION DATA

Elev-Top of Casing(ft.): 27.42 Ref. Datum: MSL

1. Riser Pipe-I.D.(in.): 4 Depth(ft.): 38.0 Type: Sch 40 S.Stl
   Centralizers-Type: Depths(ft.):
2. Screen Dia.(in.): 4 Type: Sch 40 S.Stl Wire Wrapped
   Depth Interval(ft.): 38.0-48.0 Slot Size(in.): .010
   Centralizers-Type: Depths(ft.):
3. Filter Pack Type: Silica Sand Depth Interval(ft.): 33.0-48.0
   Conc. Pad Size: 4'x4'x6"

Notes:

DESCRIPTION	SAMPLE TYPE / SAMPLE NO.	IN. DRIVEN / IN. RECOVERED	PID	USCS	GRAPHIC LOG	DEPTH IN FEET
SILTY SAND - fine grained sand; 20% to 30% fines; well sorted; firm; wet; dark red (2.5YR-4/6); green mottled sands and clays; trace of odors - silts interbedded with silty sands (41.5-42.0')	ST	24/24		sm		45
- fine to medium grained sand; 10% to 15% fines; firm; moderately well sorted; subangular; wet; greenish gray (6/10Y); traces of fine black mafic rock fragments - increasing clay; moderately plastic; trace of odor	ST	24/24				
TOTAL DEPTH = 48.1 FEET						48.0 / 48.1, 50, 55, 60, 65, 70, 75, 80



INTERNATIONAL TECHNOLOGY CORPORATION	DRAFT BY	RPS 7/19/95	DRAFT CHK	PES 7/11/95	PROJ. CHK	MK 9/1/95	APPRV. BY	9/1/95	DWG. NO.	448339-A12 Sheet 2 of 2

Send original copy by certified mail to: Texas Water Commission, P.O. Box 13087, Austin, Texas 78711

Please use black ink.

ATTENTION OWNER: *Confidentiality Privilege Notice on Reverse Side*

State of Texas
WELL REPORT

Texas Water Well Drillers Board
P.O. Box 13087
Austin, Texas 78711

1) OWNER Air Products (Name) ADDRESS 1423 Hwy. 225 (Street or RFD) Pasadena (City) Tx. (State) 77506 (Zip)

2) LOCATION OF WELL: County Harris . 1 miles in E (NE, SW, etc.) direction from Pasadena (Town)

Driller must complete the legal description below with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.

☐ LEGAL DESCRIPTION:

Section No. _____ Block No. _____ Township _____ Abstract No. _____ Survey Name _____

Distance and direction from two intersecting section or survey lines _____

☐ SEE ATTACHED MAP

3) TYPE OF WORK (Check): ☒ New Well ☐ Deepening ☐ Reconditioning ☐ Plugging

4) PROPOSED USE (Check): ☐ Domestic ☐ Industrial ☒ Monitor ☐ Public Supply ☐ Irrigation ☐ Test Well ☐ Injection ☐ De-Watering

5) DRILLING METHOD (Check): ☒ Mud Rotary ☐ Air Hammer ☐ Jetted ☐ Bored ☐ Air Rotary ☐ Cable Tool ☐ Other _____ ☐ Driven

6) WELL LOG:

Date Drilling: Started 6/22 19 95 Completed _____ 19 __

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
8"	Surface	48'

7) BOREHOLE COMPLETION:

☐ Open Hole ☐ Straight Wall ☐ Underreamed

☒ Gravel Packed ☐ Other _____

If Gravel Packed give interval ... from 36' ft. to 48' ft.

From (ft.)	To (ft.)	Description and color of formation material
RW-25		Boring Log Attached

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.) From	Setting (ft.) To	Gage Casing Screen
4"	N	Stainless Steel	0	38'	
4"	N	Stainless Screen	38'	48'	.010

(Use reverse side if necessary)

9) CEMENTING DATA [Rule 287.44(1)]

Cemented from 0 ft. to 36' ft. No. of Sacks Used bulk

_____ ft. to _____ ft. No. of Sacks Used _____

Method used Pump/Tremi

Cemented by Reed Environmental Drilling

10) SURFACE COMPLETION

☒ Specified Surface Slab Installed [Rule 287.44(2)(A)]

☐ Specified Steel Sleeve Installed [Rule 287.44(3)(A)]

☐ Pitless Adapter Used [Rule 287.44(3)(B)]

☐ Approved Alternative Procedure Used [Rule 287.71]

11) WATER LEVEL:

Static level _____ ft. below land surface Date _____

Artesian flow _____ gpm. Date _____

12) PACKERS: Type Depth

13) TYPE PUMP:

☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____

Depth to pump bowls, cylinder, jet, etc., _____ ft.

14) WELL TESTS:

Type Test: ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated

Yield: _____ gpm with _____ ft. drawdown after _____ hrs.

15) WATER QUALITY:

Did you knowingly penetrate any strata which contained undesirable constituents?

☐ Yes ☐ No If yes, submit "REPORT OF UNDESIRABLE WATER"

Type of water? _____ Depth of strata _____

Was a chemical analysis made? ☐ Yes ☐ No

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME Reed Environmental Drilling (Type or print) WELL DRILLER'S LICENSE NO. 2255W

ADDRESS P.O. Box 282 (Street or RFD) Diboll (City) Tx. (State) 75941 (Zip)

(Signed) Ray Reed (Licensed Well Driller) (Signed) _____ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.

For TWC use only: Well No. _____ Located on map _____

WWD-012 (Rev. 05-18-90)

TEXAS WATER COMMISSION COPY

ATTACHMENT – XI.A.4.j.1

TIER 1 EXCLUSION CRITERIA CHECKLIST

TIER 1: Exclusion Criteria Checklist

This exclusion criteria checklist is intended to aid the person and the TNRCC in determining whether or not further ecological evaluation is necessary at an affected property where a response action is being pursued under the Texas Risk Reduction Program (TRRP). Exclusion criteria refer to those conditions at an affected property which preclude the need for a formal ecological risk assessment (ERA) because there are incomplete or insignificant ecological exposure pathways due to the nature of the affected property setting and/or the condition of the affected property media. This checklist (and/or a Tier 2 or 3 ERA or the equivalent) must be completed by the person for all affected property subject to the TRRP. The person should be familiar with the affected property but need not be a professional scientist in order to respond, although some questions will likely require contacting a wildlife management agency (i.e., Texas Parks and Wildlife Department or U.S. Fish and Wildlife Service). The checklist is designed for general applicability to all affected property; however, there may be unusual circumstances which require professional judgment in order to determine the need for further ecological evaluation (e.g., cave-dwelling receptors). In these cases, the person is strongly encouraged to contact TNRCC before proceeding.

Besides some preliminary information, the checklist consists of three major parts, each of which must be completed unless otherwise instructed. PART I requests affected property identification and background information. PART II contains the actual exclusion criteria and supportive information. PART III is a qualitative summary statement and a certification of the information provided by the person. Answers should reflect existing conditions and should not consider future remedial actions at the affected property. Completion of the checklist should lead to a logical conclusion as to whether further evaluation is warranted. Definitions of terms used in the checklist have been provided and users are strongly encouraged to familiarize themselves with these definitions before beginning the checklist.

Name of Facility: Air Products, L.P.
Former Acid Spill Impoundment

Affected Property Location: 1423 Highway 225
Pasadena, TX 77506

Mailing Address: P.O. Box 3326
Pasadena, TX 77501-3326

TNRCC Case Tracking #s:

Solid Waste Registration #s: HW-50134 (Hazardous Waste Permit No.)
30317 (Industrial Solid Waste Registration No.)

Voluntary Cleanup Program #: NA

EPA I.D. #s: TXD990757486

Definitions - omitted for brevity

PART I. Affected Property Identification and Background Information

1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

The facility is a chemical manufacturing plant that manufactures dinitrotoluene, toluenediamine, nitric acid, and hydrogen. The release was from the former Acid Spill Impoundment (NOR 02), formerly an earthen impoundment built in 1972 and closed in 1987. The unit has since been converted to a double lined impoundment used to manage acid spills and non-process area storm water runoff.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area. Indicate attachments:

☒ Topo map ☐ Aerial photo ☒ Other Photos of Drainageway

A topographic map is included as figure D-1. Photographs of the Drainageway are included as Figures D-2 and D-3

2) Identify environmental media known or suspected to contain chemicals of concern (COCs) at the present time. Check all that apply:

Known/Suspected COC Location	Based on sampling data?	
☐ Soil ≤ 5 ft below ground surface	☒ Yes	☐ No
☒ Soil >5 ft below ground surface	☒ Yes	☐ No
☒ Groundwater	☒ Yes	☐ No
☐ Surface Water/Sediments	☐ Yes	☒ No

Explain (previously submitted information may be referenced):

The initial assessment of the former Acid Spill Impoundment (ASI) was described in the July 1985 Part B Permit application and revision of November 1989. The closure of the ASI was described in a report entitled Acid Spill Pond– Certification of Final Closure by IT Corporation, November 1988. The history of the ASI is summarized in Volume 3 of the April 2000 Part B RCRA Permit Renewal Application and Major Amendment by Geomatrix Consultants, Inc.

3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs via surface water runoff, air deposition, groundwater seepage, etc. Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:

a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; and

b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

The nearest surface water body is **30** feet from the affected property (PCLE Zone) and is named **Harris County Drainage Ditch No. G110-00-00**. The water body is best described as a:

☐ freshwater stream: _____ perennial (has water all year)
_____ intermittent (dries up completely for at least 1 week a year)
_____ intermittent with perennial pools

☐ freshwater swamp/marsh/wetland

☐ saltwater or brackish marsh/swamp/wetland

☐ reservoir, lake, or pond; approximate surface acres:

☒ drainage ditch (perennial)

☐ tidal stream ☐ bay ☐ estuary

☐ other; specify

Is the water body listed as a State classified segment in Appendix C of the current Texas Surface Water Quality Standards; "307.1 - 307.10?

☐ Yes Segment # _____ Use Classification:

☒ No

If the water body is not a State classified segment, identify the first downstream classified segment.

Name: **Houston Ship Channel/Buffalo Bayou Tidal**

Segment #: **1007**

Use Classification: **Navigation/Industrial Water Supply**

As necessary, provide further description of surface waters in the vicinity of the affected property:

The surface water exists in a Harris County drainage ditch. Upstream from the Air Products facility, the ditch is concrete-lined and drains a large urban area of the City of Pasadena, Texas. Downstream from the APLP facility, the ditch is again concrete-lined and flows downstream to Cotton Patch Bayou and thence to Segment 1007 of Houston Ship Channel/Buffalo Bayou Tidal waters of the San Jacinto River Basin. The Ditch is subject to dredging to maintain its flow capacity.

PART II. Exclusion Criteria and Supportive Information

Subpart A. Surface Water/Sediment Exposure

1) Regarding the affected property where a response action is being pursued under the TRRP, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, groundwater seepage, etc.? Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:

a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; and

b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

? Yes ? No

Explain:

It is not clear at this time if the affected groundwater, as defined by TRRP, extends into the area immediately up gradient from the Drainage Ditch. One groundwater sample, collected from a temporary well in the Shallow Zone at this location, contained only low (estimated J-flag) concentrations of the chemicals of concern. One constituent (o-Toluidine) was estimated at a concentration that only slightly exceeded its PCL (3.9 ug/L versus PCL of 3.8 ug/L). A permanent groundwater monitoring well will be installed and additional groundwater sampling and analysis will be performed.

If the answer is Yes to Subpart A above, the affected property does not meet the exclusion criteria. However, complete the remainder of Part II to determine if there is a complete and/or significant soil exposure pathway, then complete PART III - Qualitative Summary and Certification . If the answer is No, go to Subpart B.

Subpart B. Affected Property Setting

In answering a yes to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). (May require consultation with wildlife management agencies.)

1) Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, other surface cover or structure, or otherwise disturbed ground?

☒ Yes ☐ No

Explain:

The area around the former Acid Spill Impoundment is characterized by the lined impoundment, chemical storage tanks, roadways, and ground covered by gravel or shell material. There is no undisturbed natural ground in the area. The Drainage Ditch is a man-made channelized drainage way that largely drains urban Pasadena (Figure D-1). None of the area would be considered to be natural terrain that would furnish valuable habitat, foraging area, or refuge for an endangered species (Figures D-2, D-3).

If the answer to Subpart B above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subparts C and D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart B above is No, go to Subpart C.

Subpart C. Soil Exposure

1) Are COCs which are in the soil of the affected property solely below the first 5 feet beneath ground surface **or** does the affected property have a physical barrier present to prevent exposure of receptors to COCs in surface soil?

☒ Yes ☐ No

Explain:

All COCs in soils at this former impoundment are residuals contained within the soil, located beneath the former impoundment. During closure of the impoundment, waste residues and underlying soils were removed to a depth of two feet below the bottom and sides of the impoundment, and the bottom of the excavation was at a depth of approximately 12 feet below grade. COCs were detected in soil samples from the bottom of the excavation. The site is now occupied by a rainwater collection basin which also serves to contain spills from any tank ruptures which might occur on the adjacent acid tank farm.

If the answer to Subpart C above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subpart D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart C above is No, proceed to Subpart D.

Subpart D. *De Minimus* Land Area

In answering Yes to the question below, it is understood that all of the following conditions apply:

The affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (Will likely require consultation with wildlife management agencies.)

Similar but unimpacted habitat exists within a half-mile radius.

The affected property is not known to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (Will likely require consultation with wildlife management agencies.)

There is no reason to suspect that the COCs associated with the affected property will migrate such that the affected property will become larger than one acre.

1) Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all of the conditions above?

☐ Yes ☐ No

Explain how conditions are met/not met: NA

If the answer to Subpart D above is Yes, then no further ecological evaluation is needed at this affected property, assuming the answer to Subpart A was No. Complete PART III - Qualitative Summary and Certification. If the answer to Subpart D above is No, proceed to Tier 2 or 3 or comparable ERA.

PART III. Qualitative Summary and Certification (Complete in all cases.)

Attach a brief statement (not to exceed 1 page) summarizing the information you have provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet the exclusion criteria. The person should make the initial decision regarding the need for further ecological evaluation (i.e., Tier 2 or 3) based upon the results of this checklist. After review, TNRCC will make a final determination on the need for further assessment. Note that the person has the continuing obligation to re-enter the ERA process if changing circumstances result in the affected property not meeting the Tier 1 exclusion criteria.

Completed by: Michael E. Bentley *(Typed/Printed Name)*

Senior Hydrogeologist *(Title)*

July 9, 2003 *(Date)*

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.

Stephen T. Crowley, III *(Typed/Printed Name of Person)*

Plant Manager *(Title of Person)*

(original signed) *(Signature of Person)*

(July 13, 2003) *(Date Signed)*

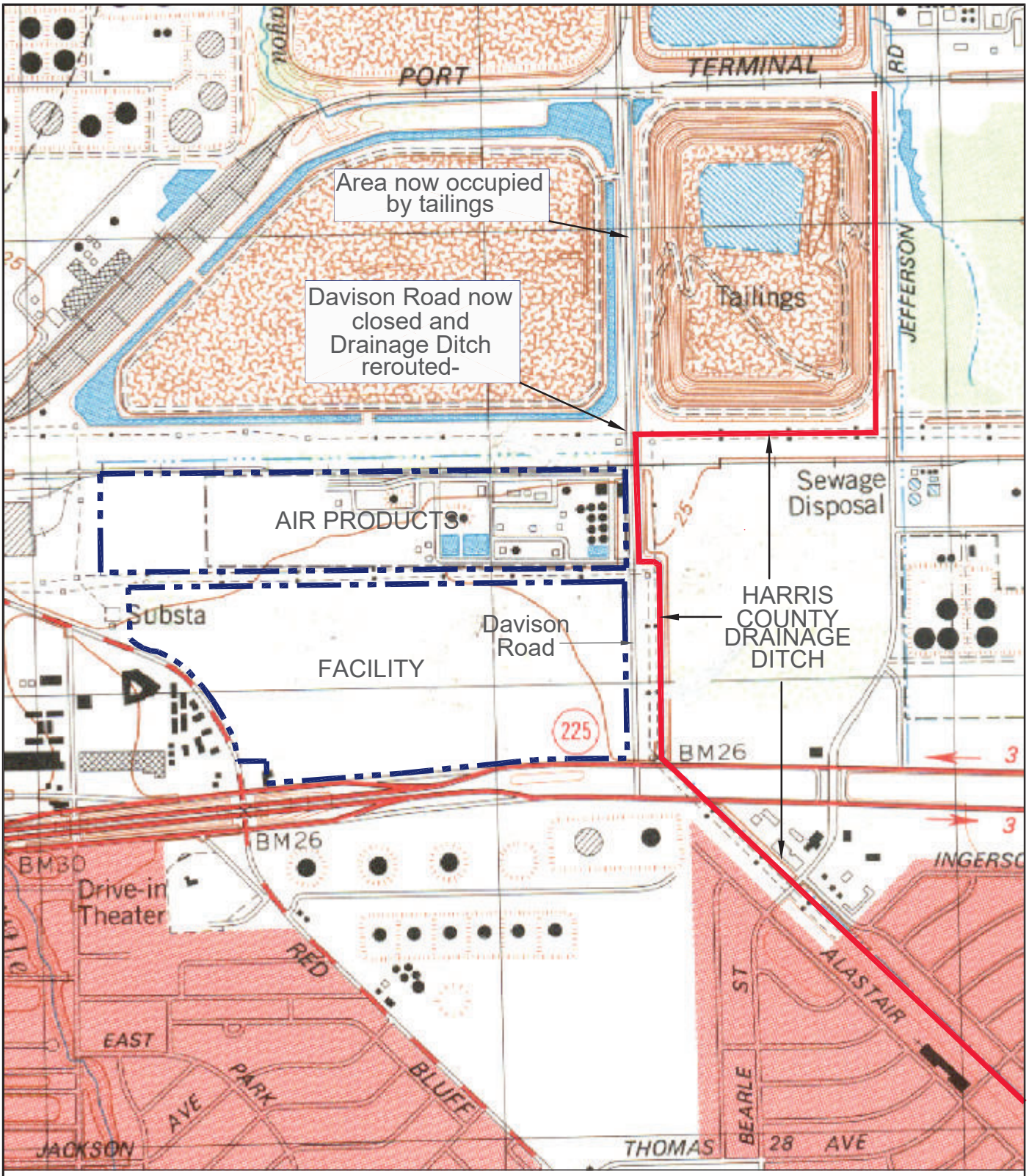
Tier 1 Exclusion Criteria Checklist
ECOLOGICAL RISK ASSESSMENT QUALITATIVE SUMMARY

The former Acid Spill Impoundment (ASI) was closed in 1988 and waters previously managed by the ASI were routed directly to the plant's wastewater treatment system. During closure of the unit, the ASI's 2-foot thick clay liner was removed from the four sides and the base of the unit, and an additional 1 to 2 feet of soil was removed from the base of the unit. Residual chemicals of concern (COC) were identified in samples of soil collected from the bottom of the excavation, and groundwater contamination was later detected in shallow groundwater in the vicinity of the closed unit. Subsequent investigations in this area have been conducted in an effort to delineate the extent of affected groundwater in the underlying water-bearing zones.

The locations of the COCs in soils are such that they do not pose a threat to ecological life. The onsite ground surface in this area is covered by the synthetic liner of the reconstructed impoundment and the surrounding clean fill materials of rock and shell. The only pathway through which COCs from this unit could reach ecological receptors would be the discharge of affected groundwater to surface waters. The nearest surface water body downgradient from the closed ASI is a man-made Drainage Ditch belonging to Harris County. The Ditch flows parallel to the eastern boundary of the facility and is separated from the facility by a 60-foot wide strip of land belonging to Harris County and currently occupied by Davison Road. The Drainage Ditch is an artificial drainage channel extending southward (upstream) into the urbanized area of the City of Pasadena. Downstream approximately one mile, the Ditch joins Cotton Patch Bayou after passing through a heavily industrialized area. Cotton Patch Bayou discharges to Buffalo Bayou (the Houston Ship Channel). The ditch is concrete lined in its upstream areas, except for the short segment adjacent to the APLP facility.

Groundwater within the Shallow Zone (SZ - from the ground surface to a depth of 50 feet) is affected by COCs at concentrations above the residential Protective Concentration Limits (PCL) in an area extending off site to the south and east of the former unit. Potentiometric levels in the SZ are near the level of the bottom of the channel of the Drainage Ditch. The lateral extent of COCs has historically been delineated separately in the upper and lower transmissive portions of the SZ. Affected groundwater in the upper SZ, as defined by TRRP, does not extend beyond the eastern boundary of the facility. COCs in the lower SZ have been found to exist east of that line and have been detected in samples collected on Harris County property in locations along the west side of the Davison Road pavement. However, groundwater samples collected from the SZ along the east side of Davison Road and adjacent to the Ditch (HP68 and HP70) did not confirm concentrations of the COCs that exceeded the residential-based Tier 1 PCL. One constituent (o-Toluidine) was estimated at a concentration that only slightly exceeded its PCL (3.9 ug/L versus 3.8 ug/L PCL). This sample may contain both o-Toluidine and p-Toluidine combined at a total estimated concentration of 3.9ug/L.

Since the samples collected near the zone of groundwater discharge to the Ditch did not confirm whether the affected property extends into this area, COCs in affected property may not be present in the zone of discharge. APLP will attempt to resolve these questions by installing permanent monitoring well(s) in this area and will work to improve the analysis for the Toluidine isomers.



Map Source: USGS 7.5 Min. Quad Sheet PASADENA, TEXAS, 1982.

N

0 1000

APPROXIMATE SCALE (FEET)

EXPLANATION

PROPERTY BOUNDARY



QUADRANGLE LOCATION

amec

REGIONAL TOPOGRAPHIC MAP

PREPARED FOR

AIR PRODUCTS, L.P. – PASADENA, TEXAS

Project No. 4487

Figure No. D–1

4487A82.DWG



VIEW OF DRAINAGE DITCH AT CULVERT
BENEATH HIGHWAY 225 – LOOKING SOUTH



VIEW OF DRAINAGE DITCH NEAR CULVERT
BENEATH HIGHWAY 225 – LOOKING NORTH

amec

PHOTOS OF HARRIS COUNTY DRAINAGE DITCH
PREPARED FOR
AIR PRODUCTS, L.P.
PASADENA, TEXAS

Project No.
4487

Figure No.
D–2

4487A80.DWG



VIEW OF DRAINAGE DITCH NEAR NORTH END OF
DAVISON ROAD – LOOKING SOUTH



VIEW OF DRAINAGE DITCH DIVERSION STRUCTURE AROUND AGRIFOS
TAILINGS PILES – AT NORTH END OF DAVISON ROAD

amec

PHOTOS OF HARRIS COUNTY DRAINAGE DITCH
PREPARED FOR
AIR PRODUCTS, L.P.
PASADENA, TEXAS

Project No.
4487

Figure No.
D–3

4487A81.DWG

ATTACHMENT – XI.A.4.j.2

TIER 2 EXCLUSION CRITERIA CHECKLIST

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Attachment XI.A.4.j.2
Tier 2 Screening Level Ecological Risk Assessment
Former Acid Spill Impoundment
Air Products LLC
Pasadena, Texas

1.0 PROBLEM FORMULATION

The former Acid Spill Impoundment (ASI) located at the Air Products, L.P. Facility (the Site) in Pasadena, Texas was closed in 1988 and waters previously managed in the ASI were routed directly to the Site wastewater treatment system. During closure of the ASI, a 2-foot thick clay liner was removed from the four sides and base of the unit, and an additional 1 to 2 feet of soil was removed beneath the base clay liner. Residual chemicals of concern (COCs) were detected in soil from the bottom of the excavation, and in groundwater near the closed ASI. An Affected Property Assessment (APA) performed by Geomatrix Consultants, Inc. (GCI) for the ASI has identified several COCs in groundwater within the uppermost groundwater-bearing unit (Shallow Zone, or SZ). Detections of COCs in a monitoring well (MW69) adjacent to a potential groundwater discharge area has indicated that a Tier 2 Screening Level Ecological Risk Assessment (SLERA) is appropriate as a next step to evaluate groundwater-to-surface water and groundwater-to-sediment pathways. A Tier 1 Exclusion Criteria Checklist (Semiannual Report, July 2003) prepared for the APA indicated that COCs in soils do not pose a threat (no complete pathways) to ecological receptors.

The subject of this SLERA is the potential discharge area for shallow groundwater, a Harris County Flood Control ditch (HCFCD No. G110-00-00) located east of the Site boundary. The waste constituents detected in well MW69, located adjacent to the ditch, as well as other COCs listed in Compliance Plan CP-50134 have been evaluated herein as potentially affecting surface water and/or sediment (see Section 2.0).

The Texas Risk Reduction rule (§350.77(c)) establishes ten minimum requirements to be satisfied when completing a Tier 2 SLERA (Texas Commission on Environmental Quality, or TCEQ, 2001). Within these ten requirements are four potential exit points from the SLERA process that leads to development of ecological PCLs (see Figure 3-1 in TCEQ, 2001). The first requirement, and potential exit point, is to “use affected property concentrations of non-bioaccumlative COCs to compare to established ecological benchmarks and/or use approved methodologies to develop benchmarks to determine potential effects and to eliminate COCs that do not pose unacceptable ecological risk (if all COCs are eliminated at this point, the ecological risk assessment process ends).” Ecological benchmarks are published standards or guidelines that are intended to be concentrations below which adverse ecological effects should not occur. Benchmarks also may be established during a SLERA based on scientific studies in literature. The benchmarks are risk based exposure levels (RBELs) determined through bioassay studies using fish, shrimp, benthic macroinvertebrates, and other critical organisms. The results are usually reported as LC_{50}

concentrations, or the concentration of a COC that results in mortality for 50% of the exposed organisms. The following discussions address the first SLERA requirement.

2.0 ANALYSIS

2.1 IDENTIFICATION AND EVALUATION OF BIOACCUMULATIVE AND NON-BIOACCUMULATIVE COCS

Groundwater COCs considered for inclusion in the SLERA were those constituents listed in the Groundwater Protection Standards of Table III of Compliance Plan CP-50134. All organic compounds on this list that have been detected in groundwater at any time between the ASI and the drainage ditch were retained for further evaluation. Neither of the metals on the list (Strontium and Zinc) has ever been measured in groundwater in this area at a concentration above its facility background, indicating there has been no release of Strontium or Zinc from the former ASI. The metals were not retained for further evaluation of surface water or sediment.

To determine the list of COCs to be included in the quantitative ecological evaluations, groundwater samples from the assumed point of exposure (POE) to surface water (monitoring well MW69 and temporary groundwater sampling points HP68 and HP70) were analyzed for the retained compounds. The COCs detected in these POE groundwater samples were utilized in the evaluation of potential ecological effects on surface waters. All of the retained Table III compounds, whether detected or not in the POE groundwater samples, were utilized for the evaluation of exposures to sediment.

The COCs detected at the assumed point of exposure include 2,4-dinitrotoluene (2,4-DNT), 2,6-dintrotoluene (2,6-DNT), o-mononitrotoluene (o-MNT), m-mononitrotoluene (m-MNT), p-mononitrotoluene (p-MNT), 5-nitro-o-toluidine (5-NOT), and isomers of toluidine. Water from MW69 was sampled in October 2005 and analyzed for aroclor 1242 (a PCB), which was not detected (see January 2006 Semiannual Report). Data for both p-toluidine and o-toluidine are used in these evaluations since laboratory analyses have not provided concentrations for the individual isomers of toluidine. The detected COCs were included, as described above, in the evaluation of surface water. The COCs considered for the sediment evaluation included all the above COCs plus 2,4-toluenediamine (2,4-TDA), 2,6-toluenediamine (2,6-TDA), nitrobenzene (NB), and aroclor 1242.

Bioaccumulative COCs tend to increase in concentration within some organisms relative to the COC concentration in the environment. This can result in increases in concentrations of COCs in successive trophic levels in an ecosystem (i.e., biomagnification) to levels that may exceed the concentration in a given environmental medium. Bioaccumulative COCs may be present in environmental media at concentrations that are protective for direct exposure, but can pose a risk to higher trophic levels through consumption of exposed biota. Accordingly, care is taken in the SLERA to not screen out COCs based solely on environmental media-based RBELs. If bioaccumulative COCs are identified, each must be evaluated relative to published data for the COC or appropriate surrogate.

Bioaccumulative COCs typically have relatively low solubility in water (< 1 mg/l), and relatively high affinity for portioning into organic matter (e.g., plant or animal tissue). The Log Octanol-Water Partitioning Coefficient (log K_{OW}) provides a measure of the affinity of a COC for organic matter. A Log K_{OW} value greater than 3 is indicative of a potentially bioaccumulative COC (e.g., see USGS 2000). In addition, discussions presented in TCEQ (2001) report that COCs in sediment or surface water with Log K_{OW} values between 3.8 (Feijtel et al., 1997) and 8.0 (Thomann, 1989) may be a concern for bioaccumulation. Table 3-1 in TCEQ (2001) presents a listing of bioaccumulative COCs that includes a number of metals, organochlorine pesticides, other pesticides and PCBs, and other semi-volatile compounds.

Table 1 (Appendix B) presents information on the properties of the surface water COCs, including solubility, physical state, molecular weight, and log K_{OW} data, and Table 2 (Appendix B) presents this information for the sediment COCs. Evaluation indicates that one COC (Aroclor 1242) is bioaccumulative.

2.2 ECOLOGICAL SCREENING BENCHMARKS

2.2.1 Site Characteristics

The Site is located in a heavily industrialized area near the Houston Ship Channel. Review of available information indicates that there are no threatened or endangered species or other sensitive ecological receptors on the Site, or within the Site vicinity. A written request for verification of this opinion was submitted to the Fish and Wildlife Service, Division of Ecological Services (United States Department of the Interior). Their response, dated June 3, 2004 (Appendix C), indicates that no federally listed or proposed threatened or endangered species are likely to occur at the Site. In addition, the Site is not located within officially designated critical habitat.

The Ditch drains water north along a course that parallels the eastern Site boundary, and is separated from the Site by a 60-foot wide strip of land owned by Harris County. The Ditch originates south of the Site and conveys stormwater and run-off through a concrete-lined channel from a residential area of the City of Pasadena, under Highway 225, to an unlined channel that parallels the eastern Site boundary as described above. The unlined channel empties into a concrete-lined channel at the end of Davison Road that conveys water east, north, and then west around tailings piles to Cotton Patch Bayou. Cotton Patch Bayou is an unlined, more or less natural channel that flows though an industrial area on a route beside tailings piles, and empties through two steel culverts into a tidal arm of Cotton Patch Bayou connected to Section 1007 of the Houston Ship Channel (HSC). This tidal-influenced reach of Cotton Patch Bayou is developed as a shipyard. Figure 1 (Appendix B) illustrates the Ditch location relative to the Site, the POE, and upstream and downstream waters. Appendix A presents photographs of the major features included in this discussion

2.2.2 Surface Water Benchmarks

As indicated above, the Affected Property Assessment showed that COCs in groundwater

within the Shallow Zone (SZ) may discharge to a Harris County Flood Control ditch (HCFCD No. G110-00-00) located east of the Site boundary. Depending on classification of these water bodies, TCEQ guidance RG-366/TRRP-24 (TCEQ, 2002a) requires evaluation using human health and/or aquatic life saltwater/freshwater exposure limits for surface waters (^{SW}RBEL). An evaluation of human health exposure limits is addressed in a separate document. Table 1 presents COC concentrations at the point of exposure (POE), COC concentration limits for residential drinking water, and the ^{SW}RBELs assembled for this SLERA. The following addresses the classification of the water bodies, and the ^{SW}RBELs that require evaluation under RG-366/TRRP-24.

Section 1007 of the HSC is a Large Tidal Channel with heavy industrial shoreline development, and heavy commercial vessel traffic. In 1997, studies were completed for 50 sites within the Galveston Bay System to evaluate sediment contaminant levels, the macroinvertebrate benthic community associated with these sediments, and other factors related to sediment quality. These studies, reported in Guillen, et al. (1999), were reviewed and a summary is provided in Table 3. Only chronic aquatic life criteria apply in accordance with TCEQ guidance specific to Section 1007 of the HSC.

Cotton Patch Bayou has both fresh and saline portions. Downsteam near the discharge point into the HSC, it is subject to saltwater effects as a Tidal Bayou influenced by Section 1007 of the HSC. This portion of the Cotton Patch drainage has been developed into a shipyard (Photos 9 and 10, Appendix A). Since this short reach of the water body is essentially part of the HSC, only chronic aquatic life criteria apply to the Tidal reach. The upstream part of Cotton Patch Bayou is separated from its downstream Tidal portion by an earthen embankment that is penetrated by two large steel culverts (Photo 8, Appendix A). Since this part of Cotton Patch Bayou is above the tidal and saltwater influence, acute and chronic freshwater aquatic life criteria apply and are included in Table 1 for this water body.

The concrete-lined ditch around the tailings piles is a perennial stream that is upstream of the above-described segment of Cotton Patch Bayou. This water body was constructed to replace the natural channel of the portion of Cotton Patch Bayou in order to divert surface water flow around the tailings piles. TCEQ guidance RG-366/TRRP-24 (TCEQ, 2002a) requires evaluation using acute and chronic freshwater aquatic life criteria.

Harris County Flood Control ditch (HCFCD No. G110-00-00) located east of the Site boundary from the POE to the concrete-lined ditch is an earthen-lined artificial channel that is a perennial freshwater stream. The ditch functions as surface drainage for a substantial part of the city of Pasadena and is subject to dredging in order to maintain its flood control function. TCEQ guidance (RG-366/TRRP-24 (TCEQ, 2002a) requires evaluation using acute and chronic freshwater aquatic life criteria.

Aquatic Life ^{SW} RBELs - The Aquatic Life Surface Water ^{SW}RBELs table included in TCEQ guidance document TRRP-24 includes acute and chronic values for both freshwater and saltwater aquatic life. The surface water COC's included in this table are 2,4-DNT, o-MNT,

p-MNT, and m-MNT. However, concentrations are provided only for freshwater chronic exposure to the nitrotoluene compounds. Therefore, acute freshwater aquatic life ^{SW}RBELs and acute and chronic saltwater aquatic life ^{SW}RBELs for these compounds, and all ^{SW}RBELs for the remaining compounds, were computed using the procedures described in this section.

Acute freshwater aquatic life ^{SW}RBELs were calculated from the chronic aquatic life ^{SW}RBEL equation as shown below (see RG-366/TRRP-24, 3.2.5.2):

Chronic criteria for non-persistent COCs = LC_{50} * (0.1)

The above equation is solved for LC_{50}, and the derived LC_{50} values are used to compute the acute criteria using the following equation provided in the guidance:

Acute criteria = LC_{50} * (0.3)

The ^{SW}RBELs for 2,4-DNT are also used for 2,6-DNT in completing Table 1.

This leaves the following data gaps in Table 1: saltwater ^{SW}RBELs for the eight COC's; and freshwater ^{SW}RBELs for o-TOL, p-TOL, and 5-NOT. In evaluating candidate surrogate chemicals it was determined that there is an adequate base of toxicological data for aniline, and aniline is similar to the surface water COCs in several key areas:

- Aniline and the surface water COCs are organic derivatives of amines, and they are of comparable molecular weight, solubility, and log K_{OW}. The values for aniline are 93.1, 3.6E+04 mg/l, and 1.08, respectively.
- Aniline and the surface water COCs are not bioaccumulative.
- There is an adequate base of toxicological data for aniline.
- Aniline is considered toxic to aquatic life and its use, as a surrogate for the surface water COCs, should yield conservative estimates of the ^{SW}RBELs.

In addition, aniline has relatively low molecular weight and higher solubility compared to the COCs, which suggests higher toxicity than the COCs. This suggests the use of aniline values for the COCs would be conservative.

Aniline LC_{50} data for several freshwater fish species were reviewed, and the data reported for eggs of the Channel catfish (*Ictalurus punctatus*) were selected for use (see Orne and Kegley, 2004). The low range LC_{50} value of 5 mg/l was used to compute an acute aquatic life ^{SW}RBEL:

Acute criteria = LC_{50} (5 mg/l) * (0.3) = 1.5 mg/l

Chronic criteria for non-persistent COCs = LC_{50} (5 mg/l) * (0.1) = 0.5 mg/l

By comparison, the upper range LC_{50} for Channel catfish eggs is 7 mg/l. In addition, LC_{50} for other appropriate fish species (bluegill and fathead minnows) ranged from 50 mg/l to 134 mg/l. The derived freshwater ^{SW}RBELs were used to complete Table 1 for the remaining fresh water COCs.

Aniline LC_{50} data for several saltwater fish species were reviewed, and the data reported for the Seabass (*Dicentrarcus labax*) were selected for use (see Roche and Boge, 1996). The low range LC_{50} value of 8 mg/l was used to compute an acute aquatic life ^{SW}RBEL (see RG-366/TRRP-24, 3.2.5.2):

Acute criteria = LC_{50} (8 mg/l) * (0.3) = 2.4 mg/l

Chronic criteria for non-persistent COCs = LC_{50} (8 mg/l) * (0.1) = 0.8 mg/l

By comparison, the upper range LC_{50} for the Seabass is 20 mg/l. In addition, LC_{50} for other saltwater fish species (killifish and buffalo sculpin) ranged from 113 mg/l to 890 mg/l. The derived saltwater ^{SW}RBELs were used to complete Table 1 for the remaining saltwater COCs.

Comparison of the COC concentrations at the POE to the ^{SW}RBELs listed in Table 1 indicates that all COC concentrations are less than the appropriate ^{SW}RBELs.

2.2.3 Sediment Benchmarks and Sediment Sampling

TCEQ (2001) specifically identifies Section 1007 of the HSC, and concrete-lined channels in general as water bodies that do not require development of an ecological PCL for sediment biota. Evaluation of sediment therefore has been limited within HCFCD No. 110-00-00 to the segment from the POE to the concrete-lined ditch. If the evaluation provides a delineation of the COCs to the lowest applicable sediment benchmark then no additional sediment sampling (i.e., Cotton Patch Bayou) would be required. Table 2 (Appendix B) presents sediment benchmarks, and chemical/physical properties for the COCs to be included in the evaluation.

The only sediment benchmark values for the project COCs listed in available guidance were for total PCBs. Review of the chemical/physical properties shows that PCBs (Aroclor 1242) meet the previously discussed criteria for a bioaccumulative COC with a very high log K_{ow} (5.60), and very low solubility (0.24 mg/l). The bioaccumulation of PCBs in aquatic biota is well established in the literature. An excellent review of the literature in this area is provided in Lee and Jones-Lee (2002).

Since EPA Region 6 sediment benchmarks are not available for the other sediment COCs, the equilibrium partitioning (EqP) approach was selected to complete Table 2. RG-263 (TCEQ, 2001) provides a discussion of this approach and the calculations (see RG-263: Sections 3.5.1.2, 3.5.4, 3.13.2, and Box 3-7). Modifications to the EpP approach as described in RG-263 have been proposed by Fuchsman (2003) and the calculations shown for this site in the enclosed Table 3 were performed using the modified method, which

accounts for the contribution of the dissolved chemical to the total chemical concentration in sediment. Data used in the calculations include the freshwater chronic aquatic life ^{SW}RBELs presented in Table 1, log K_{OC}s presented in the TRRP regulations (except that the K_{oc} for 5-Nitro-o-Toluidine were calculated using the log K_{ow} in TRRP (Table 2) and the equation in Table 3, and the fraction of organic carbon in sediment (f_{OC}) reported for Section 1007 of the HSC presented in Table 4. Sediment benchmarks (SQBs) were calculated for freshwater ^{SW}RBELs to be protective of the freshwater portion of Cotton Patch Bayou.

The data that support the EqP approach for deriving sediment benchmarks for nonionic organic chemicals are reviewed by DiToro et al. (1991) and EPA (U.S. EPA, 2003). Hansen et al. (2003) provides a good discussion of the justification for use of the EqP approach that is applicable to the current study:

1. The concentrations of nonionic organic chemicals in sediments, expressed on an organic carbon basis, and in interstitial waters correlate to observed biological effects on sediment-dwelling organisms across a range of sediments.
2. Partitioning models can relate sediment concentrations for nonionic organic chemicals on an organic carbon basis to freely dissolved concentrations in interstitial water.
3. The distribution of sensitivities of benthic organisms to chemicals is similar to that of water column organisms. Accordingly, the chronic aquatic life ^{SW}RBELs presented in Table 1 can be used to define the acceptable effects concentration of a chemical freely dissolved in interstitial water.

The EqP approach, therefore, assumes that (1) the partitioning of the chemical between sediment organic carbon and interstitial water is at or near equilibrium; (2) the concentration in either phase can be predicted using appropriate partition coefficients and the measured concentration in the other phase (assuming the freely dissolved interstitial water concentration can be accurately measured); (3) organisms receive equivalent exposure from water-only exposures or from any equilibrated phase: either from interstitial water via respiration, from sediment via ingestion or other sediment-integument exchange, or from a mixture of exposure routes; (4) for nonionic chemicals, effect concentrations in sediments on an organic carbon basis can be predicted using the organic carbon partition coefficient (K_{OC}) and effects concentrations in water; (5) the chronic aquatic life ^{SW}RBELs presented in Table 1 are appropriate effects concentrations for freely dissolved chemicals in interstitial water; and (6) sediment benchmarks derived as the product of the K_{OC} and ^{SW}RBELs are protective of benthic organisms.

Sediment benchmarks generated using the EqP approach are suitable for use in providing technical information to regulatory agencies because they are:

1. Numerical values

2. Chemical specific
3. Applicable to most sediments
4. Predictive of biological effects
5. Protective of benthic organisms

Groundwater sampling completed for MW69, HP68, and HP70 provides quantification of COCs in the SZ west (upgradient) of the assumed discharge point to surface water (POE). Sediment sampling was performed to determine if ditch sediment in the POE area of HCFCD No. 110-00-00 contains any of the COCs at concentrations above the lowest sediment benchmark of Table 2. The objective of the sampling was to determine COC concentrations in the biologically active sediment zone.

A sediment sampling event was completed on June 3, 2004. Figure 2 (Appendix B) identifies the three sediment-sampling points (DS1, DS2 and DS3) near the area of assumed groundwater discharge. Photographs taken during the sediment-sampling event are presented in Appendix A (see Photos 11 to 16).

Prior to sediment sampling, water quality parameters were measured at each sediment-sampling point. A YSI Model 600XL® meter was used to measure pH, conductivity, and dissolved oxygen. The sensors are calibrated prior to each use. A two-point calibration was used for the pH sensor: 4.01 and 7.01 standards. The conductivity sensor was calibrated to a 1,413 μS/cm standard. The oxygen sensor was calibrated in an oxygen-saturated atmosphere to read the appropriate oxygen concentration in mg/l for the calibration temperature. The results, presented in Table 5 (Appendix B), are indicative of good water quality: near neutral pH, low conductivity and total dissolved solids, and adequate dissolved oxygen levels. The solubility limit for oxygen at the water temperatures observed is 7.99 to 8.38 mg/l. The dissolved oxygen concentrations observed (5.12 to 5.43 mg/l) are over 60% of the solubility limit. No signs of contamination or stressed conditions were observed in the ditch.

A Water Mark® Universal Core Head Kit Sediment Sampler with dedicated 60 cm long, 68 mm inside diameter, clear polycarbonate core barrels was used to collect sediment samples. Sediment sampling was conducted following a period of heavy rainfall, and there was a relatively swift current at the time. Initial probing at the DS1 location indicated that was little or no sediment in the central portion of the ditch channel, which has a hard bottom of clay with some construction gravel and shell. Probing within 2 feet of the edge of the ditch showed the presence of about 6 inches of sediment over the hard clay bottom.

A sediment core for chemical analysis was collected at each sediment sampling point, and a duplicate core collected at DS1. Sediment samples for chemical analysis were placed in labeled containers provided by Severn Trent Laboratories, Inc., and packed in a cooler containing ice. Samples were shipped under chain of custody to the Severn Trent Laboratories, Inc. Austin, Texas laboratory. These sediment samples were analyzed for the

COCs listed in Table 2 (Appendix B). Laboratory certificates are provided in the July 2004 Semiannual report prepared by Geomatrix Consultants, Inc. The sediment analyses are considered to be "critical" samples and the laboratory provided the documentation specified in TRRP Guidance Document TRRP-13 (TCEQ, 2002b) for these analyses (see semiannual report of July 2004). Also included in the Geomatrix report is a Data Usability Summary.

Sediment cores for biological characterization were also collected at each sediment sampling point. These cores were washed through a bucket with a #30 mesh stainless steel wire cloth bottom. Most of the fine sediment and organic matter washed through the #30 mesh leaving clay balls, and construction gravel and shell. The benthic macro-invertebrates observed were predominately Oligochaetes, with some Gastropods present. Shells of the Asian clam (*Corbicula sp*.) were observed, but no intact individuals were present.

The results of chemical analyses, presented in Table 5 (Appendix B), show all COC concentrations to be less than analytical detection limits. The sample quantitation limits were slightly elevated above the benchmarks for some of the COCs in the samples from two locations (DS1 and DS2) due to reported matrix effects, but all results for DS3 had quantitation limits below the calculated benchmarks. However, review of information provided by the laboratory (see Data Usability Checklist in the semiannual report of July 2004) indicates the results for 2,4-TDA and 2,6-TDA are not usable due to no spike recovery. All of the other detection limits are below the critical sediment PCLs.

These results indicate that the sediment COCs listed in Table 2 (Appendix B) besides TDA may be eliminated from further consideration in this SLERA. The results of this SERLA indicate that additional ecological risk assessment for the identified surface water and sediment pathways is not required for the COCs which had concentrations less than the appropriate ecological benchmarks.

A review of other site data suggests that TDA is unlikely to be present in the surface water or sediment (see Geomatrix's semiannual report of July 2004 concerning irreversible sorption of TDA). Geomatrix suggests that this research is consistent with TRRP data on equilibrium octanol/water and water/carbon partitioning of TDA. It is noted that the TRRP values for octanol/water and water/carbon partitioning are inconsistent, with the K_{ow} for octanol partitioning indicating a much less hydrophobic behavior compared to the K_{oc} value, which indicates strong affinity for organic carbon. If TDA is not present in these media, all project COCs would be eliminated from consideration in this SLERA.

3.0 ECOLOGICAL PCLS FOR GROUNDWATER

This SLERA indicates that current discharges of groundwater to surface waters are protective of biota in surface waters and sediments of the drainage ditch and in downstream water bodies. In order to ensure that the protective condition is maintained in the future, well MW69 will continue to be monitored semiannually and analyzed for the indicator COCs listed in Table IV of Compliance Plan CP-50134. Analytical results will be compared to

PCLs to ensure that potential concentrations of the COCs in the surface water and sediment of the ditch are protective of aquatic life.

The groundwater-to-surface water and groundwater-to-sediment PCLs will be established at the levels of the Freshwater Chronic ^{SW}RBELs in the first column of Table 3. These groundwater levels will be protective of biota in surface water since they are conservatively established without regard for dilution of the groundwater after entering the surface waters. These groundwater levels will be protective of biota in sediment since the sediment RBELs have been established at COC concentrations that are in equilibrium with the surface water RBELs, and these same RBELs are adopted as the ecological groundwater PCLs. If compounds other than those listed in Table 3 are detected at well MW69, or if PCBs are detected, these compounds will be evaluated to ensure their concentrations in groundwater are protective of aquatic life. The goal of the ongoing groundwater corrective action at this facility is to reduce groundwater concentrations to levels below the Tier 1 PCLs for human consumption of groundwater. It is noted that those levels (see Table 1) are significantly below the ecological PCLs established herein.

4.0 REFERENCES

Feijtel, T., P. Kloepper-Sams, K. den Haan, R. van Egmond, M. Comber, R. Heusel, P. Wierich, W. Ten Berge, A. Ward, W. de Wolf, and H. Niessen. 1997. Integration of Bioaccumulation in an Environmental Risk Assessment. Chemosphere 34(11): 2237-2350.

Fuchsman, P.C., 2003. Modification of the Equilibrium Partitioning Approach for Volatile Organic Compounds in Sediment. Environmental Toxicology and Chemistry 22(7): 1532-1534.

Guillen, George, Leslie Whaylen, Linda Broach, and Steve Smith. 1999. Evaluation of Sediment Quality in the Vicinity of Permitted Discharges and Selected Land-use Practices: Galveston Bay. Unpublished document prepared by the Texas Commission on Environmental Quality and the Galveston Bay Estuary Program. Copies are available through the Houston Field Office of TCEQ.

Lee, G. Fred, and Anne Jones-Lee. 2002. Preliminary assessment of the bioaccumulation of PCBs and organochlorine pesticides in *Lumbriculus variegates* from City of Stockton Smith Canal sediments. G. Fred Lee & Associates, El Macero, California. Report to the City of Stockton, California and the Central Valley Regional Water Quality Control Board, Sacramento, California.

McElyea, Bob. 2003. An Evaluation of Nekton at Two Cooling Water Intake Systems in the Houston Ship Channel from 1992 to 2001. Texas Commission on Environmental Quality (AS-190), Austin, Texas.

Orne, L. and S. Kegley. 2004. PAN Pesticide Data Base. Pesticide Action Network, North America, San Francisco, California (URL: http://www.pesticideinfo.org).

Texas Commission on Environmental Quality (TCEQ). 2001. Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas. Texas Commission on Environmental Quality (RG-263), Austin, Texas.

Texas Commission on Environmental Quality (TCEQ). 2002a. Determining PCLs for Surface Water and Sediment. Texas Commission on Environmental Quality (RG-366/TRRP-24), Austin, Texas.

Texas Commission on Environmental Quality (TCEQ). 2002b. Review and Reporting of COC Concentration Data. Texas Commission on Environmental Quality (RG-366/TRRP-13), Austin, Texas.

Thomann, R.V. 1989. Bioaccumulation Model of Organic Chemical Distribution in Aquatic Food Chains. Environmental Science and Technology 23: 699-707.

United States Geological Survey (USGS). 2000. Pesticides in Stream Sediment and Aquatic Biota. USGS Fact Sheet 092-00 (URL: http://ca.water.gov/pnsp/rep/fs09200/).

ATTACHMENT A

PHOTOGRAPHS



Photo 1: Concrete lined section of HCFCD No. G110-00-00 south of Highway 225.



Photo 2: HCFCD No. G110-00-00 north of Highway 225. One of the tailings piles is shown in the background.



Photo 3: HCFCD No. G110-00-00 near the POE.



Photo 4: Concrete ditch from a tank farm located on the east side of HCFCD No. G110-00-00 near the POE.



Photo 5: View of HCFCD No. G110-00-00 to the south from the end of Davison Road.



Photo 6: View of HCFCD No. G110-00-00 to the north showing the beginning of the concrete-lined ditch section.



Photo 7: Typical view of Cotton Patch Bayou.



Photo 8: Cotton Patch Bayou (CPB) discharge to the dredged, industrial section of CPB.



Photo 9: The dredged, industrial section of CPB that is connected to Section 1007 of the HSC.



Photo 10: The dredged, industrial section of CPB that is connected to Section 1007 of the HSC.



Photo 11: View of MW69 and sediment sample location DS1.



Photo 12: View of sediment sample location DS1.



Photo 13: View of sediment sample location DS2.



Photo 14: View of sediment sample location DS3.



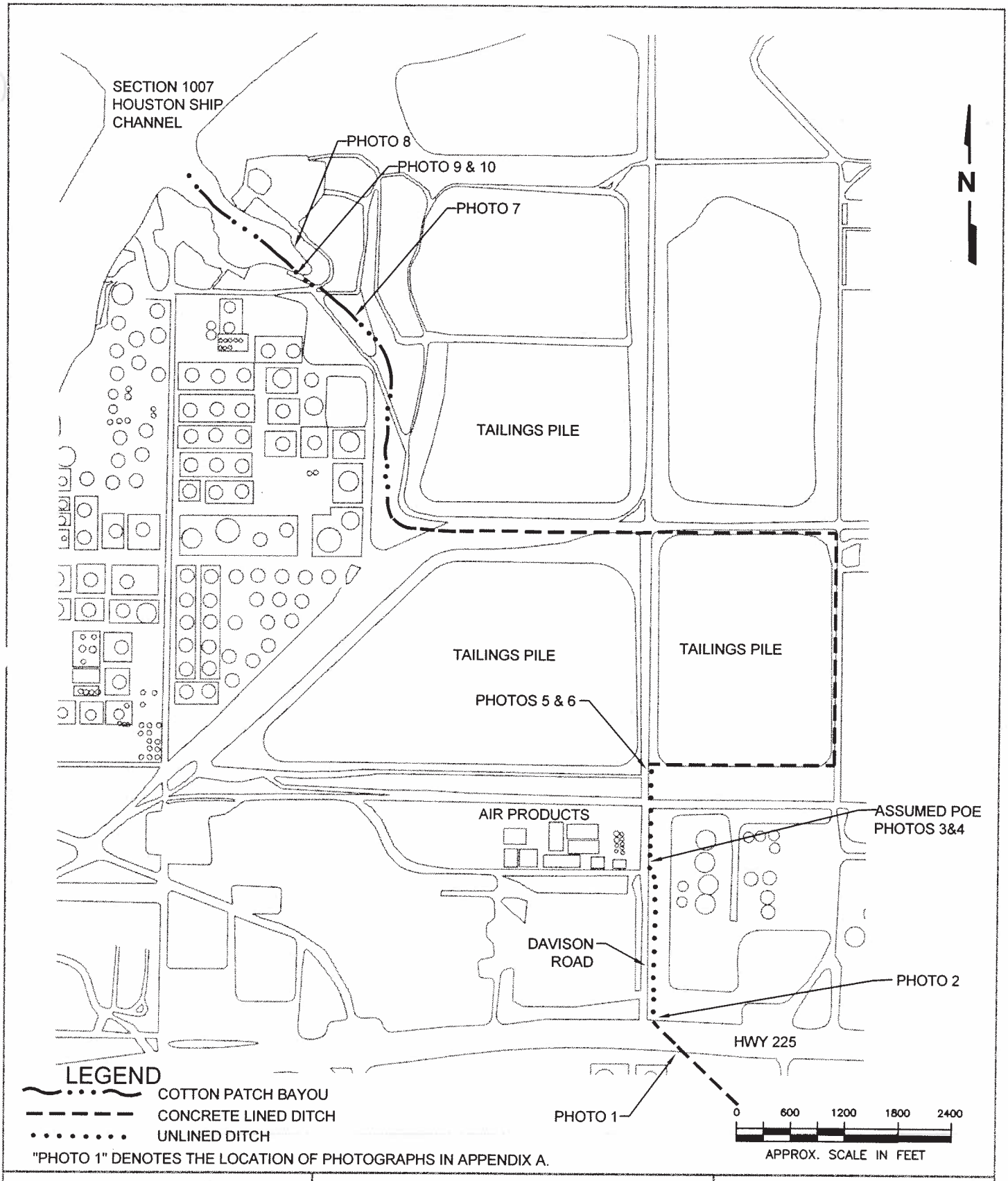
Photo 15: Sediment sample for chemical analysis.



Photo 16: Sediment samples washed through #30 mesh and examined for benthic macroinvertebrates.

ATTACHMENT B

FIGURES AND TABLES



"PHOTO 1" DENOTES THE LOCATION OF PHOTOGRAPHS IN APPENDIX A.

SSCI
SEPARATION SYSTEMS CONSULTANTS, INC.

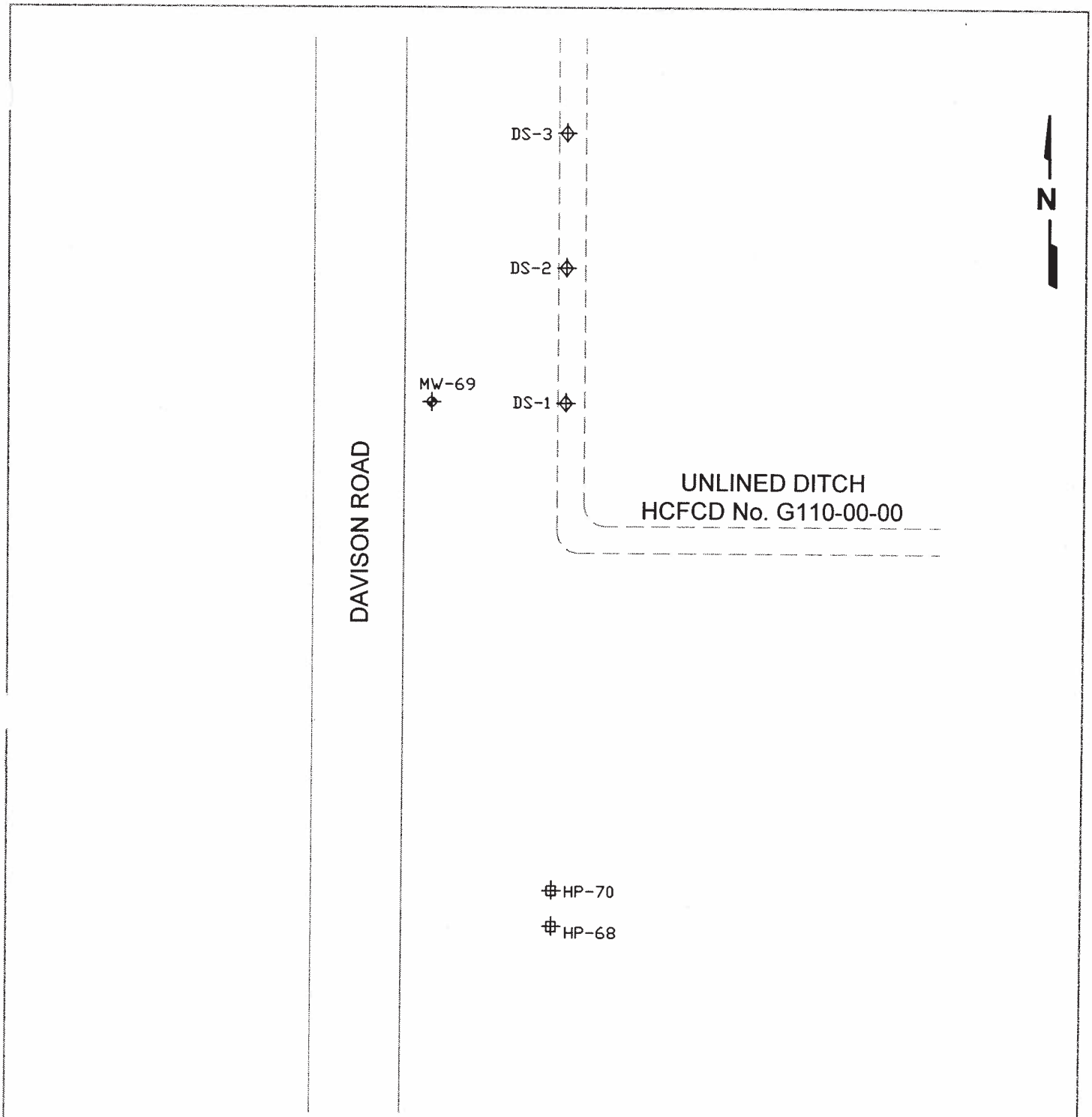
J D HOLT 5/18/04 FIG-1

AIR PRODUCTS L.P. FACILITY

1423 HWY 225
PASADENA, TEXAS 77506

FIGURE 1

TIER 2 SCREENING LEVEL
ECOLOGICAL RISK ASSESSMENT
FORMER ACID SPILL
IMPOUNDMENT



LEGEND

- MW-69 MONITORING WELL
- HP-68 PIEZOMETER
- SEDIMENT SAMPLE LOCATION

0 15 30 45 60

APPROX. SCALE IN FEET

SSCI

SEPARATION SYSTEMS CONSULTANTS, INC.

J D HOLT	6/15/04	FIG-2

AIR PRODUCTS L.P. FACILITY
1423 HWY 225
PASADENA, TEXAS 77506

FIGURE 2

TIER 2 SCREENING LEVEL
ECOLOGICAL RISK ASSESSMENT
FORMER ACID SPILL
IMPOUNDMENT

Table 1. Surface Water Chemicals of Concern Screening Information

	CAS #	POE	PCL $^{GW}GW_{Ing}$		Chemical/Physical Properties			
		Groundwater Concentration (mg/l)	Tier 1 Residential Groundwater Level (mg/l)	Groundwater Concentration > Assessment Level at POE?	Physical State	Molecular Weight (g/mol)	Solubility (mg/l)	log K_{ow}
2,4-Dinitrotoluene	121-14-2	0.023	0.0013	Yes	Solid	1.82E+02	2.85E+02	2.18E+00
2,6-Dinitrotoluene	606-20-2	0.021	0.0013	Yes	Solid	1.82E+02	1.82E+02	2.18E+00
o-Mononitrotoluene	88-72-2	0.072 J	0.24	No	Liquid	1.37E+02	6.00E+02	2.36E+00
m-Mononitrotoluene	99-08-1	0.0054 J	0.24	No	Liquid	1.37E+02	4.98E+02	2.36E+00
p-Mononitrotoluene	99-99-0	0.043 J	0.24	No	Solid	1.37E+02	4.00E+02	2.36E+00
o-Toluidine	95-53-4	0.0039 J	0.0038	Yes	Liquid	1.07E+02	1.06E+04	1.61E+00
p-Toluidine	106-49-0	0.0039 J	0.0048	No	Solid	1.07E+02	7.20E+03	1.62E+00
5-Nitro-o-toluidine	99-55-8	0.00032 J	0.028	No	Solid	1.52E+02	3.48E+02	1.94E+00

	CAS #	POE	PCL $^{GW}GW_{Ing}$	Aquatic Life ^{SW}RBELs (mg/l)			
				Freshwater		Saltwater	
		Groundwater Concentration (mg/l)	Tier 1 Residential Groundwater Level (mg/l)	Acute	Chronic	Acute	Chronic
2,4-Dinitrotoluene	121-14-2	0.023	0.0013	7.29	1.22	$2.4^{D,S}$	$0.8^{D,S}$
2,6-Dinitrotoluene	606-20-2	0.021	0.0013	7.29^{S}	1.22^{S}	$2.4^{D,S}$	$0.8^{D,S}$
o-Mononitrotoluene	88-72-2	0.072 J	0.24	2.64	0.44	$2.4^{D,S}$	$0.8^{D,S}$
m-Mononitrotoluene	99-08-1	0.0054 J	0.24	2.25	0.375	$2.4^{D,S}$	$0.8^{D,S}$
p-Mononitrotoluene	99-99-0	0.043 J	0.24	5.7	0.95	$2.4^{D,S}$	$0.8^{D,S}$
o-Toluidine	95-53-4	0.0039 J	0.0038	$1.5^{D,S}$	$0.5^{D,S}$	$2.4^{D,S}$	$0.8^{D,S}$
p-Toluidine	106-49-0	0.0039 J	0.0048	$1.5^{D,S}$	$0.5^{D,S}$	$2.4^{D,S}$	$0.8^{D,S}$
5-Nitro-o-toluidine	99-55-8	0.00032 J	0.028	$1.5^{D,S}$	$0.5^{D,S}$	$2.4^{D,S}$	$0.8^{D,S}$

NOTES:

Chemical/Physical Properties are taken from the TRRP Chemical/Physical Properties Table (April 12, 2005).

The POE concentrations represent the maximum observed groundwater concentrations at MW69, HP68, and HP70.

The PCL concentrations represent the Tier 1 Residential Groundwater Concentrations as listed in the April 12, 2005 TRRP Table 3.

Chemical analyses have not provided specific concentrations for the o- and p-toluidine isomers. The reported concentration (0.0039 J) for the isomers reflects the concentration for an unknown mixture of both isomers, and is evaluated relative to the standards for each isomer.

Please note that some RBELs are flagged with superscripts (D and/or S). The D superscript indicates that the value was derived (i.e., calculated) using a RBEL contained in TCEQ guidance documents. The S superscript indicates that the value is for a surrogate compound, and there are no RBEL values for a particular COC in the TCEQ guidance documents.

Available surface water RBELs are taken from RG-366/TRRP-24 (October 2005).

J flag data qualifier indicates estimated concentration between sample-specific quantitation limit and sample-specific detection limit.

Table 2. Sediment Chemicals of Concern Screening Information

	CAS #	Chemical/Physical Properties			
		Physical State	Molecular Weight (g/mol)	Solubility (mg/l)	log K_{ow}
2,4-Dinitrotoluene	121-14-2	Solid	1.82E+02	2.85E+02	2.18E+00
2,6-Dinitrotoluene	606-20-2	Solid	1.82E+02	1.82E+02	2.18E+00
m-Mononitrotoluene	99-08-1	Liquid	1.37E+02	4.98E+02	2.36E+00
p-Mononitrotoluene	99-99-0	Solid	1.37E+02	4.00E+02	2.36E+00
o-Mononitrotoluene	88-72-2	Liquid	1.37E+02	6.00E+02	2.36E+00
o-Toluidine	95-53-4	Liquid	1.07E+02	1.06E+04	1.61E+00
p-Toluidine	106-49-0	Solid	1.07E+02	7.20E+03	1.62E+00
5-Nitro-o-toluidine	99-55-8	Solid	1.52E+02	3.48E+02	1.94E+00
2,4-Toluenediamine	95-80-7	Solid	1.22E+02	7.47E+03	1.56E-01
2,6-Toluenediamine	823-40-5	Solid	1.22E+02	4.80E+04	1.56E-01
Nitrobenzene	98-95-3	Liquid	1.23E+02	1.90E+03	1.81E+00
PCBs (Total)	1336-36-3	Liquid	2.90E+02	5.55E-02	6.30E+00

	CAS #	Sediment Benchmark (mg/kg) Source	
		TRRP-24/RG366	Equilibrium Partitioning Calculation - Freshwater
2,4-Dinitrotoluene	121-14-2		1.96E+00
2,6-Dinitrotoluene	606-20-2		1.72E+00
m-Mononitrotoluene	99-08-1		1.28E+00
p-Mononitrotoluene	99-99-0		3.23E+00
o-Mononitrotoluene	88-72-2		1.50E+00
o-Toluidine	95-53-4		5.39E-01
p-Toluidine	106-49-0		5.39E-01
5-Nitro-o-toluidine	99-55-8		1.08E+00
2,4-Toluenediamine	95-80-7		1.32E+01
2,6-Toluenediamine	823-40-5		1.32E+01
Nitrobenzene	98-95-3		1.61E+00
PCBs (Total)	1336-36-3	0.0598	

NOTES:

Chemical/Physical Properties are taken from the TRRP Chemical/Physical Properties Table (April 12, 2005).

Equilibrium partitioning calculations are presented in Table 3.

Available Sediment Benchmark for PCB from TRRP-24/RG366 (September 2005 Update)

Table 3. Calculation of Sediment Benchmarks Using Equilibrium Partitioning

SQB = Sediment Benchmark

$SQB = WQC \times (f_{OC} \times K_{OC} + ((1-f_{SOLIDS})/f_{SOLIDS}))$ (method of Fuchsman, 2003)

f_{OC} = fraction of organic carbon in sediment; value of 0.02 reported for Section 1007 of the HSC (see Table 4).
K_{OC} = sediment particle organic partition coefficient. Values from TRRP tables.
WQC = chronic aquatic life ^{SW}RBEL (see Table 1).
f_{SOLIDS} = fraction of sediment mass present as solids (average of measured moisture content values from ditch sediment samples)

	WQC - Freshwater Chronic ^{SW}RBEL ug/l	TRRP Log K_{OC}	K_{OC} ml/g	f_{OC}	SQB ug/kg	SQB mg/kg
2,4-Dinitrotoluene	1.22E+03	1.71	51	0.02	1955	1.96
2,6-Dinitrotoluene	1.22E+03	1.62	42	0.02	1721	1.72
o-Mononitrotoluene	4.40E+02	2.15	141	0.02	1497	1.50
m-Mononitrotoluene	3.75E+02	2.15	141	0.02	1276	1.28
p-Mononitrotoluene	9.50E+02	2.15	141	0.02	3232	3.23
o-Toluidine	5.00E+02	1.40	25	0.02	540	0.54
p-Toluidine	5.00E+02	1.40	25	0.02	540	0.54
5-Nitro-o-toluidine	5.00E+02	1.90	79	0.02	1083	1.08
2,4-Toluenediamine	5.00E+02	3.11	1288	0.02	13171	13.2
2,6-Toluenediamine(1)	5.00E+02	3.11	1288	0.02	13171	13.2
Nitrobenzene	5.00E+02	2.12	132	0.02	1607	1.61

Notes:
(1) Koc value for 2,4 Toluenediamine in TRRP Physical/Chemical Properties table (April 12, 2005) was used for 2,6 Toluenediamine also. Research by Cowen and others (1996)(2) indicated sorption properties of both compounds are similar and log Koc for both COCs exceeds 3.0. The research indicates strong or irreversible sorption to natural sediment, in contrast to weaker affinity for octanol, in agreement with the low Kows and high Koc (for 2,4 TDA) in the TRRP table.

See RG-263, Section 3.5.1.2 for discussion of equilibrium calculation method.

(2) Cowen, W., A. Gastinger, C. Spanier, J Buckel, and R. Bailey, 1996, Sorption and microbial degradation of Toluenediamines and Methylenedianiline in soil under aerobic and anaerobic conditions: Air Products and Chemicals, Inc. and International Isocyanate Institute, 81 p.

Table 4. Summary of Sediment Quality Data for the Houston Ship Channel at Cotton Patch Bayou (Guillen, et al. 1999)

Sample Location Name:
Cotton Patch Bayou at Bludworth Marine (SS-17)

Sample Location Position:
29° 44' 8.96" 95° 12' 10.6"

Sample Date:
July 23, 1997

Contaminant Load (0.25-mile radius):		
Non-point source loading	1,104,294	kg/yr
Point source loading	3,538,201	kg/yr
Total	4,642,495	kg/yr
Permitted industrial discharges	47	
Permitted domestic discharges	84	
Total	131	

Bottom Water Chemistry:		
Depth	15	feet
Temperature	31	°C
Salinity	8.7	ppt
pH	7.1	
Conductivity	15,000	umhos/cm
Dissolved oxygen	1.3	mg/l
Elevated metals	None	

Sediment Composition:		
Gravel	0	%
Sand	45.45	%
Silt	20.68	%
Clay	33.87	%
Acid Volatile Sulfides (AVS)	30.10	mmol/kg
Sum of Simultaneously Extracted Metals (SEM)	9.39	mmol/kg
SEM/AVS	0.31	
Oil and Grease	3150	mg/kg
Total Organic Carbon	20,600	mg/kg
Solids	52.2	%
Sediment Metals:		
Aluminum	12,500	mg/kg-dry
Arsenic	2.94	mg/kg-dry
Barium	1,070	mg/kg-dry
Cadmium	1.53	mg/kg-dry
Chromium	40.5	mg/kg-dry
Copper	138	mg/kg-dry
Lead	149	mg/kg-dry
Manganese	185	mg/kg-dry
Mercury	0.016	mg/kg-dry
Nickel	14.4	mg/kg-dry
Selenium	0.54	mg/kg-dry
Silver	0.403	mg/kg-dry
Tin	4.27	mg/kg-dry
Zinc	758	mg/kg-dry

Sediment Organics:		
Benzo-k-fluoranthene	1,640	ug/kg
Fluroanthene	2,860	ug/kg
Phenanthrene	1,860	ug/kg
Pyrene	2,540	ug/kg
Benzo-a-anthracene	1,090	ug/kg
DDT	16.5	ug/kg
Benthic Community Composition:		
Oligochaetes	5.8	%
Polychaetes	68.7	%
Amphipods	0.3	%
Bivalves	1	%
Capitellids	33.1	%
Benthic Index:	5.42	
Benthic Score:	0.5	
Chemical Rank Score:	24	
Toxicity Score:	1	

General Comments for Location:
This location shows signs of severe contamination, but bioassays conducted using sediment from this location showed low toxicity. The SEM/AVS < 1 indicates that metals are present in insoluble forms. The Benthic Index and Score indicate a relatively non-degraded benthic community. The Toxicity Score indicates low toxicity.

Table 5. Sediment Sampling Event Results (June 3, 2004)

Water Quality Parameters	Sediment Sample Location		
	DS1	DS2	DS3
pH	7.02	7.36	7.61
Conductivity (umhos/cm)	111.1	117.0	112.7
Total Dissolved Solids (mg/l)	729.2	745.3	787.4
Dissolved Oxygen (mg/l)	5.81	5.12	5.43
Temperature (°C)	23.1	24.9	25.6
Sediment Depth (ft)	0.5	0.5	0.5

NOTES:
Three sediment cores 2.5"-diameter, 6" long were washed through a #30 screen and examined for benthic macroinvertebrates. The material retained by the #30 screen included construction shell and gravel, and clay balls. The benthic macroinvertebrates observed were predominately Oligochaetes and Gastropods. Shells of the Asian clam (*Corbicula* sp.) were also observed.

	CAS #	Critical Sediment PCL (mg/kg)	Sediment Sampling Results (mg/kg)			
			DS1	DS1 (Duplicate)	DS2	DS3
2,4-Dinitrotoluene	121-14-2	1.96	< 2.500	< 2.600	< 2.900	< 0.490
2,6-Dinitrotoluene	606-20-2	1.72	< 2.500	< 2.600	< 2.900	< 0.490
o-Mononitrotoluene	88-72-2	1.50	< 2.500	< 2.600	< 2.900	< 0.490
m-Mononitrotoluene	99-08-1	1.28	< 2.500	< 2.600	< 2.900	< 0.490
p-Mononitrotoluene	99-99-0	3.23	< 2.500	< 2.600	< 2.900	< 0.490
o-Toluidine	95-53-4	0.54	< 2.500	< 2.600	< 2.900	< 0.490
p-Toluidine	106-49-0	0.54	< 2.500	< 2.600	< 2.900	< 0.490
5-Nitro-o-toluidine	99-55-8	1.08	< 2.500	< 2.600	< 2.900	< 0.490
2,4-Toluenediamine	95-80-7	13.2	< 5.200	< 5.200	< 5.800	< 1.000
2,6-Toluenediamine	823-40-5	13.2	< 5.200	< 5.200	< 5.800	< 1.000
Nitrobenzene	98-95-3	1.61	< 2.500	< 2.600	< 2.900	< 0.490
PCBs (Aroclor 1242)	53469-21-9	0.0598*	< 0.050	< 0.051	< 0.050	< 0.049

NOTES:
The Critical Sediment PCL is the lowest value from Table 2.

* The Critical Sediment PCL for PCB is for Total PCB (CAS No. 1336-36-3). Analytical results from sediment sampling are for Aroclor 1242.

A Data Usability Summary for the laboratory analysis of the sediment samples was provided in the July 2004 Semiannual Report by Geomatrix.

ATTACHMENT C

CORRESPONDENCE

SSCI

Environmental and Consulting Services

April 15, 2004

United States Department of the Interior
Fish and Wildlife Service, Division of Ecological Services
17629 El Camino Real, Suite 211
Houston, Texas 77058-3051

Re: Request for Information, Threatened and Endangered Species
Air Products Facility, 1423 Highway 225, Pasadena, Texas

Separation Systems Consultants, Inc. (SSCI) respectfully submits this request for information on threatened and endangered species that may occur within a ½-mile radius of the Air Products Facility located at 1423 Highway 225 in Pasadena, Texas. SSCI is participating in an Affected Property Assessment for this industrial Site in accordance with the Texas Risk Reduction Program (TRRP). The Tier 1 Exclusion Criteria Checklist completed for the Site indicates that since shallow groundwater beneath the Site may discharge to a ditch adjacent to the Site, further ecological assessment may be required. Initial evaluation of the ditch indicates that it does not qualify for classification as an intermittent stream without perennial pools. Under these circumstances, TRRP requires completion of a Tier 2, Screening Level Ecological Risk Assessment (SLERA). The requested information represents a component of information required for completion of the SLERA.

The attached map shows the Site location, location of the ditch, potential groundwater discharge point, and the route the ditch follows from the potential discharge point to Cotton Patch Bayou and the Houston Ship Channel (Section 1007, or Upper HSC).

If you have questions please do not hesitate to contact me at (281) 486-1943.

Sincerely,

Douglas W. Jackson, C.E.P.
Vice President

A review of U.S. Fish and Wildlife Service files and your project information indicate that no federally listed or proposed threatened or endangered species are likely to occur at the project site. The project site is not located within officially designated critical habitat.

This review does not constitute our approval for wetlands, sensitive habitats, migratory birds or any other environmental requirements.

Approved Edith Tilly

Date June 3, 2004

Clear Lake Ecological Services Field Office
U.S. Fish and Wildlife Service
17629 El Camino Real, Suite 211
Houston, Texas 77058-3051

Separation Systems Consultants, Inc.
17041 El Camino Real, Suite 200
Houston, Texas 77058
(281) 486-1943
Fax: (281) 486 7415
www.sscienviron.com

ATTACHMENT – XI.B.1

RESULTS OF APPENDIX 8 ANALYSES

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Dir/Inj Vol Compounds - GC/MS Analysis Data (QR26)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3100	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	IEFFPOND	850725	0830	

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov ***	Unspiked Sample mg/l	Concen. Added mg/l	% Recov ***
12 Allyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
61 Chloral	ND		ND	ND	ND	-	-	-	-	-
69 Chloroacetaldehyde	ND	50	ND	ND	ND	-	-	-	-	-
83 3-Chloropropionitrile	IND		IND	IND	IND	-	-	-	-	-
93 Cyanogen	ND		ND	ND	ND	-	-	-	-	-
134A Dichloropropanol	ND	10	ND	ND	ND	-	-	-	-	-
155 1,1-Dimethylhydrazine	ND	100	ND	ND	ND	-	-	-	-	-
156 1,2-Dimethylhydrazine	ND		ND	ND	ND	-	-	-	-	-
168 1,4-Dioxane	ND	10	ND	ND	ND	-	-	-	-	-
177 Ethyl cyanide	ND	10	ND	ND	ND	-	-	-	-	-
180 Ethylene oxide	ND		ND	ND	ND	-	-	-	-	-
187 Fluoroacetic acid	ND		ND	ND	ND	-	-	-	-	-
190 Glycidylaldehyde	-	-	-	-	-	-	-	-	-	-
203 Hydrazine	IND		IND	IND	IND	-	-	-	-	-
212 Isobutyl alcohol	ND	10	-	-	-	-	-	-	-	-
226 Methacrylonitrile	ND	50	ND	ND	ND	-	-	-	-	-
227 Methanethiol	ND		ND	ND	ND	-	-	-	-	-
236 Methyl hydrazine	IND		IND	IND	IND	-	-	-	-	-
237 2-Methyllactonitrile	IND		IND	IND	IND	-	-	-	-	-
276 N-Nitrosopyrrolidine	ND	50	ND	ND	ND	-	-	-	-	-
305 n-Propylamine	ND	100	ND	ND	ND	-	-	-	-	-
307 2-Propyn-1-ol	ND	10	ND	ND	ND	-	-	-	-	-
308 Pyridine	ND	10	ND	ND	ND	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.
***Standard QA procedures not applicable for samples analyzed by direct injection.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3100	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	IEFFPOND	850725	0830	

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
1	Acetonitrile	IND		IND	IND	IND	50	0	IND	50	0
7	Acrolein	ND	100	ND	ND	ND	800	89	ND	800	84
9	Acrylonitrile	ND	100	ND	ND	ND	80	79	ND	80	76
31	Benzene	BMDL	4.4	ND	ND	ND	18	92	ND	18	104
49	Bromoacetone	-	-	-	-	-	-	-	-	-	-
50	Methyl bromide	ND	10.0	ND	ND	ND	18	97	ND	18	123
59	Carbon disulfide	BMDL	10	ND	ND	ND	68	22	ND	68	24
65A	Chloroethane	ND	10.0	ND	ND	ND	18	80	ND	18	86
66A	Freon TF	ND	10.0	ND	ND	ND	68	43	ND	68	51
72	Chlorobenzene	BMDL	6.0	ND	ND	ND	18	83	ND	18	139
75	1-Chloro-2,3-epoxypropane	-	-	-	-	-	-	-	-	-	-
76	2-Chloroethylvinyl ether	ND	10.0	ND	ND	ND	18	91	ND	18	79
77	Chloroform	ND	1.6	ND	ND	ND	18	85	ND	18	96
78	Methyl chloride	33.6	10.0	ND	ND	ND	18	83	ND	18	114
79	Chloromethyl methyl ether	-	-	-	-	-	-	-	-	-	-
91	Crotonaldehyde	ND	10	ND	ND	ND	50	86	ND	50	79
111	1,2-Dibromo-3-chloropropane	ND	10	ND	ND	ND	68	21	ND	68	21
112	1,2-Dibromoethane	ND	10	ND	ND	ND	50	93	ND	50	87
113	Dibromomethane	ND	10	ND	ND	ND	50	89	ND	50	88
120	1,4-Dichloro-2-butene	ND	10	ND	ND	ND	50	90	ND	50	80
121	Dichlorodifluoromethane	ND	10.0	ND	ND	ND	18	79	ND	18	103
122	1,1-Dichloroethane	ND	4.7	ND	ND	ND	18	71	ND	18	107
123	1,2-Dichloroethane	ND	2.8	ND	ND	ND	18	83	ND	18	101
124	1,2-Trans-dichloroethylene	ND	10.0	ND	ND	ND	18	85	ND	18	99
126	1,1-Dichloroethylene	ND	2.8	ND	ND	ND	18	78	ND	18	100
127	Methylene chloride	BMDL	2.8	ND	ND	4.30	18	68	4.20	18	95
132A	1,3-Dichloropropane	ND	10	ND	ND	ND	50	88	ND	50	87
133	1,2-Dichloropropane	ND	6.0	ND	ND	ND	18	83	ND	18	99
135	2,3-Dichloropropene	ND	10	ND	ND	ND	50	89	ND	50	89
136A	cis-1,3-Dichloropropylene	ND	10	-	-	-	-	-	-	-	-
136B	trans-1,3-Dichloropropylene	ND	10	-	-	-	-	-	-	-	-
138	1,2,3,4-Diepoxybutene	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spik.		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
139 Diethylarsine	-	-	-	-	-	-	-	-	-	-
140 N,N-Diethylhydrazine	-	-	-	-	-	-	-	-	-	-
182 Ethyl methacrylate	ND	10	ND	ND	ND	50	89	ND	50	86
188 Formaldehyde	-	-	-	-	-	-	-	-	-	-
191A Chlorodibromomethane	ND	3.1	ND	ND	ND	18	79	ND	18	94
191B Dichlorobromomethane	ND	2.2	ND	ND	ND	18	79	ND	18	98
206 Hydrogen sulfide	-	-	-	-	-	-	-	-	-	-
209 Iodomethane	ND	10	ND	ND	ND	50	91	ND	50	94
235 Methyl ethyl ketone	54.2	10	ND	ND	ND	140	59	8.85	140	39
238 Methyl methacrylate	ND	10	ND	ND	ND	50	92	ND	50	79
282 Paraldehyde	-	-	-	-	-	-	-	-	-	-
285 Pentachloroethane	ND	10	ND	ND	ND	50	137	ND	50	814
326 1,1,1,2-Tetrachloroethane	ND	10	ND	.494	ND	50	32	ND	50	33
327 1,1,2,2-Tetrachloroethane	ND	6.9	ND	ND	ND	18	103	ND	18	110
328 Tetrachloroethylene	ND	4.1	ND	.759	ND	18	86	ND	18	44
329 Carbon tetrachloride	ND	2.8	ND	ND	ND	18	89	ND	18	91
334 Tetranitromethane	-	-	-	-	-	-	-	-	-	-
347 Toluene	137	6.0	ND	1.00	BMDL	18	80	ND	18	107
352 Bromoform	ND	4.7	ND	ND	ND	18	75	ND	18	82
354 1,1,1-Trichloroethane	BMDL	3.8	ND	ND	BMDL	18	76	ND	18	103
355 1,1,2-Trichloroethane	ND	5.0	ND	ND	ND	18	97	ND	18	111
356 Trichloroethylene	7.52	1.9	ND	ND	ND	18	113	3.65	18	48
357 Trichloromethanethiol	-	-	-	-	-	-	-	-	-	-
358 Trichlorofluoromethane	ND	10.0	ND	ND	ND	18	75	ND	18	95
363A 1,1,2-Trichloropropane	ND	10	ND	ND	ND	50	32	ND	50	33
363B 1,2,2-Trichloropropane	ND		ND	ND	ND	0	-	ND	0	-
364 1,2,3-Trichloropropane	ND	10	ND	ND	ND	140	48	1.43	140	40
373 Vinyl chloride	ND	10.0	ND	ND	ND	18	83	ND	18	109

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. Company Facility Sample Point Date Time Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
2 Acetophenone	ND	100	ND	ND	BMDL	100	78	ND	100	45
4 2-Acetylaminofluorene	ND	100	ND	ND	ND	300	24	ND	300	71
10A Aflatoxins, Total	-	-	-	-	-	-	-	-	-	-
14 4-Aminobiphenyl	ND	100	ND	ND	ND	100	52	ND	100	0
16 5-(Aminomethyl)-3-isoxazolo	IND		IND	IND	IND	300	0	IND	300	0
18 Aniline	ND	100	ND	ND	ND	100	63	ND	100	79
20 Aramite	-	-	-	-	-	-	-	-	-	-
25 Auramine	-	-	-	-	-	-	-	-	-	-
29 Benz[c]acridine	-	-	-	-	-	-	-	-	-	-
30 Benz[a]anthracene	ND	100	ND	ND	ND	100	98	ND	100	89
33 Dichloromethylbenzene	ND	100	ND	ND	ND	100	37	ND	100	73
34 Benzenethiol	ND	100	ND	ND	ND	300	45	ND	300	18
36 Benzo[b]fluoranthene	ND	48	ND	ND	ND	100	55	ND	100	122
37 Benzo[j]fluoranthene	-	-	-	-	-	-	-	-	-	-
38 Benzo(a)pyrene	ND	25	ND	ND	ND	100	61	ND	100	65
39 p-Benzoquinone	IND		IND	IND	IND	100	0	IND	100	0
40 Benzotrichloride	-	-	-	-	-	-	-	-	-	-
41 Benzyl chloride	ND	100	ND	ND	ND	100	60	ND	100	57
43 bis(2-Chloroethoxy)methane	ND	53	ND	ND	ND	100	82	ND	100	71
44 bis(2-Chloroethyl) ether	ND	57	ND	ND	ND	100	99	ND	100	101
45 Chlornaphazine	-	-	-	-	-	-	-	-	-	-
46 bis(2-Chloroisopropyl)ether	ND	57	ND	ND	ND	100	86	ND	100	79
48 bis(2-Ethylhexyl)phthalate	BMDL	100	24.1	37.5	15.0	100	113	16.3	100	108
51 4-Bromophenyl phenyl ether	ND	19	ND	ND	ND	100	98	ND	100	87
52 Brucine	-	-	-	-	-	-	-	-	-	-
53 2-Butanone peroxide	-	-	-	-	-	-	-	-	-	-
54 Butyl benzyl phthalate	ND	100	ND	ND	ND	100	108	ND	100	86
55 2-sec-Butyl-4,6-dinitrophen	ND	100	ND	ND	ND	300	83	ND	300	38
64A 1,2,3-Trichlorobenzene	ND	100	ND	ND	ND	100	58	ND	100	73
64B 1,3,5-Trichlorobenzene	ND	100	ND	ND	ND	100	74	ND	100	74
64C 1,2,3,4-Tetrachlorobenzene	ND	100	ND	ND	ND	100	110	ND	100	107
64D 1,2,3,5-Tetrachlorobenzene	ND	100	ND	ND	ND	100	110	ND	100	107

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
67A 1-chloronaphthalene	ND	100	ND	ND	ND	100	66	ND	100	53
68A 2,3,5,6-Tetrachlorophenol	ND	100	ND	ND	ND	300	35	ND	300	18
68B 2,3,4,5-Tetrachlorophenol	ND	100	ND	ND	ND	300	35	ND	300	18
71 p-Chloroaniline	ND	100	ND	ND	ND	300	19	ND	300	3
74 p-Chloro-m-cresol	ND	30	ND	ND	ND	100	100	ND	100	0
80 2-Chloronaphthalene	ND	19	ND	ND	ND	100	36	ND	100	29
81 2-Chlorophenol	ND	33	ND	ND	ND	100	75	ND	100	10
85 Chrysene	ND	25	ND	ND	ND	100	91	ND	100	74
87A Acenaphthene	ND	19	ND	ND	ND	100	78	ND	100	76
87B Acenaphthylene	ND	35	ND	ND	ND	100	79	ND	100	80
87C Anthracene	ND	19	ND	ND	ND	100	95	ND	100	88
87D Benzo(ghi)perylene	ND		ND	ND	ND	0	-	ND	0	-
87E Benzo(k)fluoranthene	ND	35	ND	ND	ND	100	80	ND	100	178
87F Fluorene	ND	19	ND	ND	ND	100	85	ND	100	83
87G Phenanthrene	ND	54	ND	ND	ND	100	95	ND	100	90
87H Pyrene	ND	19	ND	ND	ND	100	111	ND	100	61
89A 2-Nitrophenol	ND	36	ND	ND	ND	100	86	ND	100	33
90A o-Cresol	ND	100	.367	.579	ND	100	73	ND	100	75
90B m+p-Cresol	ND	100	ND	ND	ND	200	37	ND	200	34
97 2-Cyclohexyl-4,6-dinitrophe	-	-	-	-	-	-	-	-	-	-
103 Diallate	-	-	-	-	-	-	-	-	-	-
104 Dibenz[a,h]acridine	-	-	-	-	-	-	-	-	-	-
105 Dibenz[a,j]acridine	ND	100	ND	ND	ND	100	28	ND	100	83
106 Dibenz[a,h]anthracene	ND		ND	ND	ND	0	-	ND	0	-
107 7H-Dibenzo[c,g]carbazole	-	-	-	-	-	-	-	-	-	-
108 Dibenzo[a,e]pyrene	-	-	-	-	-	-	-	-	-	-
109 Dibenzo[a,h]pyrene	-	-	-	-	-	-	-	-	-	-
110 Dibenzo[a,i]pyrene	-	-	-	-	-	-	-	-	-	-
114 Di-n-butyl phthalate	ND	100	.889	3.58	BMDL	100	104	.309	100	122
115 1,2-Dichlorobenzene	ND	19	ND	ND	ND	100	57	ND	100	64
116 1,3-Dichlorobenzene	ND	19	ND	ND	BMDL	100	51	ND	100	61
117 1,4-Dichlorobenzene	ND	44	ND	ND	BMDL	100	49	ND	100	59

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"BMDL" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. Company Facility Sample Point Date Time Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
128 2,4-Dichlorophenol	ND	27	ND	ND	ND	100	43	ND	100	48
129 2,6-Dichlorophenol	ND	100	ND	ND	ND	100	80	ND	100	32
131 Dichlorophenylarsine	-	-	-	-	-	-	-	-	-	-
142 0,0-Diethylphosphoric acid	-	-	-	-	-	-	-	-	-	-
143 Diethyl phthalate	ND	100	ND	ND	ND	100	82	ND	100	73
146 Dihydrosafrole	-	-	-	-	-	-	-	-	-	-
148 Diisopropylfluorophosphate	-	-	-	-	-	-	-	-	-	-
151 p-Dimethylaminoazobenzene	ND	100	ND	ND	ND	100	60	ND	100	49
152 7,12-Dimethylbenz[a]anthrac	ND		ND	ND	ND	0	-	ND	0	-
157 Thiofanox	IND		IND	IND	IND	300	0	IND	300	0
158 a-a-Dimethylphenethylamine	IND		IND	IND	IND	100	0	IND	100	0
159 2,4-Dimethylphenol	ND	27	ND	ND	ND	100	92	ND	100	19
160 Dimethyl phthalate	ND	100	ND	ND	ND	100	84	ND	100	77
161 Dimethyl sulfate	-	-	-	-	-	-	-	-	-	-
162A m-Dinitrobenzene	ND	100	ND	ND	ND	100	195	ND	100	96
163 4,6-Dinitro-o-cresol	ND	240	ND	ND	ND	100	0	ND	100	43
164 2,4-Dinitrophenol	BMDL	420	ND	ND	ND	100	58	ND	100	61
165 2,4-Dinitrotoluene	351000	57	8630	7340	ND	100	92	ND	100	83
166 2,6-Dinitrotoluene	135000	19	2690	2390	ND	100	91	ND	100	80
167 Di-n-octyl phthalate	ND	100	ND	8.75	ND	100	111	5.33	100	108
169 Diphenylamine	ND	100	ND	ND	ND	100	54	ND	100	0
170 1,2-Diphenylhydrazine	ND	100	ND	ND	ND	100	78	ND	100	99
171 N-Nitrosodi-n-propylamine	ND	100	ND	ND	ND	100	68	ND	100	156
173 2,4-Dithiobiuret	-	-	-	-	-	-	-	-	-	-
183 Ethyl methanesulfonate	ND	100	ND	ND	ND	100	84	ND	100	23
184 Fluoranthene	ND	22	ND	ND	ND	100	83	ND	100	126
189 Formic acid	-	-	-	-	-	-	-	-	-	-
194 Hexachlorobenzene	ND	19	ND	ND	ND	100	117	ND	100	104
195 Hexachlorobutadiene	ND	9.0	ND	ND	ND	100	45	ND	100	66
197 Hexachlorocyclopentadiene	ND		ND	ND	ND	0	-	ND	0	-
198 Hexachloroethane	ND	16	ND	ND	ND	100	37	ND	100	54
199 Hexachlorohexahydro-endo, e	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 10, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3100	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	IEFFPOND	850725	0830	

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
200	Hexachlorophene	ND		ND	ND	ND	300	125	ND	300	224
201	Hexachloropropene	ND	100	ND	ND	ND	300	56	ND	300	55
202	Hexaethyltetraphosphate	-	-	-	-	-	-	-	-	-	-
208	Indeno(1,2,3-cd)pyrene	ND		ND	ND	ND	0	-	ND	0	-
213	Isosafrole	ND	100	ND	ND	ND	300	144	ND	300	157
220	Maleic anhydride	-	-	-	-	-	-	-	-	-	-
223	Melphalan	IND		IND	IND	IND	300	0	IND	300	0
228	Methapyrilene	-	-	-	-	-	-	-	-	-	-
232	3-Methylcholanthrene	ND	100	ND	ND	ND	100	41	ND	100	135
234	4,4'-Methylenebis(2-chloroa	ND		ND	ND	ND	0	-	ND	0	-
239	Methyl methanesulfonate	ND	100	ND	ND	ND	100	63	ND	100	11
240	Aldicarb	ND	100	ND	ND	ND	100	75	ND	100	61
241	N-Methyl-N'-nitrosoguanidin	-	-	-	-	-	-	-	-	-	-
243	Methylthiouracil	-	-	-	-	-	-	-	-	-	-
245	Naphthalene	ND	16	ND	ND	BMDL	100	67	ND	100	72
246	1,4-Naphthoquinone	ND	100	ND	ND	ND	100	5	ND	100	0
247	1-Naphthylamine	ND	100	ND	ND	ND	100	29	ND	100	0
248	2-Naphthylamine	ND	100	ND	ND	ND	100	15	ND	100	0
255	p-Nitroaniline	ND	100	ND	ND	ND	300	57	ND	300	16
256	Nitrobenzene	105	19	ND	ND	ND	100	76	ND	100	53
261	4-Nitrophenol	35.0	24	ND	ND	ND	100	3	ND	100	18
262	4-Nitroquinoline-1-oxide	-	-	-	-	-	-	-	-	-	-
263A	N-Nitrosodiphenylamine	ND	19	ND	ND	ND	100	157	ND	100	146
264	N-Nitrosodi-n-butylamine	ND	100	ND	ND	ND	100	83	ND	100	61
265	N-Nitrosodiethanolamine	IND		IND	IND	IND	300	0	IND	300	0
266	N-Nitrosodiethylamine	ND	100	ND	ND	ND	300	43	ND	300	24
267	N-Nitrosodimethylamine	ND		ND	ND	ND	0	-	ND	0	-
269	N-Nitrosomethylethylamine	IND		IND	IND	IND	300	0	IND	300	0
271	N-Nitroso-N-methylurethane	ND	100	ND	ND	ND	300	60	ND	300	46
272	N-Nitrosomethylvinylamine	-	-	-	-	-	-	-	-	-	-
273	N-Nitrosomorpholine	BMDL	100	ND	ND	ND	300	36	ND	300	33
274	N-Nitrosonornicotine	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" - indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
275	N-Nitrosopiperidine	ND	100	ND	ND	ND	100	85	ND	100	0
277	N-Nitrososarcosine	-	-	-	-	-	-	-	-	-	-
278	5-Nitro-o-toluidine	ND	100	28.7	29.2	ND	300	70	ND	300	0
279	Octamethylpyrophosphoramide	-	-	-	-	-	-	-	-	-	-
281	Endothal	-	-	-	-	-	-	-	-	-	-
284	Pentachlorobenzene	ND	100	ND	ND	ND	100	83	ND	100	82
286	Pentachloronitrobenzene	ND	100	ND	ND	ND	300	51	ND	300	51
287	Pentachlorophenol	ND	36	ND	ND	ND	100	137	ND	100	67
288	Phenacetin	ND	100	ND	ND	ND	100	80	ND	100	106
289	Phenol	ND	15	ND	ND	ND	100	51	ND	100	22
298	Phthalic anhydride	-	-	-	-	-	-	-	-	-	-
299	2-Picoline	ND	100	ND	ND	ND	100	49	ND	100	57
303	Pronamide	ND	100	ND	ND	ND	100	74	ND	100	81
304	1,3-Propane sultone	-	-	-	-	-	-	-	-	-	-
306	Propylthiouracil	-	-	-	-	-	-	-	-	-	-
310	Resorcinol	IND		IND	IND	IND	300	0	IND	300	0
311	Saccharin and salts	-	-	-	-	-	-	-	-	-	-
312	Safrole	ND	100	ND	ND	ND	300	68	ND	300	72
323	1,2,4,5-Tetrachlorobenzene	ND	100	ND	ND	ND	100	73	ND	100	70
330	2,3,4,6-Tetrachlorophenol	ND	100	ND	ND	ND	300	175	ND	300	96
331	Tetraethyldithiopyrophospha	-	-	-	-	-	-	-	-	-	-
346	Thiuram	IND		IND	IND	IND	300	0	IND	300	0
349	O-Toluidine	ND	100	84.0	83.7	ND	300	22	ND	300	0
353	1,2,4-Trichlorobenzene	ND	19	ND	ND	ND	100	59	ND	100	75
359	2,4,5-Trichlorophenol	ND	100	ND	ND	ND	100	78	ND	100	27
360	2,4,6-Trichlorophenol	ND	27	ND	ND	ND	100	109	ND	100	11
365	0,0,0-Triethyl phosphorothi	-	-	-	-	-	-	-	-	-	-
366	sym-Trinitrobenzene	-	-	-	-	-	-	-	-	-	-
367	Tris(1-Azridinyl)phosphine	-	-	-	-	-	-	-	-	-	-
368	Tris(2,3-dibromopropyl)phos	IND		IND	IND	IND	300	0	IND	300	0
370	Uracil mustard	-	-	-	-	-	-	-	-	-	-
	o-Nitrotoluene	11100 A		16700	15400	ND	0	-	ND	0	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" =Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
m-Nitrotoluene	1900 A		1490	1280	ND	0	-	ND	0	-
p-Nitrotoluene	20100 A		1580	3700	ND	0	-	ND	0	-

A Semi-quantitative results. Compounds was not spiked for.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"ND" undetermined. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Pest & Herb Compounds - GC Analysis Data (QR24)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3100	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	IEFFPOND	850725	0830	

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
11 Aldrin	ND	10	ND	ND	ND	0.5	98	ND	0.5	0
63 Chlordane	ND	100	ND	ND	ND	5.0	100	ND	5.3	77
73 Chlorobenzilate	-	-	-	-	-	-	-	-	-	-
100 4,4'-DDD	ND	10	ND	ND	ND	0.5	100A	ND	0.5	0
101 4,4'-DDE	ND	10	ND	ND	ND	0.5	100	ND	0.5	0
102 4,4'-DDT	ND	10	ND	ND	ND	0.5	100	ND	0.5	0
130 2,4-D	ND	50	ND	ND	ND	100	77	ND	100	77
137 Dieldrin	ND	10	ND	ND	ND	0.5	70	ND	0.5	0
141 Carbophenothion	-	-	-	-	-	-	-	-	-	-
144 Thionazin	ND	100	ND	ND	ND	5.0	100	ND	5.0	54
149 Dimethoate	ND	100	ND	ND	ND	5.0	57	13	5.0	180A
172 Disulfoton	ND	500	ND	ND	ND	25	99	ND	25	78
174A Endosulfan I	ND	10	ND	ND	ND	0.5	100	ND	0.5	0
174B Endosulfan II	ND	10	ND	ND	ND	0.5	100A	ND	0.5	0
175 Endrin	ND	10	ND	ND	ND	0.5	98	ND	0.5	0
192 Heptachlor	66	10	ND	ND	ND	0.5	100	ND	[illegible]	0
193 Heptachlor epoxide	ND	10	ND	ND	ND	0.5	100	ND	0	0
196A Alpha-BHC	ND	10	ND	ND	ND	0.5	76	ND	0.5	0
196B Beta-BHC	ND	10	ND	ND	ND	0.5	86	ND	0.5	0
196C Gamma-BHC	ND	10	ND	ND	ND	0.5	98	ND	0.5	0
196D Delta-BHC	ND	10	ND	ND	ND	0.5	80	ND	0.5	0
214 Kepone	ND	100	ND	ND	ND	5.0	46	ND	5.3	74
230 Methoxychlor	ND	1000	ND	ND	ND	50	100	ND	0.5	0
242 Methyl parathion	ND	100	ND	ND	ND	5.0	110	ND	5.0	96
283 Parathion	ND	100	ND	ND	ND	5.0	110	ND	5.0	86
295 Phorate	-	-	-	-	-	-	-	-	-	-
296 Famphur	ND	1000	ND	ND	ND	50	110	ND	50	110
333 Tetraethylpyrophosphate	ND	500	570	630	ND	25	61	1.8	25	76
351 Toxaphene	ND	250	ND	ND	ND	20	70	ND	21	39
361 2,4,5-T	ND	5.0	ND	ND	ND	10	98	ND	10	98
362 2,4,5-TP (Silvex)	ND	5.0	ND	ND	ND	10	97	ND	10	97

A See Comments.

*See Quant Table 2A, 2B, 2C for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" Indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - DAI HPLC Compounds - Analysis Data (QR25)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3100	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	IEFFPOND	850725	0830	

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov
6	1-Acetyl-2-thiourea	ND	.5	ND	ND	ND	5.0	103	ND	5.0	15
8	Acrylamide	ND	.5	ND	ND	ND	5.0	101	ND	5.0	116
17	Amitrole	-	-	-	-	-	-	-	-	-	-
82	1-(o-Chlorophenyl)thiourea	ND	.5	ND	ND	ND	5.0	116	ND	5.0	63
145	Diethylstilbesterol	-	-	-	-	-	-	-	-	-	-
176	Ethyl carbamate	-	-	-	-	-	-	-	-	-	-
179	Ethyleneimine	-	-	-	-	-	-	-	-	-	-
181	Ethylenethiourea	ND	.5	ND	ND	ND	5.0	103	ND	5.0	98
221	Maleic hydrazide	ND	.5	ND	ND	ND	5.0	98	ND	5.0	127
222	Malononitrile	-	-	-	-	-	-	-	-	-	-
229	Methomyl	ND	.5	ND	ND	ND	5.0	100	ND	5.0	87
231	2-Methylaziridine	-	-	-	-	-	-	-	-	-	-
253	Nicotinic acid	ND	.5	ND	ND	ND	5.0	75	ND	5.0	190
260	Nitroglycerin	-	-	-	-	-	-	-	-	-	-
268	N-Nitroso-N-ethylurea	ND	.5	ND	ND	ND	5.0	-a	ND	5.0	-a
270	N-Nitroso-N-methylurea	ND	.5	ND	ND	ND	5.0	-a	ND	5.0	-a
292	N-Phenylthiourea	ND	.5	ND	ND	ND	5.0	90	ND	5.0	94
309	Reserpine	-	-	-	-	-	-	-	-	-	-
345	Thiourea	ND	.5	ND	ND	ND	5.0	75	ND	5.0	190

a Recovery data not available due to standard degradation. Sample results qualitative.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" - indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 30, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Extractable HPLC Compounds - Analysis Data (QR31)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3100	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	IEFFPOND	850725	0830	

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
3 Warfarin	ND	57	ND	ND	ND	500	120	ND	500	64
15 Mitomycin C	-	-	-	-	-	-	-	-	-	-
26 Azaserine	-	-	-	-	-	-	-	-	-	-
35 Benzidine	ND	57	BMDL	ND	ND	500	140	ND	500	115
62 Chlorambucil	-	-	-	-	-	-	-	-	-	-
86 Citrus red No.2	-	-	-	-	-	-	-	-	-	-
99 Daunomycin	-	-	-	-	-	-	-	-	-	-
119 3,3'-Dichlorobenzidine	ND	57	BMDL	BMDL	BMDL	500	120	BMDL	500	94
147 3,4-Dihydroxy-alph-(methyla	-	-	-	-	-	-	-	-	-	-
150 3,3'-Dimethoxybenzidine	ND	57	BMDL	ND	ND	500	100	BMDL	500	104
153 3,3'-Dimethylbenzidine	ND	57	ND	ND	BMDL	500	83	ND	500	90
249 1-Naphthyl-2-thiourea	ND	57	ND	ND	ND	500	48	ND	500	44
290A m-phenylenediamine	ND	57	ND	ND	ND	500	65	ND	500	82
290B o-phenylenediamine	ND	57	ND	ND	ND	500	46	ND	500	64
290C p-phenylenediamine	ND	57	BMDL	ND	ND	500	49	ND	500	64
320 Streptozotocin	-	-	-	-	-	-	-	-	-	-
343 Thioacetamide	-	-	-	-	-	-	-	-	-	-
344 Thiosemicarbazide	-	-	-	-	-	-	-	-	-	-
348A Toluene-2,4-Diamine	ND	57	ND	ND	ND	500	110	ND	500	46
369 Trypan blue	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 12 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Aroclors -GC Analysis Data (QR30)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
300A Aroclor 1242	ND	1.0	ND	ND	ND	0	-	ND	0	-
300B Aroclor 1254	ND	1.0	ND	ND	ND	0	-	ND	0	-
300C Aroclor 1260	ND	1.0	ND	ND	ND	2	120	ND	2	130
300D Aroclor 1248	ND	1.0	ND	ND	ND	0	-	ND	0	-
300E Aroclor 1232	ND	1.0	ND	ND	ND	0	-	ND	0	-
300F Aroclor 1221	ND	1.0	ND	ND	ND	0	-	ND	0	-
300G Aroclor 1016	ND	1.0	ND	ND	ND	0	-	ND	0	-

*See Grand Table for complete compound name and specifications.
**MDL calculated for each sample matrix.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 5, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Metals and Cyanides - Analysis Data (QR29)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3100 AIR PRODUCTS MANUFACTURING COR APCIPASGWM IEFFPOND 850725 0830

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL ug/l	First	Second	Blank Data	Concen. Added	% Recov	Unspiked Sample	Concen. Added	% Recov
13A Aluminum	4500	100								
19A Antimony	ND	200								
21A Arsenic	BMDL	20								
27A Barium	130	3								
42A Beryllium	ND	3								
56A Cadmium	ND	10								
57A Calcium	42000	200								
84A Chromium	1400	30								
88A Copper	40	10								
92A Cyanide, Total	49	25								
210 Iron	2900	200								
216A Lead	ND	200								
225A Mercury	.5	.2								
250A Nickel	340	30								
280A Osmium	ND	600								
301A Potassium	9000	40								
314A Selenium	ND	5								
317A Silver	ND	10								
319A Sodium	741000	80								
321A Strontium	320	100								
335A Thallium	ND	10								
372A Vanadium	260	20								
374A Zinc	1400	10								

*See Grand Table for complete compound name and specifications.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Dir/Inj Vol Compounds - GC/MS Analysis Data (QR26)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW2	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov ***	Unspiked Sample mg/l	Concen. Added mg/l	% Recov ***
12	Allyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
61	Chloral	ND		ND	ND	ND	-	-	-	-	-
69	Chloroacetaldehyde	ND	50	ND	ND	ND	-	-	-	-	-
83	3-Chloropropionitrile	IND		IND	IND	IND	-	-	-	-	-
93	Cyanogen	ND		ND	ND	ND	-	-	-	-	-
134A	Dichloropropanol	ND	10	ND	ND	ND	-	-	-	-	-
155	1,1-Dimethylhydrazine	ND	100	ND	ND	ND	-	-	-	-	-
156	1,2-Dimethylhydrazine	ND		ND	ND	ND	-	-	-	-	-
168	1,4-Dioxane	ND	10	ND	ND	ND	-	-	-	-	-
177	Ethyl cyanide	ND	10	ND	ND	ND	-	-	-	-	-
180	Ethylene oxide	ND		ND	ND	ND	-	-	-	-	-
187	Fluoroacetic acid	ND		ND	ND	ND	-	-	-	-	-
190	Glycidylaldehyde	-	-	-	-	-	-	-	-	-	-
203	Hydrazine	IND		IND	IND	IND	-	-	-	-	-
212	Isobutyl alcohol	ND	10	-	-	-	-	-	-	-	-
226	Methacrylonitrile	ND	50	ND	ND	ND	-	-	-	-	-
227	Methanethiol	ND		ND	ND	ND	-	-	-	-	-
236	Methyl hydrazine	IND		IND	IND	IND	-	-	-	-	-
237	2-Methyllactonitrile	IND		IND	IND	IND	-	-	-	-	-
276	N-Nitrosopyrrolidine	ND	50	ND	ND	ND	-	-	-	-	-
305	n-Propylamine	ND	100	ND	ND	ND	-	-	-	-	-
307	2-Propyn-1-ol	ND	10	ND	ND	ND	-	-	-	-	-
308	Pyridine	ND	10	ND	ND	ND	-	-	-	-	-

*See Grand Table for complete compound name and specifications
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.Added" specifies no standard available, compound was qualitatively searched for.
***Standard QA procedures not applicable for samples analyzed by direct injection.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM WW2		850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
1	Acetonitrile	IND		IND	IND	IND	50	0	IND	50	0
7	Acrolein	ND	100	ND	ND	ND	800	89	ND	800	84
9	Acrylonitrile	ND	100	ND	ND	ND	80	79	ND	80	76
31	Benzene	ND	4.4	ND	ND	ND	18	92	ND	18	104
49	Bromoacetone	-	-	-	-	-	-	-	-	-	-
50	Methyl bromide	ND	10.0	ND	ND	ND	18	97	ND	18	123
59	Carbon disulfide	ND	10	ND	ND	ND	68	22	ND	68	24
65A	Chloroethane	ND	10.0	ND	ND	ND	18	80	ND	18	86
66A	Freon TF	ND	10.0	ND	ND	ND	68	43	ND	68	51
72	Chlorobenzene	ND	6.0	ND	ND	ND	18	83	ND	18	139
75	1-Chloro-2,3-epoxypropane	-	-	-	-	-	-	-	-	-	-
76	2-Chloroethylvinyl ether	ND	10.0	ND	ND	ND	18	91	ND	18	79
77	Chloroform	ND	1.6	ND	ND	ND	18	85	ND	18	96
78	Methyl chloride	ND	10.0	ND	ND	ND	18	83	ND	18	114
79	Chloromethyl methyl ether	-	-	-	-	-	-	-	-	-	-
91	Crotonaldehyde	ND	10	ND	ND	ND	50	86	ND	50	79
111	1,2-Dibromo-3-chloropropane	ND	10	ND	ND	ND	68	21	ND	68	21
112	1,2-Dibromoethane	ND	10	ND	ND	ND	50	93	ND	50	87
113	Dibromomethane	ND	10	ND	ND	ND	50	89	ND	50	88
120	1,4-Dichloro-2-butene	ND	10	ND	ND	ND	50	90	ND	50	80
121	Dichlorodifluoromethane	ND	10.0	ND	ND	ND	18	79	ND	18	103
122	1,1-Dichloroethane	ND	4.7	ND	ND	ND	18	71	ND	18	107
123	1,2-Dichloroethane	ND	2.8	ND	ND	ND	18	83	ND	18	101
124	1,2-Trans-dichloroethylene	ND	10.0	ND	ND	ND	18	85	ND	18	99
126	1,1-Dichloroethylene	ND	2.8	ND	ND	ND	18	78	ND	18	100
127	Methylene chloride	4.20	2.8	ND	ND	4.30	18	68	4.20	18	95
132A	1,3-Dichloropropane	ND	10	ND	ND	ND	50	88	ND	50	87
133	1,2-Dichloropropane	ND	6.0	ND	ND	ND	18	83	ND	18	99
135	2,3-Dichloropropene	ND	10	ND	ND	ND	50	89	ND	50	89
136A	cis-1,3-Dichloropropylene	ND	10	-	-	-	-	-	-	-	-
136B	trans-1,3-Dichloropropylene	ND	10	-	-	-	-	-	-	-	-
138	1,2,3,4-Diepoxybutene	-	-	-	-	-	-	-	-	-	-

* See Grand Table for complete compound name and specifications.
** EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3098 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW2 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
139 Diethylarsine	-	-	-	-	-	-	-	-	-	-
140 N,N-Diethylhydrazine	-	-	-	-	-	-	-	-	-	-
182 Ethyl methacrylate	ND	10	ND	ND	ND	50	89	ND	50	86
188 Formaldehyde	-	-	-	-	-	-	-	-	-	-
191A Chlorodibromomethane	ND	3.1	ND	ND	ND	18	79	ND	18	94
191B Dichlorobromomethane	ND	2.2	ND	ND	ND	18	79	ND	18	98
206 Hydrogen sulfide	-	-	-	-	-	-	-	-	-	-
209 Iodomethane	ND	10	ND	ND	ND	50	91	ND	50	94
235 Methyl ethyl ketone	BMDL	10	ND	ND	ND	140	59	8.85	140	39
238 Methyl methacrylate	ND	10	ND	ND	ND	50	92	ND	50	79
282 Paraldehyde	-	-	-	-	-	-	-			-
285 Pentachloroethane	ND	10	ND	ND	ND	50	137	ND	50	8.4
326 1,1,2-Tetrachloroethane	ND	10	ND	.494	ND	50	32	ND	50	33
327 1,1,2,2-Tetrachloroethane	ND	6.9	ND	ND	ND	18	103	ND	18	110
328 Tetrachloroethylene	ND	4.1	ND	.759	ND	18	86	ND	1	44
329 Carbon tetrachloride	ND	2.8	ND	ND	ND	18	89	ND	18	91
334 Tetranitromethane	-	-	-	-	-	-	-	-	-	-
347 Toluene	ND	6.0	ND	1.00	BMDL	18	80	ND	18	107
352 Bromoform	ND	4.7	ND	ND	ND	18	75	ND	18	82
354 1,1,1-Trichloroethane	ND	3.8	ND	ND	BMDL	8	76	ND	18	103
355 1,1,2-Trichloroethane	ND	5.0	ND	ND	ND	18	97	ND	18	111
356 Trichloroethylene	3.65	1.9	ND	ND	ND	18	113	3.65	8	48
357 Trichloromethanethiol	-	-	-	-	-	-	-	-	-	-
358 Trichlorofluoromethane	ND	10.0	ND	ND	ND	18	75	ND	18	95
363A 1,1,2-Trichloropropane	ND	10	ND	ND	ND	50	32	ND	50	33
363B 1,2,2-Trichloropropane	ND		ND	ND	ND	0	-	ND	0	-
364 1,2,3-Trichloropropane	BMDL	10	ND	ND	ND	140	48	1.43	140	40
373 Vinyl chloride	ND	10.0	ND	ND	ND	18	83	ND	18	109

*See Ground Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
- "specifies no standard or reference spectra available.
"ND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3098 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW2 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
2	Acetophenone	ND	20	ND	ND	ND	100	79	ND	200	33
4	2-Acetylaminofluorene	ND	20	ND	ND	ND	300	99	ND	600	100
10A	Aflatoxins, Total	-	-	-	-	-	-	-	-	-	-
14	4-Aminobiphenyl	ND	20	ND	ND	ND	100	75	ND	200	86
16	5-(Aminomethyl)-3-isoxazolo	IND		IND	IND	IND	300	0	IND	600	0
18	Aniline	BMDL	20	ND	ND	ND	100	59	212	200	149
20	Aramite	-	-	-	-	-	-	-	-	-	-
25	Auramine	-	-	-	-	-	-	-	-	-	-
29	Benz[c]acridine	-	-	-	-	-	-	-	-	-	-
30	Benz[a]anthracene	ND	10	9.48	12.2	ND	100	93	ND	200	86
33	Dichloromethylbenzene	ND	20	ND	ND	ND	100	15	ND	200	11
34	Benzenethiol	ND	20	ND	ND	ND	300	65	ND	600	24
36	Benzo[b]fluoranthene	ND	20	ND	ND	ND	100	100	ND	200	79
37	Benzo[j]fluoranthene	-	-	-	-	-	-	-	-	-	-
38	Benzo(a)pyrene	ND	2.5	4.48	5.53	ND	100	90	ND	200	81
39	p-Benzoquinone	IND		IND	IND	IND	100	0	ND	200	0
40	Benzotrichloride	-	-	-	-	-	-	-	-	-	-
41	Benzyl chloride	ND	20	ND	ND	ND	100	60	ND	200	37
43	bis(2-Chloroethoxy)methane	ND	11	ND	ND	ND	100	82	ND	200	67
44	bis(2-Chloroethyl) ether	ND	5.7	ND	ND	ND	100	99	ND	200	0
45	Chlornaphazine	-	-	-	-	-	-	-	-	-	-
46	bis(2-Chloroisopropyl)ether	ND	11	ND	ND	ND	100	93	ND	200	80
48	bis(2-Ethylhexyl)phthalate	ND	20	ND	ND	ND	100	100	34.1	200	88
51	4-Bromophenyl phenyl ether	ND	3.8	ND	ND	ND	100	84	ND	200	34
52	Brucine	-	-	-	-	-	-	-	-	-	-
53	2-Butanone peroxide	-	-	-	-	-	-	-	-	-	-
54	Butyl benzyl phthalate	ND	10	ND	ND	ND	100	105	ND	200	92
55	2-sec-Butyl-4,6-dinitrophen	ND	20	ND	ND	ND	300	88	ND	600	43
64A	1,2,3-Trichlorobenzene	ND	20	ND	ND	ND	100	59	ND	200	47
64B	1,3,5-Trichlorobenzene	ND	20	ND	ND	ND	100	65	ND	200	64
64C	1,2,3,4-Tetrachlorobenzene	ND	20	ND	ND	ND	0	-	ND	0	-
64D	1,2,3,5-Tetrachlorobenzene	ND	20	ND	ND	ND	0	-	ND	0	-

*See Grand Totals for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = indeterminate. "Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM WW2		850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
67A 1-chloronaphthalene	ND	20	ND	ND	ND	100	255	ND	200	230
68A 2,3,5,6-Tetrachlorophenol	ND	20	ND	ND	ND	300	68	ND	600	51
68B 2,3,4,5-Tetrachlorophenol	ND	20	ND	ND	ND	300	81	ND	600	53
71 p-Chloroaniline	ND	20	ND	ND	ND	300	35	1780	600	0
74 p-Chloro-m-cresol	ND	6.0	ND	ND	ND	100	89	ND	200	70
80 2-Chloronaphthalene	ND	3.8	ND	ND	ND	100	43	ND	200	34
81 2-Chlorophenol	ND	6.6	ND	ND	ND	100	75	323	200	50
85 Chrysene	ND	2.5	9.87	11.7	ND	100	98	ND	200	81
87A Acenaphthene	ND	3.8	ND	ND	ND	100	79	ND	200	72
87B Acenaphthylene	ND	7.0	ND	ND	ND	100	81	ND	200	64
87C Anthracene	ND	3.8	ND	ND	ND	100	85	ND	200	73
87D Benzo(ghi)perylene	ND	4.1	ND	ND	ND	0	-	ND	0	-
87E Benzo(k)fluoranthene	ND	3.5	3.50	4.47	ND	100	91	ND	200	92
87F Fluorene	ND	1.9	ND	ND	ND	100	81	ND	200	83
87G Phenanthrene	ND	11	8.07	9.96	ND	100	88	ND	200	85
87H Pyrene	ND	3.8	12.6	15.8	ND	100	85	ND	200	71
89A 2-Nitrophenol	ND	7.2	ND	ND	ND	100	75	ND	200	7
90A o-Cresol	ND	20	ND	ND	ND	100	123	ND	200	71
90B m+p-Cresol	ND	20	ND	ND	ND	200	63	ND	400	63
97 2-Cyclohexyl-4,6-dinitrophe	-	-	-	-	-	-	-	-	-	-
103 Diallate	-	-	-	-	-	-	-	-	-	-
104 Dibenz[a,h]acridine	-	-	-	-	-	-	-	-	-	-
105 Dibenz[a,j]acridine	ND	20	ND	ND	ND	100	90	ND	200	92
106 Dibenz[a,h]anthracene	ND	20	ND	ND	ND	0	-	ND	0	-
107 7H-Dibenzo[c,g]carbazole	-	-	-	-	-	-	-	-	-	-
108 Dibenzo[a,e]pyrene	-	-	-	-	-	-	-	-	-	-
109 Dibenzo[a,h]pyrene	-	-	-	-	-	-	-	-	-	-
110 Dibenzo[a,i]pyrene	-	-	-	-	-	-	-	-	-	-
114 Di-n-butyl phthalate	ND	10	ND	ND	BMDL	100	99	ND	200	110
115 1,2-Dichlorobenzene	ND	1.9	ND	ND	ND	100	69	48.7	200	53
116 1,3-Dichlorobenzene	ND	1.9	ND	ND	ND	100	66	3.07	200	53
117 1,4-Dichlorobenzene	ND	4.4	ND	ND	ND	100	63	3.94	200	54

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"ND" (Ingeborn note: Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.Added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3098 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW2 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
128 2,4-Dichlorophenol	ND	5.4	ND	ND	ND	100	85	ND	200	102
129 2,6-Dichlorophenol	ND	20	ND	ND	ND	100	86	ND	200	60
131 Dichlorophenylarsine	-	-	-	-	-	-	-	-	-	-
142 O,O-Diethylphosphoric acid	-	-	-	-	-	-	-	-	-	-
143 Diethyl phthalate	ND	10	ND	ND	ND	100	89	ND	200	89
146 Dihydrosafrole	-	-	-	-	-	-	-	-	-	-
148 Diisopropylfluorophosphate	-	-	-	-	-	-	-	-	-	-
151 p-Dimethylaminoazobenzene	ND	20	ND	ND	ND	100	96	ND	200	55
152 7,12-Dimethylbenz[a]anthrac	ND	20	ND	ND	ND	100	93	ND	200	100
157 Thiofanox	IND		IND	IND	IND	300	0	IND	600	0
158 a-a-Dimethylphenethylamine	IND		IND	IND	IND	100	0	IND	200	0
159 2,4-Dimethylphenol	ND	5.4	ND	ND	ND	100	85	ND	200	15
160 Dimethyl phthalate	ND	20	ND	ND	ND	100	81	ND	200	69
161 Dimethyl sulfate	-	-	-	-	-	-	-	-	-	-
162A m-Dinitrobenzene	ND	20	ND	ND	ND	100	88	ND	200	69
163 4,6-Dinitro-o-cresol	ND	48	ND	ND	ND	100	21	ND	200	75
164 2,4-Dinitrophenol	ND	42	ND	ND	ND	100	89	ND	200	102
165 2,4-Dinitrotoluene	5270	11	ND	ND	ND	100	83	ND	200	32
166 2,6-Dinitrotoluene	6640	3.8	ND	ND	ND	100	87	ND	200	64
167 Di-n-octyl phthalate	ND	10	ND	ND	ND	100	97	ND	200	95
169 Diphenylamine	ND	20	ND	ND	ND	100	146	ND	200	34
170 1,2-Diphenylhydrazine	ND	10	ND	ND	ND	100	90	ND	200	37
171 N-Nitrosodi-n-propylamine	ND	10	ND	ND	ND	100	312	ND	200	55
173 2,4-Dithiobiuret	-	-	-	-	-	-	-	-	-	-
183 Ethyl methanesulfonate	ND	20	ND	ND	ND	100	63	ND	200	27
184 Fluoranthene	ND	2.2	15.4	18.1	ND	100	96	ND	200	87
189 Formic acid	-	-	-	-	-	-	-	-	-	-
194 Hexachlorobenzene	ND	3.8	ND	ND	ND	100	88	ND	200	61
195 Hexachlorobutadiene	ND	1.8	ND	ND	ND	100	49	ND	200	48
197 Hexachlorocyclopentadiene	ND	20	ND	ND	ND	0	-	ND	0	-
198 Hexachloroethane	ND	3.2	ND	ND	ND	100	45	ND	200	58
199 Hexachlorohexahydro-endo, e	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**(PQL/ET) established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "conc.added" specifies no standard available or compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW2	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
200 Hexachlorophene	ND	20	ND	ND	ND	300	33	ND	600	14
201 Hexachloropropene	ND	20	ND	ND	ND	300	40	ND	600	20
202 Hexaethyltetraphosphate	-	-	-	-	-	-	-	-	-	-
208 Indeno(1,2,3-cd)pyrene	ND	10	ND	ND	ND	0	-	ND	0	-
213 Isosafrole	ND	20	ND	ND	ND	300	146	ND	600	132
220 Maleic anhydride	-	-	-	-	-	-	-	-	-	-
223 Melphalan	IND		IND	IND	IND	300	0	IND	600	0
228 Methapyrilene	-	-	-	-	-	-	-	-	-	-
232 3-Methylcholanthrene	ND	20	ND	ND	ND	100	87	ND	200	79
234 4,4'-Methylenebis(2-chloroa	ND	20	ND	ND	ND	300	93	ND	600	82
239 Methyl methanesulfonate	ND	20	ND	ND	ND	100	23	ND	200	1
240 Aldicarb	ND	20	ND	ND	ND	100	107	ND	200	143
241 N-Methyl-N'-nitrosoguanidin	-	-	-	-	-	-	-	-	-	-
243 Methylthiouracil	-	-	-	-	-	-	-	-	-	-
245 Naphthalene	ND	1.6	ND	ND	ND	100	75	ND	200	68
246 1,4-Naphthoquinone	ND	20	ND	ND	ND	100	31	ND	200	13
247 1-Naphthylamine	ND	20	ND	ND	ND	100	60	ND	200	64
248 2-Naphthylamine	ND	20	ND	ND	ND	100	64	ND	200	68
255 p-Nitroaniline	ND	20	ND	ND	ND	300	81	ND	600	44
256 Nitrobenzene	ND	1.9	ND	ND	ND	100	83	ND	200	12
261 4-Nitrophenol	ND	4.8	ND	ND	ND	100	3	ND	200	1
262 4-Nitroquinoline-1-oxide	-	-	-	-	-	-	-	-	-	-
263A N-Nitrosodiphenylamine	ND	3.8	ND	ND	ND	100	164	ND	200	46
264 N-Nitrosodi-n-butylamine	ND	20	ND	ND	ND	100	80	ND	200	107
265 N-Nitrosodiethanolamine	IND		IND	IND	IND	300	0	IND	600	0
266 N-Nitrosodiethylamine	ND	20	ND	ND	ND	300	69	ND	600	13
267 N-Nitrosodimethylamine	ND	10	ND	ND	ND	0	-	ND	0	-
269 N-Nitrosomethylethylamine	IND		IND	IND	IND	100	0	IND	200	0
271 N-Nitroso-N-methylurethane	ND	20	ND	ND	ND	300	59	ND	600	66
272 N-Nitrosomethylvinylamine	-	-	-	-	-	-	-	-	-	-
273 N-Nitrosomorpholine	ND	20	ND	ND	ND	300	67	ND	600	5
274 N-Nitrosonornicotine	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc. added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW2	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
275	N-Nitrosopiperidine	ND	20	ND	ND	ND	100	79	ND	200	16
277	N-Nitrososarcosine	-	-	-	-	-	-	-	-	-	-
278	5-Nitro-o-toluidine	22.7	20	ND	ND	ND	300	70	ND	600	43
279	Octamethylpyrophosphoramide	-	-	-	-	-	-	-	-	-	-
281	Endothal	-	-	-	-	-	-	-	-	-	-
284	Pentachlorobenzene	ND	20	ND	ND	ND	100	74	ND	200	66
286	Pentachloronitrobenzene	ND	20	ND	ND	ND	300	70	ND	600	41
287	Pentachlorophenol	ND	7.2	ND	ND	ND	100	60	ND	200	127
288	Phenacetin	ND	20	ND	ND	ND	100	93	ND	200	72
289	Phenol	ND	3.0	ND	ND	ND	100	57	ND	200	18
298	Phthalic anhydride	-	-	-	-	-	-	-	-	-	-
299	2-Picoline	ND	20	ND	ND	ND	100	55	ND	200	54
303	Pronamide	ND	20	ND	ND	ND	100	79	ND	200	70
304	1,3-Propane sultone	-	-	-	-	-	-	-	-	-	-
306	Propylthiouracil	-	-	-	-	-	-	-	-	-	-
310	Resorcinol	IND		IND	IND	IND	300	0	IND	600	0
311	Saccharin and salts	-	-	-	-	-	-	-	-	-	-
312	Safrole	ND	20	ND	ND	ND	300	64	ND	600	57
323	1,2,4,5-Tetrachlorobenzene	ND	20	ND	ND	ND	100	129	ND	200	116
330	2,3,4,6-Tetrachlorophenol	ND	20	ND	ND	ND	300	75	ND	600	13
331	Tetraethyldithiopyrophospha	-	-	-	-	-	-	-	-	-	-
346	Thiuram	IND		IND	IND	IND	300	0	IND	600	0
349	O-Toluidine	ND	20	ND	ND	ND	300	41	ND	600	101
353	1,2,4-Trichlorobenzene	ND	3.8	ND	ND	ND	100	62	ND	200	53
359	2,4,5-Trichlorophenol	ND	20	ND	ND	ND	100	72	ND	200	48
360	2,4,6-Trichlorophenol	ND	5.4	ND	ND	ND	100	68	9.80	200	52
365	O,O,O-Triethyl phosphorothi	-	-	-	-	-	-	-	-	-	-
366	sym-Trinitrobenzene	-	-	-	-	-	-	-	-	-	-
367	Tris(1-Azridinyl)phosphine	-	-	-	-	-	-	-	-	-	-
368	Tris(2,3-dibromopropyl)phos	IND		IND	IND	IND	300	0	IND	600	0
370	Uracil mustard	-	-	-	-	-	-	-	-	-	-
	o-Nitrotoluene	2424	20	ND	ND	ND	300	72	ND	600	70

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" : indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM WW2		850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
m-Nitrotoluene	242	20	ND	ND	ND	300	65	ND	600	60
p-Nitrotoluene	1600	20	ND	ND	ND	300	63	ND	600	62

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"--" specifies no standard or reference spectra available.
"IND" = Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Pest & Herb Compounds - GC Analysis Data (QR24)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3098 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW2 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
11 Aldrin	ND	10	ND	ND	ND	0.50	70	ND	0.56	98
63 Chlordane	ND	100	ND	ND	ND	5.0	136	ND	5.6	130
73 Chlorobenzilate	-	-	-	-	-	-	-	-	-	-
100 4,4'-DDD	ND	10	ND	ND	ND	0.50	0	ND	0.56	127
101 4,4'-DDE	ND	10	ND	ND	ND	0.50	98	ND	0.56	100
102 4,4'-DDT	ND	10	ND	ND	ND	0.50	0	ND	0.56	108
130 2,4-D	ND	500	ND	ND	ND	100	106	ND	100	103
137 Dieldrin	ND	10	ND	ND	ND	0.50	118	ND	0.56	107
141 Carbophenothion	-	-	-	-	-	-	-	-	-	-
144 Thionazin	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	93
149 Dimethoate	ND	5.0	ND	ND	ND	5.0	74	ND	5.6	70
172 Disulfoton	ND	5.0	ND	ND	ND	25	86	ND	28	90
174A Endosulfan I	ND	10	ND	ND	ND	0.50	0	ND	0.56	98
174B Endosulfan II	ND	10	ND	ND	ND	0.50	0	ND	0.56	127
175 Endrin	ND	10	ND	ND	ND	0.50	0	ND	0.56	131
192 Heptachlor	ND	10	ND	ND	ND	0.50	134	ND	0.56	101
193 Heptachlor epoxide	ND	10	ND	ND	ND	0.50	116	ND	0.56	109
196A Alpha-BHC	ND	10	ND	ND	0.080	0.50	86	ND	0.56	96
196B Beta-BHC	ND	10	ND	ND	ND	0.50	0	ND	0.56	104
196C Gamma-BHC	ND	10	ND	ND	0.18	0.50	88	ND	0.56	102
196D Delta-BHC	ND	10	ND	ND	ND	0.50	164	ND	0.56	98
214 Kepone	ND	100	ND	ND	ND	5.0	70	ND	5.6	70
230 Methoxychlor	ND	1000	ND	ND	ND	50	112	ND	56	106
242 Methyl parathion	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	88
283 Parathion	ND	1.0	ND	ND	ND	5.0	96	ND	5.6	96
295 Phorate	-	-	-	-	-	-	-	-	-	-
296 Famphur	ND	10	ND	ND	ND	50	22	ND	56	27
333 Tetraethylpyrophosphate	ND	5.0	ND	ND	ND	25	48	ND	28	47
351 Toxaphene	ND	250	ND	ND	ND	20	115	ND	22	82
361 2,4,5-T	ND	50	ND	ND	ND	10	158	ND	10	104
362 2,4,5-TP (Silvex)	ND	50	ND	ND	ND	10	143	ND	10	103

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"ND" indicates not detected. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - DAI HPLC Compounds - Analysis Data (QR25)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3098 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW2 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov
6	1-Acetyl-2-thiourea	ND	.5	ND	ND	ND	5.0	90	ND	5.0	0
8	Acrylamide	ND	.5	ND	ND	ND	5.0	96	ND	5.0	95
17	Amitrole	-	-	-	-	-	-	-	-	-	-
82	1-(o-Chlorophenyl)thiourea	ND	.5	ND	ND	ND	5.0	83	ND	5.0	87
145	Diethylstilbesterol	-	-	-	-	-	-	-	-	-	-
176	Ethyl carbamate	-	-	-	-	-	-	-	-	-	-
179	Ethyleneimine	-	-	-	-	-	-	-	-	-	-
181	Ethylenethiourea	ND	.5	ND	ND	ND	5.0	98	ND	5.0	96
221	Maleic hydrazide	ND	.5	ND	ND	ND	5.0	120	ND	5.0	130
222	Malononitrile	-	-	-	-	-	-	-	-	-	-
229	Methomyl	ND	.5	ND	ND	ND	5.0	39	ND	5.0	37
231	2-Methylaziridine	-	-	-	-	-	-	-	-	-	-
253	Nicotinic acid	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130
260	Nitroglycerin	-	-	-	-	-	-	-	-	-	-
268	N-Nitroso-N-ethylurea	ND	.5	ND	ND	ND	5.0	-A	ND	5.0	-A
270	N-Nitroso-N-methylurea	ND	.5	ND	ND	ND	5.0	-A	ND	5.0	-A
292	N-Phenylthiourea	ND	.5	ND	ND	ND	5.0	70	ND	5.0	74
309	Reserpine	-	-	-	-	-	-	-	-	-	-
345	Thiourea	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130

A Recovery Data not available due to compound degradation. Results are qualitative.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" = specified no standard available.
"ND" = Undetermined. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Extractable HPLC Compounds - Analysis Data (QR31)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW2	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
3 Warfarin	ND	27	ND	ND	ND	500	120	ND	500	64
15 Mitomycin C	-	-	-	-	-	-	-	-	-	-
26 Azaserine	-	-	-	-	-	-	-	-	-	-
35 Benzidine	ND	27	BMDL	ND	ND	500	140	ND	500	115
62 Chlorambucil	-	-	-	-	-	-	-	-	-	-
86 Citrus red No.2	-	-	-	-	-	-	-	-	-	-
99 Daunomycin	-	-	-	-	-	-	-	-	-	-
119 3,3'-Dichlorobenzidine	ND	27	BMDL	BMDL	BMDL	500	120	BMDL	500	94
147 3,4-Dihydroxy-alph-(methyla	-	-	-	-	-	-	-	-	-	-
150 3,3'-Dimethoxybenzidine	ND	27	BMDL	ND	ND	500	100	BMDL	500	104
153 3,3'-Dimethylbenzidine	ND	27	ND	ND	BMDL	500	83	ND	500	90
249 1-Naphthyl-2-thiourea	ND	27	ND	ND	ND	500	48	ND	500	44
290A m-phenylenediamine	ND	27	ND	ND	ND	500	65	ND	500	82
290B o-phenylenediamine	IND ^	27	ND	ND	ND	500	46	ND	500	64
290C p-phenylenediamine	ND	27	BMDL	ND	ND	500	49	ND	500	64
320 Streptozotocin	-	-	-	-	-	-	-	-	-	-
343 Thioacetamide	-	-	-	-	-	-	-	-	-	-
344 Thiosemicarbazide	-	-	-	-	-	-	-	-	-	-
348A Toluene-2,4-Diamine	ND	27	ND	ND	ND	500	110	ND	500	46
369 Trypan blue	-	-	-	-	-	-	-	-	-	-

^ Contaminant at appropriate retention time, but does not match absorbance profile of target compound.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" = Indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Aroclors -GC Analysis Data (QR30)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3098 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW2 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l A	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
300A Aroclor 1242	8.6 B	1	8.6B	4.2B	ND	0	-	ND	0	-
300B Aroclor 1254	ND	1	ND	ND	ND	0	-	ND	0	-
300C Aroclor 1260	ND	1	ND	ND	ND	2	80	ND	2	111
300D Aroclor 1248	ND	1	ND	ND	ND	0	-	ND	0	-
300E Aroclor 1232	ND	1	ND	ND	ND	0	-	ND	0	-
300F Aroclor 1221	ND	1	ND	ND	ND	0	-	ND	0	-
300G Aroclor 1016	ND	1	ND	ND	ND	0	-	ND	0	-

A ETC established Method Detection Limit for this particular sample.

B Confirmed by GC/MS.

*See Grand Table for complete compound name and specifications.
**MDL calculated for each sample matrix.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Metals and Cyanides - Analysis Data (QR29)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW2	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL ug/l	First	Second	Blank Data	Concen. Added	% Recov	Unspiked Sample	Concen. Added	% Recov
13A Aluminum	ND	100								
19A Antimony	ND	200								
21A Arsenic	ND	10								
27A Barium	140	3								
42A Beryllium	ND	3								
56A Cadmium	ND	10								
57A Calcium	40200	200								
84A Chromium	BMDL	30								
88A Copper	ND	10								
92A Cyanide, Total	<25	25								
210 Iron	ND	200								
216A Lead	ND	200								
225A Mercury	ND	.2								
250A Nickel	ND	30								
280A Osmium	ND	600								
301A Potassium	750	40								
314A Selenium	ND	5								
317A Silver	ND	10								
319A Sodium	335000	80								
321A Strontium	400	100								
335A Thallium	ND	5								
372A Vanadium	ND	20								
374A Zinc	BMDL	10								

*See Grand Table for complete compound name and specifications.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 30, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Field Parameters (QR16)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3098	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW2	850724		

Parameter	Results									
	Sample Measure	MDL								
pH (Field) std	7.37									
Specific Conductance (Fieldum/cm	2000									
Groundwater Elevation Feet	17.80									

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Dir/Inj Vol Compounds - GC/MS Analysis Data (QR26)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW5 MW5	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov ***	Unspiked Sample mg/l	Concen. Added mg/l	% Recov ***
12 Allyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
61 Chloral	ND		ND	ND	ND	-	-	-	-	-
69 Chloroacetaldehyde	ND	50	ND	ND	ND	-	-	-	-	-
83 3-Chloropropionitrile	IND		IND	IND	IND	-	-	-	-	-
93 Cyanogen	ND		ND	ND	ND	-	-	-	-	-
134A Dichloropropanol	ND	10	ND	ND	ND	-	-	-	-	-
155 1,1-Dimethylhydrazine	ND	100	ND	ND	ND	-	-	-	-	-
156 1,2-Dimethylhydrazine	ND		ND	ND	ND	-	-	-	-	-
168 1,4-Dioxane	ND	10	ND	ND	ND	-	-	-	-	-
177 Ethyl cyanide	ND	10	ND	ND	ND	-	-	-	-	-
180 Ethylene oxide	ND		ND	ND	ND	-	-	-	-	-
187 Fluoroacetic acid	ND		ND	ND	ND	-	-	-	-	-
190 Glycidylaldehyde	-	-	-	-	-	-	-	-	-	-
203 Hydrazine	IND		IND	IND	IND	-	-	-	-	-
212 Isobutyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
226 Methacrylonitrile	ND	50	ND	ND	ND	-	-	-	-	-
227 Methanethiol	ND		ND	ND	ND	-	-	-	-	-
236 Methyl hydrazine	IND		IND	IND	IND	-	-	-	-	-
237 2-Methyllactonitrile	IND		IND	IND	IND	-	-	-	-	-
276 N-Nitrosopyrrolidine	ND	50	ND	ND	ND	-	-	-	-	-
305 n-Propylamine	ND	100	ND	ND	ND	-	-	-	-	-
307 2-Propyn-1-ol	ND	10	ND	ND	ND	-	-	-	-	-
308 Pyridine	ND	10	ND	ND	ND	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.
***Standard QA procedures not applicable for samples analyzed by direct injection.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 10, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGMM WW5 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
1 Acetonitrile	IND		IND	IND	IND	50.0	0	IND	50.0	0
7 Acrolein	ND	100	ND	ND	ND	800	68	ND	800	67
9 Acrylonitrile	ND	100	ND	ND	ND	80.0	73	ND	80.0	69
31 Benzene	ND	4.4	ND	ND	ND	18.0	113	ND	18.0	97
49 Bromoacetone	-	-	-	-	-	-	-	-	-	-
50 Methyl bromide	ND	10.0	ND	ND	ND	18.0	114	ND	18.0	66
59 Carbon disulfide	ND	10	ND	ND	ND	68.0	102	ND	68.0	83
65A Chloroethane	ND	10.0	ND	ND	ND	18.0	84	ND	18.0	74
66A Freon TF	ND	10.0	ND	ND	ND	68.0	100	ND	68.0	80
72 Chlorobenzene	ND	6.0	ND	ND	ND	18.0	90	ND	18.0	84
75 1-Chloro-2,3-epoxypropane	-	-	-	-	-	-	-	-	-	-
76 2-Chloroethylvinyl ether	ND	10.0	ND	ND	ND	18.0	111	ND	18.0	68
77 Chloroform	ND	1.6	ND	ND	ND	18.0	89	ND	18.0	82
78 Methyl chloride	ND	10.0	ND	ND	ND	18.0	95	ND	18.0	84
79 Chloromethyl methyl ether	-	-	-	-	-	-	-	-	-	-
91 Crotonaldehyde	ND	10	ND	ND	ND	50.0	78	ND	50.0	71
111 1,2-Dibromo-3-chloropropane	ND	10	-	-	-	-	-	-	-	-
112 1,2-Dibromoethane	ND	10	ND	ND	ND	50.0	102	ND	50.0	79
113 Dibromomethane	ND	10	ND	ND	ND	50.0	99	ND	50.0	76
120 1,4-Dichloro-2-butene	ND	10	ND	ND	ND	50.0	97	ND	50.0	74
121 Dichlorodifluoromethane	ND	10.0	ND	ND	ND	18.0	90	ND	18.0	87
122 1,1-Dichloroethane	ND	4.7	ND	ND	ND	18.0	78	ND	18.0	89
123 1,2-Dichloroethane	ND	2.8	ND	ND	ND	18.0	89	ND	18.0	79
124 1,2-Trans-dichloroethylene	ND	10.0	ND	ND	ND	18.0	88	ND	18.0	79
126 1,1-Dichloroethylene	ND	2.8	ND	ND	ND	18.0	86	ND	18.0	79
127 Methylene chloride	14.0	2.8	1.50	3.00	6.63	18.0	77	7.20	18.0	73
132A 1,3-Dichloropropane	ND	10	ND	ND	ND	50.0	98	ND	50.0	73
133 1,2-Dichloropropane	ND	6.0	ND	ND	ND	18.0	91	ND	18.0	80
135 2,3-Dichloropropene	ND	10	ND	ND	ND	50.0	98	ND	50.0	73
136A cis-1,3-Dichloropropylene	ND	10	ND	ND	ND	18.0	86	ND	18.0	138
136B trans-1,3-Dichloropropylene	ND	10	ND	ND	ND	18.0	98	ND	18.0	73
138 1,2,3,4-Diepoxybutene	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 10, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 – Purge & Trap Compounds – GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM WW5		850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
139 Diethylarsine	-	-	-	-	-	-	-	-	-	-
140 N,N-Diethylhydrazine	-	-	-	-	-	-	-	-	-	-
182 Ethyl methacrylate	ND	10	ND	ND	ND	50.0	99	ND	50.0	72
188 Formaldehyde	-	-	-	-	-	-	-	-	-	-
191A Chlorodibromomethane	ND	3.1	ND	ND	ND	18.0	81	ND	18.0	78
191B Dichlorobromomethane	ND	2.2	ND	ND	ND	18.0	85	ND	18.0	78
206 Hydrogen sulfide	-	-	-	-	-	-	-	-	-	-
209 Iodomethane	ND	10	ND	ND	ND	50.0	94	ND	50.0	54
235 Methyl ethyl ketone	10.0	10	9.00	9.80	BMDL	140	82	2.40	140	74
238 Methyl methacrylate	ND	10	ND	ND	ND	50.0	99	ND	50.0	70
282 Paraldehyde	-	-	-	-	-	-	-	-	-	-
285 Pentachloroethane	ND	10	ND	ND	ND	50.0	104	ND	50.0	71
326 1,1,1,2-Tetrachloroethane	ND	10	ND	ND	ND	50.0	103	ND	50.0	75
327 1,1,2,2-Tetrachloroethane	ND	6.9	ND	ND	ND	18.0	91	ND	18.0	81
328 Tetrachloroethylene	ND	4.1	ND	ND	ND	18.0	93	ND	18.0	87
329 Carbon tetrachloride	ND	2.8	ND	ND	ND	18.0	86	ND	18.0	81
334 Tetranitromethane	-	-	-	-	-	-	-	-	-	-
347 Toluene	ND	6.0	ND	ND	BMDL	18.0	85	ND	18.0	93
352 Bromoform	ND	4.7	ND	ND	ND	18.0	82	ND	18.0	84
354 1,1,1-Trichloroethane	ND	3.8	.700	ND	BMDL	18.0	82	1.40	18.0	90
355 1,1,2-Trichloroethane	ND	5.0	ND	ND	ND	18.0	103	ND	18.0	88
356 Trichloroethylene	ND	1.9	ND	ND	ND	18.0	82	ND	18.0	73
357 Trichloromethanethiol	-	-	-	-	-	-	-	-	-	-
358 Trichlorofluoromethane	ND	10.0	ND	ND	ND	18.0	84	3.03	18.0	95
363A 1,1,2-Trichloropropane	ND	10	ND	ND	ND	50.0	104	ND	50.0	76
363B 1,2,2-Trichloropropane	ND		ND	ND	ND	-	-	ND	-	-
364 1,2,3-Trichloropropane	ND	10	ND	ND	ND	68.0	97	ND	68.0	74
373 Vinyl chloride	ND	10.0	ND	ND	ND	18.0	95	ND	18.0	91

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM WW5		850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
2 Acetophenone	ND	11	ND	ND	BMDL	100	78	ND	100	45
4 2-Acetylaminofluorene	ND	11	ND	ND	ND	300	24	ND	300	71
10A Aflatoxins, Total	-	-	-	-	-	-	-	-	-	-
14 4-Aminobiphenyl	ND	11	ND	ND	ND	100	52	ND	100	0
16 5-(Aminomethyl)-3-isoxazolo	IND		IND	IND	IND	300	0	IND	300	0
18 Aniline	ND	11	ND	ND	ND	100	63	ND	100	79
20 Aramite	-	-	-	-	-	-	-	-	-	-
25 Auramine	-	-	-	-	-	-	-	-	-	-
29 Benz[c]acridine	-	-	-	-	-	-	-	-	-	-
30 Benz[a]anthracene	ND	11	ND	ND	ND	100	98	ND	100	89
33 Dichloromethylbenzene	ND	11	ND	ND	ND	100	37	ND	100	73
34 Benzenethiol	ND	11	ND	ND	ND	300	45	ND	300	18
36 Benzo[b]fluoranthene	ND	5.3	ND	ND	ND	100	55	ND	100	122
37 Benzo[j]fluoranthene	-	-	-	-	-	-	-	-	-	-
38 Benzo(a)pyrene	ND	2.8	ND	ND	ND	100	61	ND	100	65
39 p-Benzoquinone	IND		IND	IND	IND	100	0	IND	100	0
40 Benzotrichloride	-	-	-	-	-	-	-	-	-	-
41 Benzyl chloride	ND	11	ND	ND	ND	100	60	ND	100	57
43 bis(2-Chloroethoxy)methane	ND	5.9	ND	ND	ND	100	82	ND	100	71
44 bis(2-Chloroethyl) ether	ND	6.3	ND	ND	ND	100	99	ND	100	101
45 Chlornaphazine	-	-	-	-	-	-	-	-	-	-
46 bis(2-Chloroisopropyl)ether	ND	6.3	ND	ND	ND	100	86	ND	100	79
48 bis(2-Ethylhexyl)phthalate	24.1	11	24.1	37.5	15.0	100	113	16.3	100	108
51 4-Bromophenyl phenyl ether	ND	2.1	ND	ND	ND	100	98	ND	100	87
52 Brucine	-	-	-	-	-	-	-	-	-	-
53 2-Butanone peroxide	-	-	-	-	-	-	-	-	-	-
54 Butyl benzyl phthalate	ND	11	ND	ND	ND	100	108	ND	100	86
55 2-sec-Butyl-4,6-dinitrophen	ND	11	ND	ND	ND	300	83	ND	300	38
64A 1,2,3-Trichlorobenzene	ND	11	ND	ND	ND	100	58	ND	100	73
64B 1,3,5-Trichlorobenzene	ND	11	ND	ND	ND	100	74	ND	100	74
64C 1,2,3,4-Tetrachlorobenzene	ND	11	ND	ND	ND	100	110	ND	100	107
64D 1,2,3,5-Tetrachlorobenzene	ND	11	ND	ND	ND	100	110	ND	100	107

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" =indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW5	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
67A 1-chloronaphthalene	ND	11	ND	ND	ND	100	66	ND	100	53
68A 2,3,5,6-Tetrachlorophenol	ND	11	ND	ND	ND	300	35	ND	300	18
68B 2,3,4,5-Tetrachlorophenol	ND	11	ND	ND	ND	300	35	ND	300	18
71 p-Chloroaniline	ND	11	ND	ND	ND	300	19	ND	300	3
74 p-Chloro-m-cresol	ND	3.3	ND	ND	ND	100	100	ND	100	0
80 2-Chloronaphthalene	ND	2.1	ND	ND	ND	100	36	ND	100	29
81 2-Chlorophenol	ND	3.7	ND	ND	ND	100	75	ND	100	10
85 Chrysene	ND	2.8	ND	ND	ND	100	91	ND	100	74
87A Acenaphthene	ND	2.1	ND	ND	ND	100	78	ND	100	76
87B Acenaphthylene	ND	3.9	ND	ND	ND	100	79	ND	100	80
87C Anthracene	ND	2.1	ND	ND	ND	100	95	ND	100	88
87D Benzo(ghi)perylene	ND		ND	ND	ND	0	-	ND	0	-
87E Benzo(k)fluoranthene	ND	3.9	ND	ND	ND	100	80	ND	100	178
87F Fluorene	ND	2.1	ND	ND	ND	100	85	ND	100	83
87G Phenanthrene	ND	6.0	ND	ND	ND	100	95	ND	100	90
87H Pyrene	ND	2.1	ND	ND	ND	100	111	ND	100	61
89A 2-Nitrophenol	ND	4.0	ND	ND	ND	100	86	ND	100	33
90A o-Cresol	BMDL	11	.367	.579	ND	100	73	ND	100	75
90B m+p-Cresol	ND	11	ND	ND	ND	200	37	ND	200	34
97 2-Cyclohexyl-4,6-dinitrophe	-	-	-	-	-	-	-	-	-	-
103 Diallate	-	-	-	-	-	-	-	-	-	-
104 Dibenz[a,h]acridine	-	-	-	-	-	-	-	-	-	-
105 Dibenz[a,j]acridine	ND	11	ND	ND	ND	100	28	ND	100	83
106 Dibenz[a,h]anthracene	ND		ND	ND	ND	0	-	ND	0	-
107 7H-Dibenzo[c,g]carbazole	-	-	-	-	-	-	-	-	-	-
108 Dibenzo[a,e]pyrene	-	-	-	-	-	-	-	-	-	-
109 Dibenzo[a,h]pyrene	-	-	-	-	-	-	-	-	-	-
110 Dibenzo[a,i]pyrene	-	-	-	-	-	-	-	-	-	-
114 Di-n-butyl phthalate	BMDL	11	.889	3.58	BMDL	100	104	.309	100	122
115 1,2-Dichlorobenzene	ND	2.1	ND	ND	ND	100	57	ND	100	64
116 1,3-Dichlorobenzene	ND	2.1	ND	ND	BMDL	100	51	ND	100	61
117 1,4-Dichlorobenzene	ND	4.9	ND	ND	BMDL	100	49	ND	100	59

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"BMDL" = Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC *ENVIRONMENTAL TESTING and CERTIFICATION*

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW5 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spik		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
128 2,4-Dichlorophenol	ND	3.0	ND	ND	ND	100	43	ND	100	48
129 2,6-Dichlorophenol	ND	11	ND	ND	ND	100	80	ND	100	32
131 Dichlorophenylarsine	-	-	-	-	-	-	-	-	-	-
142 O,O-Diethylphosphoric acid	-	-	-	-	-	-	-	-	-	-
143 Diethyl phthalate	ND	11	ND	ND	ND	100	82	ND	100	73
146 Dihydrosafrole	-	-	-	-	-	-	-	-	-	-
148 Diisopropylfluorophosphate	-	-	-	-	-	-	-	-	-	-
151 p-Dimethylaminoazobenzene	ND	11	ND	ND	ND	100	60	ND	100	49
152 7,12-Dimethylbenz[a]anthrac	ND		ND	ND	ND	0	-	ND	0	-
157 Thiofanox	IND		IND	IND	IND	300	0	IND	300	0
158 a-a-Dimethylphenethylamine	IND		IND	IND	IND	100	0	IND	100	0
159 2,4-Dimethylphenol	ND	3.0	ND	ND	ND	100	92	ND	100	19
160 Dimethyl phthalate	ND	11	ND	ND	ND	100	84	ND	100	77
161 Dimethyl sulfate	-	-	-	-	-	-	-	-	-	-
162A m-Dinitrobenzene	ND	11	ND	ND	ND	100	195	ND	100	96
163 4,6-Dinitro-o-cresol	ND	27	ND	ND	ND	100	0	ND	100	43
164 2,4-Dinitrophenol	ND	47	ND	ND	ND	100	58	ND	100	61
165 2,4-Dinitrotoluene	8630	6.3	8630	7340	ND	100	92	ND	100	83
166 2,6-Dinitrotoluene	2690	2.1	2690	2390	ND	100	91	ND	100	80
167 Di-n-octyl phthalate	ND	11	ND	8.75	ND	100	111	5.33	100	108
169 Diphenylamine	ND	11	ND	ND	ND	100	54	ND	100	0
170 1,2-Diphenylhydrazine	ND	11	ND	ND	ND	100	78	ND	100	99
171 N-Nitrosodi-n-propylamine	ND	11	ND	ND	ND	100	68	ND	100	156
173 2,4-Dithiobiuret	-	-	-	-	-	-	-	-	-	-
183 Ethyl methanesulfonate	ND	11	ND	ND	ND	100	84	ND	100	23
184 Fluoranthene	ND	2.4	ND	ND	ND	100	83	ND	100	126
189 Formic acid	-	-	-	-	-	-	-	-	-	-
194 Hexachlorobenzene	ND	2.1	ND	ND	ND	100	117	ND	100	104
195 Hexachlorobutadiene	ND	1.0	ND	ND	ND	100	45	ND	100	66
197 Hexachlorocyclopentadiene	ND		ND	ND	ND	0	-	ND	0	-
198 Hexachloroethane	ND	1.8	ND	ND	ND	100	37	ND	100	54
199 Hexachlorohexahydro-endo, e	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW5	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
275	N-Nitrosopiperidine	ND	11	ND	ND	ND	100	85	ND	100	0
277	N-Nitrososarcosine	-	-	-	-	-	-	-	-	-	-
278	5-Nitro-o-toluidine	28.7	11	28.7	29.2	ND	300	70	ND	300	0
279	Octamethylpyrophosphoramide	-	-	-	-	-	-	-	-	-	-
281	Endothal	-	-	-	-	-	-	-	-	-	-
284	Pentachlorobenzene	ND	11	ND	ND	ND	100	83	ND	100	82
286	Pentachloronitrobenzene	ND	11	ND	ND	ND	300	51	ND	300	51
287	Pentachlorophenol	ND	4.0	ND	ND	ND	100	137	ND	100	67
288	Phenacetin	ND	11	ND	ND	ND	100	80	ND	100	106
289	Phenol	ND	1.7	ND	ND	ND	100	51	ND	100	22
298	Phthalic anhydride	-	-	-	-	-	-	-	-	-	-
299	2-Picoline	ND	11	ND	ND	ND	100	49	ND	100	57
303	Pronamide	ND	11	ND	ND	ND	100	74	ND	100	81
304	1,3-Propane sultone	-	-	-	-	-	-	-	-	-	-
306	Propylthiouracil	-	-	-	-	-	-	-	-	-	-
310	Resorcinol	IND		IND	IND	IND	300	0	IND	300	0
311	Saccharin and salts	-	-	-	-	-	-	-	-	-	-
312	Safrole	ND	11	ND	ND	ND	300	68	ND	300	72
323	1,2,4,5-Tetrachlorobenzene	ND	11	ND	ND	ND	100	73	ND	100	70
330	2,3,4,6-Tetrachlorophenol	ND	11	ND	ND	ND	300	175	ND	300	96
331	Tetraethyldithiopyrophospha	-	-	-	-	-	-	-	-	-	-
346	Thiuram	IND		IND	IND	IND	300	0	IND	300	0
349	O-Toluidine	84.0	11	84.0	83.7	ND	300	22	ND	300	0
353	1,2,4-Trichlorobenzene	ND	2.1	ND	ND	ND	100	59	ND	100	75
359	2,4,5-Trichlorophenol	ND	11	ND	ND	ND	100	78	ND	100	27
360	2,4,6-Trichlorophenol	ND	3.0	ND	ND	ND	100	109	ND	100	11
365	0,0,0-Triethyl phosphorothi	-	-	-	-	-	-	-	-	-	-
366	sym-Trinitrobenzene	-	-	-	-	-	-	-	-	-	-
367	Tris(1-Azridinyl)phosphine	-	-	-	-	-	-	-	-	-	-
368	Tris(2,3-dibromopropyl)phos	IND		IND	IND	IND	300	0	IND	300	0
370	Uracil mustard	-	-	-	-	-	-	-	-	-	-
	o-Nitrotoluene	16700 A		16700	15400	ND	0	-	ND	0	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW5	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
m-Nitrotoluene	1490 A		1490	1280	ND	0	-	ND	0	-
p-Nitrotoluene	1580 A		1580	3700	ND	0	-	ND	0	-

A Semi-quantitative results. Compounds was not spiked for.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-"specifies no standard or reference spectra available.
"IND" =Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Pest & Herb Compounds - GC Analysis Data (QR24)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW5 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
11 Aldrin	ND	5.0	ND	ND	ND	0.50	70	ND	0.56	98
63 Chlordane	ND	50	ND	ND	ND	5.0	136	ND	5.6	130
73 Chlorobenzilate	-	-	-	-	-	-	-	-	-	-
100 4,4'-DDD	ND	5.0	ND	ND	ND	0.50	0	ND	0.56	127
101 4,4'-DDE	ND	5.0	ND	ND	ND	0.50	98	ND	0.56	100
102 4,4'-DDT	ND	5.0	ND	ND	ND	0.50	0	ND	0.56	108
130 2,4-D	ND	500	ND	ND	ND	100	106	ND	100	103
137 Dieldrin	ND	5.0	ND	ND	ND	0.50	118	ND	0.56	107
141 Carbophenothion	-	-	-	-	-	-	-	-	-	-
144 Thionazin	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	93
149 Dimethoate	ND	5.0	ND	ND	ND	5.0	74	ND	5.6	70
172 Disulfoton	ND	5.0	ND	ND	ND	25	86	ND	28	90
174A Endosulfan I	ND	5.0	ND	ND	ND	0.50	0	ND	0.56	98
174B Endosulfan II	ND	5.0	ND	ND	ND	0.50	0	ND	0.56	127
175 Endrin	ND	5.0	ND	ND	ND	0.50	0	ND	56	131
192 Heptachlor	ND	5.0	ND	ND	ND	0.50	134	ND	56	101
193 Heptachlor epoxide	ND	5.0	ND	ND	ND	0.50	116	ND	.56	109
196A Alpha-BHC	ND	5.0	ND	ND	0.080	0.50	86	ND	0.56	96
196B Beta-BHC	ND	5.0	ND	ND	ND	0.50	0	ND	0.56	104
196C Gamma-BHC	ND	5.0	ND	ND	0.18	0.50	88	ND	0.56	102
196D Delta-BHC	ND	5.0	ND	ND	ND	0.50	164	ND	0.56	98
214 Kepone	ND	50	ND	ND	ND	5.0	70	ND	5.6	70
230 Methoxychlor	ND	500	ND	ND	ND	50	112	ND	56	106
242 Methyl parathion	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	88
283 Parathion	ND	1.0	ND	ND	ND	5.0	96	ND	5.6	96
295 Phorate	-	-	-	-	-	-	-	-	-	-
296 Famphur	ND	10	ND	ND	ND	50	22	ND	56	27
333 Tetraethylpyrophosphate	ND	5.0	ND	ND	ND	25	48	ND	28	47
351 Toxaphene	ND	125	ND	ND	ND	20	115	ND	22	82
361 2,4,5-T	ND	50	ND	ND	ND	10	158	ND	10	104
362 2,4,5-TP (Silvex)	ND	50	ND	ND	ND	10	143	ND	10	103

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"ND" = Undetermined. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - DAI HPLC Compounds - Analysis Data (QR25)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW5 850724

ETC Sample No. Company Facility Sample Point Date Time Elapsed Hours

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov
6	1-Acetyl-2-thiourea	ND	.5	ND	ND	ND	5.0	90	ND	5.0	0
8	Acrylamide	ND	.5	ND	ND	ND	5.0	96	ND	5.0	95
17	Amitrole	-	-	-	-	-	-	-	-	-	-
82	1-(o-Chlorophenyl)thiourea	ND	.5	ND	ND	ND	5.0	83	ND	5.0	87
145	Diethylstilbesterol	-	-	-	-	-	-	-	-	-	-
176	Ethyl carbamate	-	-	-	-	-	-	-	-	-	-
179	Ethyleneimine	-	-	-	-	-	-	-	-	-	-
181	Ethylenethiourea	ND	.5	ND	ND	ND	5.0	98	ND	5.0	96
221	Maleic hydrazide	4.6 a	.5	ND	ND	ND	5.0	120	ND	5.0	130
222	Malononitrile	-	-	-	-	-	-	-	-	-	-
229	Methomyl	ND	.5	ND	ND	ND	5.0	39	ND	5.0	37
231	2-Methylaziridine	-	-	-	-	-	-	-	-	-	-
253	Nicotinic acid	ND	.5	ND	ND	ND	5.0	94	ND	5.0	130
260	Nitroglycerin	-	-	-	-	-	-	-	-	-	-
268	N-Nitroso-N-ethylurea	ND	.5	ND	ND	ND	5.0	-b	ND	5.0	-b
270	N-Nitroso-N-methylurea	ND	.5	ND	ND	ND	5.0	-b	ND	5.0	-b
292	N-Phenylthiourea	ND	.5	ND	ND	ND	5.0	70	ND	5.0	74
309	Reserpine	-	-	-	-	-	-	-	-	-	-
345	Thiourea	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130

a A compound is present at appropriate time, but does not match absorbance profile of target. Value represents a maximum concentration.

b Recovery Data not available due to compound degradation. Results are qualitative.

* See Grand Table for complete compound name and specifications.
** EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 30, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Extractable HPLC Compounds - Analysis Data (QR31)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3099	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW5	850724		

Compound *		Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
3	Warfarin	ND	30	ND	ND	ND	500	120	ND	500	64
15	Mitomycin C	-	-	-	-	-	-	-	-	-	-
26	Azaserine	-	-	-	-	-	-	-	-	-	-
35	Benzidine	ND	30	BMDL	ND	ND	500	140	ND	500	115
62	Chlorambucil	-	-	-	-	-	-	-	-	-	-
86	Citrus red No.2	-	-	-	-	-	-	-	-	-	-
99	Daunomycin	-	-	-	-	-	-	-	-	-	-
119	3,3'-Dichlorobenzidine	BMDL	30	BMDL	BMDL	BMDL	500	120	BMDL	500	94
147	3,4-Dihydroxy-alph-(methyla	-	-	-	-	-	-	-	-	-	-
150	3,3'-Dimethoxybenzidine	ND	30	BMDL	ND	ND	500	100	BMDL	500	104
153	3,3'-Dimethylbenzidine	ND	30	ND	ND	BMDL	500	83	ND	500	90
249	1-Naphthyl-2-thiourea	ND	30	ND	ND	ND	500	48	ND	500	44
290A	m-phenylenediamine	ND	30	ND	ND	ND	500	65	ND	500	82
290B	o-phenylenediamine	ND	30	ND	ND	ND	500	46	ND	500	64
290C	p-phenylenediamine	ND	30	BMDL	ND	ND	500	49	ND	500	64
320	Streptozotocin	-	-	-	-	-	-	-	-	-	-
343	Thioacetamide	-	-	-	-	-	-	-	-	-	-
344	Thiosemicarbazide	-	-	-	-	-	-	-	-	-	-
348A	Toluene-2,4-Diamine	ND	30	ND	ND	ND	500	110	ND	500	46
369	Trypan blue	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"BMDL" indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Aroclors -GC Analysis Data (QR30)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW5 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l [A]	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
300A Aroclor 1242	16 [B]	1	8.6 [B]	4.2 [B]	ND	0	-	ND	0	-
300B Aroclor 1254	ND	1	ND	ND	ND	0	-	ND	0	-
300C Aroclor 1260	ND	1	ND	ND	ND	2	80	ND	2	111
300D Aroclor 1248	ND	1	ND	ND	ND	0	-	ND	0	-
300E Aroclor 1232	ND	1	ND	ND	ND	0	-	ND	0	-
300F Aroclor 1221	ND	1	ND	ND	ND	0	-	ND	0	-
300G Aroclor 1016	ND	1	ND	ND	ND	0	-	ND	0	-

A ETC established Method Detection Limit for this particular sample.

B Confirmed by GC/MS.

*See Grund Table for complete compound name and specifications.
**MDL calculated for each sample matrix.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Metals and Cyanides - Analysis Data (QR29)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW5 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL ug/l	First	Second	Blank Data	Concen. Added	% Recov	Unspiked Sample	Concen. Added	% Recov
13A Aluminum	ND	100								
19A Antimony	ND	200								
21A Arsenic	ND	10								
27A Barium	130	3								
42A Beryllium	ND	3								
56A Cadmium	ND	10								
57A Calcium	59800	200								
84A Chromium	ND	30								
88A Copper	ND	10								
92A Cyanide, Total	<25	25								
210 Iron	ND	200								
216A Lead	ND	200								
225A Mercury	ND	.2								
250A Nickel	ND	30								
280A Osmium	ND	600								
301A Potassium	1200	40								
314A Selenium	ND	5								
317A Silver	ND	10								
319A Sodium	371000	80								
321A Strontium	520	100								
335A Thallium	ND	5								
372A Vanadium	ND	20								
374A Zinc	BMDL	10								

*See Grand Table for complete compound name and specifications.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 30, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Field Parameters (QR16)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3099 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW5 850724

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours

Parameter	Results									
	Sample Measure	MDL								
pH (Field) std	7.28									
Specific Conductance (Fieldum/cm	2400									
Groundwater Elevation Feet	17.71									

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 30, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Field Parameters (QR16)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 MW/R 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Parameter	Results: Sample Measure	Results: MDL								
pH (Field) std	7.33									
Specific Conductance (Fieldum/cm	3000									
Groundwater Elevation Feet	16.82									

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Dir/Inj Vol Compounds - GC/MS Analysis Data (QR26)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. Company Facility Sample Point Date Time Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov ***	Unspiked Sample mg/l	Concen. Added mg/l	% Recov ***
12 Allyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
61 Chloral	ND		ND	ND	ND	-	-	-	-	-
69 Chloroacetaldehyde	ND	50	ND	ND	ND	-	-	-	-	-
83 3-Chloropropionitrile	IND		IND	IND	IND	-	-	-	-	-
93 Cyanogen	ND		ND	ND	ND	-	-	-	-	-
134A Dichloropropanol	ND	10	ND	ND	ND	-	-	-	-	-
155 1,1-Dimethylhydrazine	ND	100	ND	ND	ND	-	-	-	-	-
156 1,2-Dimethylhydrazine	ND		ND	ND	ND	-	-	-	-	-
168 1,4-Dioxane	ND	10	ND	ND	ND	-	-	-	-	-
177 Ethyl cyanide	ND	10	ND	ND	ND	-	-	-	-	-
180 Ethylene oxide	ND		ND	ND	ND	-	-	-	-	-
187 Fluoroacetic acid	ND		ND	ND	ND	-	-	-	-	-
190 Glycidylaldehyde	-	-	-	-	-	-	-	-	-	-
203 Hydrazine	IND		IND	IND	IND	-	-	-	-	-
212 Isobutyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
226 Methacrylonitrile	ND	50	ND	ND	ND	-	-	-	-	-
227 Methanethiol	ND		ND	ND	ND	-	-	-	-	-
236 Methyl hydrazine	IND		IND	IND	IND	-	-	-	-	-
237 2-Methyllactonitrile	IND		IND	IND	IND	-	-	-	-	-
276 N-Nitrosopyrrolidine	ND	50.0	ND	ND	ND	-	-	-	-	-
305 n-Propylamine	ND	100	ND	ND	ND	-	-	-	-	-
307 2-Propyn-1-ol	ND	10	ND	ND	ND	-	-	-	-	-
308 Pyridine	ND	10	ND	ND	ND	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.
***Standard QA procedures not applicable for samples analyzed by direct injection.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
1 Acetonitrile	IND		IND	IND	IND	50	0	IND	50	0
7 Acrolein	ND	100	ND	ND	ND	800	89	ND	800	84
9 Acrylonitrile	ND	100	ND	ND	ND	80	79	ND	80	76
31 Benzene	BMDL	4.4	ND	ND	ND	18	92	ND	18	104
49 Bromoacetone	-	-	-	-	-	-	-	-	-	-
50 Methyl bromide	ND	10.0	ND	ND	ND	18	97	ND	18	123
59 Carbon disulfide	BMDL	10	ND	ND	ND	68	22	ND	68	24
65A Chloroethane	ND	10.0	ND	ND	ND	18	80	ND	18	86
66A Freon TF	ND	10.0	ND	ND	ND	68	43	ND	68	51
72 Chlorobenzene	ND	6.0	ND	ND	ND	18	83	ND	18	139
75 1-Chloro-2,3-epoxypropane	-	-	-	-	-	-	-	-	-	-
76 2-Chloroethylvinyl ether	ND	10.0	ND	ND	ND	18	91	ND	18	79
77 Chloroform	3.51	1.6	ND	ND	ND	18	85	ND	18	96
78 Methyl chloride	ND	10.0	ND	ND	ND	18	83	ND	18	114
79 Chloromethyl methyl ether	-	-	-	-	-	-	-	-	-	-
91 Crotonaldehyde	ND	10	ND	ND	ND	50	86	ND	50	79
111 1,2-Dibromo-3-chloropropane	ND	10	ND	ND	ND	68	21	ND	68	21
112 1,2-Dibromoethane	ND	10	ND	ND	ND	50	93	ND	50	87
113 Dibromomethane	ND	10	ND	ND	ND	50	89	ND	50	88
120 1,4-Dichloro-2-butene	ND	10	ND	ND	ND	50	90	ND	50	80
121 Dichlorodifluoromethane	ND	10.0	ND	ND	ND	18	79	ND	18	103
122 1,1-Dichloroethane	ND	4.7	ND	ND	ND	18	71	ND	18	107
123 1,2-Dichloroethane	ND	2.8	ND	ND	ND	18	83	ND	18	101
124 1,2-Trans-dichloroethylene	ND	10.0	ND	ND	ND	18	85	ND	18	99
126 1,1-Dichloroethylene	ND	2.8	ND	ND	ND	18	78	ND	18	100
127 Methylene chloride	BMDL	2.8	ND	ND	4.30	18	68	4.20	18	95
132A 1,3-Dichloropropane	ND	10	ND	ND	ND	50	88	ND	50	87
133 1,2-Dichloropropane	ND	6.0	ND	ND	ND	18	83	ND	18	99
135 2,3-Dichloropropene	ND	10	ND	ND	ND	50	89	ND	50	89
136A cis-1,3-Dichloropropylene	ND	10	-	-	-	-	-	-	-	-
136B trans-1,3-Dichloropropylene	ND	10	-	-	-	-	-	-	-	-
138 1,2,3,4-Diepoxybutene	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3097	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW14	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
139 Diethylarsine	-	-	-	-	-	-	-	-	-	-
140 N,N-Diethylhydrazine	-	-	-	-	-	-	-	-	-	-
182 Ethyl methacrylate	ND	10	ND	ND	ND	50	89	ND	50	86
188 Formaldehyde	-	-	-	-	-	-	-	-	-	-
191A Chlorodibromomethane	ND	3.1	ND	ND	ND	18	79	ND	18	94
191B Dichlorobromomethane	ND	2.2	ND	ND	ND	18	79	ND	18	98
206 Hydrogen sulfide	-	-	-	-	-	-	-	-	-	-
209 Iodomethane	ND	10	ND	ND	ND	50	91	ND	50	94
235 Methyl ethyl ketone	BMDL	10	ND	ND	ND	140	59	8.85	140	39
238 Methyl methacrylate	ND	10	ND	ND	ND	50	92	ND	50	79
282 Paraldehyde	-	-	-	-	-	-	-	-	-	-
285 Pentachloroethane	ND	10	ND	ND	ND	50	137	ND	50	814
326 1,1,1,2-Tetrachloroethane	ND	10	ND	494	ND	50	32	ND	50	33
327 1,1,2,2-Tetrachloroethane	ND	6.9	ND	ND	ND	18	103	ND	18	110
328 Tetrachloroethylene	ND	4.1	ND	759	ND	18	86	ND	18	44
329 Carbon tetrachloride	ND	2.8	ND	ND	ND	18	89	ND	18	91
334 Tetranitromethane	-	-	-	-	-	-	-	-	-	-
347 Toluene	1050	6.0	ND	1.00	BMDL	18	80	ND	18	107
352 Bromoform	ND	4.7	ND	ND	ND	18	75	ND	18	82
354 1,1,1-Trichloroethane	ND	3.8	ND	ND	BMDL	18	76	ND	18	103
355 1,1,2-Trichloroethane	ND	5.0	ND	ND	ND	18	97	ND	18	111
356 Trichloroethylene	ND	1.9	ND	ND	ND	18	113	3.65	18	48
357 Trichloromethanethiol	-	-	-	-	-	-	-	-	-	-
358 Trichlorofluoromethane	ND	10.0	ND	ND	ND	18	75	ND	18	95
363A 1,1,2-Trichloropropane	ND	10	ND	ND	ND	50	32	ND	50	33
363B 1,2,2-Trichloropropane	ND		ND	ND	ND	0	-	ND	0	-
364 1,2,3-Trichloropropane	ND	10	ND	ND	ND	140	48	1.43	140	40
373 Vinyl chloride	ND	10.0	ND	ND	ND	18	83	ND	18	109

*See Ground Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"ND": Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 22, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3097	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW14	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen Added ug/l	% Recov
2	Acetophenone	ND	10	ND	ND	ND	100	94	ND	108	77
4	2-Acetylaminofluorene	ND	10	ND	ND	ND	300	855	ND	323	278
10A	Aflatoxins, Total	-	-	-	-	-	-	-	-	-	-
14	4-Aminobiphenyl	ND	10	ND	ND	ND	100	63	ND	108	36
16	5-(Aminomethyl)-3-isoxazolo	IND		IND	IND	IND	300	0	IND	300	0
18	Aniline	ND	10	ND	ND	ND	100	72	ND	108	57
20	Aramite	-	-	-	-	-	-	-	-	-	-
25	Auramine	-	-	-	-	-	-	-	-	-	-
29	Benz[c]acridine	-	-	-	-	-	-	-	-	-	-
30	Benz[a]anthracene	ND	10	ND	ND	ND	100	66	ND	108	77
33	Dichloromethylbenzene	ND	10	ND	ND	ND	100	3	ND	108	9
34	Benzenethiol	ND	10	ND	ND	ND	300	59	ND	323	55
36	Benzo[b]fluoranthene	ND	4.8	ND	ND	ND	100	79	ND	100	28
37	Benzo[j]fluoranthene	-	-	-	-	-	-	-	-	-	-
38	Benzo(a)pyrene	ND	2.6	ND	ND	ND	100	77	ND	108	55
39	p-Benzoquinone	ND	10	ND	ND	ND	100	3	ND	108	26
40	Benzotrichloride	-	-	-	-	-	-	-	-	-	-
41	Benzyl chloride	ND	10	ND	ND	ND	100	67	ND	108	56
43	bis(2-Chloroethoxy)methane	ND	5.4	ND	ND	ND	100	106	ND	108	89
44	bis(2-Chloroethyl) ether	ND	5.8	ND	ND	ND	100	110	ND	108	89
45	Chlornaphazine	-	-	-	-	-	-	-	-	-	-
46	bis(2-Chloroisopropyl)ether	ND	5.8	ND	ND	ND	100	92	ND	108	74
48	bis(2-Ethylhexyl)phthalate	ND	10	ND	ND	ND	100	73	ND	108	88
51	4-Bromophenyl phenyl ether	ND	1.9	ND	ND	ND	100	88	ND	108	89
52	Brucine	-	-	-	-	-	-	-	-	-	-
53	2-Butanone peroxide	-	-	-	-	-	-	-	-	-	-
54	Butyl benzyl phthalate	ND	10	ND	ND	ND	100	67	ND	108	73
55	2-sec-Butyl-4,6-dinitrophen	ND	10	ND	ND	ND	300	90	ND	323	52
64A	1,2,3-Trichlorobenzene	ND	10	ND	ND	ND	100	71	ND	108	67
64B	1,3,5-Trichlorobenzene	ND	10	ND	ND	ND	100	79	ND	108	72
64C	1,2,3,4-Tetrachlorobenzene	ND	10	ND	ND	ND	100	91	ND	108	89
64D	1,2,3,5-Tetrachlorobenzene	ND	10	ND	ND	ND	100	58	ND	108	56

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc. added" specifies no standard available; compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 23, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
67A 1-chloronaphthalene	ND	10	ND	ND	ND	100	80	ND	108	86
68A 2,3,5,6-Tetrachlorophenol	ND	10	ND	ND	ND	300	85	ND	323	74
68B 2,3,4,5-Tetrachlorophenol	ND	10	ND	ND	ND	300	93	ND	323	109
71 p-Chloroaniline	ND	10	ND	ND	ND	300	80	ND	323	63
74 p-Chloro-m-cresol	ND	3.1	ND	ND	ND	100	94	ND	108	72
80 2-Chloronaphthalene	ND	1.9	ND	ND	ND	100	47	ND	108	176
81 2-Chlorophenol	ND	3.4	ND	ND	ND	100	95	ND	108	75
85 Chrysene	ND	2.6	ND	ND	ND	100	72	ND	108	85
87A Acenaphthene	ND	1.9	ND	ND	ND	100	75	ND	108	76
87B Acenaphthylene	ND	3.5	ND	ND	ND	100	75	ND	108	76
87C Anthracene	ND	1.9	ND	ND	ND	100	91	ND	108	79
87D Benzo(ghi)perylene	ND	4.2	ND	ND	ND	0	-	ND	0	-
87E Benzo(k)fluoranthene	ND	3.6	ND	ND	ND	100	80	ND	108	62
87F Fluorene	ND	1.9	ND	ND	ND	100	74	ND	108	74
87G Phenanthrene	ND	5.5	ND	ND	ND	100	73	ND	108	81
87H Pyrene	ND	1.9	ND	ND	ND	100	45	ND	108	60
89A 2-Nitrophenol	ND	3.7	ND	ND	ND	100	88	ND	108	71
90A o-Cresol	ND	10	ND	ND	ND	100	109	ND	108	93
90B m+p-Cresol	ND	10	ND	ND	ND	200	124	ND	215	110
97 2-Cyclohexyl-4,6-dinitrophe	-	-	-	-	-	-	-	-	-	-
103 Diallate	-	-	-	-	-	-	-	-	-	-
104 Dibenz[a,h]acridine	-	-	-	-	-	-	-	-	-	-
105 Dibenz[a,j]acridine	ND	10	ND	ND	ND	100	209	ND	108	52
106 Dibenz[a,h]anthracene	ND	10	ND	ND	ND	100	80	ND	108	62
107 7H-Dibenzo[c,g]carbazole	-	-	-	-	-	-	-	-	-	-
108 Dibenzo[a,e]pyrene	-	-	-	-	-	-	-	-	-	-
109 Dibenzo[a,h]pyrene	-	-	-	-	-	-	-	-	-	-
110 Dibenzo[a,i]pyrene	-	-	-	-	-	-	-	-	-	-
114 Di-n-butyl phthalate	ND	10	ND	ND	ND	100	105	ND	108	77
115 1,2-Dichlorobenzene	ND	1.9	ND	ND	ND	100	70	ND	108	65
116 1,3-Dichlorobenzene	45.6	1.9	ND	ND	ND	100	60	ND	108	59
117 1,4-Dichlorobenzene	ND	4.5	ND	ND	ND	100	63	ND	108	62

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"ND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available. Compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 23, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3097	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW14	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
128 2,4-Dichlorophenol	ND	2.8	ND	ND	ND	100	106	ND	108	84
129 2,6-Dichlorophenol	ND	10	ND	ND	ND	100	103	ND	108	73
131 Dichlorophenylarsine	-	-	-	-	-	-	-	-	-	-
142 O,O-Diethylphosphoric acid	-	-	-	-	-	-	-	-	-	-
143 Diethyl phthalate	ND	10	ND	ND	ND	100	104	ND	108	81
146 Dihydrosafrole	-	-	-	-	-	-	-	-	-	-
148 Diisopropylfluorophosphate	-	-	-	-	-	-	-	-	-	-
151 p-Dimethylaminoazobenzene	ND	10	ND	ND	ND	100	101	ND	108	54
152 7,12-Dimethylbenz[a]anthrac	ND	10	ND	ND	ND	100	150	ND	108	40
157 Thiofanox	IND		IND	IND	IND	300	0	IND	323	0
158 a-a-Dimethylphenethylamine	IND		IND	IND	IND	100	0	IND	108	0
159 2,4-Dimethylphenol	ND	2.8	ND	ND	ND	100	114	ND	108	93
160 Dimethyl phthalate	ND	10	ND	ND	ND	100	75	ND	108	94
161 Dimethyl sulfate	-	-	-	-	-	-	-	-	-	-
162A m-Dinitrobenzene	BMDL	10	ND	ND	ND	100	205	ND	108	176
163 4,6-Dinitro-o-cresol	25	25	ND	ND	ND	100	36	ND	108	29
164 2,4-Dinitrophenol	BMDL	43	ND	ND	ND	100	38	ND	108	54
165 2,4-Dinitrotoluene	1640	5.8	ND	ND	ND	100	39	ND	108	72
166 2,6-Dinitrotoluene	47700	1.9	ND	ND	ND	100	96	ND	108	81
167 Di-n-octyl phthalate	ND	10	ND	ND	ND	100	92	ND	108	93
169 Diphenylamine	ND	10	ND	ND	ND	100	166	ND	108	147
170 1,2-Diphenylhydrazine	ND	10	ND	ND	ND	100	75	ND	108	74
171 N-Nitrosodi-n-propylamine	ND	10	ND	ND	ND	100	205	ND	108	292
173 2,4-Dithiobiuret	-	-	-	-	-	-	-	-	-	-
183 Ethyl methanesulfonate	ND	10	ND	ND	ND	100	75	ND	108	51
184 Fluoranthene	ND	2.3	ND	ND	ND	100	92	ND	108	67
189 Formic acid	-	-	-	-	-	-	-	-	-	-
194 Hexachlorobenzene	ND	1.9	ND	ND	ND	100	87	ND	108	85
195 Hexachlorobutadiene	ND	.92	ND	ND	ND	100	42	ND	108	49
197 Hexachlorocyclopentadiene	ND	10	ND	ND	ND	0	-	ND	0	-
198 Hexachloroethane	ND	1.6	ND	ND	ND	100	39	ND	108	42
199 Hexachlorohexahydro-endo, e	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 23, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3097	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW14	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
200 Hexachlorophene	ND	10	ND	ND	ND	300	73	ND	300	94
201 Hexachloropropene	ND	10	ND	ND	ND	300	40	ND	323	54
202 Hexaethyltetraphosphate	-	-	-	-	-	-	-	-	-	-
208 Indeno(1,2,3-cd)pyrene	ND	10	ND	ND	ND	0	-	ND	0	-
213 Isosafrole	ND	10	ND	ND	ND	300	182	ND	323	184
220 Maleic anhydride	-	-	-	-	-	-	-	-	-	-
223 Melphalan	IND		IND	IND	IND	300	0	IND	323	0
228 Methapyrilene	-	-	-	-	-	-	-	-	-	-
232 3-Methylcholanthrene	ND	10	ND	ND	ND	100	201	ND	108	38
234 4,4'-Methylenebis(2-chloroa	ND	10	ND	ND	ND	300	31	ND	300	33
239 Methyl methanesulfonate	ND	10	ND	ND	ND	100	63	ND	108	56
240 Aldicarb	ND	10	ND	ND	ND	100	73	ND	108	50
241 N-Methyl-N'-nitrosoguanidin	-	-	-	-	-	-	-	-	-	-
243 Methylthiouracil	-	-	-	-	-	-	-	-	-	-
245 Naphthalene	ND	1.6	ND	ND	ND	100	86	ND	108	78
246 1,4-Naphthoquinone	ND	10	ND	ND	ND	100	41	ND	108	34
247 1-Naphthylamine	ND	10	ND	ND	ND	100	60	ND	108	52
248 2-Naphthylamine	ND	10	ND	ND	ND	100	43	ND	108	38
255 p-Nitroaniline	ND	10	ND	ND	ND	300	79	ND	323	72
256 Nitrobenzene	67.7	1.9	ND	ND	ND	100	97	ND	108	82
261 4-Nitrophenol	ND	2.5	ND	ND	ND	100	20	ND	108	9
262 4-Nitroquinoline-1-oxide	-	-	-	-	-	-	-	-	-	-
263A N-Nitrosodiphenylamine	ND	1.9	ND	ND	ND	100	191	ND	108	180
264 N-Nitrosodi-n-butylamine	ND	10	ND	ND	ND	100	94	ND	108	70
265 N-Nitrosodiethanolamine	IND		IND	IND	IND	300	0	IND	323	0
266 N-Nitrosodiethylamine	ND	10	ND	ND	ND	300	70	ND	323	58
267 N-Nitrosodimethylamine	ND	10	ND	ND	ND	0	-	ND	0	-
269 N-Nitrosomethylethylamine	IND		IND	IND	IND	300	0	IND	323	0
271 N-Nitroso-N-methylurethane	ND	10	ND	ND	ND	300	65	ND	323	24
272 N-Nitrosomethylvinylamine	-	-	-	-	-	-	-	-	-	-
273 N-Nitrosomorpholine	ND	10	ND	ND	ND	300	64	ND	323	57
274 N-Nitrosonornicotine	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.Added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 25, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
275 N-Nitrosopiperidine	ND	10	ND	ND	ND	100	94	ND	108	72
277 N-Nitrososarcosine	-	-	-	-	-	-	-	-	-	-
278 5-Nitro-o-toluidine	256	10	ND	ND	ND	300	108	ND	323	69
279 Octamethylpyrophosphoramide	-	-	-	-	-	-	-	-	-	-
281 Endothal	-	-	-	-	-	-	-	-	-	-
284 Pentachlorobenzene	ND	10	ND	ND	ND	100	94	ND	108	81
286 Pentachloronitrobenzene	ND	10	ND	ND	ND	300	95	ND	323	70
287 Pentachlorophenol	ND	3.7	ND	ND	ND	100	132	ND	108	77
288 Phenacetin	ND	10	ND	ND	ND	100	73	ND	108	61
289 Phenol	ND	1.5	ND	ND	ND	100	28	ND	108	81
298 Phthalic anhydride	-	-	-	-	-	-	-	-	-	-
299 2-Picoline	ND	10	ND	ND	ND	100	21	ND	108	48
303 Pronamide	ND	10	ND	ND	ND	100	91	ND	108	54
304 1,3-Propane sultone	-	-	-	-	-	-	-	-	-	-
306 Propylthiouracil	-	-	-	-	-	-	-	-	-	-
310 Resorcinol	IND		IND	IND	IND	300	0	IND	323	0
311 Saccharin and salts	-	-	-	-	-	-	-	-	-	-
312 Safrole	ND	10	ND	ND	ND	300	100	ND	323	103
323 1,2,4,5-Tetrachlorobenzene	ND	10	ND	ND	ND	100	88	ND	108	84
330 2,3,4,6-Tetrachlorophenol	ND	10	ND	ND	ND	300	170	ND	323	138
331 Tetraethyldithiopyrophospha	-	-	-	-	-	-	-	-	-	-
346 Thiuram	IND		IND	IND	IND	300	0	IND	300	0
349 O-Toluidine	251		IND	IND	IND	300	0	IND	323	0
353 1,2,4-Trichlorobenzene	ND	1.9	ND	ND	ND	100	84	ND	108	69
359 2,4,5-Trichlorophenol	ND	10	ND	ND	ND	100	94	ND	108	75
360 2,4,6-Trichlorophenol	ND	2.8	ND	ND	ND	100	104	ND	108	78
365 O,O,O-Triethyl phosphorothi	-	-	-	-	-	-	-	-	-	-
366 sym-Trinitrobenzene	-	-	-	-	-	-	-	-	-	-
367 Tris(1-Azridinyl)phosphine	-	-	-	-	-	-	-	-	-	-
368 Tris(2,3-dibromopropyl)phos	IND	10	IND	IND	IND	300	0	IND	300	0
370 Uracil mustard	-	-	-	-	-	-	-	-	-	-
o-Nitrotoluene	37200	10	ND	ND	ND	300	116	ND	300	69

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-"specifies no standard or reference spectra available.
"IND" =Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 23, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3097	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW14	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
m-Nitrotoluene	5610	10	ND	ND	ND	300	100	ND	300	78
p-Nitrotoluene	30200	10	ND	ND	ND	300	92	ND	300	73

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
--Specifies no standard or reference spectra available.
"IND" =Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Pest & Herb Compounds - GC Analysis Data (QR24)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
11 Aldrin	ND	10	ND	ND	ND	0.50	70	ND	0.56	98
63 Chlordane	ND	100	ND	ND	ND	5.0	136	ND	5.6	130
73 Chlorobenzilate	-	-	-	-	-	-	-	-	-	-
100 4,4'-DDD	ND	10	ND	ND	ND	0.50	0	ND	0.56	127
101 4,4'-DDE	ND	10	ND	ND	ND	0.50	98	ND	0.56	100
102 4,4'-DDT	ND	10	ND	ND	ND	0.50	0	ND	0.56	108
130 2,4-D	ND	2500	ND	ND	ND	100	106	ND	100	103
137 Dieldrin	ND	10	ND	ND	ND	0.50	118	ND	0.56	107
141 Carbophenothion	-	-	-	-	-	-	-	-	-	-
144 Thionazin	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	93
149 Dimethoate	ND	5.0	ND	ND	ND	5.0	74	ND	5.6	70
172 Disulfoton	ND	5.0	ND	ND	ND	25	86	ND	28	90
174A Endosulfan I	ND	10	ND	ND	ND	0.50	0	ND	0.56	98
174B Endosulfan II	ND	10	ND	ND	ND	0.50	0	ND	0.56	127
175 Endrin	ND	10	ND	ND	ND	0.50	0	ND	0.56	131
192 Heptachlor	ND	10	ND	ND	ND	0.50	134	ND	0.56	101
193 Heptachlor epoxide	ND	10	ND	ND	ND	0.50	116	ND	0.56	109
196A Alpha-BHC	ND	10	ND	ND	0.080	0.50	86	ND	0.56	96
196B Beta-BHC	ND	10	ND	ND	ND	0.50	0	ND	0.56	104
196C Gamma-BHC	ND	10	ND	ND	0.18	0.50	88	ND	0.56	102
196D Delta-BHC	ND	10	ND	ND	ND	0.50	164	ND	0.56	98
214 Kepone	ND	100	ND	ND	ND	5.0	70	ND	5.6	70
230 Methoxychlor	ND	1000	ND	ND	ND	50	112	ND	56	106
242 Methyl parathion	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	88
283 Parathion	ND	1.0	ND	ND	ND	5.0	96	ND	5.6	96
295 Phorate	-	-	-	-	-	-	-	-	-	-
296 Famphur	ND	10	ND	ND	ND	50	22	ND	56	27
333 Tetraethylpyrophosphate	ND	5.0	ND	ND	ND	25	48	ND	28	47
351 Toxaphene	ND	250	ND	ND	ND	20	115	ND	22	82
361 2,4,5-T	ND	250	ND	ND	ND	10	158	ND	10	104
362 2,4,5-TP (Silvex)	ND	250	ND	ND	ND	10	143	ND	10	103

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" = Indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - DAI HPLC Compounds - Analysis Data (QR25)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. Company Facility Sample Point Date Time Elapsed Hours

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov
6	1-Acetyl-2-thiourea	ND	.5	ND	ND	ND	5.0	90	ND	5.0	0
8	Acrylamide	ND	.5	ND	ND	ND	5.0	96	ND	5.0	95
17	Amitrole	-	-	-	-	-	-	-	-	-	-
82	1-(o-Chlorophenyl)thiourea	ND	.5	ND	ND	ND	5.0	83	ND	5.0	87
145	Diethylstilbesterol	-	-	-	-	-	-	-	-	-	-
176	Ethyl carbamate	-	-	-	-	-	-	-	-	-	-
179	Ethyleneimine	-	-	-	-	-	-	-	-	-	-
181	Ethylenethiourea	ND	.5	ND	ND	ND	5.0	98	ND	5.0	96
221	Maleic hydrazide	2.7 B	.5	ND	ND	ND	5.0	120	ND	5.0	130
222	Malononitrile	-	-	-	-	-	-	-	-	-	-
229	Methomyl	ND	.5	ND	ND	ND	5.0	39	ND	5.0	37
231	2-Methylaziridine	-	-	-	-	-	-	-	-	-	-
253	Nicotinic acid	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130
260	Nitroglycerin	-	-	-	-	-	-	-	-	-	-
268	N-Nitroso-N-ethylurea	ND	.5	ND	ND	ND	5.0	-R	ND	5.0	-R
270	N-Nitroso-N-methylurea	ND	.5	ND	ND	ND	5.0	-R	ND	5.0	-R
292	N-Phenylthiourea	ND	.5	ND	ND	ND	5.0	70	ND	5.0	74
309	Reserpine	-	-	-	-	-	-	-	-	-	-
345	Thiourea	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130

R Recovery Data not available due to compound degradation. Results are qualitative.

B A compound is present at appropriate time, but does not match absorbance profile of target compound. Value represents a maximum concentration.

* See Grand Table for complete compound name and specifications.
** EPA/ETC established method detection limit.
"-" specifies no standard available.
"ND" Indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Extractable HPLC Compounds - Analysis Data (QR31)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
3 Warfarin	ND	27	ND	ND	ND	500	120	ND	500	64
15 Mitomycin C	-	-	-	-	-	-	-	-	-	-
26 Azaserine	-	-	-	-	-	-	-	-	-	-
35 Benzidine	ND	27	BMDL	ND	ND	500	140	ND	500	115
62 Chlorambucil	-	-	-	-	-	-	-	-	-	-
86 Citrus red No.2	-	-	-	-	-	-	-	-	-	-
99 Daunomycin	-	-	-	-	-	-	-	-	-	-
119 3,3'-Dichlorobenzidine	IND [A]	27	BMDL	BMDL	BMDL	500	120	BMDL	500	94
147 3,4-Dihydroxy-alph-(methyla	-	-	-	-	-	-	-	-	-	-
150 3,3'-Dimethoxybenzidine	ND	27	BMDL	ND	ND	500	100	BMDL	500	104
153 3,3'-Dimethylbenzidine	ND	27	ND	ND	BMDL	500	83	ND	500	90
249 1-Naphthyl-2-thiourea	ND	27	ND	ND	ND	500	48	ND	500	44
290A m-phenylenediamine	ND	27	ND	ND	ND	500	65	ND	500	82
290B o-phenylenediamine	BMDL	27	ND	ND	ND	500	46	ND	500	64
290C p-phenylenediamine	ND	27	BMDL	ND	ND	500	49	ND	500	64
320 Streptozotocin	-	-	-	-	-	-	-	-	-	-
343 Thioacetamide	-	-	-	-	-	-	-	-	-	-
344 Thiosemicarbazide	-	-	-	-	-	-	-	-	-	-
348A Toluene-2,4-Diamine	ND	27	ND	ND	ND	500	110	ND	500	46
369 Trypan blue	-	-	-	-	-	-	-	-	-	-

[A] Contaminant at appropriate retention time, but does not match absorbance profile of target compound.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Aroclors -GC Analysis Data (QR30)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3097 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW14 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l [a]	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
300A Aroclor 1242	2.4 [a]	1	8.6[a]	4.2[a]	ND	0	-	ND	0	-
300B Aroclor 1254	ND	1	ND	ND	ND	0	-	ND	0	-
300C Aroclor 1260	ND	1	ND	ND	ND	2	80	ND	2	111
300D Aroclor 1248	ND	1	ND	ND	ND	0	-	ND	0	-
300E Aroclor 1232	ND	1	ND	ND	ND	0	-	ND	0	-
300F Aroclor 1221	ND	1	ND	ND	ND	0	-	ND	0	-
300G Aroclor 1016	ND	1	ND	ND	ND	0	-	ND	0	-

A ETC established Method Detection Limit for this particular sample.

B Confirmed by GC/MS.

*See Ground Table for complete compound name and specifications.
**MDL calculated for each sample matrix.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Metals and Cyanides - Analysis Data (QR29)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3097	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW14	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL ug/l	First	Second	Blank Data	Concen. Added	% Recov	Unspiked Sample	Concen. Added	% Recov
13A Aluminum	ND	100								
19A Antimony	ND	200								
21A Arsenic	ND	10								
27A Barium	220	3								
42A Beryllium	ND	3								
56A Cadmium	ND	10								
57A Calcium	100000	200								
84A Chromium	ND	30								
88A Copper	ND	10								
92A Cyanide, Total	290	25								
210 Iron	ND	200								
216A Lead	ND	200								
225A Mercury	ND	.2								
250A Nickel	ND	30								
280A Osmium	BMDL	600								
301A Potassium	2900	40								
314A Selenium	ND	5								
317A Silver	ND	10								
319A Sodium	405000	80								
321A Strontium	910	100								
335A Thallium	ND	25								
372A Vanadium	ND	20								
374A Zinc	2890	10								

*See Grand Table for complete compound name and specifications.

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

Field Parameters (QR16)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15 MW15	850724		

Parameter	Results									
	Sample Measure	MDL								
pH (Field) std	7.35									
Specific Conductance (Fieldum/cm	2300									
Groundwater Elevation Feet	16.71									

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 9, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Aroclors -GC Analysis Data (QR30)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l [A]	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
300A Aroclor 1242	4.4 [B]	1	8.6[B]	4.2[B]	ND	0	-	ND	0	-
300B Aroclor 1254	ND	1	ND	ND	ND	0	-	ND	0	-
300C Aroclor 1260	ND	1	ND	ND	ND	2	80	ND	2	111
300D Aroclor 1248	ND	1	ND	ND	ND	0	-	ND	0	-
300E Aroclor 1232	ND	1	ND	ND	ND	0	-	ND	0	-
300F Aroclor 1221	ND	1	ND	ND	ND	0	-	ND	0	-
300G Aroclor 1016	ND	1	ND	ND	ND	0	-	ND	0	-

A ETC established Method Detection Limit for this particular sample.

B Confirmed by GC/MS.

*See Grand Table for complete compound name and specifications.
**MDL calculated for each sample matrix.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Metals and Cyanides - Analysis Data (QR29)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL ug/l	First	Second	Blank Data	Concen. Added	% Recov	Unspiked Sample	Concen. Added	% Recov
13A Aluminum	ND	100								
19A Antimony	ND	200								
21A Arsenic	ND	10								
27A Barium	160	3								
42A Beryllium	ND	3								
56A Cadmium	ND	10								
57A Calcium	56500	200								
84A Chromium	ND	30								
88A Copper	ND	10								
92A Cyanide, Total	<25	25								
210 Iron	ND	200								
216A Lead	ND	200								
225A Mercury	ND	.2								
250A Nickel	ND	30								
280A Osmium	ND	600								
301A Potassium	1200	40								
314A Selenium	ND	5								
317A Silver	ND	10								
319A Sodium	353000	80								
321A Strontium	510	100								
335A Thallium	ND	5								
372A Vanadium	ND	20								
374A Zinc	BMDL	10								

*See Grand Table for complete compound name and specifications.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 30, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Extractable HPLC Compounds - Analysis Data (QR31)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3096 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW15 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen Added ug/l	% Recov
3 Warfarin	ND	27	ND	ND	ND	500	120	ND	500	64
15 Mitomycin C	-	-	-	-	-	-	-	-	-	-
26 Azaserine	-	-	-	-	-	-	-	-	-	-
35 Benzidine	ND	25	BMDL	ND	ND	500	140	ND	500	115
62 Chlorambucil	-	-	-	-	-	-	-	-	-	-
86 Citrus red No.2	-	-	-	-	-	-	-	-	-	-
99 Daunomycin	-	-	-	-	-	-	-	-	-	-
119 3,3'-Dichlorobenzidine	ND	25	BMDL	BMDL	BMDL	500	120	BMDL	500	94
147 3,4-Dihydroxy-alph-(methyla	-	-	-	-	-	-	-	-	-	-
150 3,3'-Dimethoxybenzidine	ND	25	BMDL	ND	ND	500	100	BMDL	500	104
153 3,3'-Dimethylbenzidine	ND	25	ND	ND	BMDL	500	83	ND	500	90
249 1-Naphthyl-2-thiourea	ND	25	ND	ND	ND	500	48	ND	500	44
290A m-phenylenediamine	ND	25	ND	ND	ND	500	65	JD	500	8
290B o-phenylenediamine	ND	25	ND	ND	ND	500	46	ND	500	64
290C p-phenylenediamine	ND	25	BMDL	ND	ND	500	49	ND	500	64
320 Streptozotocin	-	-	-	-	-	-	-	-	-	-
343 Thioacetamide	-	-	-	-	-	-	-	-	-	-
344 Thiosemicarbazide	-	-	-	-	-	-	-	-	-	-
348A Toluene-2,4-Diamine	ND	25	ND	ND	ND	500	110	ND	500	46
369 Trypan blue	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"BMDL" signifies Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

OCT 1, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - DAI HPLC Compounds - Analysis Data (QR25)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov	Unspiked Sample mg/l	Concen. Added mg/l	% Recov
6	1-Acetyl-2-thiourea	ND	.5	ND	ND	ND	5.0	90	ND	5.0	0
8	Acrylamide	ND	.5	ND	ND	ND	5.0	96	ND	5.0	95
17	Amitrole	-	-	-	-	-	-	-	-	-	-
82	1-(o-Chlorophenyl)thiourea	ND	.5	ND	ND	ND	5.0	83	ND	5.0	87
145	Diethylstilbesterol	-	-	-	-	-	-	-	-	-	-
176	Ethyl carbamate	-	-	-	-	-	-	-	-	-	-
179	Ethyleneimine	-	-	-	-	-	-	-	-	-	-
181	Ethylenethiourea	ND	.5	ND	ND	ND	5.0	98	ND	5.0	96
221	Maleic hydrazide	ND	.5	ND	ND	ND	5.0	120	ND	5.0	130
222	Malononitrile	-	-	-	-	-	-	-	-	-	-
229	Methomyl	ND	.5	ND	ND	ND	5.0	39	ND	5.0	37
231	2-Methylaziridine	-	-	-	-	-	-	-	-	-	-
253	Nicotinic acid	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130
260	Nitroglycerin	-	-	-	-	-	-	-	-	-	-
268	N-Nitroso-N-ethylurea	ND	.5	ND	ND	ND	5.0	-A	ND	5.0	-A
270	N-Nitroso-N-methylurea	ND	.5	ND	ND	ND	5.0	-A	ND	5.0	-A
292	N-Phenylthiourea	ND	.5	ND	ND	ND	5.0	70	ND	5.0	74
309	Reserpine	-	-	-	-	-	-	-	-	-	-
345	Thiourea	ND	.5	ND	ND	ND	5.0	84	ND	5.0	130

A Recovery Data not available due to compound degradation. Results are qualitative.

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" = Indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 18, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Pest & Herb Compounds - GC Analysis Data (QR24)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3096 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW15 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
11 Aldrin	ND	.10	ND	ND	ND	0.50	70	ND	0.56	98
63 Chlordane	ND	1.0	ND	ND	ND	5.0	136	ND	5.6	130
73 Chlorobenzilate	-	-	-	-	-	-	-	-	-	-
100 4,4'-DDD	ND	.10	ND	ND	ND	0.50	0	ND	0.56	127
101 4,4'-DDE	ND	.10	ND	ND	ND	0.50	98	ND	0.56	100
102 4,4'-DDT	ND	.10	ND	ND	ND	0.50	0	ND	0.56	108
130 2,4-D	ND	500	ND	ND	ND	100	106	ND	100	103
137 Dieldrin	ND	.10	ND	ND	ND	0.50	118	ND	0.56	107
141 Carbophenothion	-	-	-	-	-	-	-	-	-	-
144 Thionazin	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	93
149 Dimethoate	ND	5.0	ND	ND	ND	5.0	74	ND	5.6	70
172 Disulfoton	ND	5.0	ND	ND	ND	25	86	ND	28	90
174A Endosulfan I	ND	.10	ND	ND	ND	0.50	0	ND	0.56	98
174B Endosulfan II	ND	.10	ND	ND	ND	0.50	0	ND	0.56	127
175 Endrin	ND	.10	ND	ND	ND	0.50	0	ND	0.56	131
192 Heptachlor	ND	2.5	ND	ND	ND	0.50	134	ND	0.56	101
193 Heptachlor epoxide	ND	.10	ND	ND	ND	0.50	116	ND	0.56	109
196A Alpha-BHC	ND	2.5	ND	ND	0.080	0.50	86	ND	0.56	96
196B Beta-BHC	ND	2.5	ND	ND	ND	0.50	0	ND	0.56	104
196C Gamma-BHC	ND	2.5	ND	ND	0.18	0.50	88	ND	0.56	102
196D Delta-BHC	ND	2.5	ND	ND	ND	0.50	164	ND	0.56	98
214 Kepone	ND	1.0	ND	ND	ND	5.0	70	ND	5.6	70
230 Methoxychlor	ND	10	ND	ND	ND	50	112	ND	56	106
242 Methyl parathion	ND	1.0	ND	ND	ND	5.0	84	ND	5.6	88
283 Parathion	ND	1.0	ND	ND	ND	5.0	96	ND	5.6	96
295 Phorate	-	-	-	-	-	-	-	-	-	-
296 Famphur	ND	10	ND	ND	ND	50	22	ND	56	27
333 Tetraethylpyrophosphate	ND	5.0	ND	ND	ND	25	48	ND	28	47
351 Toxaphene	ND	2.5	ND	ND	ND	20	115	ND	22	82
361 2,4,5-T	ND	50	ND	ND	ND	10	158	ND	10	104
362 2,4,5-TP (Silvex)	ND	50	ND	ND	ND	10	143	ND	10	103

* See Comments

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard available.
"IND" = indeterminate. Standard and/or spikes could not be detected at current method levels.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 23, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
m-Nitrotoluene	938	10	ND	ND	ND	300	100	ND	300	78
p-Nitrotoluene	31	10	ND	ND	ND	300	92	ND	300	73

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" - Indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 24, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WWI5	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
275	N-Nitrosopiperidine	ND	10	ND	ND	ND	100	94	ND	108	72
277	N-Nitrososarcosine	-	-	-	-	-	-	-	-	-	-
278	5-Nitro-o-toluidine	BMDL	10	ND	ND	ND	300	108	ND	323	69
279	Octamethylpyrophosphoramide		-	-	-	-	-	-	-	-	-
281	Endothal	-	-	-	-	-	-	-	-	-	-
284	Pentachlorobenzene	ND	10	ND	ND	ND	100	94	ND	108	81
286	Pentachloronitrobenzene	ND	10	ND	ND	ND	300	95	ND	323	70
287	Pentachlorophenol	ND	3.6	ND	ND	ND	100	132	ND	108	77
288	Phenacetin	ND	10	ND	ND	ND	100	73	ND	108	61
289	Phenol	ND	1.5	ND	ND	ND	100	28	ND	108	81
298	Phthalic anhydride	-	-	-	-	-	-	-	-	-	-
299	2-Picoline	ND	10	ND	ND	ND	100	21	ND	108	48
303	Pronamide	ND	10	ND	ND	ND	100	91	ND	108	54
304	1,3-Propane sultone	-	-	-	-	-	-	-	-	-	-
306	Propylthiouracil	-	-	-	-	-	-	-	-	-	-
310	Resorcinol	IND		IND	IND	IND	300	0	IND	323	0
311	Saccharin and salts	-	-	-	-	-	-	-	-	-	-
312	Safrole	ND	10	ND	ND	ND	300	100	ND	323	103
323	1,2,4,5-Tetrachlorobenzene	ND	10	ND	ND	ND	100	88	ND	108	84
330	2,3,4,6-Tetrachlorophenol	ND	10	ND	ND	ND	300	170	ND	323	138
331	Tetraethyldithiopyrophospha	-	-	-	-	-	-	-	-	-	-
346	Thiuram	IND		IND	IND	IND	300	0	IND	300	0
349	O-Toluidine	6.8		IND	IND	IND	300	0	IND	323	0
353	1,2,4-Trichlorobenzene	ND	1.9	ND	ND	ND	100	84	ND	108	69
359	2,4,5-Trichlorophenol	ND	10	ND	ND	ND	100	94	ND	108	75
360	2,4,6-Trichlorophenol	ND	2.7	ND	ND	ND	100	104	ND	108	78
365	0,0,0-Triethyl phosphorothi	-	-	-	-	-	-	-	-	-	-
366	sym-Trinitrobenzene	-	-	-	-	-	-	-	-	-	-
367	Tris(1-Azridinyl)phosphine	-	-	-	-	-	-	-	-	-	-
368	Tris(2,3-dibromopropyl)phos	IND		IND	IND	IND	300	0	IND	300	0
370	Uracil mustard	-	-	-	-	-	-	-	-	-	-
	o-Nitrotoluene	3560	10	ND	ND	ND	300	116	ND	300	69

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" = indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 24, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3096 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WWIS 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Reco
200 Hexachlorophene	ND	10	ND	ND	ND	300	73	ND	300	94
201 Hexachloropropene	ND	10	ND	ND	ND	300	40	ND	323	54
202 Hexaethyltetraphosphate	-	-	-	-	-	-	-	-	-	-
208 Indeno(1,2,3-cd)pyrene	ND	10	ND	ND	ND	0	-	ND	0	-
213 Isosafrole	ND	10	ND	ND	ND	300	182	ND	323	184
220 Maleic anhydride	-	-	-	-	-	-	-	-	-	-
223 Melphalan	IND		IND	IND	IND	300	0	IND	323	0
228 Methapyrilene	-	-	-	-	-	-	-	-	-	-
232 3-Methylcholanthrene	ND	10	ND	ND	ND	100	201	ND	108	38
234 4,4'-Methylenebis(2-chloroa	ND	10	ND	ND	ND	300	31	ND	300	3
239 Methyl methanesulfonate	ND	10	ND	ND	ND	100	63	ND	108	56
240 Aldicarb	ND	10	ND	ND	ND	100	73	ND	108	50
241 N-Methyl-N'-nitrosoguanidin	-	-	-	-	-	-	-	-	-	
243 Methylthiouracil	-	-	-	-	-	-	-	-	-	
245 Naphthalene	ND	1.6	ND	ND	ND	100	86	ND	108	78
246 1,4-Naphthoquinone	ND	10	ND	ND	ND	100	41	ND	108	34
247 1-Naphthylamine	ND	10	ND	ND	ND	100	60	ND	108	5
248 2-Naphthylamine	ND	10	ND	ND	ND	100	43	ND	108	38
255 p-Nitroaniline	ND	10	ND	ND	ND	300	79	ND	323	7
256 Nitrobenzene	ND	1.9	ND	ND	ND	100	97	ND	108	8
261 4-Nitrophenol	ND	2.4	ND	ND	ND	100	20	ND	108	
262 4-Nitroquinoline-1-oxide	-	-	-	-	-	-	-	-	-	
263A N-Nitrosodiphenylamine	ND	1.9	ND	ND	ND	100	191	ND	108	18
264 N-Nitrosodi-n-butylamine	ND	10	ND	ND	ND	100	94	ND	108	7
265 N-Nitrosodiethanolamine	IND		IND	IND	IND	300	0	IND	323	
266 N-Nitrosodiethylamine	ND	10	ND	ND	ND	300	70	ND	323	5
267 N-Nitrosodimethylamine	ND	10	ND	ND	ND	0	-	ND	0	
269 N-Nitrosomethylethylamine	IND		IND	IND	IND	300	0	IND	323	
271 N-Nitroso-N-methylurethane	ND	10	ND	ND	ND	300	65	ND	323	2
272 N-Nitrosomethylvinylamine	-	-	-	-	-	-	-	-	-	
273 N-Nitrosomorpholine	ND	10	ND	ND	ND	300	64	ND	323	5
274 N-Nitrosonornicotine	-	-	-	-	-	-	-	-	-	

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifics no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 23, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
128	2,4-Dichlorophenol	ND	2.7	ND	ND	ND	100	106	ND	108	84
129	2,6-Dichlorophenol	ND	10	ND	ND	ND	100	103	ND	108	73
131	Dichlorophenylarsine	-	-	-	-	-	-	-	-	-	-
142	0,0-Diethylphosphoric acid	-	-	-	-	-	-	-	-	-	-
143	Diethyl phthalate	ND	10	ND	ND	ND	100	104	ND	108	81
146	Dihydrosafrole	-	-	-	-	-	-	-	-	-	-
148	Diisopropylfluorophosphate	-	-	-	-	-	-	-	-	-	-
151	p-Dimethylaminoazobenzene	ND	10	ND	ND	ND	100	101	ND	108	54
152	7,12-Dimethylbenz[a]anthrac	ND	10	ND	ND	ND	100	150	ND	108	40
157	Thiofanox	IND		IND	IND	IND	300	0	IND	323	0
158	a-a-Dimethylphenethylamine	IND		IND	IND	IND	100	0	IND	108	0
159	2,4-Dimethylphenol	ND	2.7	ND	ND	ND	100	114	ND	108	93
160	Dimethyl phthalate	ND	10	ND	ND	ND	100	75	ND	108	94
161	Dimethyl sulfate	-	-	-	-	-	-	-	-	-	-
162A	m-Dinitrobenzene	ND	10	ND	ND	ND	100	205	ND	108	176
163	4,6-Dinitro-o-cresol	ND	24	ND	ND	ND	100	36	ND	108	29
164	2,4-Dinitrophenol	ND	42	ND	ND	ND	100	38	ND	108	54
165	2,4-Dinitrotoluene	3560	5.7	ND	ND	ND	100	39	ND	108	72
166	2,6-Dinitrotoluene	1460	1.9	ND	ND	ND	100	96	ND	108	81
167	Di-n-octyl phthalate	ND	10	ND	ND	ND	100	92	ND	108	93
169	Diphenylamine	ND	10	ND	ND	ND	100	166	ND	108	147
170	1,2-Diphenylhydrazine	ND	10	ND	ND	ND	100	75	ND	108	74
171	N-Nitrosodi-n-propylamine	ND	10	ND	ND	ND	100	205	ND	108	292
173	2,4-Dithiobiuret	-	-	-	-	-	-	-	-	-	-
183	Ethyl methanesulfonate	ND	10	ND	ND	ND	100	75	ND	108	51
184	Fluoranthene	ND	2.2	ND	ND	ND	100	92	ND	108	67
189	Formic acid	-	-	-	-	-	-	-	-	-	-
194	Hexachlorobenzene	ND	1.9	ND	ND	ND	100	87	ND	108	85
195	Hexachlorobutadiene	ND	.90	ND	ND	ND	100	42	ND	108	49
197	Hexachlorocyclopentadiene	ND	10	ND	ND	ND	0	-	ND	0	-
198	Hexachloroethane	ND	1.6	ND	ND	ND	100	39	ND	108	42
199	Hexachlorohexahydro-endo, e	-	-	-	-	-	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/EIC established method detection limit.
-"specifies no standard or reference spectra available.
IND" indeterminate: Standard and/or spikes could not be detected at current method levels.
Results with neither "MDL" nor "Conc.added" specifies no standard

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 24, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3096 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW15 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
67A 1-chloronaphthalene	ND	10	ND	ND	ND	100	80	ND	108	86
68A 2,3,5,6-Tetrachlorophenol	ND	10	ND	ND	ND	300	85	ND	323	74
68B 2,3,4,5-Tetrachlorophenol	ND	10	ND	ND	ND	300	93	ND	323	109
71 p-Chloroaniline	ND	10	ND	ND	ND	300	80	ND	323	63
74 p-Chloro-m-cresol	ND	3.0	ND	ND	ND	100	94	ND	108	72
80 2-Chloronaphthalene	ND	1.9	ND	ND	ND	100	47	ND	108	176
81 2-Chlorophenol	ND	3.3	ND	ND	ND	100	95	ND	108	75
85 Chrysene	ND	2.5	ND	ND	ND	100	72	ND	108	85
87A Acenaphthene	ND	1.9	ND	ND	ND	100	75	ND	108	76
87B Acenaphthylene	ND	3.5	ND	ND	ND	100	75	ND	108	76
87C Anthracene	ND	1.9	ND	ND	ND	100	91	ND	108	79
87D Benzo(ghi)perylene	ND	4.1	ND	ND	ND	0	-	ND	0	-
87E Benzo(k)fluoranthene	ND	3.5	ND	ND	ND	100	80	ND	108	62
87F Fluorene	ND	1.9	ND	ND	ND	100	74	ND	108	74
87G Phenanthrene	ND	5.4	ND	ND	ND	100	73	ND	108	81
87H Pyrene	ND	1.9	ND	ND	ND	100	45	ND	108	60
89A 2-Nitrophenol	ND	3.6	ND	ND	ND	100	88	ND	108	71
90A o-Cresol	ND	10	ND	ND	ND	100	109	ND	108	93
90B m+p-Cresol	ND	10	ND	ND	ND	200	124	ND	215	110
97 2-Cyclohexyl-4,6-dinitrophe	-	-	-	-	-	-	-	-	-	-
103 Diallate	-	-	-	-	-	-	-	-	-	-
104 Dibenz[a,h]acridine	-	-	-	-	-	-	-	-	-	-
105 Dibenz[a,j]acridine	ND	10	ND	ND	ND	100	209	ND	108	52
106 Dibenz[a,h]anthracene	ND	10	ND	ND	ND	100	80	ND	108	62
107 7H-Dibenzo[c,g]carbazole	-	-	-	-	-	-	-	-	-	-
108 Dibenzo[a,e]pyrene	-	-	-	-	-	-	-	-	-	-
109 Dibenzo[a,h]pyrene	-	-	-	-	-	-	-	-	-	-
110 Dibenzo[a,i]pyrene	-	-	-	-	-	-	-	-	-	-
114 Di-n-butyl phthalate	ND	10	ND	ND	ND	100	105	ND	108	77
115 1,2-Dichlorobenzene	ND	1.9	ND	ND	ND	100	70	ND	108	65
116 1,3-Dichlorobenzene	ND	1.9	ND	ND	ND	100	60	ND	108	59
117 1,4-Dichlorobenzene	ND	4.4	ND	ND	ND	100	63	ND	108	62

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
- "-" specifies no standard or reference spectra available.
- "ND" signifies not detected at current method levels.
Result with neither "MDL" nor "Conc.added" specifies no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

SEP 24, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Acid/B/N/Pest Compounds - GC/MS Analysis Data (QR28)

Chain of Custody Data Required for ETC Data Management Summary Reports

J3096 AIR PRODUCTS MANUFACTURING COR APCIPASGWM WW15 850724

ETC Sample No. | Company | Facility | Sample Point | Date | Time | Elapsed Hours

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
2	Acetophenone	ND	10	ND	ND	ND	100	94	ND	108	77
4	2-Acetylaminofluorene	ND	10	ND	ND	ND	300	855	ND	323	278
10A	Aflatoxins, Total	-	-	-	-	-	-	-	-	-	-
14	4-Aminobiphenyl	ND	10	ND	ND	ND	100	63	ND	108	36
16	5-(Aminomethyl)-3-isoxazolo	IND		IND	IND	IND	300	0	IND	300	0
18	Aniline	ND	10	ND	ND	ND	100	72	ND	108	57
20	Aramite	-	-	-	-	-	-	-	-	-	-
25	Auramine	-	-	-	-	-	-	-	-	-	-
29	Benz[c]acridine	-	-	-	-	-	-	-	-	-	-
30	Benz[a]anthracene	ND	10	ND	ND	ND	100	66	ND	108	77
33	Dichloromethylbenzene	ND	10	ND	ND	ND	100	3	ND	108	9
34	Benzenethiol	ND	10	ND	ND	ND	300	59	ND	323	55
36	Benzo[b]fluoranthene	ND	4.8	ND	ND	ND	100	79	ND	120	28
37	Benzo[j]fluoranthene	-	-	-	-	-	-	-	-	-	-
38	Benzo(a)pyrene	ND	2.5	ND	ND	ND	100	77	ND	108	55
39	p-Benzoquinone	ND	10	ND	ND	ND	100	3	ND	108	26
40	Benzotrichloride	-	-	-	-	-	-	-	-	-	-
41	Benzyl chloride	ND	10	ND	ND	ND	100	67	ND	108	56
43	bis(2-Chloroethoxy)methane	ND	5.3	ND	ND	ND	100	106	ND	108	89
44	bis(2-Chloroethyl) ether	ND	5.7	ND	ND	ND	100	110	ND	108	89
45	Chlornaphazine	-	-	-	-	-	-	-	-	-	-
46	bis(2-Chloroisopropyl)ether	ND	5.7	ND	ND	ND	100	92	ND	108	74
48	bis(2-Ethylhexyl)phthalate	ND	10	ND	ND	ND	100	73	ND	108	88
51	4-Bromophenyl phenyl ether	ND	1.9	ND	ND	ND	100	88	ND	108	89
52	Brucine	-	-	-	-	-	-	-	-	-	-
53	2-Butanone peroxide	-	-	-	-	-	-	-	-	-	-
54	Butyl benzyl phthalate	ND	10	ND	ND	ND	100	67	ND	108	73
55	2-sec-Butyl-4,6-dinitrophen	ND	10	ND	ND	ND	300	90	ND	323	52
64A	1,2,3-Trichlorobenzene	ND	10	ND	ND	ND	100	71	ND	108	67
64B	1,3,5-Trichlorobenzene	ND	10	ND	ND	ND	100	79	ND	108	72
64C	1,2,3,4-Tetrachlorobenzene	ND	10	ND	ND	ND	100	91	ND	108	89
64D	1,2,3,5-Tetrachlorobenzene	ND	10	ND	ND	ND	100	58	ND	108	56

*See Grand Table for isomeric compound name and specifications.
**MDL: established method detection limit.
"-" specifies no standard or reference spectra available.
"ND" indicates none found and/or spikes could not be
detection at current method levels.
Result with neither "MDL" nor "Concluded" specific: no standard
available, compound not quantitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 20, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
	Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen Added ug/l	% Recov
139 Diethylarsine	-	-	-	-	-	-	-	-	-	-
140 N,N-Diethylhydrazine	-	-	-	-	-	-	-	-	-	-
182 Ethyl methacrylate	ND	10	ND	ND	ND	50	99	ND	50	72
188 Formaldehyde	-	-	-	-	-	-	-	-	-	-
191A Chlorodibromomethane	ND	3.1	ND	ND	ND	18	81	ND	18	78
191B Dichlorobromomethane	ND	2.2	ND	ND	ND	18	85	ND	18	78
206 Hydrogen sulfide	-	-	-	-	-	-	-	-	-	-
209 Iodomethane	ND	10	ND	ND	ND	50	94	ND	50	54
235 Methyl ethyl ketone	BMDL	10	9.00	9.80	BMDL	140	82	2.40	140	74
238 Methyl methacrylate	ND	10	ND	ND	ND	50	99	ND	50	70
282 Paraldehyde	-	-	-	-	-	-	-	-	-	-
285 Pentachloroethane	ND	10	ND	ND	ND	50	104	ND	50	71
326 1,1,1,2-Tetrachloroethane	ND	10	ND	ND	ND	50	103	ND	50	75
327 1,1,2,2-Tetrachloroethane	ND	6.9	ND	ND	ND	18	91	ND	18	81
328 Tetrachloroethylene	ND	4.1	ND	ND	ND	18	93	ND	18	87
329 Carbon tetrachloride	ND	2.8	ND	ND	ND	18	86	ND	18	81
334 Tetranitromethane	-	-	-	-	-	-	-	-	-	-
347 Toluene	ND	6.0	ND	ND	BMDL	18	85	ND	18	93
352 Bromoform	ND	4.7	ND	ND	ND	18	82	ND	18	84
354 1,1,1-Trichloroethane	ND	3.8	700	ND	BMDL	18	82	1.40	18	90
355 1,1,2-Trichloroethane	ND	5.0	ND	ND	ND	18	103	ND	18	88
356 Trichloroethylene	ND	1.9	ND	ND	ND	18	82	ND	18	73
357 Trichloromethanethiol	-	-	-	-	-	-	-	-	-	-
358 Trichlorofluoromethane	ND	10.0	ND	ND	ND	18	84	3.03	18	95
363A 1,1,2-Trichloropropane	ND	10	ND	ND	ND	50	104	ND	50	76
363B 1,2,2-Trichloropropane	ND		ND	ND	ND	0	-	ND	0	-
364 1,2,3-Trichloropropane	ND	10	ND	ND	ND	68	97	ND	68	74
373 Vinyl chloride	ND	10.0	ND	ND	ND	18	95	ND	18	91

*See Ground Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
"-" specifies no standard or reference spectra available.
"ND" = indeterminate, standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.Added" specified: no standard available, compound was qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 20, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Purge & Trap Compounds - GC/MS Analysis Data (QR27)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. ug/l	MDL** ug/l	First ug/l	Second ug/l	Blank Data ug/l	Concen. Added ug/l	% Recov	Unspiked Sample ug/l	Concen. Added ug/l	% Recov
1	Acetonitrile	IND	-	IND	IND	IND	50.0	0	IND	50.0	0
7	Acrolein	ND	100	ND	ND	ND	800	68	ND	800	67
9	Acrylonitrile	ND	100	ND	ND	ND	80	73	ND	80	69
31	Benzene	ND	4.4	ND	ND	ND	18	113	ND	18	97
49	Bromoacetone	-	-	-	-	-	-	-	-	-	-
50	Methyl bromide	ND	10.0	ND	ND	ND	18	114	ND	18	66
59	Carbon disulfide	ND	10	ND	ND	ND	68	102	ND	68	83
65A	Chloroethane	ND	10.0	ND	ND	ND	18	84	ND	18	74
66A	Freon TF	ND	10.0	ND	ND	ND	68	100	ND	68	80
72	Chlorobenzene	ND	6.0	ND	ND	ND	18	90	ND	18	84
75	1-Chloro-2,3-epoxypropane	-	-	-	-	-	-	-	-	-	-
76	2-Chloroethylvinyl ether	ND	10.0	ND	ND	ND	18	111	ND	18	68
77	Chloroform	ND	1.6	ND	ND	ND	18	89	ND	18	82
78	Methyl chloride	ND	10.0	ND	ND	ND	18	95	ND	18	84
79	Chloromethyl methyl ether	-	-	-	-	-	-	-	-	-	-
91	Crotonaldehyde	ND	10	ND	ND	ND	50	78	ND	50	71
111	1,2-Dibromo-3-chloropropane	ND	10	ND	ND	ND	68	82	ND	68	69
112	1,2-Dibromoethane	ND	10	ND	ND	ND	50	102	ND	50	79
113	Dibromomethane	ND	10	ND	ND	ND	50	99	ND	50	76
120	1,4-Dichloro-2-butene	ND	10	ND	ND	ND	50	97	ND	50	74
121	Dichlorodifluoromethane	ND	10.0	ND	ND	ND	18	90	ND	18	87
122	1,1-Dichloroethane	ND	4.7	ND	ND	ND	18	78	ND	18	89
123	1,2-Dichloroethane	ND	2.8	ND	ND	ND	18	89	ND	18	79
124	1,2-Trans-dichloroethylene	ND	10.0	ND	ND	ND	18	88	ND	18	79
126	1,1-Dichloroethylene	ND	2.8	ND	ND	ND	18	86	ND	18	79
127	Methylene chloride	5.80	2.8	1.50	3.00	6.63	18	77	7.20	18	73
132A	1,3-Dichloropropane	ND	10	ND	ND	ND	50	98	ND	50	73
133	1,2-Dichloropropane	ND	6.0	ND	ND	ND	18	91	ND	18	80
135	2,3-Dichloropropene	ND	10	ND	ND	ND	50	98	ND	50	73
136A	cis-1,3-Dichloropropylene	ND	10	ND	ND	ND	18	86	ND	18	138
136B	trans-1,3-Dichloropropylene	ND	10	ND	ND	ND	18	98	ND	18	73
138	1,2,3,4-Diepoxybutene	-	-	-	-	-	-	-	-	-	-

*See Ground Table for complete compound name and specifications.
**EPA/ETC established method detection limit
"-" specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specified: no standard available, compound not qualitatively searched for.

ETC ENVIRONMENTAL TESTING and CERTIFICATION

AUG 29, 1985

TABLE 1: QUANTITATIVE RESULTS and QUALITY ASSURANCE DATA

RCRA Appendix 8 - Dir/Inj Vol Compounds - GC/MS Analysis Data (QR26)

Chain of Custody Data Required for ETC Data Management Summary Reports

ETC Sample No.	Company	Facility	Sample Point	Date	Time	Elapsed Hours
J3096	AIR PRODUCTS MANUFACTURING COR	APCIPASGWM	WW15	850724		

	Compound *	Results		QC Replicate		QC Blank and Spiked Blank			QC Matrix Spike		
		Sample Concen. mg/l	MDL** mg/l	First mg/l	Second mg/l	Blank Data mg/l	Concen. Added mg/l	% Recov ***	Unspiked Sample mg/l	Concen. Added mg/l	% Recov ***
12	Allyl alcohol	ND	10	ND	ND	ND	-	-	-	-	-
61	Chloral	ND		ND	ND	ND	-	-	-	-	-
69	Chloroacetaldehyde	ND	50	ND	ND	ND	-	-	-	-	-
83	3-Chloropropionitrile	IND		IND	IND	IND	-	-	-	-	-
93	Cyanogen	ND		ND	ND	ND	-	-	-	-	-
134A	Dichloropropanol	ND		ND	ND	ND	-	-	-	-	-
155	1,1-Dimethylhydrazine	ND	10	ND	ND	ND	-	-	-	-	-
156	1,2-Dimethylhydrazine	ND	100	ND	ND	ND	-	-	-	-	-
168	1,4-Dioxane	ND		ND	ND	ND	-	-	-	-	-
177	Ethyl cyanide	ND	10	ND	ND	ND	-	-	-	-	-
180	Ethylene oxide	ND	10	ND	ND	ND	-	-	-	-	-
187	Fluoroacetic acid	ND		ND	ND	ND	-	-	-	-	-
190	Glycidylaldehyde	-	-	-	-	-	-	-	-	-	-
203	Hydrazine	IND		IND	IND	IND	-	-	-	-	-
212	Isobutyl alcohol	ND	10	-	-	-	-	-	-	-	-
226	Methacrylonitrile	ND	50	ND	ND	ND	-	-	-	-	-
227	Methanethiol	ND		ND	ND	ND	-	-	-	-	-
236	Methyl hydrazine	IND		IND	IND	IND	-	-	-	-	-
237	2-Methyllactonitrile	IND		IND	IND	IND	-	-	-	-	-
276	N-Nitrosopyrrolidine	ND	50.0	ND	ND	ND	-	-	-	-	-
305	n-Propylamine	ND	100	ND	ND	ND	-	-	-	-	-
307	2-Propyn-1-ol	ND	10	ND	ND	ND	-	-	-	-	-
308	Pyridine	ND	10	ND	ND	ND	-	-	-	-	-

*See Grand Table for complete compound name and specifications.
**EPA/ETC established method detection limit.
***"specifies no standard or reference spectra available.
"IND" indeterminate. Standard and/or spikes could not be detected at current method levels.
Result with neither "MDL" nor "Conc.added" specified: no standard available, compound not qualitatively searched for.
****Standard QA procedures not applicable for sample analyzed by direct injection.

ATTACHMENT – XI.D

CORRECTIVE ACTION PROGRAM

ATTACHMENT XI.D ADDENDUM (August 2025)

The Corrective Action Program (CAP) described below within Attachment XI.D continues to operate and continues to maintain hydraulic control of the migration of chemicals of concern (COCs) in Shallow Zone and Intermediate Zone groundwater. As documented in the Semiannual and Annual Reports which provide updates regarding the Corrective Action Program performance, there have been CAP modifications which are described below. These modifications were communicated with the TCEQ, and acknowledged by TCEQ via meetings, e-mails, letters, and the Semiannual/Annual Report approval letters. The modifications have been as follows:

Recovery Wells RW-25 and RW-21 (Waste Management Area 1)

Recovery Well RW-25 was previously designated as a Corrective Action Observation well (CAO) and stand-by Corrective Action System (CAS) well. RW-25 is positioned approximately 100 feet west of CAS well RW-21, west-southwest of the Former Effluent Impoundment. The primary Shallow Zone hydraulic control of groundwater COCs within PMZ1, associated with the Former Effluent Impoundment, was previously facilitated by use of CAS wells MW-49 and RW-21, with RW-25 on stand-by if needed.

RW-21 was the last of the operating pneumatic system recovery wells. All other CAS recovery wells utilize dedicated electric downhole submersible pumps. Repeated maintenance problems were encountered with RW-21. On June 9, 2014, RW-25 was activated as a full-time CAS recovery well fitted with a dedicated downhole submersible pump. With RW-25 operational, even with RW-21 shutdowns, potentiometric surface evaluation showed hydraulic control utilizing only MW-49 and RW-25. As communicated with TCEQ, RW-21 was shut down permanently as a CAS well after September 2015. The shutdown has been contingent on demonstration that the potentiometric surface continues to be sufficiently controlled by use of only MW-49 and RW-25. In addition, the shutdown has been contingent on analysis of groundwater samples collected from the two downgradient (under non-pumping conditions) Point of Compliance (POC)/Alternate Point of Exposure (APOE) wells MW-75 and MW-76, and confirmation that Groundwater Protection Standards (GWPS) for the Appendix III.A analytes are not exceeded.

As such, in this RCRA Part B Renewal Application, RW-25 is to be classified as a full-time CAS well, with RW-21 to be designated a standby CAS well. RW-21 will be reconfigured for

electric downhole submersible pump operation should groundwater COC concentrations at POC/APOE wells MW-75 and MW-76 become unacceptable.

Recovery Well MW-24 (Waste Management Area 2)

Existing groundwater monitoring well MW-24 has previously been utilized as a POC well, located near the northeast corner of the Former Acid Spill Impoundment. In order to effect additional hydraulic control along the southeastern margin of WMA2, MW-24 was converted to full-time groundwater recovery operation in March 2021. As such, in this RCRA Part B Renewal Application, MW-24 is to be classified as both a POC well and a CAS well.

Waste Management Area 2 Water Collection and Storage System

Coincident with the conversion on MW-24 to CAS recovery well operation in March 2021, the recovered groundwater collection system at WMA 2 was revised. The previous WMA 2 system consisted of CAS recovery wells RW-27, RW-28, and RL-1 discharging to stainless steel headers, which fed into a sump on the northern margin of the Former Acid Spill Impoundment, referenced as the ASI Sump. From the ASI Sump, recovered groundwater was then pumped into the POTW system utilized to convey recovered groundwater for off-site treatment. Given site personnel safety concerns, and in order to simplify the system, the former ASI Sump was abandoned, decontaminated, and filled to the surface. RW-27, RW-28, RL-1 and MW-24 now pump and discharge directly to the POTW system.

ATTACHMENT XI.D
Corrective Action Program

INTRODUCTION

A Corrective Action Program (CAP) is currently in place at the Air Products LLC (APLLC) facility under the terms of the facility's existing Compliance Plan CP-50134 (CP) issued November 13, 2002. A Class 3 CP modification issued September 14, 2011 retained the basic elements of the previous Program, but made a number of changes to accommodate two newly-defined PCLE zones in the eastern part of the plant, as well as provide current hydrogeologic information on natural flow directions. The facility continues to utilize groundwater hydraulic control/recovery in the SZ and the IZ by CAS wells. The CAP is intended to satisfy the requirements for Response Actions for groundwater in 30TAC350 as well as the requirements of Resource Conservation and Recovery Act (RCRA) regulations in 40CFR264 and Texas closure and post-closure regulations of 30TAC335 Subchapters E and F.

The additional areas of affected groundwater in the east plant (refer to Figures XI.A.4.18 and XI.A.4.19 provided in Attachment XI.A.4 of the current renewal application) include areas where Affected Property Assessment Reports (APAR) have been completed that address releases from the closed ASI (NOR002) (Geomatrix, 2006a) and the DNT Manufacturing Area (AOC3) (Geomatrix, 2007). Corrective action for groundwater has been ongoing in this area since 1988, as described below, and the results of the assessments indicated that the "new" PCLE zones were located within the area of influence of the existing CAS recovery/control wells. The APARs formed the basis for development of two Draft RAPs for the ASI (Geomatrix, 2006b) and the DNT Manufacturing Area (Geomatrix, 2008). The Class 3 CP modification issued September 14, 2011 authorized the implementation of changes to the CAP based on these RAPs and are described below.

XI.D.1. TYPE OF CORRECTIVE ACTION PROPOSED

No changes to Section XI.D.1 are being proposed in the renewal application. Current Corrective Actions for the facility consist of the use of groundwater recovery/control to manage affected groundwater, primarily within the established Plume Management Zones (PMZs) to address releases from Waste Management Area No. 1, Waste Management Area No. 2, and groundwater monitoring at the TDA Tank Car Loading Area. APLLC filed a Deed Notice at Harris County Clerks Office on January 9, 2012 describing the Institutional Control requirements with supporting Exhibits supporting the establishment of PMZs No. 1 and No.2. Proof of filing of Institutional Controls for the PMZs was submitted to the TCEQ on March 7, 20012. TCEQ approved the March 7, 2012 submittal in letter issued March 29, 2012.

The facility will continue to employ groundwater CAS wells to recover and dispose of groundwater and to physically (hydraulically) control affected groundwater within PMZs.

The existing PMZs, however, have been modified somewhat to accommodate the newly-assessed PCLE zones, and to allow for adjustments to the location and pumping rates of hydraulic control wells, based on improved delineation of the natural flow directions at this site. The facility will continue to use off-site water disposal at the Gulf Coast Waste Disposal Authority (GCWDA) Washburn Tunnel facility in accordance with the existing CP.

The PMZs in the SZ and IZ encompass all the PCLE zones at the facility except for the IZ PCLE zone at the former ASI. The maintenance of control and stability of the PMZs using CAS wells will continue to be demonstrated by monitoring groundwater at designated Point of Exposure (POE) or Alternate Point of Exposure (APOE) wells. The critical areas for the SZ are the eastern and western ends of PMZ1, towards which the natural directions of flow are directed. The most sensitive boundary area is the eastern one, where affected SZ off-site groundwater can move both to the southeast, towards a group of pumping wells on the property of neighbors, and also to the east, toward the ecological POE well MW69, adjacent to the county drainage ditch. The critical area for the IZ is the north edge of the PMZ, in the direction of natural groundwater flow in that zone.

In the vicinity of the former ASI, the PCLE zone in the SZ has been divided into off-site and on-site portions. The recovery/control CAS wells continue to be operated to remediate the off-site part of the PCLE Zone by removing the off-site portion of the affected groundwater. This action will continue to prevent COCs from reaching the off-site POE wells, including the ecological POE well. After the off-site PCLE Zone is recovered, the CAS wells will continue to control the on-site PMZ until the on-site APOE wells, located near the facility boundaries, are no longer affected. The CAS wells may be turned off when it appears that the remaining on-site PMZ/PCLE zone would be stable due to natural attenuation and would not again affect the APOE wells in the absence of groundwater pumping.

The TDA Tank Car Loading Area is monitored by two wells, and currently has no defined PCLE zones. Concentrations of COCs in samples from the monitoring wells in this area do not exceed the Tier 1 Protective Concentrations Limits (PCLs) for groundwater ingestion by residents (the GWPS established for the facility). Current hydrogeologic information indicates the TDA Tank Car Loading Area is outside the area of capture of the CAS wells at the former EI. The current monitoring program will be continued.

The following subsections describe the previous and current Corrective Actions authorized by the Class 3 CP modification issued September 14, 2011 for the SZ and the IZ in the west and east portions of the plant in more detail.

Waste Management Area No. 1

Waste Management Area No. 1 was created at the time of the prior CP Renewal, effective November 13, 2002. It was created to combine the PCLE zone of a regulated

unit - Effluent Impoundment - with the PCLE zones associated with several SWMUs in the west plant area (Neutralization Pit, DNT Storage Area, former DNT Loading Area, and Northwest Storage Area). CP Table 1 lists the units within this WMA.

Shallow Zone: The Upper Shallow Zone (USZ) PCLE zone associated with the former Effluent Impoundment was delineated initially in the area just west of the former EI. The PCLE zone for Lower Shallow Zone (LSZ) originally extended from the southwest corner of the unit approximately 80 feet to the west. The more rapid westward movement of groundwater in the LSZ is due to a natural hydraulic sink, which appears to be an area of elevated conductivity in the confining bed between LSZ and IZ somewhere in the vicinity of IZ monitoring well RW24 (see the Geology Report, Attachment XI.A.4). The cross-formational movement of water from the LSZ to the underlying IZ results in a potentiometric low in the LSZ and abnormally rapid movement of surrounding LSZ groundwater toward the sink (see Attachment XI.D.2 provided in the current renewal application).

The original Part B Permit and CP were issued September 17, 1990. The original CAS for the SZ at the EI was the pneumatic recovery well system RW11 through RW20 ("RWC2"), which began operation on January 9, 1991. The corrective action for the SZ at the EI was designed to create a hydraulic capture zone to prevent further migration of affected groundwater and to provide for recovery of the groundwater and subsequent off-site treatment and disposal. The SZ recovery wells RW11 through RW20 are completed to a total depth of approximately 35 feet (see Figure XI.A.4.2 provided in Attachment XI.A.4 of the current renewal application).

The water recovery wells arrest the movement of SZ groundwater. The wells have also removed a substantial mass of contaminants, estimated to be approximately 35,000 lbs of COCs, from the SZ since 1991. Operation of this system has resulted in a reduction of concentrations of COCs in the USZ wells surrounding the unit to near undetectable concentrations. Concentrations in LSZ wells have been reduced also.

A CAS well specifically installed for the LSZ at the EI (RW21) began operation on October 4, 1993. A second LSZ recovery well, RW25, was proposed in the June 1996 CP Amendment Application, and began operation in September 1998. These wells address the area of more rapid groundwater movement in the LSZ (see Attachment XI.D.2).

Intermediate Zone: The CAS for the IZ originally consisted of recovery well RW26. This well began operation in September 1998. Operation of the well has resulted in significant reduction in concentration of COCs in samples from nearby IZ monitoring wells MW43, 44, RW24, and MW62, as well as in RW26 itself (see historical groundwater analytical data on Table XI.A.4.g3 provided in Attachment XI.A.4 of the current renewal application).

After RFIs of several SMWUs in the west plant were completed, the corrective action for the area around the former EI was modified in the 2001 CP renewal to address additional IZ PCLE Zones. WMA1 was established at that time and incorporated most of these SWMUs (see CP Table 1). All of WMA1 is within the capture area of recovery well RW26. The Class 3 CP modification issued September 14, 2011 added the PCLE zone associated with the DNT Manufacturing Area to the IZ PMZ4 (renamed PMZ2). Pumping of RW26 can control this area also since a relatively large capture zone is possible due to the low hydraulic gradient in the IZ (see Section XI.D.2).

Waste Management Area No. 2

The designation of Waste Management Area No. 2 was initially proposed in the Class 3 CP modification dated March 31, 2012. CP Table I lists the units within this WMA.

Shallow Zone: A Corrective Action Pilot Plan for the SZ was proposed for the area around the former ASI in November 1987, and was approved by the agency December 14, 1987. The pneumatic recovery well system RW1 through RW10 ("RWC1") was activated October 14, 1988. These wells are completed to a total depth of approximately 35 feet in the SZ (Figures XI.A.4.4 and XI.A.4.5 provided in Attachment XI.A.4 of the current renewal application).

To address the belated discovery of off-site affected groundwater, the approved *Draft* RAP for the former ASI (Geomatrix, 2006b) proposed that APLLC manage the SZ PCLE zone in this area in a PMZ, and perform corrective action for the IZ PCLE zone using Groundwater Recovery. The Class 3 CP modification issued September 14, 2011 provided authorization to manage the SZ in a larger PMZ than originally proposed, by combining the former ASI with the DNT Manufacturing Area into a new Waste Management Area (WMA2) and manage the SZ PCLE zones in both WMA1 and WMA2 in a single SZ PMZ1 (see Figure XI.D.6.c.(3).1). Both WMA1 and WMA2 have CAS wells (see Section XI.D.2.) due to natural groundwater movement to both east and west at the plant's eastern and western property boundaries, respectively. The off-site part of the WMA2 SZ PCLE zone is not part of the expanded PMZ1 and has been removed by the WMA2 CAS systems, as described above (Geomatrix, 2006b).

A groundwater withdrawal well (RL1) was installed beneath the liner of the rainwater holding pond created at the site of the former ASI. RL1 began operation in September 1998. The well lowers the water table beneath the pond liners during periods of wet weather. This well will continue operating as before.

Intermediate Zone: The PMZ for the IZ is shown on Figure XI.D.6.c.(3).2. The original CAS wells for the IZ at the ASI (RW22 and RW23) began operation on October 4, 1993. Operation of former IZ CAS well RW23 was terminated in August 2003 with concurrence of TCEQ in a letter dated September 30, 2003 in order to reduce the difference in potentiometric levels between the LSZ and the IZ in this area and slow any downward movement of COCs between these units. The capture zone of RW22 covers this area.

Also, IZ CAS well RW22 was decommissioned and removed in June 2008 due to construction of a new operating unit in this area. Closing and plugging this well and several others in this area (MW45, MW33 and MW29) was approved by TCEQ in an electronic correspondence dated May 20, 2008. RW22 was replaced by new CAS well RW28 in December 2009.

Establishment of Plume Management Zones

The Class 3 CP modification issued September 14, 2011 authorized the implementation of response actions presented in the approved *Draft* RAPs, which provided for separate PMZs for groups of waste units on the east and west sides of the plant. The changes incorporated into the Compliance Plan CP-50134 are summarized below. More detailed information is given later in this Attachment.

- Created a new Waste Management Area No. 2 in the east plant;
- Changed the SZ PMZ layout by combining together the current west plant SZ PMZ3 with the proposed east plant SZ PMZ (Former ASI *Draft* RAP, Geomatrix, 2006b); adopted the name PMZ1 for the new enlarged/combined PMZ;
- Changed the IZ PMZ layout by expanding the existing west plant IZ PMZ4 to incorporate the IZ PCLE Zone associated with the DNT Manufacturing Area, as proposed in the DNT Mfg. Area *Draft* RAP, Geomatrix, 2008);
- Employed new monitoring wells in WMA2 to monitor the eastern boundaries of PMZ1, and the PCLE Zones associated with the former ASI and the DNT Manufacturing Area;
- Employed a new monitoring well (MW97) west of AOC2 in WMA1 to monitor control of the observed natural westward movement in this area (MW97 was installed in late 2009);
- Increased the CAS system efficiency at the ASI by redrilling the damaged SZ monitoring well MW25 and recompleting the enlarged borehole as new SZ CAS well RW27 equipped with electric submersible pump (already completed);
- Increased the CAS system efficiency at the EI by utilizing existing wells RW21 (LSZ) and MW49 (USZ) equipped with electric submersible pumps;
- Placed the 20 pneumatic SZ CAS wells (Systems RWC1 and RWC2) on standby/backup status;
- Placed some existing monitoring wells on standby;
- Reduced the frequency of sampling for selected monitoring wells inside PMZs, and increase the frequency of sampling for selected currently inactive wells;
- Made minor changes to the Sampling and Analysis Plan to adopt a modified analytical method capable of improved quantitation limits.

Creation of PMZ1 in the SZ to manage multiple PCLE zones from several sources in WMA1 and WMA2 was an appropriate Response Action because:

1. The SZ PCLE zones are within 500 feet of each other (Figure XI.A.4.18 provided in Attachment XI.A.4 of the current renewal application).

2. The individual PCLE zones are difficult to accurately define in the central part of the plant and other areas due to lack of access for either monitoring wells or temporary samplers. This area will have a flow divide due to competing CAS systems to the east and west.
3. The facility is active, significant volumes of hazardous materials are handled within the area, and despite best practices, there is a potential for additional accidental releases.
4. There are no abandoned wells or wells with open-hole completions within the PMZ. (The casings of the emergency 1,300 ft deep groundwater production wells No. 1 and No. 2 are fully cemented. The water well locations are shown on Figure XI.A.4.1 provided in Attachment XI.A.4 of the current renewal application).
5. The COCs will not pose a substantial present or potential hazard to human health or the environment as long as the critical PCLs are not exceeded at the APOEs (or the off-site POEs in the case of the ASI PCLE zone).
6. The affected Class 2 groundwater is limited in quantity.
7. There are no users of this groundwater in the area.
8. Alternate water supplies are available throughout the area.
9. There will be no damage to wildlife, crops, vegetation, or physical structures since the physical controls prevent contact of the affected groundwater with these features.

Creation of the IZ PMZ2 was reasonable and appropriate because:

1. The WMA1 and DNT Manufacturing Area's IZ plumes are commingled or are within 500 feet of each other (refere to Figure XI.A.4.19 provided in Attachment XI.A.4 of the current renewal application);
2. The COCs will not pose a substantial present or potential hazard to human health or the environment if the critical PCLs are not exceeded at the APOE;
3. The affected Class II groundwater is limited in quantity;
4. Migration rates in the IZ are extremely slow;
5. There are no users of this groundwater in the area;
6. Alternate water supplies are available throughout the area, and
7. There will be no damage to wildlife, crops, vegetation, or physical structures since the physical controls prevent contact of the affected groundwater with these features.

XI.D.2. Corrective Action Program Description

No changes to Section XI.D.2 are being proposed in the renewal application. The ongoing Corrective Action activities consist of the use of groundwater recovery/control to manage affected groundwater, primarily within PMZs. This section describes the technical basis for the use of the CAS wells to achieve hydraulic control and stability of PMZs and to capture and recover areas of affected groundwater not within PMZs. Management of affected groundwater is designed to prevent it from affecting human health or the environment. The following subsections describe the technical basis for the

groundwater capture and control aspects of the Corrective Action Program. Some of these factors are described in more detail in Attachments.

XI.D.2.a. Recovery\Control Wells

No changes to Section XI.D.2.a are being proposed in the renewal application. This section contains information about the hydraulic control wells, including their locations, areas of influence and capture, flow rates, and disposal of the water.

XI.D.2.a.(1). Locations of Recovery\Control Wells

Locations of all recovery wells completed in the SZ and the IZ are shown on Figures XI.A.4.18 and XI.A.4.19 (provided in Attachment XI.A.4 of the current renewal application), respectively. The locations are shown also on CP Attachment A map sheets 3 through 6, located in Section XI.D.3. The 27 wells comprising the CAS systems (RW1 - RW20, RL1, MW49, RW21, RW25, and RW27 in the SZ and RW26 and RW28 in the IZ) are near the two closed regulated units (the EI and the ASI). Not all wells operate on a day to day basis. The radius of influence and capture zone of CAS wells at the facility are described in the next subsection (XI.D.2.a.(2)).

A smaller number of more productive recovery/control wells are also employed. Based on site knowledge gained since the original CAS systems were placed in service, individual wells have been identified which have significantly higher yields than the average well drilled at a random location into the SZ. It is anticipated that a smaller array of all-electric wells will reduce well maintenance, costs, and down time. This will allow 20 of the original pneumatic wells (RW1 – RW20) and RW25 to be placed on "standby" status. The locations of all CAS wells (both "active" and "standby" recovery wells), are shown on Figures XI.A.4.18 and XI.A.4.19 (provided in Attachment XI.A.4 of the current renewal application) and the CP Attachment A map sheets 3 through 6. Table XI.D.3.a.(2) shows the historical classifications of the CAS wells. When it is necessary to activate a standby CAS well, the TCEQ will be notified in the semiannual report or other communication as appropriate.

XI.D.2.a.(2) Radius of Influence of Wells

Attachment XI.D.2 provides potentiometric maps that indicate the radii of influence of the pumping wells that are used to control and capture the on-site SZ and IZ PCLE zones, as well as the off-site SZ PCLE zone southeast of the former ASI. New capture/control calculations are based on revised potentiometric surface maps based on new water-level measurements under "static" conditions and illustrate the modified site hydrogeologic conceptual model, as described in the Geology Report (Attachment XI.A.4 – see Figures XI.A.4.14 through 17).

XI.D.2.a.(3) Pumping Rates of Wells

Attachment XI.D.2 provides a technical evaluation of the aquifer characteristics and the pumping rates necessary to maintain hydraulic sinks needed to stabilize and control/capture the on-site SZ and IZ PCLE zones and capture/recover the off-site SZ PCLE zone southeast of the former ASI. The flow rates and general locations of the new CAS well systems authorized by the Class 3 modification issued September 14, 2011 are very similar to the existing systems, though the specific wells to be used are different. The results of the evaluations are summarized below.

At the former ASI, it has been found that a hydraulic sink maintained in the SZ with a pumping rate of approximately two to four gallons per minute (gpm) creates a radius of influence and capture zone sufficient to prevent all on-site eastward-moving SZ PMZ1 water from moving off-site, and the resulting downgradient hydraulic stagnation point is favorably located to capture and recover the entire off-site PCLE zone. New SZ CAS pumping well RW27 is being used to maintain this control, and the existing pneumatic wells RW1 through RW10 will be placed on standby/backup status.

At the former EI, use of two wells pumping at relatively low rates with a total flow of about three gpm is sufficient to prevent the westward movement of affected SZ groundwater at the western limits of PMZ1, in the vicinity of two recently-discovered features: a flow divide and a natural hydraulic sink. The existing LSZ pneumatic well RW21 is equipped with an electric submersible pump. The previously converted USZ monitoring well, CAS well MW49, also equipped with an electric submersible pump, is operated along with RW21 to control the SZ here. Water-level and chemical data from a new monitoring well in this area (MW97) will be used to help track the success of the hydraulic control over westward movement. The existing pneumatic wells RW11 through RW20 and the individual pneumatic well RW25 will be placed on standby/backup status.

In the IZ, CAS well RW26 near the former EI is able to maintain a nearly continuous pumping rate in the range of 2.0 to 2.5 gpm, sufficient to control the IZ over the entire facility due to the very low hydraulic gradient in this zone. At the ASI, new CAS well RW28 is used to capture the small IZ PCLE zone with a flow rate between 0.1 and 0.2 gpm, similar to the CAS well it replaced, RW22. (CAS well RW22 was closed and plugged with TCEQ approval in summer 2008 due to construction of a new unit.)

XI.D.2.a.(4) Well Design and Well Maintenance

The recovery/control CAS system components have the following design characteristics:

RWC1 – USZ Recovery well system (standby/backup) at the ASI (RW1 through RW10):

- 4-inch diameter Schedule 40, flush-joint and threaded PVC casings set in 12-inch diameter augured holes;
- 4-inch diameter PVC screens with 0.010 inch mill-slotted PVC screens 15 feet long;

- The above casings and screens were retrofitted with 2-inch diameter stainless steel casings and screens inside the original materials due to deterioration of the original materials;
- Total depths range between 35 and 36 feet below grade;
- Screens packed with #2 Specialty sand; and
- Concrete well pads and stainless steel protective casings.

RWC2 – USZ Recovery well system (standby/backup) at the EI (RW11 through RW20):

- 4-inch diameter Schedule 40 stainless steel, flush-joint and threaded casings set in 12-inch diameter rotary-wash drilled holes;
- 4-inch diameter stainless steel, wire-wrapped well screens with 0.010 inch slots, 15 feet long except RW-19, 10-foot long;
- Total depths ranging from 33.4 to 36 feet below grade; and
- Screens packed with graded 20-40 silica sand.

RW21 and RW25 – SZ Recovery wells at the EI (RW25 to become standby/backup):

- 4-inch diameter Schedule 40 stainless steel, flush-joint and threaded casings set in 11.5 inch diameter (RW21) or 8 inch diameter (RW25) rotary-wash drilled hole;
- 4-inch diameter stainless steel, wire-wrapped well screens with 0.010 inch slot 20 feet long (RW21) or 10 feet long (RW25 – LSZ only);
- Screens packed with graded 20-40 silica sand; and
- Total depth of 44 feet below grade (RW21) or 48.1 feet below grade (RW25).

New SZ CAS well RW27 at the ASI is similar to the above except the casing/screen is 6 inches in diameter and 20 feet long, the stainless steel is “Sch. 10 mid-body” (the threaded portion at each end of the pipe segments is Sch. 40), and the borehole was drilled with 12 inch diameter augers (to overdrill/remove and decommission damaged well MW25). Total depth is 42 feet below grade.

MW49 – USZ Recovery well at the EI:

- 4-inch diameter Schedule 40 stainless steel, flush-joint and threaded casings set in 11.5 inch diameter auger drilled hole;
- 4-inch diameter stainless steel, mill slotted well screen with 0.010 inch slots 20 feet long
- Screens packed with graded 20-40 silica sand; and
- Total depth of 30 feet below grade.

RW26 and RW28 - IZ Recovery Wells at the EI and the ASI, respectively:

- 8 5/8 inch diameter Schedule 40 PVC, flush-joint and threaded surface casing set in 12 inch diameter rotary-wash drilled hole to base of USZ at 41 -45 feet below grade;
- 4-inch diameter Schedule 40 stainless steel (RW28 is Sch. 10 mid-body), flush-joint and threaded long casings set in 7-7/8 inch diameter rotary wash drilled hole;
- 4-inch diameter Schedule 40 stainless steel rod-based wire-wrapped screen with 0.010 inch slots 10 feet long ; and
- Screens packed with 20-40 silica sand.
- Total depth of RW26 is 58.1 feet below grade. Total depth of RW28 is 60 feet below grade.

Well logs and construction diagrams of the above wells are provided in Appendix XI.A.4.i. for existing wells (provided in Attachment XI.A.4 of the current renewal application) and in the Well Certification Report of Attachment XI.D.3.c.(2) for the new wells RW27 and RW28.

The 10-well systems (RWC1 and RWC2) wells are equipped with pneumatically-operated pumps. The operation of the pumps is controlled by pneumatic timers and valves located in above-ground controllers. One controller typically operates from two to four wells in each system. All controllers are supplied with air through a header. Ten-well systems discharge into a common stainless steel header pipe. Both systems are scheduled to become standby/backup recovery systems.

The three SZ CAS wells at the EI are currently equipped with two different types of pumps. One well is located near the air header at the perimeter of the closed impoundment (RW21) and is equipped with a pneumatic pump. This well has been converted to an electrical submersible pump. Well RW25 (to be placed on standby/backup) is equipped with an electric submersible pump. The third well (MW49) is equipped with an electric submersible pump.

The IZ CAS wells at the EI (RW26) and the ASI (RW28) are equipped with electric submersible pumps.

Maintenance of the pneumatic wells mainly consists of refurbishing or replacement of check valves in the pumps and occasional replacement of timers and solenoid valves in the controllers. Maintenance of the electric submersible pumps is minimal. A pump will occasionally fail and this usually requires replacement of the pump. The pumps have internal protection against several hazards, including overtemperature, overvoltage, undervoltage, overload, and dry running. The pumps are designed for variable-speed environmental service and are made with 316 stainless steel with polyvinylidene fluoride

(PVDF) internal pump components, and Kynar® impellers with tungsten carbide/ceramic bearings.

XI.D.2.a.(5). WATER COLLECTION AND STORAGE SYSTEM

The recovered SZ groundwater at the ASI and the EI discharges from the 10-well pneumatic pumps into a common stainless steel header at each area and is routed to a concrete sump. A pump within the sump transfers the water to the plant wastewater tank (NOR 012). The sump is equipped with high level alarm that shuts down the recovery wells if the sump transfer pump fails.

Well RW25 at the EI - Groundwater is pumped to the overhead stainless steel header pipe and routed to the total plant wastewater tank (NOR 012). RW25 is connected to the overhead header by underground/elevated stainless steel piping.

MW49 at the EI – Groundwater is pumped through piping in the overhead pipe rack to the overhead header system.

RW21 at the EI – Groundwater is pumped into the adjacent ground-level stainless steel header and routed to the overhead header system.

RW27 at the ASI – Groundwater is pumped into the adjacent common stainless steel header and routed to the concrete sump.

RW28 at the ASI – Groundwater is pumped into the adjacent common stainless steel header and routed to the concrete sump.

RW26 at the EI – Groundwater is pumped though underground stainless steel piping to the overhead header system.

XI.D.2.a.(6). FINAL DISPOSAL OF WATER

Recovered groundwater is piped from the collection sumps to the plant wastewater tank and then transferred by pipeline to Gulf Coast Waste Disposal Authority's Washburn Tunnel Facility for treatment and disposal.

XI.D.3.a GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM DESCRIPTION

No changes to the current monitoring system are being proposed in the renewal application. A current description of the monitoring systems and the recovery/control systems are described in this section.

XI.D.3.a.(1) Although no changes to the current monitoring system are being proposed in the renewal application, applicable updates to Section XI.D.3.a.(1)(a)-a.(1)(l) are provided below.

XI.D.3.a.(1)(a). New geologic and hydrogeologic information has been obtained since issuance of the November 13, 2002 Compliance Plan No. CP-50134. The new information is described in the Site Geology and Hydrologic Conditions report in Attachment XI.A.4. The new information has improved the understanding of groundwater flow directions in the USZ and LSZ, including westward flow of SZ groundwater in the western part of the plant, and the existence of another off-site groundwater withdrawal system in the SZ to the east of the plant. New monitoring wells have been installed in these areas.

XI.D.3.a.(1)(b) No changes to Section XI.D.3.a.(1)(b) are being proposed in the renewal application. The Class 3 modification issued September 14, 2011 had previously authorized the creation of a second waste management area (WMA2) to include the DNT Manufacturing Area (AOC3) and the former ASI. The monitoring system has been changed to enable monitoring of new PCLE zones associated with the units within this WMA.

XI.D.3.a.(1)(c) No changes to Section XI.D.3.a.(1)(c) are being proposed in the renewal application. New wells installed in late 2009 were constructed in a manner similar to the existing wells. The wells follow the requirements listed in the Attachment B guidelines except for the use of 20-foot long screens in the SZ, previously approved by TCEQ.

XI.D.3.a.(1)(d) No changes to Section XI.D.3.a.(1)(d) are being proposed in the renewal application. The Class 3 modification issued September 14, 2011 had previously authorized changes to the number and locations of monitoring wells. The changes included the addition of new wells in late 2009 to monitor the SZ and IZ in the area of two affected properties, the DNT Manufacturing Area and the former ASI. A map showing the locations of the new wells is provided in the Well Certification Report in Attachment XI.D.3.c.(2). Historic changes to monitoring functions for existing wells are shown on Table XI.D.3.a.(2).

XI.D.3.a.(1)(e) No changes to Section XI.D.3.a.(1)(e) are being proposed in the renewal application. The Class 3 modification issued September 14, 2011 had previously authorized changes to sample analytical procedures. Some of the analyses are currently performed by an improved EPA Method 8270C. The new method enables lower detection limits for comparison with PCLs derived from 30TAC350. The low-level method is being used for wells considered to be sensitive, primarily wells near facility boundaries and the edges of PMZs. A well's water must contain less than 10 to 20 parts per billion of COCs in order to employ the method.

In addition, the laboratory preparation for the routine semiannual samples now omits the acid extraction from the standard acid/base neutral extraction procedure. The acid extraction degrades Toluenediamine (TDA). Elimination of the acid extraction does not affect the extraction of the other indicator parameters.

XI.D.3.a.(1)(f) No changes to Section XI.D.3.a.(1)(f) are being proposed in the renewal application. The Class 3 modification issued September 14, 2011 had previously authorized changes to the frequency of monitoring and are described below in Table XI.D.3.a.(5).

XI.D.3.a.(1)(g) No changes to Section XI.D.3.a.(1)(g) are being proposed in the renewal application. The Class 3 modification issued September 14, 2011 had previously authorized changes to the monitoring parameters. As a result, new constituents were added to the list of detected constituent in CP Table III in Part XI.B. The constituents were detected in the APA for the DNT Manufacturing Area. They are Benzene, 1,2 Dichloroethane, and Methylene Chloride. One constituent, 4,6 Dinitro-ortho-cresol (DNOC) was moved from the indicator list Table IIIA to the detected constituent list Table III since there have been less than a dozen small detections in the history of monitoring at this facility (see Table XI.A.4.g3) and since elimination of the acid extraction step to preserve the more important TDA will hinder the analysis of DNOC, which is an acid-extractable COC.

XI.D.3.a.(1)(h) There are no proposed changes to the procedures for the evaluation of compliance with GWPS.

XI.D.3.a.(1)(i) A current SAP has been included in Attachment XI.D.3.c.(1) of the renewal application. The Sampling and Analysis Plan had most recently been updated as part of the Class 3 modification submittal. The changes included minor editorial changes for clarity, modification of the semivolatiles analytical method to reach lower detection limits, and elimination of the acid extraction step, as described above and clarified when sampling for analyses of VOCs is performed, methods designed to preserve volatiles will be employed, such as limiting the well drawdown to prevent cascading. No other changes in sampling or analysis procedures were proposed.

XI.D.3.a.(1)(j) There are no proposed changes to the compliance period.

XI.D.3.a.(1)(k) The financial assurance cost estimate has been updated and the changes are included in Part XI.E of the renewal application.

XI.D.3.a.(1)(I) An ACL variance is not applicable for this facility. No changes to Section XI.D.3.a.(1)(I) are being proposed in the renewal application.

XI.D.3.a.(2) No changes to Section XI.D.3.a.(2) are being proposed in the current renewal application. The number, depth, and location of all monitoring wells, including their functions, is given on CP Table V (POC, CAO, POE, and APOE wells), and CP Attachment A Sheets 3 through 6 (all wells). Also, see Figure XI.A.4.1 in the Geology report in Attachment XI.A.4 for the locations of all monitoring wells.

XI.D.3.a.(3) The hazardous constituent monitoring list is described in Part XI.B of this renewal application; additional compounds were added as part of the changes proposed in the Class 3 modification. Although no changes to the monitoring list are being proposed in the renewal application, CP Table III was been modified to incorporate current groundwater PCLs for o-Nitrotoluene (0.0041 mg/L), p-Nitrotoluene (0.057 mg/L), Nitrobenzene (0.049 mg/L), and 2,6-Toluendiamine (0.73 mg/L) the Tier 1 PCLs are based on the most current version (May 24, 2011) of Table 3 (Tier 1 Groundwater PCLs) associated with 30 TAC 350.

XI.D.3.a.(4) The indicator parameter monitoring list is described in Part XI.B of this renewal application. Although no changes to the existing indicator parameter list are being proposed in the renewal application, CP Table IIIA has been updated to incorporate current groundwater PCLs for o-Nitrotoluene (0.0041 mg/L), p-Nitrotoluene (0.057 mg/L), Nitrobenzene (0.049 mg/L), and 2,6-Toluendiamine (0.73 mg/L). The Tier 1 PCLs are based on the most current version (May 24, 2011) of Table 3 (Tier 1 Groundwater PCLs) associated with 30 TAC 350.

XI.D.3.a.(5) No changes to the monitoring frequency are being proposed in the renewal application. The current schedule for sampling each well is shown on Table XI.D.3.a (5). The sampling frequency is also shown on the list of historical well functions (Table XI.D.3.a.(2)). The groundwater sampling frequency will be semiannual for most wells, typically POC and APOE wells. The Class 3 modification proposed that a number of monitoring wells located within PMZs or where the water quality was consistent from event to event be sampled on a reduced frequency, typically POE or CAO wells. Some of the wells proposed for a reduced frequency were POE wells located immediately downgradient from SWMUs with historical releases. These wells have been monitored under the existing CP in order to ensure the in-place affected soils at these units are not causing the groundwater contamination to become worse. This was demonstrated in the Class 3 modification application, and it was determined that it was no longer necessary to continue to monitor water quality semiannually in these areas where analytical results were fairly consistent over time. These wells are currently monitored annually for two years, and then once every two years

thereafter. Current sampling frequencies are also shown visually on the maps of Figures XI.D.3.a1 and a2.

XI.D.3.a.(6) APLLC provides a semiannual report on Corrective Actions and Corrective Action Monitoring at the Pasadena facility. No changes to the existing reporting schedule are proposed in the renewal application.

XI.D.3.a.(7) APLLC will continue to determine the rate and direction of migration of the contaminant plumes on an annual basis**.**

XI.D.3.a.(8) Both of the former Impoundments were placed in service in 1972 and both were closed in 1988. The compliance period for both of the former Impoundments is 16 years.

XI.D.3.b Proposed Methods for Evaluating the Effectiveness of Corrective Action

The method for evaluating the effectiveness of the corrective action at individual monitoring wells are direct comparison with the GWPS in CP Table IIIA initially, and then CP Table III. To determine the effectiveness of capture\control of affected groundwater, evaluations will continue to provide potentiometric maps showing areas of influence, apparent flow directions of groundwater, and concentrations of COCs in samples from monitoring wells.

XI.D.3.c Reports

A current Sampling and Analysis Plan is included as Attachment XI.D.3.c.(1). The Certification Report for newly installed monitoring and recovery wells is in Attachment XI.D.3.c.(2). A current Geology Report is provided in Section VI.B of the application. In addition, a Site Geology and Hydrogeologic Conditions Report supporting the compliance plan renewal application for the waste management units and areas listed in CP Table I is provided in the Attachment XI.A.4.

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XI.D.4 Waste Management Units/Areas Monitored Under Corrective Action Program.

The Waste Management Areas (No. 1 and No. 2) and their units with releases are delineated on Figure XI.D.6 and CP Attachment A, Sheet 2 of 6. The point of compliance, point of compliance wells, monitoring wells, and corrective action wells associated with each waste unit and WMA are shown on Figures XI.D.6.c.(3).1 and XI.D.6.c.(3).2 and CP Attachment A, Sheets 3 through 6. Current POE, APOE, and CAO wells are also shown. All other monitoring and recovery wells in the vicinity of the two waste management areas are also shown on these figures. The corrective action and groundwater monitoring system wells for the EI and the ASI are summarized on Tables XI.D.3.a. (2) and CP Table V.

The boundaries of the Plume Management Zones in the SZ are shown on Figure XI.D.6.c.(3).1. Boundaries of PMZs in the IZ are shown on Figure XI.D.6.c.(3).2.

XI.D.6 Waste Management Units/Areas Monitored Under Corrective Action Programs-Plume Management Zone (PMZ)

No changes to Section XI.D.6 are being proposed in the renewal application. A Class 3 modification issued September 14, 2011 had previously authorized the establishment of PMZs to address releases from Waste Management Area No. 1 and Waste Management Area No. 2. Current Corrective Actions for the facility consist of the use of groundwater recovery/control to manage affected groundwater, primarily within the established PMZs to address releases from Waste Management Area No. 1, Waste Management Area No. 2, and continued groundwater monitoring at the TDA Tank Car Loading Area. APLLC has filed a Deed Notice at Harris County Clerks Office on January 9, 2012 in compliance with the Institutional Control requirements of 30 TAC 350.31(g) supporting the establishment of PMZs No. 1 and No.2. Proof of filing of Institutional Controls for the PMZs was submitted to the TCEQ on March 7, 2012. TCEQ approved the March 7, 2012 submittal in letter issued March 29, 2012.

XI.D.8 Implementation Schedule

There are no additional planned or scheduled items being proposed in the renewal application.

REFERENCES

Geomatrix, 2001a APAR/RFI at the TDA Loading Area, Compliance Plan Renewal, January 2001

Geomatrix, 2001b APAR/RFI Addendum for Soils at DNT Loading Area Neutralization Pit, DNT Storage Area, and Northwest Storage Area, Compliance Plan Renewal, January 2001

Geomatrix, 2006a, Affected Property Assessment Report, Former Acid Spill Impoundment, January 2006.

Geomatrix, 2006b, DRAFT Response Action Plan, Former Acid Spill Impoundment, November 2006.

Geomatrix, 2007, Affected Property Assessment Report, DNT Manufacturing Area, December 2007.

Geomatrix, 2008, DRAFT Response Action Plan, DNT Manufacturing Area, February 2008.

Tables

TABLE XI.D.3.a.(2)
HISTORICAL CHANGES TO WELL CLASSIFICATIONS
COMPLIANCE PLAN RENEWAL 2025
Air Products LLC
Pasadena, Texas

Well Number	Unit	Area	Zone	Well Classification - Compliance Plan, TNRCC approved 9/17/90	Well Classification - First Amendment to Compliance Plan, TNRCC approved 7/30/93	Well Classification - Second Amendment to Compliance Plan, TNRCC approved 5/22/98	Well Classification - Renewal of Compliance Plan, TCEQ Issued 11/13/02	Well Classification - Modification of Compliance Plan, Application of 2010	Well Classification - RCRA Part B Renewal 2025
MW2	EI	WMA1	USZ	CAO	CAO	CAO	~	~	~
MW3	EI	WMA1	USZ	POC	POC	POC	~	~	~
MW4B	Neut	WMA1	USZ	~	~	~	CAO	CAO	CAO
MW5[2]	ASI	WMA2	SZ	POC	POC	POC	~	~	~
MW6	AOC1	WMA1	USZ	~	~	~	CAO	CAO	CAO
MW7	ASI	WMA2	USZ	POC	POC	POC	POC	POC	POC
MW8	EI	WMA1	USZ	POC	POC	POC	POC, APOE	POC, APOE	POC, APOE
MW9	EI	WMA1	USZ	~	~	~	~	~	~
MW-10	BG	WMA1	USZ	~	~	~	~	BG	BG
MW11	DNT	WMA2	USZ	~	~	~	~	APOE	APOE
MW12B[1]	ASI	WMA2	IZ	CAO	~	~	~	~	~
MW13	EI	WMA1	LSZ	CAO	POC	POC	~	~	~
MW14	EI	WMA1	LSZ	CAO	POC	POC	~	~	~
MW15	ASI	WMA2	SZ	CAO	CAO	CAO	CAO	CAO	CAO
MW16	EI	WMA1	USZ	CAO	CAO	CAO	~	~	~
MW17	EI	WMA1	USZ	CAO	CAO	CAO	~	~	~
MW20	ASI	WMA2	USZ	CAO	CAO	CAO	CAO	CAO	CAO
MW21	EI	WMA1	DZ	CAO	POC	POC	POE, POC	POE, POC	POE, POC
MW22[1]	ASI	WMA2	USZ	CAO	~	~	~	~	~
MW23[1]	ASI	WMA2	IZ	CAO	~	~	~	~	~
MW24[10]	ASI	WMA2	SZ	POC	POC	POC	POC	POC	CAS, POC
MW25[3]	ASI	WMA2	SZ	POC	POC	POC	POC	~	~
MW26	ASI	WMA2	SZ	POC	POC	POC	POC	POC	POC
MW27		WMA2	IZ	~	~	~	~	BG	BG
MW28		WMA2	DZ	~	~	~	~	BG	BG
MW29[4]	ASI	WMA2	IZ	~	POC	POC	POC	~	~
MW30	ASI	WMA2	IZ	~	~	~	~	POE	POE
MW31	ASI	WMA2	DZ	~	POC	POC	POC	POC	POC
MW32	ASI	WMA2	IZ	~	~	~	POC	POC	POC
MW33[4]	ASI	WMA2	DZ	~	POC	POC	POC	~	~
MW36	EI	WMA1	IZ	~	~	~	~	POC	POC
MW37	EI	WMA1	IZ	~	~	~	POC	POC	POC
MW38	EI	WMA1	DZ	~	~	~	POC, POE	POC, POE	POC, POE
MW40	EI	WMA1	IZ	~	CAO	CAO	CAO	POC	POC
MW41	EI	WMA1	IZ	~	CAO	POC	POC	POC	POC
MW43	EI	WMA1	IZ	~	CAO	CAO	POE	APOE	APOE
MW44	EI	WMA1	IZ	~	CAO	CAO	POE	APOE	APOE
MW45[4]	ASI	WMA2	IZ	~	CAO	CAO	CAO	~	~
MW46	EI	WMA1	LSZ	~	CAO	CAO	~	~	~
MW47	EI	WMA1	LSZ	~	CAO	CAO	~	CAO	CAO
MW48	Neut	WMA1	LSZ	~	~	~	CAS	CAO	CAO
MW49	Neut	WMA1	USZ	~	~	~	CAS	CAS	CAS
MW50	Neut	WMA1	LSZ	~	~	~	CAO	CAO	CAO
MW53	DNTL	WMA1	LSZ	~	~	~	POE	POE	POE
MW54	DNTL	WMA1	USZ	~	~	~	POE	POE	POE
MW55	DNTL	WMA1	LSZ	~	~	~	POE	POE	POE
MW56	DNTL	WMA1	USZ	~	~	~	POE	POE	POE
MW58	DNTL	WMA1	LSZ	~	~	~	POE	POE	POE
MW59	DNTL	WMA1	USZ	~	~	~	POE	POE	POE
MW60	DNTL	WMA1	LSZ	~	~	~	CAO	CAO	CAO
MW61	Neut	WMA1	USZ	~	~	~	POE	POE	POE
MW62	EI	WMA1	IZ	~	~	CAO	POE	CAO	CAO
MW63	EI	WMA1	DZ	~	~	Supplemental	POE	POE	POE
MW64[8]	AOC1	WMA1	USZ	~	~	~	POE	POE	~
MW65	TDAL	-	USZ	~	~	~	POC	POC	POC
MW66	TDAL	-	USZ	~	~	~	POC	POC	POC
MW67	DNTL	WMA1	IZ	~	~	~	POE	POE	POE
MW68	DNTL	WMA1	IZ	~	~	~	POE	POE	POE
MW69	ASI	off-site	SZ	~	~	~	~	POE	POE
MW70	DNTL	WMA1	IZ	~	~	~	APOE	APOE	APOE
MW71	ASI	off-site	SZ	~	~	~	~	POE	POE
MW72	Neut	WMA1	IZ	~	~	~	POE	POE	POE
MW73	AOC2	WMA1	SZ	~	~	~	POE	POE	POE
MW74	AOC2	WMA1	SZ	~	~	~	CAO	APOE	APOE
MW75	EI	WMA1	SZ	~	~	~	POC, APOE	POC, APOE	POC, APOE
MW76	EI	WMA1	SZ	~	~	~	POC, APOE	POC, APOE	POC, APOE
MW77	EI	WMA1	SZ	~	~	~	POC, APOE	POC, APOE	POC, APOE
MW78	Neut	WMA1	SZ	~	~	~	CAO	CAO	CAO
MW79[5]	ASI	off-site	LSZ	~	~	~	~	CAO	~
MW80	DNTL	WMA1	IZ	~	~	~	APOE	APOE	APOE

TABLE XI.D.3.a.(2)
HISTORICAL CHANGES TO WELL CLASSIFICATIONS
COMPLIANCE PLAN RENEWAL 2025
Air Products LLC
Pasadena, Texas

Well Number	Unit	Area	Zone	Well Classification - Compliance Plan, TNRCC approved 9/17/90	Well Classification - First Amendment to Compliance Plan, TNRCC approved 7/30/93	Well Classification - Second Amendment to Compliance Plan, TNRCC approved 5/22/98	Well Classification - Renewal of Compliance Plan, TCEQ Issued 11/13/02	Well Classification - Modification of Compliance Plan, Application of 2010	Well Classification - RCRA Part B Renewal 2025
MW81	Neut	WMA1	IZ	~	~	~	POE	POE	POE
MW82(6)	DNT	WMA2	SZ	~	~	~	~	POE	~
MW82R(7)	DNT	WMA2	SZ	~	~	~	~	POE	POE
MW84(6)	DNT	WMA2	SZ	~	~	~	~	POE	~
MW84R(7)	DNT	WMA2	SZ	~	~	~	~	POE	POE
MW85	ASI	WMA2	SZ	~	~	~	~	APOE	APOE
MW86	ASI	WMA2	SZ	~	~	~	~	APOE	APOE
MW87	ASI	off-site	SZ	~	~	~	~	POE	POE
MW88	ASI	off-site	SZ	~	~	~	~	POE	POE
MW89	ASI	off-site	SZ	~	~	~	~	APOE	APOE
MW91	ASI	WMA2	SZ	~	~	~	~	APOE	APOE
MW93	DNT	WMA2	SZ	~	~	~	~	APOE	APOE
MW94	DNT	WMA2	SZ	~	~	~	~	APOE	APOE
MW95	ASI	WMA2	IZ	~	~	~	~	POE	POE
MW96	ASI	WMA2	DZ	~	~	~	~	POC	POC
MW97	AOC2	WMA1	SZ	~	~	~	~	APOE	APOE
MW98	DNT	WMA2	IZ	~	~	~	~	POE	POE
RL1	ASI	WMA2	SZ	~	~	CAS	CAS	CAS	CAS
RW1	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW2	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW3	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW4	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW5	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW6	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW7	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW8	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW9	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW10	ASI	WMA2	SZ	CAS	CAS	CAS	CAS	RWC1 - standby CAS	RWC1 - standby CAS
RW11	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW12	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW13	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW14	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW15	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW16	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW17	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW18	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW19	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW20	EI	WMA1	SZ	CAS	CAS	CAS	CAS	RWC2 - standby CAS	RWC2 - standby CAS
RW21(9)	EI	WMA1	SZ	~	CAS	CAS	CAS	CAS	RWC2 - standby CAS
RW22(4)	ASI	WMA2	IZ	~	POC, CAS	POC, CAS	POC, CAS	~	~
RW23	ASI	WMA2	IZ	~	POC, CAS	POC, CAS	POC	POC	POC
RW24	EI	WMA1	IZ	~	CAS	CAO	POE	CAO	CAO
RW25	EI	WMA1	LSZ	~	~	CAS	CAS	CAO, standby CAS	CAS
RW26	EI	WMA1	IZ	~	~	CAO, CAS	POE, CAS	POE, CAS	POE, CAS
RW27	ASI	WMA2	SZ	~	~	~	~	POC, CAS	POC, CAS
RW28	ASI	WMA2	IZ	~	~	~	~	POC, CAS	POC, CAS

Notes:

WMA1 - Waste Management Area No. 1
ASI - Former Acid Spill Impoundment
EI - Former Effluent Impoundment
Neut - Former Neutralization Pit
DNT - DNT Manufacturing Area
DNTL - DNT Loading Area
TDAL - TDA Rail Car Loading Area
AOC1 - Area of Concern No. 1 - DNT Storage Area
AOC2 - Area of Concern No. 2 - Northwest Storage Area

USZ - Upper Shallow Zone
LSZ - Lower Shallow Zone
SZ - Shallow Zone
IZ - Intermediate Zone
DZ - Deep Zone

CAO - Corrective Action Observation Well
POC - Point of Compliance Well
POE - Point of Exposure Well
APOE - Alternate Point of Compliance Well
CAS - Corrective Action System Well or "Recovery Well"
BG - Background Well

(1) Well has been removed and replaced with another well.
(2) Well was removed with TCEQ approval by letter of June 20, 2003.
(3) Well damaged; removal was approved by TCEQ communication dated May 3, 2007 (MW25 hardware decommissioned and removed; RW27 was installed in this enlarged bo
(4) Well removed in 2008 for construction of new unit with TECQ approval in communication of May 20, 2008.
(5) Well was removed with TCEQ approval by Letter dated October 16, 2014).
(6) Well was removed with TCEQ approval in meeting regarding establishment of an Area of Contamination on November 19, 2014.
Well has been replaced (replacement wells are MW82R and MW84R.
(7) MW82R and MW84R are replacement wells for MW82 and MW84, respectively.
(8) As discovered in October 2014 and reported in the January 2015 Semiannual Report, MW64 was inadvertently destroyed and buried during the removal of the DNT product tar and regrading operations.
(9) Recovery well operations at RW21 were discontinued in September 2015 following notification to TCEQ. Continued SZ groundwater recovery from wells MW49 and RW25 has been demonstrated to maintain adequate groundwater recovery and hydraulic capture in the EI area.
(10) MW24 was repurposed for groundwater recovery in 2021. Groundwater recovery was implemented in March 2021.
"~" indicates well was not part of the Compliance Plan at the date indicated (i.e., either the well had not been installed, the well had not been associated with the compliance plan, or the well was no longer associated with the compliance plan.)
X - Well sampling schedule is semiannual except for wells marked "X", which will be sampled annually for two years and then once every two years thereafter

TABLE XI.D.3.a.(5)
GROUNDWATER SAMPLE COLLECTION SCHEDULE
COMPLIANCE PLAN RENEWAL 2025
Air Products LLC
Pasadena, Texas

CP Year and Sampling Event	2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct
Event Type:	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1
MW4B	x				x				x				x				x			
MW6	x				x				x				x				x			
MW7	x				x				x				x				x			
MW8	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW10*			x				x				x				x				x	
MW11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW15	x				x				x				x				x			
MW20	x				x				x				x				x			
MW21	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW27*			x				x				x				x				x	
MW28*			x				x				x				x				x	
MW30	x				x				x				x				x			
MW31	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW32	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW36	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW37	x				x				x				x				x			
MW38	x				x				x				x				x			
MW40	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW41	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW43	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW44	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW47	x				x				x				x				x			
MW48	x				x				x				x				x			
MW49	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW50	x				x				x				x				x			
MW53	x				x				x				x				x			
MW54	x				x				x				x				x			
MW55	x				x				x				x				x			
MW56	x				x				x				x				x			
MW58	x				x				x				x				x			
MW59	x				x				x				x				x			
MW60	x				x				x				x				x			
MW61	x				x				x				x				x			
MW62	x				x				x				x				x			
MW63	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW65	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW66	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW67	x				x				x				x				x			
MW68	x				x				x				x				x			

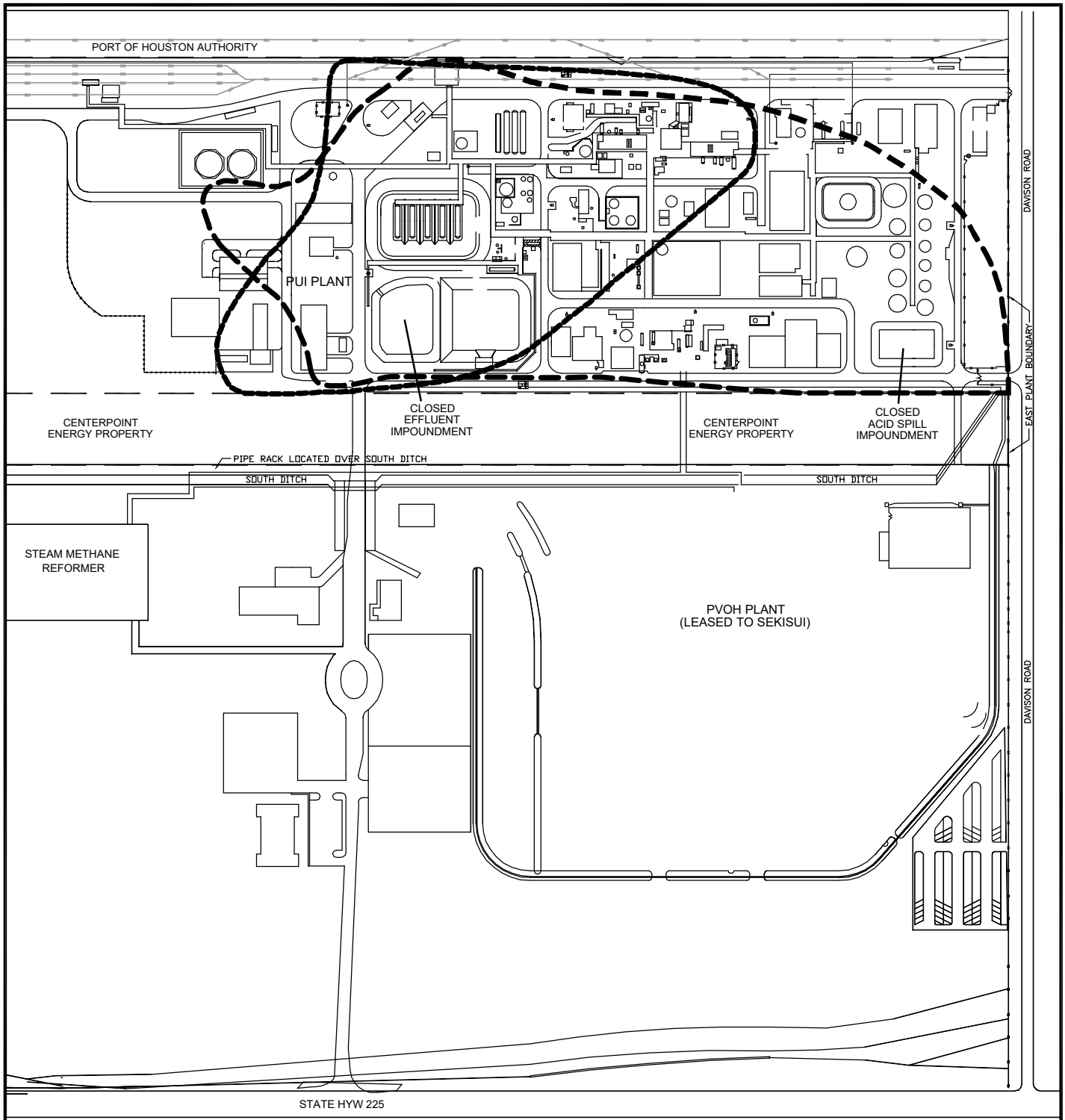
Notes:
Blank boxes - no sample collection
Gray shading: well has a 2-year sampling interval (annual first two years)
*MW10, MW27, and MW28 are background wells to be sampled once every two years.
** RWC1, RWC2, and RW25 sampled semiannually when in operation

TABLE XI.D.3.a.(5)
GROUNDWATER SAMPLE COLLECTION SCHEDULE
COMPLIANCE PLAN RENEWAL 2025
Air Products LLC
Pasadena, Texas

CP Year and Sampling Event	2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct	Apr	Oct
Event Type:	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1	2	1	1	1
MW69	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW70	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW71	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW72	x				x				x				x				x			
MW73	x				x				x				x				x			
MW74	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW75	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW76	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW77	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW78	x				x				x				x				x			
MW80	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW81	x				x				x				x				x			
MW82R	x				x				x				x				x			
MW84R	x				x				x				x				x			
MW85	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW86	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW87	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW88	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW89	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW91	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW93	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW94	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW95	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW96	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW97	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW98	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RL1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RWC1 **																				
RWC2 **																				
RW21	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RW23	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RW24	x				x				x				x				x			
RW25 **	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RW26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RW27	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RW28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Notes:
Blank boxes - no sample collection
Gray shading: well has a 2-year sampling interval
*MW10, MW27, and MW28 are background wells to be sampled once every two years.
** RWC1 and RWC2 sampled semiannually when in operation

FIGURES



ISWR No. 30317
PERMIT No.: H-50134
COMPLIANCE PLAN No.: CP-50134

Revision No.: 1
Revision Date: 10/01/2025

Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- PLUME MANAGEMENT ZONE NO.1 (SHALLOW ZONE)
- PLUME MANAGEMENT ZONE NO.2 (INTERMEDIATE ZONE)
- FENCE
- RAIL LINE
- PROPERTY BOUNDARY

N

0 100 200 300

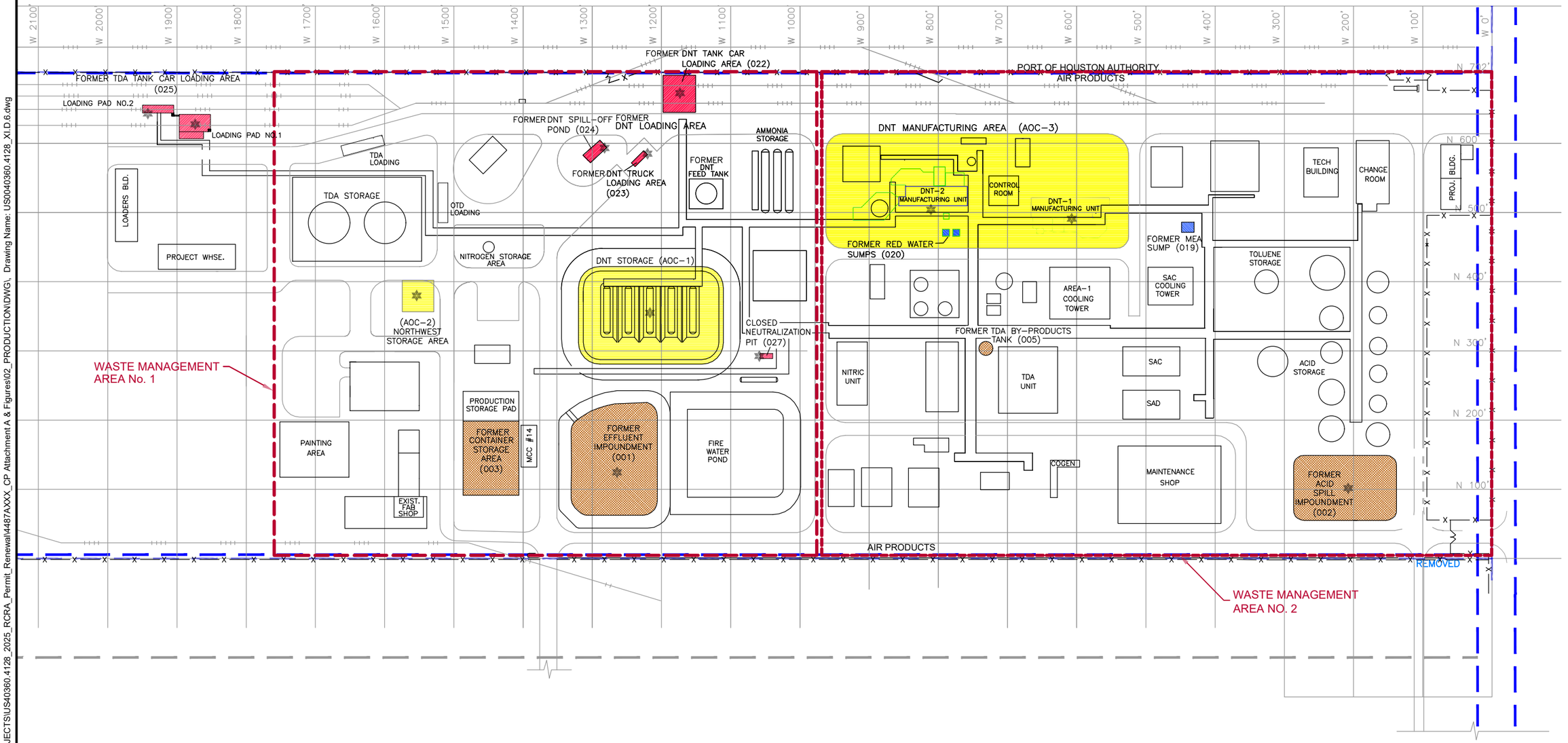
APPROXIMATE SCALE (FEET)

wsp

FACILITY SITE MAP
AND
PMZ BOUNDARY LOCATION MAP
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 40360.4128
Date: 09/29/25
By: TW

CP ATTACHMENT A
SHEET 1 of 6



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- UNITS WITH CONFIRMED RELEASE, GROUNDWATER MONITORING AND CORRECTIVE ACTION
- REGULATED UNITS
- SOLID WASTE MANAGEMENT UNIT SUBJECT TO INVESTIGATION OR CORRECTIVE ACTION
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT WITH COMPLETE INVESTIGATION AND NO FURTHER ACTION

—x—x—x— FENCE

PROPERTY BOUNDARY

WASTE MANAGEMENT AREA No. 1

WASTE MANAGEMENT AREA No. 2

NOTE:
(001) = NOTICE OF REGISTRATION (NOR) UNIT NO.1
THIS FIGURE REPRESENTS PRIOR FACILITY INFRASTRUCTURE.

0 50 100 150
APPROXIMATE SCALE (FEET)

-N-

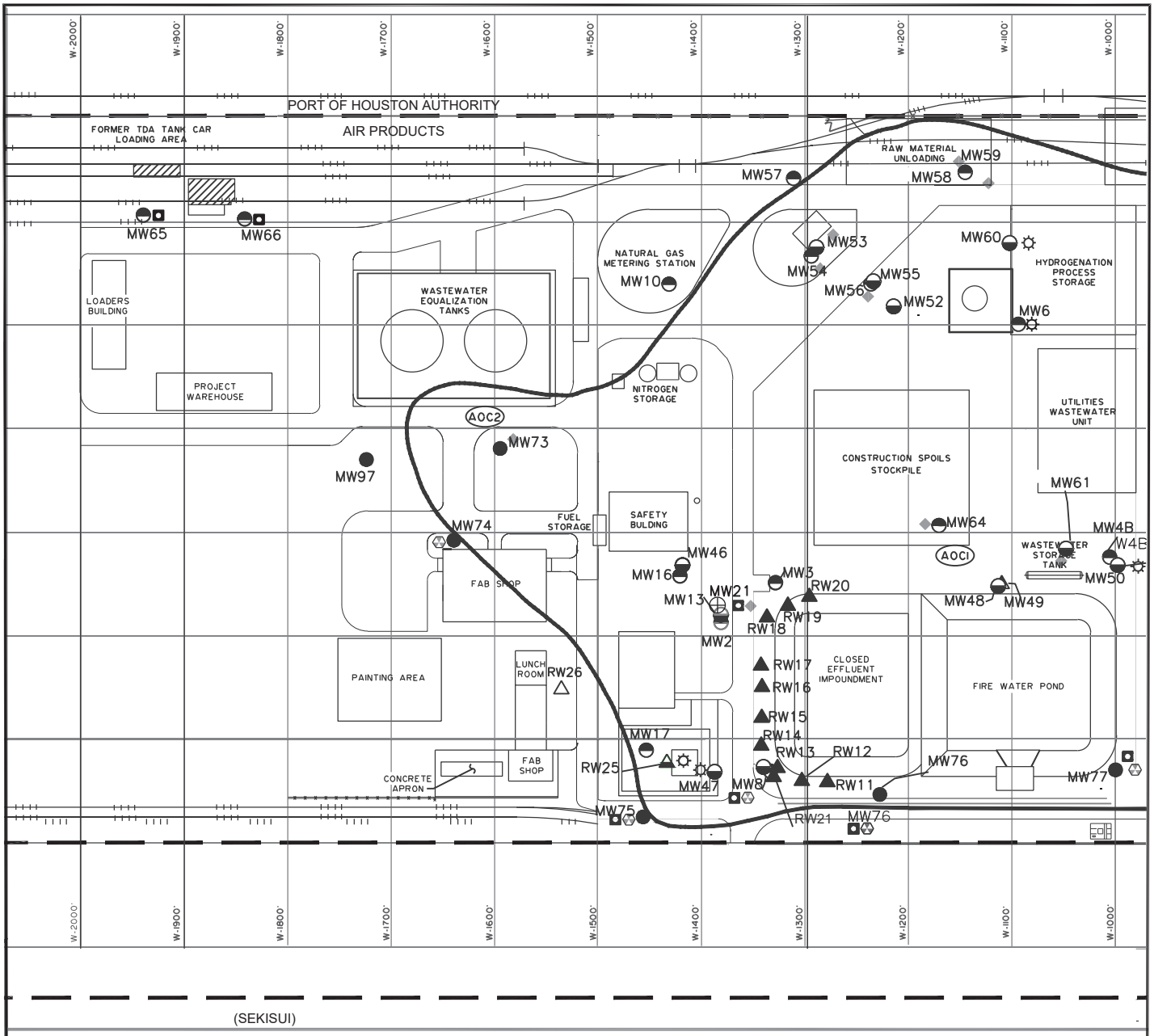
Revision No.: 1
Revision Date: 10/01/2025

WASTE MANAGEMENT AREAS W/ WASTE MANAGEMENT UNITS & AREAS OF CONCERN
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 09/29/25
By: AT

CP ATTACHMENT A
PAGE 2 OF 6

Plot Date: 09/29/25 - 9:15am, Plotted by: USAT145973
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Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION
- MW75 — SHALLOW ZONE MONITORING WELL LOCATION
- MW21 — DEEP ZONE MONITORING WELL LOCATION
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION
- RW21 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION
- RW11 — SHALLOW ZONE RECOVERY WELL LOCATION
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE WELL
- ALTERNATE POINT OF EXPOSURE WELL

- PLUME MANAGEMENT ZONE No.1
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)

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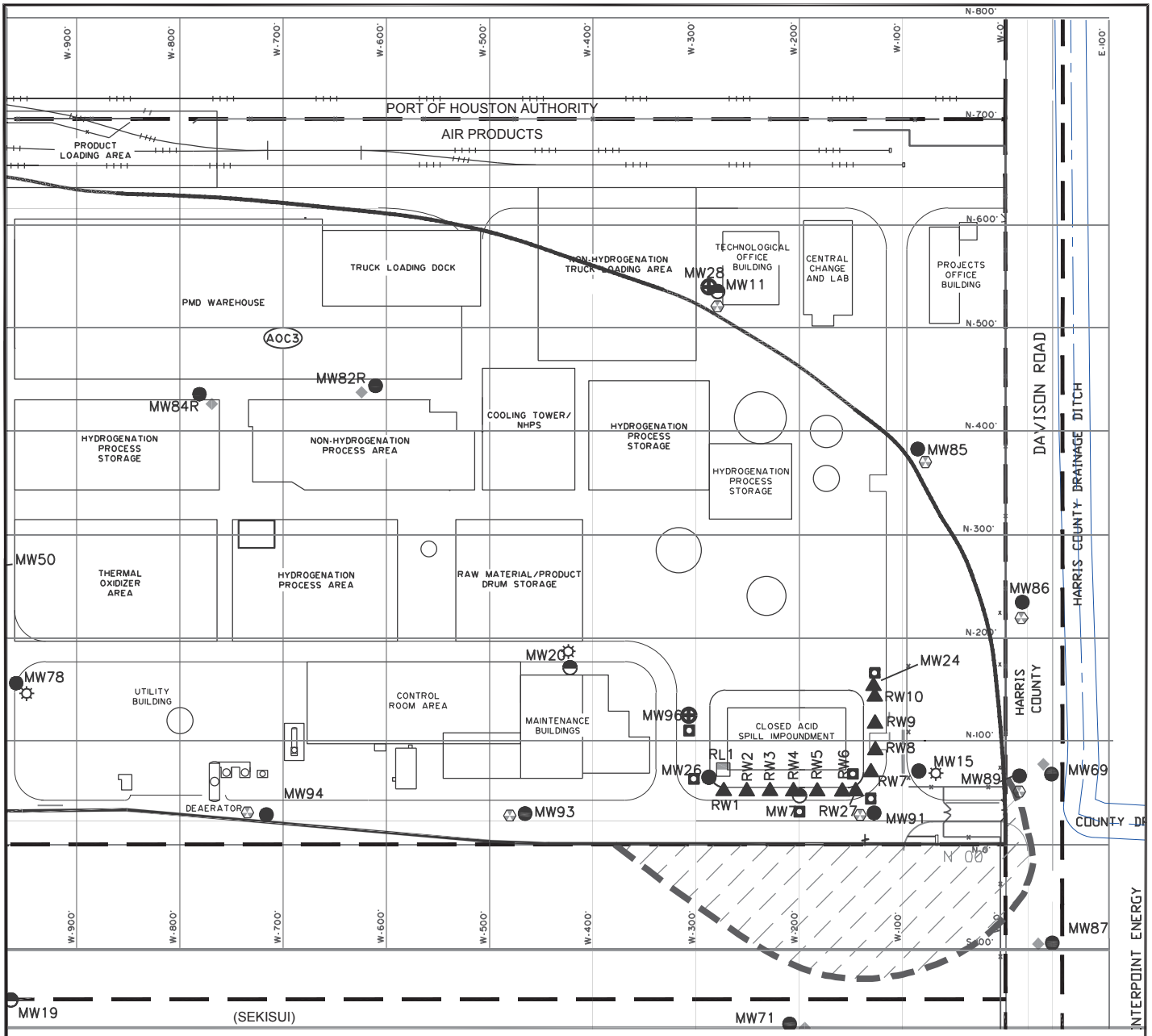
WELL LOCATIONS AND PMZ1 WASTE MANAGEMENT AREA NO. 1 SHALLOW AND DEEP ZONE

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

CP ATTACHMENT A
SHEET 3 OF 6



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION
- MW75 — SHALLOW ZONE MONITORING WELL LOCATION
- MW21 — DEEP ZONE MONITORING WELL LOCATION
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION
- RW21 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION
- RW11 — SHALLOW ZONE RECOVERY WELL LOCATION
- POINT OF COMPLIANCE WELL
- CORRECTIVE ACTION OBSERVATION WELL
- POINT OF EXPOSURE WELL
- ALTERNATE POINT OF EXPOSURE WELL

- PLUME MANAGEMENT ZONE No.1
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)

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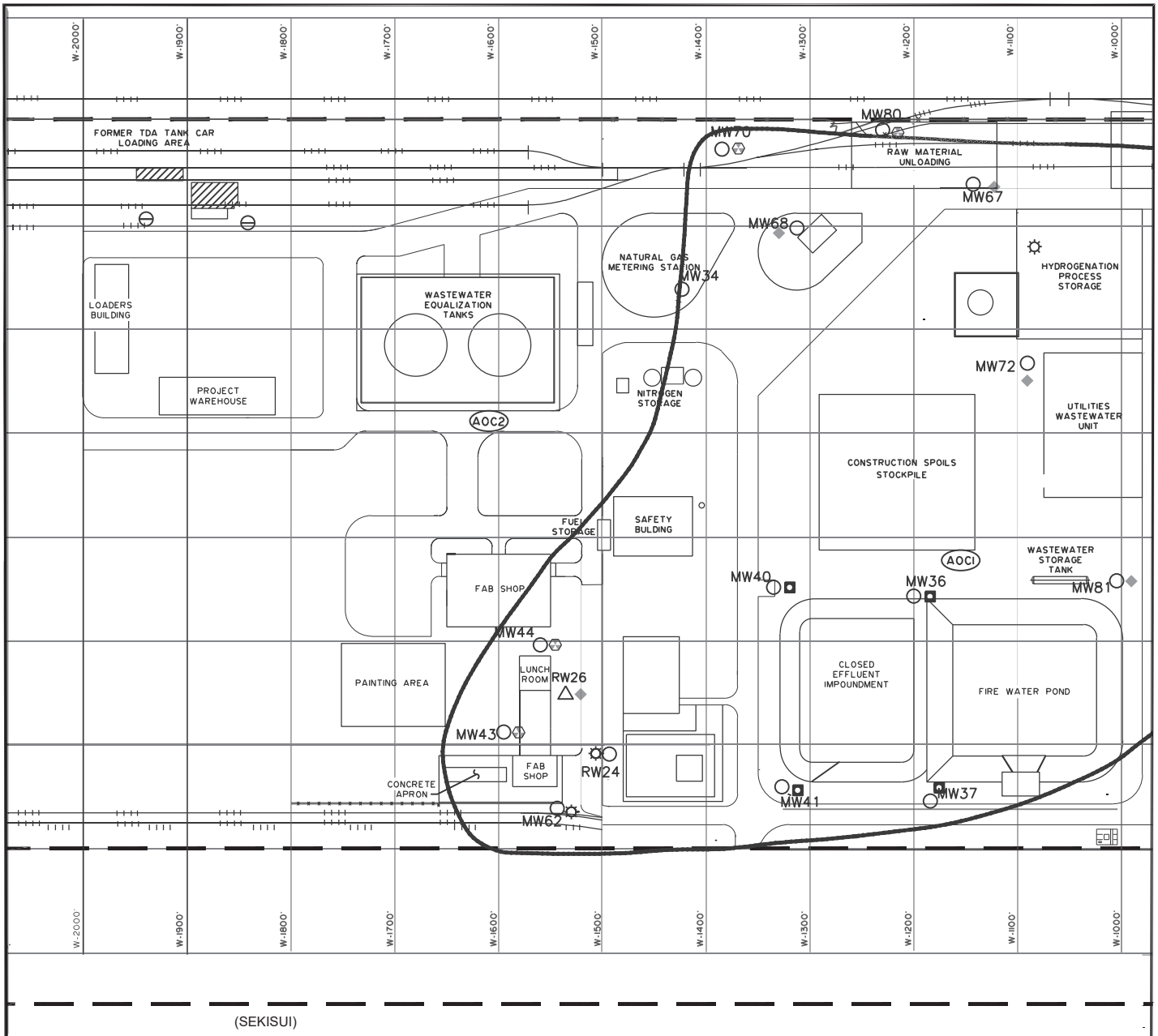
WELL LOCATIONS AND PMZ1 WASTE MANAGEMENT AREA NO. 2 SHALLOW AND DEEP ZONE

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

CP ATTACHMENT A
SHEET 4 OF 6



(SEKISUI)

Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW40 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION
- RW26 △ INTERMEDIATE ZONE RECOVERY WELL LOCATION
- ■ POINT OF COMPLIANCE WELL
- ☼ CORRECTIVE ACTION OBSERVATION WELL
- ◆ POINT OF EXPOSURE WELL
- ⬙ ALTERNATE POINT OF EXPOSURE WELL
- ━━ PLUME MANAGEMENT ZONE No.2
- ▭ AREA OF CONCERN
- ▨ SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- ═══ PROPERTY BOUNDARY

−N− 0 50 100 150

APPROXIMATE SCALE (FEET)

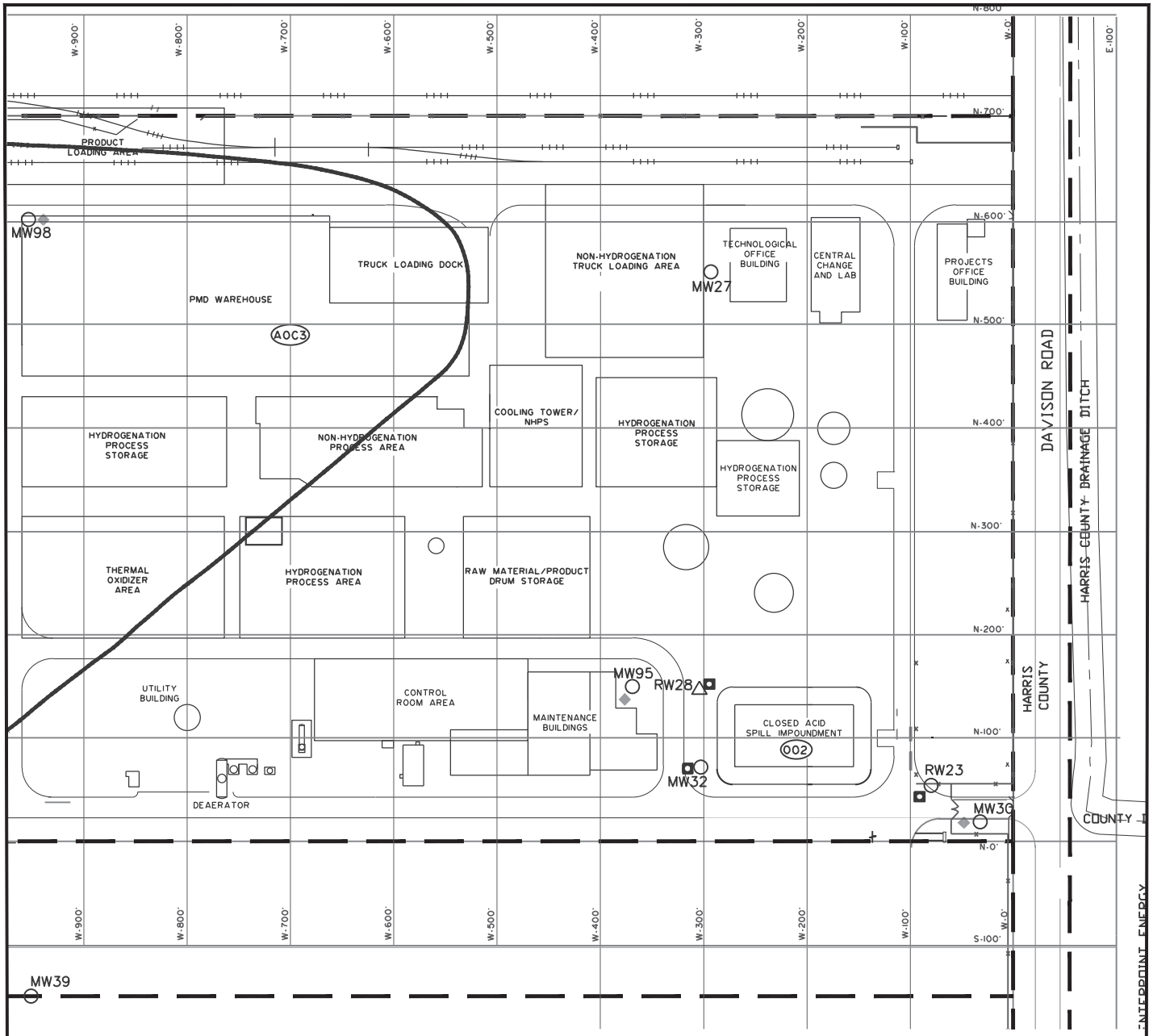
WELL LOCATIONS AND PMZ2 WASTE MANAGEMENT AREA NO. 1 INTERMEDIATE ZONE

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

CP ATTACHMENT A
SHEET 5 OF 6



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW32 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION
- RW28 △ INTERMEDIATE ZONE RECOVERY WELL LOCATION
- ◘ POINT OF COMPLIANCE WELL
- ☼ CORRECTIVE ACTION OBSERVATION WELL
- ◆ POINT OF EXPOSURE WELL
- ⬡ ALTERNATE POINT OF EXPOSURE WELL
- ▬▬ PLUME MANAGEMENT ZONE No.2
- ▭ AREA OF CONCERN
- ▨ SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- ——— PROPERTY BOUNDARY

N

0 50 100 150

APPROXIMATE SCALE (FEET)

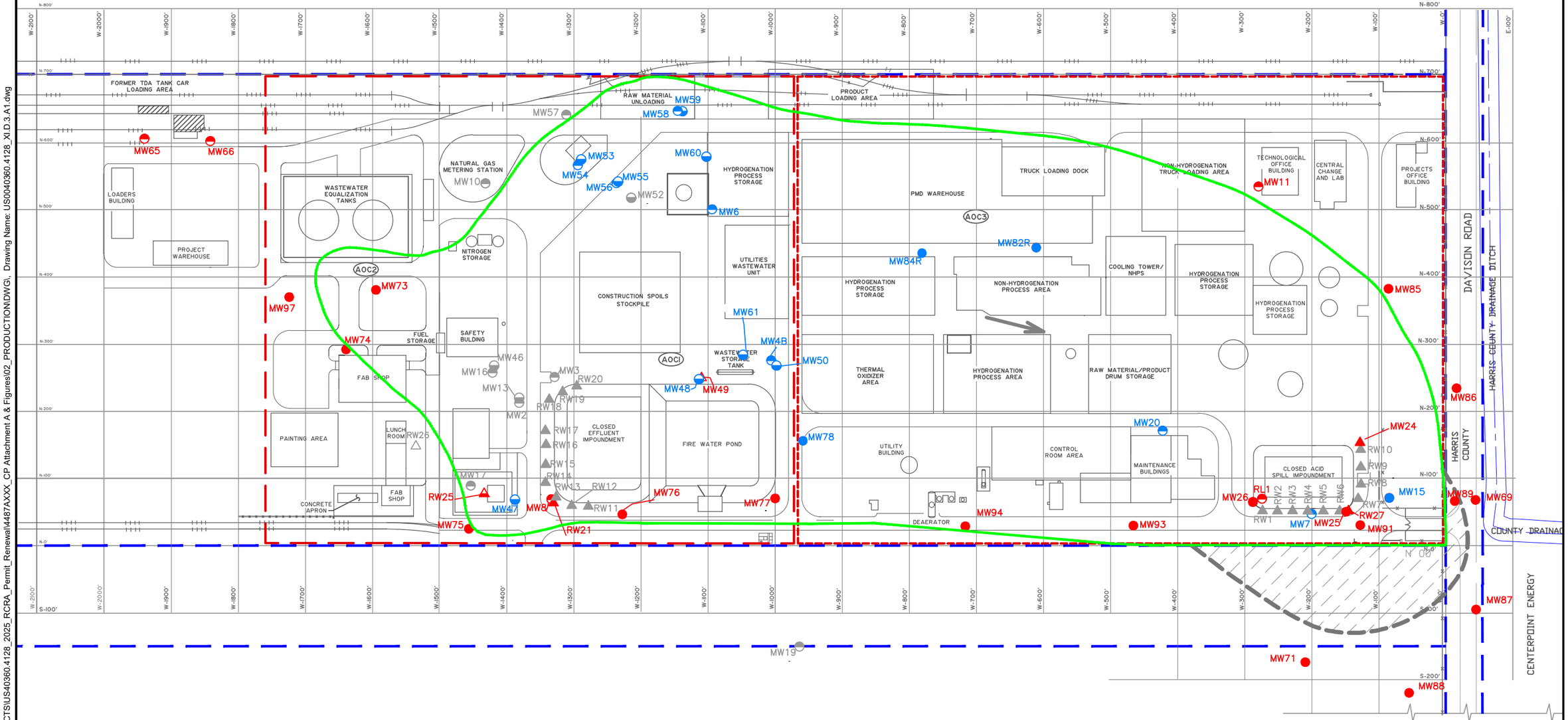
WELL LOCATIONS AND PMZ2 WASTE MANAGEMENT AREA NO. 2 INTERMEDIATE ZONE

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

Project No. 40360.4128
Date: 06/25/25
By: AT

CP ATTACHMENT A
SHEET 6 OF 6



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW11 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW6 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (2-YEAR SCHEDULE)
- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (STAND BY)
- MW60 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (2-YEAR SCHEDULE)
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (STAND BY)
- MW75 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (2-YEAR SCHEDULE)
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW21 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER (STAND BY)

- PLUME MANAGEMENT ZONE NO.1
- ACID SPILL IMPOUNDMENT OFF-SITE PCLE ZONE
- NATURAL DIRECTION OF GROUNDWATER MOVEMENT
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)

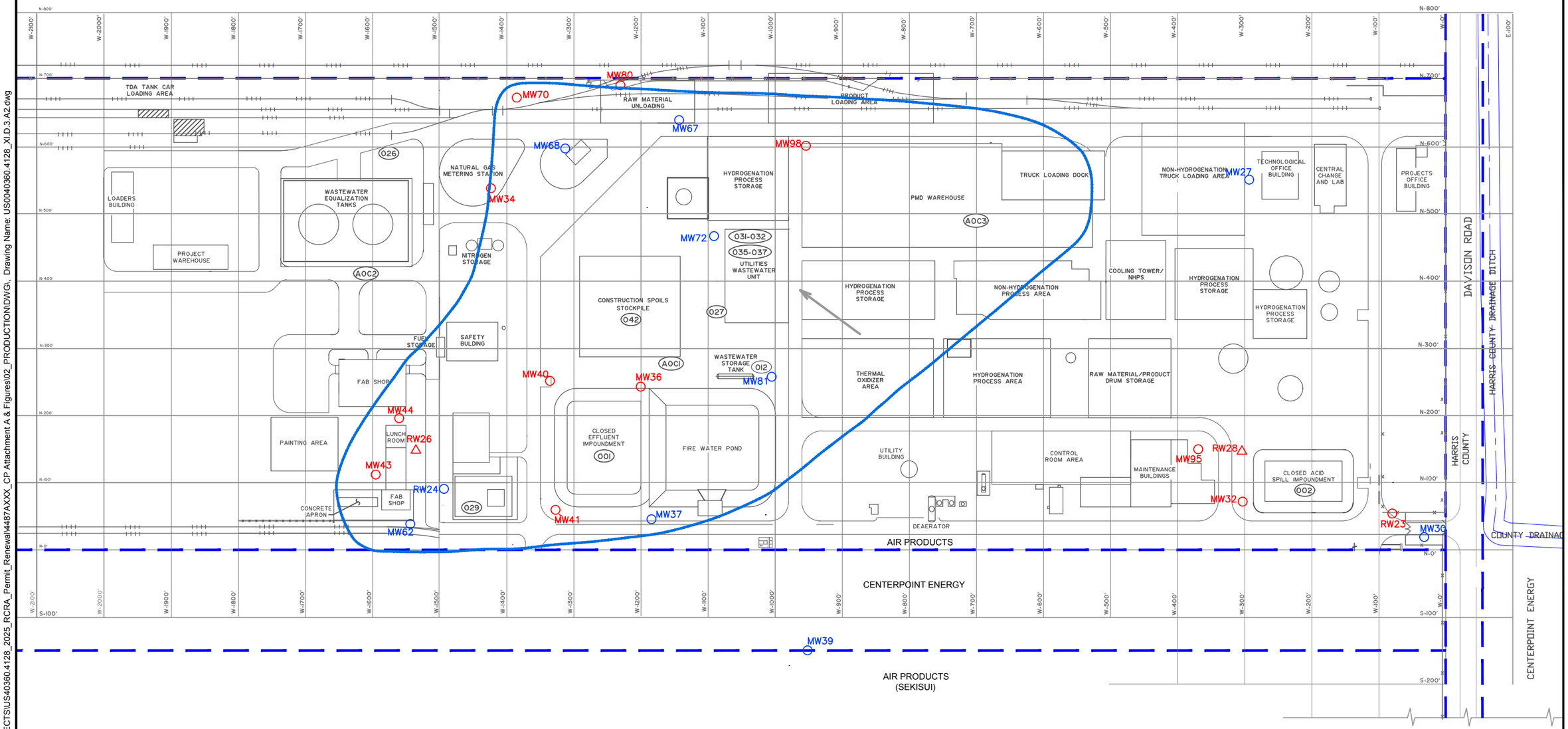
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WELL SAMPLING SCHEDULE
SHALLOW ZONE
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

FIGURE
XI.D.3a1

Plot Date: 06/30/25 - 3:37pm, Plotted by: USAT145973
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Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW40 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW62 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (2-YEAR SCHEDULE)
- MW39 ○ INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (STAND BY)
- RW26 △ INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- PLUME MANAGEMENT ZONE NO. 2
- NATURAL DIRECTION OF GROUNDWATER MOVEMENT
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)

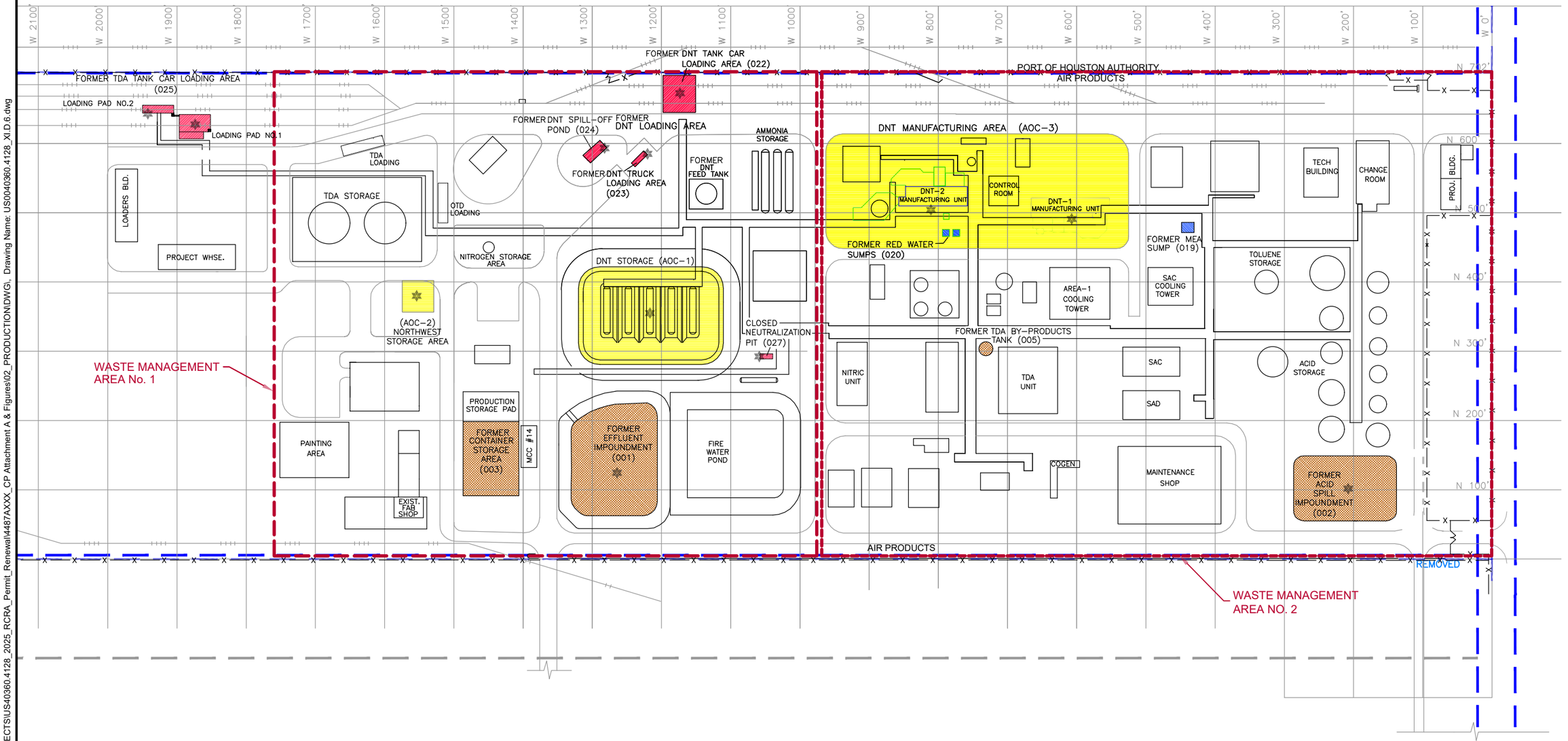
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WELL SAMPLING SCHEDULE
INTERMEDIATE ZONE
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/24/25
By: AT

FIGURE
XI.D.3.a2

Plot Date: 06/24/25 - 4:20pm Plotted by: USAT145973
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Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- UNITS WITH CONFIRMED RELEASE, GROUNDWATER MONITORING AND CORRECTIVE ACTION
- REGULATED UNITS
- SOLID WASTE MANAGEMENT UNIT SUBJECT TO INVESTIGATION OR CORRECTIVE ACTION
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT WITH COMPLETE INVESTIGATION AND NO FURTHER ACTION

- FENCE
- PROPERTY BOUNDARY
- WASTE MANAGEMENT AREA No. 1
- WASTE MANAGEMENT AREA No. 2

NOTE:
(001) = NOTICE OF REGISTRATION (NOR) UNIT NO.1
THIS FIGURE REPRESENTS PRIOR FACILITY INFRASTRUCTURE.

0 50 100 150
APPROXIMATE SCALE (FEET)

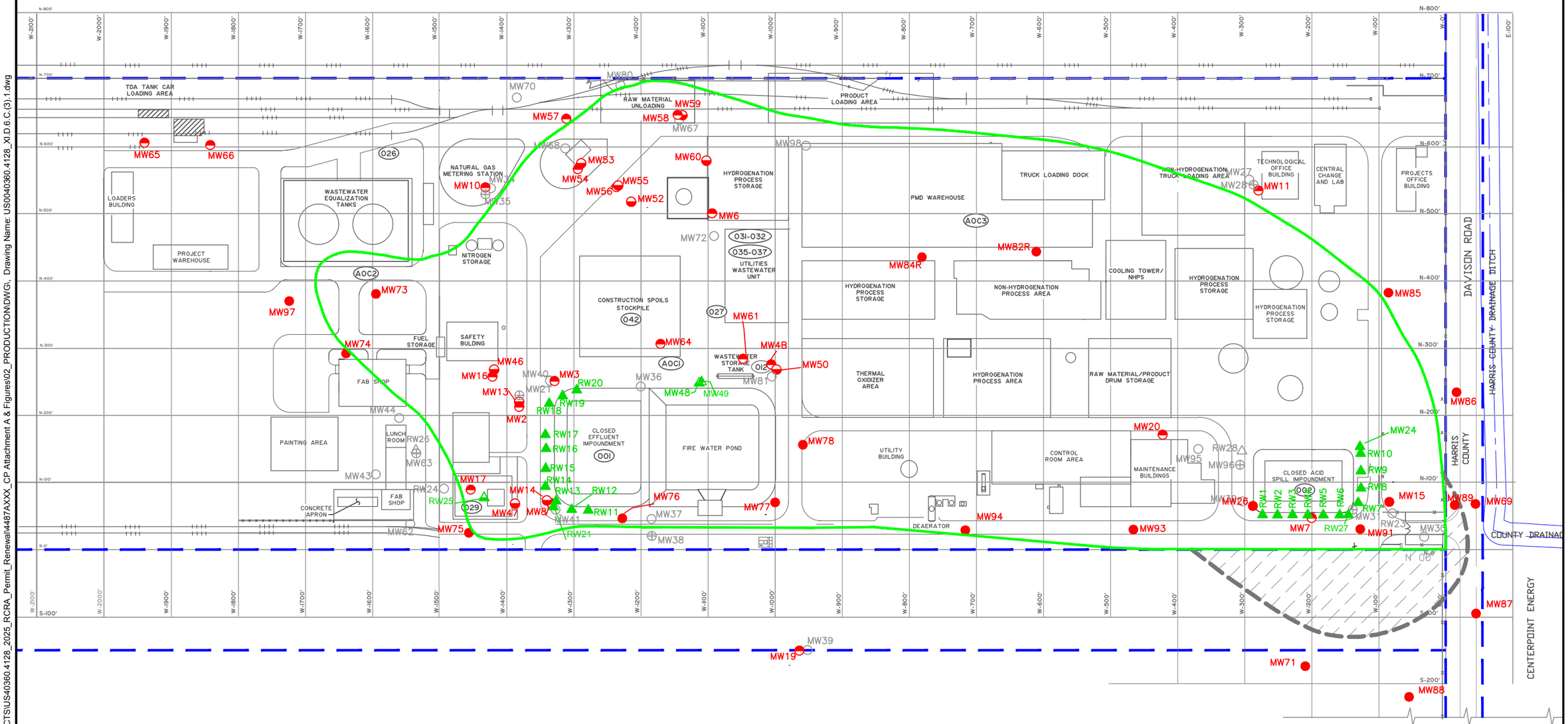
-N-

WASTE MANAGEMENT AREAS W/ WASTE MANAGEMENT UNITS & AREAS OF CONCERN
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

FIGURE XI.D.6

Plot Date: 06/30/25 - 3:48pm, Plotted by: USAT145973
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Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDFNTIFICATION NUMBFR
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- W1 — PLANT WATER WELL

- PLUME MANAGEMENT ZONE NO.1
- ACID SPILL IMPOUNDMENT PCLE ZONE
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)

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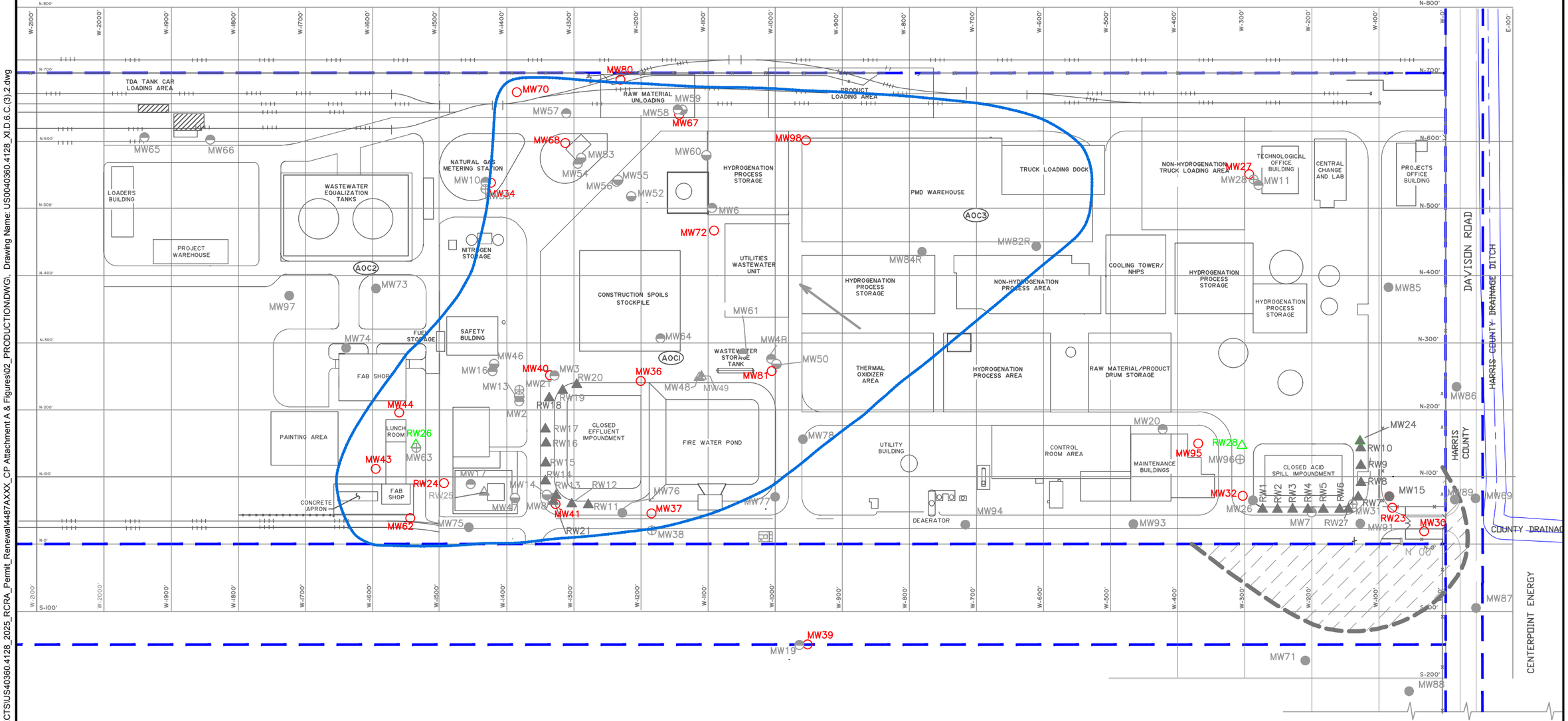
wsp

PMZ BOUNDARY MAP
SHALLOW ZONE
PREPARED FOR
AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/23/25
By: AT

FIGURE
XI.D.6.c.(3).1

Plot Date: 06/23/25 - 8:59am, Plotted by: USAT145973
Drawing Path: Z:\geomatics\Air Products LLC\Pasadena\99_PROJECTS\US40360.4128_2025_RCRA_Permit_Renewal\4487AXXX_CP Attachment A & Figures\02_PRODUCTION\DWGs\, Drawing Name: US0040360.4128_XI.D.6.C.(3).1.dwg



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- W1 — PLANT WATER WELL

- PLUME MANAGEMENT ZONE NO.2
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

0 50 100 150
APPROXIMATE SCALE (FEET)

N

PMZ BOUNDARY MAP INTERMEDIATE ZONE

PREPARED FOR

AIR PRODUCTS LLC
PASADENA, TEXAS

Project No. 40360.4128
Date: 06/30/25
By: AT

FIGURE XI.D.6.c.(3).2

Plot Date: 06/30/25 - 11:50am, Plotted by: USAT145973
Drawing Path: Z:\geomatics\Air Products LLC\Pasadena\99_PROJECTS\US40360.4128_2025_RCRA_Permit_Renewal\4487AXXX_CP Attachment A & Figures\02_PRODUCTION\DWGs\, Drawing Name: US0040360.4128_XI.D.6.C.(3).2.dwg

ATTACHMENT – XI.D.2

RECOVERY/CONTROL WELL AREA OF INFLUENCE AND PUMPING RATES

Attachment XI.D.2
Recovery/Control Well Area of Influence and Pumping Rates
Air Products LLC
Pasadena, Texas

This attachment provides information on groundwater control in support of an application by Air Products LLC (APLLC) for a renewal of Compliance Plan CP-50134. It addresses the hydraulics of control of Plume Management Zones (PMZ) and Protective Concentration Level Exceedance (PCLE) zones within the two Waste Management Areas (WMA1 and WMA2) where COCs have affected two shallow subsurface water bearing units - the Shallow Zone (SZ) and the Intermediate Zone (IZ) at the Air Products Pasadena facility.

The existing Corrective Action System (CAS) was designed using an earlier conceptual model of the hydrogeology of the plant property which has now been modified by new information on natural groundwater movement. The capture/control considerations for the eastern and western edges of proposed SZ PMZ1 are found to have marked differences. Both of these boundaries have hydraulic controls to ensure the downgradient limits of the PMZ remain stable.

In the IZ, the existing hydrogeologic conceptual model is unchanged; however, the location of the previous IZ CAS pumping well (RW22) at the former Acid Spill Impoundment (ASI) was changed as part of the Class 3 modification issued September 14, 2011. Due to construction in this area, RW22 was plugged and a new IZ CAS well (RW28) was installed south of the RW22 location. The pumping rate necessary for RW28 to capture IZ COCs at this new pumping location has been calculated.

Response action reports for the ASI (Geomatrix, 2006) and the DNT Manufacturing Area (Geomatrix, 2008), were previously submitted to the TCEQ. Those response actions are incorporated into the following report, with minor alterations to accommodate the modified conceptual model of site hydrogeology (See Section 1.5 of Attachment XI.A.4). The report is organized into these sections:

1. Control/capture of Affected SZ Groundwater
2. Control of Affected IZ Groundwater
3. Pumping Test Results for New CAS Wells

1.0 Control/Capture of Affected SZ Groundwater

This section describes the evaluation of hydraulic control\recovery requirements for affected groundwater within each Waste Management Area (WMA1 and WMA2) of the plant.

WMA1

The goals for management of the SZ PCLE zones within WMA1 are to control them within a Plume Management Zone (PMZ1) to ensure that humans and environmental receptors are not exposed to the affected groundwater. Prevention of migration will be verified by

measuring COC concentrations in Alternate Point of Exposure (APOE) wells at the edges of PMZ1 and comparing them to the Groundwater Protection Standards (GWPS).

Since recent study of the hydrogeology of the SZ (See Section 1.5 of Attachment XI.A.4) indicates groundwater flows toward the site from both the north and the south, and since most groundwater beneath WMA1 flows eastward, groundwater control efforts in WMA1 are focused on prevention of westward flow at the western edges of PMZ1. This includes 1) prevention of westward movement by the western part of the SZ plume in the vicinity of the flow divide near AOC2 and wells MW73 and MW74, and 2) prevention of westward movement by the plume in the LSZ in the vicinity of the hydraulic sink near RW25 (Figure XI.D.6.c.(3).1).

Hydraulic control of the two areas is described below.

WMA1: Lower Shallow Zone

The "natural" potentiometric surface of the SZ in Figure XI.D.4.15 indicates the relatively flat potentiometric surface (low hydraulic gradients) throughout most of WMA1. Most water levels are between 19.5 and 20.3 feet above sea level. A low gradient facilitates hydraulic control by allowing smaller pumping rates to induce a given capture area, or conversely, allowing a given pumping rate to induce larger capture areas. Water levels in the USZ and the LSZ are similar over most of the plant, however, the LSZ has a potentiometric depression in the area west of the former EI, even when no recovery wells are operating. The depressed water levels are caused by a natural hydraulic sink (Figure XI.A.4.16) south of the Container Storage Area, as noted in Attachment XI.A.4. The sink caused affected LSZ groundwater to begin to migrate westward toward this feature as soon as the release occurred.

The sink by itself appears to capture the affected groundwater in the LSZ and limit its westward flow (though it permits vertical flow to the IZ). This release likely occurred in the early 1970's. During the site investigation of this area in 1994, no COCs were detected in the LSZ to the west of CPT10 (Figure XI.A.4.1) near RW25. The groundwater sample collected from the CPT15 discrete sampling device did not contain detectable COCs, suggesting the sampling device was located on the west side of the sink. Also, soil samples from nearby soil boring SB-1 had no olfactory evidence of contaminants in the LSZ, but odors were noted here in the samples from the IZ. (Results of analysis from groundwater sampling devices are shown in Table XI.A.4.g2.) (location of SB-1 is shown on Figure XI.A.4.1). It is concluded that the sink caused the westward flow in the LSZ, but the sink also "captured" the affected groundwater and prevented any further westward movement.

Operation of LSZ CAS wells RW25 and RW21 should remove much of the LSZ PCLE zone west of the former EI and east of the sink. The pumping wells compete with the sink and each of the three sinks (one is natural and two are man-made) reduces somewhat the size of the other's capture area.

To estimate current capture area of the sink versus the capture area of the competing “sink” at CAS RW21 (i.e., the portion of the LSZ PCLE zone controlled/recovered by each sink) the flow rate of the sink was estimated. This was done by comparing the drawdown caused by the sink alone to the drawdown caused by the sink and RW21 together. The drawdown caused by the sink acting alone was subtracted from the drawdown caused by the combined effect of RW21 and the sink, to estimate the drawdown caused by RW21 alone. The drawdown of each of the two sources is proportional to their flow rates, and since the flow rate of RW21 is known, the flow rate of the sink can be estimated.

The drawdown due to the sink alone was determined for three water-level measurement events conducted with all EI CAS wells off (Figures XI.D.2.1, 2.2, and 2.3). Drawdown was calculated as the difference between the LSZ and USZ water levels at selected pairs of USZ and LSZ monitoring wells. The LSZ/USZ well pairs were MW46 and MW16, MW13 and MW2, MW14 and MW8, RW25 (off) and MW17, and MW48 and MW49 (off). The drawdown results for each well pair are shown by circles on the three figures. Drawdown caused by RW21 and the sink together is shown on Figure XI.D.2.4 after five days of pumping of RW21.

Based on these four water level events, it appeared that the sink contributed about a fifth to a quarter of the total drawdown observed on Figure XI.D.2.4. This means that relative to the sink, the flow of RW21 (two gallons per minute) during the pumping test is three to four times larger than the flow to the sink. The sink is estimated to be moving water out of the LSZ at a rate of about one-half to two-thirds of a gallon per minute. When the two are working together, there will be a ground water flow divide between them at a point where the hydraulic gradient toward each well is equal. Based on their relative flow rates, the divide will be about 20% to 30% of the distance from the sink to RW21 (i.e., closer to the sink).

This suggests that in future operations, the water flowing into the sink will be limited to only the part of the PCLE zone within 40 feet or so of the sink (about 25% of the 160-foot distance between the sink and RW21 if RW25 is not used). RW21 was activated in 1993 and the divide was formed at that time. Since that time, the sink has been actively removing affected LSZ groundwater from the westernmost part of the PCLE zone, while RW21 and RW25 were removing groundwater from the rest of the plume.

During 1972-1993, before LSZ corrective action began, the sink induced westward flow in the plume from the EI and there was a continuous flow of affected water from the EI to the sink. The sink at this time controlled the entire LSZ plume. Affected groundwater that flowed through the sink at that time formed the initial plume in the underlying IZ.

Beginning in 1993, RW21 was activated with a typical flow rate of about 0.65 gpm, and flow in an estimated 60% of the plume became eastward (with some pumped out by RW25 beginning in 1995). When RW21 was activated, the influence of the sink changed from covering the entire plume to controlling only a part of it. The sink then began to affect the plume only within a radius estimated at 50-65 feet. It appears that the sink removed a

substantial volume of contaminants in the 17 years since the LSZ CAS wells began operating and began to move affected groundwater back toward the east. After maintaining a flow of 0.5 gpm for 17 years, the sink would have removed approximately 4.5 million total gallons of groundwater since 1993, with an estimated 11 percent of this coming from the plume itself, or 480,000 gallons (the plume occupies about 40 degrees of the 360 degree radial flow area contributing to the well – 11%). This suggests that most of the contaminated groundwater in this westernmost 40% of the PCLE zone has likely been removed.

The sink (0.5 gpm), RW21 (0.65 gpm typical) and RW25 (0.2 gpm) have made substantial reductions in the concentration of COCs in the PCLE zone. Figures XI.D.2.5 and 2.6 show the trend in concentrations over time at wells MW47, and RW21/RW25, respectively. Of these three wells, RW25 remains the most contaminated, probably due to sluggish water movement around this well due to competition between the sink and RW21 plus changing flow rates at RW21 due to periodic mechanical problems. It is recommended that RW25 be designated as a standby CAS well used for monitoring only, so that RW21 will dominate the area between it and the sink and move the affected water near RW25 eastward to RW21. The recommended flow rate for RW21 is to pump the well at 80% of its capacity, or about two gallons per minute. The maximum flow rate from the well ranges between 1.6 to 2.2 gallons per minute, depending on the seasonal elevation of the SZ water table. The capture area of RW21 includes the area around RW25.

The LSZ groundwater currently moving through the sink may have little to no contamination, as suggested above. The current concentrations in samples from IZ well RW24 support this. Affected LSZ water that enters the IZ at the sink location moves toward IZ recovery well R26. RW24 is located between RW26 and the probable location of the sink, so the LSZ water that enters the IZ should be detectable at RW24 as it moves toward RW26. Figure XI.D.2.7 shows the downward trend in concentrations at RW24, which at present are near detection limits (Table XI.A.4.g3).

WMA1: Shallow Zone - AOC2 Area

Capture of affected SZ groundwater is a concern near AOC2 since it appears that a flow divide exists in this area under current “natural” conditions (i.e., when no pumping wells are on) (Figure XI.A.4.15). As stated earlier, groundwater flow in the Shallow Zone converges on WMA1 from both the north and the south. In the area of AOC2, the converging flow diverges into eastward and westward components of flow. The eastward-moving groundwater will eventually flow to the CAS systems in operation near the former ASI. However, the capture/control of westward-moving SZ groundwater is uncertain.

As discussed earlier, the hydraulic gradients in this area are relatively flat, allowing a significant capture zone to be developed by pumping groundwater at modest rates. The wells designated in this Application for control of the western part of PMZ1 are MW49 and RW21. RW21 was discussed in the previous section. MW49 well was installed in 1992 in the Upper Shallow Zone as part of the RCRA Facility Investigation of the closed

Neutralization Pit, located near MW61. The well is currently serving as a USZ CAS well, having been activated in April 2004. It is fortuitously located in a rare area of excellent groundwater productivity in the thin silty sands of the USZ, and affects the LSZ as well. The well is currently equipped with an electric submersible pump.

A pumping test of MW49 was performed in April 2009 to determine the area of influence of the well. During this test, water levels were measured in a number of wells in this area. Figure XI.D.2.9 shows the drawdown produced in this test. The drawdown shown is the difference between the levels before pumping began and the levels three days after pumping started. A rainfall event on the second day of the test caused water levels in background areas to rise by about 0.15 feet by the end of the test. The final-water level depths were all increased by 0.15 feet to account for rainfall recharge to the SZ.

The plot shows a wide area of influence surrounding MW49 - visible in wells up to at least 500 feet away. The test appeared to cause drawdown in the area of AOC2. After the test, all of the proposed CAS wells were turned on. On May 12, water levels were measured in SZ, USZ, and LSZ wells throughout the plant (Figure XI.D.2.10). The water levels appear to indicate a gradient from the MW65 and MW66 at the TDA Tank Car Loading Area (northwest corner of map) through AOC2 and continuing to the EI and finally MW49. Since the levels at AOC2 (MW73 and MW74) are significantly below those at MW65 and MW65, the gradient across the area appears to be reversed and to be directed eastward with the proposed CAS wells on. An additional well has been installed at AOC2 since that test (proposed APOE well MW97), and this well will provide additional definition of the hydraulic gradient in the vicinity of AOC2, as well as chemical monitoring data which could indicate westward movement of affected SZ groundwater.

It is recommended that MW49 be pumped at 80% of its maximum rate, depending on ambient water levels. The flow rate is approximately 2.3 gallons per minute.

WMA2: Shallow Zone

This area, in the eastern part of APLLC's PUI plant near the former ASI, was the subject of a *Draft* Response Action Plan (RAP) (Geomatrix, 2006). Since the existing CAS wells appeared to control the entire PCLE zone (Figure XI.A.4.18), the approved RAP proposed to continue the existing corrective action.

The two primary goals for the control of groundwater at the southeast corner of the PUI plant are the recovery of the off-site PCLE zone and the eventual stabilization by hydraulic control or monitored natural attenuation of the on-site PMZ after the off-site cleanup is accomplished. While pursuing those goals, two off-site hydraulic issues will be addressed: 1) protection of surface water and potential ecological receptors in a county drainage ditch near the eastern plant boundary, and 2) maintaining hydraulic control over the most distant end of the PCLE zone, which may be affected by off-site pumping.

The groundwater recovery/control wells prevent uncontrolled movement of the off-site PCLE zone toward the ditch or the dewatering wells on neighboring property. The estimated

effects of the two systems operating together is illustrated on the potentiometric surface map of Figure XI.A.4.11. This map also shows elevations of the bottom of the drainage ditch. When SZ water levels are above the bottom of the ditch, discharge of groundwater to the ditch is possible.

The ASI groundwater recovery/control system for the SZ has in the past consisted of a system of 10 wells equipped with pneumatic pumping systems that share a common air supply and discharge header pipe. The system is prone to problems associated with entrainment of air in the discharge lines, including overestimation of water flow and scaling and fouling of check valves and water flowmeters. Due to these problems, a simpler pumping system is being adopted that employs fewer, more efficient wells equipped with electric pumping systems. A damaged monitoring well, MW25, was scheduled to be removed and abandoned, but examination of well purging and sampling records suggested that the well might be located in an abnormally productive part of the SZ aquifer.

A pumping test was performed at well MW25 in October 2008. MW25 was pumped for six days at an average rate of approximately 2.2 gallons per minute, while monitoring water levels in surrounding wells. The drawdown in this area after six days of pumping is shown on Figure XI.D.2.11. The drawdown influence extends over a wide area of the eastern part of the plant, including the entire off-site PCLE zone (compare Figures XI.A.4.18 and XI.D.2.11). The drawdown is similar to that observed during an earlier pumping test using the 10 pneumatic wells (Figure A3-2 in Appendix 3 of the RAP for the ASI). In the earlier test, the 10-well flow rate was estimated at about four gpm, but it is believed that the flow measurement was affected by entrained air and may have actually been closer to 2 gpm given the similarity of drawdown observed in the two tests.

The damaged well MW25 has been replaced by new CAS recovery well RW27 (See Attachment XI.D.3.c.(2)). After overdrilling MW25 and removing the downhole materials, the borehole was reamed and the new well was constructed in the same location with 6-inch diameter stainless steel casing. A pumping test of RW27 was conducted in March 2010 and the result was a Transmissivity of 290 gallons per day per foot (gpd/ft) – see Figure XI.D.2.13. The well was pumped for four days before beginning this recovery test. Due to the relatively long pumping time, the data were not adjusted for the duration of pumping. The well should be capable of producing up to 3.5 gallons per minute.

Without pumping the SZ at the ASI, the off-site dewatering wells could cause the off-site PCLE zone to move further southeastward, toward those wells. Figure XI.D.4.11 suggests that the off-site dewatering sink may have a higher flow rate than the on-site recovery wells. The ability of on-site pumping to stop the movement toward the dewatering sink was evaluated by calculating the distance between the ASI well MW25/RW27 to the downgradient “stagnation point” where flow in the SZ would be stagnant, moving neither southeastward toward the sink nor northwestward toward MW25/RW27. Flow on either side of the stagnation point moves toward its respective pumping center.

The distance from a well to its downgradient stagnation point in a confined steady-state system is calculated by the equation:

$$X_{stag} = Q / 2 \pi T I \qquad \text{(Grubb, 1993)}$$

Where: Q = flow rate of well (L^3/T)

T = Transmissivity (L^2/T)

I = hydraulic gradient (L/L or dimensionless)

The hydraulic gradient in the vicinity of RW27 as measured on the "natural" potentiometric map of Figure XI.A.4.14 between the 20 foot and the 17 foot contours is approximately 0.0052. The flow rate of RW27 was 2.2 gallons per minute during the pumping test. The value of two gallons per minute (385 ft^3/day) is used to obtain a conservative estimate of the minimum capture area of this well. The transmissivity (T) from the pumping test of RW27 was about 290 gallons per day per foot (38 ft^2/day).

Using these values,

$$X_{stag} = (385) / (2 \pi (38)(0.0052)) \text{ feet}$$

$$X_{stag} = 310 \text{ feet}$$

The distance to the downgradient edge is estimated to be about 310 feet. This distance is similar to the radius of influence observed the pumping of MW25 (Figure XI.D.2.11). The distance from MW25/RW27 to the edge of the PCLE Zone is less than 200 feet. It appears that a SZ pumping rate of two gallons per minute at the ASI will control the off-site PCLE zone and protect the ecological POE MW69.

2.0 Control of Affected IZ Groundwater

This section describes the evaluation of hydraulic control\recovery requirements for affected IZ groundwater in the western and eastern parts of the plant. In the western plant, a single IZ well, RW26, controls groundwater throughout the plant, as suggested by the potentiometric surface of the IZ on Figure XI.A.4.12. A flow rate of only 2-2.5 gpm is needed to accomplish this, due to the very shallow natural hydraulic gradient (Figure XI.A.4.17).

The width of the capture zone at a single pumping well in a confined steady-state system is:

$$W = Q/2TI \qquad \text{(Grubb, 1993)}$$

with the variables defined as above.

The value for transmissivity was measured in a pumping test of former well RW22 (170 gpd/ft). The T measured by the initial pumping test of RW26, conducted when the well was placed in service in September 1998 was 175 gpd/ft (23.4 ft^3/day), indicating relatively uniform IZ transmissivity across the plant. The value of the IZ hydraulic gradient on Figure

XI.A.4.17 between the 12 foot and 11 foot contours is approximately 0.00081. Given a pumping rate of 2 gpm (385 ft^3/day) the width of the capture area at a pumping well is calculated:

$$W = (385)/(2(23.4)\ (0.00081))$$

$$W = 10{,}159 \text{ feet}$$

The capture width is large, enabling RW26 to control IZ groundwater movement across the entire plant, including affected IZ groundwater along the northern plant boundary near the former DNT Loading Area and the DNT Manufacturing Area. RW26 also influences flow in the IZ in the area of the former ASI.

At the ASI, a recovery well (new well RW28) will be operated to remove affected IZ groundwater at the western boundary of the former regulated unit. The well operates at a low rate in order to avoid interfering with the overall capture zone imposed by well RW26, located 1,200 feet to the west, and to minimize downward leakage of water from the LSZ.

If the well is operate at 0.2 gpm, the calculated width of the capture zone of RW28 is calculated using the above equation is 1,015 feet. This well should be operated at a flow rate of about 0.1 – 0.2 gallons per minute. This capture width is sufficient to control any potential downward leakage from the SZ in the area beneath the former ASI or from the on-site or the off-site parts of the SZ PCLE zone. The low flow rate and minimal drawdown may reduce the potential to accelerate such leakage.

3.0 Pumping Test Results for New CAS Wells

The water-level data collected during the Area of Influence tests of new recovery wells MW49, RW27, and RW28 were analyzed to measure the transmissivity of the porous media in their screened intervals. The water-level data collected during pumping was analyzed as a constant-rate pumping test. The specific capacity of the wells (flow rate divided by drawdown) was also determined.

RW27: Well RW27 was pumped in March 2010 at an average of about 2.2 gallons per minute for four days. After the pumping, water levels were measured in the pumping well as the water level recovered. The semilog plot of water-level change versus time during pumping are shown on Figures XI.D.2.13 of this Attachment. Transmissivity (T) was measured to be 290 gpd/ft. The specific capacity of well RW27 was measured after the four days of pumping, and the result was 0.1152 gallons per minute per foot of drawdown. This is equivalent to the pumping performance of a perfectly efficient (loss-free) well pumping from a porous media with a transmissivity of about 180 gpd/ft. This suggests the well is not 100 per cent efficient and a larger flow rate could be obtained with additional development.

MW49: Well MW49 was pumped in April 2009 at a rate of 2.3 gpm for three days. A semilog plot of water-level change versus time during pumping is shown on Figure XI.D.2.14 of this Attachment. Transmissivity was calculated to be on the order of 800 gpd/ft. The

specific capacity of MW49 at the end of the test was: 2.3 gallons per minute with 6.19 feet of drawdown = 0.372 gallons per minute per foot of drawdown. This value is consistent with a transmissivity of about 700 gpd/ft. This is the highest transmissivity measured at any location in the USZ at this facility, allowing a good flow rate in a very shallow zone where there is only a relatively small available drawdown for pumping.

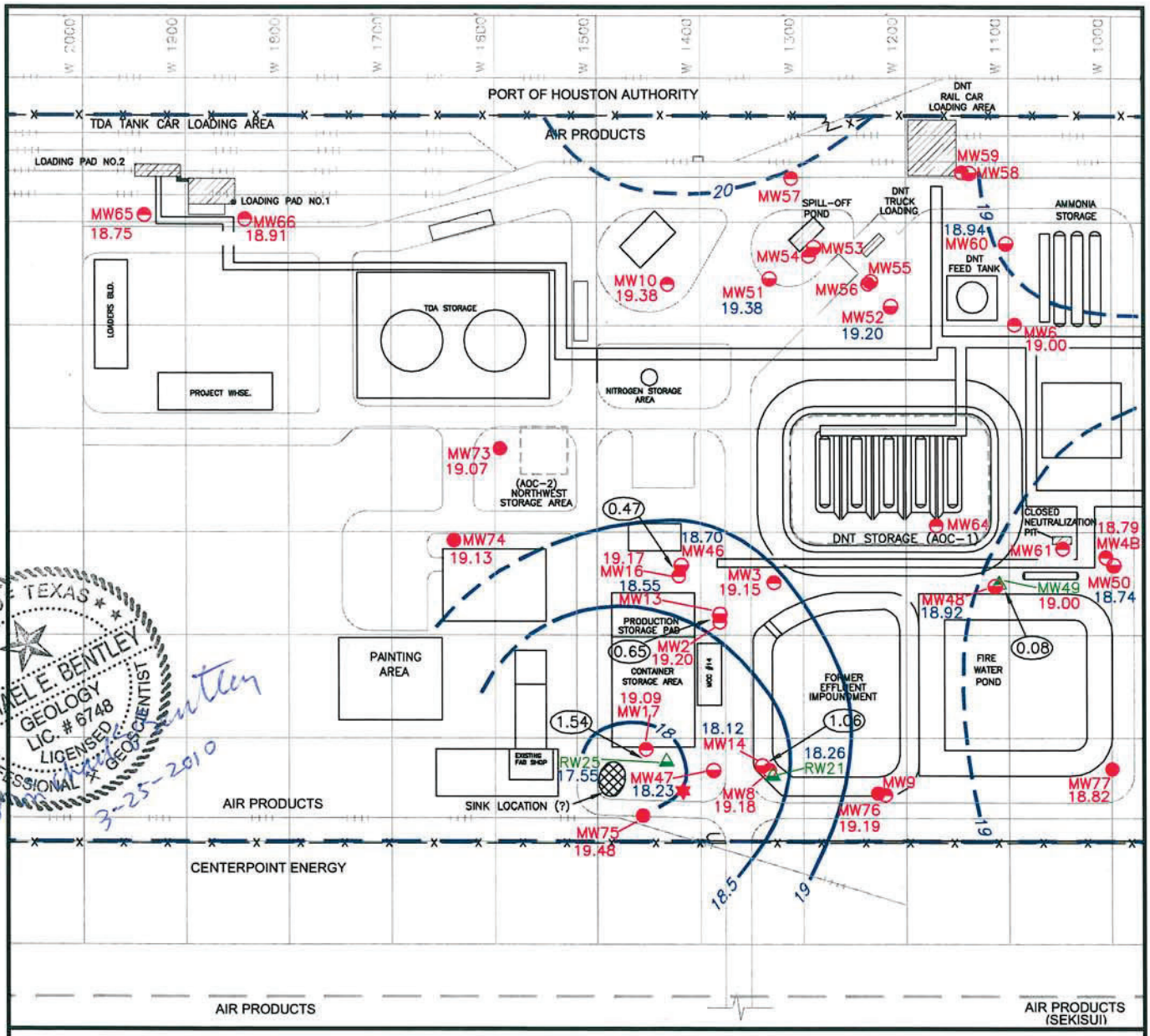
4.0 References

Geomatrix, 2006, Draft Response Action Plan, Former Acid Spill Impoundment, November 2006.

Geomatrix, 2008, Draft Response Action Plan, DNT Manufacturing Area, February 2008.

Grubb, S. 1993, Analytical Method for Estimation of Steady-state Capture Zones of Pumping Wells in Confined and Unconfined Aquifers: Groundwater V. 31, No. 1, p. 27-32.

FIGURES



STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED
PROFESSIONAL GEOSCIENTIST
3-25-2010

Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW10 19.38 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW46 18.70 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW75 19.48 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW49 19.00 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW25 17.55 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- (0.08) — DIFFERENCE BETWEEN USZ AND LSZ LEVELS AT WELL PAIR (FT)
- MW47 — LSZ WELL SCREENED PARTLY IN USZ ALSO

-N-

0 50 100 150
APPROXIMATE SCALE (FEET)

- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY
- 19 — CONTOUR LINE OF LSZ (ONLY) WATER ELEVATION (FT MSL)

WATER LEVELS IN THE SHALLOW ZONE CAS WELLS OFF JANUARY 16, 2009

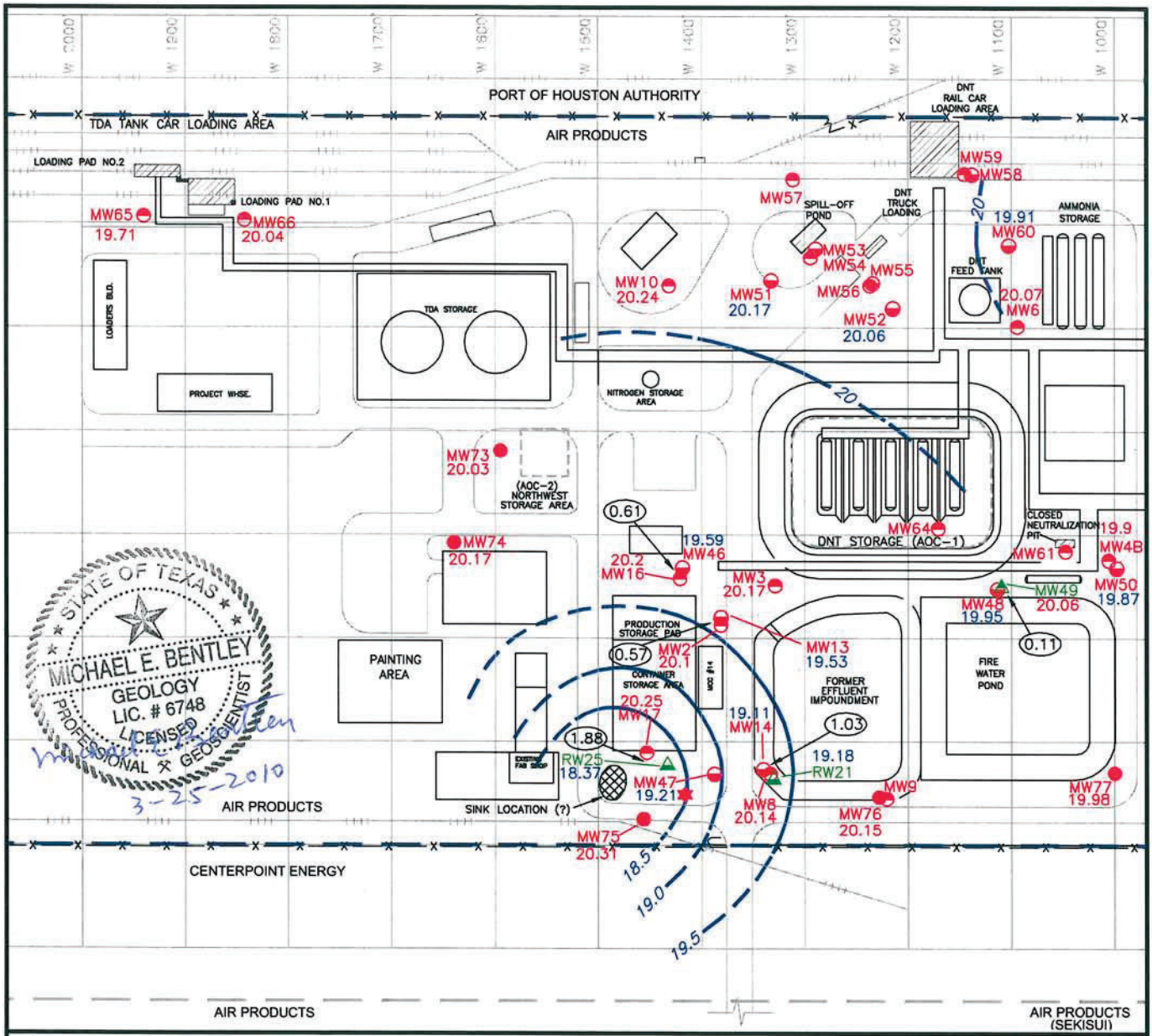
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/11/10	Project No.: 4487	4487A224.dwg

AMEC Geomatrix

Figure XI.D.2.1



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW10 20.24 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW46 19.59 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW75 20.31 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW49 20.06 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW25 18.37 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- (0.11) — DIFFERENCE BETWEEN USZ AND LSZ LEVELS AT WELL PAIR (FT)
- MW47 — LSZ WELL SCREENED PARTLY IN USZ ALSO

-N- 0 50 100 150
APPROXIMATE SCALE (FEET)

- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY
- 20 — CONTOUR LINE OF LSZ (ONLY) WATER ELEVATION (FT MSL)

WATER LEVELS IN THE SHALLOW ZONE CAS WELLS OFF OCTOBER 9, 2008

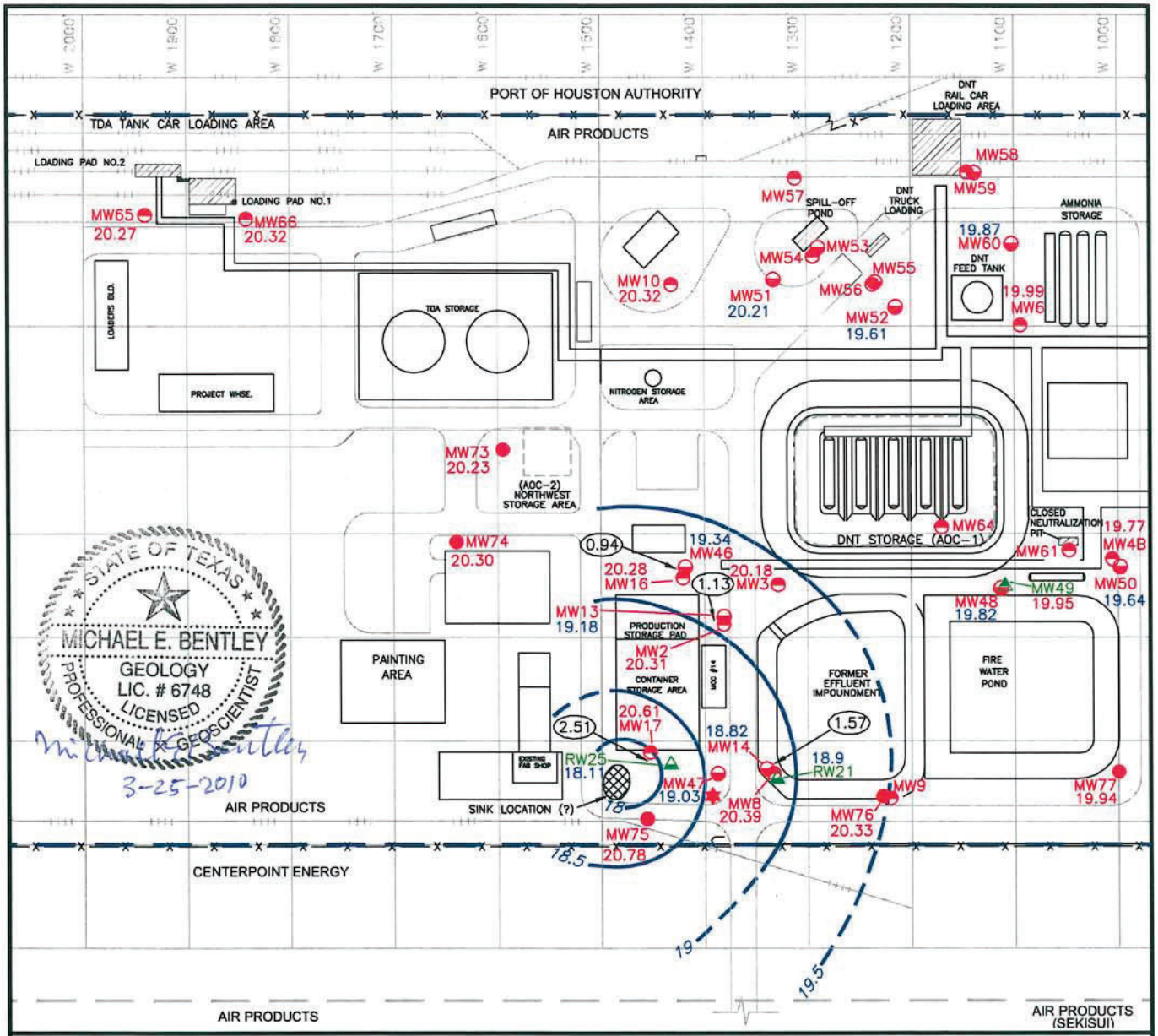
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/10/10	Project No.: 4487	4487A222.dwg

AMEC Geomatrix

Figure XI.D.2.2



STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED
PROFESSIONAL GEOSCIENTIST
3-25-2010

Base Map Source: AIR PRODUCTS LLC

NOTE:
RW21 PUMPING FOR 5 DAYS

EXPLANATION

- MW10 20.32 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW46 19.34 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW75 29.78 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW49 19.95 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW25 18.11 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- (2.51) — DIFFERENCE BETWEEN USZ AND LSZ LEVELS AT WELL PAIR (FT)
- MW47 — LSZ WELL SCREENED PARTLY IN USZ ALSO
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 19 — CONTOUR LINE OF LSZ (ONLY) WATER ELEVATION (FT MSL)

-N-
0 50 100 150
APPROXIMATE SCALE (FEET)

WATER LEVELS IN THE SHALLOW ZONE CAS WELLS OFF APRIL 27, 2009

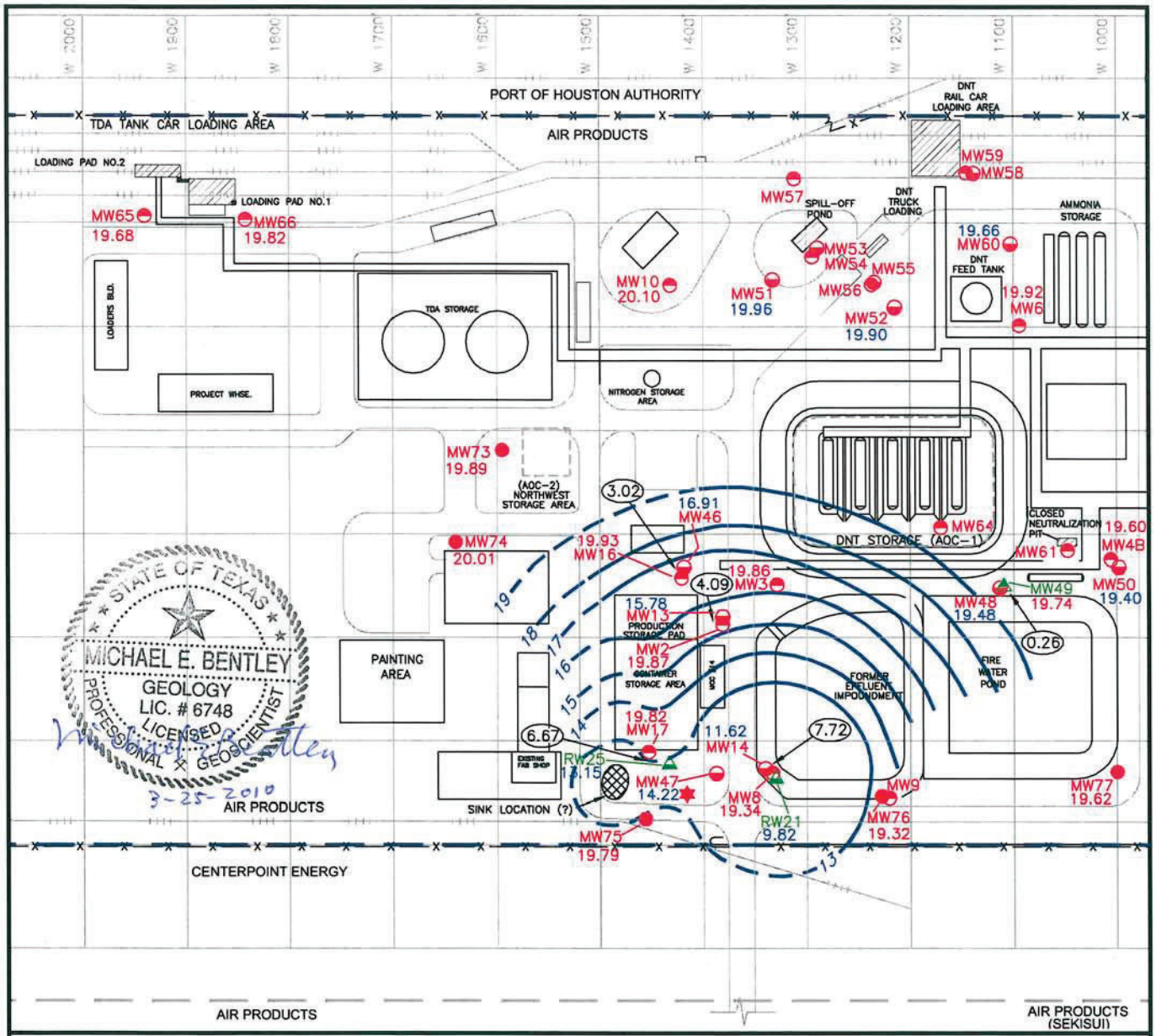
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/11/10	Project No.: 4487	4487A225.dwg

AMEC Geomatrix

Figure XI.D.2.3



Base Map Source: AIR PRODUCTS LLC

NOTE:
RW21 PUMPING FOR 5 DAYS

-N-

0 50 100 150
APPROXIMATE SCALE (FEET)

EXPLANATION

- MW10 20.10 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW46 19.91 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW75 19.79 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW49 19.74 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- RW25 13.15 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- (3.02) — DIFFERENCE BETWEEN USZ AND LSZ LEVELS AT WELL PAIR (FT)
- MW47 — LSZ WELL SCREENED PARTLY IN USZ ALSO

- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY
- 15 — CONTOUR LINE OF LSZ (ONLY) WATER ELEVATION (FT MSL)

WATER LEVELS IN THE SHALLOW ZONE PUMPING TEST - RW21 OCTOBER 14, 2008

PREPARED FOR

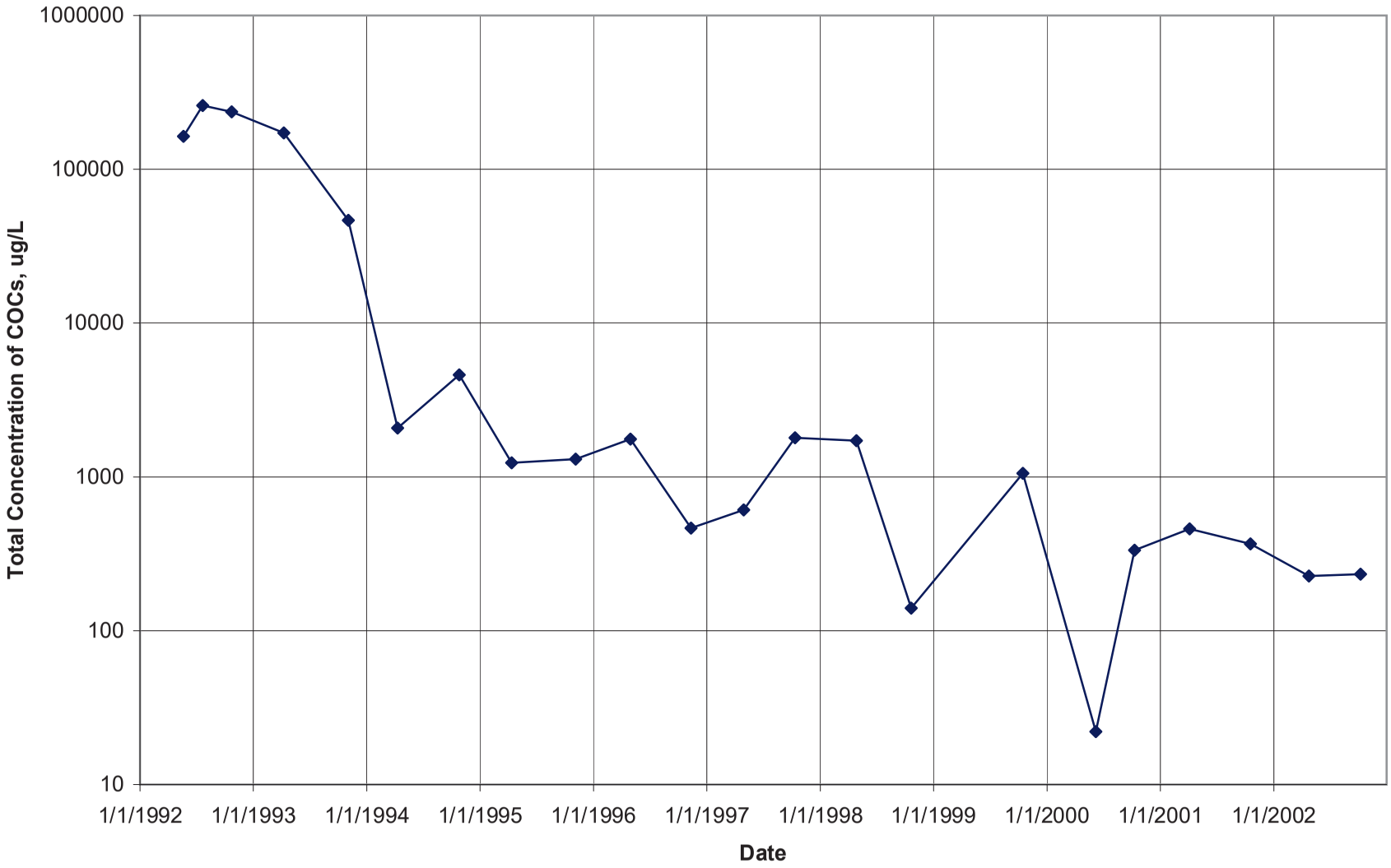
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/11/10	Project No.: 4487	4487A223.dwg

AMEC Geomatrix

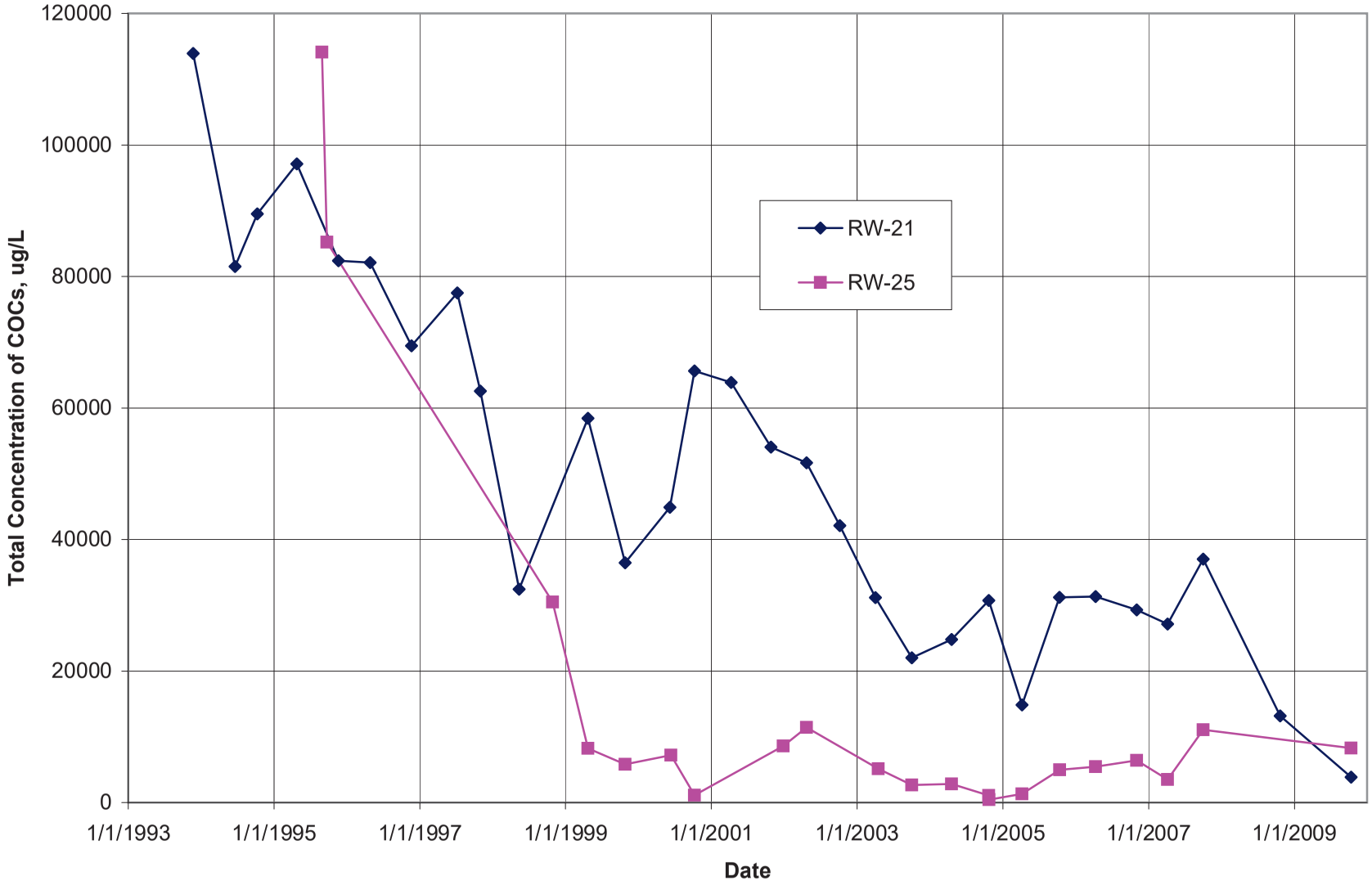
Figure XI.D.2.4

Figure XI.D.2.5 Concentration Trend at Well MW47



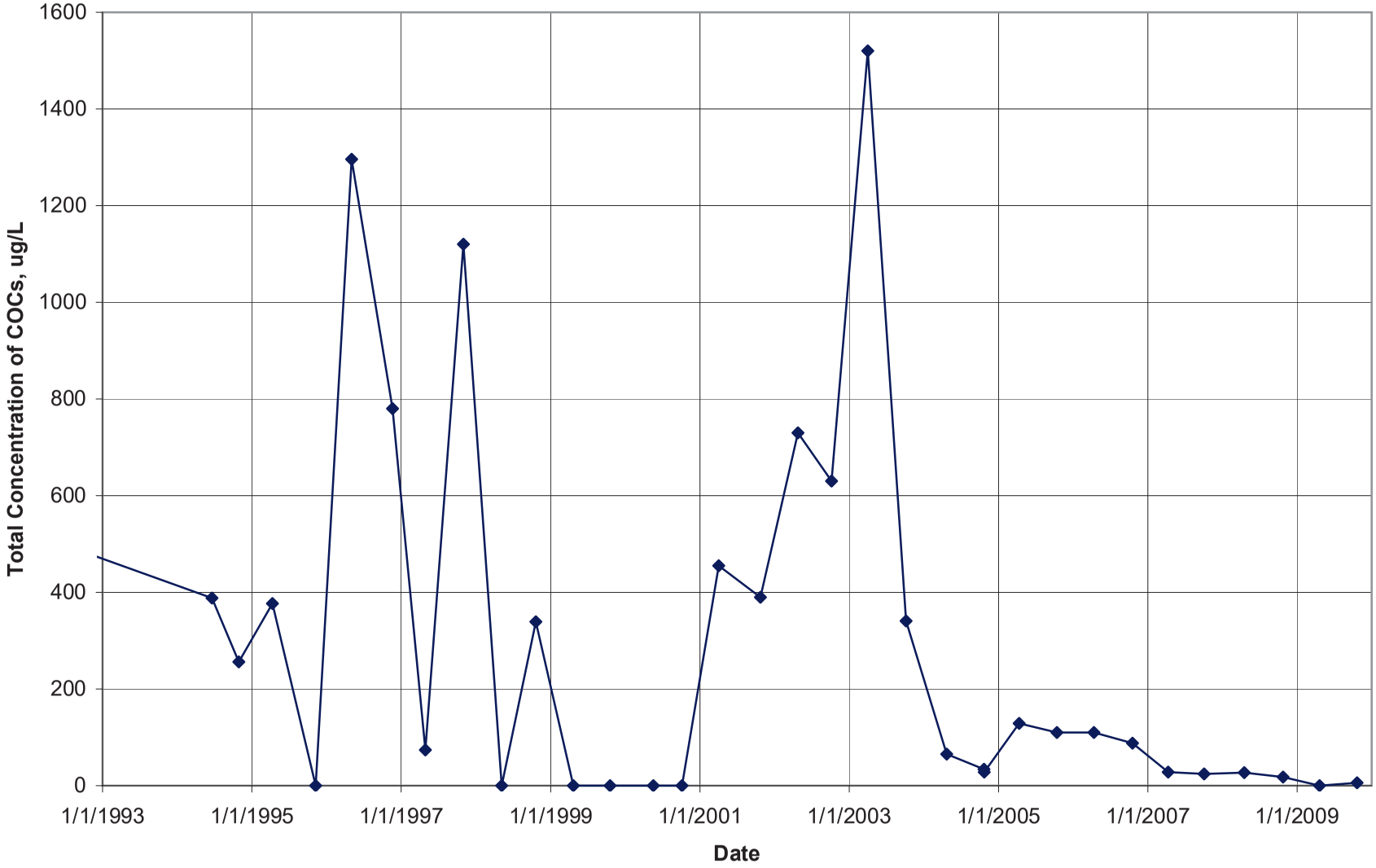
I:\4487\COMPLIANCE PLAN 2008\CP-XI.D\Attachment XI.D.2 Capture\Figures\Fig XI.D.2.5 n XI.D.2.6 n XI.D.2.7.xls\Fig XI.D.2.5 MW-47

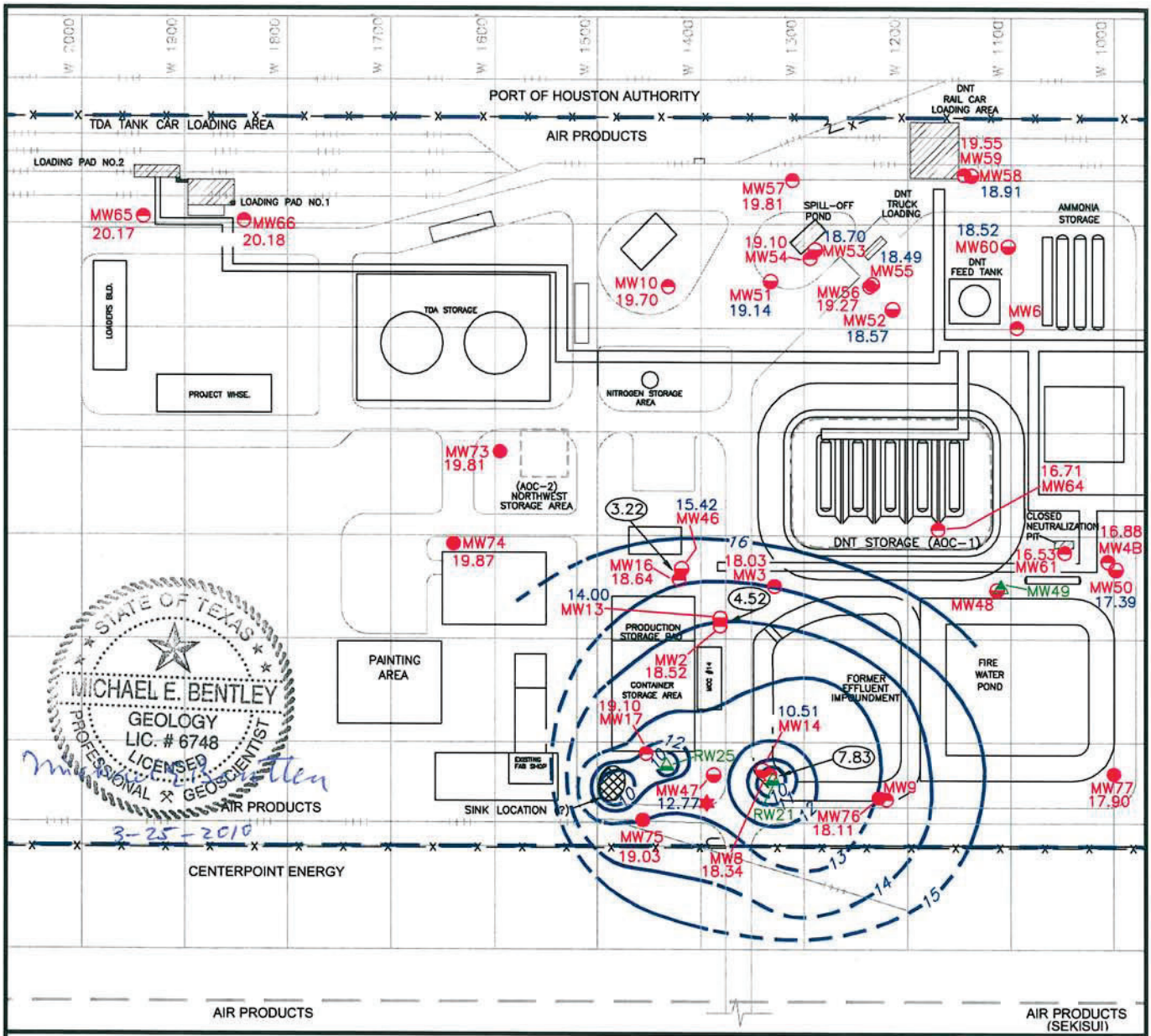
Figure XI.D.2.6 Concentration Trends at Wells RW21 and RW25



I:\4487\COMPLIANCE PLAN 2008\CP-XI.D\Attachment XI.D.2 Capture\Figures\Fig XI.D.2.5 n XI.D.2.6 n XI.D.2.7.xls\Fig XI.D.2.6 RW-21 RW-25

Figure XI.D.2.7 Concentration Trends at Well RW24 (IZ)





STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED PROFESSIONAL GEOSCIENTIST

3-25-2010

Base Map Source: AIR PRODUCTS LLC

NOTE:
RW21 PUMPING FOR 5 DAYS

N

0 50 100 150
APPROXIMATE SCALE (FEET)

EXPLANATION

- MW64 16.71 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW46 15.42 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW75 19.03 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- (3.22) — DIFFERENCE BETWEEN USZ AND LSZ LEVELS AT WELL PAIR (FT)
- MW47 — LSZ WELL SCREENED PARTLY IN USZ ALSO
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- —x—x— FENCE
- PROPERTY BOUNDARY
- 15 — CONTOUR LINE OF LSZ (ONLY) WATER ELEVATION (FT MSL)

WATER LEVELS IN THE LOWER SHALLOW ZONE RW21, MW49, RW25 PUMPING MAY 12, 2009

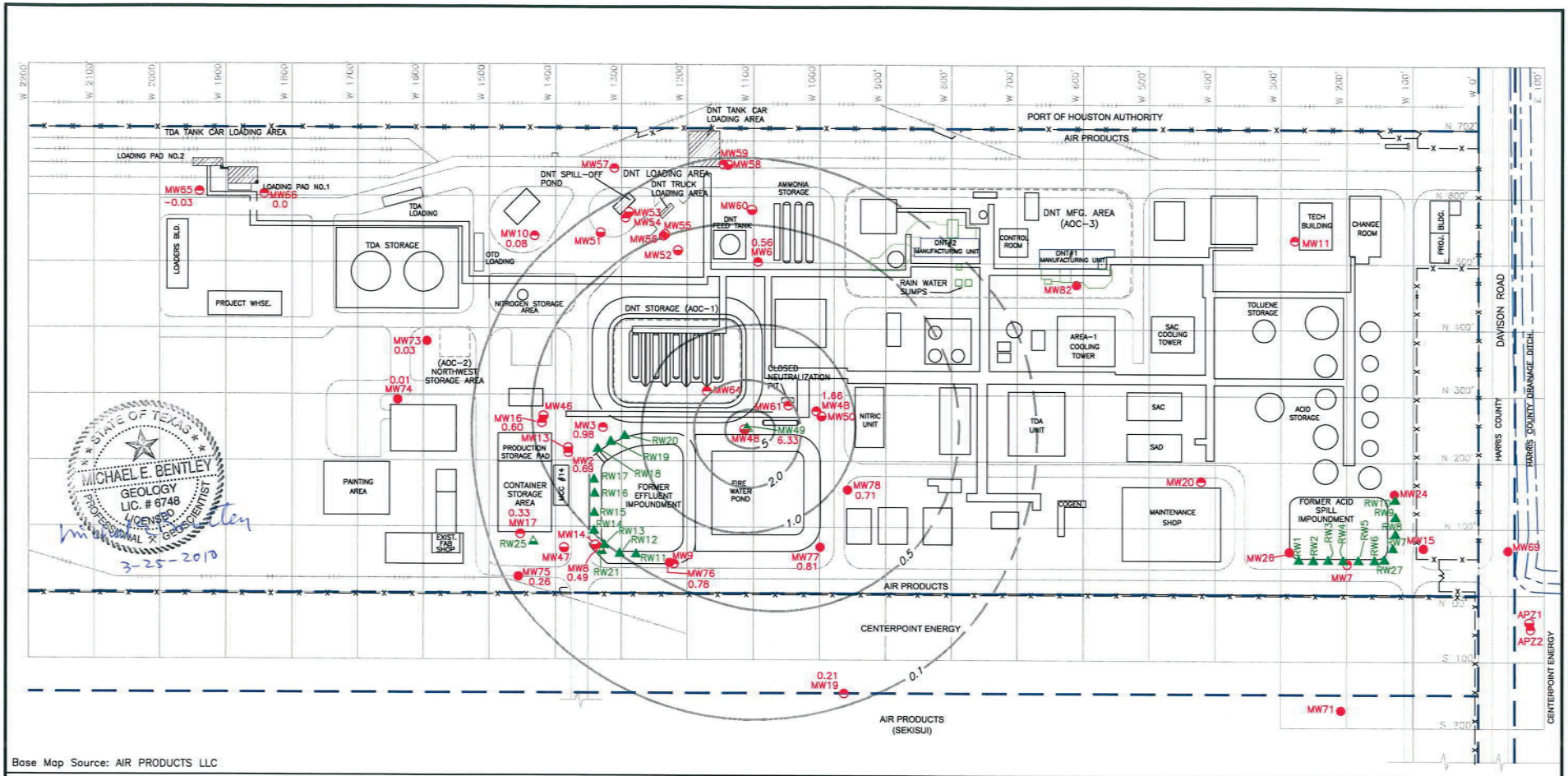
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AMEC Geomatrix

Figure XI.D.2.8



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 0.69 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW75 0.26 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- MW49 6.33 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW27 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER

- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- 0.5 — CONTOUR LINE OF WATER LEVEL DRAWDOWN (USZ AND SZ) (04/30/2009)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- (CONTOUR INTERVAL VARIABLE TO SHOW DETAIL)

0 50 100 150 APPROXIMATE SCALE (FEET)

N

WATER LEVEL DRAWDOWN IN THE SHALLOW ZONE PUMPING TEST - MW49

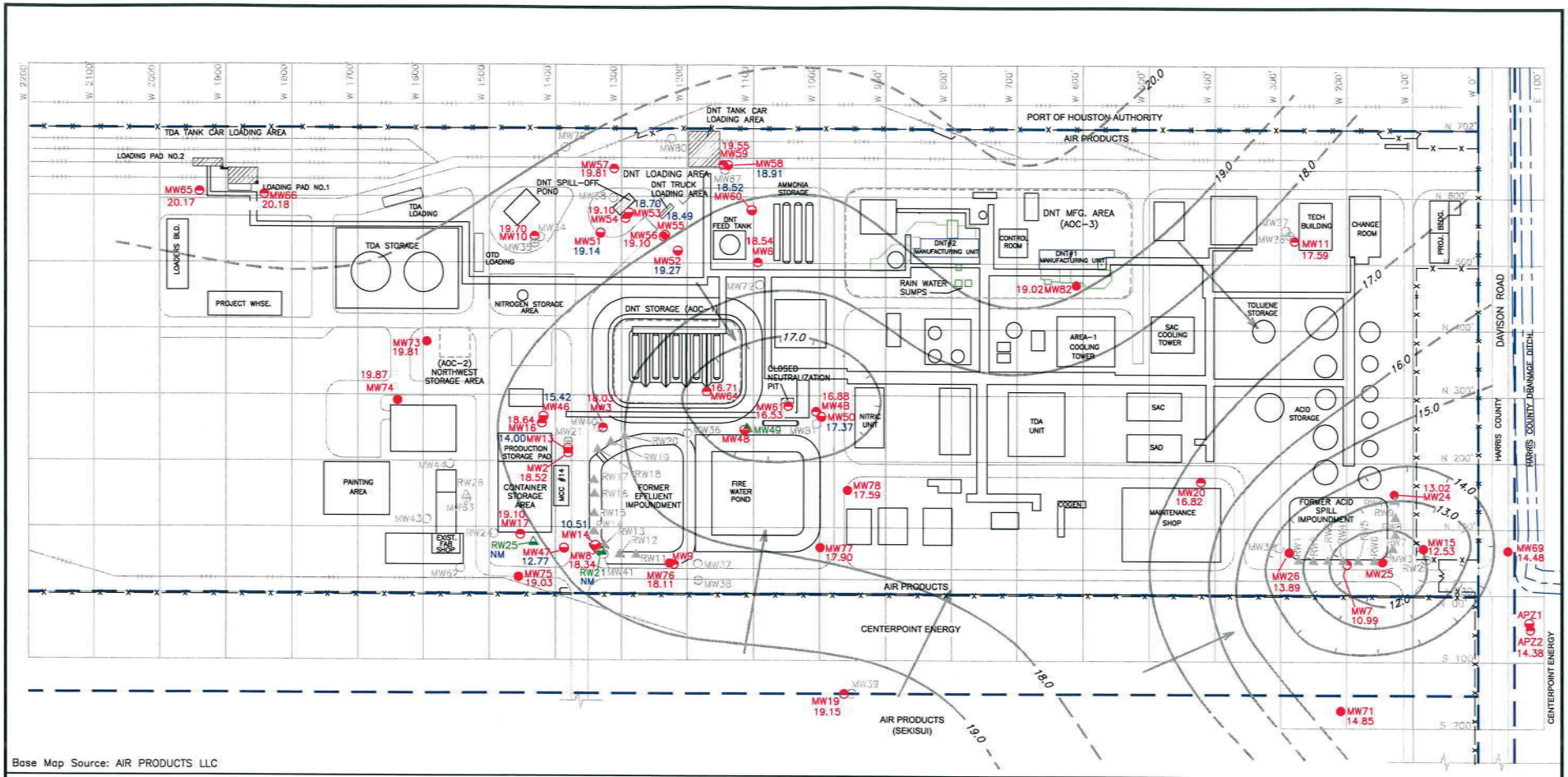
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/10/10	Project No.: 4487	4487B216.dwg

AMEC Geomatrix

Figure XI.D.2.9



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 18.52 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW14 15.42 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW15 12.53 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND WATER LEVEL (FT MSL)
- MW40 — INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 — DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 NM — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 NM — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW20 NM — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 — INACTIVE SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 — INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- NM — NOT MEASURED
- 16.0 — CONTOUR LINE OF WATER ELEVATION (FT MSL) (5/12/2009) (DASHED WHERE INFERRED)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

STATE OF TEXAS — MICHAEL E. BENTLEY — GEOLOGY — LIC. # 6748 — LICENSED PROFESSIONAL GEOSCIENTIST — 3-25-2010

0 50 100 150 — APPROXIMATE SCALE (FEET) — N

NOTES:
CONTOUR INTERVAL VARIABLE TO SHOW DETAIL
RECOVERY WELLS MW48, RW1 THROUGH RW20 NOT PUMPING
MW25 IN CORRECTIVE ACTION PUMPING
MW25(RW27), RW21, RW25, MW49 ARE PUMPING

WATER LEVELS IN THE SHALLOW ZONE PROPOSED CAS WELLS PUMPING

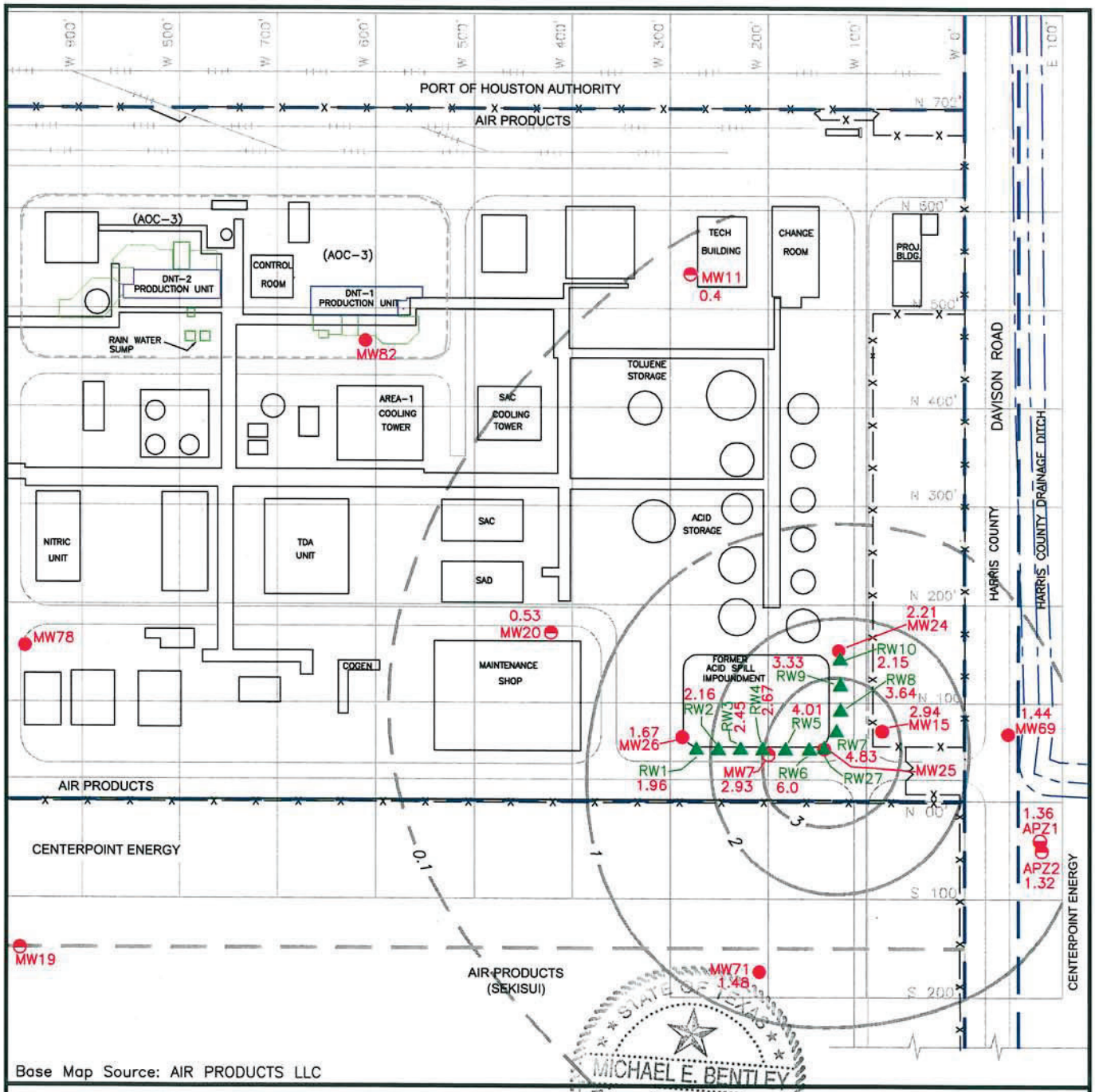
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/13/10	Project No.: 4487	4487B215.dwg

AMEC Geomatrix

Figure XI.D.2.10



Base Map Source: AIR PRODUCTS LLC

STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED
PROFESSIONAL GEOSCIENTIST
3-25-2010

EXPLANATION

- MW20 0.53 — UPPER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- APZ1 1.36 — LOWER SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- MW71 1.48 — SHALLOW ZONE MONITORING WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- RW1 1.96 — SHALLOW ZONE RECOVERY WELL LOCATION, IDENTIFICATION NUMBER AND DRAWDOWN (FT)
- AREA OF CONCERN
- FENCE
- PROPERTY BOUNDARY
- 0.1 — CONTOUR LINE OF WATER LEVEL DRAWDOWN (FT) (10/15/2008)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

(CONTOUR INTERVAL VARIABLE TO SHOW DETAIL)

N

0 50 100 150
APPROXIMATE SCALE (FEET)

WATER LEVEL DRAWDOWN IN THE SHALLOW ZONE PUMPING TEST - MW25 (RW27)

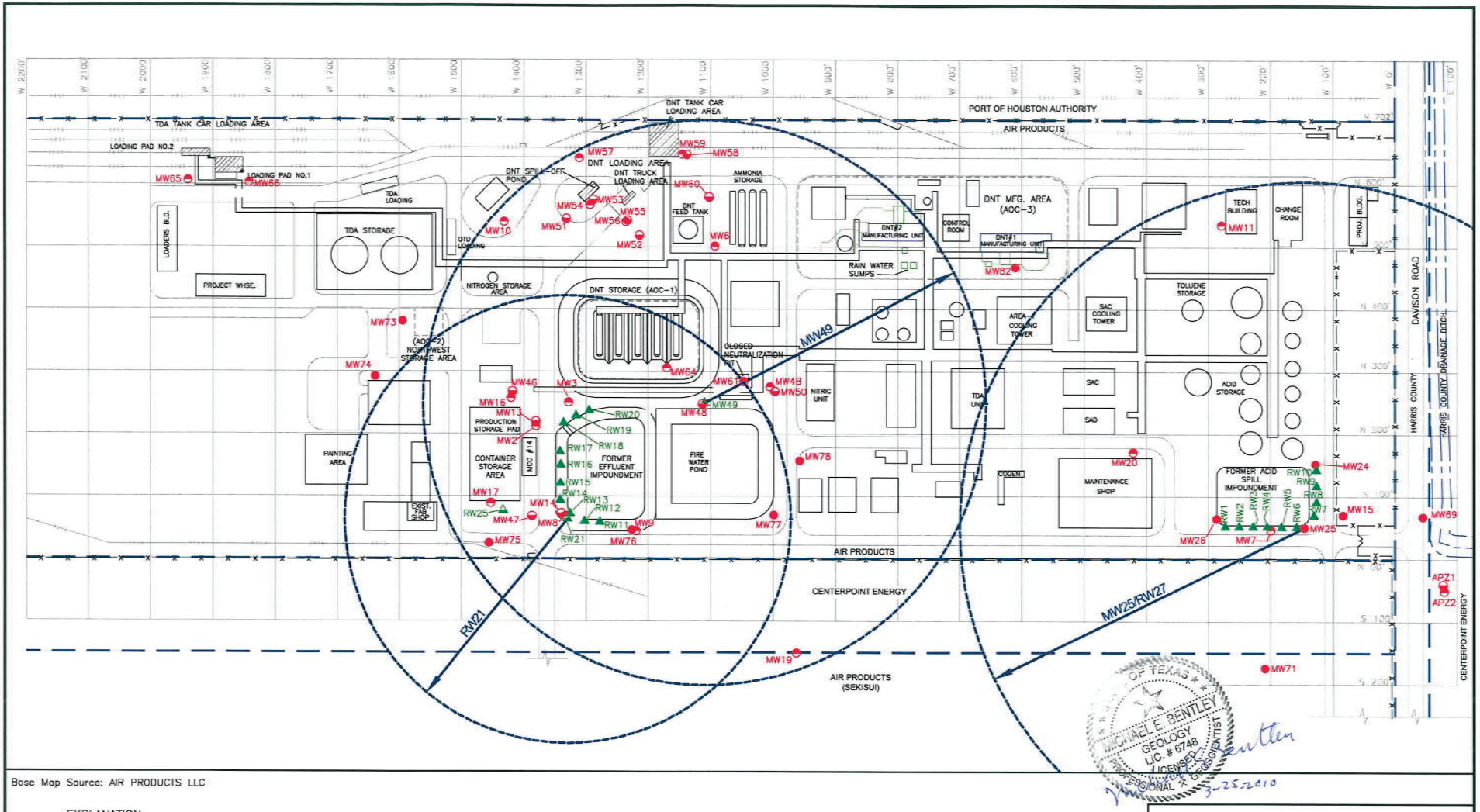
PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/10/10	Project No.: 4487	4487A227.dwg

AMEC Geomatrix

Figure XI.D.2.11



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW2 — UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 — LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 — SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 — UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 — LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW20 — SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY
- RADIUS OF INFLUENCE

0 50 100 150
APPROXIMATE SCALE (FEET)

N

STATE OF TEXAS
MICHAEL E. BENTLEY
GEOLOGY
LIC. # 6748
LICENSED
PROFESSIONAL GEOSCIENTIST
3-25-2010

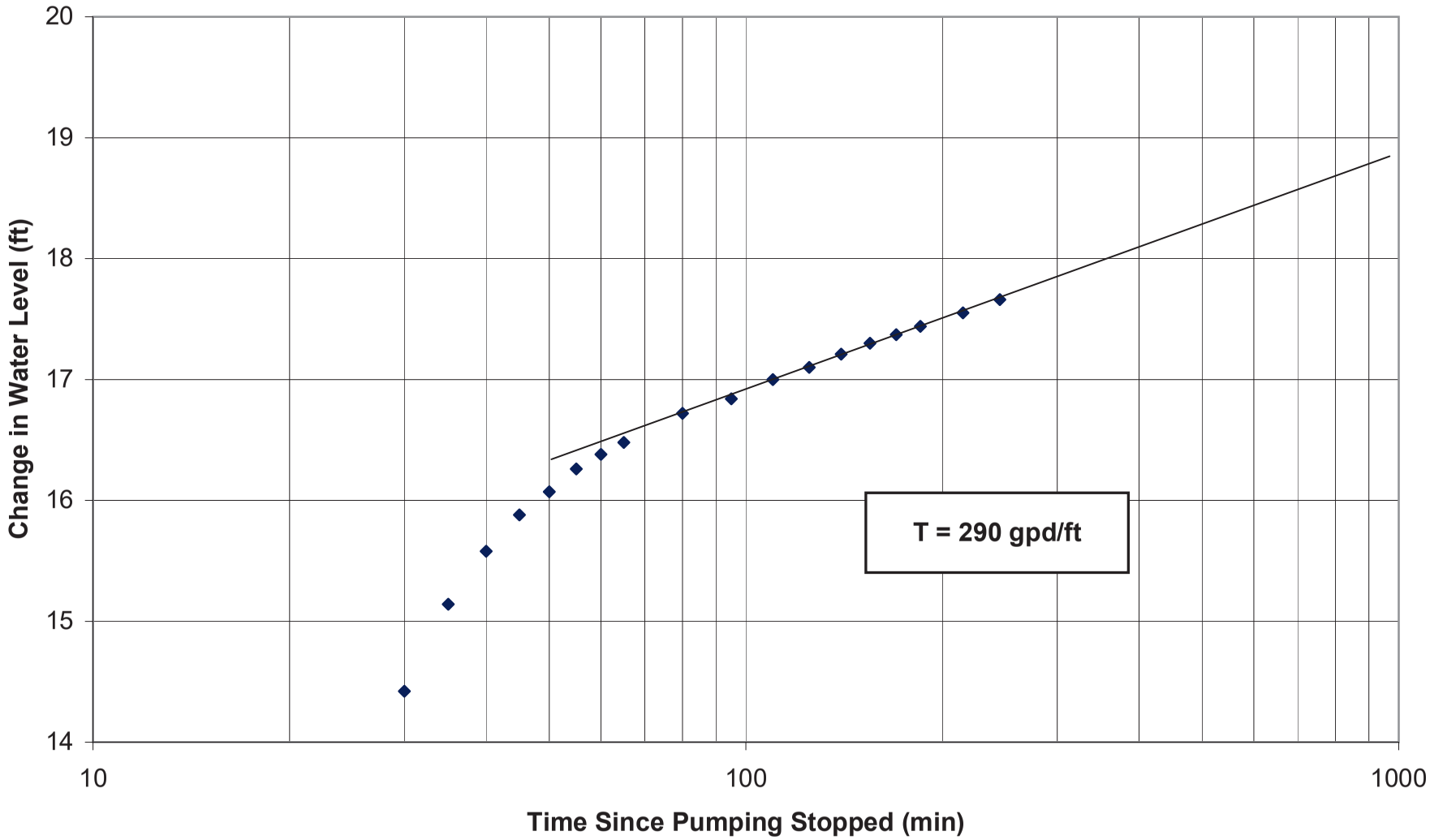
RADIUS OF INFLUENCE
SHALLOW ZONE - CAS WELLS
PREPARED FOR
AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/16/10	Project No.: 4487	4487B219.dwg

AMEC Geomatrix

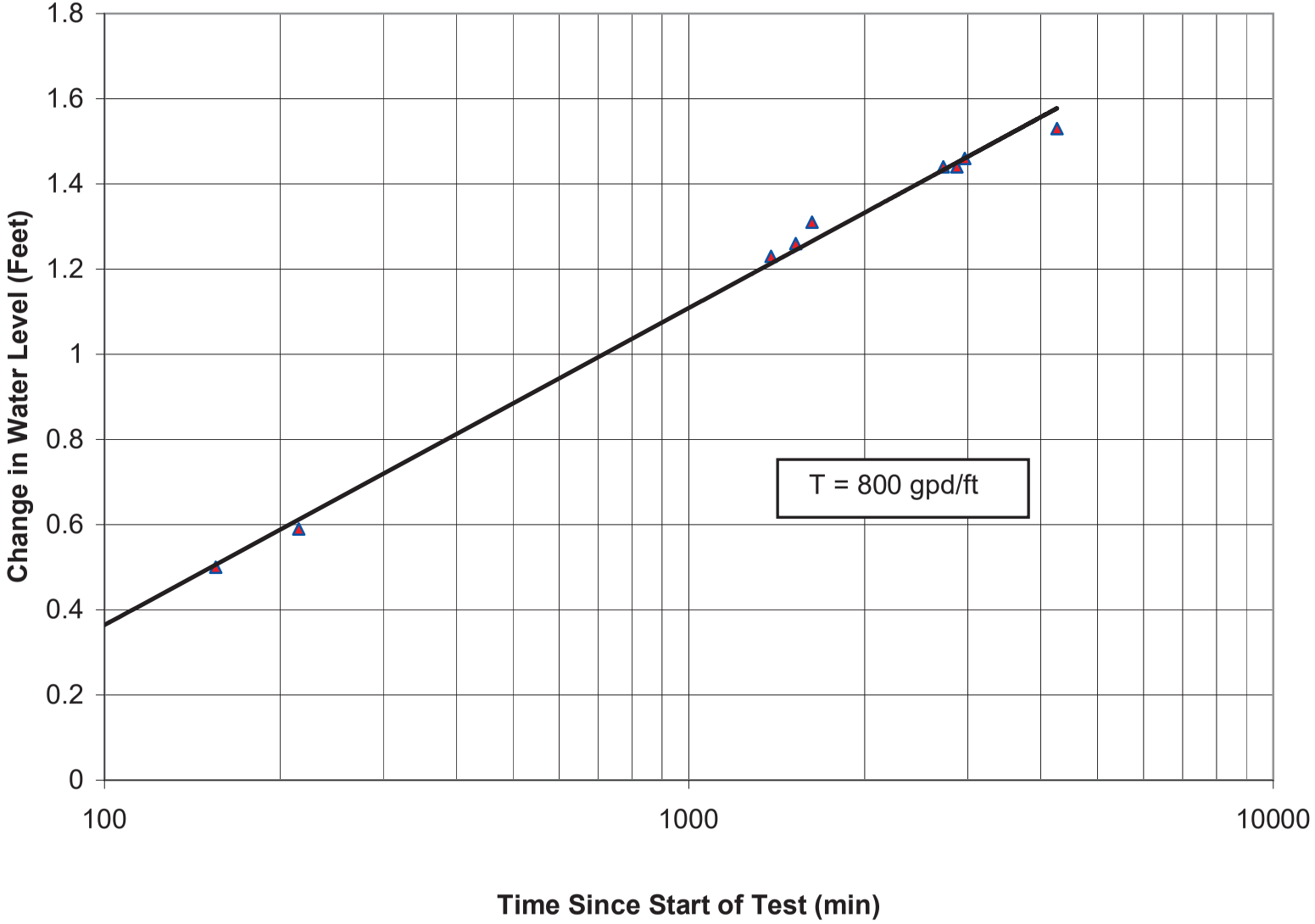
Figure XI.D.2.12

Figure XI.D.2.13
Pumping Test of RW27
Recovery Data from Pumping Well



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Figure XI.D.2.14
Pumping Test of MW49
Observation Well MW4B



ATTACHMENT – XI.D.3.c.(1)

Sampling and Analysis Plan

SAMPLING AND ANALYSIS PLAN
AIR PRODUCTS LLC
PASADENA, TEXAS

Prepared by

Air Products LLC
Pasadena, Texas

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Appendix A Example Field Forms

SAMPLING AND ANALYSIS PLAN
AIR PRODUCTS LLC
PASADENA, TEXAS

1.0 SAMPLING AND ANALYSIS

This Sampling and Analysis Plan (SAP) documents the requirements for monitoring the Point of Compliance Wells, Corrective Action Monitoring Wells, Supplemental Wells, and the Recovery Wells at the Air Products LLC facility at Pasadena, Texas. The required sampling and analysis of groundwater samples will be performed in accordance with this SAP, **Compliance Plan No. CP-50134,** and all plant Health and Safety rules and procedures.

1.1 GROUNDWATER MONITORING FREQUENCY

The frequency for monitoring the Corrective Action and Groundwater Monitoring system wells is specified in **Compliance Plan No. CP-50134**.

1.2 GROUNDWATER MONITORING DOCUMENTATION

Field activities associated with groundwater monitoring will be documented on field forms (example forms are in Appendix A of this Sampling and Analysis Plan). As appropriate, the following will be recorded on these forms:

- Names of personnel conducting the sampling;
- Purpose of the sampling event (e.g., Semi-Annual Groundwater Sampling);
- Weather conditions and approximate air temperature;
- Well or recovery system identification;
- Condition of well;
- Monitoring well measurements, including: total well depth (performed periodically as provided in **Compliance Plan No. CP-50134**), static water level depth, measurement techniques, height of water column, well volume, and notation of the difference between total well depth and as-built well depth;
- Notation of the presence or absence of NAPLs (including thickness);
- Well purging procedures, including equipment, purge volume, and pumping rate;

- Values of field parameters measured during purging;
- Sampling methods, including well sampling sequence, sampling equipment and water withdrawal procedures;
- Appearance of water sample;
- Date and time of sample collection, and
- Sample preservation and handling procedures, including types of bottles, sample identification numbers, preservatives used, and internal temperature of field and shipping containers.

Each sample will be recorded on an Analysis Request/Chain of Custody form (example in Appendix A). Sample collection information to be documented on the individual sample bottle labels includes sample identification, sample collection date and time, sampling personnel, and analytical requirements.

2.0 FIELD PROCEDURES

The following sections detail the procedures which will be used to monitor and sample the wells.

2.1 WELL INSPECTION

Prior to sampling, the physical condition and integrity of each well will be inspected. The well pad, well casing and well caps will be inspected for any signs of deterioration or tampering. The well pad will also be evaluated for the presence of any erosion or settling. Equipment and piping will be inspected for cleanliness, structural integrity, and deterioration. Necessary repairs, maintenance, or cleaning will be noted on the Well Sampling Log and will be performed as soon as possible.

2.2 MONITORING WELL WATER-LEVEL MEASUREMENT

The static water level will be measured in each monitoring or recovery well prior to purging or sampling water in the well. Water levels will be measured in all site wells on the same day. A “Daily Field Activity” Form will be completed for the measurement event. The water level will be measured using either an electric line probe (E-Line) or an equivalent measuring device. The probe must be decontaminated in accordance with Section 3.2 prior to each use, to prevent the addition of external contamination or artifacts into a well. In addition, the E-line should be handled with clean gloves to prevent well contamination. It should not contact the ground or any other potential contamination sources. Following decontamination, the probe will be slowly lowered down the monitoring well until it produces the distinct signal which indicates contact with the water surface. The depth to water will be measured from the surveyed reference point located at the top of the well casing and will be read to the nearest 0.01 foot. The measurement will be reported on “Water Level Measurements” sheet. The measurement will be used on the “Well Sampling Log” to determine purge volume.

In addition to depth to fluid measurements, depth to the bottom of each monitoring well casing may also be measured at the frequency given in **Compliance Plan No. CP-50134**. This measurement will be used to determine whether an appreciable

amount of sediment has settled in the bottom of the well and to determine the volume of water in the well. Well depth will be measured using either the E-Line or equivalent measuring device from the datum located at the top of the well casing. The measured total depth will be recorded on the “Total Depth Measurements” sheet. The measured depth must then be compared to the original depth documented on the monitoring well completion log. If the difference between the depth measurement and the original well depth is greater than 20 percent of the length of the well screen, sediments should be removed from the well in order to ensure representative sampling results. Sediments can be removed by bailing and surging the well. This is accomplished by lowering a bailer to the bottom of the well and gently surging to fluidize and collect the sediment. The most recent depth measurement will be used to calculate the volume of water in the well.

Prior to measuring for total depth in each monitoring well, the well will be checked for the presence of dense immiscible layers ("sinkers"). Immiscible layers will be detected using an interface probe which gives a distinctly different signal when encountering immiscible liquids instead of water. The interface probe is lowered until a dense phase, if present, is encountered. The depth to the dense phase is recorded on the Well Sampling Log. The thickness of a dense phase layer is determined by subtracting the depth to the top of the dense phase layer from the total depth of the well. If an immiscible fluid is detected, it will be sampled as described in Section 2.3.3.

2.3 MONITORING WELL PURGING AND SAMPLING

2.3.1 Purging

All wells will be purged prior to sampling by evacuating water from the well, which allows the collection of groundwater samples that are representative of the aquifer water quality. Actively pumping recovery wells will be considered to be adequately purged and producing representative groundwater, as described in Section 2.4.

At least three well casing volumes of water will be purged from higher yielding monitoring wells. Slow to recover (low yield) wells (i.e., wells that can be bailed or pumped dry) will be bailed or pumped to dryness (no or little additional water is

retrieved with the bailer) then allowed to recover before sampling (within 24 hours after well evacuation began). On the rare occasions when sampling for volatile organic compounds (VOCs) is performed, caution will be taken so as to affect purging with minimal disturbance to the water. In particular, for high yielding wells, purging should be performed at a rate that prevents or minimizes, to the degree practicable, lowering of the water surface to below the top of the screened interval, so as to prevent cascading of water recharging into the well.
Specific steps used to calculate purge volumes are listed below:

1. Determine the water level in the monitoring well and the total depth of the monitoring well. Subtract to determine the height of the water column in the well.

2. Calculate the volume of water in the well casing.

   Well casing volume (gal.) = water column (ft) x (0.16 for 2 in. dia. well)
   or (0.65 for 4 in. dia. well).

Once the casing volume of the monitoring well is calculated, the well will be bailed or pumped until three casing volumes or greater is removed from the well or until the well is bailed or pumped dry if the required volume cannot be produced. The volume of water removed will be measured by discharging the water into a bucket of known volume until the required volume is obtained or by using a totalizing flow meter. The volume of water purged will be recorded on the Well Sampling Log.

2.3.2 Field Determinations

During the purging of three well volumes, two or more measurements of pH, temperature, and specific conductivity will be made of an aliquot of water from the well. Measurements and calibrations of field instruments will be performed as specified in the instrument manufacture's guidelines. Calibrations will be documented on the Daily Field Activity Log. The measurements will be recorded on the Well Sampling Log.

2.3.3 Monitoring Well Sampling With Bailer or Pump

After purging a well, a dedicated bailer or pump will be used to collect the samples. If bailed, the bailer will be lowered down into the well slowly until it gently contacts

the water surface. Then the bailer will be lowered to just below the water surface and allowed to fill with water. By gently lowering the bailer, turbulence in the well will be kept to a minimum. The collected water will be introduced into the proper sample bottles using bottom-fill valve or equivalent, to minimize aeration of the sample. If collected using a submersible pump, the rate of flow of the discharge stream will minimized to reduce agitation of the water, and the stream will be discharged directly into sample bottles, through a wellhead tap or dedicated sample tubing. These procedures will be repeated until the complete set of sample bottles are filled for the chemical analysis required for each well. All equipment that will be reused for sampling at the next well site will be thoroughly decontaminated, prior to reuse, in accordance with Section 3.2.

If an immiscible layer has been detected, then sampling and analysis of this layer must be performed. A sample can be obtained by pouring the collected fluids into a clean glass container and allowing the phases to separate. The organic phase can then be decanted into a clean glass sample bottle (if specific gravity is less than 1) or by decanting the water off the organic phase (if specific gravity is greater than 1) and then pouring the organic phase into a clean glass sample bottle. The organic phase sample is to be handled in accordance with Section 2.5 and analyzed in accordance with EPA SW-846 Method 8270. The Well Sample Log will be used to document the collection of an immiscible layer sample by adding appropriate “Remarks” in the Well Sampling Information section’s record of sample containers employed.

2.4 Recovery Well Sampling

Actively pumping recovery wells will not be purged prior to sampling. Groundwater samples may be collected from individual recovery well sample ports or from sample ports located in the header pipes connecting multiple recovery wells. The collected groundwater will be transferred into the proper sample bottles.

2.5 Collection of Samples for Laboratory Analysis

The specific sample collection procedures for each type of sample are given below.

Volatile Organic Compounds

Groundwater samples requiring analysis for volatile organic compounds will be analyzed in accordance with either EPA SW-846 Method 8260. Sample containers for volatile organics will be filled with unfiltered groundwater. Containers will contain laboratory preservative, HCl, and therefore, will not be rinsed. As described above, when using a bailer, water will be introduced into the sample bottle using bottom-fill valve or equivalent. Also as described above, if the sample is collected using a submersible pump, the rate of flow of the discharge stream will be minimized to reduce agitation of the water, and the stream will be discharged directly into the sample bottles. Bottles will be filled to ensure that there is no air trapped in the bottle. The bottle will be filled until a convex meniscus forms above the lip of the bottle. Once capped, the bottle will be checked for air bubbles by turning the bottle upside down, tapping the cap of the inverted bottle and visually inspecting the bottle for presence of air bubbles. If any bubbles are observed, the bottle will be uncapped, additional sample water will be added, and the bottle will be rechecked using the same procedures. Sample containers will be maintained on ice pending shipment.

Semivolatile Organic and Nitroaromatic Compounds

Groundwater samples requiring analysis for semivolatile organic and nitroaromatic compounds will be analyzed in accordance with EPA SW-846 Method 8270E and SW Method 8091. Sample containers for semivolatile organic and nitroaromatic compounds will be filled with unfiltered groundwater. Sample containers will be maintained on ice pending shipment.

Metals and Cyanide

Groundwater samples requiring analysis for metals and/or cyanide will be analyzed in accordance with EPA SW-846. Sample containers, with preservative already added, will be filled with unfiltered groundwater and will be maintained on ice pending shipment.

Matrix Spikes

During routine semiannual sampling for analysis of facility Indicator Parameters, extra sample containers will be filled for the laboratory's analysis of Matrix Spike/Matrix Spike Duplicates. For every twenty wells sampled, additional analysis-appropriate sample bottles will be filled at one of the wells. The Chain of Custody/Request for Analysis form will be completed to indicate the presence of the extra sample bottles by entering the total number of bottles collected at each location and indicating the purpose of the extra containers by entering "MS/MSD" in the comments column on the line for that sampling point.

2.6 Order of Parameters

Compliance Plan No. CP-50134 provides a list of hazardous constituents which will be monitored as required by the Groundwater Monitoring and Corrective Action Program. Depending on the analysis requirements, volatile organic compounds, semivolatile organic compounds, Aroclor 1242, and/or metals and cyanides are the parameters for which the groundwater samples may be analyzed. Groundwater samples will be collected for analysis in the following order: volatile organic compounds, semivolatile organic and nitroaromatic compounds, Aroclor 1242, cyanide, and metals.

2.7 Sample Containers, Preservatives, and Holding Times

Following collection of a sample for chemical analyses, the sample will be transferred into the appropriate sample containers and maintained on ice pending shipment. Sample containers will be filled as appropriate for each analytical method. Cross-contamination of samples will be avoided by using clean gloves and clean sampling equipment (bailers) to obtain each sample. Sample descriptions, which include visual observations of discoloration, turbidity, or other physical observations, will be documented on the Well Sampling Log.

Holding times, recommended sample containers, and preservatives for the analytical methods are identified in Table 2-1. Section 2.6 summarizes the field quality control samples which are required for sample collection activities.

Samples will be packed on ice and shipped to the laboratory in plastic or metal ice chests via an overnight delivery carrier. Each ice chest will be securely sealed with custody tape, and appropriate packing measures will be taken to prevent sample breakage during shipping.

2.8 FIELD QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

Field quality control samples will be collected as part of the analysis program. A summary of field quality control sample types, applicable analysis parameters, collection frequency, and quality control monitoring is presented below and summarized in Table 2-2.

Trip Blanks

Trip blanks will be prepared by the laboratory using distilled water. The containers will be transported to the Site and returned to the laboratory unopened, at the frequency of one trip blank per sample shipment containing volatile organic (Method 8260) samples. Trip blanks are used only when volatile organics are sampled to quantify potential volatile organics error associated with shipment, containers, and laboratory analysis. Trip blanks are designed to prevent false positive results and are considered to be optional at the discretion of Air Products.

Field Blanks

Field blank samples will be collected at the discretion of the sampling personnel. Typically, field blank samples will only be prepared at the Site if odors are present or if sampling activities are performed downwind of a potential source of the same analyte. If a field blank is to be collected, it will be prepared by pouring laboratory-provided, pre-analyzed, organic-free deionized water into a clean sample container at the sampling area. Field blanks are used to quantify false positive errors associated with the field environment, sample containers, and cross contamination. Depending on the field program, the field blanks may be analyzed for:

- Volatile Organics (SW-846 Method 8260);

- Aroclor 1242 (SW-846 Method 8080);
- Semi-volatile Organics and Nitroaromatics (SW-846 Method 8270E and 8091), and
- Metals and Cyanide (SW-846 Method 6010).

3.0 POST-SAMPLING ACTIVITY

3.1 SAMPLE HANDLING DOCUMENTATION

Analysis Request and Chain-of-Custody Records (Appendix A) will be completed for each sample to document the collection of each sample, associated analytical requests, the individuals performing the sample collection, and sample shipment to the laboratory. The following information will be documented on the Analysis Request/Chain-of-Custody record:

- Sample Identification number;
- Signature of collector;
- Date and time of collection;
- Sample type;
- Identification of sampling point (well);
- Number of Containers;
- Parameters requested for analysis ;
- Preservatives used;
- Signature(s) of all person(s) in the chain of possession;
- Inclusive dates and times 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.

3.2 DECONTAMINATION

Groundwater sampling equipment, including non-dedicated groundwater samplers such as non-dedicated pumps and bailers will be decontaminated prior to each use. Sampling equipment will be decontaminated using the following procedures:

1. Scrub the equipment with brush using a nonphosphate detergent.
2. Rinse the equipment with deionized or distilled water.
3. Air dry.

Decontaminated equipment will be stored on clean polyethylene sheeting between uses. Following decontamination procedures, the sampling equipment will not be allowed to touch the ground. Any decontamination liquids accumulating from equipment decontamination will be collected and disposed in a manner consistent with the requirements in Section 3. 3.

3.3 Disposal of Investigation Derived Waste

Purge water generated from sampling activities will be transferred to the plant wastewater system for treatment in accordance with **Compliance Plan No. CP-50136**.

3.4 Laboratory QA/QC

Laboratory QA/QC procedures will include control samples as defined in Chapter I of SW-846. An appropriate statistical method/procedure will be used to monitor and document performance and to implement an effective program to resolve testing problems.

Data from the control samples, such as spiked samples and blanks, will be used to measure accuracy and precision or to indicate potential for cross-contamination. QA/QC documentation of analytical results will be reported on laboratory data sheets and include: target analyte; unit of measure, method analyses, and times/dates of sample collection and analysis.

Table 2-1

Analytical Methods
Sampling and Analysis Plan
Air Products LLC
Pasadena, Texas

Analytical Methods[1]	Holding Time	Recommended Sample Container	Preservatives
Semivolatile Organics, Method 8270E	7 days to extraction, 40 days to analysis	2-liter amber glass w/Teflon liner*	Ice
Nitroaromatics, Method 8091	7 days to extraction, 40 days to analysis	2 40ml VOA vial	Ice
Metals, Method 6010	6 months	250 ml polyethylene	$HN0_3$, Ice
Volatile Organics, Method 8260	14 days	3x40 ml VOA vial	HCl, Ice
Aroclor 1242, Method 8082	7 days to extraction, 40 days to analysis	2-liter amber glass w/Teflon liner*	Ice
Total Cyanide Method 335.3	14 days to analysis	500 ml polyethylene	NaOH pH>12 Ice

Notes:

[1] U.S. EPA, Test Methods for Evaluating Solid Wastes, Office of Solid Waste and Emergency Response, Washington D.C., SW-846, most recent edition.

VOA = Volatile Organic Analysis.
*Requires 3 liters to perform MS/MSD
HCl = hydrochloric acid
HNO_3 = nitric acid
NaOH = sodium hydroxide
SIM = Selective Ion Monitor

Table 2-2

Field QA/QC Samples
Sampling and Analysis Plan
Air Products LLC
Pasadena, Texas

Sample	Frequency	Notes
Trip Blanks	1/Shipment containing samples for volatile organics	Provided by Lab
Field Blanks	If judged to be necessary	Distilled/Deionized Water Provided by Lab
Matrix Spikes/ Matrix Spike Duplicates	Frequency determined by method required batch QC (a)	Extra Volume Required Varies by Method. Non-project specific MS/MSD may be used to provide precision data.

Notes:
(a) The EPA defines a batch of samples as a group of samples that are collected, shipped, and analyzed under similar conditions.

ATTACHMENT – XI.D.3.c.(2)

WELL CERTIFICATION REPORT

Certification Report

Installation of Wells MW79, MW80, MW82, MW83, MW84, MW85, MW86, MW87, MW88, MW89, MW91, MW93, MW94, MW95, MW96, MW97, MW98, RW27, and RW28

Plugging of Wells MW29, MW33, MW45, MW83, and RW22

Air Products LLC
Pasadena, Texas

Prepared for:

Air Products LLC

1423 Highway 225

Pasadena, Texas

January 2010

Project 4487

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1.0 INTRODUCTION

This report documents the installation of 19 groundwater monitoring and recovery wells and the plugging of five monitoring/recovery wells at the Air Products LLC (APLLC) Pasadena, Texas plant. Monitoring wells are denoted by the letters "MW" preceding the well identification number, as in monitoring well "MW79". Similarly, recovery wells are identified by the letters "RW", as in recovery well RW27. Monitoring well MW80 was installed in August 2004, monitoring wells MW82 and MW83 were installed in October 2005, and monitoring well MW79 was installed in December 2005. Wells MW84, MW85, MW86, MW87, MW88, MW89, MW91, MW93, MW94, MW95, MW96, MW97, MW98, RW27, and RW28 were installed during the field effort conducted from November 2, 2009 through December 21, 2009. Wells MW29, MW33, MW45, MW83, and RW22 were plugged in July, 2008 due to construction activities at the plant.

This certification report for new monitoring wells has been prepared pursuant to Provision III.E.3 and in accordance with the requirements of Attachment B of APLLC's Compliance Plan (CP) No. CP-50134. A variance from Attachment B specification No. 6 to allow a 20-foot screen length in shallow zone wells was granted to APLLC by the TCEQ.

Well construction details are summarized in Table 1, and well development information is summarized in Table 2. The boring logs, well completion diagrams, and the State of Texas Well Reports are included as Appendix A. The State of Texas Plugging Reports are included as Appendix B. The well certification is included in Appendix C. The following sections describe the installation and construction of the wells.

2.0 WELL INSTALLATION

The installation and construction of the new monitoring and recovery wells is described below. All well installation procedures were conducted under the supervision of AMEC Geomatrix geologists and technicians.

2.1 WELL LOCATIONS

The locations of the new monitoring and recovery wells are shown on Figure 1. Location of the individual wells with respect to facility landmarks are as follows:

- MW80 is located adjacent to the DNT Rail Car Loading Area.
- MW82 is located on the south side of DNT Unit No. 1.
- MW83 and MW84 are located on the south side of DNT Unit No. 2.
- MW85 is located near the southwest corner of the Project Building.
- MW91 and RW27 are located near the southeast corner of the ASI.
- MW93 is located in the road south of the Maintenance Shop.
- MW94 is located in the road approximately 300 feet west of MW93.
- MW95 is located near the northeast corner of the Maintenance Shop.
- MW96 and RW28 are located near the northwest corner of the ASI.
- MW97 is located south of the TDA storage area on the west side of the facility.
- MW98 is located to the northwest of DNT Unit No. 2
- Monitoring wells MW86, MW87, and MW89 are located on Harris County property along Davison Road.
- MW88 is located on a portion of APLLC property leased to Sekisui Chemical. It is located to the south of an intervening strip of land owned by CenterPoint Energy, approximately 250 feet southeast of the ASI.
- MW79 is located on the Shell Pipeline Colex Terminal property, located east of Air Products.

The plant coordinates of each the monitoring and recovery well are provided in Table 1.

2.2 DRILLING AND INSTALLATION

The well installations consisted of:

- 14 single-cased wells (MW79, MW82, MW83, MW84, MW85, MW86, MW87, MW88, MW89, MW91, MW93, MW94, MW97, and RW27) installed and screened in the Shallow Zone (SZ);
- Four double-cased wells (MW80, MW95, MW98, and RW28) installed and screened in the Intermediate Zone (IZ); and
- One double-cased well (MW96) installed and screened in the Deep Zone (DZ).

An AMEC Geomatrix geologist described the lithology based on soil cuttings during hollow-stem auger and mud-rotary drilling. Descriptions of the procedures used for the well installations are provided in the following sections. Well construction details are shown on the Construction diagrams of Appendix A and are summarized in Table 1.

2.2.1 Single Cased Wells (MW79, MW82, MW83, MW84, MW85, MW86, MW87, MW88, MW89, MW91, MW93, MW94, MW97, and RW27)

The Shallow Zone wells were installed using the hollow-stem auger drilling technique. Monitoring well MW79 was drilled to a total depth of 40 feet below ground surface (bgs) using nominal 8-inch diameter augers, and continuously sampled with split-barrel samplers 5-feet in length. After the boring was advanced to final depth, the well screen and casing were installed. The well was constructed of nominal 2-inch diameter Schedule 40 polyvinyl chloride (PVC), flush joint threaded well casing, with 10 feet of 0.010-inch slotted Schedule 40 PVC screen located within the Lower Shallow Zone (LSZ).

For the installation of monitoring wells MW82 and MW83, a pilot hole was drilled to a total depth of 42 feet bgs using nominal 8-inch diameter augers, and continuously sampled with split-barrel samplers 5-feet in length. The boring was then reamed to final diameter using nominal 10-inch diameter augers. After the boring was advanced to final depth, the well screen and casing were installed.

Each well consists of a 4-inch inside diameter (I.D.) 304L stainless steel, 20-foot long wire-wrapped screen with 0.010-inch slots connected to flush-threaded 304L stainless steel schedule 10 "mid body" casing of the same diameter. The bottom of the screen has a factory-welded 4-inch I.D. 304L stainless steel cap.

Monitoring well MW25 was converted to a recovery well (RW27) by over-drilling the well. For the installation of recovery well RW27, the 4-inch diameter PVC monitoring well MW25 was over-drilled to a total depth of 42 feet bgs using nominal 12-inch diameter continuous flight hollow-stem augers. After the boring was advanced to final depth, the well screen and casing were installed. The well was constructed of nominal 6-inch diameter Sch. 10 stainless steel flush joint threaded well casing, with a 20-foot long wire-wrapped stainless steel screen with a 0.010-inch slot size.

For the remaining single cased wells (MW84, MW85, MW86, MW87, MW88, MW89, MW91, MW93, MW94, and MW97), a borehole was advanced total depth of 38 feet bgs using nominal 8-inch diameter continuous flight augers. The 38 to 42-foot interval was then sampled with a split-spoon sampler 2-inches in diameter and 2-feet in length. After confirming the presence of the lower confining clay using the split-spoon samples, each well was drilled to a final depth of 42 feet with the continuous flight augers, and the well screen and casing were installed. The well was constructed of nominal 4-inch diameter Sch. 10 stainless steel flush joint threaded well casing, with a 20-foot long wire-wrapped stainless steel screen with a 0.010-inch slot size.

Prior to installation, the length of the well string components were measured and recorded to within 0.1 foot. After placement of the well components, the annular space around the screen was filled by surface pouring 20/40 fine-grained silica sand into the annulus between the well and the auger stem to a minimum of one foot and a maximum of three feet above the top of the screen. As the sand was poured, the auger string was gradually withdrawn from the borehole. The sand was poured slowly and sounded using a weighted tape measure to ensure that the top of the sand was maintained within the augers at all times, and that the proper final sand level was achieved.

Uncoated bentonite pellets were then placed on top of the sand pack to form an annular seal approximately 2 feet thick. The bentonite was allowed to hydrate for approximately 1 hour prior to emplacing a grout slurry above it. The slurry consisted of approximately 7 gallons of potable water mixed with 5 pounds of sodium bentonite powder per 94-pound sack of Portland Type I

cement. The slurry was mixed to a smooth consistency using the centrifugal pump on the drilling rig, and pumped into the annulus through a tremmie pipe with side discharge to approximately one foot bgs. The volumes of bentonite pellets, sand, powdered bentonite, cement, and water were recorded by the AMEC Geomatrix geologist.

After placement of the cement slurry, the upper portion of the well riser was centered within the borehole and the well was secured for temporary protection while the grout cured. The surface completions were constructed as specified in Section 2.3. Well completion diagrams for the Shallow Zone wells are included in Appendix A.

2.2.2 Double-Cased Wells (MW80, MW95, MW96, MW98, and RW28)

These wells were installed using hollow-stem auger and mud-rotary drilling methods, and involved two separate phases. In the first phase, the upper portion of the well was drilled, and the surface casing was installed and allowed to cure in place for at least 24 hours. During the second phase, the lower portion of the well was drilled to the total depth and the well casing and screen were installed. The installation procedures for each phase are described below. The drilling fluid consisted of commercially-treated river water prepared by a neighboring manufacturing facility. This water is used as process water within the APLLC Pasadena Plant.

Surface Casing Installation

For the first phase of the installation of wells MW80 and MW96, nominal 12-inch diameter boreholes were advanced to depths of 45 feet and 75 feet respectively by the mud-rotary drilling method using a drag bit. Drill cuttings were logged by an AMEC Geomatrix geologist. The drilling fluids and cuttings were contained in a portable mud pit. The mud pit was periodically emptied of drill cuttings by hand shoveling the cuttings into a portable hopper, which was transported by a fork lift a roll-off box for storage pending disposal. Also, as the drilling mud became too viscous, some of the mud in the pit was pumped into the hopper and replaced by fresh potable water.

For first phase of the installation of wells MW95, MW98, and RW28, nominal 12-inch diameter boreholes were advanced to a depth of 42 feet by the hollow-stem auger drilling method. Drill cuttings were shoveled into a portable hopper, which was transported by a fork lift to a roll-off box for storage pending disposal.

Upon reaching total depth enough cement to fill approximately one half of the borehole volume was mixed, and pumped into the borehole through a tremmie pipe with a side discharge. The grout consisted of approximately 7 gallons of water and 5 pounds of bentonite powder per 94-pound sack of Portland Type I cement.

The surface casings were constructed of nominal eight-inch diameter flush-threaded Schedule 40 PVC that was sealed at the bottom with a float shoe. The float shoe was constructed by filling one-half of an 8-inch diameter Schedule 40 PVC coupling with plaster. The float shoe was used to prevent potentially contaminated groundwater from entering the inside of the casing during installation. Individual ten-foot sections were threaded together as the casing was installed. The surface casing was lowered into the borehole by filling it with potable water while pushing down with the drill rig kelly block to counter the buoyancy of the casing. As the casing was lowered, the cement grout in the bottom portion of the borehole was displaced and forced up the annular space to the surface. Once lowered to total depth, the surface casing was reciprocated up and down several times to promote good cement coverage and the remaining annular space between the casing and the borehole was tremmie grouted to approximately one foot bgs. The grout was allowed to cure for 24 hours before initiating the second phase of drilling.

Well Casing Installation

Before setting up to drill out the surface casing float shoe and install the inner well casing, the drill rig and all drilling equipment were taken to APLLC's decontamination pad and steam cleaned. In addition, fresh potable water was cycled through the rig pumps and hoses until the water appeared clear.

After decontamination efforts were completed, the surface casing float shoe was drilled through using mud rotary and a nominal 7-7/8 inch diameter drag bit. After drilling through the shoe, the borehole was drilled with this bit to a total depth of approximately 60 feet for the Intermediate Zone wells (MW80, MW95, and MW98), and to 95 feet for the Deep Zone well (MW96). Upon reaching total depth, the drilling mud in the hole was thinned by adding fresh potable water in preparation of placing the well casing and screen.

Each well was constructed using nominal four-inch diameter stainless steel flush-threaded well casing, with ten feet of 0.010-inch slotted wire-wrapped screen and welded stainless steel end cap. After placing the well casing/screen to the bottom of the borehole, annular materials were placed. A 20/40 grade silica sand was surface poured to fill the annular space between the well

screen and borehole to approximately 2 feet above the top of the slotted interval. The sand was poured slowly and was sounded using a weighted tape measure. Uncoated bentonite pellets (1/2-inch diameter) were used to form an annular seal approximately three feet thick above the sand pack. After allowing approximately 1 hour for the pellets to hydrate, a cement/bentonite grout (composition as described previously) was placed in the borehole annulus from the top of the bentonite seal to a depth of approximately two feet below grade. The grout mixture was placed by pumping through a tremie pipe with a side discharge set about two feet above the top of the bentonite seal. The completion diagrams for the double-cased Intermediate Zone and Deep Zone wells are included in Appendix A.

2.3 SURFACE COMPLETION AND WELL DEVELOPMENT

Each well was provided with either a flush-mounted or above ground protective surface completion, and developed to removed fines and drilling fluids from the screen and sand pack. The surface completion and well development is discussed in the following section.

Surface Completion

Monitoring well MW79 was completed with a 4-inch diameter, square locking protective steel casing with a locking cap. The protective casing has a thickness of 3/16 inch and extends approximately 3 feet above grade. A ¼ inch diameter drain hole was drilled in the protective casing just above the final level of the concrete pad. A concrete pad 4-foot square with a minimum thickness of 0.5 ft. was poured with a slight slope to direct runoff away from the well head. Four 6-inch diameter concrete/steel barrier posts were placed around the well pad, set in concrete to a depth of 2 feet.

Monitoring wells MW96, MW97, MW98, and RW28 were completed with 6-inch diameter, round protective anodized aluminum casings with locking caps. The protective casings have a thickness of 3/16 inch and extend approximately 3 feet above grade. A 2 foot square concrete pad with a minimum thickness of 0.5 ft. was poured with a slight slope to direct runoff away from the well head. Concrete/steel barrier posts were set around the well pad. Each post was approximately 5 feet in length, 4-inches in diameter, and set in concrete to a depth of 2 feet.

Recovery well RW27 was completed with an 8-inch diameter, round protective anodized aluminum casing with a locking cap. The protective casing has a thickness of 3/16 inch and extends approximately 3 feet above grade. A 2 foot square concrete pad with a minimum thickness of 0.5 ft. was poured with a slight slope to direct runoff away from the well head. Two concrete/steel barrier posts were set between the well pad and the adjacent roadway. Each post was approximately 8 feet in length, 4-inches in diameter, and set in concrete to a depth of 4 feet.

The remaining monitoring wells (MW80, MW82, MW83, MW85, MW86, MW87, MW88, MW89, MW91, MW93, MW94, and MW95) were completed with flush-mount well vaults using watertight 12-inch diameter, heavy-duty cast iron, bolt-down, round manhole covers with a 12-inch deep steel vault. The steel vaults are round and are equipped with water-tight rubber gaskets to prevent infiltration of water into the vault. The pad and vault foundation was constructed using 3,000 psi concrete.

Well Development

Monitoring well development and completion activities were observed and supervised by either an AMEC Geomatrix geologist or an environmental field technician. A record of all well development information including method of development, gallons of water removed, water description, field parameters, and length of time of development was maintained is summarized in Table 2.

Wells MW79, MW85, MW86, MW87, MW88, and MW89 were developed using a small, electric submersible pump. The pump was periodically raised and lowered across the screen interval to create a surging action and facilitate removal of fine sediments from the screen and sand pack.

All other wells were developed using air lifting techniques, which employs compressed air to surge and lift water from the wells. The air-lift system consisted of a single hose arrangement in which air was injected into the water column to lift it to the surface. Periodically, the air was shut off and the water column was allowed to fall back to create a surging action and facilitate removal of fine sediments.

The wells were developed until pH, conductivity, and water temperatures in the discharged water stabilized and the water was visually determined to be relatively free of sediment. Approximately 10 well bore volumes (calculated to include the filter pack) were removed from each of the wells.

As mentioned above, well construction details and well development information are summarized in Tables 1 and 2. State of Texas Water Well Reports, AMEC Geomatrix boring logs, and Well Completion Diagrams are enclosed as Appendix A of this section. The well certification is included in Appendix B of this section.

3.0 WELL PLUGGING

Wells MW29, MW33, MW45, MW83, and RW22 were plugged by a drilling Contractor. After removing the pump and other downhole equipment installed in the wells, the Contractor made a cement/bentonite mix. The slurry consisted of approximately 7 gallons of water mixed with 5 pounds of sodium bentonite powder per 94-pound bag of Portland Type I cement. Using a tremie pipe set at the bottom of the well screen, the inner stainless steel casing was filled to current grade level. The existing water inside the casing was displaced and the water was captured and not allowed to spill onto the ground. The captured water was transferred to the APLLC-supplied hopper or bin for disposal into the plant's wastewater treatment system.

At a later time, APLLC excavated around the wells to a depth of approximately six feet. Air Products removed the original, outer cement/bentonite grout, and then cut through the PVC surface casing at the desired level. A section of PVC casing and the inner cement/bentonite grout between the PVC and stainless steel casings were then removed by APLLC to allow access to the inner stainless steel casing. The stainless steel casing was cut off by APLLC at the bottom of the excavation. At this point the inner cement/bentonite fill plug placed by the Contractor was the only structure still intact in the grout/PVC/grout/stainless steel casing structure rising above the bottom of the excavation. APLLC broke off this cement at the level the casing was cut, and the upper structure was removed, leaving a full cement/bentonite plug in the remaining below-ground abandoned stainless steel casing. The State of Texas Plugging reports are included as Appendix B.

Tables

TABLE 1
WELL CONSTRUCTION DETAILS
CERTIFICATION REPORT
MONITORING WELL INSTALLATIONS
Air Products LLC
Pasadena, Texas

Well Number	Screened Zone	Well Size (inches)	Well Completion Date	Ground Surface Elevation* (ft.)	Top of Casing Elevation* (ft.)	Monitoring Well Location (Plant Coordinates)		Well Depth (ft. bgl)	Top of Sand Pack (ft. bgl)	Top of Bentonite (ft. bgl)	Screened Interval (ft. bgl)	
						Northing	Easting				Top	Bottom
MW79	Lower Shallow	2	12/12/2005	Not Surveyed	26.34	295.52	61.79	40	29	26.5	30	40
MW80	Intermediate	4	8/27/2004	Not Surveyed	23.64	687.23	-1225.56	57	45	42	47	57
MW82	Shallow	4	10/18/2005	Not Surveyed	23.92	-610.20	467.41	42.5	19.5	17.4	22.5	42.5
MW83	Shallow	4	10/19/2005	Not Surveyed	24.33	-793.60	489.63	42.5	20	18	22.5	42.5
MW84	Shallow	4	12/8/2009	23.92	23.34	450.0839	-780.6302	43	20.1	18	23	43
MW85	Shallow	4	11/16/2009	23.68	23.27	382.7407	-85.1531	42	20	18	22	42
MW86	Shallow	4	11/10/2009	23.75	23.15	234.4531	16.1390	42	19.1	17	22	42
MW87	Shallow	4	11/11/2009	23.76	23.54	-95.4147	45.22630	42	19.1	17	22	42
MW88	Shallow	4	11/12/2009	25.37	24.99	-219.4864	-54.6136	42	19.3	17.3	22	42
MW89	Shallow	4	11/11/2009	23.52	22.89	66.3381	13.39580	42	19.6	17.5	22	42
MW91	Shallow	4	11/12/2009	23.99	23.42	30.4704	-127.3703	42	19.7	17.1	22	42
MW93	Shallow	4	11/16/2009	23.99	23.46	29.7987	-465.4896	42	19.4	17.5	22	42
MW94	Shallow	4	11/13/2009	24.03	23.68	28.7931	-715.9210	42	19.3	17.1	22	42
MW95	Intermediate	4	12/2/2009	23.52	22.85	149.6308	-368.8302	60	48	43	50	60
MW96	Deep	4	12/9/2009	23.68	26.31	126.2784	-306.4170	95	77	74.5	80	95
MW97	Shallow	4	11/17/2009	24.23	26.63	370.3015	-1723.6863	42	19.7	17.1	22	42
MW98	Intermediate	4	12/1/2009	24.09	26.38	601.8522	-953.5020	60	48	43	50	60
RW27	Shallow	6	12/21/2009	24.14	25.88(no seal)	52.5718	-143.0632	42	19.3	17	22	42
RW28	Intermediate	4	12/1/2009	22.82	25.54	146.6814	-303.7253	60	48	43	50	60

* Survey by Land Surveying, Inc. Surveyed point is top of well seal. RW27 survey point is top of steel casing.
bgl : below ground level

TABLE 2
WELL DEVELOPMENT INFORMATION
CERTIFICATION REPORT
MONITORING WELL INSTALLATIONS
Air Products LLC
Pasadena, Texas

Well Number	Date	Time	Cumulative Volume Evacuated (gallons)	Development Method	Temperature (^{o}C)	pH	Conductivity µS/cm (µmhos/cm)	Water Description
MW-79	12/12/2005	1345	15	Electric	22.8	7.10	10.79	cloudy
	12/12/2005	1352	25.5	Submersible	22.1	7.32	2.68	cloudy
	12/12/2005	1355	30		22.1	7.35	1679	cloudy
	12/12/2005	1400	37.5		22.0	7.37	1310	cloudy
	12/12/2005	1407	48		22.0	7.37	1385	slightly cloudy
	12/12/2005	1410	52.5		22.0	7.38	1401	slightly cloudy
MW-80	8/30/2004	1024	30	Air Lift	26.5	10.70	522	cloudy
	8/30/2004	1028	60		25.6	10.96	938	cloudy
	8/30/2004	1036	90		27.0	9.87	1155	slightly cloudy
	8/30/2004	1045	105		27.5	9.13	1309	clear
	8/30/2004	1052	115		28.0	8.68	1440	clear
	8/30/2004	1055	120		28.3	8.63	1509	clear
	8/30/2004	1058	125		28.4	8.44	1637	clear
	8/30/2004	1101	130		28.0	8.41	1742	clear
	8/30/2004	1104	135		28.1	8.34	1767	clear
	8/30/2004	1107	140		28.0	8.24	1775	clear
	8/30/2004	1110	145		28.0	8.20	1789	clear
	8/30/2004	1113	150		28.0	8.22	1791	clear
	10/8/2004	1316	4	Electric	24.4	7.48	1959	clear
	10/8/2004	1332	68	Submersible	23.9	7.46	2206	clear
	10/8/2004	1352	148		23.8	7.21	2312	clear
	10/8/2004	1438	292		23.6	7.09	2360	clear
MW82	10/20/2005	1013	0	Air Lift	nr	nr	nr	tan - silty
	10/20/2005	1240	150		nr	nr	nr	clear
	10/20/2005	1325	250		nr	nr	nr	clear
MW83	10/21/2005	1402	nr	Air Lift	nr	nr	nr	yellowish
	10/21/2005	1430	nr		nr	nr	nr	nr
	10/24/2005	1230	nr	Electric	nr	nr	nr	nr
	10/24/2005	1315	250 +	Submersible	nr	nr	nr	clear
MW84	12/11/2009	1205	30	Air Lift	22.8	8.14	1873	high silt
	12/11/2009	1215	60		21.7	8.22	1910	high silt
	12/11/2009	1225	90		23.8	8.23	2013	moderate silt
	12/11/2009	1235	120		24.4	8.25	2057	low silt
	12/11/2009	1310	150		22.6	8.26	2048	low silt
	12/11/2009	1330	180		21.7	8.19	2076	clear
	12/11/2009	1350	210		21.4	8.19	2078	clear
	12/11/2009	1400	240		22.6	8.26	2083	clear
MW85	12/11/2009	938	20	Air Lift	19.1	8.26	2304	high silt
	12/11/2009	1015	35		18.5	8.17	2379	moderate silt
	12/11/2009	1030	50		17.1	8.43	2368	low silt
	12/11/2009	1050	60		18.8	8.52	2389	clear
MW86	12/9/2009	850	5	Electric	22	7.21	2426	high silt
	12/9/2009	910	25	Submersible	22.6	7.30	2497	moderate silt
	12/9/2009	930	45		24.1	7.23	2516	high silt
	12/9/2009	950	65		23.2	7.17	2520	high silt
	12/9/2009	1010	85		22.9	7.29	2541	moderate silt
	12/9/2009	1030	105		22.3	7.30	2568	moderate silt
	12/9/2009	1040	115		22.7	7.32	2591	low silt
	12/9/2009	1105	125		22.9	7.40	2601	low silt
	12/9/2009	1125	145		22.1	7.42	2609	clear
	12/9/2009	1145	165		22.6	7.46	2613	clear
	12/9/2009	1155	175		22.4	7.48	2617	clear
MW87	12/3/2009	915	20	Electric	21.3	7.27	1850	high silt
	12/3/2009	925	40	Submersible	23.3	7.19	1871	high silt
	12/3/2009	945	60		23.1	7.20	1879	moderate silt
	12/3/2009	1005	80		25.1	7.19	1902	moderate silt
	12/3/2009	1025	100		25.7	7.22	2022	low silt
	12/3/2009	1045	120		24.9	7.02	1956	low silt
	12/3/2009	1105	125		25.6	7.00	2007	low silt
	12/3/2009	1125	145		25.3	7.02	2016	low silt
	12/3/2009	1145	165		25.9	7.10	2020	clear
	12/3/2009	1205	185		25.6	7.01	2028	clear
	12/3/2009	1210	195		25.2	7.02	2031	clear
	12/3/2009	1220	205		25.4	7.02	2036	clear

TABLE 2
WELL DEVELOPMENT INFORMATION
CERTIFICATION REPORT
MONITORING WELL INSTALLATIONS
Air Products LLC
Pasadena, Texas

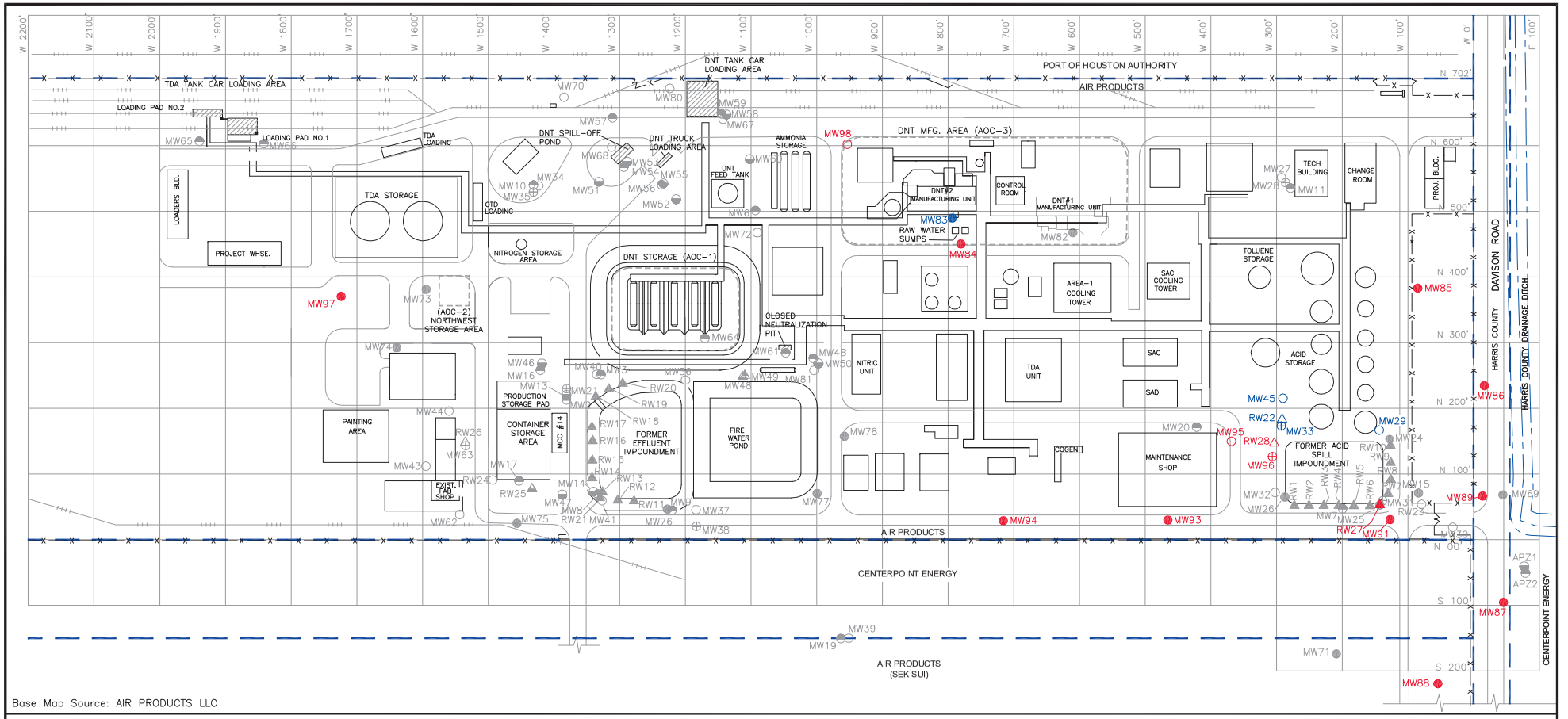
Well Number	Date	Time	Cumulative Volume Evacuated (gallons)	Development Method	Temperature (°C)	pH	Conductivity µS/cm (µmhos/cm)	Water Description
MW88	12/2/2009	1250	20	Electric Submersible	21.1	8.41	4035	high silt
	12/2/2009	1300	30		21.9	8.07	2044	high silt
	12/2/2009	1310	40		22.3	7.83	2055	moderate silt
	12/2/2009	1320	50		22	7.61	2063	moderate silt
	12/2/2009	1330	60		21.5	7.59	2070	moderate silt
	12/2/2009	1350	80		22.3	7.58	2122	moderate silt
	12/2/2009	1410	100		21.8	7.58	2136	low silt
	12/2/2009	1425	120		22.2	7.42	2155	low silt
	12/2/2009	1445	140		21.7	7.31	2181	low silt
	12/2/2009	1455	160		21.2	7.26	2206	clear
	12/2/2009	1515	180		22.3	7.21	2212	clear
	12/2/2009	1525	200		22.7	7.19	2217	clear
MW89	12/3/2009	1300	10	Electric Submersible	25.7	7.80	2463	high silt
	12/3/2009	1320	30					high silt
	12/3/2009	1340	40		25.5	7.73	2358	high silt
	12/3/2009	1400	50		24.2	7.37	2590	high silt
	12/3/2009	1420	55		24.7	7.51	2588	moderate silt
	12/3/2009	1440	60		25.3	7.57	2591	moderate silt
	12/3/2009	1500	65		24.4	7.62	2592	low silt
	12/3/2009	1520	70		24.2	7.68	2597	low silt
MW91	12/1/2009	1101	10	Electric Submersible	20.8	6.38	4891	high silt
	12/1/2009	1111	25		21.4	7.01	3641	high silt
	12/1/2009	1121	50		21.9	7.10	2326	high silt
	12/1/2009	1131	75		22.1	7.11	2391	moderate silt
	12/1/2009	1141	100		22.4	7.12	2446	moderate silt
	12/1/2009	1151	125		21.5	7.17	2449	moderate silt
	12/1/2009	1216	150		21.3	7.21	2496	low silt
	12/1/2009	1226	175		20.9	7.23	2501	low silt
	12/1/2009	1236	200		20.6	7.31	2510	clear
	12/1/2009	1246	225		21.8	7.32	2526	clear
MW93	12/1/2009	1326	25	Electric Submersible	21	7.78	1310	high silt
	12/1/2009	1340	50		21.8	7.59	1587	high silt
	12/1/2009	1350	65		22.5	7.48	1643	moderate silt
	12/1/2009	1400	80		21.2	7.82	1660	moderate silt
	12/1/2009	1410	95		20.9	7.87	1672	low silt
	12/1/2009	1420	110		20.6	7.86	1681	low silt
	12/1/2009	1440	125		21.2	7.61	1672	moderate silt
	12/1/2009	1450	140		21.8	7.42	1664	low silt
	12/1/2009	1500	155		21.3	7.33	1665	clear
	12/1/2009	1510	170		22.4	7.51	1668	clear
	12/1/2009	1520	185		21.9	7.54	1671	clear
MW94	12/2/2009	910	10	Electric Submersible	21.5	7.76	1376	high silt
	12/2/2009	920	30		22.6	7.62	1574	high silt
	12/2/2009	930	40		22.1	7.60	1591	moderate silt
	12/2/2009	940	50		20.7	7.66	1782	moderate silt
	12/2/2009	950	60		23.1	7.43	1944	clear
	12/2/2009	1000	70		22.2	7.35	1923	clear
	12/2/2009	1010	80		21.9	7.31	1942	clear
	12/2/2009	1020	90		23.3	7.38	2014	clear
	12/2/2009	1030	100		23.6	7.39	2026	clear
	12/2/2009	1050	110		22.6	7.42	2039	clear
	12/2/2009	1100	150		23.9	7.36	2046	clear
MW95	12/9/2009	1238	20	Air Lift	23	9.38	1089	high silt
	12/9/2009	1430	30		25.1	9.42	1150	high silt
	12/10/2009	1040	70		20.5	7.99	1345	high silt
	12/10/2009	1047	110		20.6	7.95	1521	high silt
	12/10/2009	1055	150		21.6	7.96	1603	moderate silt
	12/10/2009	1113	180		21.5	7.91	1791	moderate silt
	12/10/2009	1119	210		21	7.88	1843	low silt
	12/10/2009	1125	250		21.3	7.84	1912	low silt
	12/10/2009	1140	280		21.5	7.79	1938	clear
	12/10/2009	1145	320		20.9	7.73	2001	clear

TABLE 2
WELL DEVELOPMENT INFORMATION
CERTIFICATION REPORT
MONITORING WELL INSTALLATIONS
Air Products LLC
Pasadena, Texas

Well Number	Date	Time	Cumulative Volume Evacuated (gallons)	Development Method	Temperature (^{o}C)	pH	Conductivity µS/cm (µmhos/cm)	Water Description
MW96	12/10/2009	1210	40	Air Lift	21	8.36	1495	high silt
	12/10/2009	1216	80		21.9	8.12	1430	high silt
	12/10/2009	1225	120		22.2	8.08	1329	high silt
	12/10/2009	1242	160		21.6	8.01	1170	high silt
	12/10/2009	1250	200		20.8	7.97	1173	moderate silt
	12/10/2009	1256	240		21.9	7.96	1169	moderate silt
	12/10/2009	1336	280		20.7	7.85	1186	moderate silt
	12/10/2009	1342	320		21.3	7.89	1177	low silt
	12/10/2009	1349	360		22.6	7.96	1163	low silt
	12/10/2009	1440	400		20.5	8.06	1148	low silt
	12/10/2009	1448	440		21.6	7.93	1137	clear
	12/10/2009	1455	480		21.8	7.86	1133	clear
MW97	12/14/2009	1145	30	Air Lift	23.8	8.32	1189	nr
	12/14/2009	1220	60		23.2	8.43	1545	nr
	12/14/2009	1300	90		23.4	8.44	1562	nr
	12/14/2009	1330	120		25	8.40	1545	nr
	12/14/2009	1410	150		23.4	8.41	1548	nr
	12/14/2009	1445	180		24.1	8.34	1535	nr
	12/14/2009	1520	210		23.7	8.33	1550	nr
	12/14/2009	1600	240		23.3	8.32	1541	clear
MW98	12/14/2009	930	30	Air Lift	22.9	10.97	1520	nr
	12/14/2009	945	60		21.5	10.56	1385	nr
	12/14/2009	1000	90		22.7	9.25	1730	nr
	12/14/2009	1015	120		21.7	8.71	2108	nr
	12/14/2009	1035	150		23.1	8.50	2230	nr
	12/14/2009	1055	180		23.1	8.33	2385	nr
	12/14/2009	1115	210		23.3	8.23	2281	clear
RW27	1/4/2010	935	30	Air Lift	17.7	9.29	1724	muddy
	1/4/2010	942	60		17.4	8.79	2110	muddy
	1/4/2010	952	80		19.6	8.60	2094	muddy
	1/4/2010	1002	100		18.4	8.47	2181	muddy
	1/4/2010	1022	130		17.7	8.44	2242	muddy
	1/4/2010	1031	160		18.1	8.33	2280	muddy
	1/4/2010	1040	190		19.2	8.24	2304	muddy
	1/4/2010	1050	220		19.1	8.20	2289	muddy
	1/4/2010	1110	250		19.4	7.99	2280	muddy
	1/4/2010	1119	280		19.6	8.49	2330	muddy
	1/4/2010	1129	310		18.8	8.50	2331	muddy
	1/4/2010	1137	330		19.3	8.20	2302	muddy
	1/4/2010	1208	360		20.1	8.62	2335	muddy
	1/4/2010	1219	390		20.2	8.47	2305	becoming clear
	1/4/2010	1229	420		20.6	8.42	2265	becoming clear
	1/4/2010	1240	450		21	8.35	2285	becoming clear
	1/4/2010	1302	480		21.7	8.51	2305	clear
	1/4/2010	1312	510		21.4	8.45	2298	clear
RW28	12/10/2009	1520	30	Air Lift	19.2	9.03	1198	nr
	12/10/2009	1535	60		21.5	8.52	1453	nr
	12/10/2009	1550	90		23.2	8.23	1614	nr
	12/14/2009	800	120		22.1	6.90	1632	nr
	12/14/2009	810	150		21.8	7.45	1724	nr
	12/14/2009	815	180		22.9	7.79	1780	nr
	12/14/2009	825	210		21.8	7.96	1780	nr
	12/14/2009	840	240		21.9	7.92	1776	nr
	12/14/2009	850	270		21.8	7.98	1860	nr
	12/14/2009	900	300		21.8	7.95	1861	clear

Notes:
nr: not recorded

Figure



Base Map Source: AIR PRODUCTS LLC

EXPLANATION

- MW83 WELLS THAT ARE PLUGGED ARE IN BLUE
- MW94 NEW WELLS ARE IN RED
- MW2 UPPER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW14 LOWER SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW15 SHALLOW ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW40 INTERMEDIATE ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW21 DEEP ZONE MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- MW49 UPPER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW25 LOWER SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW9 SHALLOW ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- RW26 INTERMEDIATE ZONE RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- AREA OF CONCERN
- SOLID WASTE MANAGEMENT UNIT
- FENCE
- PROPERTY BOUNDARY

0 50 100 150 APPROXIMATE SCALE (FEET)

N

LOCATIONS OF NEWLY INSTALLED WELLS AND PLUGGED WELLS

PREPARED FOR

AIR PRODUCTS LLC - PASADENA, TEXAS

By: RPS	Date: 02/24/10	Project No.: 4487	4487B195.dwg

AMEC Geomatrix

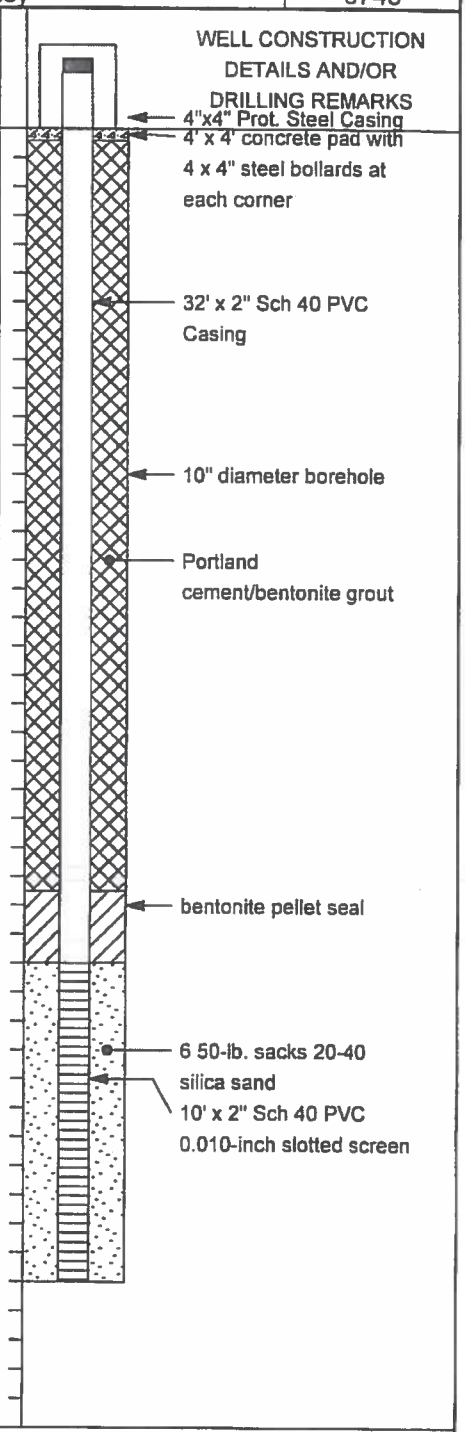
Figure 1

APPENDIX A

Boring Logs, Well Completion Diagrams, and
State of Texas Well Reports

PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-79**
BORING LOCATION: Shell Terminal	GROUND SURFACE ELEVATION AND DATUM: 23.9 feet MSL
DRILLING CONTRACTOR: Best Drilling Services	DATE STARTED: 12/12/05 / DATE FINISHED: 12/12/05
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 40.0 / SCREEN INTERVAL (ft.): 30-40
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: 2" Diameter PVC
SAMPLING METHOD: Split-barrel continuous sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: 23.9 feet MSL
0					Clay, Silt, Sand, roots, a few gravels
					CLAY (CL): gray to grayish brown, moist, hard, medium plastic
5					
					CLAY (CL): reddish brown and gray, moist, firm to hard, medium plastic Silty 13-14 ft.
10					
15					
					CLAY (CL): light gray and yellow, silty, moist, hard, medium plastic
20					CLAY (CL): fine sandy, moist, light gray and red-brown
					SAND (SC): light gray and reddish brown, fine-grained, clayey, moist and wet
25					SAND (SP): fine-grained, reddish brown, wet
					CLAY (CL): reddish brown, moist, hard, medium plastic
30					SAND (SC): fine-grained, clayey, reddish brown, wet
					CLAY (CL): reddish brown, hard, fine sandy 32-32.5 ft.
35					SAND (SC): fine-grained, reddish brown, clayey, wet
					CLAY (CL): fine sandy, reddish brown, moist to wet, hard
40					Total Depth 40 feet
45					



WELL3

STATE OF TEXAS WELL REPORT for Tracking #74126

Owner:	**Air Products, L.P.**	Owner Well #:	**MW-79**
Address:	**1423 Highway 225 Pasadena , TX 77506**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225 Pasadena , TX 77506**	Latitude:	**29° 43' 02" N**
Well County:	**Harris**	Longitude:	**095° 11' 15" W**
Elevation:	**No Data**	GPS Brand Used:	**Garmin/e-Trex**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **12/12/2005** Completed: **12/12/2005**
Diameter of Hole:	Diameter: **8 5/8 in From Surface To 40 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Gravel Packed From: **29 ft to 40 ft** Gravel Pack Size: **20/40**
Annular Seal Data:	1st Interval: **From 0 ft to 26.5 ft with 5 cement benton (#sacks and material)** 2nd Interval: **No Data** 3rd Interval: **No Data** Method Used: **Tremie** Cemented By: **Best Drilling Services, Inc.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**Bentonite 26.5' - 29'**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein

	are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**BEST DRILLING SERVICES, INC.** **P.O. BOX 845** **FRIENDSWOOD , TX 77549**
Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#74126**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-.5 CLAY, SILT, SAND, roots, few gravels
.5-7 CLAY, gray to grayish brown
7-17 CLAY, reddish brown & gray
17-20 CLAY, lt. gray & yellow
20-22 CLAY, fine SANDY, lt. gray & red brown
22-25 SAND, lt. gray & reddish brown
25-28 SAND, reddish brown
28-30 CLAY, reddish brown
30-32 SAND, CLAYEY, reddish brown
32-35 CLAY, reddish brown
35-36 SAND, reddish brown
36-40 CLAY, fine SANDY, reddish brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
2 N SCHL 40 PVC RISER 0/30
2 N SCHL 40 PVC SCREEN 30/40 0.010

PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-80**
BORING LOCATION: DNT Loading Area	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 8/25/04 / DATE FINISHED: 8/27/04
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 57.0 / SCREEN INTERVAL (ft.): 47-57 ft.
DRILLING EQUIPMENT:	DEPTH TO WATER ATD: NA / CASING: 4" Diameter SS
SAMPLING METHOD: Drill Cuttings	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Fill; silt and clay, dark brown	Well Vault
5						12" diameter borehole
					CLAY (CL): brown, soft	cement/bentonite grout
10					CLAY (CL): yellowish red	8" diameter Sch. 40 PVC surface casing
						4" diameter 304L stainless steel casing
15					SANDY CLAY (CL): brown	
					CLAY (CL): reddish brown	
20						cement/bentonite grout
25						
30						

PROJECT: Air Products, LLC, Pasadena, Texas

Log of Well No. MW-80 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					SANDY CLAY (CL): brown	
					CLAYEY SAND (SC): fine to medium grained	8" diameter sch. 40 PVC surface casing 12" diameter borehole
40					CLAY (CL): reddish brown	cement/bentonite grout bentonite pellets
45						20/40 silica sand pack
50					SAND (SP): brown, fine to medium grained	8" diameter borehole 4" diameter 304L stainless steel 0.010-in wire wrapped screen
55					CLAY (CL)	endcap
					Total Depth: 57 feet below ground surface	
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #48101

Owner:	Air Products, L.P.	Owner Well #:	MW-80
Address:	1423 Hwy 225 Pasadena , TX 77506	Grid #:	65-23-2
Well Location:	1423 Hwy 225 Pasadena , TX	Latitude:	29° 42' 49" N
Well County:	Harris	Longitude:	095° 11' 31" W
Elevation:	No Data	GPS Brand Used:	No Data
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 8/25/2004
Completed: 8/27/2004

Diameter of Hole: Diameter: 12 in From Surface To 57 ft

Drilling Method: Mud Rotary Hollow Stem Auger

Borehole Completion: Gravel Packed From: 45 ft to 57 ft
Gravel Pack Size: 20/40

Annular Seal Data: 1st Interval: From 0 ft to 42 ft with 21 cement bento (#sacks and material)
2nd Interval: No Data
3rd Interval: No Data
Method Used: Tremie
Cemented By: Best Drilling Services, Inc.
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Slab Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: Bentonite 42' - 45'

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No Data
Did the driller knowingly penetrate any strata which contained undesirable constituents: No Data

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Best Drilling Services, Inc.
P.O. Box

	Friendwood , TX 77549
Driller License Number:	5036
Licensed Well Driller Signature:	Alfredo Palacios
Registered Driller Apprentice Signature:	No Data
Apprentice Registration Number:	No Data
Comments:	DNT Loading Area

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking #48101) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

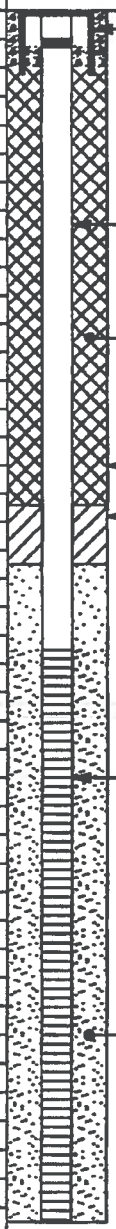
From (ft) To (ft) Description
0-7 FILL, SILT & CLAY, drk. brown
7-10 CLAY, brown
10-16 CLAY, yellowish red
16-18 SANDY CLAY, brown
18-32 CLAY, reddish brown
32-35 SANDY CLAY, brown
35-39 CLAYEY SAND
39-48 CLAY, reddish brown
48-56.5 SAND, brown
56.5-57 CLAY

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
8 N SCHL 40 PVC SURFACE CASING 0/42
4 N STAINLESS STEEL RISER 0/47
4 N STAINLESS STEEL SCREEN 47/57 0.010

PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-82**
BORING LOCATION: DNT Unit No. 1	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling Services, Inc	DATE STARTED: 10/17/05 / DATE FINISHED: 10/18/05
DRILLING METHOD: Hollow-Stem Auger	TOTAL DEPTH (ft.): 42.5 / SCREEN INTERVAL (ft.): 22.5-42.5
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrell Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
0					GRAVEL and CLAY(GP-GC);brown, moist.
				10.9	CLAY(CL): grayish brown, moist, firm, medium plastic.
5				4.4	
				0.0	
10					CLAY(CL); reddish brown with gray and black, moist, hard, pp=2.5, low to medium plastic.
				0.0	
15					CLAY(CL): silty, reddish brown, greenish gray 18-20 feet, moist, firm, low to medium plastic.
				10.6	
20					
				7.8	SAND(SC); fine-grained, clayey, reddish brown, wet.
25					CLAY(CL); reddish-brown, moist, hard, low plastic.
					SAND(SC); fine-grained, clayey, reddish-brown, wet.
					CLAY(CL): fine-sandy, red-brown, firm, wet.
30					CLAY(CL); reddish-brown, moist, hard, medium plastic.
35					
40					
					Total Depth=42.5ft. OVM readings in ppm.
45					



WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

- Well Vault 12" diameter round, flush mount in 4ft. x 4ft. concrete pad
- 22' x 4" stainless steel casing
- Portland cement/bentonite grout
- 10" diameter borehole
- 1 50lb. bucket uncoated pellets bentonite seal
- 20' x 4" 304L stainless steel 0.010-inch wire-wrapped screen
- 24 50lb. sacks 20-40 silica sand

WELL3

STATE OF TEXAS WELL REPORT for Tracking #74119

Owner:	**Air Products, L.P.**	Owner Well #:	**MW-82**
Address:	**1423 Highway 225 Pasadena , TX 77506**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225 Pasadena , TX 77506**	Latitude:	**29° 43' 11" N**
Well County:	**Harris**	Longitude:	**095° 11' 25" W**
Elevation:	**No Data**	GPS Brand Used:	**Garmin/e-Trex**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **10/17/2006** Completed: **10/18/2006**
Diameter of Hole:	Diameter: **10 5/8 in From Surface To 42.5 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Gravel Packed From: **19.5 ft to 42.5 ft** Gravel Pack Size: **20/40**
Annular Seal Data:	1st Interval: **From 0 ft to 17.5 ft with 3 cement benton (#sacks and material)** 2nd Interval: **No Data** 3rd Interval: **No Data** Method Used: **Tremie** Cemented By: **Best Drilling Services, Inc.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**Bentonite 17.5' - 19.5'**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein

are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information:	**BEST DRILLING SERVICES, INC.** **P.O. BOX 845** **FRIENDSWOOD , TX 77549**
Driller License Number:	**3026**
Licensed Well Driller Signature:	**L. Bruce Milton**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#74119**) on your written request.

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DESC. & COLOR OF FORMATION MATERIAL

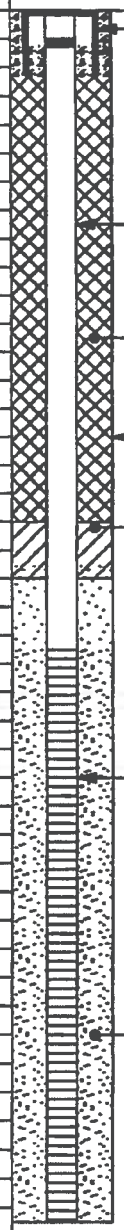
From (ft) To (ft) Description
0-2 Gravel & CLAY, brown
2-10 CLAY, grayish
10-15 CLAY, reddish brown w/gray & black
15-23 SAND, CLAYEY, reddish brown
23-25 CLAY, reddish brown
25-27 SAND, CLAYEY, reddish brown
27-28 CLAY, fine SANDY, red-brown
28-42.5 CLAY, reddish brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22.5
4 N STAINLESS STEEL SCREEN 22.5/42.5 0.010

PROJECT: Air Products, LLC, Pasadena, Texas	**Log of Well No. MW-83**
BORING LOCATION: DNT Unit No. 1	GROUND SURFACE ELEVATION AND DATUM:
DRILLING CONTRACTOR: Best Drilling Services, Inc	DATE STARTED: 10/18/05 / DATE FINISHED: 10/19/05
DRILLING METHOD: Hollow-Stem Auger	TOTAL DEPTH (ft.): 42.5 / SCREEN INTERVAL (ft.): 22.5-42.5
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: 4" Diameter SS
SAMPLING METHOD: Split-barrell Continuous Sampler	LOGGED BY: D. Holman
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: M. Bentley / REG. NO. 6748

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:
0				GRAVEL and CLAY(GP-GC);brown, moist.
			0.0	
5			1.1	CLAY(CL): dark gray, moist, firm, clayey sand with black staining 6-6.5 ft.
			0.0	
10			1.0	CLAY(CL): reddish-brown, moist, hard, medium plastic.
15			6.6	
20				CLAY(CL): silty, greenish-gray, firm to hard, low plastic.
			25.5	
25				SAND(SC): fine-grained, clayey, reddish- brown with gray, wet.
				CLAY(CL): fine-sandy, red-brown, firm, wet.
30				CLAY(CL): reddish-brown with some black, moist, hard, medium plastic.
35				
40				
45				Total Depth=42.5ft. OVM Reading in ppm



WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS

WELL3

STATE OF TEXAS WELL REPORT for Tracking #74122

Owner:	**Air Products, L.P.**	Owner Well #:	**MW-83**
Address:	**1423 Highway 225 Pasadena , TX 77506**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225 Pasadena , TX 77506**	Latitude:	**29° 43' 07" N**
Well County:	**Harris**	Longitude:	**095° 11' 26" W**
Elevation:	**No Data**	GPS Brand Used:	**Garmin/e-Trex**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date:	Started: **10/18/2006** Completed: **10/19/2006**
Diameter of Hole:	Diameter: **10 5/8 in From Surface To 42.5 ft**
Drilling Method:	**Hollow Stem Auger**
Borehole Completion:	Gravel Packed From: **20 ft to 42.5 ft** Gravel Pack Size: **20/40**
Annular Seal Data:	1st Interval: **From 0 ft to 18 ft with 3 cement benton (#sacks and material)** 2nd Interval: **No Data** 3rd Interval: **No Data** Method Used: **Tremie** Cemented By: **Best Drilling Services, Inc.** Distance to Septic Field or other Concentrated Contamination: **No Data** Distance to Property Line: **No Data** Method of Verification: **No Data** Approved by Variance: **No Data**
Surface Completion:	**Surface Slab Installed**
Water Level:	Static level: **No Data** Artesian flow: **No Data**
Packers:	**Bentonite 18' - 20'**
Plugging Info:	Casing or Cement/Bentonite left in well: **No Data**
Type Of Pump:	**No Data**
Well Tests:	**No Data**
Water Quality:	Type of Water: **No Data** Depth of Strata: **No Data** Chemical Analysis Made: **No Data** Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the

	required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**BEST DRILLING SERVICES, INC.** **P.O. BOX 845** **FRIENDSWOOD , TX 77549**
Driller License Number:	**3026**
Licensed Well Driller Signature:	**L. Bruce Milton**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**No Data**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#74122**) on your written request.

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P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-5 Gravel & CLAY, brown
5-10 CLAY, drk. gray
10-18 CLAY, reddish brown
18-25 CLAY, SILTY, greenish-gray
25-28.5 SAND, CLAYEY, reddish brown
28.5-30 CLAY, reddish brown
30-42.5 CLAY, reddish brown w/some black

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22.5
4 N STAINLESS STEEL SCREEN 22.5/42.5 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW84**
BORING LOCATION: 450.0839N -780.6302E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.92 ft.msl / TOC = 23.34 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 12/8/09 / DATE FINISHED: 12/8/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 43.0 / SCREEN INTERVAL (ft.): 23-43
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.92 ft.msl / TOC = 23.34 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey; moist to very moist; soft; high plasticity	Cement/Bentonite Grout
15					CLAY (CH); brown to red brown; stiff; moist; medium to high plasticity	4-in Diameter Sch 10 Stainless Steel Casing
20					CLAY (CH); light brown to tan; stiff; moist; medium to high plasticity	Seal of Hydrated Bentonite Pellets 20/40 Silica Sand
25					SITLY CLAY (CL) AND CLAYEY SILT (ML); light brown; wet; moderately stiff; medium to high plasticity; minor fine grained sands	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW84 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					Poor recovery, Driller indicates back in clay	4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40		NR			CLAY (CL); red to red brown; hard; dry; low plasticity	
					Total Depth 43 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205007

Owner:	**Air Products LLC**	Owner Well #:	**MW84**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **12/8/2009**
Completed: **12/8/2009**

Diameter of Hole: Diameter: **8.25 In From Surface To 43 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **20 ft to 43 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 18 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 18' - 20'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#205007**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 CLAY, drk. gray
10-20 CLAY, brown to red brown
20-25 CLAY, lt. brown to tan
25-35 SILTY CLAY & CLAYEY SILT, lt. brown
35-40 Poor recovery
40-43 CLAY, red to red brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/23
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 23/43 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW85**
BORING LOCATION: 382.7407N -85.1531E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.68 ft.msl / TOC = 23.27 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/16/09 / DATE FINISHED: 11/16/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

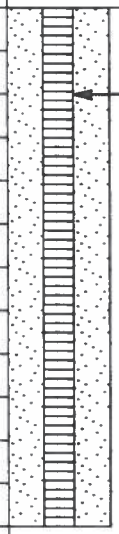
DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.68 ft.msl / TOC = 23.27 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	Traffic Rated Well Box
		NR				10-in Diameter Borehole
5						
					CLAY (CH); dark grey; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
10					CLAY (CH); brown to orange-brown; stiff; medium to high plasticity; moist	4-in Diameter Sch 10 Stainless Steel Casing
15						
						Seal of Hydrated Bentonite Pellets
20					CLAY (CH); light brown to tan; stiff; medium plasticity; slightly moist; becomes wet at 25	20/40 Silica Sand
25					SILTY CLAY/CLAY (MH/CH); light brown; high plasticity; soft; moist to wet	
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW85 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; stiff to very stiff; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						



WELL3

STATE OF TEXAS WELL REPORT for Tracking #205002

Owner:	**Air Products LLC**	Owner Well #:	**MW85**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/16/2009**
Completed: **11/16/2009**

Diameter of Hole: Diameter: **8.25 in From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Toboia**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#205002**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 CLAY, drk. gray
10-20 CLAY, brown to orange-brown
20-25 CLAY, lt. brown to tan
25-38 SILTY CLAY/CLAY, lt. brown
38-42 CLAY, red-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW86**
BORING LOCATION: 234.4531N 16.1390E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.75 ft.msl / TOC = 23.15 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/10/09 / DATE FINISHED: 11/10/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.75 ft.msl / TOC = 23.15 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey and orange; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
15					CLAY (CH); orange-brown; stiff to very stiff; medium to high plasticity; slightly moist	4-in Diameter Sch 10 Stainless Steel Casing
20					SANDY CLAY/CLAY(CH); tan to light brown; moist; high plasticity; moist; 10-15% sand and silt; very silty and wet at 25'	Seal of Hydrated Bentonite Pellets
25						20/40 Silica Sand
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW86 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-orange with grey mottles; very stiff to hard; low plasticity; very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #204995

Owner:	**Air Products LLC**	Owner Well #:	**MW86**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/10/2009**
Completed: **11/10/2009**

Diameter of Hole: Diameter: **8.25 in From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#204995**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-12 CLAY, drk. gray & orange
12-20 CLAY, orange-brown
20-38 SANDY CLAY/CLAY, tan to lt. brown
38-42 CLAY, red-orange

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW87**
BORING LOCATION: -95.4147N 45.2263E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.76 ft.msl / TOC = 23.54 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/11/09 / DATE FINISHED: 11/11/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.76 ft.msl / TOC = 23.54 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey and orange mottled; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
15						4-in Diameter Sch 10 Stainless Steel Casing
20						Seal of Hydrated Bentonite Pellets
25					Poor cuttings return, clay is very sticky, becoming silty	20/40 Silica Sand
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW87 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					SILT (MH); light brown; saturated	4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); orange-brown with grey mottles; hard; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #204997

Owner:	**Air Products LLC**	Owner Well #:	**MW87**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/11/2009**
Completed: **11/11/2009**

Diameter of Hole: Diameter: **8.25 In From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

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Please include the report's Tracking number (Tracking **#204997**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-32 CLAY, drk. gray
32-38 SILT, lt. brown
38-42 CLAY, orange-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW88**
BORING LOCATION: -219.4864N -54.6136E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 25.37 ft.msl / TOC = 24.99 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/12/09 / DATE FINISHED: 11/12/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 25.37 ft.msl / TOC = 24.99 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey; stiff; medium to high plasticity; moist CLAY (CH); grey and brown; stiff; medium to high plasticity; moist	Cement/Bentonite Grout 4-in Diameter Sch 10 Stainless Steel Casing
15						
20						Seal of Hydrated Bentonite Pellets 20/40 Silica Sand
25					Grading to light brown/tan	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW88 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					SILTY CLAY/CLAYEY SILT (CH/MH); light orange-brown; very moist to wet; poor cuttings return; silt is orange-brown; saturated 38-40'	4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown with light grey mottles; very stiff to hard; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #204999

Owner:	**Air Products LLC**	Owner Well #:	**MW88**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/12/2009**
Completed: **11/12/2009**

Diameter of Hole: Diameter: **8.25 In From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

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Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 CLAY, drk. gray
10-30 CLAY, gray & brown
30-40 SILTY CLAY/CLAYEY SILT, lt. orange-brown
40-42 CLAY, red-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW89**
BORING LOCATION: 66.3381N 13.3958E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.52 ft.msl / TOC = 22.89 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/11/09 / DATE FINISHED: 11/11/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.52 ft.msl / TOC = 22.89 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey and orange mottled; stiff; medium to high plasticity; moist	Cement/Bentonite Grout
15					SANDY CLAY/CLAY (CH); tan to light brown; stiff; high plasticity; moist; 10% silts and fine grained sand; wet at 25'	4-in Diameter Sch 10 Stainless Steel Casing
20						Seal of Hydrated Bentonite Pellets
25						20/40 Silica Sand
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW89 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); orange-brown; very stiff to hard; low plasticity slightly moist to dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #204996

Owner:	**Air Products LLC**	Owner Well #:	**MW89**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/11/2009**
Completed: **11/11/2009**

Diameter of Hole: Diameter: **8.25 In From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

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Please include the report's Tracking number (Tracking **#204996**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-15 CLAY, drk. gray
15-38 SANDY CLAY/CLAY, tan to lt. brown
38-42 CLAY, orange-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW91**
BORING LOCATION: 30.4704N -127.3703E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.99 ft.msl / TOC = 23.42 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/12/09 / DATE FINISHED: 11/12/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.99 ft.msl / TOC = 23.42 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					NRNot Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					AUGERCLAY (CH); dark grey; moderately stiff; high plasticity; moist SSCLAY (CH); brown to orange-brown; stiff; medium to high plasticity; moist	Cement/Bentonite Grout 4-in Diameter Sch 10 Stainless Steel Casing
15						
20						Seal of Hydrated Bentonite Pellets 20/40 Silica Sand
25					SSSILT/CLAYEY SILT (MH); light orange-brown; soft; saturated; strong chemical odor	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW91 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; hard; low plasticity; dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #204998

Owner:	**Air Products LLC**	Owner Well #:	**MW91**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/12/2009**
Completed: **11/12/2009**

Diameter of Hole: Diameter: **8.25 In From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#204998**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 Auger CLAY, drk. gray.
10-25 SS CLAY, brown to orange-brown
25-38 SS SILT/CLAYEY SILT, lt. orange-brown
38-42 CLAY, red-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW93**
BORING LOCATION: 29.7987N -465.4896E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.99 ft.msl / TOC = 23.46 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/16/09 / DATE FINISHED: 11/16/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.99 ft.msl / TOC = 23.46 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey; stiff; medium to high plasticity; moist CLAY (CH); brown to dark tan; stiff; medium to high plasticity; moist	Cement/Bentonite Grout 4-in Diameter Sch 10 Stainless Steel Casing
15						
20					SILTY CLAY/CLAY (CH); light brown to tan; high plasticity; moist to wet; grading to a clayey silt	Seal of Hydrated Bentonite Pellets 20/40 Silica Sand
25					SILT/CLAYEY SILT (MH); light brown; saturated; plastic; 30-40% clay	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW93 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; very stiff; low plasticity; moist to dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205003

Owner:	**Air Products LLC**	Owner Well #:	**MW93**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/16/2009**
Completed: **11/16/2009**

Diameter of Hole: Diameter: **8.25 in From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#205003**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 CLAY, drk. gray
10-20 CLAY, brown to drk. tan
20-25 SILTY CLAY/CLAY, lt. brown to tan
25-38 SILT/CLAYEY SILT, lt. brown
38-42 CLAY, red-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

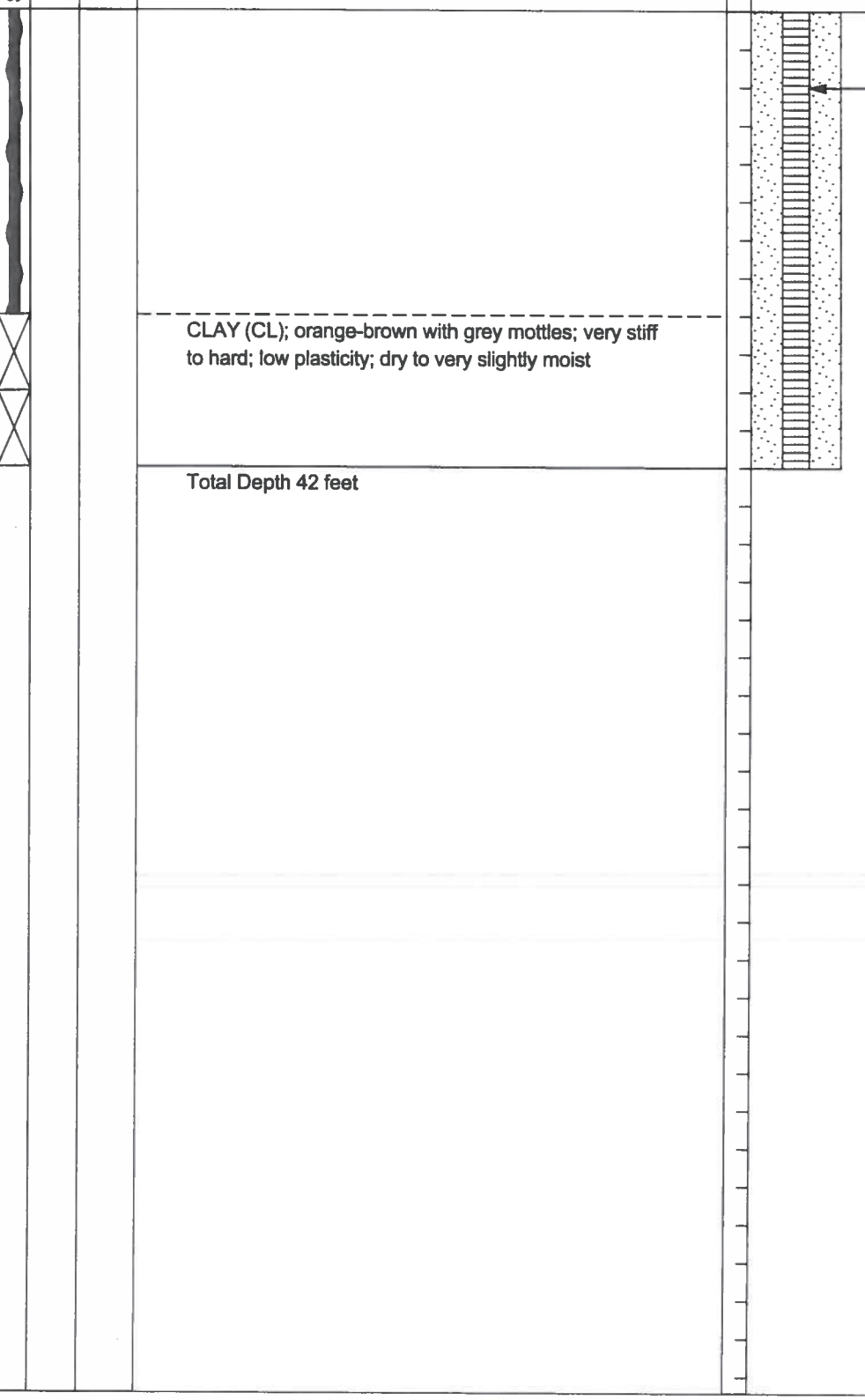
PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW94**
BORING LOCATION: 28.7931N -715.9210E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.03 ft.msl / TOC = 23.68 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/13/09 / DATE FINISHED: 11/13/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.03 ft.msl / TOC = 23.68 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	Traffic Rated Well Box
5		NR				10-in Diameter Borehole
10					CLAY (CH); dark grey; stiff; medium to high plasticity; moist CLAY (CH); orange-brown; stiff; medium to high plasticity; moist	Cement/Bentonite Grout 4-in Diameter Sch 10 Stainless Steel Casing
15						
20					SILTY CLAY/CLAY (CH); light brown to tan; high plasticity; moist to wet; grades to a clayey silt at 25	Seal of Hydrated Bentonite Pellets 20/40 Silica Sand
25					CLAYEY SILT/ SILTY CLAY (MH/CH); light brown to tan; high plasiticity; wet	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW94 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); orange-brown with grey mottles; very stiff to hard; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						



WELL3

STATE OF TEXAS WELL REPORT for Tracking #205001

Owner:	**Air Products LLC**	Owner Well #:	**MW94**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/13/2009**
Completed: **11/13/2009**

Diameter of Hole: Diameter: **8.25 in From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#205001**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 CLAY, drk. gray
10-20 CLAY, orange-brown
20-25 SILTY CLAY/CLAY, lt. brown to tan
25-38 CLAYEY SILT/SILTY CLAY, lt. brown to tan
38-42 CLAY, orange-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW95**
BORING LOCATION: 149.6308N -368.8302E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.52 ft.msl / TOC = 22.85 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/19/09 / DATE FINISHED: 12/2/09
DRILLING METHOD: Hollow Stem Auger/Mud Rotary	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 50-60
DRILLING EQUIPMENT: CME-75/Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.52 ft.msl / TOC = 22.85 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	Traffic Rated Well Box
5		NR				
10					CLAY (CH); grey and orange-brown mottled; moist; stiff; medium to high plasticity	8-in Diameter PVC Casing
15						12-in Diameter Borehole
20					CLAY (CL); red brown; slightly moist; stiff; low to medium plasticity	Cement/Bentonite Grout
25					CLAY/SILTY CLAY (CH); orange and tan; moist to wet; high plasticity	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW95 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red orange; very slightly moist; very stiff; low plasticity	
					Logging from mud cuttings. Same ast 40-42 foot interval	8-in Diameter Borehole
45						Seal of Hydrated Bentonite Pellets
					SILT (MH) AND SILTY/SANDY CLAY (CH); grey and brown; fine grained sands and silts	Centralizer
50						
						20/40 Silica Sand
55						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
						Centralizer
60					Total Depth 60 feet	
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205020

Owner:	**Air Products LLC**	Owner Well #:	**MW95**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/19/2009**
Completed: **12/2/2009**

Diameter of Hole: Diameter: **12 in From Surface To 40 ft**
Diameter: **8.25 in From 0 ft To 60 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **48 ft to 60 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 43 ft with 2.5 bentonite g (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 43' - 48'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845

	Friendswood , TX 77549
Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#205020**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**8**	**Not Recovered**
8	**20**	**CLAY, gray**
20	**25**	**CLAY, red brown**
25	**40**	**CLAY/SILTY CLAY, orange & tan**
40	**48**	**CLAY, red orange**
48	**60**	**SILT & SILTY/SANDY CLAY, gray & brown**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
8	**N**	**PVC CASING**	**0/42**
4	**N**	**STAINLESS STEEL CASING**	**0/50**
4	**N**	**STAINLESS STEEL WIRE-WRAPPED SCREEN**	**50/60 0.010**

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW96**
BORING LOCATION: 126.2784N -306.4170E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 23.68 ft.msl / TOC = 26.31 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 12/3/09 / DATE FINISHED: 12/9/09
DRILLING METHOD: Mud Rotary	TOTAL DEPTH (ft.): 75.0 / SCREEN INTERVAL (ft.): 80-95
DRILLING EQUIPMENT: Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 23.68 ft.msl / TOC = 26.31 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	
5		NR				
10					CLAY (CH); grey and brown; high plasticity CLAY (CH); red brown; high plasticity	8-in Diameter PVC Casing
15						12-in Diameter Borehole
20					CLAY (CH); red brown; high plasticity; becomes silty at 26'	
25						
30						

WELL3

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW96 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red brown; hard; low plasticity	Cement/Bentonite Grout
45						
50					CLAYEY SILT (MH) AND SITLY CLAY (CH); brown	
55						
60					CLAY (CL); grey and brown; hard; low plasticity	
65						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW96 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
70						Centralizer
75					Logging from mud cuttings. CLAY (CL) AND CLAYEY SILT (ML); brown to red brown; low to medium plasticity clay with silt	Seal of Hydrated Bentonite Pellets
80						8-in Diameter Borehole
85						Centralizer 20/40 Silica Sand 4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
90						
95					Total Depth 95 feet	Centralizer
100						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205024

Owner:	**Air Products LLC**	Owner Well #:	**MW96**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **12/3/2009**
Completed: **12/9/2009**

Diameter of Hole: Diameter: **12 in From Surface To 75 ft**
Diameter: **8 in From 0 ft To 95 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **77 ft to 95 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 43 ft with 2.5 bentonite g (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 75' - 77'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845

	Friendswood , TX 77549
Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#205024**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 Not recovered
8-10 CLAY, gray & brown
10-50 CLAY, red brown
50-60 CLAYEY SILT & SILTY CLAY, brown
60-75 CLAY, gray & brown
75-95 CLAY & CLAYEY SILT, brown to red

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
8 N PVC CASING 0/75
4 N STAINLESS STEEL CASING 0/80
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 80/95 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW97**
BORING LOCATION: 370.3015N -1723.6863E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.23 ft.msl / TOC = 26.63 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/17/09 / DATE FINISHED: 11/17/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / 2' Split Spoon	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.23 ft.msl / TOC = 26.63 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					No Recovery/Hydroexcavated	10-in Diameter Borehole
5		NR				
10					CLAY (CH); dark grey and dark brown; stiff; medium to high plasticity; slightly moist	Cement/Bentonite Grout
					CLAY (CH); brown-orange; stiff; medium to high plasticity; slightly moist	4-in Diameter Sch 10 Stainless Steel Casing
15					SILTY CLAY (CH); orange-brown; stiff; high plasticity; moist; becomes saturated silt at approximately 17'	Seal of Hydrated Bentonite Pellets
20					CLAYEY SILT/SILTY CLAY (MH/CH); brown; soft to firm; high plasticity; wet; flowing clayey silt at 23'	20/40 Silica Sand
25						
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW97 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown with some grey mottles; very stiff to hard; low plasticity; dry to very slightly moist	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205004

Owner:	**Air Products LLC**	Owner Well #:	**MW97**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/17/2009**
Completed: **11/17/2009**

Diameter of Hole: Diameter: **8.25 in From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#205004**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 NOT RECOVERED
8-10 CLAY, drk. gray
10-20 CLAY, brown to drk. tan
20-25 SILTY CLAY/CLAY, lt. brown to tan
25-38 SILT/CLAYEY SILT, lt. brown
38-42 CLAY, red-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
4 N STAINLESS STEEL CASING 0/22
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. MW98**
BORING LOCATION: 601.8522N -953.5020E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.09 ft.msl / TOC = 26.38 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/18/09 / DATE FINISHED: 12/1/09
DRILLING METHOD: Hollow Stem Auger/Mud Rotary	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 50-60
DRILLING EQUIPMENT: CME-75/Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.09 ft.msl / TOC = 26.38 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	
5		NR				
10					CLAY (CH); grey and brown; moist; stiff; medium to high plasticity	8-in Diameter PVC Casing
15					CLAY (CH); red brown; moist; stiff; medium to high plasticity	12-in Diameter Borehole
20						Cement/Bentonite Grout
25					SILTY CLAY/CLAYEY SILT (CH/ML); brown/tan; silty; soft; plastic; saturated	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. MW98 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35					CLAY (CH); red brown; moist; medium to high plasticity	4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red brown; stiff; slightly moist; low plasticity	
					Logging from mud cuttings. Same as 38-42 foot interval	8-in Diameter Borehole
45					SILTY/SANDY CLAY (CH); brown to tan clay with very fine grained sands and silt	Seal of Hydrated Bentonite Pellets
50						Centralizer
55						20/40 Silica Sand 4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
60					CLAY (CL); brown; hard; low plasiticity; contains minor silts Total Depth 60 feet	Centralizer
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205019

Owner:	**Air Products LLC**	Owner Well #:	**MW98**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/18/2009**
Completed: **12/1/2009**

Diameter of Hole: Diameter: **12 in From Surface To 40 ft**
Diameter: **8.25 in From 0 ft To 60 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **48 ft to 60 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 43 ft with 2.5 bentonite g (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 43' - 48'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845

	Friendswood , TX 77549
Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

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Please include the report's Tracking number (Tracking **#205019**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	**8**	**Not Recovered**
8	**15**	**CLAY, gray & brown**
15	**24**	**CLAY, red brown**
24	**35**	**SILTY CLAY/CLAYEY SILT, brown/tan**
35	**45**	**CLAY, red brown**
45	**59**	**SILTY/SANDY CLAY, brown to tan CLAY**
59	**60**	**CLAY, brown**

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
8	**N**	**PVC CASING**	**0/42**
4	**N**	**STAINLESS STEEL CASING**	**0/50**
4	**N**	**STAINLESS STEEL WIRE-WRAPPED SCREEN**	**50/60 0.010**

PROJECT: Air Products Pasadena, Texas	**Log of Well No. RW27**
BORING LOCATION: 52.5718N -143.0632E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 24.14 ft.msl / TOC = 25.88 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 12/21/09 / DATE FINISHED: 12/21/09
DRILLING METHOD: Hollow Stem Auger	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 22-42
DRILLING EQUIPMENT: CME-75	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 24.14 ft.msl / TOC = 25.88 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					CLAY (CH/CL); brown to reddish brown; moist; medium to high plasticity; stiff	10-in Diameter Borehole
5						Cement/Bentonite Grout
10						6-in Diameter Sch 10 Stainless Steel Casing
15						Seal of Hydrated Bentonite Pellets
20						20/40 Silica Sand
25					SILT/CLAYEY SILT (MH); light orange-brown; soft; saturated; strong chemical odor	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. RW27 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						6-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
40					CLAY (CL); red-brown; hard; low plasticity; dry	
					Total Depth 42 feet	
45						
50						
55						
60						
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205008

Owner:	**Air Products LLC**	Owner Well #:	**RW27**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **12/21/2009**
Completed: **12/21/2009**

Diameter of Hole: Diameter: **8.25 in From Surface To 42 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **19 ft to 42 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 17 ft with .5 bentonite gr (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 17' - 19'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845
Friendswood , TX 77549

Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2** **Monitoring Well 25 overdrilled for installation of RW27 &** **RW27 is a recovery well, installed as part of a groundwater recovery system**

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Please include the report's Tracking number (Tracking **#205008**) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-25 CLAY, brown to reddish brown
25-38 SILT/CLAYEY SILT, lt. orange-brown
38-42 CLAY, red-brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
6 N STAINLESS STEEL CASING 0/22
6 N STAINLESS STEEL WIRE-WRAPPED SCREEN 22/42 0.010

PROJECT: Air Products Pasadena, Texas	**Log of Well No. RW28**
BORING LOCATION: 146.6814N -303.7253E (Plant Coordinates)	GROUND SURFACE ELEVATION AND DATUM: Ground Surface = 22.82 ft.msl / TOC = 25.54 ft.msl
DRILLING CONTRACTOR: Best Drilling Services, Inc.	DATE STARTED: 11/19/09 / DATE FINISHED: 12/1/09
DRILLING METHOD: Hollow Stem Auger/Mud Rotary	TOTAL DEPTH (ft.): 42.0 / SCREEN INTERVAL (ft.): 50-60
DRILLING EQUIPMENT: CME-75/Failing 1500	DEPTH TO WATER ATD: / CASING: Stainless Steel
SAMPLING METHOD: Auger Cuttings / Mud Rotary Cuttings	LOGGED BY: JCB
HAMMER WEIGHT: NA / DROP: NA	RESPONSIBLE PROFESSIONAL: K. Beck / REG. NO. 2523

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation: Ground Surface = 22.82 ft.msl / TOC = 25.54 ft.msl	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
0					Not Recovered/Hydroexcavated	
5		NR				
10					CLAY (CH); dark grey; moist to wet; moderately stiff; high plasticity	8-in Diameter PVC Casing
15					CLAY (CH); brown and orange-brown; moist; stiff; medium to high plasticity	12-in Diameter Borehole
20					CLAY (CH); brown to dark brown; slightly moist; medium to high plasticity	Cement/Bentonite Grout
25					CLAY (CH); red brown; moist to dry; very stiff; medium to high plasticity	
30						

PROJECT: Air Products
Pasadena, Texas

Log of Well No. RW28 (cont'd)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ Foot	OVM Reading	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
35						4-in Diameter Sch 10 Stainless Steel Casing
40					CLAY (CL); red brown; dry; very stiff; low to medium plasticity	
					Logging from mud cuttings. Same as 40-42 foot interval	8-in Diameter Borehole
45						Seal of Hydrated Bentonite Pellets
					SILT (MH) AND SILTY/SANDY CLAY (CH); grey and brown; fine grained sands and silts	Centralizer
50						
						20/40 Silica Sand
55						4-in Diameter Stainless Steel 0.010-in Wire-Wrapped Screen
						Centralizer
60					Total Depth 60 feet	
65						

WELL3

STATE OF TEXAS WELL REPORT for Tracking #205021

Owner:	**Air Products LLC**	Owner Well #:	**RW28**
Address:	**1423 Hwy 225** **Pasadena , TX 75506**	Grid #:	**65-23-1**
Well Location:	**Pasadena , TX 75506**	Latitude:	**29° 42' 37" N**
Well County:	**Harris**	Longitude:	**095° 12' 52" W**
Elevation:	**No Data**	GPS Brand Used:	**No Data**
Type of Work:	**New Well**	Proposed Use:	**Monitor**

Drilling Date: Started: **11/19/2009**
Completed: **12/1/2009**

Diameter of Hole: Diameter: **12 in From Surface To 42 ft**
Diameter: **8.25 in From 0 ft To 60 ft**

Drilling Method: **Hollow Stem Auger**

Borehole Completion: Gravel Packed From: **48 ft to 60 ft**
Gravel Pack Size: **20/40**

Annular Seal Data: 1st Interval: **From 0 ft to 43 ft with 2.5 bentonite g (#sacks and material)**
2nd Interval: **No Data**
3rd Interval: **No Data**
Method Used: **Tremie**
Cemented By: **Best Drilling Services, Inc.**
Distance to Septic Field or other Concentrated Contamination: **No Data**
Distance to Property Line: **No Data**
Method of Verification: **No Data**
Approved by Variance: **No Data**

Surface Completion: **Surface Slab Installed**

Water Level: Static level: **No Data**
Artesian flow: **No Data**

Packers: **Bentonite 43' - 48'**

Plugging Info: Casing or Cement/Bentonite left in well: **No Data**

Type Of Pump: **No Data**

Well Tests: **No Data**

Water Quality: Type of Water: **No Data**
Depth of Strata: **No Data**
Chemical Analysis Made: **No Data**
Did the driller knowingly penetrate any strata which contained undesirable constituents: **No Data**

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: **Best Drilling Services, Inc.**
P.O. Box 845

	Friendswood , TX 77549
Driller License Number:	**3026**
Licensed Well Driller Signature:	**Lawrence Tobola**
Registered Driller Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Comments:	**Project No.: 4487.005.2** **RW28 is a recovery well, installed as part of a groundwater recovery system**

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking **#205021**) on your written request.

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DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-8 Not recovered
8-10 CLAY, drk. gray
10-20 CLAY, brown & orange-brown
20-25 CLAY, brown to drk. brown
25-48 CLAY, red-brown
48-60 SILT & SILTY/SANDY CLAY, gray & brown

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
8 N PVC CASING 0/42
4 N STAINLESS STEEL CASING 0/50
4 N STAINLESS STEEL WIRE-WRAPPED SCREEN 50/60 0.010

APPENDIX B

State of Texas Plugging Reports

STATE OF TEXAS PLUGGING REPORT for Tracking #48728

Owner:	**Air Product LLC**	Owner Well #:	**RW-22**
Address:	**P.O. Box 3326** **Pasadena , TX 77501**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225** **Pasadena , TX 75506**	Latitude:	**29° 43' 04" N**
Well County:	**Harris**	Longitude:	**095° 11' 23" W**
		GPS Brand Used:	**Garmin etrex**

Well Type: **Monitor**

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	**N/A**
Driller's License Number of Original Well Driller:	**N/A**
Date Well Drilled:	**No Data**
Well Report Tracking Number:	**N/A**
Diameter of Well:	**4 inches**
Total Depth of Well:	**70 feet**

Date Well Plugged:	**7/1/2008**
Person Actually Performing Plugging Operation:	**Lawrence Toboia**
License Number of Plugging Operator:	**3026**
Plugging Method:	**Tremmie pipe cement from bottom to top.**
Plugging Variance #:	**No Data**
Casing Left Data:	1st Interval: **4 inches diameter, From 0 ft to 70 ft** 2nd Interval: **No Data** 3rd Interval: **No Data**
Cement/Bentonite Plugs Placed in Well:	1st Interval: **From 0 ft to 70 ft; Sack(s)/type of cement used: 16 cement bentonite grout** 2nd Interval: **No Data** 3rd Interval: **No Data** 4th Interval: **No Data** 5th Interval: **No Data**

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Best Drilling Services, Inc.** **P.O. Box 845** **Friendswood , TX 77549**

Plug Installer License Number:	**3026**
Licensed Plug Installer Signature:	**Lawrence Tobola**
Registered Plug Installer Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Plugging Method Comments:	**No Data**

Please include the plugging report's tracking number (Tracking **#48728**) on your written request.

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STATE OF TEXAS PLUGGING REPORT for Tracking #48730

Owner:	**Air Product LLC**	Owner Well #:	**MW-29**
Address:	**P.O. Box 3326** **Pasadena , TX 77501**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225** **Pasadena , TX 75506**	Latitude:	**29° 43' 04" N**
Well County:	**Harris**	Longitude:	**095° 11' 23" W**
		GPS Brand Used:	**Garmin etrex**
Well Type:	**Monitor**		

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	**N/A**
Driller's License Number of Original Well Driller:	**N/A**
Date Well Drilled:	**No Data**
Well Report Tracking Number:	**N/A**
Diameter of Well:	**4 inches**
Total Depth of Well:	**70 feet**

Date Well Plugged:	**7/2/2008**
Person Actually Performing Plugging Operation:	**Lawrence Tobola**
License Number of Plugging Operator:	**3026**
Plugging Method:	**Tremmie pipe cement from bottom to top.**
Plugging Variance #:	**No Data**
Casing Left Data:	1st Interval: **4 inches diameter, From 0 ft to 70 ft** 2nd Interval: **No Data** 3rd Interval: **No Data**
Cement/Bentonite Plugs Placed in Well:	1st Interval: **From 0 ft to 70 ft; Sack(s)/type of cement used: 16 cement bentonite grout** 2nd Interval: **No Data** 3rd Interval: **No Data** 4th Interval: **No Data** 5th Interval: **No Data**
Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Best Drilling Services, Inc.** **P.O. Box 845** **Friendswood , TX 77549**

Plug Installer License Number:	**3026**
Licensed Plug Installer Signature:	**Lawrence Tobola**
Registered Plug Installer Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Plugging Method Comments:	**No Data**

Please include the plugging report's tracking number (Tracking **#48730**) on your written request.

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STATE OF TEXAS PLUGGING REPORT for Tracking #48725

Owner:	**Air Product LLC**	Owner Well #:	**MW-33**
Address:	**P.O. Box 3326** **Pasadena , TX 77501**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225** **Pasadena , TX 75506**	Latitude:	**29° 43' 04" N**
Well County:	**Harris**	Longitude:	**095° 11' 23" W**
		GPS Brand Used:	**Garmin etrex**
Well Type:	**Monitor**		

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	**N/A**
Driller's License Number of Original Well Driller:	**N/A**
Date Well Drilled:	**No Data**
Well Report Tracking Number:	**N/A**
Diameter of Well:	**4 inches**
Total Depth of Well:	**94 feet**

Date Well Plugged:	**7/1/2008**
Person Actually Performing Plugging Operation:	**Lawrence Tobola**
License Number of Plugging Operator:	**3026**
Plugging Method:	**Tremmie pipe cement from bottom to top.**
Plugging Variance #:	**No Data**
Casing Left Data:	1st Interval: **4 inches diameter, From 0 ft to 94 ft** 2nd Interval: **No Data** 3rd Interval: **No Data**
Cement/Bentonite Plugs Placed in Well:	1st Interval: **From 0 ft to 94 ft; Sack(s)/type of cement used: 26 cement bentonite grout** 2nd Interval: **No Data** 3rd Interval: **No Data** 4th Interval: **No Data** 5th Interval: **No Data**

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Best Drilling Services, Inc.** **P.O. Box 845** **Friendswood , TX 77549**

Plug Installer License Number:	**3026**
Licensed Plug Installer Signature:	**Lawrence Tobola**
Registered Plug Installer Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Plugging Method Comments:	**No Data**

Please include the plugging report's tracking number (Tracking **#48725**) on your written request.

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STATE OF TEXAS PLUGGING REPORT for Tracking #48729

Owner:	**Air Product LLC**	Owner Well #:	**MW-45**
Address:	**P.O. Box 3326** **Pasadena , TX 77501**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225** **Pasadena , TX 75506**	Latitude:	**29° 43' 04" N**
Well County:	**Harris**	Longitude:	**095° 11' 23" W**
		GPS Brand Used:	**Garmin etrex**
Well Type:	**Monitor**		

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	**N/A**
Driller's License Number of Original Well Driller:	**N/A**
Date Well Drilled:	**No Data**
Well Report Tracking Number:	**N/A**
Diameter of Well:	**4 inches**
Total Depth of Well:	**70 feet**

Date Well Plugged:	**7/2/2008**
Person Actually Performing Plugging Operation:	**Lawrence Tobola**
License Number of Plugging Operator:	**3026**
Plugging Method:	**Tremmie pipe cement from bottom to top.**
Plugging Variance #:	**No Data**
Casing Left Data:	1st Interval: **4 inches diameter, From 0 ft to 70 ft** 2nd Interval: **No Data** 3rd Interval: **No Data**
Cement/Bentonite Plugs Placed in Well:	1st Interval: **From 0 ft to 70 ft; Sack(s)/type of cement used: 16 cement bentonite grout** 2nd Interval: **No Data** 3rd Interval: **No Data** 4th Interval: **No Data** 5th Interval: **No Data**

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Best Drilling Services, Inc.** **P.O. Box 845** **Friendswood , TX 77549**

Plug Installer License Number:	**3026**
Licensed Plug Installer Signature:	**Lawrence Tobola**
Registered Plug Installer Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Plugging Method Comments:	**No Data**

Please include the plugging report's tracking number (Tracking **#48729**) on your written request.

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STATE OF TEXAS PLUGGING REPORT for Tracking #48731

Owner:	**Air Product LLC**	Owner Well #:	**MW-83**
Address:	**P.O. Box 3326** **Pasadena , TX 77501**	Grid #:	**65-23-2**
Well Location:	**1423 Hwy 225** **Pasadena , TX 75506**	Latitude:	**29° 43' 07" N**
Well County:	**Harris**	Longitude:	**095° 11' 28" W**
		GPS Brand Used:	**Garmin etrex**
Well Type:	**Monitor**		

HISTORICAL DATA ON WELL TO BE PLUGGED

Original Well Driller:	**N/A**
Driller's License Number of Original Well Driller:	**N/A**
Date Well Drilled:	**No Data**
Well Report Tracking Number:	**N/A**
Diameter of Well:	**4 inches**
Total Depth of Well:	**42 feet**

Date Well Plugged:	**7/2/2008**
Person Actually Performing Plugging Operation:	**Lawrence Tobola**
License Number of Plugging Operator:	**3026**
Plugging Method:	**Tremmie pipe cement from bottom to top.**
Plugging Variance #:	**No Data**
Casing Left Data:	1st Interval: **4 inches diameter, From 0 ft to 42 ft** 2nd Interval: **No Data** 3rd Interval: **No Data**
Cement/Bentonite Plugs Placed in Well:	1st Interval: **From 0 ft to 42 ft; Sack(s)/type of cement used: 10 cement bentonite grout** 2nd Interval: **No Data** 3rd Interval: **No Data** 4th Interval: **No Data** 5th Interval: **No Data**

Certification Data:	The plug installer certified that the plug installer plugged this well (or the well was plugged under the plug installer's direct supervision) and that each and all of the statements herein are true and correct. The plug installer understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	**Best Drilling Services, Inc.** **P.O. Box 845** **Friendswood , TX 77549**

Plug Installer License Number:	**3026**
Licensed Plug Installer Signature:	**Lawrence Tobola**
Registered Plug Installer Apprentice Signature:	**No Data**
Apprentice Registration Number:	**No Data**
Plugging Method Comments:	**No Data**

Please include the plugging report's tracking number (Tracking **#48731**) on your written request.

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APPENDIX C

Certifications

Certification

This is to certify that the installation of the following facility components authorized or required by TCEQ Compliance Plan CP-50134 has been completed, and that construction or plugging of these components has been performed in accordance with and in compliance with the design and construction specifications of Section III.E and Attachment B of Compliance Plan No. CP-50134:

- Monitoring Well MW79
- Monitoring Well MW80
- Monitoring Well MW82
- Monitoring Well MW83
- Plugging of Well MW29
- Plugging of Well MW33
- Plugging of Well MW45
- Plugging of Well MW83
- Plugging of Well RW22



Michael E Bentley

3-25-2010

Michael E. Bentley, P.G. 6748
Senior Hydrogeologist

Certification

This is to certify that the installation of the following facility components authorized or required by TCEQ Compliance Plan CP-50134 has been completed, and that construction or plugging of these components has been performed in accordance with and in compliance with the design and construction specifications of Section III.E and Attachment B of Compliance Plan No. CP-50134:

- Monitoring Well MW84
- Monitoring Well MW85
- Monitoring Well MW86
- Monitoring Well MW87
- Monitoring Well MW88
- Monitoring Well MW89
- Monitoring Well MW91
- Monitoring Well MW93
- Monitoring Well MW94
- Monitoring Well MW95
- Monitoring Well MW96
- Monitoring Well MW97
- Monitoring Well MW98

3-25-2010

Kelly Beck, P.G. 2523
Senior Hydrogeologist



3-25-2010