

3R - 186

REPORTS

DATE:

1999



Certified Mail: #Z 213 707 666 (Box 1 of 2)
#Z 213 707 664 (Box 2 of 2)

March 24, 2000

Mr. William C. Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87504

RECEIVED

MAR 23 2000

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: 1999 Pit Project Annual Groundwater Report

Dear Mr. Olson:

In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual updates for the 32 remaining groundwater impacted locations that were identified during our pit closure project of 1994 / 1995.

Of the 32 reports, EPFS hereby requests closure of 4 of these locations. The 4 sites EPFS is requesting closure on are presented in one separate binder entitled "San Juan Basin Pit Closures, El Paso Field Services, Pit Closure Reports".

The Jaquez Com. C #1 and Jaquez Com. E #1 site is included in a separate report which is entitled "Jaquez Com. C #1 and Jaquez Com. E #1 Annual Report for Soil and Groundwater Remediation".

EPFS has also included for your information five Navajo sites in a separate binder and a separate report for the Bisti Flare Pit #1.

If you have any questions concerning the enclosed reports or closure requests, please call me at (505) 599-2124.

Sincerely,

A handwritten signature in dark ink that reads "Scott T. Pope".

Scott T. Pope P.G.
Senior Environmental Scientist

cc: Mr. Denny Foust, NMOCD, Aztec - w / enclosures; **Certified Mail # Z 213 707 667**
Mr. Bill Liesse, BLM - w / enclosures; **Certified Mail # Z 213 707 668**
Mr. John Jaquez, - w / Jaquez enclosures; **Certified Mail # Z 213 707 669**
Ms. Charmaine Tso, Navajo EPA - w / enclosures; **Certified Mail # Z 213 707 670**

bc: J. A. Lambdin w / enclosures

Philip Services Corp. – Cecil Irby, w / o enclosures

B. B. McDaniel / 24321 – NMOCD Regulatory w / o

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services Pit Project Groundwater Report
Annual Report

March 2000

RECEIVED

MAR 29 2000

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

Prepared For

El Paso Field Services
Farmington, New Mexico

Project 62800158



EPFS GROUNDWATER PITS 1999 ANNUAL GROUNDWATER REPORT

**HAMMOND #41 A
Meter/Line ID - 89894**

SITE DETAILS

Legals - Twn: 27N Rng: 8W Sec: 25 Unit: O
NMOCD Hazard Ranking: 40 Land Type: FEDERAL
Operator: R & G DRILLING COMPANY

PREVIOUS ACTIVITIES

Site Assessment: Jun-94 Excavation: Jul-94 (250 cy) Soil Boring: Jul-95
Geoprobe: Nov-96 Re-Excavation: Mar-97 (1,140 cy) Monitor Well: May-97
Quarterly Sampling Initiated: Jun-97 ORC Nutrient Injection: Jul-98
Additional Monitor Wells: Sep-99

1999 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring continued through 1999.

Monitor Well Installation - The groundwater gradient was estimated based on topography and additional wells were drilled as requested in OCD correspondence dated July 28, 1999.

SUMMARY TABLES

Groundwater analytical data are presented in Table 1. Copies of the laboratory data sheets and associated quality assurance/quality control data are presented as Attachment 1.

SITE MAP

A site map with the groundwater gradient is presented as Figure 1.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

The September 10, 1999, geologic logs and well completion diagrams are presented as Attachment 2.

DISPOSITION OF GENERATED WASTES

There were no wastes generated at this site in 1999.

ISOCONCENTRATION MAPS

BTEX parameters were below regulatory standards in MW-2 and MW-3 and isoconcentration maps were not generated.

CONCLUSIONS

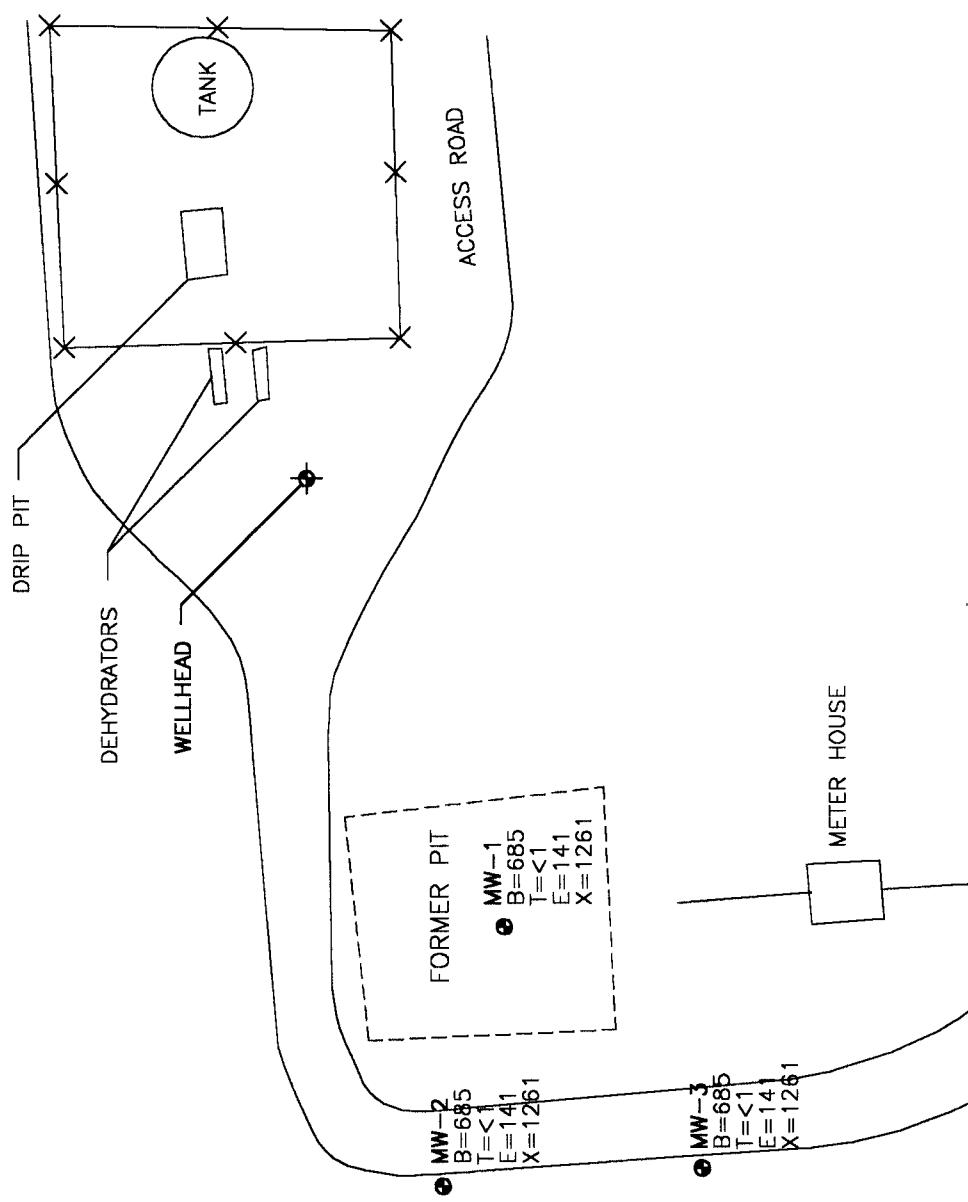
Analytical results of groundwater samples from MW-1 show levels of benzene above New Mexico Groundwater Standards. Analytical results of groundwater samples collected from recently installed monitor wells MW-2 and MW-3 show all BTEX constituents below New Mexico Groundwater Standards. Based on groundwater elevations observed in monitor wells MW-1, MW-2, and MW-3 the groundwater gradient is to the north-northwest and benzene levels are localized in the former pit area at MW-1.

EPFS GROUNDWATER PITS 1999 ANNUAL GROUNDWATER REPORT

Pertinent data from past groundwater reports include the following: Based on groundwater levels collected from Geoprobe data, the groundwater flow trends to the northeast on this site. The pit was re-excavated to a depth of approximately 19 feet beneath ground surface. Approximately 1,140 cubic yards of soil were excavated and disposed of at Envirotech's landfarm. Following re-excavation, a groundwater monitoring well was installed in the center of the former pit, and quarterly sampling was initiated. Results of the 1998 nutrient injection pilot test are inconclusive.

RECOMMENDATIONS

- Quarterly sampling will continue at MW-1 until analytical results show hydrocarbon constituents are below New Mexico Groundwater Standards for four consecutive quarters.
- Annual groundwater sampling of MW-2 and MW-3.
- Following OCD approval for closure, all monitoring wells will be abandoned using OCD approved abandonment procedures.



LEGEND

- PZ-1 APPROXIMATE PIEZOMETER LOCATION AND NUMBER
- PH-1 APPROXIMATE PROBEHOLE LOCATION AND NUMBER
- MW-1 APPROXIMATE MONITORING WELL LOCATION AND NUMBER
- B BENZENE (ug\L)
- T TOLUENE (ug\L)
- E ETHYL BENZENE (ug\L)
- X XYLENE (ug\L)
- ug\L MICROGRAMS PER LITER
- 81.1 GROUNDWATER POTENTIOMETER SURFACE
- ➡ APPROXIMATE GROUNDWATER GRADIENT



	TITLE: HAMMOND 41 A METER 89894		PROJECT NO.: 62800018	
	DWN: TMM	DES: CI	EPFS GW PITS	
	CHKD: CI	APPD:		
	DATE: 11/3/99	REV: 0	FIGURE 1	

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total BTEX
990107	89894	Hammond #41A	03/22/99	1	Sample 4 - 8th Quarter	= 197	< 1.00	= 15.8	= 74.1	= 287
990280	89894	Hammond #41A	06/11/99	1	Sample 4 - 9th Quarter	= 260	= 3.30	= 42.0	= 270	= 575
990387	89894	Hammond #41A	09/20/99	1	Sample 4 - 10th Quarter	= 460	= 16.00	= 78.0	= 440	= 994
990473	89894	Hammond #41A	12/09/99	1	Sample 4 - 11th Quarter	= 110	= 3.90	= 13.0	= 53	= 180
990418	89894	Hammond #41A	10/15/99	2	Sample 4 - 1st Quarter	< 0.5	< 0.5	< 0.5	< 0.5	< 2
990419	89894	Hammond #41A	10/15/99	3	Sample 4 - 1st Quarter	< 0.5	< 0.5	< 0.5	< 0.5	< 2

ATTACHMENT 1
1999 GROUNDWATER ANALYTICAL



A 2443

[illegible]



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990107
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	3/22/99	1548
PROJECT:	Sample 4 8th Quarter	
DATE OF BTEX EXT. ANAL.:	NA	3/23/99
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	197	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	15.8	PPB				
TOTAL XYLENES	74.1	PPB				
TOTAL BTEX	287	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 115.4 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By:

John L. Linder

Date:

5/7/99



Well Development and Purging Data

Site Name HAMMOND #41A

☐ Development
☒ Purging

Well Number MW-1

Meter Code 89894

Development Criteria

- ☒ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other _____

Methods of Development

- ☐ Pump
Centrifugal ☒ Bottom Valve
☐ Submersible ☐ Double Check Valve
☐ Peristaltic ☐ Stainless-steel Kemmerer

Water Volume Calculation

Initial Depth of Well (feet) 277.10
Initial Depth to Water (feet) 177.56
Height of Water Column in Well (feet) 9.54

Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		<u>6.3</u>	<u>18.9</u>
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other D.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Water Removal Data

Date	Time	Development Method	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gal)		Product Volume Removed (gallons)		pH	Conductivity $\mu\text{mho/cm}$	Dissolved Oxygen mg/L	Comments
						Increment	Cumulative	Increment	Cumulative				
3-22-99	1410									5.92	3880		
3-22-99	1416					5.0	5.0			5.91	4130		
3-22-99	1423					5.0	10.0			6.04	4280		
3-22-99	1430					5.0	15.0			6.32	4230		
3-22-99	1437					5.0	20.0			6.48	4190	1.0	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird

Date 3-22-99 Reviewer John Smith

Date 5/7/99



EL PASO FIELD SERVICES

QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX
Samples: 990106 to 990107

QA/QC for 03/22/99 Sample Set #3

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
ICV LA-52589 50 PPB						
Benzene	Standard	50.0	51.2	102.4	75 - 125 %	X
Toluene	Standard	50.0	51.1	102.3	75 - 125 %	X
Ethylbenzene	Standard	50.0	52.1	104.3	75 - 125 %	X
m & p - Xylene	Standard	100	104.5	104.5	75 - 125 %	X
o - Xylene	Standard	50.0	51.8	103.6	75 - 125 %	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
LCS LA-45476 25 PPB						
Benzene	Standard	25.0	24.5	98	39 - 150	X
Toluene	Standard	25.0	24.5	98	46 - 148	X
Ethylbenzene	Standard	25.0	24.8	99	32 - 160	X
m & p - Xylene	Standard	50.0	49.7	99	Not Given	X
o - Xylene	Standard	25.0	24.9	100	Not Given	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE YES NO RANGE	
990106						
Benzene	Matrix Duplicate	70.7	72.1	1.96	+/- 20 %	X
Toluene	Matrix Duplicate	30.6	31.3	2.26	+/- 20 %	X
Ethylbenzene	Matrix Duplicate	0.7	0.7	0.28	+/- 20 %	X
m & p - Xylene	Matrix Duplicate	2.6	2.7	2.73	+/- 20 %	X
o - Xylene	Matrix Duplicate	0.4	0.4	10.00	+/- 20 %	X

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE ID	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
990106						
Benzene	25	70.7	91.0	81	75 - 125 %	X
Toluene	25	30.6	51.2	82	75 - 125 %	X
Ethylbenzene	25	1	20.9	81	75 - 125 %	X
m & p - Xylene	50	3	43.7	82	75 - 125 %	X
o - Xylene	25	0.4	20.7	81	75 - 125 %	X

Narrative: Acceptable.

AUTO BLANK	SOURCE	PPB (1 analyzed with set)	STATUS
Benzene	Boiled Water	<1.0	ACCEPTABLE
Toluene	Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

SOIL VIAL BLANK	SOURCE Lot MB1461	PPB (two analyzed with set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

CONTAMINATION CARRYOVER CHECK	SOURCE	PPB (one analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

TRIP BLANK 031799	SOURCE	PPB (one analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

Reported By: J.S.

Approved By: John Savan

Date: 3/25/99



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	NA	990280
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	6/11/99	1540
PROJECT:	Sample 4 - 9th Quarter	
DATE OF BTEX EXT. ANAL:	NA	6/21/99
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	260	PPB	20	D		
TOLUENE	3.3	PPB	1			
ETHYL BENZENE	42	PPB	1			
TOTAL XYLENES	270	PPB	1			
TOTAL BTEX	575	PPB				

—BTEX is by EPA Method 8021 Modified —

The Surrogate Recovery was at 105 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D" qualifier indicates that the analyte calculated is based on a secondary dilution factor.

Narrative:

This sample was analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By:

John Paulsen

Date:

6/24/99



Well Number NW-1
Meter Code 89894

☐	Development
☒	Purging

Site Name HAMMOND #41A

Development Criteria

- | | |
|-------------------------------------|--|
| ☒ | 3 to 5 Casing Volumes of Water Removal |
| ☐ | Stabilization of Indicator Parameters |
| ☐ | Other |

Water Volume Calculation

Initial Depth of Well (feet) 27.10
Initial Depth to Water (feet) 17.80
Height of Water Column in Well (feet) 9.30

Methods of Development

- | | | | | |
|--------------------------|------------------|-------------------------------------|--------------------------|--------|
| ☐ | Pump Centrifugal | ☒ | Bottom Valve | Bailer |
| ☐ | Submersible | ☐ | Double Check Valve | |
| ☐ | Peristaltic | ☐ | Stainless-steel Kemmerer | |

Instruments

- | | |
|-------------------------------------|---------------------|
| ☒ | pH Meter |
| ☐ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>D.O. C</u> |

Temperature Meter
D.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.1	18.4
Gravel Pack			
Drilling Fluids			
Total			

Water Removal Data

[illegible]

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature
Tennie Bied

Date 6-11-99 Reviewer

John Landrum

Date 6/24/99

PINNACLE
LABORATORIES



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number 906066
June 22, 1999

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

Project Name PIT MONITOR WELLS
Project Number (none)

Attention: JOHN LAMBDIN

On 6/18/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

MR: mt

Enclosure

H. Mitchell Rubenstein, Ph. D.
General Manager

Reviewed & Accepted
J. Sanchez 6/24/99



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE ID : 906066
DATE RECEIVED : 6/18/99
REPORT DATE : 6/22/99

PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	990278 Horton #1E mw#1, mc#93388	AQUEOUS	6/11/99
02	990279 Horton #1E - Field Duplicate	AQUEOUS	6/11/99
03	990280 Hammond #41A mw#1, mc#89894	AQUEOUS	6/11/99
04	990281 (TRIP BLANK)	AQUEOUS	6/11/99



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 906066

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990278	AQUEOUS	6/11/99	NA	6/21/99	1
02	990279	AQUEOUS	6/11/99	NA	6/21/99	1
03	990280	AQUEOUS	6/11/99	NA	6/21/99	1
PARAMETER		DET. LIMIT	UNITS	990278	990279	990280
BENZENE		0.5	UG/L	71	71	260 (D20)
TOLUENE		0.5	UG/L	19	19	3.3
ETHYLBENZENE		0.5	UG/L	0.8	0.8	42
TOTAL XYLENES		0.5	UG/L	2.6	2.7	270

SURROGATE:
BROMOFLUOROBENZENE (%) 87 87 105
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
(D20)= 20X DILUTION, ANALYZED ON 6/21/99



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 906066

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	990281 (TRIP BLANK)	AQUEOUS	6/11/99	NA	6/21/99	1

PARAMETER	DET. LIMIT	UNITS	990281 (TRIP BLANK)
BENZENE	0.5	UG/L	< 0.5
TOLUENE	0.5	UG/L	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 95
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 906066
BLANK I. D.	: 062199	DATE EXTRACTED	: N/A
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 6/21/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 93
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 062199
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D. : 906066
DATE EXTRACTED : N/A
DATE ANALYZED : 6/21/99
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	22.1	111	22.0	110	0	(80 - 120)	20
TOLUENE	<0.5	20.0	19.8	99	20.1	101	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.4	107	20.5	103	4	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	61.2	102	59.1	99	3	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT INFORMATION		PRIORITY AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS	
PROJ NO:		(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK	(NORMAL) ☒
PROJ NAME:	FITTING TRAIL W/IL	CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER	
PO NO:	1111	METHANOL PRESERVATION ☐	
SHIPPED VIA:	FELV-X	COMMENTS: FIXED FEE ☐	
SAMPLE RECEIPT			
NO. CONTAINERS	7		
CUSTODY SEALS	Y/N/NA		
RECEIVED INTACT	Yes		
BLUE ID	66		

PROJECT MANAGER: JEFF L. HARRIS			
COMPANY: EL PASO METRO SERVICES			
ADDRESS: 210 WEST 4TH AVE			
PHONE: 505.241.1111			
FAX: 505.241.1111			
BILL TO: EL PASO METRO SERVICES			
COMPANY ADDRESS:			
SAMPLE ID	DATE	TIME	MATRIX LAB ID
77001	6-11-99	1145	01
77002	6-11-99	1145	02
77003	6-11-99	1145	03
77004	6-11-99	1145	04
Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct Inject (M8015) Gas/Purge & Trap 8021 (BTEX)/8015 (Gasoline) 8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE 8021 (TCL) 8021 (EDX) 8021 (HALO) 8021 (CUST) 504.1 EDB ☐ / DBCP ☐ 8260 (TCL) Volatile Organics 8260 (Full) Volatile Organics 8260 (CUST) Volatile Organics 8260 (Landfill) Volatile Organics Pesticides /PCB (608/8081) Herbicides (615/8151) Base/Neutral/Acid Compounds GC/MS (625/8270) Polynuclear Aromatics (610/8310) General Chemistry: Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals: NUMBER OF CONTAINERS			



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990387
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	09/20/1999	1445
PROJECT:	Sample 4 - 10th Quarter	
DATE OF BTEX EXT. ANAL.:	N/A	09/24/1999
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	460	PPB	5	D		
TOLUENE	16	PPB	5	D		
ETHYL BENZENE	78	PPB	5	D		
TOTAL XYLENES	440	PPB	5	D		
TOTAL BTEX	994	PPB				

--BTEX is by EPA Method 8021 --

The Surrogate Recovery was at 92.0 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D" qualifier indicates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Sample Analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By:

John Sabala

Date:

10-12-99



Well Development and Purging Data

Development	☐
Purging	☒

Well Number MW-1

Meter Code 89894

☒ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other

Initial Depth of Well (feet) 27.10
Initial Depth to Water (feet) 17.36
Height of Water Column in Well (feet) 9.74

☐	Pump Centrifugal	☒	Bottom Valve	Bailer
☐	Submersible	☐	Double Check Valve	
☐	Peristaltic	☐	Stainless-steel Kemmerer	

☒	pH Meter
☐	DO Monitor
☒	Conductivity Meter
☒	Temperature Meter
☒	Other <u>DO, C</u>

Water Disposal

KV72 SEPARATOR

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.4	19.3
Gravel Pack			
Drilling Fluids			
Total			

[illegible]

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature *Annex B*

Date 9-20-99 Reviewer

John F. Elder

Date 10-11-95

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number 909066
September 30, 1999

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401



Project Name PIT MONITOR WELLS
Project Number (none)

Attention: JOHN LAMBDIN

On 9/22/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

A handwritten signature in cursive script, appearing to read "H. Rubenstein".

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

Reviewed + Approved

10-11-99

J. Lambdin

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 909066
PROJECT #	: (none)	DATE RECEIVED	: 9/22/99
PROJECT NAME	: PIT MONITOR WELLS	REPORT DATE	: 9/30/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	990385 Ramenta ET AL #1 - mc# 75155	AQUEOUS	9/20/99
02	990386 Jennapah #1 - mc# 71816	AQUEOUS	9/20/99
03	990387 Hammond #41 A - mc# 89894	AQUEOUS	9/20/99
04	TRIP BLANK	AQUEOUS	9/20/99

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 909066

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990385	AQUEOUS	9/20/99	NA	9/24/99	20
02	990386	AQUEOUS	9/20/99	NA	9/24/99	5
03	990387	AQUEOUS	9/20/99	NA	9/24/99	5
PARAMETER		DET. LIMIT	UNITS	990385	990386	990387
BENZENE		0.5	UG/L	66	9.0	460
TOLUENE		0.5	UG/L	< 10	310	16
ETHYLBENZENE		0.5	UG/L	74	200	78
TOTAL XYLENES		0.5	UG/L	400	1900	440

SURROGATE:

TRIFLUOROTOLUENE (%)

98

81

92

SURROGATE LIMITS (69 - 117)

CHEMIST NOTES:

N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 909066

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	TRIP BLANK	AQUEOUS	9/20/99	NA	9/24/99	1
PARAMETER		DET. LIMIT	UNITS	TRIP BLANK		
BENZENE		0.5	UG/L	< 0.5		
TOLUENE		0.5	UG/L	< 0.5		
ETHYLBENZENE		0.5	UG/L	< 0.5		
TOTAL XYLENES		0.5	UG/L	< 0.5		

SURROGATE:

TRIFLUOROTOLUENE (%)

104

SURROGATE LIMITS (69 - 117)

CHEMIST NOTES:

N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 909066
BLANK I. D.	: 092499	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 9/24/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE: TRIFLUOROTOLUENE (%) 103
SURROGATE LIMITS (69 - 117)

N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 909066
BLANK I. D.	: 092999	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 9/29/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:

TRIFLUOROTOLUENE (%)	116
----------------------	-----

SURROGATE LIMITS (69 - 117)

N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 000909
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D. : 909066
DATE EXTRACTED : NA
DATE ANALYZED : 9/24/99
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	10.0	11.4	114	11.8	118	3	(80 - 120)	20
TOLUENE	<0.5	10.0	11.0	110	11.1	111	1	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.1	101	10.1	101	0	(80 - 120)	20
TOTAL XYLENES	<0.5	30.0	32.4	108	31.9	106	2	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PROJECT MANAGER: JOHN LAMBORN
 COMPANY: EL PASO FIELD SERVICES
 ADDRESS: 720 WEST NAVARRO
 FARMINGTON, NM 87401
 PHONE: (505) 599-2144
 FAX: (505) 599-2261
 BILL TO: SAME AS ABOVE
 COMPANY:
 ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
990385	9-20-99	1030	WATER	01
990386	9-20-99	1215	WATER	02
990387	9-20-99	1445	WATER	03
TRIP BLANK	9-20-99		WATER	04

ANALYSIS REQUEST														
Petroleum Hydrocarbons (418.1) TRPH														
(MOD.8015) Diesel/Direct Inject														
(M8015) Gas/Purge & Trap														
8021 (BTX)/8015 (Gasoline)														
8021 (BTX) ☐ MTBE ☐ TMB ☐ PCE														
8021 (TCL)														
8021 (EDX)														
8021 (HALO)														
8021 (CUST)														
504.1 EDB ☐ / DBCP ☐														
8260 (TCL) Volatile Organics														
8260 (Full) Volatile Organics														
8260 (CUST) Volatile Organics														
8260 (Landfill) Volatile Organics														
Pesticides /PCB (608/8081)														
Herbicides (615/8151)														
Base/Neutral/Acid Compounds GC/MS (625/8270)														
Polyuclear Aromatics (610/8310)														
General Chemistry:														
Priority Pollutant Metals (13)														
Target Analyte List Metals (23)														
RCRA Metals (8)														
RCRA Metals by TCLP (Method 1311)														
Metals:														
NUMBER OF CONTAINERS	2	2	2	1										

PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS		RECEIVED BY		RECEIVED BY	
PROJ. NO.:		(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK	(NORMAL) ☒	Signature:	Time: 1457	Signature:	Time:
PROJ. NAME:	PIT MONITOR WELLS	CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER		Printed Name:	9-22-99	Printed Name:	Date:
P.O. NO.:		METHANOL PRESERVATION ☐		Company:	EL PASO FIELD SERVICES	Company:	
SHIPPED VIA:	FED-X	COMMENTS: FIXED FEE ☐					
SAMPLE RECEIPT				RECEIVED BY (LAB)			
NO. CONTAINERS	7			Signature:	Time: 1215	Signature:	Time: 2
CUSTODY SEALS	VIN (NA)			Printed Name:	9-22-99	Printed Name:	Date: 9-22-99
RECEIVED/INTACT	YES			American Environmental Network (NM), Inc.			
BLUE ICE	YES						



- ☐ Development
- ☐ Purgings

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 4

Serial No. WDPD-

Project Name	EPAS Groundwater	Project Manager	C. J. R. B. Y.
--------------	------------------	-----------------	----------------

Client Company E-PS

Client Company Hammond #41A Site Name Hammond #41A
Site Address 89894

Development Criteria

☐ 3 to 5 Casing Volumes of Water Removal☐ Stabilization of Indicator Parameters☐ Other[illegible]

☐ pH Meter

☐ DO Monitor☐ Conductivity Meter☐ Temperature Meter☐ Other

Water Disposal

Methods of Development

Pump
Bailer

☐ Centrifugal ☐ Bottom Valve

☐ Submersible ☐ Double Check Valve

☐ Peristaltic ☐ Stainless-steel Kemmerer

☐ Other: _____

Water Removal Data

[illegible]

Circle the date and time that the development criteria are met.

Comments	NO Sample

Developer's Signature(s) Cathy Culbertson

Date 10/15/92

Reviewer _____

Date: _____

Date _____



Water Sampling Data

mw2 p2 of 2

Location No. _____
Group List Number _____
Serial No. WSD- _____
Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____
Date 10/15/99
Project Name EPFS GROUNDWATER Project No. G280001K
Project Manager C. EBY Phase Task No. _____
Site Name HAMMOND #41A 89894

Sampling Specifications

Initial Measurements

Requested Sampling
Depth Interval (feet) _____
Requested Wait Following
Development/Purging (hours) _____

Time Elapsed From Final Development/Purging (hours) _____
Initial Water Depth (feet) 14.12'
Nonaqueous Liquids Present (Describe) _____

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)
Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); - = None

Sample Containers

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
BTEX	2	VOA			X	HCl	X		12:25 11:25

Filter Type _____ Chain-of-Custody Form Number C2393
Comments _____

Signature Cathy Cullen Date 10/15/99 Reviewer _____ Date _____

Project Name EPES GROUNDWATER

Project Manager C. ILLBY

Project No. 0280018

Client Company EPES

Phase/Task No.

Site Name HAMMOND #41 A

Site Address 89894

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal

☒ Stabilization of Indicator Parameters

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 25

Initial Depth to Water (feet) 14.12

Height of Water Column in Well (feet) 9.88

Diameter (inches): Well Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		<u>2</u>	<u>6.0</u>
Gravel Pack			
Drilling Fluids			
Total			

Methods of Development

Pump ☐ Bailer ☒

☐ Centrifugal ☒ Bottom Valve

☐ Submersible ☐ Double Check Valve

☐ Peristaltic ☐ Stainless-steel Kemmerer

☐ Other

Instruments

☒ pH Meter

☐ DO Monitor

☒ Conductivity Meter

☒ Temperature Meter

☐ Other

Serial No. (if applicable)

Water Disposal DUMP ON ROAD

Water Removal Data

Date	Time	Development Method	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		pH	Conductivity (umhos/cm)	Dissolved Oxygen (mg/L)	Comments
						Incremental	Cumulative				
10/18/99	10:50	X				1		6.69	1540	*9	WATER IS
10/15/99	11:05	X				1		6.83	1480	16.4 mg/L	SLIGHTLY TOL. BOD
10/15/99	11:08	X				1		7.1	1740		W/ BACTERIA SENSITIVE
10/15/99	11:12	X				1		7.2	1650		
10/15/99	11:15	X				1		7.37	1780		
10/15/99	11:20	X				1		7.42	1980		
10/15/99	11:23	X				1		7.36	2020		
10/15/99	11:27	X				1		7.39	2040		

Circle the date and time that the development criteria are met.

Comments 2 BATTERY DRAIN SAMPLE #1

Sample ID Hammond MW-2

Developer's Signature(s) Cathy Culbert

Reviewer

Date 10/15/99

Date



Water Sampling Data

M03 p 2 of 2

Location No. _____

Serial No. WSD- _____

Group List Number _____

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____

Date 10/15/99

Project Name EPFS GROUNDWATER

Project No. 02800018

Project Manager CIRBY

Phase/Task No. _____

Site Name HAMMOND 41A 89894

Sampling Specifications

Initial Measurements

Requested Sampling
Depth Interval (feet) _____
Requested Wait Following
Development/Purging (hours) _____

Time Elapsed From Final Development/Purging (hours) _____

Initial Water Depth (feet) 16.43'

Nonaqueous Liquids Present (Describe) _____

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data				Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Final Water Depth (feet)	

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)
Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); - = None

Sample Containers

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No	
BTEX	2	VOA			X	HCl	X		11:50 11:50

Filter Type _____

Chain-of-Custody Form Number C2393

Comments _____

Signature Cathy Culbert Date 10/15/99

Reviewer _____ Date _____



Well Number MW-3

Serial No. WDPD.

Project Name EPHS Groundwater

Client Company EPES

Site Name: HANNAH 4A

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal

XX Stabilization of Indicator Parameters

☐ Other

Methods of Development

Pump
Bailer

☐ Centrifugal ☒ Bottom Valve

☐ Submersible ☐ Double Check Valve

☐ Peristaltic ☐ Stainless-steel Kernnerer

☐ Other

WELL DEVELOPMENT AND PURGING DATA

Page 1 of 1

Project Manager
C. F. B. Y.

Phase, Task No.

Site Address 89894

Water Volume Calculation

Initial Depth of Well (feet) 25

Initial Depth to Water (feet) 16.43

Height of Water Column in Well (feet) 6.57

Diameter (inches): Well Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		2	4.2
Gravel Pack			
Drilling Fluids			
Total			

Water Removal Data

[illegible]

Circle the date and time that the development colleague next met

Comments	Sample ID - Flamingo MW-3
----------	---------------------------

Developer's Signature(s) Cathy Culbert

Date 10/15/99

Reviewer _____ Date: _____

**MC# 89894, HAMMOND #41A,
MW-1 : Sample 4 - 11th Quarter**



Well Development and Purging Data

☐	Development
☒	Purging

Well Number MW-1
Meter Code 89894

Site Name HAMMOND #44A

Development Criteria

- ☒ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other

Methods of Development

- | | | | |
|--------------------------|-------------|-------------------------------------|--------------------------|
| ☐ | Pump | ☒ | Bailer |
| ☐ | Centrifugal | ☒ | Bottom Valve |
| ☐ | Submersible | ☐ | Double Check Valve |
| ☐ | Peristaltic | ☐ | Stainless-steel Kemmerer |
| ☐ | Other | | |

Water Volume Calculation

initial Depth of Well (feet) 27.10
 initial Depth to Water (feet) 17.49
 Height of Water Column in Well (feet) 9.68
 Diameter (inches): Well 4 Gravel Pack

Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.4	19.2
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- | | |
|-------------------------------------|------------------------------|
| ☒ | pH Meter |
| ☐ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>D.O. controller</u> |

Water Disposal

KOTZ SEPARATOR

Water Removal Data

[illegible]

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Lennie Bird Date 12-9-99 Reviewer John Luddi Date 12/29/99

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number 912041
December 21, 1999



EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

mc# 93388 - Horton IE, MWI
mc# 89894 - Hammond #41A, MWI

Project Name PIT MONITOR WELLS
Project Number (none)

Attention: JOHN LAMBDIN

On 12/14/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

Reviewed & Approved
J. Sanchez 12/29/99

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT : EL PASO FIELD SERVICES PINNACLE ID : 912041
PROJECT # : (none) DATE RECEIVED : 12/14/99
PROJECT NAME : PIT MONITOR WELLS REPORT DATE : 12/21/99

PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	990471 - MC# 93388 - Horton 1E, MW-1	AQUEOUS	12/9/99
02	990472 - MC# 93388 - Horton 1E, MW-1 Field	AQUEOUS	12/9/99
03	990473 - MC# 89594 - Hennard #4/A, MW-1 Dup	AQUEOUS	12/9/99
04	TRIP BLANK	AQUEOUS	12/9/99

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 912041

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990471	AQUEOUS	12/9/99	NA	12/17/99	1
02	990472	AQUEOUS	12/9/99	NA	12/17/99	1
03	990473	AQUEOUS	12/9/99	NA	12/17/99	1
PARAMETER		DET. LIMIT	UNITS	990471	990472	990473
BENZENE		0.5	UG/L	50	50	110
TOLUENE		0.5	UG/L	9.1	9.1	3.9
ETHYLBENZENE		0.5	UG/L	< 0.5	< 0.5	13
TOTAL XYLENES		0.5	UG/L	1.8	2.0	53

SURROGATE:
BROMOFLUOROBENZENE (%)
SURROGATE LIMITS (80 - 120)

93

93

106

Mc#93388

Mc#93388

Mc#89894
Hammond #41A
MW-1

Horton #1 E

Horton #1 E

MW-1

MW-1

Field
Duplicate

CHEMIST NOTES:
N/A

Good Duplicate!

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 912041

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	TRIP BLANK	AQUEOUS	12/9/99	NA	12/17/99	1

PARAMETER	DET. LIMIT	UNITS	TRIP BLANK
BENZENE	0.5	UG/L	< 0.5
TOLUENE	0.5	UG/L	< 0.5
ETHYLBENZENE	0.5	UG/L	< 0.5
TOTAL XYLENES	0.5	UG/L	< 0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 99
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 912041
BLANK I. D.	: 121799	DATE EXTRACTED	: N/A
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 12/17/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 105
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 121799
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D. : 912041
DATE EXTRACTED : N/A
DATE ANALYZED : 12/17/99
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	22.2	111	22.1	111	0	(80 - 120)	20
TOLUENE	<0.5	20.0	20.9	105	20.9	104	0	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.8	109	21.7	108	1	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	65.8	110	64.7	108	2	(80 - 120)	20

CHEMIST NOTES:
N/A

(Spike Sample Result - Sample Result)

% Recovery = $\frac{\text{Spike Sample Result} - \text{Sample Result}}{\text{Spike Concentration}} \times 100$

(Sample Result - Duplicate Result)

RPD (Relative Percent Difference) = $\frac{\text{Sample Result} - \text{Duplicate Result}}{\text{Average Result}} \times 100$

Acceptable.
J.
12/29/99

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: JOHN CAMPBELL COMPANY: EL PASO FIELD SERVICES ADDRESS: 710 WEST AVENUE PHONE: (505) 579-2144 FAX: (505) 579-2261 BILL TO: SAME AS ABOVE COMPANY: ADDRESS:		ANALYSIS REQUEST Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct Inject (M8015) Gas/Purge & Trap 8021 (BTX)/8015 (Gasoline) MTBE 8021 (BTX) ☐ MTBE ☐ TMB ☐ PCE 8021 (TCL) 8021 (EDX) 8021 (HALO) 8021 (CUST) 504.1 EDB ☐ / DBCP ☐ 8260 (TCL) Volatile Organics 8260 (Full) Volatile Organics 8260 (CUST) Volatile Organics 8260 (Landfill) Volatile Organics Pesticides /PCB (608/8081/8082) Herbicides (615/8151) Base/Neutral/Acid Compounds GC/MS (625/8270) Polynuclear Aromatics (610/8310/8270-SIMS) General Chemistry: Priority Pollutant Metals (13) Target Analyte List Metals (23) RCRA Metals (8) RCRA Metals by TCLP (Method 1311) Metals: NUMBER OF CONTAINERS		
SAMPLE ID 990471 990472 990473 TRIO BLANK	DATE 12-9-99 12-9-99 12-9-99 12-9-99	TIME 1118 1118 1506 04	MATRIX WATER WATER WATER WATER	LAB I.D. 01 02 03 04
PROJECT INFORMATION PROJ. NO.: PROJ. NAME: PTT Medical Products P.O. NO.: SHIPPED VIA: FED-EX SAMPLE RECEIPT NO. CONTAINERS: 7 CUSTODY SEALS: Y/N (NA) RECEIVED INTACT: YES BLUE INK: YES				
PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS (RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER METHANOL PRESERVATION ☐ COMMENTS: FIXED FEE ☐				
RELINQUISHED BY: Signature: <i>John Campbell</i> Printed Name: DEMUS BRD Date: 12-9-99 Company: EL PASO FIELD SERVICES		RELINQUISHED BY: Signature: <i>John Campbell</i> Printed Name: DEMUS BRD Date: 12-9-99 Company: EL PASO FIELD SERVICES		
RECEIVED BY: Signature: <i>John Campbell</i> Printed Name: DEMUS BRD Date: 12-9-99 Company: EL PASO FIELD SERVICES		RECEIVED BY: (LAB) Signature: <i>John Campbell</i> Printed Name: DEMUS BRD Date: 12-9-99 Company: EL PASO FIELD SERVICES		

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990418
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	10/15/1999	1125
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL:	N/A	10/25/1999
TYPE DESCRIPTION:	MW-2	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<0.5	PPB				
TOLUENE	<0.5	PPB				
ETHYL BENZENE	<0.5	PPB				
TOTAL XYLENES	<0.5	PPB				
TOTAL BTEX	<2.0	PPB				

—BTEX is by EPA Method 8021 —

The Surrogate Recovery was at 94 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Sample Analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By: _____

Date: _____

11/2/99

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990419
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	10/15/1999	1150
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	N/A	10/25/1999
TYPE DESCRIPTION:	MW-3	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<0.5	PPB				
TOLUENE	<0.5	PPB				
ETHYL BENZENE	<0.5	PPB				
TOTAL XYLENES	<0.5	PPB				
TOTAL BTEX	<2.0	PPB				

—BTEX is by EPA Method 8021 —

The Surrogate Recovery was at 103 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Sample Analyzed by Pinnacle Laboratories, Albuquerque, NM.

Approved By: _____

John L. Lutz

Date: _____

11/2/99

PHILIP

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 2393

Project Name		Project Number		Phase . Task		Samplers		Laboratory		Name		Location		Sample Number (and depth)		Date		Time		Matrix		Total Number of Bottles		Type of Analysis and Bottle		Comments	
ERFS GROUNDWATER		C2800018		Phase . Task		C. CULLICOTT										10/15/99		0955		AQ		2		X			
MILES FROEAL MW3																		1025									
TRIP BLANK																		1045									
HAMMOND MW2																		1125									
HAMMOND MW3																		1150									
HAMNER MW2																		1250									
HAMNER MW3																		1335									
MESA CPO MW2																		1450									
MESA CPO MW3																		1505									

Relinquished by:		Received By:	
Signature	Date	Signature	Date
Carthy Cullcott	10/15/99	RECEIVED BY Dennis Bird	10-20-99

Samples Iced:		Carrier:	
Yes	No		
☒	☐		
Preservatives (ONLY for Water Samples)			
☐ Cyanide Sodium hydroxide (NaOH)			
☐ Volatile Organic Analysis Hydrochloric acid (HCl)			
☐ Metals Nitric acid (HNO3)			
☐ TPH (418.1) Sulfuric acid (H2SO4)			
☐ Other (Specify)			
☐ Other (Specify)			
Shipping and Lab Notes:			
Airbill No.			

PINNACLE
LABORATORIES



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **910073**
October 28, 1999

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

Project Name PIT MONITOR WELLS
Project Number (none)

Attention: JOHN LAMBDIN

On 10/21/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

A handwritten signature in cursive script, appearing to read 'Kimberly D. McNeill'.

Kimberly D. McNeill
Project Manager

A handwritten signature in cursive script, appearing to read 'H. Mitchell Rubenstein'.

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

Reviewed & Accepted
J. Lambdin 11/2/99

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 910073
PROJECT #	: (none)	DATE RECEIVED	: 10/21/99
PROJECT NAME	: PIT MONITOR WELLS	REPORT DATE	: 10/28/99

PIN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	990416	AQUEOUS	10/15/99
02	990417	AQUEOUS	10/15/99
03	990418	AQUEOUS	10/15/99
04	990419	AQUEOUS	10/15/99
05	990420	AQUEOUS	10/15/99
06	990421	AQUEOUS	10/15/99
07	990422	AQUEOUS	10/15/99
08	990423	AQUEOUS	10/15/99
09	TRIP BLANK	AQUEOUS	10/15/99
10	990424	AQUEOUS	10/19/99
11	990425	AQUEOUS	10/19/99



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 910073

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	990416	AQUEOUS	10/15/99	NA	10/25/99	1
02	990417	AQUEOUS	10/15/99	NA	10/25/99	1
03	990418	AQUEOUS	10/15/99	NA	10/25/99	1
PARAMETER		DET. LIMIT	UNITS	990416	990417	990418
BENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE		0.5	UG/L	2.1	0.9	< 0.5
ETHYLBENZENE		0.5	UG/L	5.5	< 0.5	< 0.5
TOTAL XYLENES		0.5	UG/L	2.8	3.1	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

102

96

94

SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 910073

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	990419	AQUEOUS	10/15/99	NA	10/25/99	1
05	990420	AQUEOUS	10/15/99	NA	10/25/99	1
06	990421	AQUEOUS	10/15/99	NA	10/25/99	1
PARAMETER		DET. LIMIT	UNITS	990419	990420	990421
BENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES		0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

103

104

101

SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 910073

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
07	990422	AQUEOUS	10/15/99	NA	10/25/99	1
08	990423	AQUEOUS	10/15/99	NA	10/25/99	1
09	TRIP BLANK	AQUEOUS	10/15/99	NA	10/25/99	1
PARAMETER		DET. LIMIT	UNITS	990422	990423	TRIP BLANK
BENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOLUENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
ETHYLBENZENE		0.5	UG/L	< 0.5	< 0.5	< 0.5
TOTAL XYLENES		0.5	UG/L	< 0.5	< 0.5	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

102

100

97

SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

V/A

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

PINNACLE I.D.: 910073

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
10	990424	AQUEOUS	10/19/99	NA	10/25/99	1
11	990425	AQUEOUS	10/19/99	NA	10/25/99	1
PARAMETER		DET. LIMIT	UNITS	990424	990425	
BENZENE		0.5	UG/L	< 0.5	< 0.5	
TOLUENE		0.5	UG/L	< 0.5	< 0.5	
ETHYLBENZENE		0.5	UG/L	< 0.5	< 0.5	
TOTAL XYLENES		0.5	UG/L	< 0.5	< 0.5	

SURROGATE:
BROMOFLUOROBENZENE (%) 103 101
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 910073
BLANK I. D.	: 102599	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 10/25/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATE:
BROMOFLUOROBENZENE (%)

102

SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A

**PINNACLE
LABORATORIES**

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

**GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD**

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 910073
MSMSD #	: 910073-03	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 10/25/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	19.7	99	19.8	99	1	(80 - 120)	20
TOLUENE	<0.5	20.0	20.7	104	20.3	102	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	21.0	105	20.8	104	1	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	64.7	108	64.0	107	1	(80 - 120)	20

HEMIST NOTES:
/A

$$\text{Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

ATTACHMENT 2
MONITOR WELL INSTALLATION

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

(505) 326-2282 FAX (505) 326-2388

Borehole #

Well #

Page

1

mw 2

1 of 2

Project Name

Project Number

Project Location

EPFS GROUNDWATER

Phase

62800018 HAMMOND HIA

Well Logged By

Personnel On-Site

Contractors On-Site

Client Personnel On-Site

C. CULLICOTT

K. PADILLA D. PADILLA

Drilling Method

Air Monitoring Method

AUGER

PID

Elevation

Borehole Location

GWL Depth

Logged By

Drilled By

Date/Time Started

Date/Time Completed

T27N R8W S25 0

15.25'

C. CULLICOTT

K. PADILLA D. PADILLA

9/10/99 10am

9/10/99

Metric 89894

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU			Drilling Conditions & Blow Counts
						BZ	BH	S	
0									
5	① 5-7'		① POOR RECOVERY ~3" CONSOLIDATED BROWN SILT W/ TREE ROOTS + CALICHE. CLEAN.						① 14 BLOWS SS 0.0 ppm
10	② 10-12'		② FULL RECOVERY 10-10 1/2 - LOOSE BROWN FINE SAND. 10 1/2 - 11" BROWN SILTY SAND, STIFFER THAN ABOVE. REST LOOSE FINE COMBED SAND. ALL OIL, NO STAIN OR ODOR.						② 24 BLOWS SS 0.0 ppm
15	③ 15-17'		③ FULL RECOVERY. FINE SAND, WATER SATURATED. UNIFORM CLEAN						③ 9 BLOWS SS 0.0 ppm
20			15-25' SAND WITH SLIGHTLY MORE CLAY CONTENT THAN #3.						
25			TD 25'						
30									
35									
40									

Comments:

SUNNY, BREEZY, WARM

DTW 14.3' IN MW 1

Geologist Signature

Cathy Cullicott

MONITORING WELL INSTALLATION RECORD

Tulip Environmental Services Corp.
 1000 Monroe Road
 Farmington, New Mexico 87401
 5051 326-2282 FAX (505) 326-2388

Borehole # 1
 Well # MW 2
 Page 2 of 2

Project Name EPFS GROUNDWATER

Project Number 62800018 Phase
 Project Location HAMMOND 41A

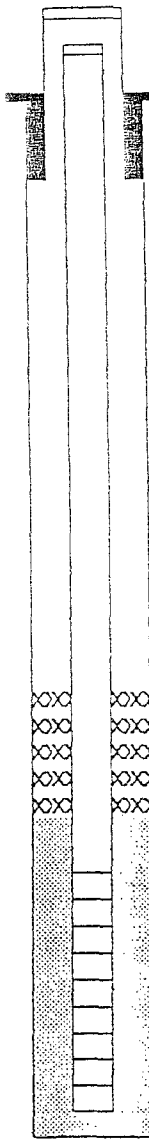
Elevation
 Well Location
 GWL Depth 15.25'
 Installed By K. PADILLA & D. PADILLA

On-Site Geologist C. CULLICOTT
 Personnel On-Site K. PADILLA & D. PADILLA
 Contractors On-Site Ø
 Client Personnel On-Site Ø

Date/Time Started 9/10/99 10am
 Date/Time Completed 9/10/99 12:10pm

meter 89894

Depths in Reference to Ground Surface		
Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser	2"	+1'
Bottom of Well Riser	2"	19'
Top of Well Screen	2"	19'
Bottom of Well Screen	2"	24'
Top of Peltonite Seal	BENT.	15'
Bottom of Peltonite Seal	CHIPS	17'
Top of Gravel Pack	CO SAND	17'
Bottom of Gravel Pack	CO SAND	24'
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		24'



Top of Protective Casing

Top of Riser

Ground Surface

~~HOLE LEFT~~

OPEN ABOVE

BENT. SEAL

BACKFILLED

w/ CUTTINGS

Top of Seal 15'

Top of Gravel Pack 17'

Top of Screen 19'

Bottom of Screen 24'

Bottom of Borehole 24'

Comments: WELL DRILLED TO 25', AUGER FILLED WITH INFLOWING SAND,
ABLE TO GET PIPE TO ~24' TO SET WELL

Well Developed w/ 7 gallons removed, 1:05-1:30pm WATER LEVEL AFTER PURGING IS WITHIN 1/10' OF LEVEL BEFORE PURGE. EXCELLENT PRODUCER.

Geologist Signature

Cathy Cullicott

WATER IS TURBID,
 BUT HAS NO
 OBVIOUS ODOR.

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

(505) 326-2282 FAX (505) 326-2388

Borehole #

Well #

Page

2
MCW3
1 of 2

Project Name

Project Number

Project Location

EPFS G-W

02800018 Phase

HAMMOND 41A

Well Logged By

Personnel On-Site

Contractors On-Site

Client Personnel On-Site

C. CULLICOTT

K. PADILLA & D. PADILLA

0

0

Drilling Method

Air Monitoring Method

AUGER

PID

Location

Borehole Location

GWL Depth

Logged By

Drilled By

Date/Time Started

Date/Time Completed

T27N R 8W S25O

13.15'

C. CULLICOTT

K. PADILLA & D. PADILLA

9/10/99 12:15 PM

9/10/99 1:45 PM

Water 89894

Depth (Feet)	Sample Interval	Sample Type & Recovery (Inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU			Drilling Conditions & Blow Counts
						BZ	BH	S	
0									
5	① 5-7		① 12" RECOVERY 6" STIFF BROWN SANDY SILT WITH VISIBLE LAYERING. THEN 6" OF LOOSE, FINE SAND. BOTH ARE BROWN, DRY, & CLEAN.						① 45 BLOWS SS 0.0 ppm
10	② 10-12								② 32 BLOWS SS 0.0 ppm
15	③ 15-17		② FULL RECOVERY UPPER 6" STIFF BROWN SILT. THEN 12" FINE TO MEDIUM SAND, LOOSE BOTTOM 6" STIFF BROWN CLAYEY SILT, DAMP, w/ TREE ROOTS & PIECES OF WOOD. ALL ARE CLEAN.						③ 9 BLOWS SS 0.0 ppm
20									
25									
30			③ WATER SATURATED FINE TO MEDIUM SAND, GRAY, CLEAN. Higher % fine sand @ TOP OF SPOON, COARSENS DOWNWARD.						
35									
40			TD 25'						

Comments:

SUNNY, BREEZY, WARM

Geologist Signature

Cathy Cullcott

MONITORING WELL INSTALLATION RECORD

Mullip Environmental Services Corp.
1000 Monroe Road
Farmington, New Mexico 87401
5051 326-2262 FAX (505) 326-2388

Borehole # 2
Well # MW3
Page 2 of 2

Project Name EPFS GW

Project Number 02800018 Phase
Project Location HAMMOND 41A

On-Site Geologist C. CULLICOTT
Personnel On-Site F. PADILLA & D. PADILLA
Contractors On-Site
Client Personnel On-Site

Elevation
Well Location T27N R8W S25 O
GWL Depth 13.15'
Installed By F. PADILLA & D. PADILLA

Date/Time Started 9/10/99 12:15pm
Date/Time Completed 9/10/99 1:45pm

METER 89894

Depths in Reference to Ground Surface			
Item	Material	Depth	
Top of Protective Casing			Top of Protective Casing
Bottom of Protective Casing			Top of Riser
Top of Permanent Borehole Casing			Ground Surface
Bottom of Permanent Borehole Casing			
Top of Concrete			
Bottom of Concrete			
Top of Grout			
Bottom of Grout			
Top of Well Riser	2"	+1	
Bottom of Well Riser	2"	10'	
Top of Well Screen	2"	10'	
Bottom of Well Screen	2"	25'	
Top of Peltonite Seal	BENT	6'	Top of Seal
Bottom of Peltonite Seal	CHIPS	8'	
Top of Gravel Pack	CO	8'	Top of Gravel Pack
Bottom of Gravel Pack	SAND	25'	Top of Screen
Top of Natural Cave-In			
Bottom of Natural Cave-In			
Top of Groundwater			
Total Depth of Borehole		25'	Bottom of Screen
			Bottom of Borehole

Diagram showing well installation with casing, riser, screen, and seals. The well is labeled 'BACK FILLED w/ CUTTINGS'.

Comments: 7 gallons bailed 1:55-2:15pm DTW AFTER BURGING
14.20' WATER IS TURBID BUT HAS NO ODOR.

Geologist Signature

Cathy Cullicott