

3R - 186

REPORTS

DATE:

1998

**EPFS GROUNDWATER PITS
1998 ANNUAL GROUNDWATER REPORT**

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

RECEIVED

APR 05 1999

SITE DETAILS

**Legals - Twn: 27N Rng: 8W
NMOCD Hazard Ranking: 40
Operator: R & G DRILLING COMPANY**

**Sec: 25 Unit: O
Land Type: FEDERAL**

**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

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		

1998 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring continued through 1998. Groundwater analytical data are presented in Table 1. A site map is presented as Figure 1.

Nutrient Injection Pilot Test - Three borings were drilled and ORC (oxygenated compound) was installed into the borings just up-gradient from MW-1. The borings were drilled to a depth of 22 feet below ground surface (bgs) with 10 inch OD augers. A slurry consisting of 60 pounds of ORC mixed with 10 gallons of water was then injected into the open borehole to a depth of 1 foot above the water table at approximately 16 feet bgs. A 2 foot thick bentonite seal was then placed over the slurry and the rest of the hole was filled with cement/bentonite grout. Information regarding the completion and placement of the nutrient injection borings can be found in the Nutrient Injection section of this report.

CONCLUSIONS

Analytical results of groundwater samples from MW-1 show levels of benzene above New Mexico Groundwater Standards.

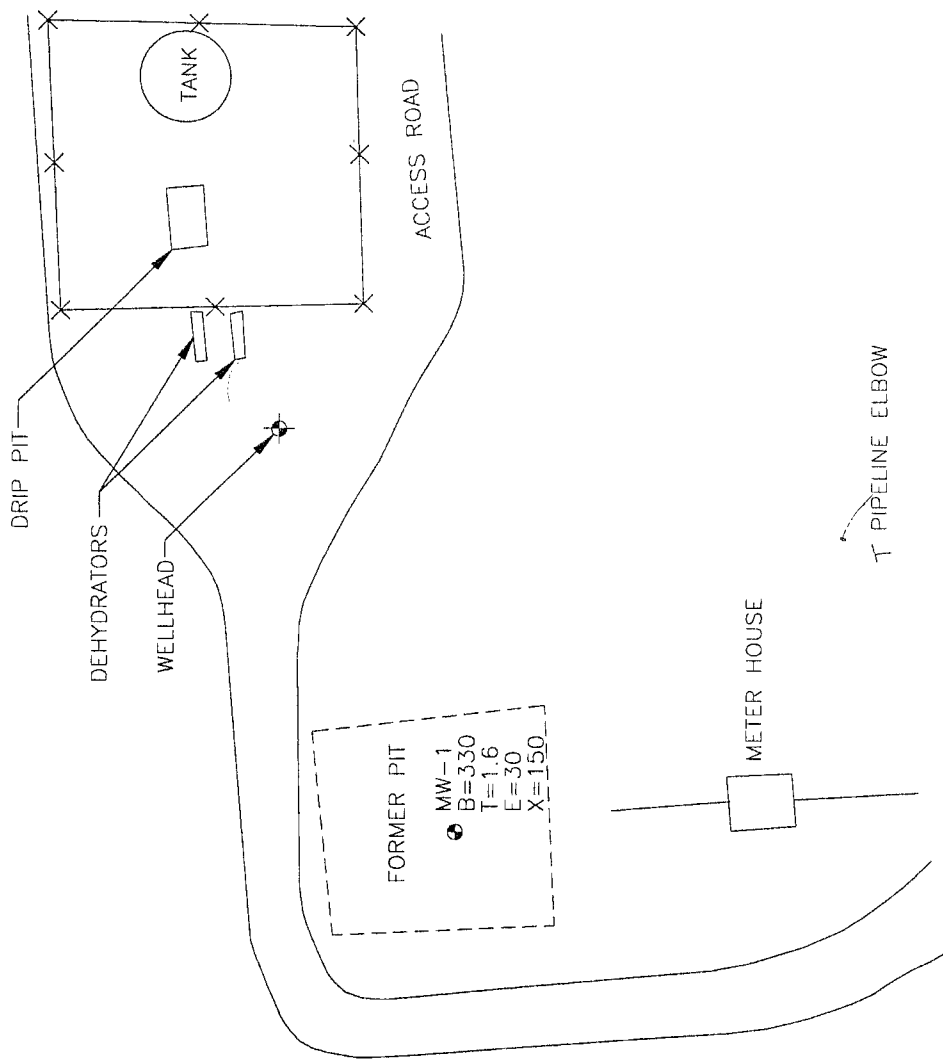
Results of the nutrient injection pilot test are inconclusive. The BTEX levels in the groundwater were reduced to approximately one half of the original BTEX levels the month prior to the nutrient injection pilot test. No BTEX reductions have been observed since the pilot test was completed.

Pertinent data from the 1997 groundwater report 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.

Four groundwater samples were collected using a Geoprobe. A sample collected from PZ-2 was in excess of standards for benzene, toluene, and total xylenes. One sample from PZ-3 was in excess of standards for benzene at 12.6 ppb. Groundwater samples collected from MW-1 during the second quarter of 1997 are in excess of standards for benzene and total xylenes. Off-site work will be required to determine the down-gradient extent of contaminants.

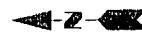
RECOMMENDATIONS

- The OCD requests that EPFS install additional groundwater monitoring wells to monitor and determine the extent of groundwater contamination.
- Obtain permission to conduct an off-site investigation.
- Collect groundwater sample further down-gradient of MW-1. If no further migration has occurred, site may be a candidate for risk based closure.
- Quarterly sampling will continue at MW-1 until analytical results show hydrocarbon constituents are below New Mexico Groundwater Standards for four consecutive quarters.
- Following OCD approval for closure, MW-1 will be abandoned using OCD approved abandonment procedures.
- ORC nutrient injection is not recommended for future use at this site.



LEGEND

- 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



NOT TO SCALE

TITLE:

HAMMOND 41 A
METER 89894
DECEMBER 17, 1998



PROJECT NO.: 17520

EPFS GW PITS

DWN: TMM

CHKD: CI

DES: CI

APPD:

DATE: 2/9/99

REV: 0

FIGURE 1

EPFS Groundwater Plots
1998 Groundwater Report

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total BTEX
980245	89894	Hammond #41A	03/20/98	1	Sample 4 - 4th Quarter	= 662	= 3.06	= 78.7	= 292	= 1035
980455	89894	Hammond #41A	06/04/98	1	Sample 4 - 5th Quarter	= 286	= 2.43	= 38.4	= 140	= 466
980634	89894	Hammond #41A	09/10/98	1	Sample 4 - 6th Quarter	= 391	< 1.00	= 34.0	= 144	= 568
980874	89894	Hammond #41A	12/17/98	1	Sample 4 - 7th Quarter	= 330	= 1.60	= 30.0	= 150	= 512

NUTRIENT INJECTION

NUTRIENT INJECTION

PHILIP SERVICES CORP.

4000 Monroe Rd.

Farmington, NM 87401

(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GL PITS
Project Number/Phase 17520 9000
Driller K. Padilla
Date/Time Started 7/9/98
Date/Time Completed 7/9/98

BH # 1
BH Location S. of MW1
Site Name Hammond 4/A 89894

BOREHOLE

Ground Surface →

Top of Grout 0'

Cement/Bentonite Grout
(5% Bentonite) →

Top of Bentonite 13'

Bentonite Seal →

Top of Slurry 15'

ORC Slurry →

Top of Groundwater 16'

Depth of Borehole 22'

Comments: 60 pounds ORC 10 gal water. Seal hydrated w/ 5 gal
potable water

Drillers/Geologist Signature

Coy Clancy

NUTRIENT INJECTION

PHILIP SERVICES CORP.

4000 Monroe Rd.

Farmington, NM 87401

(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GW PITS
Project Number/Phase 17520 9000
Driller K Padilla
Date/Time Started 7/9/98
Date/Time Completed 7/9/98

BH # 2
BH Location SE of MW1
Site Name Hammond 4/A 89894

BOREHOLE

Ground Surface →

Top of Grout 0'

Cement/Bentonite Grout
(5% Bentonite) →

Top of Bentonite 13'

Bentonite Seal →

Top of Slurry 15'

ORC Slurry →

Top of Groundwater 16'

Depth of Borehole 22'

Comments:

60 pounds ORC 10 gallons water. Seal hydrated w/ 5 gal
potable water

Drillers/Geologist Signature

Cory Chaney

NUTRIENT INJECTION

PHILIP SERVICES CORP.

4000 Monroe Rd.

Farmington, NM 87401

(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GW PITS
Project Number/Phase 17520, 9000
Driller K Padilla
Date/Time Started 7/9/98
Date/Time Completed 7/9/98

BH # 3
BH Location E. of MW1
Site Name Hammond 4/A 89894

BOREHOLE

Ground Surface →

Top of Grout 0

Cement/Bentonite Grout
(5% Bentonite) →

Top of Bentonite 13'

Bentonite Seal →

Top of Slurry 15'

ORC Slurry →

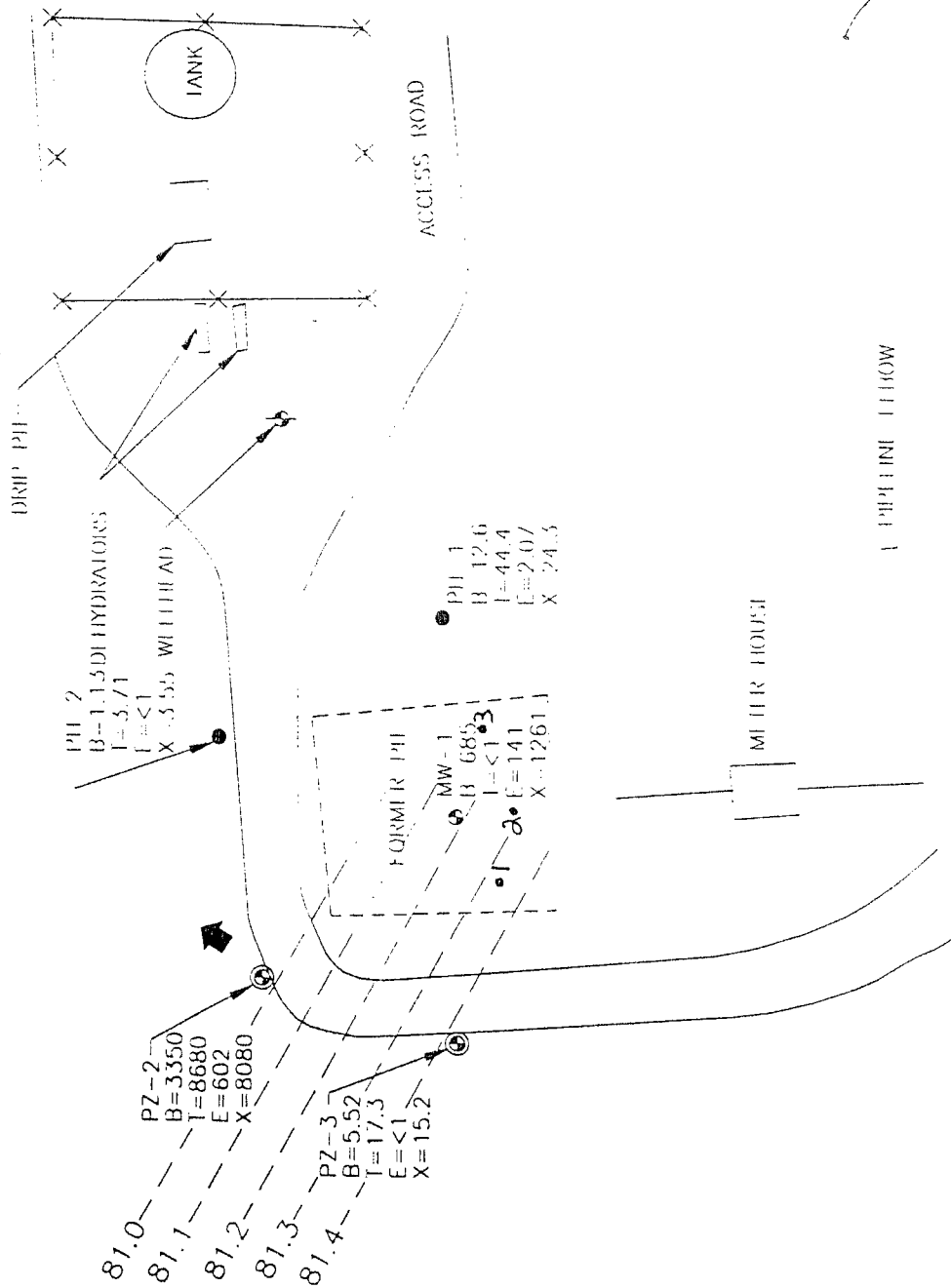
Top of Groundwater 16'

Depth of Borehole 22'

Comments: 60 pounds ORC 10 gal water Seal hydrated w/ 5 gal
potable water

Drillers/Geologist Signature

Cory Chaney



		175201-001	
HAMMOND 41 A MILLER 89894		PROJECT NO. 17520 EPFS GW PITS	
DWN TMM CHD.	DES. CC APPD.	DATE 1/20/98	REV. 0
FIGURE 1		175201-001	

1998 GROUNDWATER ANALYTICAL



Well Number MW-1
Meter Code 89894

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

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

Initial Depth of Well (feet) 21.0
Initial Depth to Water (feet) 18.05
Height of Water Column in Well (feet) 9.05
Diameter (inches): Well 4 Gravel Pack

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

KUTZ SEPARATOR

[illegible]

Developer's Signature *Tennis Bird* Date 3-20-98 Reviewer _____

Date 3/25/98



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980245
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	3/20/98	1200
PROJECT:	Sample 4 4th Quarter	
DATE OF BTEX EXT. ANAL.:	3/24/98	3/24/98
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	662	PPB	10	D		
TOLUENE	3.06	PPB				
ETHYL BENZENE	78.7	PPB				
TOTAL XYLENES	292	PPB				
TOTAL BTEX	1035	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97.1 % 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: _____

Approved By: _____

John Latch

980245BTEXMW, 3/25/98

Date: _____

3/25/98



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) 271.0
Initial Depth to Water (feet) 18.54
Height of Water Column in Well (feet) 8.56
Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		<u>5.7</u>	<u>17.0</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
		Pump	Bailer				Increment	Cumulative	Increment	Cumulative				
6-4-98	1315													
6-4-98	1320						5.0	5.0			6.55	3570		
6-4-98	1326						5.0	10.0			6.57	4260		
6-4-98	1333						5.0	15.0			6.74	4370		
6-4-98	1340						5.0	20.0			6.83	4520		
											6.86	4570	1.0	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird

Date 6-4-98

Reviewer

J. J. J. J.

Date

6/10/98



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:

Field ID

Lab ID

MTR CODE | SITE NAME:

SAMPLE DATE | TIME (Hrs):

PROJECT:

DATE OF BTEX EXT. | ANAL.:

TYPE | DESCRIPTION:

N/A	980455
89894	Hammond #41A
6/4/98	1353
Sample 4 5th Quarter	
6/5/98	6/5/98
MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	286	PPB	5	D		
TOLUENE	2.43	PPB				
ETHYL BENZENE	38.4	PPB				
TOTAL XYLENES	140	PPB				
TOTAL BTEX	466	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 96.5 % 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:

Approved By:

John Fawcett

Date:

6/17/98

980455BTEXMW, 6/10/98

CHAIN OF CUSTODY RECORD

Project No.	Project Name		Requested Analysis		Remarks	
Samplers: (Signature)		Date	Type and No. of Sample Containers	Preservation Technique		
SAMPLE 4 STAIR		MT# 89294				
Donnie Bird		Date: 6-4-98				
MT# 89294	Time	Comp.	GRAB	Sample Number		
6/4/98	1353		X	980455	51 42 X	HAMMOND #41A MW-1
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Donnie Bird	6/4/98 1723					
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:		
		Mark Rapp	6/5/98 1430			
Carrier Co:	Carrier Phone No.		Date Results Reported / by: (Signature)			
Air Bill No.:						



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 |

Water Volume Calculation

Initial Depth of Well (feet) 27.10
Initial Depth to Water (feet) 18.19
Height of Water Column in Well (feet) 8.91

Methods of Development

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

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other 200

Temperature Meter
D.O. CHEMETS KIT

Water Disposal

KOTZ SEPARATOP

Water Removal Data

[illegible]

Comments: THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Brad

9-10-98

The Touch

Date 9/17/98

**FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT**

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980634
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	9/10/98	1509
PROJECT:	Sample 4 6th Quarter	
DATE OF BTEX EXT. ANAL:	9/15/98	9/15/98
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	391	PPB	2	D		
TOLUENE	<1	PPB	2	D		
ETHYL BENZENE	34.0	PPB	2	D		
TOTAL XYLENES	144	PPB	2	D		
TOTAL BTEX	568	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 110.7 % 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: _____

Approved By: _____

John Savoca

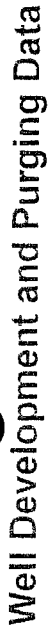
Date: _____

9/17/98

980634BTEXMonitorWell, 9/16/98

CHAIN OF CUSTODY RECORD

[illegible]



Well Development and Purging Data

Development Criteria

Methods of Development

Water Volume Calculation

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>DO-C</u>

Water Disposal

NOT SEPARATE

Water Removal Data

[illegible]

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL. YSI DISSOLVED OXYGEN METER - 0.

Developer's Signature Denise Bird Date 12-17-98 Reviewer John Fuchs Date 1-11-99

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980874
MTR CODE SITE NAME:	89894	Hammond #41A
SAMPLE DATE TIME (Hrs):	12/17/98	1443
PROJECT:	Sample 4 7th Quarter	
DATE OF BTEX EXT. ANAL.:	NA	12/29/98
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	330	PPB	1			
TOLUENE	1.6	PPB	1			
ETHYL BENZENE	30	PPB	1			
TOTAL XYLENES	150	PPB	1			
TOTAL BTEX	512	PPB				

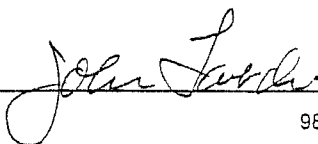
--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 114 for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Sample Analyzed by Pinnical Laboratories.

Approved By: _____

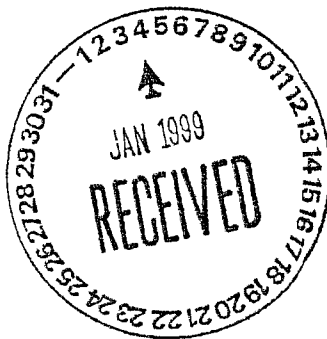


Date: _____

1-11-99

980874BTEXMW, 1/11/99

PINNACLE
LABORATORIES



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

Pinnacle Lab ID number 812083
December 30, 1998

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

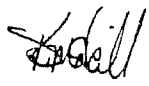
980867 to 980869
980872 to 980874
+ 2 Trip Blanks

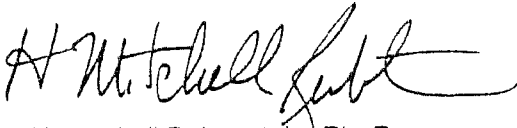
Project Name QTRLY MONITOR WELL
Project Number (none)

Attention: JOHN LAMBDIN

On 12/22/98 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


H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

Reviewed & Approved
J. Sarch
1-6-99



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	: 812083
PROJECT #	: (none)	DATE RECEIVED	: 12/22/98
PROJECT NAME	: QTRLY MONITOR WELL	REPORT DATE	: 12/30/98

LN	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
1	980867	AQUEOUS	12/15/98
2	980868	AQUEOUS	12/15/98
3	980869	AQUEOUS	12/15/98
4	980872	AQUEOUS	12/15/98
5	980873	AQUEOUS	12/17/98
6	980874	AQUEOUS	12/17/98
7	TRIP BLANK	AQUEOUS	12/15/98
8	TRIP BLANK	AQUEOUS	12/17/98

GAS CHROMATOGRAPHY RESULTS

EST : EPA 8021 MODIFIED
 CLIENT : EL PASO FIELD SERVICES
 PROJECT # : (none)
 PROJECT NAME : QTRLY MONITOR WELL

PINNACLE I.D.: 812083

AMPLE			DATE	DATE	DATE	DIL.
D. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
1	980867	AQUEOUS	12/15/98	NA	12/29/98	10
2	980868	AQUEOUS	12/15/98	NA	12/28/98	1
3	980869	AQUEOUS	12/15/98	NA	12/28/98	25

PARAMETER	DET. LIMIT	UNITS	980867	980868	980869
BENZENE	0.5	UG/L	7.3	9.8	710
OLUENE	0.5	UG/L	15	79	1300
T BENZENE	0.5	UG/L	100	61	160
OT XYLENES	0.5	UG/L	820	460	940

SURROGATE:
 BROMOFLUOROBENZENE (%) 100 / 112 117
 SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
 I/A

GAS CHROMATOGRAPHY RESULTS

EST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : QTRLY MONITOR WELL

PINNACLE I.D.: 812083

SAMPLE			DATE	DATE	DATE	DIL.
0. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
4	980872	AQUEOUS	12/15/98	NA	12/28/98	1
5	980873	AQUEOUS	12/17/98	NA	12/29/98	1
6	980874	AQUEOUS	12/17/98	NA	12/29/98	1
PARAMETER	DET. LIMIT		UNITS	980872	980873	980874
BENZENE	0.5		UG/L	100	89	330
TOLUENE	0.5		UG/L	29	25	1.6
TOLUENE	0.5		UG/L	1.1	0.9	30
OXID. XYLENES	0.5		UG/L	5.8	4.9	150

URROGATE:
ROMOFLUOROBENZENE (%) 104 104 114
URROGATE LIMITS (80 - 120)

CHEMIST NOTES:
I/A

GAS CHROMATOGRAPHY RESULTS

EST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : QTRLY MONITOR WELL

PINNACLE I.D.: 812083

PROJECT NAME: [REDACTED] SITE ADDRESS: [REDACTED]						
AMPLE			DATE	DATE	DATE	DIL.
D. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
7	TRIP BLANK	AQUEOUS	12/15/98	NA	12/29/98	1
8	TRIP BLANK	AQUEOUS	12/17/98	NA	12/29/98	1
PARAMETER	DET. LIMIT		UNITS	TRIP BLANK	TRIP BLANK	
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 (%) 110 107
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.	: 812083
BLANK I. D.	: 122898	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 12/28/98
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: QTRLY MONITOR WELL		

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 (%)

113

SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 812083
BLANK I. D.	: 122998	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 12/29/98
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: QTRLY MONITOR WELL		

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

SURROGATE:

PERMETHYLBENZENE (%) 111

SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A



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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

EST : EPA 8021 MODIFIED
MSMSD # : 122998
CLIENT : EL PASO FIELD SERVICES
PROJECT # : (none)
PROJECT NAME : QTRLY MONITOR WELL
PINNACLE I.D. : 812083
DATE EXTRACTED : NA
DATE ANALYZED : 12/29/98
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	9.3	93	9.5	95	2	(80 - 120)	20
TOLUENE	<0.5	10.0	10.4	104	10.5	105	1	(80 - 120)	20
ETHYLBENZENE	<0.5	10.0	10.3	103	10.5	105	2	(80 - 120)	20
OTHAL XYLENES	<0.5	30.0	30.5	102	31.1	104	2	(80 - 120)	20

CHEMIST NOTES:
/A

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

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

CHAIN OF CUSTODY RECORD

[illegible]

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: John Lambdin
 COMPANY: EL PASO Field Services
 ADDRESS: 770 W. WAVADO
 PHONE: FARMINGTON, NM 87401
 (505) 544-2144
 FAX: (505) 544-2261
 BILL TO: (SAME AS ABOVE)
 COMPANY:
 ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
980867	12-15-98	1115	Water	01
980868	12-15-98	1252	Water	02
980869	12-15-98	1545	Water	03
980872	12-17-98	1121	Water	04
980873	12-17-98	1121	Water	05
980874	12-17-98	1443	Water	06
TRIP BLANK	12-15-98	NA	Water	07
TRIP BLANK	12-17-98	NA	Water	08

PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS:	
PROJ. NO. NA	(RUSH) ☐ 124hr ☐ 48hr ☐ 72hr ☐ 1 WEEK	(NORMAL) ☒	
PROJ. NAME: Gtely Monitor Wt11	CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER		
P.O. NO. NA	METHANOL PRESERVATION ☐		
SHIPPED VIA: Fed-X	COMMENTS: FIXED FEE ☐		
SAMPLE RECEIPT			
NO. CONTAINERS			
CUSTODY SEALS	Y/N/NA		
RECEIVED INTACT			
BLUE ICE/ICE			

RELINQUISHED BY:		RELINQUISHED BY:	
Signature: John Lambdin	Time: 1330	Signature:	Time:
Printed Name: John Lambdin	Date: 12/21/98	Printed Name:	Date:
Company: El Paso Field Services		Company:	
RECEIVED BY:		RECEIVED BY:	
Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:
Company:		Company:	

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