

3R - 238

REPORTS

DATE:

2001

Certified Mail: #7001 1940 0003 1553 8513

February 28, 2002

RECEIVED

MAR 04 2002

Mr. William C. Olson
New Mexico Oil Conservation Division
1220 St. Francis Dr.
Santa Fe, NM 87504

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: 2001 Pit Project Annual Groundwater Report

Dear Mr. Olson:

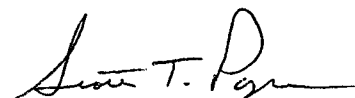
In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual reports for the 30 remaining groundwater impacted sites that were identified during our pit closure project of 1994 / 1995.

EPFS has organized the 30 reports (Volumes IA, IB, II and III), reports by land type. Volume IA and IB contain annual reports for sites found on Federal land. Volume II contains Non Federal sites and Volume III contains sites on Navajo land. Of the 30 reports submitted EPFS is requesting closure of three sites located on Navajo lands. Of the three Navajo sites submitted for closure OCD has closed the Charley Pah #4 and the John Charles #8. The Rementa et al #1 has not been closed by either agency. EPFS understands closure of groundwater sites on Navajo land falls under jurisdiction of the Navajo Environmental Protection Agency and original documents have been submitted to them for review. Other Navajo sites are included in the report for your information.

The Jaquez Com. C #1 and Jaquez Com. E #1 site is not included in with this report and will be submitted by the required deadline of April 1, 2002.

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

Sincerely,



Scott T. Pope P.G.
Senior Environmental Scientist

xc: Mr. Denny Foust, NMOCD, Aztec - w / enclosures; **Certified Mail # 7001 1940 0003 1553 8506**
Mr. Bill Liesse, BLM - w / enclosures (federal sites only), **Certified Mail # 7001 1940 0003 1553 8520**

SAN JUAN BASIN PIT CLOSURES

San Juan Basin, New Mexico

**El Paso Field Services
Pit Project Groundwater Sites
Annual Report
Volume II-Non-Federal Sites**

March 2002

Prepared for

**El Paso Field Services
Farmington, New Mexico**



MWH

MONTGOMERY WATSON HARZA

EL PASO FIELD SERVICES ANNUAL GROUNDWATER REPORT

NON-FEDERAL SITES VOLUME II

TABLE OF CONTENTS

Site Map

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
71669	State Gas Com N #1	31N	12W	16	H
70194	Johnston Fed #4	31N	09W	33	H
93388	Horton #1E	31N	09W	28	H
72556	Knight #1	30N	13W	5	A
73551	Coldiron A #1	30N	11W	2	K
03906	GCU Com A #142E	29N	12W	25	G
70445	Standard Oil Com #1	29N	09W	36	N
LD146	Lat 3B-39 Line Drip	29N	09W	10	M
LD087	K-31 Line Drip	25N	06W	16	N
94967	Lindrith B #24	24N	03W	9	N



MWH
MONTGOMERY WATSON HARZA

EPFS GROUNDWATER PITS

2001 ANNUAL GROUNDWATER REPORT

Standard Oil Com #1

Meter Code 70445

SITE DETAILS

Legals Twn: 29N Rng: 09W Sec: 36 UNIT: N
NMOCD Haz Ranking 30 Land Type: State Operator: Burlington Resources

PREVIOUS ACTIVITIES

Site Assessment: May-94 Excavation May-94 (60cy) Soil Boring: Sep-95 Monitor Well: Sep-95
Geoprobe: Jul-97 Additional MWs: Dec-01 Downgradient MW's: Dec-01 Replace MW: NA
PSH Removal Initiated: NA ORC Nutrient Injection NA Re-Excavation: NA
Quarterly Initiated Nov-96 Annual Initiated NA Quarterly Resumed: NA

2001 ACTIVITY

Groundwater monitoring - Quarterly sampling continued through 2001.

Monitor well installation - Three monitor wells, MW-2, -3, and -4 installed and sampled at this site in December 2001.

SUMMARY TABLES AND GRAPHS

Groundwater analytical data are presented in Table 1 BTEX. Copies of the laboratory data sheets and the associated quality assurance/quality control data are presented as Attachment 1. Included is a BTEX Data graph for MW-1.

SITE MAP

Site Maps with BTEX concentrations and groundwater elevations are attached.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

Drilling and well completion diagrams are presented as Attachment 2.

DISPOSITION OF GENERATED WASTES

No waste were generated at this site.

EPFS GROUNDWATER PITS

2001 ANNUAL GROUNDWATER REPORT

Standard Oil Com #1

Meter Code: 70445

ISOCONCENTRATION MAPS

An isoconcentration map was generated at this site, indicating that the highest BTEX concentrations appear to be associated with the well pad.

CONCLUSIONS

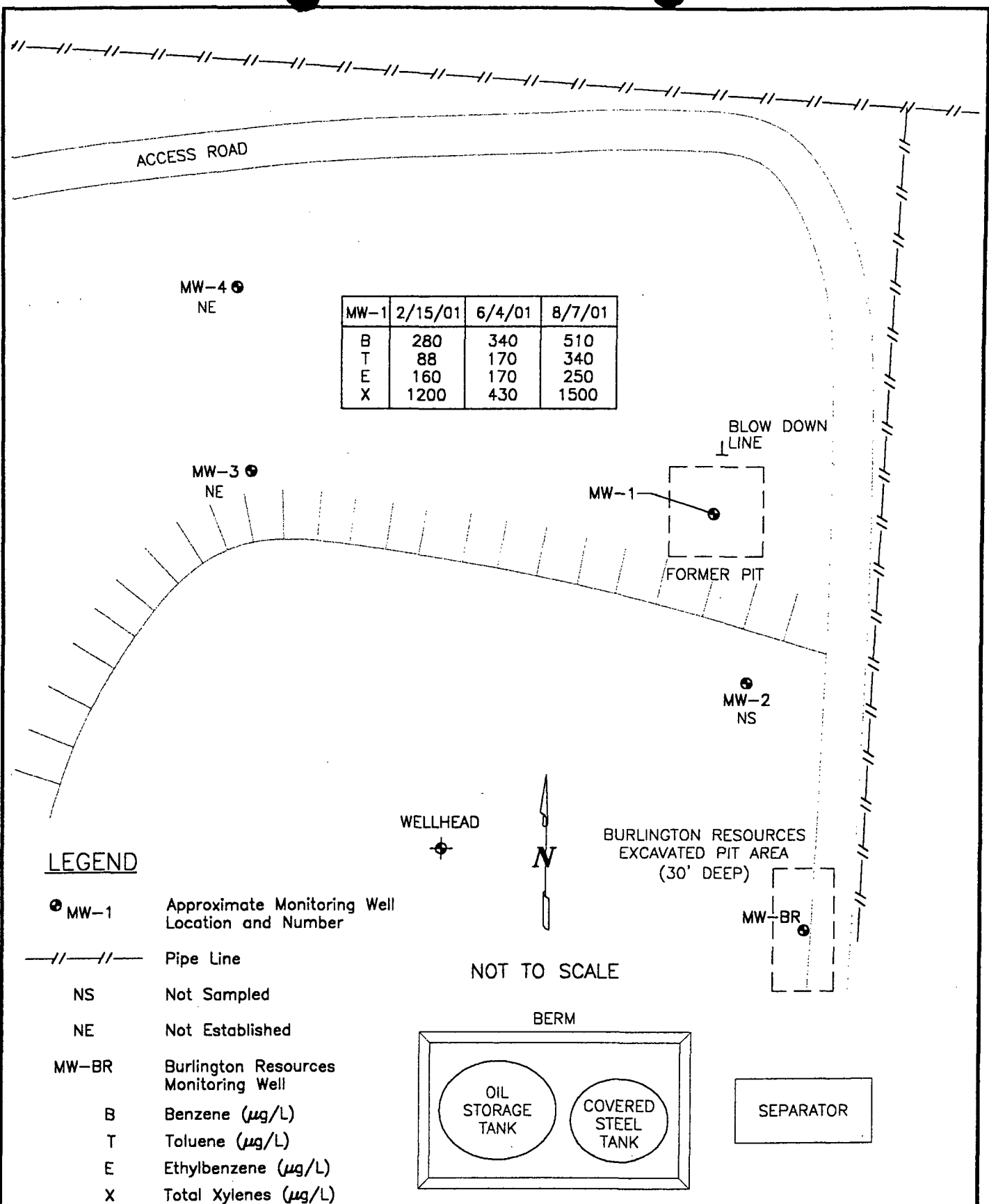
Hydrocarbon concentrations for wells on the well pad (MW-2) and along the berm (MW-3) were the highest concentrations detected during 2001 sampling ranging from 940 (MW-2) to 1,800 ppb (MW-3) benzene, respectively, in December 2001. Monitoring well MW-2 was installed to evaluate possible impacts associated with operator sources on the well pad. The highest hydrocarbon concentrations at this site appear to be associated with the well pad and operator facilities. The operator at this site is Burlington.

MW-1, located in the former EPFS pit, had the lowest concentrations measured in 2001 at this site, with benzene values of 330 ppb in December 4, 2001.

Groundwater flow is toward the west at this site.

RECOMMENDATIONS

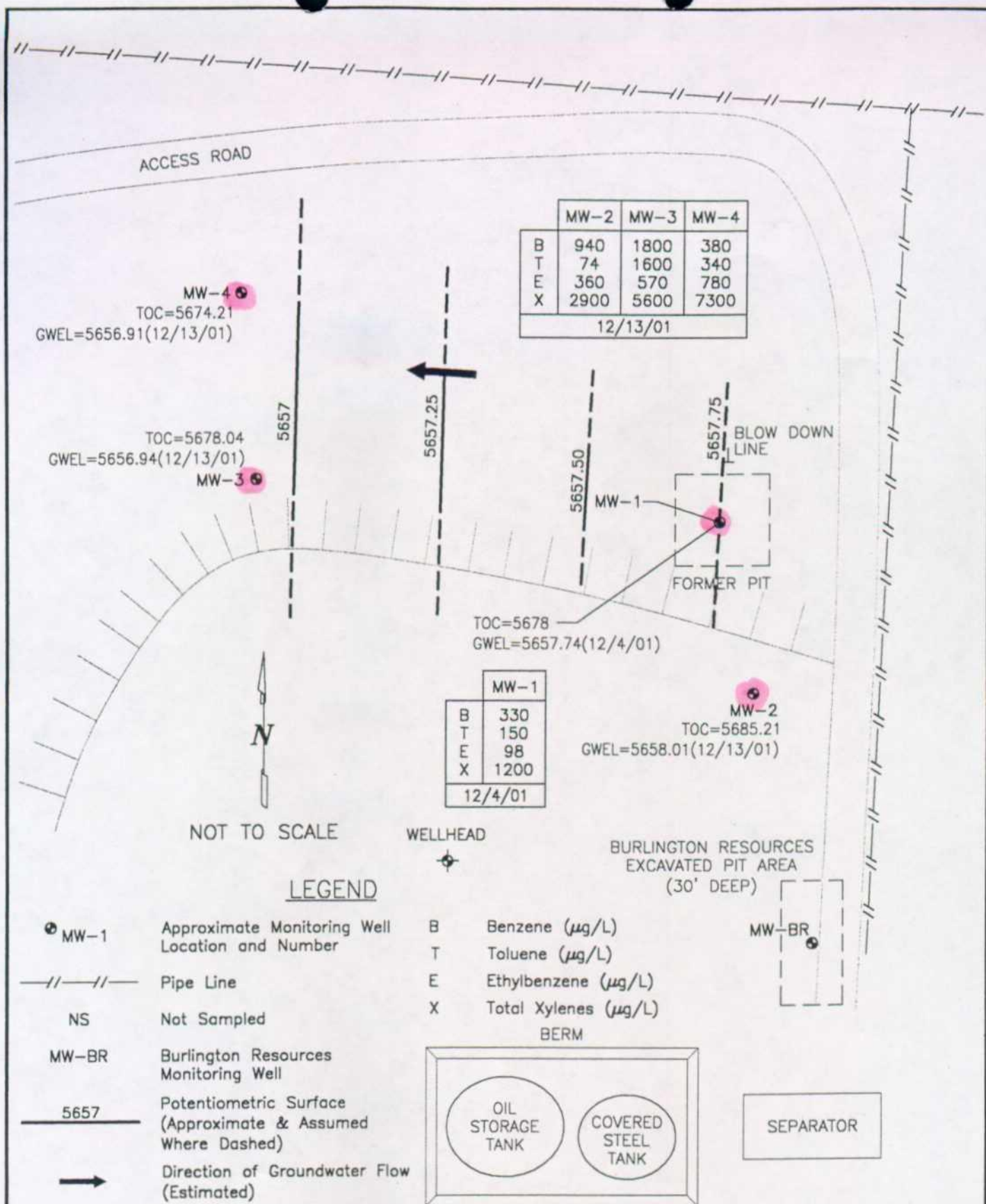
- > EPFS will continue annual sampling of MW-1 at this site until BTEX constituents fall below NMWQCC Standards for four consecutive quarters.
- > Wells MW-2 and MW-3 will not be sampled further, as these wells appear to be associated with contamination from the well pad.
- > Following OCD approval for closure, monitoring wells will be abandoned using OCD approved guidelines.



STANDARD OIL COM #1, METER 70445
FEBRUARY, JUNE, AND AUGUST, 2001

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1



STANDARD OIL COM #1, METER 70445
DECEMBER, 2001

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 2

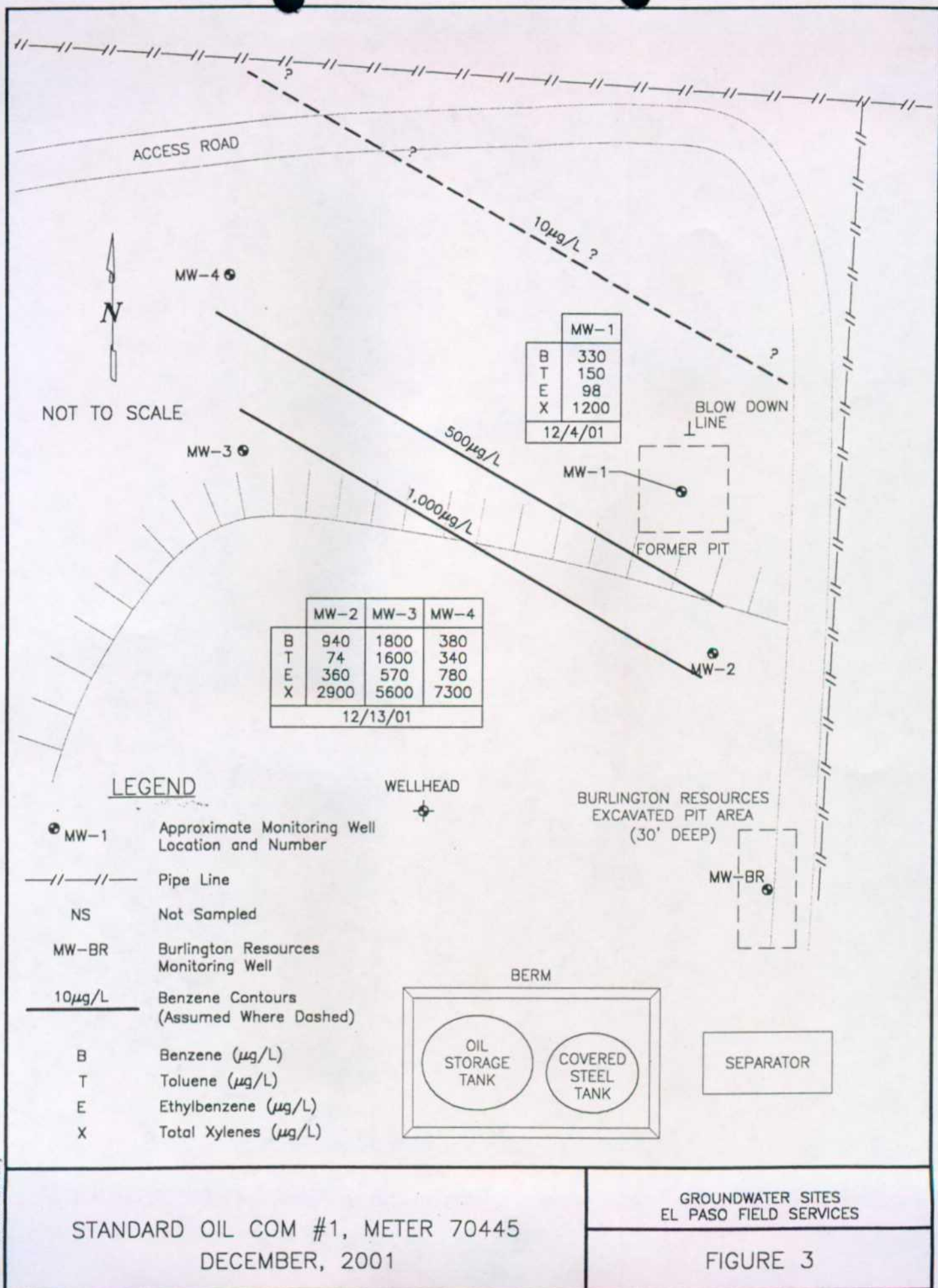
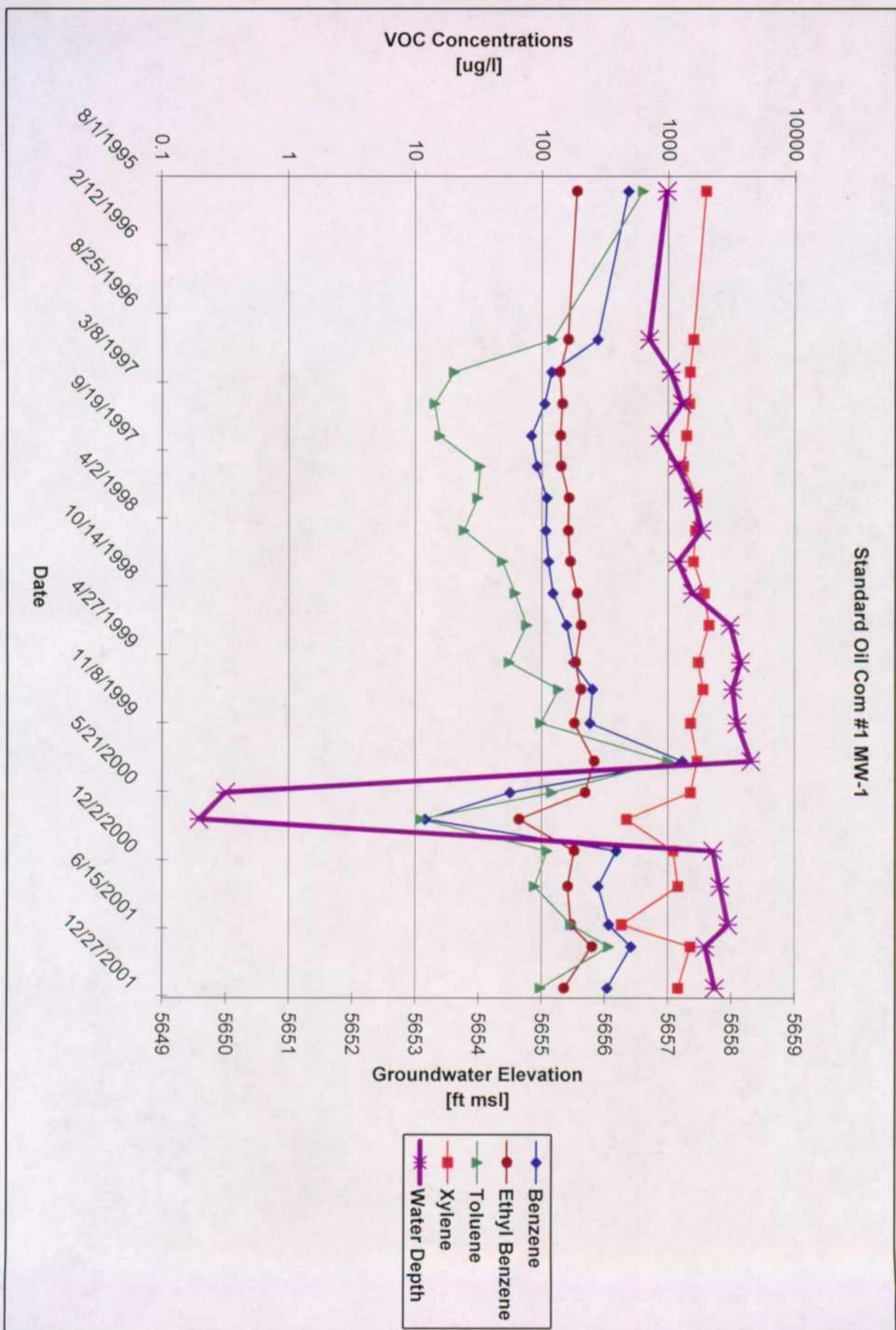


Table 1 BTEX
Standard Oil Com #1

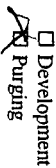
Sample #	Meter Line #	Site Name	Sample Date	MW#	Benzene (µg/l)	Ethyl Benzene (µg/l)	Toluene (µg/l)	Total Xylenes (µg/l)	Depth to Water (Feet)	Groundwater Elevation (feet)
STA0201	70445	Standard Oil Com #1	2/15/2001	1	280	160	88	1200	20.18	5657.82
STA0106	70445	Standard Oil Com #1	6/4/2001	1	340	170	170	430	20.05	5657.95
STA0108	70445	Standard Oil Com #1	8/7/2001	1	510	250	340	1500	20.41	5657.59
STA0112	70445	Standard Oil Com #1	12/4/2001	1	330	150	98	1200	20.26	5657.74
0112131255	70445	Standard Oil Com #1	12/13/2001	2	940	360	74	2900	27.15	5658.06
0112131305	70445	Standard Oil Com #1	12/13/2001	3	1800	570	1600	5600	21.10	5656.94
0112131305	70445	Standard Oil Com #1	12/13/2001	4	380	780	340	7300	17.30	5656.91

Standard Oil Com #1 MW-1



ATTACHMENT 1

2001 GROUNDWATER ANALYTICAL



Well Number MW 1

Page _____ of _____

Project Name EPFS Gw project

Project Manager L. S. J. J. J.

Project No. 5722011

Client Company Edwards Life Sciences

Site Address Barrel Salvage Co

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet) _____

Initial Depth to Water (feet) 20.0

Diameter (inches): Well 4" Gravel Pack 4"

Instruments

Serial No. (If applicable)

- ☐ pH Meter XST-63
- ☐ DO Monitor _____
- ☒ Conductivity Meter XST-63
- ☒ Temperature Meter XST-63
- ☐ Other _____

Methods of Development

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

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing	12.65	8.25X3	24.75
Gravel Pack			
Drilling Fluids			
Total			24.75

Water Disposal

Letter Solicitor General

Water Removal Data

[illegible]

Comments

7-1876X 1223 21" Shave cutting Day's work NW ST

Developer Signature(s) _____

Date 12-4-01

Reviewer: Shirley Date: 12/12/01



Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 12-10-01 PAGE: 1 OF 1

PL Accession #

PROJECT MANAGER: LISA WINN

COMPANY: AMEC EAST 4 ENVIRONMENTAL
ADDRESS: 2660 ACTON PLACE
FAIRMINGTON, NM 87401
PHONE: (505) 327-7928
FAX: (505) 326-5721
BILL TO: SCOTT POPE
COMPANY: EL PASO FIELD SERVICE
ADDRESS: 614 PERRY AVE.
FAIRMINGTON, NM 87401

SAMPLE ID DATE TIME MATRY

STA-0112-MU1 12-4-01 1223 H2O
STA-0112-MU51 12-4-01 1233 H2O

- 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

ANALYSIS REQUEST

PROJECT INFORMATION

PROJ NO: 1517000121

PROJ NAME: ETS GW PROJECT

PO NO:

SHIPPED VIA: GROUND

SAMPLE RECEIPT

NO CONTAINERS

CUSTODY SEALS: Y/N/A

RECEIVED IN/OUT

BLUE

PRIOR AUTHORIZATION REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY

Signature: [Signature] Time: 0815

Printed Name: ROBERT THOMPSON Date: 12-10-01

Company: AMEC

See reverse side (For Mailing)

RECEIVED BY

Signature: [Signature] Time: 1

Printed Name: Date:

Company:

RELINQUISHED BY

Signature: [Signature] Time:

Printed Name: Date:

Company:

RECEIVED BY (LAB)

Signature: [Signature] Time:

Printed Name: Date:

Company: Pinnacle Laboratories Inc.

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR LAB USE ONLY.

PINNACLE
LABORATORIES

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

Pinnacle Lab ID number 112034
December 27, 2001

AMEC EARTH & ENVIRONMENTAL
2060 AFTON PLACE
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name
Project Number

EPFS GW PROJECT
1517000121

Standard Oil Com #1 70445

Attention: LISA WINN/SCOTT POPE

On 12/10/01 Pinnacle Laboratories, 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.



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE
LABORATORIES

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

CLIENT	: AMEC EARTH & ENVIRONMENTAL	PINNACLE ID	: 112034
PROJECT #	: 1517000121	DATE RECEIVED	: 12/10/01
PROJECT NAME	: EPFS GW PROJECT	REPORT DATE	: 12/27/01
PINNACLE			DATE
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED
112034 - 01	STA-0112-MW1	AQUEOUS	12/04/01
112034 - 02	STA-0112-MW51	AQUEOUS	12/04/01

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 : AMEC EARTH & ENVIRONMENTAL
PROJECT # : 1517000121
PROJECT NAME : EPFS GW PROJECT

PINNACLE I.D.: 112034

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	STA-0112-MW1	AQUEOUS	12/04/01	NA	12/11/01	100
02	STA-0112-MW51	AQUEOUS	12/04/01	NA	12/11/01	100
PARAMETER		DET. LIMIT	UNITS	STA-0112-MW1	STA-0112-MW51	
BENZENE		0.5	UG/L	330	370	
TOLUENE		0.5	UG/L	98	120	
ETHYLBENZENE		0.5	UG/L	150	150	
TOTAL XYLENES		0.5	UG/L	1200	1200	
SURROGATE:						
BROMOFLUOROBENZENE (%)				112	110	
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.	: 112034
BLANK I. D.	: 121101	DATE EXTRACTED	: N/A
CLIENT	: AMEC EARTH & ENVIRONMENTAL	DATE ANALYZED	: 12/11/01
PROJECT #	: 1517000121	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS GW PROJECT		

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 (%) 112
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 121101
CLIENT : AMEC EARTH & ENVIRONMENTAL
PROJECT # : 1517000121
PROJECT NAME : EPFS GW PROJECT

PINNACLE I.D. : 112034
DATE EXTRACTED : N/A
DATE ANALYZED : 12/11/01
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	20.3	102	20.3	102	0	(80 - 120)	20
TOLUENE	<0.5	20.0	20.8	104	20.6	103	1	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.6	103	20.5	102	1	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	64.6	108	64.0	107	1	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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

PINNACLE
LABORATORIES

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

Pinnacle Lab ID number **112058**
December 26, 2001

GOLDEN ENVIRONMENTAL MNGT.
906 SAN JUAN BLVD.
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name STD. OIL COM NO.1
Project Number (NONE)

Attention: MARTIN NEE/LYNN BENALLY

On 12/14/01 Pinnacle Laboratories, 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.

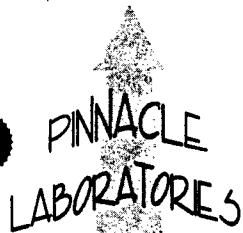
If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure



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

CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	PINNACLE ID	: 112058
PROJECT #	: (NONE)	DATE RECEIVED	: 12/14/01
PROJECT NAME	: STD. OIL COM NO.1	REPORT DATE	: 12/26/01

PINNACLE ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
112058 - 01	MW-2 0112131255	AQUEOUS	12/13/01
112058 - 02	MW-4 0112131300	AQUEOUS	12/13/01
112058 - 03	MW-3 0112131305	AQUEOUS	12/13/01
112058 - 04	TRIP BLANK	AQUEOUS	12/12/01



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 : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : (NONE)
PROJECT NAME : STD. OIL COM NO.1

PINNACLE I.D.: 112058

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	MW-2 0112131255	AQUEOUS	12/13/01	NA	12/17/01	25
02	MW-4 0112131300	AQUEOUS	12/13/01	NA	12/17/01	25
03	MW-3 0112131305	AQUEOUS	12/13/01	NA	12/17/01	50

PARAMETER	DET. LIMIT	UNITS	MW-2 0112131255	MW-4 0112131300	MW-3 0112131305
BENZENE	0.5	UG/L	940	380	1800
TOLUENE	0.5	UG/L	74	340	1600
ETHYLBENZENE	0.5	UG/L	360	780	570
TOL XYLENES	0.5	UG/L	2900	7300	5600
METHYL-t-BUTYL ETHER	2.5	UG/L	< 63	< 63	< 125

SURROGATE:
BROMOFLUOROBENZENE (%) 116 119 115
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : (NONE)
PROJECT NAME : STD. OIL COM NO.1

PINNACLE I.D.: 112058

SAMPLE		MATRIX	DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.		SAMPLED	EXTRACTED	ANALYZED	FACTOR
04	TRIP BLANK	AQUEOUS	12/12/01	NA	12/17/01	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		
METHYL-t-BUTYL ETHER		2.5	UG/L	< 2.5		

SURROGATE:

BROMOFLUOROBENZENE (%) 111
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:

N/A



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Albuquerque, New Mexico 87107
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Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 112058
BLANK I. D.	: 121701B	DATE EXTRACTED	: N/A
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 12/17/01
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: STD. OIL COM NO.1		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
1,3,5-TRIMETHYLBENZENE	UG/L	<0.5
1,2,4-TRIMETHYLBENZENE	UG/L	<0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

110

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.	: 112058
BLANK I. D.	: 121801	DATE EXTRACTED	: N/A
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 12/18/01
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: STD. OIL COM NO.1		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
1,3,5-TRIMETHYLBENZENE	UG/L	<0.5
1,2,4-TRIMETHYLBENZENE	UG/L	<0.5

SURROGATE:

BROMOFLUOROBENZENE (%)

109

SURROGATE LIMITS: (80 - 120)

CHEMIST NOTES:

N/A

PINNACLE
LABORATORIES

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GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 112058
MSMSD #	: 121701B	DATE EXTRACTED	: N/A
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 12/17/01
PROJECT #	: (NONE)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: STD. OIL COM NO.1	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	21.1	106	22.3	112	6	(80 - 120)	20
TOLUENE	<0.5	20.0	20.1	101	21.2	106	5	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	19.6	98	20.7	104	5	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	61.4	102	62.3	104	1	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	20.0	19.1	96	19.2	96	1	(70 - 133)	20

CHEMIST NOTES:
N/A

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

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

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.	:	112058
MSMSD #	: 112061-01	DATE EXTRACTED	:	N/A
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	:	12/18/01
PROJECT #	: (NONE)	SAMPLE MATRIX	:	AQUEOUS
PROJECT NAME	: STD. OIL COM NO.1	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	22.1	111	0	(80 - 120)	20
TOLUENE	<0.5	20.0	21.2	106	21.3	107	0	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	20.7	104	20.8	104	0	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	64.7	108	64.8	108	0	(80 - 120)	20
METHYL-t-BUTYL ETHER	<2.5	20.0	20.6	103	20.0	100	3	(70 - 133)	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: Lynn Benally / Martin Nee
 COMPANY: El Paso / MW H
 ADDRESS: 614 Reilly Avenue
 Farmington, NM 87401
 PHONE: 505 599 2178
 FAX: 505 599 2119
 BILL TO: El Paso
 COMPANY:
 ADDRESS:

ANALYSIS REQUEST

CONTAINERS	NUMBER	Petroleum Hydrocarbons (418.1) TRP	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX) 8015 (Gasoline) MTBE	8021 (BTEX) □ MTBE □ 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)	Poly/nuclear 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:
MW-2	0112131255	12/13/01 1255	Agabus		X																				
MW-4	0112131300	12/13/01 1300	"		X																				
MW-3	0112131305	12/13/01 1305	"		X																				
Trip Blank		12/12/01 1335	"									X													

PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS		RELINQUISHED BY:	
PROJ. NO.:		(RUSH) □ 24hr □ 48hr □ 72hr □ 1 WEEK	(NORMAL) ☒	Signature:	Time:
PROJ. NAME:	Std. Oil Com No 1	CERTIFICATION REQUIRED: □ NM □ SDWA □ OTHER		Printed Name:	Date:
P.O. NO.:		METHANOL PRESERVATION □		Company:	
SHIPPED VIA: Hand Delivered		COMMENTS: FIXED FEE □		Signature:	Time:
SAMPLER RECEIVED		Pr. Preserved W/HCL		Printed Name:	Date:
SAMPLER RECEIVED		Questions can Lynn Benally		Company:	
SAMPLER RECEIVED		(505) 599 2178		See reverse side (Force Majeure)	
SAMPLER RECEIVED		send copy of report to Martin Nee		RECEIVED BY: (LAB)	2
SAMPLER RECEIVED		Golden Environmental.		Signature:	Time:
SAMPLER RECEIVED				Printed Name:	Date:
SAMPLER RECEIVED				Company:	



Well Number

MW-2

☒ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

12/13/01

Serial No. WDPD-

Page 1 of 1

Project Name

Project Manager

Martin Nease

Project No.

Client Company

E1 Paso / MW14

Phase Task No.

Site Name

Standard Oil Company 1

Site Address

534 T 29N R 9W

1090 S

1050 W

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet)

37.30

Initial Depth to Water (feet)

27.15

Height of Water Column in Well (feet)

10.15

Diameter (inches): Well 2 Gravel Pack

Methods of Development

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

Item	Water Volume in Well	Gallons to be Removed
Well Casing	3 Casing Volumes	4.87
Gravel Pack		
Drilling Fluids		
Total		15

☐ Other☒ Conductivity Meter
☒ Temperature Meter
☐ DO Monitor
☐ Instruments
☐ PH Meter
☐ Serial No. (if applicable)☐ Water Disposal

250 gallon tank

Water Removal Data

Time	Development Method	Bail	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)	Product Volume Removed (gallons)	Temperature (°C)	pH	Conductivity (umhos/cm)	Dissolved Oxygen (mg/L)	Comments
10:15		✓				1		13.8	7.11	4150	0.49	grey color, slight HC odor
						2		13.9	7.23	3620		
						3		13.4	7.31	3600		
						4		13.8	7.34	3640		strong HC odor
						5		13.8	7.40	3670		
						6		13.6	7.41	3660		slight shaven on ladder
						7		13.8	7.44	3660		
						8		13.5	7.46	3600		Marking Fine Silt in water
						9		13.2	7.48	3820		Parameters stable
						10	10	13.1	7.49	3630		

After purge & recovery

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

C:\000A\Manuals\WELL DEV.doc

Purged additional 5 gallons (45 total) Allowed to settle & sampled for BTEX 80218 Sample # 01121312SS

MONITORING WELL INSTALLATION RECORD

AESE/GEM

906 San Juan Blvd. Ste. D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

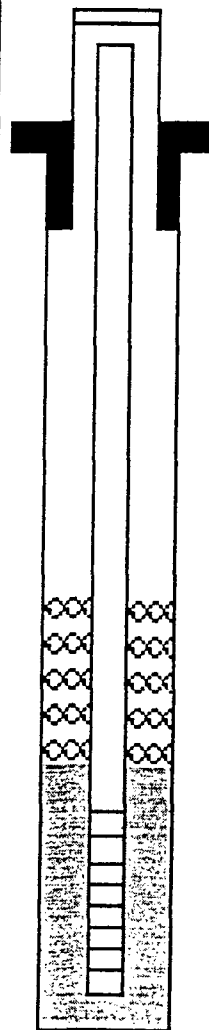
Borehole # _____
Well # _____
Page 1 of 1

Elevation 5665
Well Location MW-2 T29N, R9W, Sec 36, N
GWL Depth 24.90 BGS
Installed By ACPI

Project Name EPFS 5 monitor wells
Project Number 6169 Cost Code _____
Project Location Standard Oil com #1
met 76445
On-Site Geologist NEE
Personnel On-Site _____
Contractors On-Site ACPI K Padilla, TJ Velding
Client Personnel On-Site L Bonally

Date/Time Started 12-11-01 1255
Date/Time Completed 12-12-01 1000

Depths in Reference to Ground Surface				
Item	Material	Depth (feet)		
Top of Protective Casing	6" diameter steel w/ hinge lid	2 27	Top of Protective Casing <u>2 27</u>	
Bottom of Protective Casing		-1 73	Top of Riser <u>2 27</u>	
Top of Permanent Borehole Casing			Ground Surface <u>0</u>	
Bottom of Permanent Borehole Casing				
Top of Concrete	Quikrete	+0.33		
Bottom of Concrete	Quikrete	-1 00		
Top of Grout	3 #4 #4 portland TYPE III w/ 1500 Quikrete	-16 10		
Bottom of Grout		-18 10		
Top of Well Riser	2" DIAM. SCH 40 PVC	2 27		
Bottom of Well Riser	2" DIAM SCH 40 PVC	-20 00		
Top of Well Screen	2" DIAM. .010 SLOT SCH 40 PVC	-20 00	Top of Seal <u>-16 10</u>	
Bottom of Well Screen	2" DIAM. .010 SLOT SCH 40 PVC	-34 90		
Top of Peltonite Seal	3/8 bentonite	-16 10		
Bottom of Peltonite Seal	chips by Beroid (L)	-18 10	Top of Gravel Pack <u>-18 10</u>	
Top of Gravel Pack	8 bags 10-20 silty sand	-18 10	Top of Screen <u>-20 00</u>	
Bottom of Gravel Pack	Cobreado Silica	-35 00		
Top of Natural Cave-In				
Bottom of Natural Cave-In				
Top of Groundwater	BGS	24.90	Bottom of Screen <u>-34 90</u>	
Total Depth of Borehole		-35 00	Bottom of Borehole <u>-35 00</u>	



Comments: DTW = 27' 5" BTOC on 12/12/01

Geologist Signature _____

[Signature]

RECORD OF SUBSURFACE EXPLORATION

Golden Environmental Management, Inc
an AESE Company

906 San Juan Boulevard, Suite D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Page 1 of 1

Project Name EPFS 5 monitor wells
Project Number 10169 Phase
Project Location Standard oil com #1
met 70415

Elevation 25665'
Borehole Location MW-2
GWL Depth 24.9 BGS
Logged By NAB
Drilled By ACDI
Date/Time Started 12-11-01 1255
Date/Time Completed 12-12-01 1000

Well Logged By NAB
Personnel On-Site
Contractors On-Site ACDI K Radilla TIValling
Client Personnel On-Site L. Benally

Drilling Method HSA
Air Monitoring Method 2/22/01

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ BH S			Drilling Conditions & Blow Counts
0			0-35' fine sand, mod yellowish brown, unconsolidated, mod well sorted. grads			0			
5			75% to medium sand @ 20 bgs then back to fine sand w/ 10/2 change to			0			12
10			35% olive grey in cuttings @ approx			0			13
15			35% 24' bgs then to dark grey w/ fine sand @ 25-27'ss			0			21
20			90%			0			30
25			80%			0			"
30									
35									
40									

TD = 35' 13/15

Comments: DTW 27.15' BTOC on 12-12-01

Geologist Signature

[Signature]



Well Number

MW-3

☒ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

12/13/01

Serial No. WDPD.

Page 1 of 1

Project Name

Project Manager

Martin Nea

Project No.

Client Company

E1Pc80/MW4

Phase/Task No.

Site Name

Standard Oil Con No 1

Site Address

526 T29 R5W

15905 1850 W

Development Criteria

7.5 to 5 Casing Volumes of Water Removal

☒ Stabilization of Indicator Parameters☐ Other

Water Volume Calculation

Initial Depth of Well (feet)

32.58

Initial Depth to Water (feet)

21.10

Height of Water Column in Well (feet)

11.48

Diameter (inches): Well 2" Gravel Pack

Instruments

Serial No. (if applicable)

☒ P11 Meter☒ DO Monitor

Methods of Development

Pump

Bailer

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

Item	Water Volume in Well Cubic Feet	Gallons	Gallons to be Removed
Well Casing	3	Casing Volume =	5.51
Gravel Pack			
Drilling Fluids			
Total			15

☐ Other

Water Disposal

☒ Conductivity Meter☒ Temperature Meter

Water Removal Data

Time	Development Method	Removal Rate (gal/min)	Intake Depth (feet)	Finding Water Depth (feet)	Water Volume Removed (gallons)		Produced Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/L)	Comments
					Increment	Cumulative	Increment	Cumulative					
12:00	✓				1				12.1	7.56	3670	0.35	Very strong odor
12:05					2				13.5	7.39	3650		Noticeable At Shown
12:10					3				13.5	7.35	3650		water black/grey
12:15					4				13.6	7.36	3650		fine silty sand
12:20					5				13.6	7.35	3660		
12:25					6				13.4	7.33	3670		
12:30					7				13.3	7.29	3690		
12:35					8				13.3	7.26	3680		Parameters stable
12:40					9				13.5	7.25	3680		
12:45					10				13.5	7.26	3670		

After Purging
reading in well

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

Purged Additional 5 Gallons (15 total)

Allowed well to settle & sampled @ 011213

MONITORING WELL INSTALLATION RECORD

AESE/GEM

906 San Juan Blvd. Ste. D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Borehole # _____

Well # _____

Page 1 of 1

Elevation

± 5665

Well Location

MW-3 T29N, R9W, Sec 36, N

GWL Depth

18.10 LGS

Installed By

ACPI

Project Name

EPFS 5 monitor wells

Project Number

6169

Cost Code

Project Location

Standard Oil com #1

meter 76445

On-Site Geologist

NEE

Personnel On-Site

Contractors On-Site

ACPI K Padilla, TJVelding

Client Personnel On-Site

L Benally

Date/Time Started

12-11-01 1000

Date/Time Completed

12-12-01 1000

Depths in Reference to Ground Surface				
Item	Material	Depth (feet)		
Top of Protective Casing	6" channel iron w/hinge top	2.65		Top of Protective Casing <u>2.65</u>
Bottom of Protective Casing		-1.35		Top of Riser <u>2.65</u>
Top of Permanent Borehole Casing				Ground Surface <u>0</u>
Bottom of Permanent Borehole Casing				
Top of Concrete	Quickcrete	+0.33		
Bottom of Concrete	Quickcrete	-1		
Top of Grout	1 1/2" sch 40 PVL	-1		
Bottom of Grout	2 1/2" sch 40 PVL	-10.90		
Top of Well Riser	2" sch 40 PVL	+2.65		
Bottom of Well Riser	"	-14.85		
Top of Well Screen	2" sch 40 PVL, 0.10 slot	-14.85		Top of Seal <u>-10.90</u>
Bottom of Well Screen	3/8 bentonite chips Baroid	-29.70		
Top of Peltonite Seal	"	-10.90		Top of Gravel Pack <u>-13.10</u>
Bottom of Peltonite Seal	"	-13.10		Top of Screen <u>-14.85</u>
Top of Gravel Pack	96% ss 10-20 10/62 do 51112 sand	-13.10		
Bottom of Gravel Pack		-30.00		
Top of Natural Cave-In				
Bottom of Natural Cave-In				
Top of Groundwater	BLAS	18.60		Bottom of Screen <u>29.70</u>
Total Depth of Borehole		30		Bottom of Borehole <u>30</u>

Comments: DTW = 21.07 BTOC on 12-12-01

Geologist Signature

[Signature]

RECORD OF SUBSURFACE EXPLORATION

Golden Environmental Management, Inc
an AESE Company

906 San Juan Boulevard, Suite D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Page 1 of 1

Project Name EPFS 5 monitor wells
Project Number 10/69 Phase Standard oil com #1
Project Location meter 70445

Well Logged By NCE
Personnel On-Site ACDI K Radillo TJ Valdez
Contractors On-Site L. Benally
Client Personnel On-Site

Elevation 2 5665'
Borehole Location MW-3
GWL Depth 182' BGS
Logged By NCE
Drilled By ACDI
Date/Time Started 12-11-01 1000
Date/Time Completed 12-12-01

Drilling Method HSA
Air Monitoring Method 2/2000

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NOU			Drilling Conditions & Blow Counts
						BZ	BH	S	
0			0-5 fine to v fine sand med yllow brown unconsolidated, well sorted			0			
5		90	5-6 sandy clay light olive grey			0			17
10		80%	6-30 Sand med. un consolidated, mod well sorted, yellow brown, grade to a v fine to fine sand by 10' bgs min			0			21
15		85%	clay @ 10'			0			27
20		70%	olive grey clay balls in cuttings from approx. interval 17 bgs			0			
25			Sand in SS sample from 20-22' is grey, medium unconsolidated well sorted saturated w/ strong HCl color			0		Strong 12	
30									
35									
40									

Comments:

Geologist Signature



PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS FOR LAB USE ONLY.

Pinnacle Laboratories Inc.

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE 12/13/01 PAGE 1 OF 1

PL Accession #:

112068

PROJECT MANAGER:

COMPANY: El Paso / MWJH

ADDRESS: 614 Reilly Avenue

Farmington, NM 87401

PHONE: 505 599 2178

FAX: 505 599 2119

BILL TO: El Paso

COMPANY:

ADDRESS:

PROJECT INFORMATION	ANALYSIS REQUEST
PROJECT NO.	Petroleum Hydrocarbons (418.1) TRPH
PROJECT NAME: Std. Oil Com No 1	(MOD.8015) Diesel/Direct Inject
SHIPMENT NO.	(M8015) Gas/Purge & Trap
SHIPMENT NAME: Std. Oil Com No 1	8021 (BTEX) 8015 (Gasoline) MTBE
SHIPMENT DATE: 12/13/01	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
SHIPMENT TIME: 12/13/01	8021 (TCL)
SHIPMENT LOCATION: 12/13/01	8021 (EDX)
SHIPMENT METHOD: 12/13/01	8021 (HALO)
SHIPMENT ANALYST: 12/13/01	8021 (CUST)
SHIPMENT COMMENTS: 12/13/01	504.1 EDB ☐ / DBCP ☐
SHIPMENT ANALYST: 12/13/01	Tri-P Blank 8021 BTEX
SHIPMENT ANALYST: 12/13/01	8260 (TCL) Volatile Organics
SHIPMENT ANALYST: 12/13/01	8260 (Full) Volatile Organics
SHIPMENT ANALYST: 12/13/01	8260 (CUST) Volatile Organics
SHIPMENT ANALYST: 12/13/01	8260 (Landfill) Volatile Organics
SHIPMENT ANALYST: 12/13/01	Pesticides /PCB (608/8081/8082)
SHIPMENT ANALYST: 12/13/01	Herbicides (615/8151)
SHIPMENT ANALYST: 12/13/01	Base/Neutral/Acid Compounds GC/MS (625/8270)
SHIPMENT ANALYST: 12/13/01	Polynuclear Aromatics (610/8310/8270-SIMS)
SHIPMENT ANALYST: 12/13/01	General Chemistry:
SHIPMENT ANALYST: 12/13/01	Priority Pollutant Metals (13)
SHIPMENT ANALYST: 12/13/01	Target Analyte List Metals (23)
SHIPMENT ANALYST: 12/13/01	RCRA Metals (8)
SHIPMENT ANALYST: 12/13/01	RCRA Metals by TCLP (Method 1311)
SHIPMENT ANALYST: 12/13/01	Metals:
SHIPMENT ANALYST: 12/13/01	NUMBER OF CONTAINERS

ANALYSIS REQUEST

RECEIVED BY:

Signature:

Time:

Date:

Company:

See Inverse side (from Manager)

RECEIVED BY:

Signature:

Time:

Date:

Company:

RECEIVED BY:

Signature:

Time:

Date:

Company:

RECEIVED BY:

Signature:

Time:

Date:

Company:

See Inverse side (from Manager)

RECEIVED BY:

Signature:

Time:

Date:

Company:

RECEIVED BY:

Signature:

Time:

Date:

Company:



Well Number

MW-4

Closest to large well

☒ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

12/13/01

Serial No. WDPD.

Page 1 of 1

Project Name

Project Manager

Project No.

Client Company

Site Address

Phase/Task No.

Site Name

S 36 T 29 N R 9 W

1090 S

1850 W

Development Criteria

3 to 5 Casing Volumes of Water Removal

☒ Stabilization of Indicator Parameters☐ Other

Water Volume Calculation

Initial Depth of Well (feet)

27.25

Initial Depth to Water (feet)

2 17.30

Height of Water Column in Well (feet)

9.95

Diameter (inches): Well 2" Gravel Pack

Methods of Development

Pump

Bailer

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

Insituents

☒ PH Meter☒ DO Monitor☒ Conductivity Meter☐ Temperature Meter☐ Other

Water Disposal

Serial No. (if applicable)

Water Removal Data

Time	Development Method	Removal Rate (gal/min)	Intake Depth (feet)	Purging Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (µmhos/cm)	Dissolved Oxygen (mg/l)	Comments
					Increment	Cumulative	Increment	Cumulative					
1:15	Bailer				1	1			11.1	7.67	3140	0.39	Dark brown Greasy 1st odor
					2	2			13.0	7.52	3300		
					3	3			13.4	7.41	3230		Slippery Sheen
					4	4			13.4	7.41	3240		Form Slightly Sand
					5	5			13.4	7.40	3260		
					6	6			13.3	7.38	3230		
					7	7			13.1	7.36	3200		
					8	8			13.0	7.37	3200		
					9	9			12.9	7.36	3220		He odor
					10	10			12.9	7.34	3220		Fire Solds in Sand

Final volume
after 10 purging
cycles

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

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Purged additional 5 gallons (15 total)
Allowed to settle & recover and sampled
2 40-M VOA's for BOD sample #0112131300

RECORD OF SUBSURFACE EXPLORATION

Golden Environmental Management, Inc
an AESE Company
906 San Juan Boulevard, Suite D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Page 1 of 1

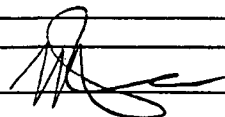
Elevation 2 5665'
Borehole Location MW-4
GWL Depth 14.86 BGS
Logged By NJB
Drilled By ACDI
Date/Time Started 12-11-01 0700
Date/Time Completed 12-12-01 1000

Project Name EPFS 5 monitor wells
Project Number 10169 Phase Standard oil com #1
Project Location meter 70445
Well Logged By NJB
Personnel On-Site ACDI R Padilla TJ Valdez
Contractors On-Site L. Benally
Client Personnel On-Site
Drilling Method HSA
Air Monitoring Method direct

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			0-6' Very fine silty sand. med yellow brown unconsolidated, well sorted.			0			
5			6-7.5 clay			0			12
			7.5-10 clay sand As above						
10			10-25' sand, med, yellow brown, fine to medium grained mottled white (alkali)			0			32
15			25-44' small o 4" strings of clay sand. unconsolidated med well sorted.			0			21
20			color change to med dark grey @ 16-17' soil saturated						
25									
30									
35									
40									
			TD 25' bgs						

Comments:

Geologist Signature



MONITORING WELL INSTALLATION RECORD

AESE/GEM

906 San Juan Blvd. Ste. D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Borehole #
Well # MW-4
Page 1 of 1

Project Name EPFS 5 monitor wells
Project Number 6169 Cost Code
Project Location Standard Oil com #1
meter TO 445
On-Site Geologist NBE
Personnel On-Site
Contractors On-Site ALPI K Padilla, TJ Valdez
Client Personnel On-Site L Benally

Elevation ± 5665
Well Location MW-4 +29N, R9W, sec 36, N
GWL Depth 14.86' BGS
Installed By ALPI

Date/Time Started 12-11-01 0800
Date/Time Completed 12-12-01 1000

Depths in Reference to Ground Surface			
Item	Material	Depth (feet)	
Top of Protective Casing	6" steel casing	2.40	Top of Protective Casing <u>2.40</u>
Bottom of Protective Casing	6" steel casing	-1.00	Top of Riser <u>2.40</u>
Top of Permanent Borehole Casing			Ground Surface <u>0</u>
Bottom of Permanent Borehole Casing			
Top of Concrete	Quikrete	+0.33	
Bottom of Concrete	Quikrete	-1.00	
Top of Grout	type 1/4 portland w/ 15% Quikrete	-1.00	
Bottom of Grout	Quikrete	-5.90	
Top of Well Riser	2" diam sch 40 PVC	2.40	
Bottom of Well Riser	2" diam sch 40 PVC		
Top of Well Screen	2" diam .010 slot PVC	-9.64	Top of Seal <u>-5.90</u>
Bottom of Well Screen	2" diam .010 slot PVC	-24.56	
Top of Peltonite Seal	38 peltonite chips	-5.90	
Bottom of Peltonite Seal	basoid 1628	-7.90	Top of Gravel Pack <u>-7.90</u>
Top of Gravel Pack	75egg 10-20	-7.90	Top of Screen <u>-9.64</u>
Bottom of Gravel Pack	siliceous Colorado Silica	-25.00	
Top of Natural Cave-In			
Bottom of Natural Cave-In			
Top of Groundwater	BGS	14.86	Bottom of Screen <u>-24.56</u>
Total Depth of Borehole		25	Bottom of Borehole <u>-25</u>

Comments: DTW = 17.26 BTOC on 12/12/01

Geologist Signature [Signature]

Standard 0.1 +

70445

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

PINNACLE
LABORATORIES

Pinnacle Lab ID number 108041
August 22, 2001

GOLDEN ENVIRONMENTAL MNGT.
906 SAN JUAN BLVD.
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name EPFS REMEDIATION PROJECT
Project Number 6169

Attention: LISA WINN/SCOTT POPE

On 08/08/01 Pinnacle Laboratories, 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.



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE
LABORATORIES

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

CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	PINNACLE ID	: 108041
PROJECT #	: 6169	DATE RECEIVED	: 08/08/01
PROJECT NAME	: EPFS REMEDIATION PROJECT	REPORT DATE	: 08/22/01
PINNACLE			DATE
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED
108041 - 01	STA-0108-MW1	AQUEOUS	08/07/01

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 : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D.: 108041

SAMPLE	DATE	DATE	DATE	DIL.		
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	STA-0108-MW1	AQUEOUS	08/07/01	NA	08/16/01	50

PARAMETER	DET. LIMIT	UNITS	STA-0108-MW1
BENZENE	0.5	UG/L	510
TOLUENE	0.5	UG/L	340
ETHYLBENZENE	0.5	UG/L	250
TOTAL XYLENES	0.5	UG/L	1500

SURROGATE:

MOFLUOROBENZENE (%)

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 RESULTS
REAGENT BLANK

EST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 108041
BLANK I. D.	: 081601	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 08/16/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT		

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

URROGATE:
BROMOFLUOROBENZENE (%) 102
URROGATE LIMITS: (80 - 120)
HIST NOTES:
I/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.	: 108041
MSMSD #	: 108050-01	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 08/16/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT	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	20.7	104	20.7	104	0	(80 - 120)	20
TOLUENE	<0.5	20.0	22.0	110	22.2	111	1	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	22.6	113	22.8	114	1	(80 - 120)	20
OTAL XYLENES	<0.5	60.0	67.8	113	68.3	114	1	(80 - 120)	20

TEST NOTES:
/A

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

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

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: LISA WINN

COMPANY: GEM

ADDRESS: 906 SAN JUAN BLVD. S.W.

PHONE: Farmington N.M. 87401

FAX: (505) 566-9116

BILL TO: (505) 566-9120

COMPANY: SCOTT POPE

ADDRESS: EPFS

604 Peill Ave

Farmington N.M. 87401

SAMPLE ID: DATE: TIME: MATRIX: LAB ID:

STA-0108 - MW 1 8-2-01 1540 H₂O

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:

NUMB. CONTAINERS

PROJECT INFORMATION

PROJ. NO: 6169

PROJ. NAME: EPFS Remediation project

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS: 1

CUSTODY SEALS: Y/N NA

RECEIVED/INTACT: YES

BLUE ICE: 2.80

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEKCERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHERMETHANOL PRESERVATION ☐COMMENTS: FIXED FEE ☐

STANDARD oil #1

meter # (70445)

RELINQUISHED BY: 1.

Signature: [Signature]

Printed Name: Chris M...

Date: 8-2-01

Company:

See reverse side (Force Majeure)

RECEIVED BY:

Signature: [Signature]

Printed Name: [Name]

Date: [Date]

Company: Pinnacle Laboratories Inc.

RELINQUISHED BY: 2.

Signature: [Signature]

Printed Name: [Name]

Date: [Date]

Company:

RECEIVED BY: (LAB)

Signature: [Signature]

Printed Name: [Name]

Date: [Date]

Company: Pinnacle Laboratories Inc.

PINNACLE
LABORATORIES

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

August 9, 01

Scott Pope

This is to inform you that Pinnacle Laboratories, Inc. received samples on 8/8/01.
Enclosed is a copy of the Chain of Custody. If you have any questions regarding the status of
your project please reference Pinnacle ID number 108041.

Thank you,

Graciela Gallagos
Jacinta Tenorio, Project Manager
Pinnacle Laboratories, Inc.

PROJECT MANAGER: LISA WINN		ANALYSIS REQUEST		CONTAINERS	
COMPANY: G.E.M.	ADDRESS: 906 SAN JUAN BLVD. S.W.	PHONE: Farmington N.M. 87401	FAX: (505) 566-9116	BILL TO: Scott Pope	COMPANY: EPFS
ADDRESS: Farmington N.M. 87401	PHONE: (505) 566-9116	FAX: (505) 566-9120	BILL TO: Scott Pope	COMPANY: EPFS	ADDRESS: Farmington N.M. 87401
SAMPLE ID: STA-0108-MW1	DATE: 9-2-01	TIME: 1546	MATRIX: H ₂ O	LAB ID: 0113	
PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS		RELINQUISHED BY: 1.	
PROJ. NO: 6169	PROJ. NAME: EPFS Remediation Project	☐ (RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK ☒ (NORMAL)		Signature: [Signature] Printed Name: Chris M... Date: 8-2-01	
P.O. NO.:	METHANOL PRESERVATION ☐	CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER		RELINQUISHED BY: 2.	
SHIPPED VIA:	COMMENTS: FIXED FEE ☐	STANDARD oil #1		Signature: [Signature] Printed Name: [Name] Date: 8-15-01	
SAMPLE RECEIPT		NO. CONTAINERS: 1		RECEIVED BY: (LAB)	
CUSTODY SEALS: Y/N (NA)	RECEIVED INTACT: YES	BLUE ICE: 25.80		Signature: [Signature] Printed Name: [Name] Date: 8-15-01	
Pinnacle Laboratories Inc.		Pinnacle Laboratories Inc.		Pinnacle Laboratories Inc.	

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PINNACLE
LABORATORIES

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

Pinnacle Lab ID number **106037**
June 13, 2001

GOLDEN ENVIRONMENTAL MNGT.
906 SAN JUAN BLVD.
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name EPFS REMEDIATION PROJECT
Project Number 6169

Attention: LISA WINN/SCOTT POPE

Standard Oil Com # 1
70445

On 06/07/01 Pinnacle Laboratories, 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.



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE
LABORATORIES

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

CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE ID : 106037
DATE RECEIVED : 06/07/01
REPORT DATE : 06/13/01

PINNACLE		DATE	
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED
106037 - 01	STA-0106-MW1	AQUEOUS	06/04/01



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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : 6169
PROJECT NAME : EPFS REMEDIATION PROJECT

PINNACLE I.D.: 106037

SAMPLE	DATE	DATE	DATE	DIL.		
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	STA-0106-MW1	AQUEOUS	06/04/01	NA	06/12/01	10

PARAMETER	DET. LIMIT	UNITS	STA-0106-MW1
BENZENE	0.5	UG/L	340
TOLUENE	0.5	UG/L	170
ETHYLBENZENE	0.5	UG/L	170
TOTAL XYLENES	0.5	UG/L	430

PROXIMATE:
BROMOFLUOROBENZENE (%) 113
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



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Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 106037
BLANK I. D.	: 061201	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 06/12/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT		

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 RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 106037
BLANK I. D.	: 061201-B	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 06/12/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT		

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 (%) 106
SURROGATE LIMITS: (80 - 120)
CHEMIST NOTES:
N/A

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 106037
MSMSD #	: 106034-04	DATE EXTRACTED	: NA
CLIENT	: GOLDEN ENVIRONMENTAL MNGT.	DATE ANALYZED	: 06/12/01
PROJECT #	: 6169	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS REMEDIATION PROJECT	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	3.4	20.0	21.2	89	20.4	85	4	(80 - 120)	20
TOLUENE	0.5	20.0	19.4	95	19.1	93	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	19.9	100	19.7	99	1	(80 - 120)	20
TOTAL XYLENES	2.2	60.0	61.2	98	60.5	97	1	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: LISA WINN	
COMPANY: GEM.	
ADDRESS: 906 San Juan Blvd. Farmington N.M. 87401	
PHONE: (505) 566-9116	
FAX: (505) 566-9120	
BILL TO: EDFS SCOTT PAGE	
COMPANY: EL Paso Field Services	
ADDRESS: 614 Reilly Ave Farmington N.M. 87499	
SAMPLE ID: STA-006 - MW 1	DATE: 6-21-01
TIME: 1745	MATRIX: H ₂ O
LAB ID: 61	

ANALYSIS REQUEST	
Petroleum Hydrocarbons (418.1) TRPH	
(MOD.8015) Diesel/Direct Inject	
(M8015) Gas/Purge & Trap	
8021 (BTEX)/8015 (Gasoline) MTBE	X
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 (608/8081/8082)	
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	2

PROJECT INFORMATION	
PROJ NO: 6169	
PROJ NAME: EDFS Remediation project	
P.O. NO:	
SHIPPED VIA:	
SAMPLE RECEIPT:	
NO. CONTAINERS: 2	
CUSTODY SEALS: Y/N (NA)	
RECEIVED INTACT: YES	
BLUE ICE (ICE)	
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:	
1. Signature: Chris Macz	Time: 1500
Printed Name: Chris Macz	Date: 6/6/01
Company: See reverse side (Force Majeure)	
RECEIVED BY: (LAB)	
1. Signature: Francine Trivido	Time: 0915
Printed Name: Francine Trivido	Date: 6/7/01
Company: Pinnacle Laboratories Inc.	

PINNACLE
LABORATORIES

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

Pinnacle Lab ID number **102071**
February 28, 2001

PHILIP ENVIRONMENTAL
4000 MONROE ROAD
FARMINGTON, NM 87401

EL PASO FIELD SERVICES
614 RIELLY STREET
FARMINGTON, NM 87401

Project Name EPFS QUARTERLY SAMPLING
Project Number 62800107

Attention: ROBERT THOMPSON/SCOTT POPE

On 02/16/01 Pinnacle Laboratories, 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.

The scheduled reagent blank associated with this study did not run. However, clean samples validated the instrument in lieu of the reagent blank. The sample data is reported.

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



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure



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

CLIENT	: PHILIP ENVIRONMENTAL	PINNACLE ID	: 102071
PROJECT #	: 62800107	DATE RECEIVED	: 02/16/01
PROJECT NAME	: EPFS QUARTERLY SAMPLING	REPORT DATE	: 02/28/01
PINNACLE			DATE
ID #	CLIENT DESCRIPTION	MATRIX	COLLECTED
102071 - 01	STA-0201-MW01	AQUEOUS	02/15/01
102071 - 02	TRIP BLANK	AQUEOUS	02/15/01



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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : PHILIP ENVIRONMENTAL
PROJECT # : 62800107
PROJECT NAME : EPFS QUARTERLY SAMPLING

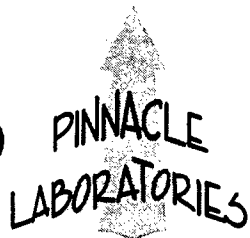
PINNACLE I.D.: 102071

SAMPLE			DATE	DATE	DATE	DIL.
ID. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
01	STA-0201-MW01	AQUEOUS	02/15/01	NA	02/22/01	50
02	TRIP BLANK	AQUEOUS	02/15/01	NA	02/22/01	1

PARAMETER	DET. LIMIT	UNITS	STA-0201-MW01	TRIP BLANK
BENZENE	0.5	UG/L	280	< 0.5
TOLUENE	0.5	UG/L	88	< 0.5
ETHYLBENZENE	0.5	UG/L	160	< 0.5
TOTAL XYLENES	0.5	UG/L	1200	< 0.5

SURROGATE:
BROMOFLUOROBENZENE (%) 106 102
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



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Albuquerque, New Mexico 87107
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Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 102071
BLANK I. D.	: 022101-B	DATE EXTRACTED	: NA
CLIENT	: PHILIP ENVIRONMENTAL	DATE ANALYZED	: 02/21/01
PROJECT #	: 62800107	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS QUARTERLY SAMPLING		

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 (%)

101

SURROGATE LIMITS: (80 - 120)

COMMIT NOTES:

N/A



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Albuquerque, New Mexico 87107
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Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST : EPA 8021 MODIFIED
MSMSD # : 102067-01
CLIENT : PHILIP ENVIRONMENTAL
PROJECT # : 62800107
PROJECT NAME : EPFS QUARTERLY SAMPLING

PINNACLE I.D. : 102071
DATE EXTRACTED : NA
DATE ANALYZED : 02/21/01
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	19.1	96	19.3	97	1	(80 - 120)	20
TOLUENE	<0.5	20.0	18.0	90	17.9	90	1	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	19.4	97	19.7	99	2	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	57.5	96	57.5	96	0	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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



Chain of Custody Record

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

COC Serial No. C 2856

Project Name <i>EPFS Quarterly Sampling</i>		Type of Analysis and Bottle		Comments
Project Number <i>62800107 Phase Task 0301</i>		Total Number of Bottles		
Samplers <i>C-mae2</i>		Name <i>PINNACLE</i>		<i>BTX 2021</i>
Laboratory		Location <i>ALBQ N.M.</i>		
Sample Number (and depth)	Date	Time	Matrix	
<i>STA-0201-MW01</i>	<i>02-15-01</i>	<i>0937</i>	<i>H₂O</i>	<i>X</i>
<i>Trip Blank</i>	<i>02-15-01</i>	<i>1600</i>	<i>H₂O</i>	<i>X</i>
STANDARD OIL COMPANY 204455				

Relinquished by:

Signature <i>Ric A Gomez</i>	Date <i>02-15-01</i>	Time <i>1600</i>	Signature <i>[Signature]</i>	Date <i>02-16-01</i>	Time <i>18:30</i>
---------------------------------	-------------------------	---------------------	---------------------------------	-------------------------	----------------------

Received By:

Samples Iced: ☐ Yes ☐ No		Carrier: <i>Greyhound</i>	
Preservatives (ONLY for Water Samples) ☐ Cyanide Sodium hydroxide (NaOH) ☐ Volatile Organic Analysis Hydrochloric acid (HCl) ☐ Metals Nitric acid (HNO ₃) ☐ TPH (418.1) Sulfuric acid (H ₂ SO ₄) ☐ Other (Specify) _____ ☐ Other (Specify) _____		Shipping and Lab Notes: <i>4.90C</i>	
		Airbill No <i>611606919864</i>	

ATTACHMENT 2

**2001 MONITOR WELL
INSTALLATION RECORDS**

PLEASE FILL THIS FORM IN COMPLETELY.

SHADDED AREAS FOR LAB

atories Inc.

CHAIN OF CUSTODY

DATE: 12/13/01 PAGE: 1 OF 1

PLI Accession #:

112068

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX) 8015 (Gasoline) MTBE
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
Tri: P Blank 8021 BTEX
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

FAX:

505 599 2119

BILL TO:

El Paso

COMPANY:

ADDRESS:

MAJOR PROJECTS	DATE	ANALYST	LAB	TESTS	STATUS	REMARKS
MM-4 0112131300	12/12/01	1300	"	"	"	"
MM-3 0112131305	12/13/01	1305	"	"	"	"
Trap Blank	12/12/01	"	"	"	"	"

PROJECT INFORMATION

PROJECT NO.:

PROJECT NAME:

Std Oil Com No 1

P.O. NO.:

SHIPED VIA:

Hand Delivered

NO. CONTAINERS:

3

QUANTITIES BEING:

1/1 M (M)

RECEIVED BY:

NOS

DATE:

12/13/01

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER
METHANOL PRESERVATION ☐
COMMENTS: FIXED FEE: U
Pre Preserved W/ACCL
Questions call Lynn Bernally
(505) 599 2178

RECEIVED BY: [Signature]
Printed Name: [Name]
Date: 12/13/01
Time: 1325

RECEIVED BY: [Signature]
Printed Name: [Name]
Date: [Date]
Time: [Time]

Company: GEM

See Inverse and Form (Reverse)

Company:

Signature:

Date:

Signature:

Date:

Printed Name:

Date:

Printed Name:

Date:

Company:

Date:

Company:

Date:

11/10/98 P.

Pinnacle Laboratories, Inc. • 2709 D Pitt American Freeway, NE • Albuquerque, New Mexico 87107 • (505) 344-4113 • Fax: (505) 344-4113 • E-mail: PNL@PINC.LABORATORY.COM/AT/ALB

DISTRIBUTION: White • PLI Center • Director



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 : GOLDEN ENVIRONMENTAL MNGT.
PROJECT # : (NONE)
PROJECT NAME : STD. OIL COM NO.1

PINNACLE I.D.: 112058

SAMPLE			DATE	DATE	DATE	DIL.
D. #	CLIENT I.D.	MATRIX	SAMPLED	EXTRACTED	ANALYZED	FACTOR
J1	MW-2 0112131255	AQUEOUS	12/13/01	NA	12/17/01	25
J2	MW-4 0112131300	AQUEOUS	12/13/01	NA	12/17/01	25
J3	MW-3 0112131305	AQUEOUS	12/13/01	NA	12/17/01	50

PARAMETER	DET. LIMIT	UNITS	MW-2 0112131255	MW-4 0112131300	MW-3 0112131305
BENZENE	0.5	UG/L	940	380	1800
TOLUENE	0.5	UG/L	74	340	1600
ETHYLBENZENE	0.5	UG/L	360	780	570
TOTAL XYLENES	0.5	UG/L	2900	7300	5600
METHYL-t-BUTYL ETHER	2.5	UG/L	< 63	< 63	< 125

SURROGATE:
BROMOFLUOROBENZENE (%) 116 119 115
SURROGATE LIMITS (80 - 120)

CHEMIST NOTES:
N/A



Well Number MW-2

☒ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

12/13/01

Serial No. WDPD-

Page 1 of 1

Project Name E1 Paso 1 MW4

Project Manager Martin Mesa

Project No.

Client (Company) E1 Paso 1 MW4

Phase, Task No.

Site Name Standard Oil Company 1

Site Address 336 TANN R 9W

1090 S 1050 W

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet) 37.30
Initial Depth to Water (feet) 27.15
Height of Water Column in Well (feet) 10.15
Diameter (inches): Well 2 Gravel Pack

Methods of Development
☐ Pump
☐ Centrifugal
☐ Submersible
☐ Peristaltic
☐ Other

Item	Water Volume in Well Cubic Feet	Gallons	Gallons to be Removed
Well Casing	3	4.87	
Gravel Pack			
Drilling Fluids			
Total			15

Instruments
☒ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☐ Other

Water Disposal 250 gallon tank

Water Removal Data

Time	Development Method	Pump	Removal Rate (gpm)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (microhm/cm)	Dissolved Oxygen (mg/L)	Comments
						Incremental	Cumulative	Incremental	Cumulative					
12/13/01 10:15						1				13.8	7.11	4150	0.49	grey color sludge
						2				13.9	7.23	3620		HC odor
						3				13.4	7.31	3600		strong HC odor
						4				13.8	7.36	3640		
						5				13.8	7.40	3670		
						6				13.6	7.41	3660		slight sludge on ladder
						7				13.8	7.44	3680		
						8				13.5	7.46	3600		Musty Fine Silty in water
						9				13.2	7.48	3890		Parameters stable
						10				13.1	7.49	3630		

After Purge
4 recovery

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

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

Purged additional 5 gallons (15 total) Allowed to settle & sampled for BTEX 8021 B Sample # 0112131255

MONITORING WELL INSTALLATION RECORD

AESE/GEM

906 San Juan Blvd. Ste. D

Farmington, New Mexico 87401

(505) 566-9116 FAX (505) 566-9120

Borehole # _____

Well # _____

Page 1 of 1

Project Name EPFS 5 monitor wells

Project Number 6169 Cost Code _____

Project Location Standard Oil com #1

meter 70445

On-Site Geologist NEE

Personnel On-Site _____

Contractors On-Site ALPI K Padilla, TJ Velders

Client Personnel On-Site L Benally

Elevation ± 5665

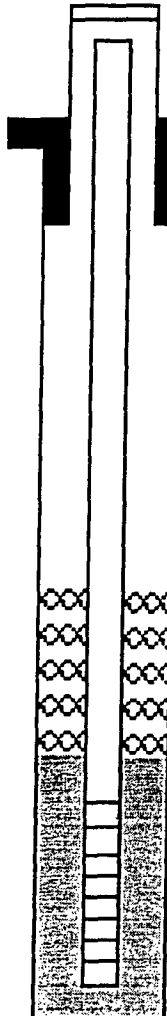
Well Location MW-2 T29N, R9W, Sec 36, N

GWL Depth 24.90 BGS

Installed By ALPI

Date/Time Started 12-11-01 1255

Date/Time Completed 12-12-01 1000

Depths in Reference to Ground Surface			
Item	Material	Depth (feet)	
Top of Protective Casing	6" channel steel w/ hinge lid	2 27	
Bottom of Protective Casing		-1 73	
Top of Permanent Borehole Casing			
Bottom of Permanent Borehole Casing			
Top of Concrete	Quikrete	+0.33	
Bottom of Concrete	Quikrete	-1 00	
Top of Grout	3494 portland type III w/ 1506 QuikGel	-16 10	
Bottom of Grout		-18 10	
Top of Well Riser	2" diam. sch 40 PVC	2 27	
Bottom of Well Riser	2" diam sch 40 PVC	-20 00	
Top of Well Screen	2" diam. .010 slot sch 40 PVC	-20 00	
Bottom of Well Screen	2" diam. .010 slot sch 40 PVC	-34 90	
Top of Peltonite Seal	36 bentonite	-16 10	
Bottom of Peltonite Seal	chips by Beroid (L)	-18 10	
Top of Gravel Pack	B. less 10-20 silty sand	-18 10	
Bottom of Gravel Pack	Cobredo silty	-35 00	
Top of Natural Cave-In			
Bottom of Natural Cave-In			
Top of Groundwater	BGS	24.90	
Total Depth of Borehole		-35 00	

Top of Protective Casing 2 27

Top of Riser 2 27

Ground Surface 0

Top of Seal -16 10

Top of Gravel Pack -18 10

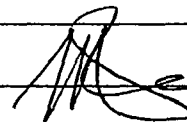
Top of Screen -20 00

Bottom of Screen -34 90

Bottom of Borehole -35 00

Comments: DTW = 27'5" BTOC on 12/12/01

Geologist Signature _____



RECORD OF SUBSURFACE EXPLORATION

Golden Environmental Management, Inc
an AESE Company

906 San Juan Boulevard, Suite D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Page 1 of 1

Project Name EPFS 5 monitor wells
Project Number 10169 Phase
Project Location Standard oil com #1
metu 70445

Elevation 2 5665'
Borehole Location MW-2
GWL Depth 24.9 BGS
Logged By NBB
Drilled By ACDI

Well Logged By NBB
Personnel On-Site
Contractors On-Site ACDI K Padilla J Valdez
Client Personnel On-Site L. Benally

Date/Time Started 12-11-01 1255
Date/Time Completed 12-12-01 1000

Drilling Method HSA
Air Monitoring Method 2/2ctary

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ BH S			Drilling Conditions & Blow Counts
0			0-35' fine sand, med yellowish brown, unconsolidated, med well sorted. grads			0			
5			75% to medium sand @ 20 bgs then back to fine sand w/ 85% 10' change to olive grey in cuttings @ approx			0			12
10			85% 24' bgs then to dark grey w/ fine sand @ 25-27' ss			0			13
15						0			21
20						0			30
25						0			11
30									
35									
40									

TD=35' BGS

Comments: DTW 27.15' BTOC on 12-12-01

Geologist Signature

[Signature]

PROJECT MANAGER:

COMPANY: EIPaso / MWH
 ADDRESS: 614 Reilly Avenue
 Farmington, NM 87401
 PHONE: 505 599 2173
 FAX: 505 599 2119
 BILL TO: EIPaso
 COMPANY:
 ADDRESS:

ANALYSIS REQUEST				NUMBERS CONTAINERS			
PROJECT	DATE	TIME	ANALYSIS	CONTAINER	ANALYSIS	CONTAINER	ANALYSIS
MW-2 0112131255	12/13/01	12:55	Aqueous	1	RCRA Metals (8)	1	RCRA Metals (8)
MW-4 0112131300	12/13/01	13:00	"	2	RCRA Metals by TCLP (Method 1311)	2	RCRA Metals by TCLP (Method 1311)
MW-5 0112131305	12/13/01	13:05	"	3	Target Analyte List Metals (23)	3	Target Analyte List Metals (23)
Tr.p black	12/13/01		"	4	Priority Pollutant Metals (13)	4	Priority Pollutant Metals (13)
				5	General Chemistry:	5	General Chemistry:
				6	Polynuclear Aromatics (610/8310/8270-SIMS)	6	Polynuclear Aromatics (610/8310/8270-SIMS)
				7	Base/Neutral/Acid Compounds GC/MS (625/6270)	7	Base/Neutral/Acid Compounds GC/MS (625/6270)
				8	Herbicides (615/8151)	8	Herbicides (615/8151)
				9	Pesticides /PCB (608/6081/8082)	9	Pesticides /PCB (608/6081/8082)
				10	8260 (Landfill) Volatile Organics	10	8260 (Landfill) Volatile Organics
				11	8260 (CUST) Volatile Organics	11	8260 (CUST) Volatile Organics
				12	8260 (Full) Volatile Organics	12	8260 (Full) Volatile Organics
				13	8260 (TCL) Volatile Organics	13	8260 (TCL) Volatile Organics
				14	504.1 EDB □ /DBCP □	14	504.1 EDB □ /DBCP □
				15	8021 (CUST)	15	8021 (CUST)
				16	8021 (HALO)	16	8021 (HALO)
				17	8021 (EDX)	17	8021 (EDX)
				18	8021 (TCL)	18	8021 (TCL)
				19	8021 (BTEX) □ MTBE □ TMB □ PCB	19	8021 (BTEX) □ MTBE □ TMB □ PCB
				20	8021 (BTEX) 8015 (Gasoline) MTBE	20	8021 (BTEX) 8015 (Gasoline) MTBE
				21	(M8015) Gas/Purge & Trap	21	(M8015) Gas/Purge & Trap
				22	(MOD 8015) Diesel/Direct Inject	22	(MOD 8015) Diesel/Direct Inject
				23	Petroleum Hydrocarbons (418.1) TPH	23	Petroleum Hydrocarbons (418.1) TPH

PROJECT INFORMATION		RELINQUISHED BY:		RECEIVED BY:	
PROJ NO:	112068	Signature:	Mark Sullivan	Signature:	Mark Sullivan
PROJ NAME:	Sid O. I Com 2.1	Printed Name:	Mark Sullivan	Printed Name:	Mark Sullivan
P.O. NO.:		Date:	12/14/01	Date:	12/14/01
SHIPPED VIA: Hand Delivered		Company:		Company:	
SAMPLE RECEIPT:		See Inverse side (Force Majeure)		RECEIVED BY: (Cust)	
NET CONTAINERS:		Time:		Time:	
CUSTOMER RESULTS:		Signature:		Signature:	
ANALYST/INTRACT:		Printed Name:		Printed Name:	
DATE RECEIVED:		Date:		Date:	
		Company:		Company:	

QUESTIONS CALL LYNN BENARIELLO (505) 599 2178

PLI Preserved W/ALCL

QUESTIONS CALL LYNN BENARIELLO (505) 599 2178



Well Number AW-3

☒ Development
☒ Purging

WELL DEVELOPMENT AND PURGING DATA

12/13/01

Serial No. WDND

Page 1 of 1

Project Name

Project Manager

Martin Mea

Project No.

Client Company El Paso / MW

Phase Task No.

Site Name Standard Oil Co. No 1

Site Address S 26 T29 R 9W 1290.5 1850 W

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removal

☒ Stabilization of Indicator Parameters

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 32.58

Initial Depth to Water (feet) 21.10

Height of Water Column in Well (feet) 11.48

Diameter (inches): Well 2" Gravel Pack

Instruments

☒ PH Meter

☒ DO Monitor

Methods of Development

Pump

☐ Centrifugal

☐ Submersible

☐ Peristaltic

Bailer

☒ Bottom Valve

☐ Double Check Valve

☐ Stainless-steel Kemmerer

Serial No. (if applicable)

☒ Conductivity Meter

☒ Temperature Meter

☐ Other

Water Disposal

Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Filling Water Depth (feet)	Water Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (umhos/cm)	Dissolved Oxygen (mg/L)	Comments
		Pump	Bailer				Increment	Cumulative					
12-00	12:00		☒				1		12.1	7.56	3670	0.35	Very strong H ₂ O odor
12/13/01							2		13.5	7.39	3650		Abundant H ₂ O Shown
							3		13.5	7.35	3650		Water black/gray
							4		13.6	7.36	3650		fine silty sand
							5		13.6	7.32	3660		
							6		13.4	7.33	3670		
							7		13.3	7.29	3690		
							8		13.3	7.26	3680		
							9		13.5	7.25	3680		Parameters stable
							10		13.5	7.26	3690		

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

C:\000\Admin\Format\WELLDEV.doc

Purged Additional 5 Gallons (15 total)
Allowed water to settle & sampled @ 011213

After Purging
Reading in well

MONITORING WELL INSTALLATION RECORD

Borehole # _____

Well # _____

Page 1 of 1

AESE/GEM

906 San Juan Blvd. Ste. D

Farmington, New Mexico 87401

(505) 566-9116 FAX (505) 566-9120

Project Name EPFS 5 monitor well

Project Number 6169 Cost Code _____

Project Location Standard Oil com #1
meter 70445

On-Site Geologist NBE

Personnel On-Site _____

Contractors On-Site ALPI K Padilla, TJ Valdez

Client Personnel On-Site L Benally

Elevation 25665

Well Location MW-3 T29N, R9W, Sec 36, N

GWL Depth 18.10 LGS

Installed By ALPI

Date/Time Started 12-11-01 1000

Date/Time Completed 12-12-01 1000

Depths in Reference to Ground Surface			
Item	Material	Depth (feet)	
Top of Protective Casing	6" channel iron w/hinge	2.65	Top of Protective Casing <u>2.65</u>
Bottom of Protective Casing	top	-1.35	Top of Riser <u>2.65</u>
Top of Permanent Borehole Casing			Ground Surface <u>0</u>
Bottom of Permanent Borehole Casing			
Top of Concrete	Quickcrete	+0.33	
Bottom of Concrete	Quickcrete	-1	
Top of Grout	Type II Portland C	-1	
Bottom of Grout	2 1/2" 15% bulb	-10.90	
Top of Well Riser	2" sch 40 PVC	+2.65	
Bottom of Well Riser	"	-14.85	
Top of Well Screen	2" sch 40 PVC 0.10	-14.85	Top of Seal <u>-10.90</u>
Bottom of Well Screen	slotted	-29.70	
Top of Peltonite Seal	3/8 bentonite chips Barod	-10.90	
Bottom of Peltonite Seal	"	-13.10	Top of Gravel Pack <u>-13.10</u>
Top of Gravel Pack	9625 10-20 LOP 20	-13.10	Top of Screen <u>-14.85</u>
Bottom of Gravel Pack	51102 sand	-30.00	
Top of Natural Cave-In			
Bottom of Natural Cave-In			
Top of Groundwater	BGS	18.60	Bottom of Screen <u>29.70</u>
Total Depth of Borehole		30	Bottom of Borehole <u>30</u>

Comments: DIW = 21.07 BTOC on 12-12-01

Geologist Signature _____

RECORD OF SUBSURFACE EXPLORATION

Golden Environmental Management, Inc
an AESE Company

906 San Juan Boulevard, Suite D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Page 1 of 1

Project Name EPFS 5 monitor wells
Project Number 10/69 Phase Standard oil com #1
Project Location meter 70445

Well Logged By NEC
Personnel On-Site ACDI R Padilla TIVelazquez
Contractors On-Site L. Benetly
Client Personnel On-Site

Elevation ~ 5665'
Borehole Location MW-3
GWL Depth 182' BGS
Logged By NEC
Drilled By ACDI
Date/Time Started 12-11-01 1000
Date/Time Completed 12-12-01

Drilling Method HSK
Air Monitoring Method 2/20/01

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			0-5 fine to v fine sand med yllow brown unconsolidated, well sorted			0			
5		90	5-6 sandy clay light olive grey			0			17
10		80	6-30 Sand med. un consolidated, med well sorted, yellow brown, grade to a v fine to fine sand by 10' bgs min			0			21
15		85	clay @ 10'. olive grey clay balls in cuttings from approx. interval 17 bgs			0			27
20		70	Sand in ss sample from 20-22' is grey, medium, unconsolidated well sorted, saturated w/ strong HCl odor			0		Strong 12	
25									
30									
35									
40									

Comments:

Geologist Signature

SHADED AREAS ARE FOR LAB USE ONLY.

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 12/13/01 PAGE: 1 OF 1

PLU Accession #:

112058

PROJECT MANAGER: COMPANY: <u>E1 Paso / MWJH</u> ADDRESS: <u>614 Reilly Avenue</u> <u>Farmington, NM 87401</u> PHONE: <u>505 599 2178</u> FAX: <u>505 599 2119</u> BILL TO: <u>E1 Paso</u> COMPANY: _____ ADDRESS: _____		ANALYSIS REQUEST	
PROJECT INFORMATION PROJ. NO: _____ PROJ. NAME: <u>Sid Oil Company #1</u> PO. NO: _____ SHIPPED VIA: <u>Hand Delivered</u> NO. CONTAINERS: <u>7</u> QUANTITY BEALS: <u>7 (1/16")</u> RECEIVED IN TACT: <u>NOS</u> DATE RECEIVED: <u>12/1/01</u>		PETROLEUM HYDROCARBONS (418.1) TRPH (MOD.8015) Diesel/Direct Inject (M8015) Gas/Purge & Trap 8021 (BTEx) 8015 (Gasoline) MTBE 8021 (BTEx) ☐ MTBE ☐ TMB ☐ PCE 8021 (TCL) 8021 (EDX) 8021 (HALO) 8021 (CUST) 504.1 EDB ☐ / DBCP ☐ Tr: P Blank 8021 BTEx 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: _____	
ANALYSIS INFORMATION ANALYST: _____ DATE: _____ TIME: _____ COMMENTS: _____		NUMBER OF CONTAINERS: _____	

RECEIVED BY: Signature: _____ Printed Name: <u>Mark S. Williams</u> Date: <u>12/1/01</u> Company: <u>SEM</u> (See reverse side for notes)	RECEIVED BY: Signature: _____ Printed Name: _____ Date: _____ Company: _____	DISTRIBUTION: _____ DATE: _____ TIME: _____
---	---	---



Well Number

MW-4

Closest to large wash

Development
Purging

WELL DEVELOPMENT AND PURGING DATA

12/13/01

Serial No. WDPD-

Project Name

Project Manager

Martin Neer

Project No.

Page 1 of 1

Client Company

El Paso / MWH

Phase/Task No.

Site Name

Shaded Oil can Well

Site Address

536 T 29N R 9W 1090 S 1850 W

Development Criteria

3 to 5 Casing Volumes of Water Removal

Stabilization of Indicator Parameters

Other

Water Volume Calculation

Initial Depth of Well (feet)

27.25

Initial Depth to Water (feet)

2 17.30

Height of Water Column in Well (feet)

9.95

Diameter (inches): Well 2" Gravel Pack

Methods of Development

Pump

☐ Centrifugal☐ Submersible☐ Peristaltic

Bailer

☒ Bottom Valve☐ Double Check Valve☐ Stainless-steel Kemmerer☐ Other

Item	Water Volume in Well Cubic Feet	Gallons	Gallons to be Removed
Well Casing	3 Casing	Vol =	4.78
Gravel Pack			
Drilling Fluids			
Total			15

Instruments

☒ PH Meter

Serial No. (if applicable)

☐ DO Monitor☒ Conductivity Meter☐ Temperature Meter☐ Other

Water Disposal

Water Removal Data

Date	Time	Development Method	Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Finishing Water Depth (feet)	Water Volume Removed (gallons)		Product Volume Removed (gallons)		Temperature (°C)	pH	Conductivity (umhos/cm)	Dissolved Oxygen (mg/l)	Comments
							Increment	Cumulative	Increment	Cumulative					
12/13/01	11:15		☒				1	1			11.1	7.67	3140	0.39	Dark brown, greeny 14c odor
							2	3			13.0	7.52	3300		
							3	4			13.4	7.41	3230		Slight Shown
							4	5			13.4	7.41	3240		Fine Silty Sand
							5	6			13.4	7.40	3260		
							6	7			13.5	7.38	3230		
							7	8			13.1	7.36	3200		
							8	9			13.0	7.37	3200		
							9	10			12.9	7.36	3220		He odor
							10				12.9	7.34	3220		Fine Solids in Sand

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

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Purged additional 5 gallons (15 total)
Allowed to settle & recover and Sampled
2 40-ml VOA's for 8021B Sample #0112131300

Final WOHM
after 40 min recovery

RECORD OF SUBSURFACE EXPLORATION

Golden Environmental Management, Inc
an AESE Company

906 San Juan Boulevard, Suite D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Page 1 of 1

Project Name EPFS 5 monitor wells
Project Number 10/69 Phase
Project Location Standard oil com #1
meter 70445
Well Logged By NCC
Personnel On-Site
Contractors On-Site ACDI K Padilla T Valdez
Client Personnel On-Site L. Benitez

Elevation 2 5665'
Borehole Location MW-4
GWL Depth 14.86 BGS
Logged By NJB
Drilled By ACDI
Date/Time Started 12-11-01 0300
Date/Time Completed 12-12-01 1000

Drilling Method HSA
Air Monitoring Method 2/ecton

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			0-6' Very fine silty sand. med yellow brown unconsolidated, well sorted.			0			
5			6-7.5 clay			0			12
		85%	7.5-10 clay sand As above						
10						0			32
		90%	10-25' sand, med, yellow brown, fine to medium grained, mottled white (alkali)						
15			75% swell 0.4" strings of clay sand. unconsolidated med well sorted.			0			21
20									
25			color change to med dark grey @ 16-17' soil saturated						
30									
35									
40			TD 25' bgs						

Comments:

Geologist Signature

MONITORING WELL INSTALLATION RECORD

AESE/GEM

906 San Juan Blvd. Ste. D
Farmington, New Mexico 87401
(505) 566-9116 FAX (505) 566-9120

Borehole # _____
Well # MW-4
Page 1 of 1

Project Name EPFS 5 monitor well
Project Number 6169 Cost Code _____
Project Location Standard Oil com #1
metre 70445

Elevation 2 5665
Well Location MW-4 T29N, R9W, Sec 36, N
GWL Depth 14.86' BGS
Installed By ACPI

On-Site Geologist NEE
Personnel On-Site _____
Contractors On-Site ACPI K Padilla, TJVelding
Client Personnel On-Site L Benally

Date/Time Started 12-11-01 0800
Date/Time Completed 12-12-01 1000

Depths in Reference to Ground Surface				
Item	Material	Depth (feet)		
Top of Protective Casing	6" steel chand	2.40	Top of Protective Casing	2.40
Bottom of Protective Casing	6" steel & sand hinge	-1.80	Top of Riser	2.40
Top of Permanent Borehole Casing			Ground Surface	0
Bottom of Permanent Borehole Casing				
Top of Concrete	Quikrete	+0.33		
Bottom of Concrete	Quikrete	-1.00		
Top of Grout	type 1/2 portland w/ 15% Quikrete	-1.00		
Bottom of Grout	Quikrete	-5.90		
Top of Well Riser	2" diam 6ch 40 PVC	2.40		
Bottom of Well Riser	2" diam 6ch 40 PVC			
Top of Well Screen	2" diam .010 slot PVC	-9.64	Top of Seal	-5.90
Bottom of Well Screen	2" diam .010 slot PVC	-24.56		
Top of Peltonite Seal	3/8 bentonite chips	-5.90		
Bottom of Peltonite Seal	baroid 1628	-7.90	Top of Gravel Pack	-7.90
Top of Gravel Pack	75egg 10-20	-7.90	Top of Screen	-9.64
Bottom of Gravel Pack	silica sand - Colorado Silica	-25.00		
Top of Natural Cave-In				
Bottom of Natural Cave-In				
Top of Groundwater	BGS	14.86	Bottom of Screen	-24.56
Total Depth of Borehole		25	Bottom of Borehole	-25

Comments: DTW = 17.26 BTOC on 12/12/01

Geologist Signature _____