3R - 166

REPORTS

DATE:
1999

EL PASO FIELD SERVICES

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

March 24, 2000

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

RE: 1999 Pit Project Annual Groundwater Report

Dear Mr. Olson:

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

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

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

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

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

Sincerely,

Scott T. Pope P.G.
Senior Environmental Scientist

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

bc: J. A. Lambdin w / enclosures
Philip Services Corp. – Cecil Irby, w / o enclosures
B. B. McDaniel / 24321 – NMOCD Regulatory w / o

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services Pit Project Groundwater Report
Annual Report

RECEIVED
MAR 2 9 2000
ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

March 2000

Prepared For

El Paso Field Services
Farmington, New Mexico

Project 62800158

PSC
PHILIP SERVICES
CORP.

EPFS GROUNDWATER PITS
1999 ANNUAL GROUNDWATER REPORT

D LOOP LINE DRIP
Meter/Line ID - LD169

SITE DETAILS

Legals - Twn: 28N **Rng:** 8W **Sec:** 33 **Unit:** I
NMOCD Hazard Ranking: 30 **Land Type:** FEDERAL
Operator: EL PASO FIELD SERVICES

PREVIOUS ACTIVITIES

Site Assessment: Jan-95 **Excavation:** Feb-95 (80 cy) **Soil Boring:** Nov-95
Monitor Well: Nov-95 **Geoprobe:** Dec-96 **Quarterly Sampling Initiated:** Nov-96
Additional Monitor Wells: Dec-99

1999 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring continued through 1999 in MW-1.

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

SUMMARY TABLES

Groundwater analytical data are presented in Table 1.

SITE MAP

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

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

The December 21, 1999, geologic logs and well completion diagrams are presented as Attachment 2.

DISPOSITION OF GENERATED WASTES

There were no wastes generated at this site in 1999.

ISOCONCENTRATION MAPS

None generated for this site.

CONCLUSIONS

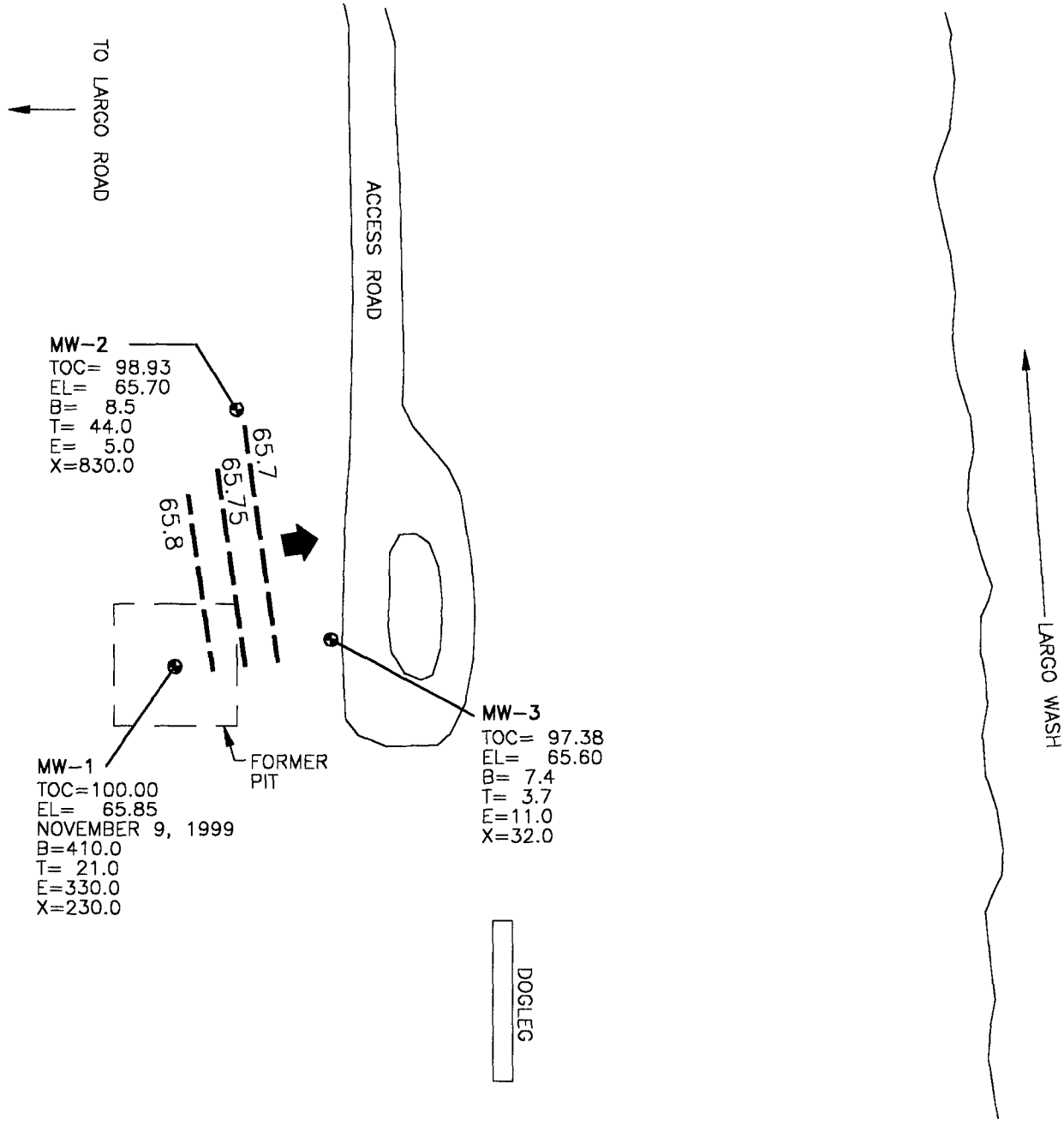
Analytical results of groundwater samples collected from MW-1 show levels of benzene above NMWQCC Standards during all of 1999. Hydrocarbon concentrations are decreasing at the location.

Analytical results of groundwater samples collected from recently installed monitor wells MW-2 and MW-3 were below NMWQCC Standards for all constituents except total xylenes which are above NMWQCC Standards in MW-2. Groundwater gradient is to the north-northwest at this site (Figure 1).

Pertinent data from past groundwater reports include the following: Based on groundwater levels collected from temporary well point data, the groundwater flow trends to the northwest on this site. This site is approximately 200 yards from Largo Wash in a remote location.

RECOMMENDATIONS

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



LEGEND

MW-1	MONITORING WELL NUMBER AND APPROXIMATE LOCATION
B	BENZENE (ug\L)
T	TOLUENE (ug\L)
E	ETHYL BENZENE (ug\L)
X	XYLENE (ug\L)
TOC	TOP OF CASING ELEVATION
EL	GROUNDWATER ELEVATION
64.77	GROUNDWATER POTENTIOMETRIC SURFACE
	APPROXIMATE GROUNDWATER GRADIENT

NOT TO SCALE

TITLE:
D LOOP LINE DRIP
LD169
FEBRUARY 11, 2000

DWN:	DES.:	PROJECT NO.: 17520
CJG	CI	EPFS GW PITS
CHKD: CI	APPD:	
DATE: 02/18/00	REV.: 0	FIGURE 1

COL 17520BC-003

EPFS Groundwater Pits
1999 Annual 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
990021	LD169	D Loop Line Drip	02/02/99	1	Sample 4 - 10th Quarter	= 48.00	= 12.00	= 27.10	= 132.00	= 219
990223	LD169	D Loop Line Drip	05/18/99	1	Sample 4 - 11th Quarter	= 382.00	= 17.70	= 143.00	= 641.00	= 1184
990337	LD169	D Loop Line Drip	08/04/99	1	Sample 4 - 12th Quarter	= 34.30	= 3.47	= 18.30	= 36.40	= 92
990440	LD169	D Loop Line Drip	11/09/99	1	Sample 4 - 13th Quarter	= 410.00	= 21.00	= 330.00	= 230.00	= 991
DL00022-1	LD169	D Loop Line Drip	02/11/00	2	Sample 4 - 1st Quarter	= 8.50	= 44.00	< 5.00	= 830.00	= 888
DL00023-1	LD169	D Loop Line Drip	02/11/00	3	Sample 4 - 1st Quarter	= 7.40	= 3.70	= 11.00	= 32.00	= 54

ATTACHMENT 1
1999 GROUNDWATER ANAYLTICAL

SAMPLE 4 10TH QTR

- History
- Data base

El Paso Natural Gas Company

A 2092

CHAIN OF CUSTODY RECORD

Project No.:

Project Name: MC #LD169

Samplers: (Signature) Dennis Bird

Date: 2-2-99

MATRIX	Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	BTEX				Remarks
WATER	2-2-99	1007		X	990021	G-2	34°F	X				D LOOP LINE DRIP MW-1
WATER	2-2-99	—		X	—	G-2	34°F	X				TRIP BLANK

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	2-2-99 1712				
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:
		[signature]	2/3/99 1230	

Carrier Co:

Air Bill No.:

Carrier Phone No.:

Date Results Reported / by: (Signature)

san juan repro Form 71-55 A

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990021
MTR CODE | SITE NAME:	LD169	D Loop Line Drip
SAMPLE DATE | TIME (Hrs):	2/2/99	1029
PROJECT:	Sample 4 10th Quarter	
ATE OF BTEX EXT. | ANAL.:	NA	2/4/99
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	48.0	PPB	1			
TOLUENE	12.0	PPB	1			
ETHYL BENZENE	27.1	PPB	1			
TOTAL XYLENES	132	PPB	1			
TOTAL BTEX	219	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 80.4 for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Fowler Date: 2-15-99

EL PASO FIELD SERVICES

QUALITY CONTROL REPORT

EPA METHOD 8020 - BTEX

Samples: 990021 to 990027

QA/QC for 02/04/99 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER ICV LA-52589 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	Standard	50.0	54.1	108.2	75 - 125 %	X	
Toluene	Standard	50.0	55.0	110.0	75 - 125 %	X	
Ethylbenzene	Standard	50.0	56.3	112.5	75 - 125 %	X	
m & p - Xylene	Standard	100	112.4	112.4	75 - 125 %	X	
o - Xylene	Standard	50.0	56.3	112.6	75 - 125 %	X	
SAMPLE NUMBER LCS LA-45476 25 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**YES**	**NO**
Benzene	Standard	25.0	30.1	120	39 - 150	X	
Toluene	Standard	25.0	30.1	120	46 - 148	X	
Ethylbenzene	Standard	25.0	29.7	119	32 - 160	X	
m & p - Xylene	Standard	50.0	59.8	120	Not Given	X	
o - Xylene	Standard	25.0	30.9	124	Not Given	X	

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID 990021	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE RANGE	YES	NO
Benzene	Matrix Duplicate	48.0	50.2	4.56	+/- 20 %	X	
Toluene	Matrix Duplicate	12.0	13.1	8.72	+/- 20 %	X	
Ethylbenzene	Matrix Duplicate	27.1	18.0	40.21	+/- 20 %		X
m & p - Xylene	Matrix Duplicate	122	125	2.24	+/- 20 %	X	
o - Xylene	Matrix Duplicate	9.7	17.1	55.40	+/- 20 %		X

Narrative: Acceptable. Matrix interference observed on EB and MPX.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 990021	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	25	48.0	76.4	114	75 - 125 %	X	
Toluene	25	12.0	36.4	97	75 - 125 %	X	
Ethylbenzene	25	27.1	50.1	92	75 - 125 %	X	
m & p - Xylene	50	122	169	94	75 - 125 %	X	
o - Xylene	25	9.7	34.6	99	75 - 125 %	X	

Narrative: Acceptable.

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

Narrative: Acceptable.

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

Narrative: Acceptable.

CONTAMINATION CARRYOVER CHECK	SOURCE	PPB (none analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	NA	ACCEPTABLE
Toluene	Vial + Boiled Water	NA	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	NA	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	NA	ACCEPTABLE

Narrative: Acceptable.

TRIP BLANK 020499	SOURCE	PPB (one analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

Reported By: JAL Approved By: John Fabrizi Date: 2-4-99

Development Criteria

- [x] 3 to 5 Casing Volumes of Water Removed
- [ ] Stabilization of Indicator Parameters
- [ ] Other _____

Methods of Development

Pump		Bailer	
[ ]	Centrifugal	[x]	Bottom Valve
[ ]	Submersible	[ ]	Double Check Valve
[ ]	Peristaltic	[ ]	Stainless-steel Kemmerer

[ ] Other _____

Water Volume Calculation

Initial Depth of Well (feet) 43.48
Initial Depth to Water (feet) 34.93
Height of Water Column in Well (feet) 8.55
Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.7	17.0
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- [x] pH Meter
- [ ] DO Monitor
- [x] Conductivity Meter
- [x] Temperature Meter
- [x] Other D.O. CHEMETS KIT

Water Disposal

KUTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
2-2-99	0936										12.3	5.32	3170		
2-2-99	0943						5.0	5.0			13.0	5.48	3450		
2-2-99	0952						5.0	10.0			13.9	5.72	3450		
2-2-99	1010						5.0	15.0			15.2	6.31	3430		
2-2-99	1017						5.0	20.0			15.1	6.18	3070	0.5	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 2-2-99 Reviewer John Sarda Date 2-4-99

El Paso Natural Gas Company

SAMPLE 4 11TH QTR

CHAIN OF CUSTODY RECORD

Project Number	Project Name	Total No. of Containers	Composite or Grab	Requested Analysis	Contract Laboratory P.O. Number
	MC #LD169				
Samplers: (Signature) Dennis Bird	Date: 5-18-99				

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Composite or Grab	BTXE						Remarks
	5-18-99	1520	WATER	990223	2	G	X						D Loop LINE DRIP MW-1
	5-18-99	1520	WATER	990224	2	G	X						D Loop LINE DRIP MW-1 FIELD DUP

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	5-18-99 1732				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Requested Turnaround Time:
☐ Routine ☐ Rush _____

Carrier Co.

Bill No.:

Sample Receipt Remarks TEMP 34°F

Charge Code

Results & Invoices to:

North Region Laboratory
El Paso Natural Gas Company
P. O. Box 4990
Farmington, New Mexico 87499

505-599-2144 FAX: 505-599-2261

White-Testing Laboratory Yellow-EPNG Lab Pink-Field Sampler

FM-08-0565 (9-91)

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	NA	990223
MTR CODE | SITE NAME:	LD169	D Loop Line Drip
SAMPLE DATE | TIME (Hrs):	5/18/99	1520
PROJECT:	Sample 4 - 11th Quarter	
DATE OF BTEX EXT. | ANAL.:	NA	5/19/99
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: The water had a light hydrogen sulfide odor.

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	382	PPB	5	D		
TOLUENE	17.7	PPB				
ETHYL BENZENE	143	PPB				
TOTAL XYLENES	641	PPB	5	D		
TOTAL BTEX	1184	PPB				

--BTEX is by EPA Method 8021 --

The Surrogate Recovery was at 108.8 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used
The "D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By: John Saldi Date: 5/20/99

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	NA	990224
MTR CODE | SITE NAME:	LD169	D Loop Line Drip
SAMPLE DATE | TIME (Hrs):	5/18/99	1520
PROJECT:	Sample 4 - 11th Quarter	
DATE OF BTEX EXT. | ANAL.:	NA	5/19/99
TYPE | DESCRIPTION:	MW-1 Field Duplicate	Water

Field Remarks: ***The water had a light hydrogen sulfide odor.***

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	379	PPB	5	D		
TOLUENE	13.6	PPB				
ETHYL BENZENE	124	PPB				
TOTAL XYLENES	632	PPB	5	D		
TOTAL BTEX	1149	PPB				

–BTEX is by EPA Method 8021 –

The Surrogate Recovery was at 101.5 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used
The "D" qualifier indiciates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By: John Saddler Date: 5/20/99

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name D Loop LINE DRIP

Meter Code LD169

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ Stabilization of Indicator Parameters
☐ Other_____

Methods of Development

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

☐ Other_____

Water Volume Calculation

Initial Depth of Well (feet) 43.48
Initial Depth to Water (feet) 34.81
Height of Water Column in Well (feet) 8.67
Diameter (inches): Well 4 Gravel Pack_____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.7	17.2
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	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
5-18-99	1438										20.2	5.21	3560		
5-18-99	1447						5.0	5.0			20.5	5.80	3670		
5-18-99	1453						5.0	10.0			20.0	6.11	3640		
5-18-99	1501						5.0	15.0			19.7	6.51	3680		
5-18-99	1508						5.0	20.0			19.2	6.48	3510	0.5	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 5-18-99 Reviewer John Loder Date 5/20/99

EL PASO
FIELD SERVICES

QUALITY CONTROL REPORT - EPA METHOD 8021 BTEX

Samples: 990213, 214, 218 - 224

QA/QC for 05/18/99 & 05/19/99 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER ICV LA-52589 5/18/99 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	Standard	50.0	48.4	96.8	75 - 125 %	X	
Toluene	Standard	50.0	48.2	96.3	75 - 125 %	X	
Ethylbenzene	Standard	50.0	48.3	96.7	75 - 125 %	X	
m & p - Xylene	Standard	100	97.0	97.0	75 - 125 %	X	
o - Xylene	Standard	50.0	48.5	96.9	75 - 125 %	X	
SAMPLE NUMBER CCV LA-52589 5/19/99 50 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**YES**	**NO**
Benzene	Standard	50.0	47.7	95.5	75 - 125 %	X	
Toluene	Standard	50.0	47.6	95.2	75 - 125 %	X	
Ethylbenzene	Standard	50.0	47.9	95.7	75 - 125 %	X	
m & p - Xylene	Standard	100	97.4	97.4	75 - 125 %	X	
o - Xylene	Standard	50.0	48.1	96.1	75 - 125 %	X	
SAMPLE NUMBER LCS LA-45476 5/18/99 25 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**YES**	**NO**
Benzene	Standard	25.0	23.3	93	39 - 150	X	
Toluene	Standard	25.0	23.3	93	46 - 148	X	
Ethylbenzene	Standard	25.0	23.7	95	32 - 160	X	
m & p - Xylene	Standard	50.0	47.4	95	Not Given	X	
o - Xylene	Standard	25.0	23.6	94	Not Given	X	

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID 990218	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE RANGE	YES	NO
Benzene	Matrix Duplicate	<1.0	<1.0	0.00	+/- 20 %	X	
Toluene	Matrix Duplicate	<1.0	<1.0	0.00	+/- 20 %	X	
Ethylbenzene	Matrix Duplicate	<1.0	<1.0	0.00	+/- 20 %	X	
m & p - Xylene	Matrix Duplicate	<2.0	<2.0	0.00	+/- 20 %	X	
o - Xylene	Matrix Duplicate	<1.0	<1.0	0.00	+/- 20 %	X	
SAMPLE ID 990223	**TYPE**	**SAMPLE RESULT PPB**	**DUPLICATE RESULT PPB**	**RPD**	**ACCEPTABLE RANGE**	**YES**	**NO**
Benzene	Matrix Duplicate	376.9	366.1	2.90	+/- 20 %	X	
Toluene	Matrix Duplicate	17.75	18.29	2.97	+/- 20 %	X	
Ethylbenzene	Matrix Duplicate	142.93	153.12	6.88	+/- 20 %	X	
m & p - Xylene	Matrix Duplicate	599.51	583.60	2.69	+/- 20 %	X	
o - Xylene	Matrix Duplicate	5.57	8.31	39.42	+/- 20 %		X

Narrative: Acceptable. O-Xylene out due to matrix interference.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 990218	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	25	<1.0	23.9	96	75 - 125 %	X	
Toluene	25	<1.0	23.2	93	75 - 125 %	X	
Ethylbenzene	25	<1.0	23.1	92	75 - 125 %	X	
m & p - Xylene	50	<2.0	45.9	92	75 - 125 %	X	
o - Xylene	25	<1.0	23.4	93	75 - 125 %	X	
SAMPLE ID 2nd Analysis 990223	**SPIKE ADDED PPB**	**SAMPLE RESULT PPB**	**SPIKE SAMPLE RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**YES**	**NO**
Benzene	25	376.9	374.1	-11	75 - 125 %		X
Toluene	25	17.75	37.2	78	75 - 125 %	X	
Ethylbenzene	25	142.93	155.2	49	75 - 125 %		X
m & p - Xylene	50	599.51	562.8	-73	75 - 125 %		X
o - Xylene	25	5.57	37.6	128	75 - 125 %		X

Narrative: Acceptable. SPK 990223 out due to matrix interference and high levels.

LABORATORY AND FIELD BLANKS:

AUTO BLANK	SOURCE	PPB (none analyzed with set)	STATUS
Benzene	Boiled Water		ACCEPTABLE
Toluene	Boiled Water		ACCEPTABLE
Ethylbenzene	Boiled Water		ACCEPTABLE
Total Xylenes	Boiled Water		ACCEPTABLE
SOIL VIAL BLANK	**SOURCE Lot MB1461**	**PPB (two analyzed with set)**	**STATUS**
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE
CONTAMINATION CARRYOVER CHECK	**SOURCE**	**PPB (two analyzed with this set)**	**STATUS**
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE
TRIP: 5/11, 5/17 and 5/19/99	**SOURCE**	**PPB (three analyzed with this set)**	**STATUS**
Benzene	Boiled Water	<1.0	ACCEPTABLE
Toluene	Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

Reported By: J.L Approved By: John Faldin Date: 5/20/99

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	990337
MTR CODE | SITE NAME:	LD169	D Loop Line Drip
SAMPLE DATE | TIME (Hrs):	08/04/1999	1041
PROJECT:	Sample 4 12th Quarter	
DATE OF BTEX EXT. | ANAL.:	NA	08/10/1999
TYPE | DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	34.3	PPB				
TOLUENE	3.47	PPB				
ETHYL BENZENE	18.3	PPB				
TOTAL XYLENES	36.4	PPB				
TOTAL BTEX	92	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 107.9 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Saenz Date: 9-1-99

El Paso Natural Gas Company

SAMPLE 4 12TH QTR

CHAIN OF CUSTODY RECORD

Page _____ of _____

Project Number	Project Name	Total No. of Containers	Composite or Grab	Requested Analysis	Contract Laboratory P.O. Number
	MC#LD169				
Samplers: (Signature) Dennis Bird	Date: 8-4-99				

Lab ID	Date	Time	Matrix	Sample Number	Total No. of Containers	Composite or Grab	Requested Analysis	Remarks
	8-4-99	1041	WATER	990337	2	G	X	DLOOP LINE DRIP
	8-4-99	—	WATER	—	1	G	X	TRIP BLANK

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	8-4-99 1652				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)
				8/5/99 0800	John Faubion

Requested Turnaround Time:
☐ Routine ☐ Rush _____

Carrier Co.

Bill No.:

Sample Receipt Remarks: COOLER WITH ICE 38°F

Charge Code

Results & Invoices to:
North Region Laboratory
El Paso Natural Gas Company
P. O. Box 4990
Farmington, New Mexico 87499

505-599-2144 FAX: 505-599-2261

White-Testing Laboratory Yellow-EPNG Lab Pink-Field Sampler

FM-08-0565 (9-91)

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name D LOOP LINE DRIP

Meter Code LD169

Development Criteria

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

Methods of Development

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

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 43.48
Initial Depth to Water (feet) 35.07
Height of Water Column in Well (feet) 8.41
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.6	16.7
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

KOTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
8-4-99	0955										18.5	6.26	3940		
8-4-99	1003						5.0	5.0			17.9	5.12	3790		
8-4-99	1010						5.0	10.0			17.7	5.08	2920		
8-4-99	1019						5.0	15.0			17.6	6.21	2520		
8-4-99	1027						5.0	20.0			18.0	6.62	2620	0.5	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 8-4-99 Reviewer John Landon Date 8/18/99

EL PASO FIELD SERVICES

QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX
Samples: 990334 to 990340 and 990349 to 990354
QA/QC for 08/10/99 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER ICV LA-67475 50 PPB	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	Standard	50.0	46.5	93.0	75 - 125 %	X	
Toluene	Standard	50.0	47.5	94.9	75 - 125 %	X	
Ethylbenzene	Standard	50.0	47.1	94.1	75 - 125 %	X	
m & p - Xylene	Standard	100	95.8	95.8	75 - 125 %	X	
o - Xylene	Standard	50.0	47.8	95.6	75 - 125 %	X	
SAMPLE NUMBER LCS LA-53560 25 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**YES**	**NO**
Benzene	Standard	25.0	21.3	85	39 - 150	X	
Toluene	Standard	25.0	22.5	90	46 - 148	X	
Ethylbenzene	Standard	25.0	23.0	92	32 - 160	X	
m & p - Xylene	Standard	50.0	46.3	93	Not Given	X	
o - Xylene	Standard	25.0	23.0	92	Not Given	X	

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID 990349	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE RANGE	YES	NO
Benzene	Matrix Duplicate	<1.0	<2.5	NA	+/- 20 %	X	
Toluene	Matrix Duplicate	2.66	<2.5	NA	+/- 20 %	X	
Ethylbenzene	Matrix Duplicate	72.0	63.5	12.45	+/- 20 %	X	
m & p - Xylene	Matrix Duplicate	249	224.4	10.37	+/- 20 %	X	
o - Xylene	Matrix Duplicate	55.0	49.3	10.84	+/- 20 %	X	

Narrative: Dilution Error on Benzene and Toluene. Acceptable.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 990349	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	25	<1.0	20.4	82	75 - 125 %	X	
Toluene	25	2.66	23.4	83	75 - 125 %	X	
Ethylbenzene	25	72.0	95.6	94	75 - 125 %	X	
m & p - Xylene	50	249	291.2	85	75 - 125 %	X	
o - Xylene	25	55.0	76.0	84	75 - 125 %	X	

Narrative: Acceptable.

SAMPLE ID 990334	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE RANGE	YES	NO
Benzene	Matrix Duplicate	<1.0	<1.0	NA	+/- 20 %	X	
Toluene	Matrix Duplicate	<1.0	<1.0	NA	+/- 20 %	X	
Ethylbenzene	Matrix Duplicate	<1.0	<1.0	0.00	+/- 20 %	X	
m & p - Xylene	Matrix Duplicate	<2.0	<2.0	0.00	+/- 20 %	X	
o - Xylene	Matrix Duplicate	<1.0	<1.0	0.00	+/- 20 %	X	

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 990334	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	25	<1.0	22.1	88	75 - 125 %	X	
Toluene	25	<1.0	22.4	89	75 - 125 %	X	
Ethylbenzene	25	<1.0	21.7	87	75 - 125 %	X	
m & p - Xylene	50	<2.0	45.1	90	75 - 125 %	X	
o - Xylene	25	<1.0	22.5	90	75 - 125 %	X	

Narrative: Acceptable.

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

Narrative: Acceptable.

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

Narrative: Acceptable.

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

Narrative: Acceptable.

TRIP BLANK(s) 8/3, 8/4, 8/5	SOURCE	PPB (three analyzed with this set)	STATUS
Benzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Toluene	Vial + Boiled Water	<1.0	ACCEPTABLE
Ethylbenzene	Vial + Boiled Water	<1.0	ACCEPTABLE
Total Xylenes	Vial + Boiled Water	<3.0	ACCEPTABLE

Narrative: Acceptable.

Reported By: J.L. Approved By: John Lambden Date: 8/24/99

MC# LD169, D Loop Line Drip, MW-1 : Sample 4 - 13th Quarter

MC#70445, Standard Oil Com #1, MW-1 : Sample 4 - 13th Qtr.

MC#97213, Hamner #9, MW-1 : Sample 4 - 13th Quarter

MC# LD146, Lat. 3B-39 Line Drip, MW-1 : Sample 4 - 11th Quarter

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name D Loop LINE DRIP

Meter Code LD169

Development Criteria

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

Methods of Development

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

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 43.48
Initial Depth to Water (feet) 34.66
Height of Water Column in Well (feet) 8.82
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.8	17.5
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	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
11-9-99	0945										16.2	7.08	4430		
11-9-99	0952						5.0	5.0			16.2	7.28	4570		
11-9-99	1000						5.0	10.0			16.0	7.28	4440		
11-9-99	1010						5.0	15.0			15.9	7.32	4380		
11-9-99	1019						5.0	20.0			16.0	7.36	4340	1.0	

Comments THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 11-9-99 Reviewer John Hurley Date 11/30/99

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name STANDARD OIL COM #1

Meter Code 70445

Development Criteria

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

Methods of Development

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

☐ Other_____

Water Volume Calculation

Initial Depth of Well (feet) 32.93
Initial Depth to Water (feet) 19.91
Height of Water Column in Well (feet) 13.02
Diameter (inches): Well 4 Gravel Pack_____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		8.6	25.8
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	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
11-9-99	1123										18.0	7.11	4810		
11-9-99	1131						5.0	5.0			15.7	7.11	4940		
11-9-99	1139						5.0	10.0			15.0	7.30	5020		
11-9-99	1149						5.0	15.0			15.0	7.34	5040		
11-9-99	1156						5.0	20.0			14.9	7.32	5040		
11-9-99	1205						5.0	25.0			14.8	7.38	5010	0.5	

Comments THE WATER HAD A STRONG HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 11-9-99 Reviewer John Lambden Date 11/30/99

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name HANNER #9

Meter Code 97213

Development Criteria

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

Methods of Development

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

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 40.91
Initial Depth to Water (feet) 32.19
Height of Water Column in Well (feet) 8.72
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.8	17.3
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

KUT2 SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
11-9-99	1330										18.1	7.90	18050		
11-9-99	1337						3.0	3.0			17.1	7.84	18210		
11-9-99	1349						2.0	5.0			16.7	7.77	18270		
11-9-99	1406						1.0	6.0			16.3	7.70	18790	0.5	

Comments THE WELL BAILED DRY @ 6.0 GALLONS. THE WATER HAD A LIGHT HYDROGEN SULFIDE SMELL.

Developer's Signature Dennis Bird Date 11-9-99 Reviewer John Jaramillo Date 11/30/99

EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name LATERAL 3B-39 LINE DRIP

Meter Code LD146

Development Criteria

☒ 3 to 5 Casing Volumes of Water Removel
☐ Stabilization of Indicator Parameters
☐ Other_____

Methods of Development

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

☐ Other_____

Water Volume Calculation

Initial Depth of Well (feet) 41.31
Initial Depth to Water (feet) 32.99
Height of Water Column in Well (feet) 8.32
Diameter (inches): Well 4 Gravel Pack_____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		5.5	16.5
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

KOTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Removal Rate	Intake Depth	Ending Water Depth	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Bailer	(gal/min)	(feet)	(feet)	Increment	Cumulative	Increment	Cumulative					
11-9-99	1505										16.6	6.68	979		
11-9-99	1516						5.0	5.0			16.0	6.91	1023		
11-9-99	1530						5.0	10.0			15.6	6.90	1059		
11-9-99	1545						5.0	15.0			15.3	6.94	1110		
11-9-99	1558						5.0	20.0			15.2	6.99	1143	0.5	

Comments THE WATER HAD A STRONG HYDROCARBON SMELL.

Developer's Signature Dennis Bird Date 11-9-99 Reviewer John Landon Date 11/30/99

PINNACLE LABORATORIES

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

Pinnacle Lab ID number 911051
November 19, 1999

EL PASO FIELD SERVICES
770 WEST NAVAJO
FARMINGTON, NM 87401

Multiple Wells shown on Next Page

Project Name PIT MONITOR WELLS
Project Number (none)

Attention: JOHN LAMBDIN

On 11/16/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

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

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

Reviewed & Accepted
11/30/99

PINNACLE LABORATORIES

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

CLIENT	: EL PASO FIELD SERVICES	PINNACLE ID	: 911051
PROJECT #	: (none)	DATE RECEIVED	: 11/16/99
PROJECT NAME	: PIT MONITOR WELLS	REPORT DATE	: 11/19/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	990440 – mc# LD169, D Loop Line Drip	AQUEOUS	11/9/99
02	990441 – mc# 70445, Standard Oil Com #1	AQUEOUS	11/9/99
03	990442 – mc# 97213, Hanner 2 #9	AQUEOUS	11/9/99
04	990443 – mc# LD146, Lateral 3B-39 Line Drip	AQUEOUS	11/9/99
05	TRIP BLANK	AQUEOUS	11/9/99

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

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

PINNACLE I.D.: 911051

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	990440	AQUEOUS	11/9/99	NA	11/16/99	10
02	990441	AQUEOUS	11/9/99	NA	11/16/99	20
03	990442	AQUEOUS	11/9/99	NA	11/16/99	20

PARAMETER	DET. LIMIT	UNITS	990440	990441	990442
BENZENE	0.5	**UG/L**	**410**	**240**	**120**
TOLUENE	0.5	**UG/L**	**21**	**98**	**39**
ETHYLBENZENE	0.5	**UG/L**	**330**	**180**	**75**
TOTAL XYLENES	0.5	**UG/L**	**230**	**1500**	**170**
SURROGATE:					
BROMOFLUOROBENZENE (%)			107	95	101
SURROGATE LIMITS	(80 - 120)				

ID 169
D Loop Line Drip
Sample 4 13th Qtr

70445
Standard Oil
Com #1
Sample 4
13th Qtr

97213
Hammer #9
Sample 4
13th Qtr

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : EL PASO FIELD SERVICES PINNACLE I.D.: 911051
PROJECT # : (none)
PROJECT NAME : PIT MONITOR WELLS

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	990443	AQUEOUS	11/9/99	NA	11/16/99	10
05	TRIP BLANK	AQUEOUS	11/9/99	NA	11/17/99	1

PARAMETER	DET. LIMIT	UNITS	990443	TRIP BLANK
BENZENE	0.5	UG/L	< 5.0	< 0.5
TOLUENE	0.5	**UG/L**	**21**	< 0.5
ETHYLBENZENE	0.5	**UG/L**	**340**	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**5900(D50)**	< 0.5

SURROGATE:

BROMOFLUOROBENZENE (%)		98	111
SURROGATE LIMITS	(80 - 120)		

LD 146
Lateral 38-39
Line Drip
Sample 4
11th Qtr

CHEMIST NOTES:
(D50) = 50 X DILUTION ANALYZED ON 11/17/99.

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.	: 911051
BLANK I. D.	: 111699	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 11/16/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		100
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.	: 911051
BLANK I. D.	: 111799	DATE EXTRACTED	: NA
CLIENT	: EL PASO FIELD SERVICES	DATE ANALYZED	: 11/17/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: PIT MONITOR WELLS		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		103
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 111699	PINNACLE I.D.	: 911051
CLIENT	: EL PASO FIELD SERVICES	DATE EXTRACTED	: NA
PROJECT #	: (none)	DATE ANALYZED	: 11/17/99
PROJECT NAME	: PIT MONITOR WELLS	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	17.5	88	17.4	87	1	(80 - 120)	20
TOLUENE	<0.5	20.0	18.9	95	18.5	93	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	19.6	98	19.5	98	1	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	59.6	99	59.1	99	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 Inc.

CHAIN OF CUSTODY

DATE: 11-9-99 PAGE: 1 OF 1

PLI Accession #: 911051

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: JOHN CAMBON

COMPANY: EL PASO FIELD SERVICES
ADDRESS: 720 WEST NAVAJO
FARMINGTON NM
PHONE: (505) 599-2144
FAX: (505) 599-2261

BILL TO: SAME AS ABOVE
COMPANY:
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
990440	11-9-99	1052	WATER	01
990441	11-9-99	1217	WATER	02
990442	11-9-99	1428	WATER	03
990443	11-9-99	1610	WATER	04
TRIP BLANK	11-9-99		WATER	05

ANALYSIS REQUEST

	SAMPLE ID
Petroleum Hydrocarbons (418.1) TRPH	
(MOD.8015) Diesel/Direct Inject	
(M8015) Gas/Purge & Trap	
8021 (BTEX)/8015 (Gasoline) MTBE	
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	990440 X, 990441 X, 990442 X, 990443 X, TRIP BLANK X
8021 (TCL) Volatile Organics	
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:	

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: PIT MANITOR WELLS
P.O. NO.:
SHIPPED VIA: FED-X

SAMPLE RECEIPT

NO. CONTAINERS	9
CUSTODY SEALS	Y / N (NA)
RECEIVED INTACT	YES
BLUE ICE/ICE	6°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.

Signature: Dennis Bird Time: 1735
Printed Name: DENNIS BIRD Date: 11-9-99
Company: EL PASO FIELD SERVICES
See reverse side (Force Magure)

RECEIVED BY: 1.

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 2.

Signature: Time: 0950
Printed Name: 11/16/99
Pinnacle Laboratories

PINNACLE LABORATORIES

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

Pinnacle Lab ID number **002051**
February 16, 2000

PHILIP ENVIRONMENTAL
4000 MONROE ROAD
FARMINGTON, NM 87401

Project Name EPFS GW INV.
Project Number 62800028

Attention: CECIL IRBY

On 02/12/00 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592 pending), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

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

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: jt

Enclosure

PINNACLE LABORATORIES

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

CLIENT	: PHILIP ENVIRONMENTAL	PINNACLE ID	: 002051
PROJECT #	: 62800028	DATE RECEIVED	: 02/12/00
PROJECT NAME	: EPFS GW INV.	REPORT DATE	: 02/16/00

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	DL00023-1	AQUEOUS	02/11/00
02	DL00022-1	AQUEOUS	02/11/00

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 : PHILIP ENVIRONMENTAL
PROJECT # : 62800028
PROJECT NAME : EPFS GW INV.

PINNACLE I.D.: 002051

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	DL00023-1	AQUEOUS	02/11/00	NA	02/14/00	1
02	DL00022-1	AQUEOUS	02/11/00	NA	02/14/00	10

PARAMETER	DET. LIMIT	UNITS	DL00023-1	DL00022-1
BENZENE	0.5	**UG/L**	**7.4**	**8.5**
TOLUENE	0.5	**UG/L**	**3.7**	**44**
ETHYLBENZENE	0.5	**UG/L**	**11**	< 5.0
TOTAL XYLENES	0.5	**UG/L**	**32**	**830**
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 25

SURROGATE:

BROMOFLUOROBENZENE (%)		106	99
SURROGATE LIMITS	(80 - 120)		

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 002051
BLANK I. D.	: 021400	DATE EXTRACTED	: NA
CLIENT	: PHILIP ENVIRONMENTAL	DATE ANALYZED	: 02/14/00
PROJECT #	: 62800028	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: EPFS GW INV.		

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

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

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

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 021400	PINNACLE I.D.	: 002051
CLIENT	: PHILIP ENVIRONMENTAL	DATE EXTRACTED	: NA
PROJECT #	: 62800028	DATE ANALYZED	: 02/14/00
PROJECT NAME	: EPFS GW INV.	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20.0	22.9	115	20.8	104	10	(80 - 120)	20
TOLUENE	<0.5	20.0	21.2	106	19.3	97	9	(80 - 120)	20
ETHYLBENZENE	<0.5	20.0	23.4	117	21.2	106	10	(80 - 120)	20
TOTAL XYLENES	<0.5	60.0	64.8	108	61.3	102	6	(80 - 120)	20

CHEMIST NOTES:
N/A

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

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

PHILIP ENVIRONMENTAL

Chain of Custody Record

002051

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

COC Serial No. C 2492

Project Name EPFS GW Inv.

Project Number 62300028 Phase . Task

Samplers C Irby, D Mojto

Laboratory Name Pinnacle

Location

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: BTEX	Comments	
DL00023-1	2-11-00	15:20	W	2	X	DL Loop Drip	-01
DL00022-1	2-11-00	1530	W	2	X	DL Loop Dup	-02
						LD169	

RUSH!

Relinquished by:

Signature	Date	Time
Cecil Irby	2-11-00	13:20
H Mitchell	2-12-00	16:30

Received By:

Signature	Date	Time
Refrigerator		
→ H Mitchell		

Samples Iced: ☒ Yes ☐ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier:

Airbill No.

Shipping and Lab Notes:

Shipped Via Bus
2-12-00 11AM

RCV'd @ 4.2°C
intact/ice present

ATTACHMENT 2
MONITOR WELL INSTALLATION

SURFACE EXPLORATI

s Corp.

/401
505) 326-2388

Borehole # TW-1 South West
Well # MW-2
Page 1 of 1

Project Name EPFS
Project Number Phase
Project Location D Loop Drip

Location Temp Well (TW) - 1 (South West)
Depth ~32'
gged By Don Fernald
Drilled By K. Padilla
Date/Time Started 12/21/99 9:00 A.M.
Date/Time Completed 12/21/99 11:10 A.M.

Well Logged By Don Fernald
Personnel On-Site Fernald, K. Padilla, D. Padilla
Contractors On-Site NONE
Client Personnel On-Site NONE

Drilling Method CME-75 Auger
Air Monitoring Method N/A

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	PID Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0			Lt. brown - brown silty fine sand w/some organic material (roots) very dry			34			
5	X								
			brown silty clay w/some small grains of ftz sand. Moisture present, some roots.						
10	X					3.4			
			Mostly fine w/some med. grained sand, very silty. brown.						
15	X					7.2			
			Well-sorted med-fine grained silty brown sand. (lt brown to slight yellow)						
20	X					6.6			
			Very fine grained silty sand brown -						
25	X					2.4			
			Grades to med-fine grained reddish brown silty sand @ ~28'.						
30	X					7.5			
			Ground water @ ~32-33'. HC smear @ top of G.W. Fine grained silty sand. Brown						
35	X					127.0			
			Boring continued to 40'						
40									

Comments: 2" Temporary well installed .10 Screen from 40'-25' / Solid PVC from 25' to surface. 10-20 Sand from 40'-23'. 3/8" Bentonite hole plug from 23' to 21'. Baled ~ 15 gallons of water / HC product from well.

Geologist Signature Don Fernald

5/6/99\Drillog.xls

. . . OF SUBSURFACE EXPLORAT

Environmental Services Corp.
onroe Road
ington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # TW-2 - Northwest
Well # MW-3
Page 1 of 1

Project Name EPFS
Project Number ____ Phase
Project Location D Loop DRIP

Elevation ____
Borehole Location TW-2 Northwest
GWL Depth ____
Logged By Don Fernald
Drilled By Kelly Padilla
Date/Time Started 11:50 A.M. / 12-21-99
Date/Time Completed 2:50 PM / 12-21-99

Well Logged By Don Fernald
Personnel On-Site Fernald, D. Padilla, K. Padilla
Contractors On-Site None
Client Personnel On-Site None

Drilling Method CME-75 Auger
Air Monitoring Method N/A - PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	PID Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0			Brown, Med-Fine grained silty sand - Dry.						
5		X				2.7			
			Brown, Fine grained silty sand. some vegetation (roots) dry						
10		X				3.0			
			Brown, fine grained silty sand. Some moisture. Some sparce white pieces of chalky material						
15		X				4.1			
			Brown, fine grained silty sand grading to less sand to more silt.						
20		X				2.7			
			Brown, silt w/some very fine grained sand.						
25		X				4.7			
			Poor sample recovery Very moist. Brown w/some mottled grey silty sail w/some very fine grained sand.						
30		X	~~Brown~~. Grey med-fine grained sand. - WATER @ ~ 32'			1.8			
35		X				2.1			
40									

Comments: 2" Temporary well installed w/.10 screen from 40'-25' / solid PVC from 25' to surface. 10-20 Sand from 40'-23'. 3/8" Bentonite hole plug from 23'-21'. Baled ~15 gallons of water from well.

Geologist Signature Don Fernald