3R - 145

REPORTS

DATE:
1997

EL PASO ENERGY

Certified Mail: #Z 295 387 297; #Z 295 387 296

February 27, 1998

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

Re: 1997 Groundwater Annual Report

Dear Mr. Olson:

In accordance with reporting requirements, El Paso Field Services (EPFS) has enclosed annual updates for 57 groundwater impacted locations that were identified during our pit closure project of 1994/1995.

Of the 57 reports, EPFS hereby requests your approval for closure of 11 of these locations. The 11 reports for which EPFS requests closure, are in 2 separate binders entitled "Request for Closure".

After you have had an opportunity to review these updates, EPFS would like to schedule a meeting with you to discuss issues related to closure criteria for some of the more complex locations that are currently being addressed.

If you have any questions regarding this information, please call me at 505/599-2141. I will contact you within the next quarter to schedule a meeting.

Sincerely,

Sandra D. Miller
Environmental Manager

xc: Mr. Bill Liesse, BLM w/o enclosures
Mr. Denny Foust, NMOCD - Aztec w/enclosures; **Certified Mail #Z 295 387 298; #Z 295 387 299**
Ms. Charmaine Tso, Navajo EPA w/enclosures; **Certified Mail #Z 295 387 292**

SAN JUAN BASIN PIT CLOSURES
San Juan Basin, New Mexico

El Paso Field Services Pit Project Groundwater Report
Annual Report

March 1998

Prepared For

El Paso Field Services
Farmington, New Mexico

Project 17520

PHILIP ENVIRONMENTAL

EPFS GROUNDWATER PITS
1997 ANNUAL GROUNDWATER REPORT

ANDERSON GC A #1 CH
Meter/Line ID - 95210

SITE DETAILS

Legals - Twn: 29N **Rng:** 10W **Sec:** 28 **Unit:** C
NMOCD Hazard Ranking: 40 **Land Type:** FEE
Operator: AMOCO PRODUCTION COMPANY

PREVIOUS ACTIVITIES

Site Assessment: Apr-94
Excavation: Apr-94 (25 CY)
Geoprobe: Oct-96
Re-Excavation: Oct-96 (192 CY)
Soil Boring: Feb-97
Monitor Well: Feb-97

1997 ACTIVITIES

Monitor Well Installation - One groundwater monitor well was installed in the center of the former pit.

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring was initiated on 8/4/97. Groundwater analytical data are presented in Table 1.

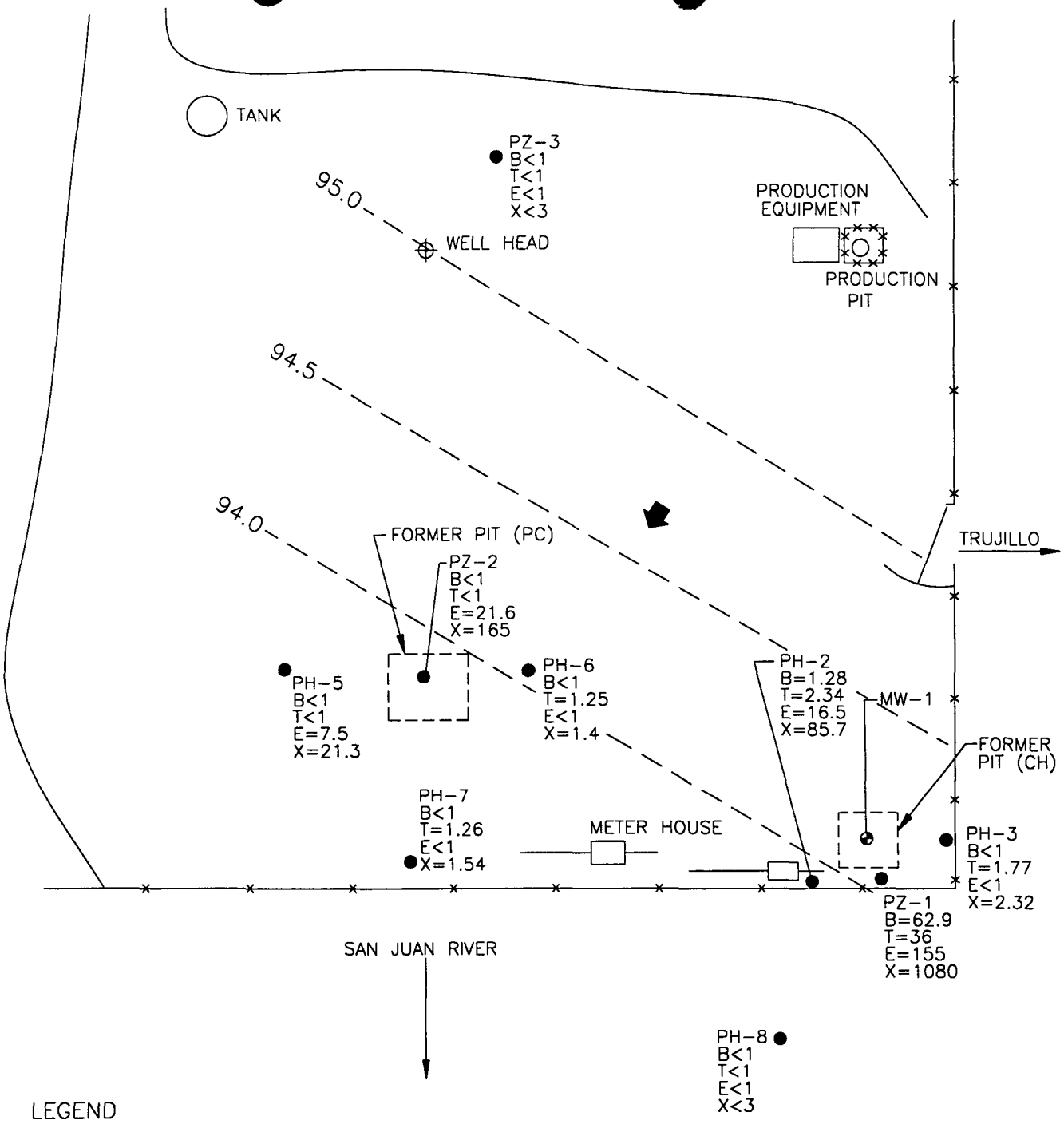
CONCLUSIONS

Based on groundwater levels collected from Geoprobe data, the groundwater flow trends to the southwest on this site, as presented in Figure 1. One downgradient groundwater sample collected from PH-8 was below standards for BTEX. A groundwater sample collected from PZ-1, which is immediately downgradient of MW-1 (but upgradient of PH-8) was in excess of standards for benzene and xylene. Groundwater samples collected from crossgradient and upgradient probeholes were below standards for BTEX.

Groundwater analytical data has been below standards since quarterly sampling was initiated at MW-1. Minimal impact to groundwater has occurred at this site.

RECOMMENDATIONS

- Quarterly sampling will continue at MW-1 until 4 consecutive clean quarters are achieved.
- Following OCD approval for closure, MW-1 will be abandoned following OCD approved abandonment procedures.



LEGEND

B	BENZENE (ug/L)
T	TOLUENE (ug/L)
E	ETHYL BENZENE (ug/L)
X	XYLENE (ug/L)
ug/L	MICROGRAMS PER LITER
●PH-4	APPROXIMATE PROBEHOLE LOCATION AND NUMBER
94.0	GROUNDWATER POTENTIOMETRIC SURFACE
	APPROXIMATE GROUNDWATER GRADIENT

NOT TO SCALE

N

PHILIP SERVICES CORP

TITLE:
ANDERSON GC A#1 CH
95210

DWN:	DES.:
TMM	CC
CHKD:	APPD:
CC	
DATE:	REV.:
1/21/98	0

PROJECT NO.: 17520
EPFS GW PITS

FIGURE 1

COL. 17520S-002

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total BTEX
970206	95210	ANDERSON GAS COM A#1 CH	3/11/97	1	Phase II Drilling - Initial	< 1	< 1	= 3.55	= 25.6	= 29
970805	95210	ANDERSON GAS COM A#1 CH	8/4/97	1	Sample 4 - 1st Quarter	= 1.21	< 1	< 1	< 1	< 6

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-7
Well # 1
Page 1 of 1

PHILIP ENVIRONMENTAL SERVICES INC.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GW PITS
Project Number 17520 Phase 6001.77
Project Location ANDERSON GC A#1 - 95210

Elevation
Borehole Location T27-R10-S28-Ltr C
GWL Depth 9'
Logged By D CESARK
Drilled By M DONOHUE
Date/Time Started 2/27/97 - 1000
Date/Time Completed 11 - 1045

Well Logged By D CESARK
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Drilling Method 4 1/4" ID HSA
Air Monitoring Method PID, CGI

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0				BACKFILL TO 6'					HS	
5	1	6'-8'	12"	(BACKFILL)					1/-	
10				9' BGS - COBBLES						
				TD = 13'						
15										
20										
25										
30										
35										
40										

Comments: GW ENCOUNTERED @ 9' BGS. TD = 13' BGS @ AUGER REFUSAL IN COBBLES. LAST RETRIEVABLE SAMPLE ABOVE GW WAS IN FILL MATERIAL SO NO SAMPLES SUBMITTED TO LAB. SET WELL - PLEASE REFER TO WELL COMP. DIAGRAM.

Geologist Signature

MONITORING WELL INSTALLATION RECORD

Borehole # 2
Well # 1
Page 1 of 1

Philip Environmental Services, Inc.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS GW PITS
Project Number 17520 Phase 6002.77
Site Location ANDERSON GC A#1 — 95210

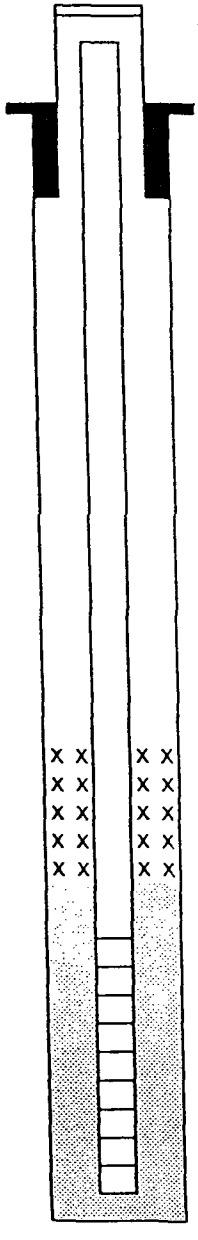
Elevation
Well Location T29N-R10W-S28-L'C'
GWL Depth 9' BGS
Installed By M DONOHUE

On-Site Geologist D CESARK
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Date/Time Started 2/27/97 — 1045
Date/Time Completed " — 1280

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser	SCH 40 PVC	+3'
Bottom of Well Riser	"	-2.5
Top of Well Screen	.010 SLOT	-2.5'
Bottom of Well Screen	"	-12.5
Top of Peltonite Seal	ENVIROPLUG	-.5'
Bottom of Peltonite Seal	"	-2'
Top of Gravel Pack	10-20 SAND	-2'
Bottom of Gravel Pack	"	-12.5'
Top of Natural Cave-In		-12.5'
Bottom of Natural Cave-In		-13'
Top of Groundwater		-9'
Total Depth of Borehole		-13'



Top of Protective Casing
Top of Riser +3'
Ground Surface -0'-
Top of Seal -.5'
Top of Gravel Pack -2'
Top of Screen -2.5'
Bottom of Screen -12.5'
Bottom of Borehole -13'

Comments:

Geologist Signature

GEOPROBE

PIEZOMETER INSTALLATION RECORD

Borehole # PZ - 1
Well #
Page 1 of 1

Philip Environmental Services, Inc.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS PITS
Project Number 16297 Phase 6004
Site Location Anderson GC 1 95210/94984

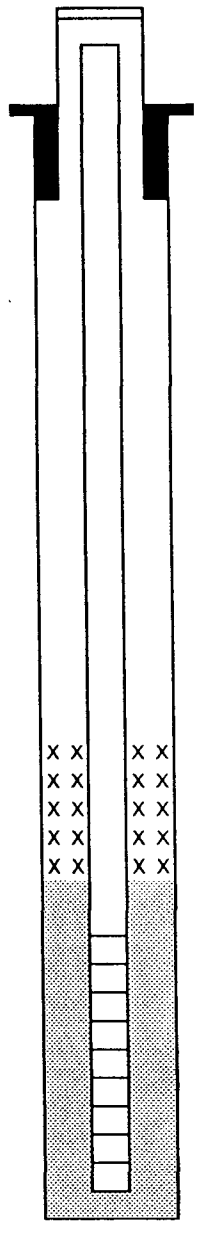
Elevation
Well Location S of Pit
GWL Depth ~~6.0' BGS~~ 8.25TOR
Installed By K PADILLA

Date/Time Started 10/21/96
Date/Time Completed 10/21/96

On-Site Geologist CM CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
Bottom of Well Riser		
Top of Well Screen		
Bottom of Well Screen		
Top of Peltonite Seal		
Bottom of Peltonite Seal		
Top of Gravel Pack		
Bottom of Gravel Pack		
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		



Top of Protective Casing NA
Top of Riser
Ground Surface
Top of Seal
Top of Gravel Pack
Top of Screen 2.5'
Bottom of Screen 7.5'
Bottom of Borehole

Comments:

Geologist Signature

MWINSTAL.wk1

PIEZOMETER INSTALLATION RECORD

Borehole # PZ-2
Well #
Page 1 of 1

Philip Environmental Services, Inc.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS PITS
Project Number 16297 Phase 6004
Site Location Anderson GC 1 95210/94984

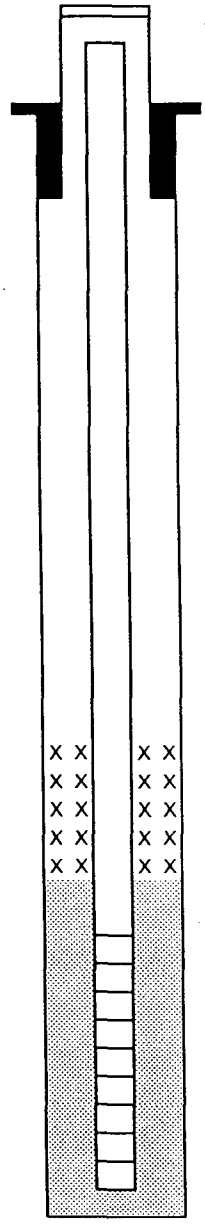
Elevation
Well Location Center of PC Pit
GWL Depth 8.55 TOR
Installed By K PADILLA

Date/Time Started 10/22/96
Date/Time Completed 10/22/96

On-Site Geologist CM CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
Bottom of Well Riser		
Top of Well Screen		
Bottom of Well Screen		
Top of Peltonite Seal		
Bottom of Peltonite Seal		
Top of Gravel Pack		
Bottom of Gravel Pack		
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		



Top of Protective Casing NA
Top of Riser
Ground Surface
Top of Seal
Top of Gravel Pack
Top of Screen 2.5
Bottom of Screen 7.5
Bottom of Borehole

Comments:

Geologist Signature

PIEZOMETER INSTALLATION RECORD

Borehole # PZ-3
Well #
Page 1 of 1

Philip Environmental Services, Inc.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name EPFS PITS
Project Number 16297 Phase 6004
Site Location Anderson GC 1A 95210/94984

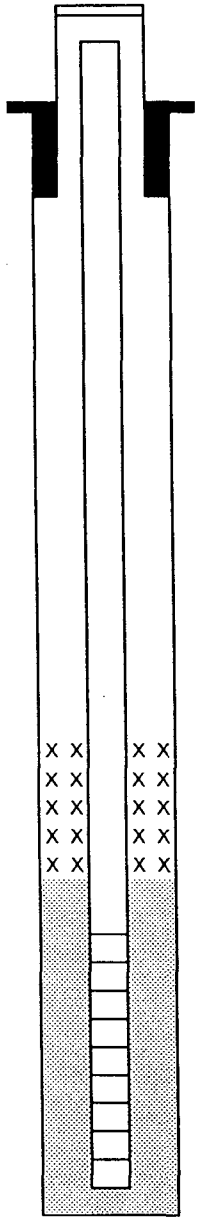
Elevation
Well Location N of Wellhead
GWL Depth 4.59 TOR
Installed By K PADILLA

Date/Time Started 10/22/96
Date/Time Completed 10/22/96

On-Site Geologist CM CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
Bottom of Well Riser		
Top of Well Screen		
Bottom of Well Screen		
Top of Peltonite Seal		
Bottom of Peltonite Seal		
Top of Gravel Pack		
Bottom of Gravel Pack		
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		



Top of Protective Casing NA
Top of Riser
Ground Surface
Top of Seal
Top of Gravel Pack
Top of Screen 3.5
Bottom of Screen 6.0
Bottom of Borehole

Comments:

Geologist Signature

MWINSTAL.wk1

Geoprobe

El Paso Natural Gas Company

A 2343

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis	Remarks
16297	EPFS PITS				*RUSH TURNAROUND

Samplers: (Signature) Cory Chavez Date: 10/21/96

	Date	Time	Comp.	GRAB	Sample Number							
47934	10/21/96	1045		✓	CMC 212	2	HCl/4°C	✓				Anderson GC#/95210/94984 PH1 (6-9' emc 10/21/96 PZ1
47935		1205		✓	CMC 213	2		✓				PH2 94984
47936		1335		✓	CMC 214	2		✓				PH3
47937		1350		✓	CMC 215	2		✓				PH4 (PZ2
47938		1415		✓	CMC 216	2		✓				PH5
47939		1435		✓	CMC 217	2		✓				PH6
47940		1550		✓	CMC 218	2		✓				PH7
47941		1620		✓	CMC 219	2		✓				PH8 (PZ3
		—			TRIP BLANK	1	↓	✓				

Cory Chavez 10/21/96

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Cory Chavez	10/21/96 1700	Cory Chavez	Cory Chavez	10/22/96 0757	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
				10/22/96 0757	Marla Armenta
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks:	

Carrier Co: Carrier Phone No. Date Results Reported / by: (Signature)

Air Bill No.:

san juan repro Form 71-55 A

9:22 No.003 P.10 NOV 12'96 ID:505-599-2261 ELPASO NO.REG.LAB

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC212	947934
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1045
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PH1 ~~Grab~~	~~PH1~~ Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	62.9	PPB	2	D		
TOLUENE	36.0	PPB	2	D		
ETHYL BENZENE	155	PPB	2	D		
TOTAL XYLENES	1080	PPB	2	D,D1		
TOTAL BTEX	1334	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 96.0 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

The "D1" qualifier indicates that the analyte concentration exceeded the calibration curve limit.

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

Narrative:

Approved By: John Ledbetter Date: 10/29/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC213	947935
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1205
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PH2 ~~Grab~~	~~PH2~~ water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	1.28	PPB				
TOLUENE	2.34	PPB				
ETHYL BENZENE	16.5	PPB				
TOTAL XYLENES	85.7	PPB				
TOTAL BTEX	106	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 96.4 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Fowler Date: 10/29/96

947935.XLS,10/25/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC214	947936
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1335
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PH3 ~~Grab~~	~~PH3~~ water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	<1	PPB				
TOLUENE	1.77	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	2.32	PPB				
TOTAL BTEX	4.09	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 93.4 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Laude Date: 10/29/96

947936.XLS,10/25/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC215	947937
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1350
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PH4 ~~Grab~~	~~PH4~~ Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	21.6	PPB				
TOTAL XYLENES	165	PPB				
TOTAL BTEX	187	PPB				

– BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 93.8 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Ford Date: 10/29/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC216	947938
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1415
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PHS ~~Grab~~	~~PHS~~ water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	7.50	PPB				
TOTAL XYLENES	21.3	PPB				
TOTAL BTEX	28.8	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 89.2 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Fowler Date: 10/29/96

✓

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC217	947939
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1435
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PHG ~~Grab~~	~~PHS~~ water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<1	PPB				
TOLUENE	1.25	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	1.40	PPB				
TOTAL BTEX	2.65	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 93.1 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Lardi [signature] Date: 10/29/96

947938.XLS,10/25/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC218	947940
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1550
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PH7 ~~Grab~~	~~PH7~~ water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	<1	PPB				
TOLUENE	1.26	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	1.64	PPB				
TOTAL BTEX	2.80	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 92.3 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Tarin Date: 10/29/96

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC219	947941
MTR CODE | SITE NAME:	95210/94984	Anderson GC #1
SAMPLE DATE | TIME (Hrs):	10/21/96	1620
PROJECT:	Geoprobe	
DATE OF BTEX EXT. | ANAL.:	10/23/96	10/23/96
TYPE | DESCRIPTION:	PH8 ~~Grab~~	~~PH8~~ water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	PPB				
TOTAL BTEX	<6	PPB				

–BTEX is by EPA Method 8020 –

The Surrogate Recovery was at 92.3 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: John Gardi Date: 10/29/96

EPFS
EL PASO FIELD SERVICES

QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX

Samples: 947934 - 947941 and 960875 - 960879

QA/QC for 10/23/96 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	ACCEPTABLE YES	ACCEPTABLE NO
Benzene	Standard	50.0	54.8	110	75 - 125 %	X	
Toluene	Standard	50.0	53.3	107	75 - 125 %	X	
Ethylbenzene	Standard	50.0	53.1	106	75 - 125 %	X	
m & p - Xylene	Standard	100	101	101	75 - 125 %	X	
o - Xylene	Standard	50.0	53.6	107	75 - 125 %	X	
SAMPLE NUMBER LCS LA-45476 25 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**ACCEPTABLE YES**	**ACCEPTABLE NO**
Benzene	Standard	25.0	28.3	113	39 - 150	X	
Toluene	Standard	25.0	27.5	110	46 - 148	X	
Ethylbenzene	Standard	25.0	27.6	110	32 - 160	X	
m & p - Xylene	Standard	50.0	51.3	103	Not Given	X	
o - Xylene	Standard	25.0	27.9	112	Not Given	X	
SAMPLE NUMBER CCV LA-52589 50 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**ACCEPTABLE YES**	**ACCEPTABLE NO**
Benzene	Standard	50.0	51.6	103	75 - 125 %	X	
Toluene	Standard	50.0	50.8	102	75 - 125 %	X	
Ethylenzene	Standard	50.0	50.8	102	75 - 125 %	X	
m & p - Xylene	Standard	100	97.2	97.2	75 - 125 %	X	
o - Xylene	Standard	50.0	51.2	102	75 - 125 %	X	
SAMPLE NUMBER CCV LA-52589 50 PPB	**TYPE**	**EXPECTED RESULT PPB**	**ANALYTICAL RESULT PPB**	**%R**	**ACCEPTABLE RANGE**	**ACCEPTABLE YES**	**ACCEPTABLE NO**
Benzene	Standard	50.0	42.1	84.2	75 - 125 %	X	
Toluene	Standard	50.0	41.0	82.0	75 - 125 %	X	
Ethylbenzene	Standard	50.0	40.9	81.8	75 - 125 %	X	
m & p - Xylene	Standard	100	77.4	77.4	75 - 125 %	X	
o - Xylene	Standard	50.0	41.2	82.4	75 - 125 %	X	

Narrative: Acceptable.

EL PASO FIELD SERVICES LAB
QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX
Samples: 947934 - 947941 and 960875 - 960879

LABORATORY DUPLICATES:

SAMPLE ID 947935	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE RANGE	YES	NO
Benzene	Matrix Duplicate	1.28	1.08	16.9	+/- 20 %	X	
Toluene	Matrix Duplicate	2.34	2.37	1.27	+/- 20 %	X	
Ethylbenzene	Matrix Duplicate	16.5	15.9	3.70	+/- 20 %	X	
m & p - Xylene	Matrix Duplicate	82.6	80.1	3.07	+/- 20 %	X	
o - Xylene	Matrix Duplicate	3.04	2.95	3.01	+/- 20 %	X	

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 947935	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE RANGE	YES	NO
Benzene	50	1.28	53.8	105	75 - 125 %	X	
Toluene	50	2.34	55.9	107	75 - 125 %	X	
Ethylbenzene	50	16.5	65.8	98.6	75 - 125 %	X	
m & p - Xylene	100	82.6	175	92.4	75 - 125 %	X	
o - Xylene	50	3.04	52.4	98.7	75 - 125 %	X	

Narrative: Acceptable

ADDITIONAL ANALYTICAL BLANKS:

AUTO BLANK	SOURCE	PPB	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 (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.

CONTAMINATION CARRYOVER CHECK	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: Mda Approved By: John Seale Date: 10/29/96

1997 GROUNDWATER ANALYTICAL

Chain of Custody Record

PHILIP ENVIRONMENTAL

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

COC Serial No. C 3059

Project Name EPFS GW PITS

Project Number 17520 Phase . Task 6000 . 77

Samplers J. LONG

Laboratory Name ENV

Location Farmington NM

EPFS LAB ID	Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: BTEX	Comments
970201	JAL TRIP BLANK	3-10-97	1115	WATER	1	X	
970202	JAL 14046-01	3-10-97	1245	WATER	2	X	ONE VOA TOO COLD HEADSPACE PRESENT (Both Air)
970203	JAL-08506-01	3-10-97	1610	WATER	2	X	ONE VOA TOO COLD HEADSPACE PRESENT
970204	JAL TRIP BLANK	3-11-97	1000	WATER	1	X	
970205	JAL-10153-01	3-11-97	1045	WATER	2	X	
970206	JAL-95210-01	3-11-97	1325	WATER	2	X	
970207	JAL 75220-01	3-11-97	1530	WATER	2	X	
970208	JAL TRIP BLANK	3-12-97	1150	WATER	1	X	AIR BUBBLE
970209	JAL 71676-01	3-12-97	1155	WATER	2	X	
970210	JAL TRIP BLANK	3-13-97	1000	WATER	1	X	
970211	JAL 74816-01	3-13-97	1010	WATER	2	X	

Relinquished by:

Signature	Date	Time
	3-13-97	1430

Received By:

Signature	Date	Time
John Falder	3/13/97	1435

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: Hand Delivered JS

Airbill No.

Shipping and Lab Notes:

Rec'd - Cool and In-Tact JH

EL PASO FIELD SERVICES

5-22-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	JAL 95210-01	970206
MTR CODE | SITE NAME:	95210	Anderson GC A #1
SAMPLE DATE | TIME (Hrs):	3/11/97	1325
PROJECT:	Phase II Drilling - Initial	
DATE OF BTEX EXT. | ANAL.:	3/14/97	3/15/97
TYPE | DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	<1	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	3.55	PPB				
TOTAL XYLENES	25.6	PPB				
TOTAL BTEX	29.2	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 99.9 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: John Fuller Date: 4/5/97

PHILIP ENVIRONMENTAL Well Development and Purging Data

☒ Development ☐ Purging Well Number MW 1

Serial No. WDPD- Page ____ of ____

Project Name EPFS G.W. Pits Project Manager Cort Chavez Project No. 17520

Client Company EL Paso Phase.Task No. 6000 3 .77

Site Name Anderson G.C. A #1 (9520) Site Address ____

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) 15.45
Initial Depth to Water (feet) 8.57
Height of Water Column in Well (feet) 6.88
Diameter (inches): Well 4 Gravel Pack ____

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		4.49	~~20.45~~
Gravel Pack			
Drilling Fluids			
Total			22.45

Instruments

	Serial No. (If applicable)
☒ pH Meter	OYSTER
☐ DO Monitor	
☒ Conductivity Meter	
☒ Temperature Meter	
☐ Other	

Water Disposal

Drummed + Dumped at Kute separator in Bloomfield

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (umhos/cm) X 10	Dissolved Oxygen (mg/L)	Comments
3-11-97	1237		☒				5	5			11.8	6.90	97		DKBRN SLTY
	1247						5	10			11.3	6.90	97		
	1255						5	15			11.5	6.94	98		
	1302						5	20			11.7	6.96	98		
	1307						5	25			11.7	7.01	98		
3-11-97	1312		☒				5	30			11.7	7.02	99		BRN SLTY

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

Comments ____

Developer's Signature(s) James G. Long Date 3-11-97 Reviewer ____ Date ____

Form A0101 Rev. 03/21/94

PHILIP ENVIRONMENTAL Water Sampling Data

Location No. MW01

Serial No. WSD-

Group List Number

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other Date 3-11-97

Project Name EPFS G.W. Pits Project No. 17520

Project Manager Cort Chence Phase.Task No. 6003 .27

Site Name Anderson G.C. A1 (95210)

Sampling Specifications

Requested Sampling Depth Interval (feet) TOP 3'

Requested Wait Following Development/Purging (hours) —

Initial Measurements

Time Elapsed From Final Development/Purging (~~hours~~ MIN) 13

Initial Water Depth (feet) 8.57

Nonaqueous Liquids Present (Describe)

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

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

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; A = NaOH; O = Other (Specify); — = None

Analytical Parameter List	Container: Number	Type	Volume (mL)	Field Filtered: Yes	No	Preserved	Cooled During Collection: Yes	No	Comments
BTEX	2	G	40		X	H	X		TAL 95210-01 T1325

Filter Type Chain-of-Custody Form Number C3059

Comments

Signature Date 3-11-97 Reviewer Date

Form AO202 Rev. 02/24/94

El Paso Natural Gas Company

A 2036

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Type and No. of Sample Containers	Preservation Technique	Requested Analysis				Remarks
	BLOOMFIELD PIPELINE			BTXE	GENERAL CHEMISTRY	RCRA METALS		
Samplers: (Signature) Dennis Bird	Date: 8-4-97							

MATRIX	Date	Time	Comp.	GRAB	Sample Number								
WATER	8-4-97	1306		X	970805	2/G	4°C	X	X	X		ANDERSON G.C. A #1 MV4 MC 95210	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dennis Bird	8-4-97 1655				
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:	
		Marlan E Hagger	8/5/97 0720		

Carrier Co:	Carrier Phone No.	Date Results Reported / by: (Signature)
Air Bill No.:		

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970805
MTR CODE | SITE NAME:	95210	Anderson GC A #1
SAMPLE DATE | TIME (Hrs):	8/4/97	1306
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. | ANAL.:	8/5/97	8/5/97
TYPE | DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1.21	PPB				
TOLUENE	<1	PPB				
ETHYL BENZENE	<1	PPB				
TOTAL XYLENES	<3	PPB				
TOTAL BTEX	<6	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97.0 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

Narrative:

Approved By: _____ Date: 8/7/97

970805.XLS,8/6/97

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	970805
SAMPLE DATE:	08/04/97
SAMPLE TIME (Hrs):	1306
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	95210
SAMPLE SITE NAME:	Anderson G.C. A #1
SAMPLE POINT:	MW-1

REMARKS: _____

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC (As)	0.008	0.100
BARIUM (Ba)	0.13	1.00
CADMIUM (Cd)	<.0002	0.010
CHROMIUM (Cr)	0.004	0.050
LEAD (Pb)	0.004	0.050
MERCURY (Hg)	<0.0002	0.002
SELENIUM (Se)	<0.011	0.050
SILVER (Ag)	<0.0004	0.050

References:

Method 3015, Microwave Assisted Acid Digestion of Aqueous Samples and Extracts, Test Methods for Evaluating Solid Waste, SW-846, Sept., 1994.

Method 7061A, Arsenic (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Method 7081, Barium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Method 7131, Cadmium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 7191, Chromium (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 7421, Lead (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1986.

Method 245.5, Mercury (Automated Cold Vapor Technique), Methods for the Determination of Metals in Environmental Samples, EPA 600/4-91/010, USEPA, June, 1991.

Method 7741A, Selenium (Atomic Absorption, Gaseous Hydride), Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept., 1994.

Method 7761, Silver (Atomic Absorption, Furnace Technique), Test Methods for Evaluating Solid Waste, SW-846, USEPA, July, 1992.

Reported By: CV Approved By: John Fabela Date: 9-11-97

EL PASO FIELD SERVICES

Field Services Laboratory
Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	970805
DATE SAMPLED:	08/04/97
TIME SAMPLED (Hrs):	1306
SAMPLED BY:	N/A
MATRIX:	Water
METER CODE:	95210
SAMPLE SITE NAME:	Anderson GC A #1
SAMPLE POINT:	MW-1

FIELD REMARKS: _____

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	8.0	Units	08/05/97
Alkalinity as $C0_3$	0.0	PPM	08/05/97
Alkalinity as $HC0_3$	305	PPM	08/05/97
Calcium as Ca	127	PPM	08/05/97
Magnesium as Mg	16	PPM	08/05/97
Total Hardness as $CaC0_3$	384	PPM	08/05/97
Chloride as Cl	11	PPM	08/06/97
Sulfate as $S0_4$	321	PPM	08/06/97
Fluoride as F	0.5	PPM	08/05/97
Nitrate as $N0_3$-N	<0.2	PPM	08/06/97
Nitrite as $N0_2$-N	<0.2	PPM	08/06/97
Ammonium as NH_4^+	<0.1	PPM	08/05/97
Phosphate as PO_4	<0.2	PPM	08/06/97
Potassium as K	4.2	PPM	08/05/97
Sodium as Na	109	PPM	08/05/97
Total Dissolved Solids	828	PPM	08/05/97
Conductivity	1,145	umhos/cm	08/05/97
Anion/Cation %	2.0%	%, <5.0 Accepted	08/07/97

Lab Remarks:

Reported By: _____ Approved By: _____ Date: 8/7/97

EL PASO FIELD SERVICES

QUALITY CONTROL REPORT

Sample ID: 970805
Date Reported: 09/05/97

STANDARD REFERENCE MATERIAL

Analyte	Found Result (mg/L)	Known Value (mg/L)	% Recovery
Arsenic	0.031	0.032	94.4%
Barium	0.059	0.065	90.6%
Cadmium	0.0013	0.0012	110%
Chromium	0.008	0.007	103%
Lead	0.044	0.042	105%
Mercury	0.0041	0.0046	89.3%
Selenium	0.040	0.041	98.8%
Silver	0.0062	0.0068	91.2%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Arsenic	0.008	0.008	0.8%
Barium	0.106	0.114	7.3%
Cadmium	ND	ND	NA
Chromium	0.004	0.005	4.7%
Lead	ND	ND	NA
Mercury	ND	ND	NA
Selenium	ND	ND	NA
Silver	ND	ND	NA

SPIKE ANALYSIS (mg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Arsenic	0.008	0.118	0.100	107%
Barium	0.106	0.997	1.00	89.1%
Cadmium	ND	0.0105	0.010	99.7%
Chromium	0.004	0.052	0.050	94.9%
Lead	ND	0.054	0.050	102%
Mercury	ND	0.0017	0.0020	89.0%
Selenium	ND	0.054	0.050	105%
Silver	ND	0.0393	0.005	78.4%

METHOD BLANK

Analyte	Found Result (mg/L)	Detection Level (mg/L)
Arsenic	ND	0.004
Barium	ND	0.019
Cadmium	ND	0.0002
Chromium	ND	0.004
Lead	ND	0.003
Mercury	ND	0.00019
Selenium	ND	0.011
Silver	ND	0.0004

ND: Not Detected at stated detection level. NA: Not Applicable.

Reported By: mh Approved By: _____ Date: 9-8-97

EPFS
EL PASO FIELD SERVICES

Well Development and Purging Data

☐ Development
☒ Purging

Well Number MW-1

Site Name ANDERSON G.C. A #1

Meter Code 95210

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet) 15.40
Initial Depth to Water (feet) 9.32
Height of Water Column in Well (feet) 6.08

Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		4.0	12.1
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Methods of Development

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

☐ Other

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	Cumulativ	Increment	Cumulative					
8-4-97	1212										22.4	6.84	1101		
8-4-97	1217						5.0	5.0			20.1	6.93	1093		
8-4-97	1222						5.0	10.0			20.6	6.99	1085		
8-4-97	1229						5.0	15.0			19.8	7.02	1172		
8-4-97	1235						5.0	20.0			19.3	7.08	1180	1.5	

Comments

Developer's Signature Dennis Bird Date 8-4-97 Reviewer John Tomlin Date 8/7/97