

3R - 201

REPORTS

DATE:

1997



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

RECEIVED

MAR 02 1998

Environmental Bureau
Oil Conservation Division

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,

A handwritten signature in cursive script that reads 'Sandra D. Miller'.

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

JOHNSTON FEDERAL #4
Meter/Line ID - 70194

SITE DETAILS

Legals - Twn: 31N Rng: 9W Sec: 33 Unit: H
NMOCD Hazard Ranking: 40 Land Type: FEE
Operator: BURLINGTON RESOURCES

PREVIOUS ACTIVITIES

Site Assessment: Aug-94 Excavation: Sep-94 (60 cy) Soil Boring: Aug-95
Monitor Well: Aug-95 Downgradient MW's: Dec-95

1997 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring was initiated on 12/17/96. Groundwater analytical data are presented in Table 1.

Well Point Installation - Groundwater samples were collected from temporary monitoring wells. In addition, groundwater gradient was determined using the temporary monitoring wells.

Product Removal - Product removal was initiated at MW-1 on 8/26/97.

CONCLUSIONS

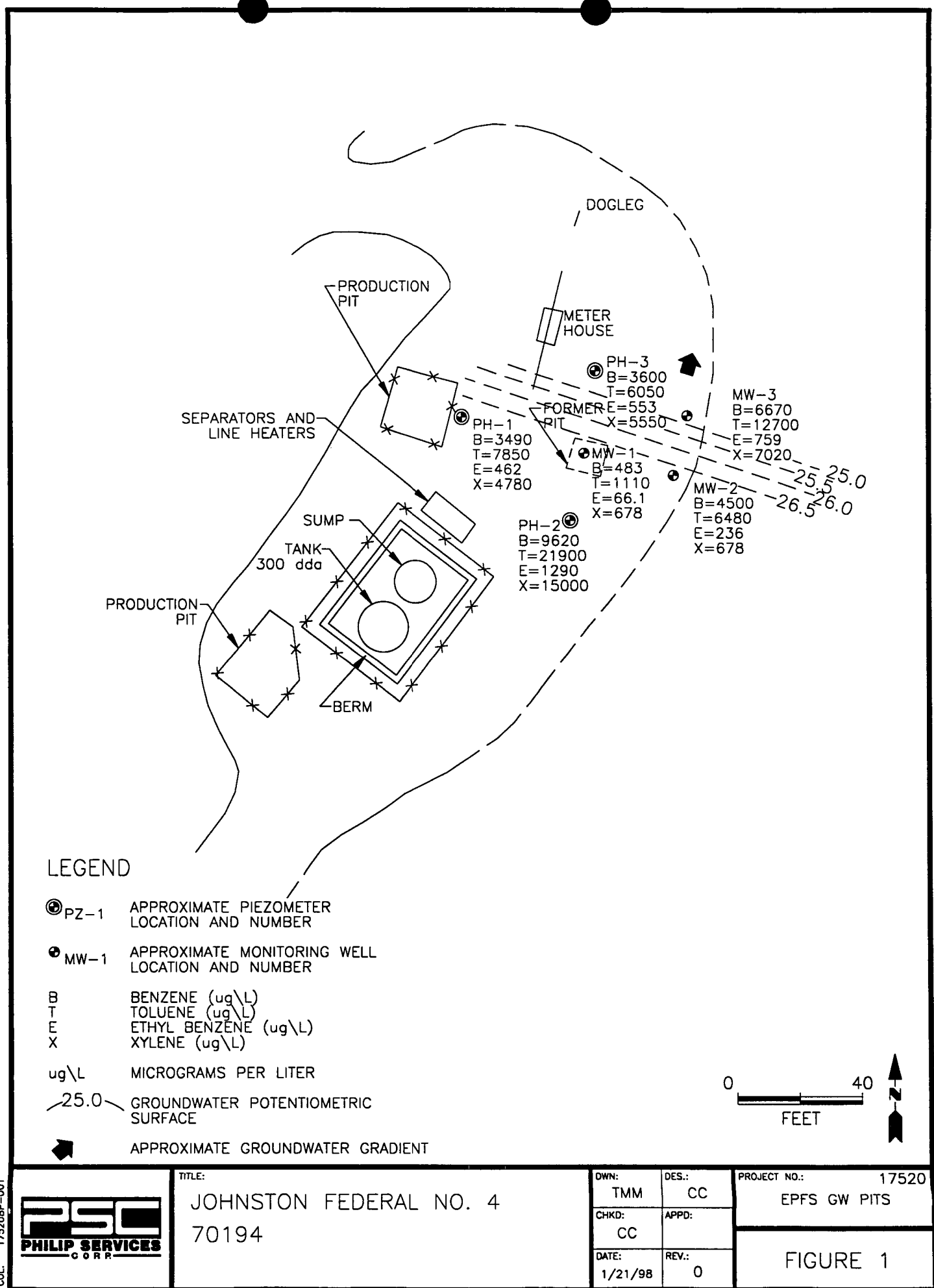
Based on groundwater levels collected from three monitoring wells, the groundwater flow trends to the east-northeast on this site, as presented in Figure 1.

Groundwater analytical data for MW-1, MW-2, and MW-3 have been in excess of standards for BTEX since quarterly sampling was initiated. Product has been measured in MW-1 sporadically, and approximately 3 gallons of product has been removed to date. All product has been disposed of at EPFS's Kutz Separator in Bloomfield, New Mexico.

Three additional groundwater samples were collected from temporary monitoring wells up-gradient and cross-gradient of MW-1. All three samples were in excess of standards for BTEX. Two of the samples were downgradient of the operators production pits, indicating potential up-gradient sources.

RECOMMENDATIONS

- EPFS proposes to conduct no further actions at this site, until the operator commences with remediation of their production pits.
- Continue with product removal as needed.
- Discontinue quarterly sampling at all three wells. Once product removal is complete, initiate sampling on an annual basis.



COL. 17520BP-001



TITLE:
JOHNSTON FEDERAL NO. 4
70194

DWN:
TMM
CHKD:
CC
DATE:
1/21/98

DES.:
CC
APPD:
REV.:
0

PROJECT NO.: 17520
EPFS GW PITS

FIGURE 1

EPFS Groundwater Pits
1997 Annual Groundwater Report

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Nylenes (PPB)	Total BTEX
961055	70194	Johnston Fed #4	12/17/96	1	Sample 4 - 1st Quarter	= 762	= 1930	= 107	= 1270	= 4069
970180	70194	Johnston Fed #4	3/6/97	1	Sample 4 - 2nd Quarter	= 483	= 1110	= 66.1	= 678	= 2337
961056	70194	Johnston Fed #4	12/17/96	2	Sample 4 - 1st Quarter	= 5900	= 8970	= 197	= 4670	= 19737
970181	70194	Johnston Fed #4	3/6/97	2	Sample 4 - 2nd Quarter	= 4500	= 6480	= 236	= 4920	= 16136
961057	70194	Johnston Fed #4	12/17/96	3	Sample 4 - 1st Quarter	= 3910	= 8210	= 530	= 5020	= 17670
970182	70194	Johnston Fed #4	3/6/97	3	Sample 4 - 2nd Quarter	= 6670	= 12700	= 759	= 7020	= 27149

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

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

Borehole #

BH-1

Well #

Page

1 of 2

Project Name

EPNG Pits

Project Number

14509

Phase

601-6000

Project Location

Johnston Federal #4, 70194

Elevation

Borehole Location T31, R9, S.33, H

GWL Depth

Logged By

S.Kelly

Drilled By

M. Donohue

Date/Time Started 8/4/95, 1245

Date/Time Completed 8/4/95, 1415

1600

Well Logged By

S.Kelly

Personnel On-Site

M. Donohue, J. O'Keefe, R. Rutledge

Contractors On-Site

Client Personnel On-Site

Drilling Method

4 1/4" ID HSKA

Air Monitoring Method

CGI, PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU 5/45 BZ BH S			Drilling Conditions & Blow Counts
0				Backfill to 12'						
20	1	18- 19.5	1.9' 1.5'	SAND, grey, fine to med. loose, damp.					250 381	1257
25	2	23- 25	1.2' 2.0'	SAA					44 409	1305
30	3	28- 29.5	1.3' 1.5'	SAA with trace fine gravel					336 310	1311
35	4	33- 35	.6' 2.0'			34.5			11 292	1317
40	5	38- 39.5	1.3' 1.5'	CLAY, dk grey, med. plastic soft, damp.		39.5			159 300	1330
				CLAY, dk. brown, med. plastic soft, damp.						

Comments:

Sample from just above water table (SEK 53) sent to lab. (BTEX & TPH.) Sample was bagged and iced prior to being put in jar.

Geologist Signature

Sue Kelly

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.

4000 Monroe Road

Farmington, New Mexico 87401

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

Borehole #

BH-1

Well #

Page 2 of 2

Project Name

EPNG Pits

Project Number

14509

Phase

601

Project Location

Johnston Fed #4, 70194

Elevation

Borehole Location

GWL Depth

Logged By

S.Kelly

Drilled By

Date/Time Started

Date/Time Completed

Well Logged By

S.Kelly

Personnel On-Site

Contractors On-Site

Client Personnel On-Site

Drilling Method

Air Monitoring Method

CGI, PID

Depth (Feet)	Sample Number	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	
40	6					41				
45	7	43-45	.9' 2.0'	silty SAND, olive grey, 5-15% silt, fine sand, loose, damp					332 410	1346
10		48-49.5	1.5' 1.5'	SAA, black, wet						No headspace reading due to wet sample After 10 min. water level at 47.5'
15										
20										
25										
30										
35										
40										

Comments:

Geologist Signature

Sarah Kelly

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

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

Project Name EPNG Pit Drilling

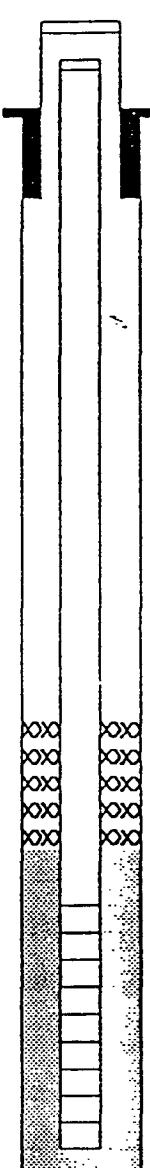
Project Number 14509 Phase 600
Project Location Johnston Fed. #4

On-Site Geologist S. Kelly
Personnel On-Site M. Donohue, J. O'Keefe, R. Rutledge
Contractors On-Site _____
Client Personnel On-Site _____

Elevation _____
Well Location T31, R9, S.33, H
GWL Depth _____
Installed By _____

Date/Time Started 8/9/95, 0800
Date/Time Completed 8/9/95, 1130

Depths in Reference to Ground Surface			Feet
Item	Material	Depth	
Top of Protective Casing			—
Bottom of Protective Casing			—
Top of Permanent Borehole Casing			—
Bottom of Permanent Borehole Casing			—
Top of Concrete			—
Bottom of Concrete			—
Top of Grout	Type I oil cement w/ 5% bentonite	0.0	
Bottom of Grout		35.1	
Top of Well Riser		+3.0	
Bottom of Well Riser		39.5	
Top of Well Screen	4" sch. 40, .010 slot PVC	39.5	
Bottom of Well Screen		54.5	
Top of <u>bentonite</u> <u>Pektolite</u> Seal	Enviropug mod. 1.25 50# bags	35.1	
Bottom of <u>bentonite</u> <u>Pektolite</u> Seal		37.5	
Top of Gravel Pack	10-20 CSSI sand 15-50# bags	37.5	
Bottom of Gravel Pack		54.5	
Top of Natural Cave-In		—	
Bottom of Natural Cave-In		—	
Top of Groundwater		48.8'	
Total Depth of Borehole		55.5'	



Top of Protective Casing N/A

Top of Riser +3.0'

Ground Surface 0.0

Top of Seal -35.1

Top of Gravel Pack -37.5

Top of Screen -39.5'

Bottom of Screen -54.5'

Bottom of Borehole -55.5'

Comments: Sand flowing up into augers to 54' (approx.) Had to push well into sand .5'
PVC end cap is approx. .4' long.

Geologist Signature

Sarah Kelly

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # _____
Well # MW-02
Page 1 of 2

Project Name EPNG Pit Drilling
Project Number 14509 Phase ###
Project Location Johnston Federal No. 4 Neker 70194

Elevation _____
Borehole Location T31, R9, Sec 33, Unit H
GWL Depth _____
Logged By K. Gallaher
Drilled By M. Donohue
Date/Time Started 12/12/95 0930
Date/Time Completed 12/12/95 1115

Well Logged By S. Kelly K. Gallaher
Personnel On-Site M. Donohue, D. Charley
Contractors On-Site _____
Client Personnel On-Site _____

Drilling Method 6 3/4" ID Hollow Stem Auger
Air Monitoring Method PID, CGI

Depth (feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change feet	Air Monitoring Units: NDL <u>Cuttings</u>			Drilling Conditions & Blow Counts
						BZ	BH		
0									
5			silty SAND, 15-30% fines, dry, broken, loose, fine grained			0	0.5	0.5	
10			STA			0	0.1	0.1	
15			SAND, coarse to medium grained, brown, dry, loose			0	0.1	0.1	
20			STA, 0-5% fines			0	0.1	0.1	
25			STA, darker brown			0	0.2	0.2	
30			STA			0	0.1	0.1	
35			silty CLAY, brown, damp, med plasticity, firm			0.5	8.5	8.5	
40			STA			3.1	29.2	29.2	

Comments:

STA - Similar to Above

Geologist Signature Karen Gallaher

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # _____
Well # MW-02
Page 2 of 2

Project Name EPNG Pit Drilling
Project Number 14509 Phase ###
Project Location Johnston Federal No.4 Meter 70194

Elevation _____
Borehole Location T31, R9, sec 33, Unit H
GWL Depth _____
Logged By K. Gallaher
Drilled By M. Donohue
Date/Time Started 12/12/95 0930
Date/Time Completed 12/12/95 1115

Well Logged By S. Kelly K. Gallaher
Personnel On-Site M. Donohue, D. Charley
Contractors On-Site _____
Client Personnel On-Site _____

Drilling Method 6 3/4" ID Hollow Stem Auger
Air Monitoring Method PID, CGI

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 <u>Cuttings</u>			Drilling Conditions & Blow Counts
40									
45			silty SAND, 5-15% fines, medium grained, dark gray, strong odor, damp to moist			27	overrange	at 3000 3001	
50			STA			5	800	800	
55			STA				no readings	- cuttings were wet	
60			STA				no readings	- below water table	
60			TD=60 feet						
25									
30									
35									
40									

Comments:

TD - total depth

Geologist Signature

Karen Gallaher

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Maraca Road
Farmington, New Mexico 87401
(606) 326-2262 FAX (606) 326-2366

Borehole #
Well # MW-02
Page 1 of 1

Project Name EPNG - Pit Drilling
Project Number 14509 Phase 6001.77
Project Location Johnston Federal No. 4
Meter 70194
On-Site Geologist K. Gallaher
Personnel On-Site M. Donohue, D. Charley
Contractors On-Site
Client Personnel On-Site

Elevation
Well Location T31 R9 SEC 33 Unit H
GWL Depth
Installed By K. Gallaher
M. Donohue
Date/Time Started 12/12/95 1115
Date/Time Completed

Depths in Reference to Ground Surface				
Item	Material	Depth		
Top of Protective Casing			Top of Protective Casing	<u>—</u>
Bottom of Protective Casing			Top of Riser	<u>+2.5</u>
Top of Permanent Borehole Casing			Ground Surface	<u>0.0</u>
Bottom of Permanent Borehole Casing				
Top of Concrete				
Bottom of Concrete				
Top of Grout	<u>2 in Portland Cement</u>			
Bottom of Grout	<u>Type III</u>			
Top of Well Riser	<u>6" 94# bags</u>	<u>0.0</u>		
Bottom of Well Riser		<u>-44.4</u>		
Top of Well Screen		<u>-44.4</u>		
Bottom of Well Screen		<u>-59.4</u>	Top of Seal	<u>-31.0</u>
Top of Peltonite Seal	<u>Emmiplog Bentonite</u>	<u>-31.0</u>		
Bottom of Peltonite Seal	<u>2 50# bags</u>	<u>-34.0</u>	Top of Gravel Pack	<u>-34.0</u>
Top of Gravel Pack	<u>CSSI silica sand</u>	<u>-34.0</u>	Top of Screen	<u>-44.4</u>
Bottom of Gravel Pack	<u>10-20</u>	<u>-59.4</u>		
Top of Natural Cave-In	<u>9.5 50# bags</u>	<u>-59.4</u>		
Bottom of Natural Cave-In		<u>-60.0</u>		
Top of Groundwater			Bottom of Screen	<u>-59.4</u>
Total Depth of Borehole		<u>-60</u>	Bottom of Borehole	<u>-60</u>

Comments:

Geologist Signature

Karen Gallaher

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

4000 Monroe Road

Farmington, New Mexico 87401

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

Borehole # BH-3

Well # MW-2

Page 1 of 2

Project Name EPNG PITS

Project Number 14509 Phase 6000 77

Project Location Johansen Fed #4 70194

Elevation _____

Borehole Location Q - S33- T31 - R9

GWL Depth GW 45'

Logged By CM CHANCE

Drilled By K Padilla M. Deno by

Date/Time Started 12/15/95 - 0915

Date/Time Completed 12/15/95 - 1000

Well Logged By CM Chance

Personnel On-Site K Padilla

Contractors On-Site _____

Client Personnel On-Site _____

Drilling Method 6 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 HS			Drilling Conditions & Blow Counts
0										Log Cuttings No Sampling
5				OK Br CLAY, low plastic, abt silty dry			0	0	0	
10				lt Br silty SAND, F-med sand, dry			0	0	0	
15				A/A			0	0	0	
20				A/A			0	0	0	
25				lt Br silty SAND, F-med, sl moist			0	0	0	-hard drilling -drilling easier
30				A/A			0	0	0	
35				A/A			0	0	0	-hard layer
40				Br silty SAND, F-med sand, tr coarse, sl moist						

Comments:

BH-3 is 20' N of MW-2

Geologist Signature

Core Chance

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

4000 Monroe Road

Farmington, New Mexico 87401

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

Borehole # BH3

Well # MW-3

Page 2 of 2

Project Name EPNG PITS

Project Number 14509 Phase 6000 77

Project Location Johnston Fed # 4 7D194

Elevation _____

Borehole Location Q - S33- T31- R9

GWL Depth _____

Logged By CM CHANCE

Drilled By K Padilla M. Donohue

Date/Time Started 12/15/95-0915

Date/Time Completed 12/15/95-1000

Well Logged By CM Chance

Personnel On-Site K Padilla

Contractors On-Site _____

Client Personnel On-Site _____

Drilling Method 6 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			Drilling Conditions & Blow Counts
							Units: PPM			
							BZ	BH	HS	
40										
45				Br silty SAND, fine med sand, to coarse, to gravel sl moist			0	0	0	-GW 45'
50				A/A			0	0	48	
55				No cuttings			0	0	0	
60				T O B 57'						-Cobbles @ 57'
65										
70										
75										
80										

Comments:

Add 10 gal potable water @ 57' to prevent heave. Add 10 more gal. Add 20 gal total

Geologist Signature

Corey Chance

MONITORING WELL INSTALLATION RECORD

Tulip Environmental Services Corp.
4000 Morroc Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2368

Borehole # RH-3
Well # MW-3
Page 1 of 1

Project Name EPNG PITS

Project Number 14509 Phase 6001

Project Location Johnston Feb 4 2014

On-Site Geologist CM Chance

Personnel On-Site E. Padilla

Contractors On-Site

Client Personnel On-Site

Elevation

Well Location Q -S33-TJ1-R9

GWL Depth

Installed By M. Donohue

Date/Time Started 12/15/95 - 1000

Date/Time Completed 12/15/95 - 1200

Depths in Reference to Ground Surface				
Item	Material	Depth		
Top of Protective Casing	6" X 5' steel		Top of Protective Casing	
Bottom of Protective Casing	Casing		Top of Riser	<u>+3.0'</u>
Top of Permanent Borehole Casing		NA	Ground Surface	<u>+3.0' 0"</u>
Bottom of Permanent Borehole Casing		NA		
Top of Concrete	Quicrete			
Bottom of Concrete	Cement Mix			
Top of Grout	5% Bentonite	0'		
Bottom of Grout	Cement slurry	36.8'		
Top of Well Riser	4" Sch 40	+3'		
Bottom of Well Riser	Flush Thread PVC	41.8'		
Top of Well Screen	4" O.D. 1 slot Sch 40	41.8'		
Bottom of Well Screen	Flush Thread PVC	56.8'	Top of Seal	<u>-36.8'</u>
Top of Peltonite Seal	Enviroplug	36.8'		
Bottom of Peltonite Seal	Pellets	38.8'	Top of Gravel Pack	<u>-38.8'</u>
Top of Gravel Pack	10-20 Grade Colorado	38.8'	Top of Screen	<u>-41.8'</u>
Bottom of Gravel Pack	Silica Sand	56.8'		
Top of Natural Cave-In		56.8'		
Bottom of Natural Cave-In		57'		
Top of Groundwater			Bottom of Screen	<u>-56.8'</u>
Total Depth of Borehole		57'	Bottom of Borehole	<u>-57.0'</u>

Comments: Well will be completed on later date. Bentonite hydrated w/ portable water.

Geologist Signature

CM Chance

WELLPOINTS

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole #

Well # PZ PHI

Page 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Johnston Fed #4 70194

Elevation

Well Location Ltr H -S33-T31-R9

GWL Depth

Installed By M. Donohue

On-Site Geologist

C CHANCE

Personnel On-Site

C Gomez

Contractors On-Site

Client Personnel On-Site

Date/Time Started

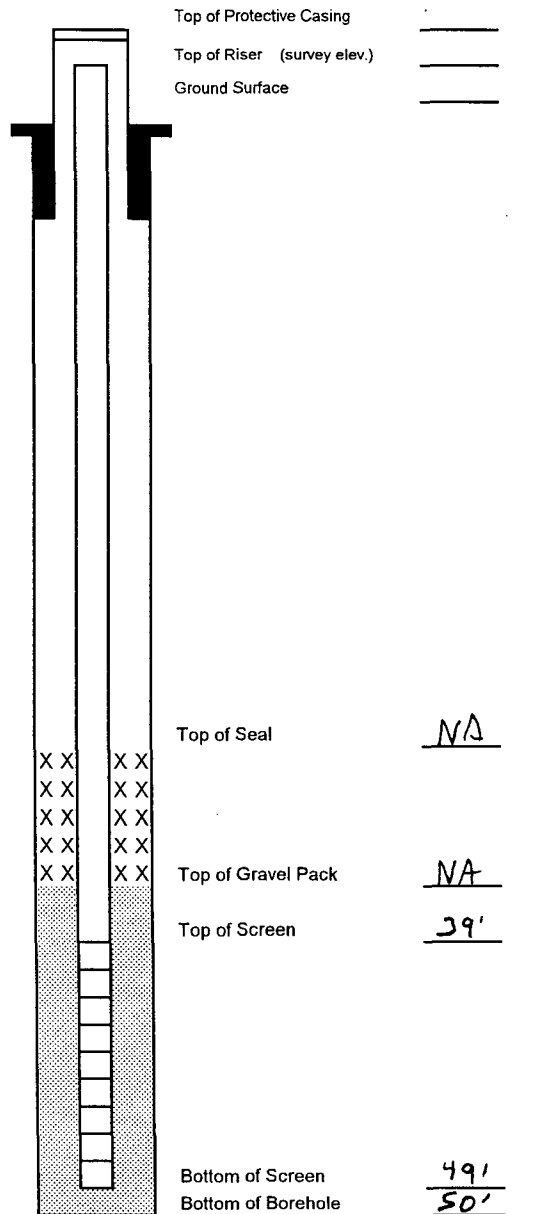
9/5/97

Date/Time Completed

9/3/97

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
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		



Comments PHI is 300' & 39' from MWL. Collect sample (CMC 342). Let Piezo set overnight. No product measured on 9/9/97

Geologist Signature

Cory Chance

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole #

Well # RZ- PH2

Page 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Johnston Fed #4 7D194

Elevation

Well Location Ltr H -S33-TJ1-R9

GWL Depth

Installed By M. Deane

On-Site Geologist

C CHANCE

Personnel On-Site

C. Gamm

Contractors On-Site

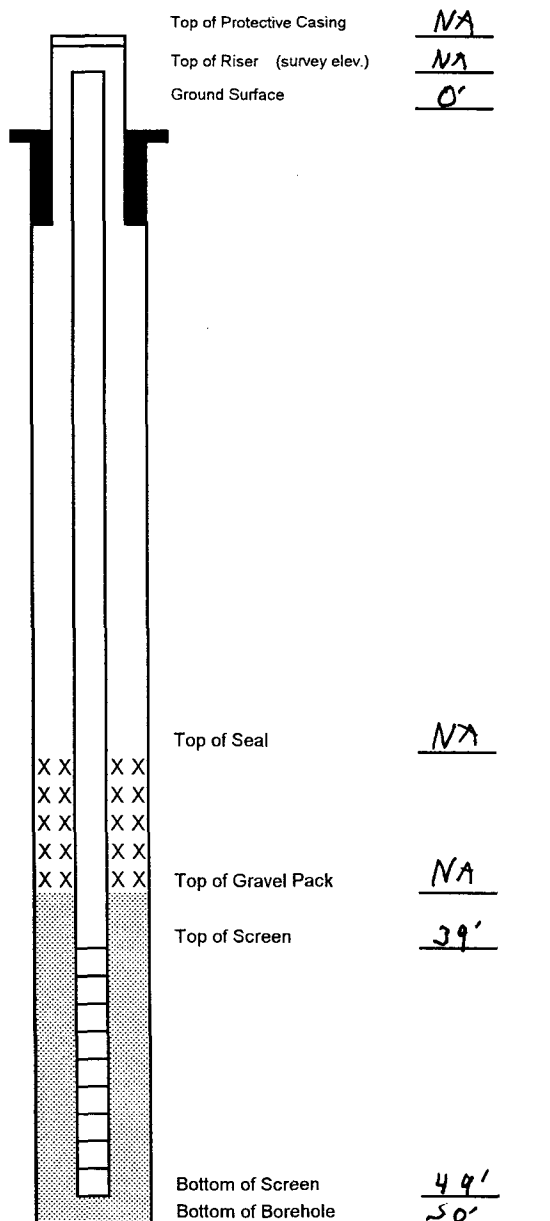
Client Personnel On-Site

Date/Time Started 9/15/97

Date/Time Completed 9/15/97

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
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		



Comments PH2 is 215' ± 24' From MW1. Sample 45-47 (PID11324) OK grey clayey SAND, Fined sand, drg. GW sample collected (CMC) 43) & sent to lab

Geologist Signature

C. Chance

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole #

Well # PZ-PH3

Page 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Johnston Fed #4 70194

On-Site Geologist C CHANCE

Personnel On-Site C Gomez

Contractors On-Site

Client Personnel On-Site

Elevation

Well Location Ltr H -S33-TJ1 -R9

GWL Depth

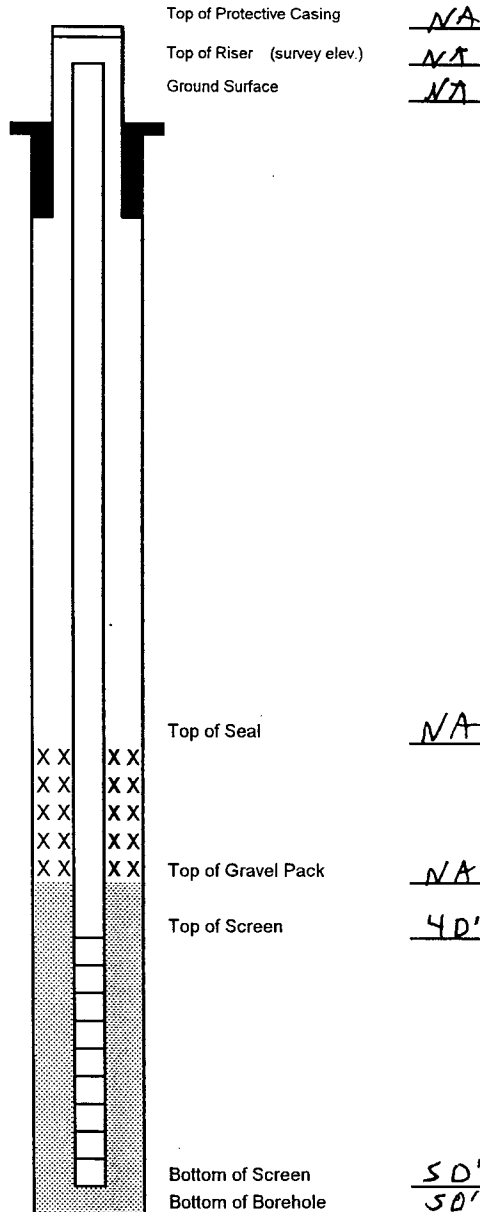
Installed By M. Donehue

Date/Time Started 9/15/97

Date/Time Completed 9/15/97

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		
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		



Comments PH3 is 50' ± 45' from MWL. GW sample CMC344 sent to lab

Soil Headspace from 45-47' is 1312 ppm

(45-47' DK B- clayey SAND, F-med sand, dry, med dens)

Geologist Signature

Cory Chance



Well Points

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project		DATE 9/13/97		REQUESTED ANALYSIS				CONTRACT LABORATORY P. O. NUMBER	
LAB ID		DATE	TIME	MATRIX	FIELD ID	TPH EPA 418.1	BTEX EPA 8020	LAB PID	SEQUENCE #	REMARKS	
970953	9/13/97	1100	Water	Trip Blank	1 TB	✓	✓			Trip Blank	
970954	9/13/97	1440		CMC 341	2 VG	✓	✓			Col'diron Com A#1 73551 PH3	
	9/13/97			CMC 342	2 VG	✓				PH4	
	9/13/97			CMC 342	2 VG	✓				Johnston Fed #4 70194 PH1	
Case 9/13/97										Note: Septums are coming off of the bottles. They have a clay consistency	
										38°F	
RELINQUISHED BY: (Signature) Cory Chane		DATE/TIME 9/13/97 1700		RECEIVED BY: (Signature)		DATE/TIME 9/13/97 1000		RELINQUISHED BY: (Signature) Cory Williams		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)	
REQUESTED TURNAROUND TIME: ☐ ROUTINE ☐ RUSH		CARRIER CO.		SAMPLE RECEIPT REMARKS		CHARGE CODE		RESULTS & INVOICES TO:			
BILL NO.:								FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P. O. BOX 4990 FARMINGTON, NEW MEXICO 87499 FAX: 505-599-2261			



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC342	970954
MTR CODE SITE NAME:	70194	Johnston Fed. #4
SAMPLE DATE TIME (Hrs):	9/3/97	1440
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	9/9/97	9/9/97
TYPE DESCRIPTION:	PH-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	3490	PPB	50	D		
TOLUENE	7850	PPB	50	D		
ETHYL BENZENE	462	PPB	50	D		
TOTAL XYLENES	4780	PPB	50	D		
TOTAL BTEX	16582	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 114.6 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By:

John Sabin

Date:

9-17-97



Well points

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project			CONTRACT LABORATORY P. O. NUMBER						
SAMPLES: (Signature) <i>Coy Chase</i>		DATE: 9/15/97									
LAB ID	DATE	TIME	MATRIX	FIELD ID	SAMPLE TYPE	REQUESTED ANALYSIS			SEQUENCE #	REMARKS	
970982	9/15/97	-	Water	Trip Blank	1 TB	TPH EPA 418.1	BTEX EPA 8020	LAB PID		Trip Blank	
970983	1205	↓		CMC 343	2 V6	✓	✓			Johnston Field #4 70194 PH2	
970984	1430	↓		CMC 344	2 V6	✓	✓			PH3	
RECEIVED SEP 24 1997 Temp = 33°C											
RELINQUISHED BY: (Signature) <i>Coy Chase</i>					RECEIVED BY: (Signature) <i>Paul C. [unclear]</i>		DATE/TIME 9-16-97 10:30		RECEIVED BY: (Signature)		
RELINQUISHED BY: (Signature) <i>Coy Chase</i>					RECEIVED BY: (Signature)		DATE/TIME 9-16-97 1030		RECEIVED BY: (Signature) <i>[unclear]</i>		
REQUESTED TURNAROUND TIME: ☐ ROUTINE ☐ RUSH					SAMPLE RECEIPT REMARKS Pool + Intake					RESULTS & INVOICES TO: FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P.O. BOX 4990 FARMINGTON, NEW MEXICO 87499	
CARRIER CO.					CHARGE CODE					FAX: 505-599-2261	
BILL NO.:					505-599-2144						



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC343	970983
MTR CODE SITE NAME:	70194	Johnston Fed. #4
SAMPLE DATE TIME (Hrs):	9/15/97	1205
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	9/16/97	9/16/97
TYPE DESCRIPTION:	PH-2	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	9620	PPB	100	D		
TOLUENE	21900	PPB	100	D1		
ETHYL BENZENE	1290	PPB	100	D		
TOTAL XYLENES	15000	PPB	100	D		
TOTAL BTEX	47810	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 113.6 % 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 indicates that the analyte calculated is based on a secondary dilution factor.

Narrative:

Approved By: John Latch

Date: 9-22-97

970983BTEXWP,9/18/97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC344	970984
MTR CODE SITE NAME:	70194	Johnston Fed. #4
SAMPLE DATE TIME (Hrs):	9/15/97	1430
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	9/16/97	9/16/97
TYPE DESCRIPTION:	PH-3	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	3600	PPB	50	D		
TOLUENE	6050	PPB	50	D		
ETHYL BENZENE	553	PPB	50	D		
TOTAL XYLENES	5550	PPB	50	D		
TOTAL BTEX	15753	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 110.4 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By:

John Lach

Date:

9-22-97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	Trip Blank	970982
MTR CODE SITE NAME:	70194	Johnston Fed. #4
SAMPLE DATE TIME (Hrs):	9/15/97	1205
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	9/16/97	9/16/97
TYPE DESCRIPTION:	Trip Blank	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 113.3 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

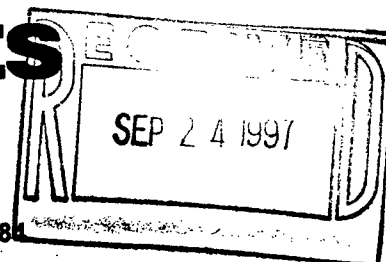
Approved By: John Lardner

Date: 9-22-97

970982BTEXWPTB,9/18/97

EL PASO FIELD SERVICES

QUALITY CONTROL REPORT EPA METHOD 8020 - BTEX



Samples: 970970 to 970972, 970978, 970979, 970982 to 970984

QA/QC for 9/16/97 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
ICV LA-52589 50 PPB						
Benzene	Standard	50.0	53.1	106.2	75 - 125 %	X
Toluene	Standard	50.0	52.9	106	75 - 125 %	X
Ethylbenzene	Standard	50.0	52.4	105	75 - 125 %	X
m & p - Xylene	Standard	100	104.9	104.9	75 - 125 %	X
o - Xylene	Standard	50.0	52.1	104	75 - 125 %	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
LCS LA-45476 25 PPB						
Benzene	Standard	25.0	26.5	105.9	39 - 150	X
Toluene	Standard	25.0	26.4	106	46 - 148	X
Ethylbenzene	Standard	25.0	26.1	104	32 - 160	X
m & p - Xylene	Standard	50.0	51.9	104	Not Given	X
o - Xylene	Standard	25.0	26.1	104	Not Given	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
CCV LA-52589 50 PPB						
Benzene	Standard	50.0	52.8	105.6	75 - 125 %	X
Toluene	Standard	50.0	52.3	104.7	75 - 125 %	X
Ethylbenzene	Standard	50.0	52.0	104.0	75 - 125 %	X
m & p - Xylene	Standard	100	104.2	104.2	75 - 125 %	X
o - Xylene	Standard	50.0	52.2	104	75 - 125 %	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE YES NO RANGE	
CCV LA-52589 50 PPB						
Benzene	Standard	50.0	53.4	106.9	75 - 125 %	X
Toluene	Standard	50.0	52.2	104.3	75 - 125 %	X
Ethylbenzene	Standard	50.0	51.4	102.7	75 - 125 %	X
m & p - Xylene	Standard	100	102.0	102.0	75 - 125 %	X
o - Xylene	Standard	50.0	51.3	102.6	75 - 125 %	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE	
					RANGE	YES NO
970972						
Benzene	Matrix Duplicate	1.2	1.2	4.78	+/- 20 %	X
Toluene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
Ethylbenzene	Matrix Duplicate	2.51	2.37	5.79	+/- 20 %	X
m & p - Xylene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
o - Xylene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE ID	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE	
					RANGE	YES NO
2nd Analysis 970972						
Benzene	50	1.2	54.3	106.3	75 - 125 %	X
Toluene	50	<1	53.6	107	75 - 125 %	X
Ethylbenzene	50	2.5	55.1	105	75 - 125 %	X
m & p - Xylene	100	<1	105.1	105.1	75 - 125 %	X
o - Xylene	50	<1	53.3	107	75 - 125 %	X

Narrative: Acceptable

AUTO BLANK 35689.00	SOURCE	PPB (2 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 (none 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	<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.

9/16/97 TRIP BLANK	SOURCE	PPB (2 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: CV

Approved By: *John L. Linder*

Date: 9-22-97

**1997 GROUNDWATER
ANALYTICAL**



A 1974

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Sample Number				Type and No. of Sample Containers	Requested Analysis			Remarks
Date	Time	Comp.	GRAB			Preservation Technique	8 TKS	3 MTD		
<i>Artec Pipeline</i>										
<i>Dennis Bird</i>										
Date: 12-17-96										
WATER 12-17-96	1123		X	961055	8-1	40C	X	X	JOHNSTON FEO #4 MW-1 MC 70194	
WATER 12-17-96	1325		X	961056	8-2	40C	X	X	JOHNSTON FEO #4 MW-2 MC 70196	
WATER 12-17-96	1405		X	961057	8-3	40C	X	X	JOHNSTON FEO #4 MW-3 MC 70194	
WATER 12-17-96	---		X	---	8-1	40C	X		TRIP BLANK	
Empty rows 1-10										
Empty rows 11-20										
Empty rows 21-30										
Empty rows 31-40										
Empty rows 41-50										
Empty rows 51-60										
Empty rows 61-70										
Empty rows 71-80										
Empty rows 81-90										
Empty rows 91-100										
Empty rows 101-110										
Empty rows 111-120										
Empty rows 121-130										
Empty rows 131-140										
Empty rows 141-150										
Empty rows 151-160										
Empty rows 161-170										
Empty rows 171-180										
Empty rows 181-190										
Empty rows 191-200										
Empty rows 201-210										
Empty rows 211-220										
Empty rows 221-230										
Empty rows 231-240										
Empty rows 241-250										
Empty rows 251-260										
Empty rows 261-270										
Empty rows 271-280										
Empty rows 281-290										
Empty rows 291-300										
Empty rows 301-310										
Empty rows 311-320										
Empty rows 321-330										
Empty rows 331-340										
Empty rows 341-350										
Empty rows 351-360										
Empty rows 361-370										
Empty rows 371-380										
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Empty rows 421-430										
Empty rows 431-440										
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Empty rows 731-740										
Empty rows 741-750										
Empty rows 751-760										
Empty rows 761-770										
Empty rows 771-780										
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Empty rows 791-800										
Empty rows 801-810										
Empty rows 811-820										
Empty rows 821-830										
Empty rows 831-840										
Empty rows 841-850										
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Empty rows 861-870										
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Empty rows 911-920										
Empty rows 921-930										
Empty rows 931-940										
Empty rows 941-950										
Empty rows 951-960										
Empty rows 961-970										
Empty rows 971-980										
Empty rows 981-990										
Empty rows 991-1000										
Empty rows 1001-1010										
Empty rows 1011-1020										
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Empty rows 2021-2030										
Empty rows 2031-2040										
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Empty rows 2241-2250										
Empty rows 2251-2260										
Empty rows 2261-2270										
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Empty rows 3011-3020										
Empty rows 3021-3030										
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Empty rows 3221-3230										
Empty rows 3231-3240										
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Empty rows 3251-3260										
Empty rows 3261-3270										
Empty rows 3271-3280										
Empty rows 3281-3290										
Empty rows 3291-3300										
Empty rows 3301-3310										
Empty rows 3311-3320										
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Empty rows 3951-3960										
Empty rows 3961-3970										
Empty rows 3971-3980										
Empty rows 3981-3990										
Empty rows 3991-4000										
Empty rows 4001-4010										
Empty rows 4011-4020										
Empty rows 4021-4030										
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Empty rows 4051-4060										
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Empty rows 4071-4080										
Empty rows 4081-4090										
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FIELD SERVICES LABORATORY

ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	961055
MTR CODE SITE NAME:	70194	Johnston Fed #4 MW-1
SAMPLE DATE TIME (Hrs):	12/17/96	1123
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	12/18/96	12/18/96
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	762	PPB	25	D		
TOLUENE	1930	PPB	25	D		
ETHYL BENZENE	107	PPB	25	D		
TOTAL XYLENES	1270	PPB	25	D		
TOTAL BTEX	4070	PPB				

—BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 94.8 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By: John L. Linder

Date: 1-2-97



Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	961055
DATE SAMPLED:	12/17/96
TIME SAMPLED (Hrs):	1123
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	70194
SAMPLE SITE NAME:	Johnston Fed #4
SAMPLE POINT:	Monitor Well MW-1

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.0	Units	12/19/96
Alkalinity as CO ₃	0	PPM	12/19/96
Alkalinity as HCO ₃	344	PPM	12/19/96
Calcium as Ca	381	PPM	12/19/96
Magnesium as Mg	59.4	PPM	12/19/96
Total Hardness as CaCO ₃	1,196	PPM	12/19/96
Chloride as Cl	18	PPM	12/18/96
Sulfate as SO ₄	1,100	PPM	12/18/96
Fluoride as F	0.8	PPM	12/19/96
Nitrate as NO ₃ -N	<.2	PPM	12/18/96
Nitrite as NO ₂ -N	<.2	PPM	12/18/96
Ammonium as NH ₄ ⁺	<0.2	PPM	12/19/96
Phosphate as PO ₄	<0.2	PPM	12/18/96
Potassium as K	0.6	PPM	12/19/96
Sodium as Na	111	PPM	12/19/96
Total Dissolved Solids	2,066	PPM	12/19/96
Conductivity	1,852	umhos/cm	12/19/96
Anion/Cation %	0.6%	%, < 5.0 Accepted	12/23/96

Lab Remarks:

Reported By:

Inde

Approved By:

John Tarch

Date: 1-2-97



EL PASO FIELD SERVICES



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	961055
SAMPLE DATE:	12/17/96
SAMPLE TIME (Hrs):	1123
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	70194
SAMPLE SITE NAME:	Aztec Pipeline
SAMPLE POINT:	Johnston Fed #4 MW-1

REMARKS: _____

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	<.01	0.100
BARIUM	0.09	1.00
CADMIUM	0.001	0.010
CHROMIUM	0.003	0.050
LEAD	<.004	0.050
MERCURY	<.00024	0.002
SELENIUM	<.003	0.050
SILVER	<.001	0.050

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

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: Indo

Approved By: John Faldut

Date: 1-3-97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	961056
MTR CODE SITE NAME:	70194	Johnston Fed #4 MW-2
SAMPLE DATE TIME (Hrs):	12/17/96	1325
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	12/18/96	12/18/96
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	5900	PPB	50	D		
TOLUENE	8970	PPB	50	D		
ETHYL BENZENE	197	PPB	50	D		
TOTAL XYLENES	4670	PPB	50	D		
TOTAL BTEX	19700	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

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

Narrative:

Approved By:

Date:

1-2-97



EL PASO FIELD SERVICES



Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	961056
DATE SAMPLED:	12/17/96
TIME SAMPLED (Hrs):	1325
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	70194
SAMPLE SITE NAME:	Johnston Fed #4
SAMPLE POINT:	Monitor Well MW-2

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	12.4	Units	12/19/96
Alkalinity as CO ₃	42.0	PPM	12/19/96
Alkalinity as OH	390	PPM	12/19/96
Calcium as Ca	415	PPM	12/19/96
Magnesium as Mg	0	PPM	12/19/96
Total Hardness as CaCO ₃	1,037	PPM	12/19/96
Chloride as Cl	20	PPM	12/18/96
Sulfate as SO ₄	15	PPM	12/18/96
Fluoride as F	0.2	PPM	12/19/96
Nitrate as NO ₃ -N	<0.1	PPM	12/18/96
Nitrite as NO ₂ -N	<0.1	PPM	12/18/96
Ammonium as NH ₄ ⁺	<.2	PPM	12/19/96
Phosphate as PO ₄	<0.1	PPM	12/18/96
Potassium as K	12	PPM	12/19/96
Sodium as Na	55	PPM	12/19/96
Total Dissolved Solids	1,052	PPM	12/19/96
Conductivity	2,330	umhos/cm	12/19/96
Anion/Cation %	3.7%	%, <5.0 Accepted	12/24/96

Lab Remarks: Alkalinity is principally hydroxide.

Reported By:

Inda

Approved By:

John Lohr

Date: 1-2-97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	961056
SAMPLE DATE:	12/17/96
SAMPLE TIME (Hrs):	1325
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	70194
SAMPLE SITE NAME:	Aztec Pipeline
SAMPLE POINT:	Johnston Fed #4 MW-2

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	<.01	0.100
BARIUM	1.98	1.00
CADMIUM	<.0002	0.010
CHROMIUM	0.001	0.050
LEAD	<.004	0.050
MERCURY	<.00024	0.002
SELENIUM	<.003	0.050
SILVER	<.001	0.050

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

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: mds

Approved By: John L. Smith

Date: 1-3-97



EL PASO FIELD SERVICES



FIELD SERVICES LABORATORY

ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	961057
MTR CODE SITE NAME:	70194	Johnston Fed #4 MW-3
SAMPLE DATE TIME (Hrs):	12/17/96	1405
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	12/18/96	12/18/96
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	3910	PPB	100	D		
TOLUENE	8210	PPB	100	D		
ETHYL BENZENE	530	PPB	100	D		
TOTAL XYLENES	5020	PPB	100	D		
TOTAL BTEX	17700	PPB				

—BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 77.7 % for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative: _____

Approved By: _____

Date: _____

1-2-97



Field Services Laboratory
Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	961057
DATE SAMPLED:	12/17/96
TIME SAMPLED (Hrs):	1405
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	70194
SAMPLE SITE NAME:	Johnston Fed #4
SAMPLE POINT:	Monitor Well MW-3

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.3	Units	12/18/96
Alkalinity as CO ₃	0	PPM	12/18/96
Alkalinity as HCO ₃	872	PPM	12/18/96
Calcium as Ca	232	PPM	12/19/96
Magnesium as Mg	46.3	PPM	12/19/96
Total Hardness as CaCO ₃	770	PPM	12/19/96
Chloride as Cl	23	PPM	12/18/96
Sulfate as SO ₄	261	PPM	12/18/96
Fluoride as F	0.5	PPM	12/19/96
Nitrate as NO ₃ -N	<0.2	PPM	12/18/96
Nitrite as NO ₂ -N	<0.2	PPM	12/18/96
Ammonium as NH ₄ ⁺	<0.2	PPM	12/19/96
Phosphate as PO ₄	<0.2	PPM	12/18/96
Potassium as K	0.4	PPM	12/19/96
Sodium as Na	113	PPM	12/19/96
Total Dissolved Solids	1,194	PPM	12/19/96
Conductivity	1,405	umhos/cm	12/19/96
Anion/Cation %	0.2%	%, <5.0 Accepted	12/23/96

Lab Remarks:

Reported By: mdw

Approved By: [Signature]

Date: 1-2-97



EL PASO FIELD SERVICES



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	961057
SAMPLE DATE:	12/17/96
SAMPLE TIME (Hrs):	1405
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	70194
SAMPLE SITE NAME:	Aztec Pipeline
SAMPLE POINT:	Johnston Fed #4 MW-3

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	<.01	0.100
BARIUM	0.52	1.00
CADMIUM	<.0002	0.010
CHROMIUM	0.001	0.050
LEAD	<.004	0.050
MERCURY	<.00024	0.002
SELENIUM	<.003	0.050
SILVER	<.001	0.050

NOTE: The sample results have been corrected for volume adjustment associated with Method 3015.

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: *inda*

Approved By: *John Smith*

Date: *1-3-97*

QUALITY CONTROL REPORT

Sample ID: 961055 through 961057
Date Sampled: 12/17/96

Date Reported: 01/03/97

STANDARD REFERENCE MATERIAL

Analyte	Found Result (µg/L)	Known Value (µg/L)	% Recovery
Arsenic	27.7	32.4	86%
Barium	69.4	64.9	107%
Cadmium	2.74	2.38	115%
Chromium	5.16	4.76	108%
Lead	33.9	29.7	114%
Mercury	4.21	4.59	92%
Selenium	35.5	40.5	88%
Silver	4.35	4.32	101%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Arsenic	ND	ND	NA
Barium	0.09	0.09	0.0%
Cadmium	0.003	0.001	NA*
Chromium	ND	ND	NA
Lead	ND	ND	NA
Mercury	ND	ND	NA
Selenium	ND	ND	NA
Silver	ND	ND	NA

* Results are < 5X DL

SPIKE ANALYSIS (µg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Arsenic	ND	110	100	110%
Barium	87	1060	1000	97%
Cadmium	0.5	12.0	10.0	115%
Chromium	3.1	50.3	50.0	95%
Lead	ND	47.8	50.0	96%
Mercury	ND	1.78	2.00	89%
Selenium	ND	53.7	50.0	107%
Silver	ND	50.1	50.0	99%

METHOD BLANK

Analyte	Found Result (µg/L)	Detection Level (µg/L)
Arsenic	ND	10
Barium	ND	10
Cadmium	ND	0.2
Chromium	ND	2
Lead	ND	4
Mercury	ND	0.24
Selenium	ND	3
Silver	ND	0.5

ND: Not Detected at stated detection level.

NA: Not Applicable.

Reported By: mh

Approved By: John Larch

Date: 1-3-97



Well Development and Purging Data

Well Number mw-1
Meter Code 70194

Site Name JOHNSTON FED #4

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) 57.43
Initial Depth to Water (feet) 50.50
Height of Water Column In Well (feet) 6.93

Diameter (Inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		4.6	13.7
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

CHACO NORTH CONTRACT POND

Water Removal Data

[illegible]

Comments

Developer's Signature Dennis Bird Date 12-17-96 Reviewer John Fick Date 1-2-97



Well Number MW-2
Meter Code 70194

Site Name JOHNSTON FEB #4

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

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

☐ Other

Initial Depth of Well (feet) 53.2
Initial Depth to Water (feet) 48.84
Height of Water Column in Well (feet) 4.36

Diameter (Inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		2.9	8.6
Gravel Pack			
Drilling Fluids			
Total			

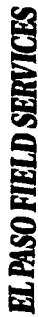
☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other

CH&CO NORTH CONTRACT POND

[illegible]

Comments BALLED DRY @ 20 GALLONS.

Developer's Signature Tennis Bird Date 12-17-96 Reviewer J. M. Felt Date 1-2-97



Well Development and Purging Data

Well Number 14W-3
Meter Code 70194

Site Name JOHANSTON FEO #4

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet) 57.00
Initial Depth to Water (feet) 49.84
Height of Water Column in Well (feet) 7.16

Diameter (inches): Well 4 Gravel Pack

Methods of Development

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

Instruments

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

Water Disposal

CHACO NORTH CONTRACT POND

Item	Water Volume In Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		4.7	14.2
Gravel Pack			
Drilling Fluids			
Total			

Water Removal Data

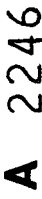
[illegible]

Comments

Developer's Signature Lennis Bird

Date 12-17-96 Reviewer

John Lach
Date 1-2-97



Project No.		Project Name		Requested Analysis		Remarks	
Samplers: (Signature)		Date: 3-6-97		Type and No. of Sample Containers		Preservation Technique	
Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Remarks
3-6-97	1207		X	970180	52	4°C	JOHNSTON FEB #4 MW 1 MC 70194
3-6-97	1343		X	970181	52	4°C	JOHNSTON FEB #4 MW 2 MC 70194
3-6-97	1400		X	970182	52	4°C	JOHNSTON FEB #4 MW 3 MC 70194
3-6-97	—		X	—	51	4°C	TRIP BLANK
Relinquished by: (Signature) Received by: (Signature) Date/Time 3-6-97 1735							
Relinquished by: (Signature) Received by: (Signature) Date/Time							
Relinquished by: (Signature) Received for Laboratory by: (Signature) Date/Time 3/10/97 1020							
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)			



48-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970180
MTR CODE SITE NAME:	70194	Johnston Fed #4 MW-1
SAMPLE DATE TIME (Hrs):	3/6/97	1207
PROJECT:	Sample 4 - 2nd Quarter	
DATE OF BTEX EXT. ANAL.:	3/11/97	3/11/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	483	PPB	5	D		
TOLUENE	1110	PPB	5	D		
ETHYL BENZENE	66.1	PPB	5	D		
TOTAL XYLENES	678.0	PPB	5	D		
TOTAL BTEX	2340	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 101 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By:

John Latch

Date:

4/15/97



4-8-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970181
MTR CODE SITE NAME:	70194	Johnston Fed #4 MW-2
SAMPLE DATE TIME (Hrs):	3/6/97	1343
PROJECT:	Sample 4 - 2nd Quarter	
DATE OF BTEX EXT. ANAL.:	3/10/97	3/10/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	4500	PPB	100	D		
TOLUENE	6480	PPB	100	D		
ETHYL BENZENE	236	PPB	100	D		
TOTAL XYLENES	4920	PPB	100	D		
TOTAL BTEX	16100	PPB				

The Surrogate Recovery was at 96.6 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By:

John Swick

Date:

4/15/97

970181,4/3/97



4-8-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970182
MTR CODE SITE NAME:	70194	Johnston Fed #4 MW-3
SAMPLE DATE TIME (Hrs):	3/6/97	1400
PROJECT:	Sample 4 - 2nd Quarter	
DATE OF BTEX EXT. ANAL.:	3/10/97	3/10/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	6670	PPB	100	D		
TOLUENE	12700	PPB	100	D		
ETHYL BENZENE	759	PPB	100	D		
TOTAL XYLENES	7020	PPB	100	D		
TOTAL BTEX	27200	PPB				

The Surrogate Recovery was at 99.5 for this sample All QA/QC was acceptable.

DF = Dilution Factor Used

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

Narrative:

Approved By:

John Luder

Date:

4/5/97



Well Development and Purging Data

Well Number 21W-1
Meter Code 70194

☐	Development
☒	Purging

Site Name JOHNSTON FEB 14

Development Criteria

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

Methods of Development

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

☐ Other _____

Water Volume Calculation

Initial Depth of Well (feet) 57.43
Initial Depth to Water (feet) 50.38
Height of Water Column in Well (feet) 7.05

Diameter (inches): Well 4 Gravel Pack

Item	Water Volume In Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		4.7	14.0
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal
KUTZ SEPARATOR

Water Removal Data

[illegible]

Comments 0.39' OF FREE FLOATING HYDROCARBON. STRONG HYDROCARBON SMELL.

Developer's Signature Lennie Bied Date 3-6-97 Reviewer J. O. Feller Date 4/5/97



Well Development and Purging Data

Well Number 70194
Meter Code 70194

Site Name JOHNSTON FEO #4

Development Criteria

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

Methods of Development

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

☐ Other

Water Volume Calculation

initial Depth of Well (feet) 56.95
 initial Depth to Water (feet) 48.94
 Height of Water Column in Well (feet) 3.01

Diameter (Inches): Well

Item	Water Volume In Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		2.0	6.0
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal!

DELTA 2107

Water Removal Data

[illegible]

Comments BAILED ONLY 0.20 GALLONS.

Developer's Signature Bernie Bied Date 3-6-97 Reviewer J. Long Date 4/5/97



Well Development and Purging Data

Well Number NW-3
Meter Code 70194

☐	Development
☒	Purging

Site Name JOHNSTON FED. #4

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet) 53.00
Initial Depth to Water (feet) 49.87
Height of Water Column in Well (feet) 3.13

Diameter (Inches): Well 4 Gravel Pack

Methods of Development

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

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other DO, C

Water Disposal

KUTZ SEPARATOR

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		4.7	14.1
Gravel Pack			
Drilling Fluids			
Total			

Water Removal Data

[illegible]

Comments 0.04' OF FREE FLOATING HYDROCARBON. STRONG HYDROCARBON SMELL.

Comments _____

Developer's Signature Lennie Bied Date 3-6-97 Reviewer John F. Lohr Date 4/13/97