

3R - 213

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 Lisse, 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



EPFS GROUNDWATER PITS

1997 ANNUAL GROUNDWATER REPORT

LATERAL 0-21 LINE DRIP

Meter/Line ID - LD151

SITE DETAILS

Legals - Twn: 30N Rng: 9W Sec: 12 Unit: O
NMOCD Hazard Ranking: 40 Land Type: FEDERAL
Operator: EL PASO FIELD SERVICES

PREVIOUS ACTIVITIES

Site Assessment: Jan-95 Test Excavation: Jan-95 Soil Boring: Oct-95
Monitor Well: Oct-95 Geoprobe: Nov-96

1997 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring was initiated on 11/12/96 and has continued into 1997. 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.

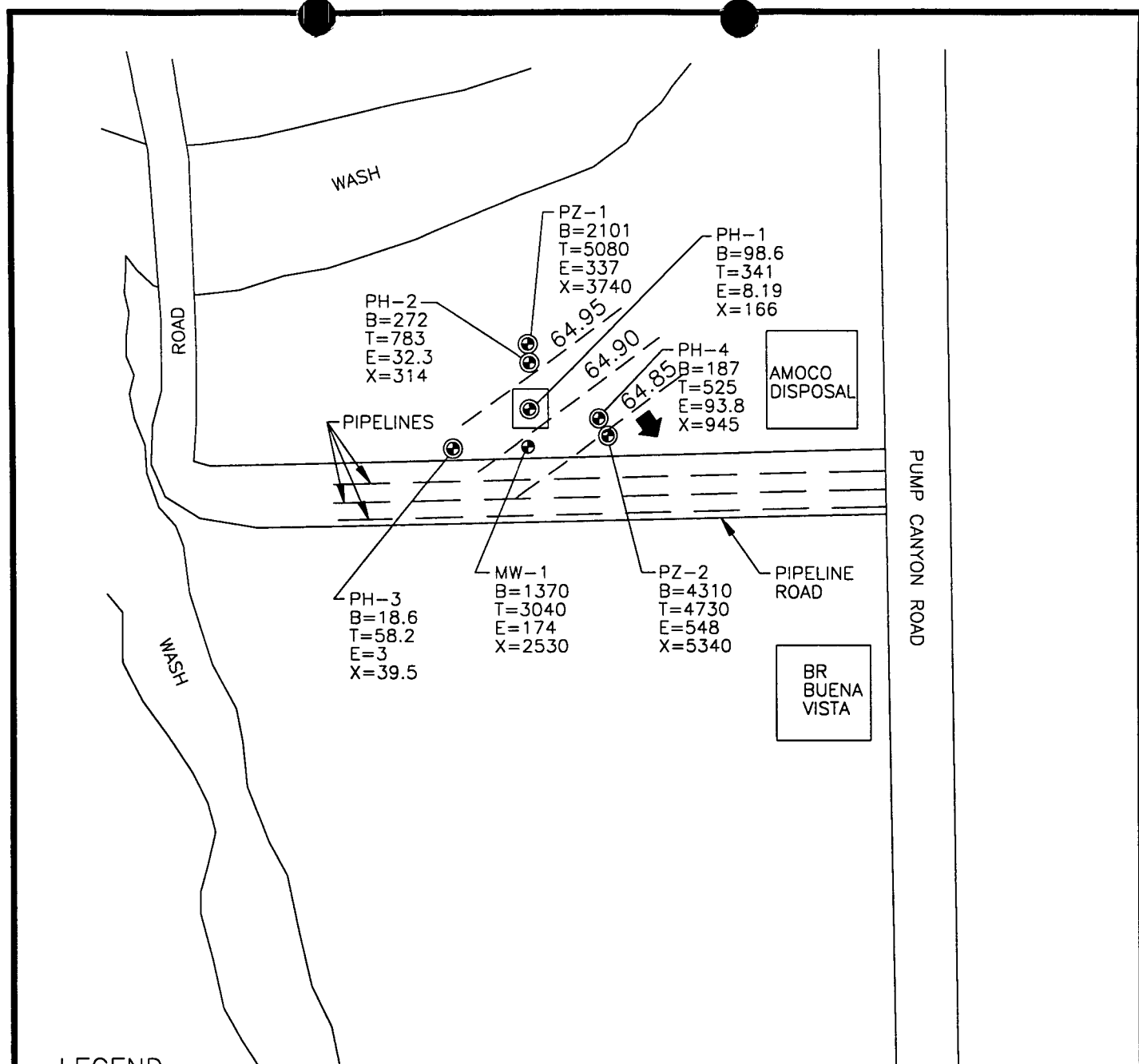
CONCLUSIONS

Based on groundwater levels collected from Well Point data, the groundwater flow trends to the southeast at this site, as presented in Figure 1. A pipeline corridor is just south of MW-1, with a wash approximately 100 feet to the north.

Groundwater samples collected from MW-1 have been above standards for benzene since quarterly sampling was initiated. With the exception of the third quarter results, BTEX concentrations have steadily decreased since sampling was initiated. Groundwater samples collected from Geoprobe and temporary monitoring wells were all in excess of standards for benzene at varying degrees.

RECOMMENDATIONS

- Obtain permission to conduct an off-site investigation and define plume size.
- Discontinue quarterly sampling at MW-1, and initiate sampling on an annual basis.
- Site is very remote. If no downgradient migration has occurred site may be candidate for risk based closure.



LEGEND

⊙ PZ-1 APPROXIMATE PIEZOMETER LOCATION AND NUMBER

⊙ MW-1 APPROXIMATE MONITORING WELL LOCATION AND NUMBER

B BENZENE (ug\L)
T TOLUENE (ug\L)
E ETHYL BENZENE (ug\L)
X XYLENE (ug\L)

ug\L MICROGRAMS PER LITER

84.90 GROUNDWATER POTENTIOMETRIC SURFACE

➔ APPROXIMATE GROUNDWATER GRADIENT

NOT TO SCALE



COL. 17520BE-001



TITLE:
LAT 0-21 LINE DRIP
LD 151

DWN:
TMM
CHKD:
CC
DATE:
1/20/98

DES.:
CC
APPD:
REV.:
0

PROJECT NO.: 17520
EPFS GW PITS

FIGURE 1

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total HTEX
960942	LD151	Lat 0-21 Line Drip	11/12/96	1	Sample 4 - 1st Qtr	741	1620	99	1100	3560
970085	LD151	Lat 0-21 Line Drip	2/11/97	1	Sample 4 - 2nd Qtr	202	313	15.6	230	761
970412	LD151	Lat 0-21 Line Drip	5/8/97	1	Sample 4 - 3rd Qtr	1050	1220	50.8	764	3090
970808	LD151	Lat 0-21 Line Drip	8/5/97	1	Sample 4 - 4th Qtr	99.5	179	8.42	160	447
971183	LD151	Lat 0-21 Line Drip	11/4/97	1	Sample 4 - 5th Qtr	1370	3040	174	2530	7114

10-22 Bloomfield

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

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 6000 77

Project Location LAT O-21 Line Drive

Well Logged By CM Chance

Personnel On-Site K Padilla, D. Chadler

Contractors On-Site

Client Personnel On-Site

Elevation

Borehole Location QD-S/2-T30-R9

GWL Depth 33.3

Logged By CM CHANCE

Drilled By CMC K Padilla F. Rivera

Date/Time Started 10/24/95-0847

Date/Time Completed 10/24/95

Drilling Method 4 1/4" ID HSA / 6 1/4" I.D.

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			Drilling Conditions & Blow Counts
							BZ	BH	HS	
0										
5	1	5-7	12	Br SAND, VF-F sand, loose, dry			0	0	0	0851 hr
10	2	10-12	10	Br SAND, VF sand, loose, dry			0	0	5/3	0856
15	3	15-17	8	AA			0	0	48/21	0902
20	4	20-22	5	Br SILT, loose, dry			0	3	93/91	0908
25	5	25-27	8	Br SAND, VF sand, loose, dry			0	4	48/57	0914
30	6	30-32	8	Gry SAND, VF-F sand, loose, dry			0	3	72/109	0934
35	7	35-37	16	Br SAND, F-med, med dense, wet			0	35	8/NA	0945
40										

Comments:

Note: Drilled where dip line was located, not in center of pit, per EPNG
 GW (233.3) at 15 min. CMC (16) (20-22) sent to lab (BTEX, TH). Sample
 bagged & sealed prior to containerizing. Will set well. Pull 1/4" I.D. & drill 1/4"

Geologist Signature

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

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 6000 77
Project Location Lat D-21 Line Drive

Elevation _____
Borehole Location QD-S12-TJD-R9
GWL Depth _____
Logged By CM CHANCE
Drilled By cm K Padilla F. Rivera
Date/Time Started 10/24/95-2:47
Date/Time Completed 10/24/95-11:10

Well Logged By CM Chance
Personnel On-Site K Padilla, D. Charlie
Contractors On-Site _____
Client Personnel On-Site _____
Drilling Method 4 1/4" ID HSA / 6 1/4" I.D
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	- S		
							BZ	BH	HS	
40										
45										
50										
55										
60										
65										
70										
75										
80										

Comments:

Geologist Signature

MONITORING WELL INSTALLATION RECORD

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

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

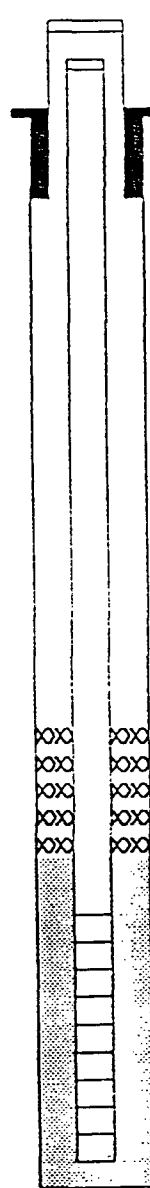
Project Name EPNG PITS

Project Number 14509 Phase 6001.77
Project Location LAT 0-21 Line Drip

Elevation _____
Well Location QO-S12-T30-R9
GWL Depth 32.7'
Installed By F. Rivera

On-Site Geologist C.M. Chance
Personnel On-Site K. Pabilla, D. Charlie
Contractors On-Site _____
Client Personnel On-Site _____

Date/Time Started 10/24/95 - 11/5
Date/Time Completed 10/24/95 - 1330

Depths in Reference to Ground Surface				
Item	Material	Depth		
Top of Protective Casing		NA		Top of Protective Casing <u>NA</u>
Bottom of Protective Casing		NA		Top of Riser <u>+2'</u>
Top of Permanent Borehole Casing		NA		Ground Surface <u>0'</u>
Bottom of Permanent Borehole Casing		NA		
Top of Concrete		NA		
Bottom of Concrete		NA		
Top of Grout	-94# Type I-II	0'		
Bottom of Grout	-50# Portland Cement	23'		
Top of Well Riser	1/4" dia SCH40	+2'		
Bottom of Well Riser	Flush Thread PVC	28'		
Top of Well Screen	1/4" dia SCH40 Flush Thread	28'		
Bottom of Well Screen	0.01 Slot PVC	43'		
Top of Peltonite Seal	-50# Enviro Plug	23'		Top of Seal <u>23'</u>
Bottom of Peltonite Seal	Bentonite	25'		
Top of Gravel Pack	-50# 10-20	25'		Top of Gravel Pack <u>25'</u>
Bottom of Gravel Pack	Silica Sand	44'		
Top of Natural Cave-In		44'		Top of Screen <u>28'</u>
Bottom of Natural Cave-In		45'		
Top of Groundwater				
Total Depth of Borehole		45'		Bottom of Screen <u>43'</u> Bottom of Borehole <u>45'</u>

Comments: Bentonite hydrated w/ 10 gal potable water. GW had no odor or visible contamination. GW @ 32.7' RGS after installing well

Geologist Signature

C.M. Chance

WELLPOINTS

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole #

Well # PZ-1

Page 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location LATO-21 LD LD 151

Elevation

Well Location Ltr 0-S12-T30-R9
GWL Depth 34.12 TDR (64.98 Elev.)
Installed By K Padilla

On-Site Geologist C CHANCE

Personnel On-Site D Charley

Contractors On-Site

Client Personnel On-Site

Date/Time Started 8/26/97

Date/Time Completed 8/26/97

Depths in Reference to Ground Surface			
Item	Material	Depth (feet)	
Top of Protective Casing			Top of Protective Casing <u>NA</u>
Bottom of Protective Casing			Top of Riser (survey elev.) <u>99.10</u>
Top of Permanent Borehole Casing			Ground Surface <u>0'</u>
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			Top of Seal <u>NA</u>
Bottom of Well Screen			
Top of Peltonite Seal			
Bottom of Peltonite Seal			Top of Gravel Pack <u>25</u>
Top of Gravel Pack			Top of Screen <u>25</u>
Bottom of Gravel Pack			
Top of Natural Cave-In			
Bottom of Natural Cave-In			
Top of Groundwater			Bottom of Screen <u>35</u>
Total Depth of Borehole			Bottom of Borehole <u>35</u>

Comments PZ1 is 355° ± 24' From MW1. Sampled PZ1 (CMC336)
± submit to lab. Piezo pulled & BH grouted 8/29/97
Geologist Signature Cory Champ

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole #

Well # PZ-2

Page 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Lat 0-2 Line Drip L0151

Elevation

Well Location Ltr O -S12-T30-R9

GWL Depth 35.02 TDR (64.84 elev)

Installed By K Padilla

On-Site Geologist

C CHANCE

Personnel On-Site

D. Chanley

Contractors On-Site

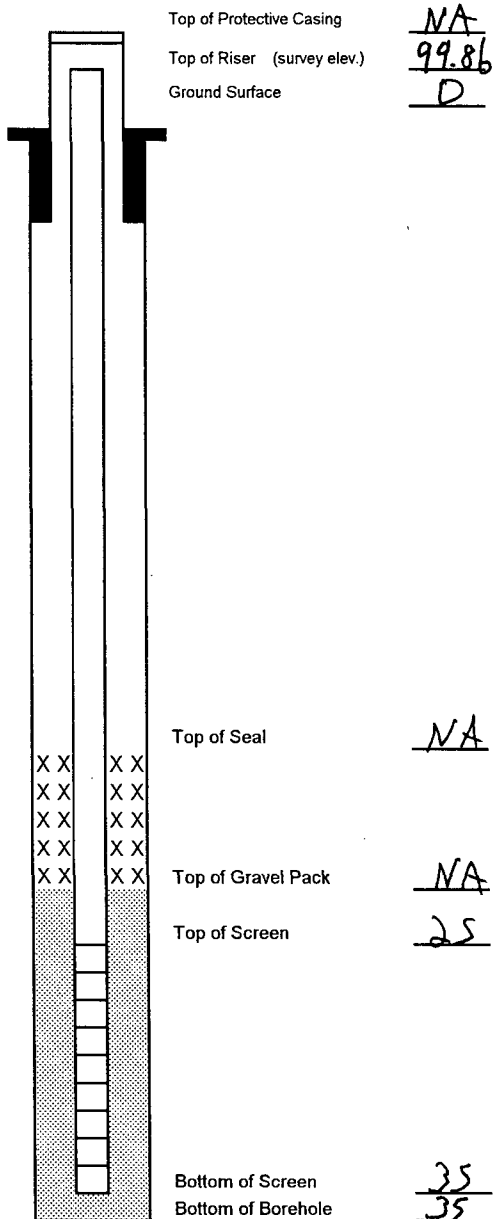
Client Personnel On-Site

Date/Time Started 8/26/97

Date/Time Completed 8/26/97

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 PZ2 is 75' ± 27' From MW1. Sample PZ2 (CMC337)
Submit to lab Grout PZ2 8/29/97

Geologist Signature

Cory Chanley



Well points

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project				CONTRACT LABORATORY P. O. NUMBER			
DATE: 8/26/97		DATE: 8/26/97				REMARKS			
LAB ID	DATE	TIME	MATRIX	FIELD ID	SEQUENCE #	REQUESTED ANALYSIS			REMARKS
						TPH	BTEX	LAB PID	
970932	8/26/97	1100	Water	CMC32b	2	V6	✓		Lat D-21 LD151 PZ1
970931		-		Trip Blank	1	TB	✓		Trip Blank
970933		1215	↓	CMC327	2	V6	✓		LD-21 LD151 PZ2
RECEIVED SEP - 9 1997									
RECEIVING TEMP. 30°C									
Note: PZ1 PZ2 water reacted vigorously with HCL. Also, septums on vials are breaking & cracking									
RELINQUISHED BY: (Signature) <i>Ray Chan</i>		DATE/TIME 8/24/97 1700		RECEIVED BY: (Signature) <i>Amelia</i>		DATE/TIME 8-27-97 1345		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME 8-27-97 1346		RECEIVED BY: (Signature) <i>Denise Bird</i>	
REQUESTED TURNAROUND TIME: ☐ ROUTINE ☐ RUSH				SAMPLE RECEIPT REMARKS				RESULTS & INVOICES TO:	
CARRIER CO.				CHARGE CODE				FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P.O. BOX 4990 FARMINGTON, NEW MEXICO 87499	
BILL NO.:				505-599-2144				FAX: 505-599-2261	



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	Trip Blank	970931
MTR CODE SITE NAME:	LD151	Lat O-21
SAMPLE DATE TIME (Hrs):	8/26/97	1100
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	8/29/97	8/29/97
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 100.1 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By:

John L. Lard

Date:

9-8-97

970931TripBlankBTEX,9/3/97



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC336	970932
MTR CODE SITE NAME:	LD151	Lat O-21
SAMPLE DATE TIME (Hrs):	8/26/97	1100
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	8/29/97	8/29/97
TYPE DESCRIPTION:	PZ-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	2101	PPB	20	D		
TOLUENE	5080	PPB	20	D1		
ETHYL BENZENE	337	PPB	20	D		
TOTAL XYLENES	3740	PPB	20	D		
TOTAL BTEX	11258	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 100.1 % 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.

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

Narrative: _____

Approved By: _____

Date: _____

9-8-97

970932BTEX, 9/3/97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC337	970933
MTR CODE SITE NAME:	LD151	Lat O-21
SAMPLE DATE TIME (Hrs):	8/26/97	1215
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	8/29/97	8/29/97
TYPE DESCRIPTION:	PZ-2	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	4310	PPB	50	D		
TOLUENE	4730	PPB	50	D		
ETHYL BENZENE	548	PPB	50	D		
TOTAL XYLENES	5340	PPB	50	D		
TOTAL BTEX	14928	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 99.6 % 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:

Date:

9-8-97

970933BTEX,9/3/97



**QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX**

Samples: 970931 to 970933, 970938 to 970943

QA/QC for 8/29/97 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	49.9	99.9	75 - 125 %	X
Toluene	Standard	50.0	49.6	99	75 - 125 %	X
Ethylbenzene	Standard	50.0	49.5	99	75 - 125 %	X
m & p - Xylene	Standard	100	99.1	99.1	75 - 125 %	X
o - Xylene	Standard	50.0	49.2	98	75 - 125 %	X
LCS LA-45476 25 PPB						
Benzene	Standard	25.0	25.6	102.2	39 - 150	X
Toluene	Standard	25.0	25.6	102	46 - 148	X
Ethylbenzene	Standard	25.0	25.3	101	32 - 160	X
m & p - Xylene	Standard	50.0	50.8	102	Not Given	X
o - Xylene	Standard	25.0	25.5	102	Not Given	X
CCV LA-52589 50 PPB						
Benzene	Standard	50.0	50.5	101.0	75 - 125 %	X
Toluene	Standard	50.0	49.8	99.6	75 - 125 %	X
Ethylbenzene	Standard	50.0	49.7	99.4	75 - 125 %	X
m & p - Xylene	Standard	100	99.5	99.5	75 - 125 %	X
o - Xylene	Standard	50.0	49.7	99	75 - 125 %	X
CCV LA-52589 50 PPB						
Benzene	Standard	50.0	50.3	100.6	75 - 125 %	X
Toluene	Standard	50.0	49.3	98.7	75 - 125 %	X
Ethylbenzene	Standard	50.0	48.8	97.5	75 - 125 %	X
m & p - Xylene	Standard	100	97.4	97.4	75 - 125 %	X
o - Xylene	Standard	50.0	48.9	97.8	75 - 125 %	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE	
					YES	NO
970943					RANGE	
Benzene	Matrix Duplicate	3.8	3.9	2.25	+/- 20 %	X
Toluene	Matrix Duplicate	<1	1.0	200.00	+/- 20 %	X
Ethylbenzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
m & p - Xylene	Matrix Duplicate	3.59	3.7	3.64	+/- 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	
					YES	NO
2nd Analysis 970943					RANGE	
Benzene	50	3.8	54.4	101.2	75 - 125 %	X
Toluene	50	<1	51.6	103	75 - 125 %	X
Ethylbenzene	50	<1	50.5	101	75 - 125 %	X
m & p - Xylene	100	3.59	103.7	100.1	75 - 125 %	X
o - Xylene	50	<1	50.1	100	75 - 125 %	X

Narrative: Acceptable

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	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.

TRIP BLANK	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.

Reported By: _____

Approved By: John L. Lally

Date: 9-8-97

**1997 GROUNDWATER
ANALYTICAL**



A 2311

[illegible]



FIELD SERVICES LABORATORY

ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	960942
MTR CODE SITE NAME:	LD151	Lat O-21 Line Drip MW-1
SAMPLE DATE TIME (Hrs):	11/12/96	1436
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	11/14/96	11/14/96
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	741	PPB	10	D		
TOLUENE	1620	PPB	10	D		
ETHYL BENZENE	99.0	PPB	10	D		
TOTAL XYLENES	1100	PPB	10	D		
TOTAL BTEX	3560	PPB				

—BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 103 % 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. Ladd

Date:

11/20/96



Field Services Laboratory
Analytical Report

SAMPLE IDENTIFICATION

EPNG LAB ID:	960942
DATE SAMPLED:	11/12/96
TIME SAMPLED (Hrs):	1436
SAMPLED BY:	D. Bird
MATRIX:	Water
SAMPLE SITE NAME:	Lateral 0-21
SAMPLE POINT:	Monitor Well MW-1

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.2	Units	11/14/96
Alkalinity as CO ₃	0.0	PPM	11/14/96
Alkalinity as HCO ₃	299	PPM	11/14/96
Calcium as Ca	433	PPM	11/15/96
Magnesium as Mg	61.4	PPM	11/15/96
Total Hardness as CaCO ₃	1,334	PPM	11/15/96
Chloride as Cl	21.9	PPM	11/14/96
Sulfate as SO ₄	1,653	PPM	11/14/96
Fluoride as F	1.00	PPM	11/15/96
Nitrate as NO ₃ -N	< 1.1	PPM	11/14/96
Phosphate as PO ₄	< 3.6	PPM	11/14/96
Potassium as K	0.83	PPM	11/15/96
Sodium as Na	240	PPM	11/15/96
Total Dissolved Solids	2,700	PPM	11/14/96
Conductivity	2,580	umhos/cm	11/14/96
Anion/Cation %	3.8%	%, < 5.0 Accepted	12/18/96

Lab Remarks:

Reported By: dh

Approved By: John Zuercher

Date: 12/18/96



FIELD SERVICES LABORATORY
ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	960942
SAMPLE DATE:	11/12/96
SAMPLE TIME (Hrs):	1436
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	LD151
SAMPLE SITE NAME:	Bloomfield Pipeline
SAMPLE POINT:	Lat. O-21 MW-1

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	<.010	0.100
BARIUM	0.15	1.00
CADMIUM	<.0002	0.010
CHROMIUM	0.002	0.050
LEAD	<.004	0.050
MERCURY	<.00024	0.002
SELENIUM	<.003	0.050
SILVER	<.0005	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: mda

Approved By: John Lardner

Date: 12/18/96

QUALITY CONTROL REPORT

Sample ID: 960942 and 960943
Date Sampled: 11/12/96

Date Reported: 12/16/96

STANDARD REFERENCE MATERIAL

Analyte	Found Result (µg/L)	Known Value (µg/L)	% Recovery
Arsenic	32.8	32.4	101%
Barium	75.5	64.9	116%
Cadmium	2.75	2.38	116%
Chromium	5.07	4.76	107%
Lead	28.8	29.7	97%
Mercury	4.86	4.59	106%
Selenium	36.3	40.5	90%
Silver	4.81	4.32	111%

DUPLICATE ANALYSIS (mg/L)

Analyte	Original Sample Result	Duplicate Sample Result	% RPD
Arsenic	0.025	0.027	7.7%
Barium	0.58	0.55	5.3%
Cadmium	ND	ND	NA
Chromium	ND	ND	NA
Lead	ND	ND	NA
Mercury	ND	ND	NA
Selenium	ND	ND	NA
Silver	ND	ND	NA

SPIKE ANALYSIS (µg/L)

Analyte	Original Sample Result	Spike Sample Result	Spike Added	Recovery Percent
Arsenic	25.3	132	100	106%
Barium	580	1520	1000	94%
Cadmium	ND	9.72	10.0	97%
Chromium	ND	59.8	50.0	118%
Lead	ND	42.9	50.0	86%
Mercury	ND	1.81	2.00	91%
Selenium	ND	47.9	50.0	96%
Silver	ND	51.6	50.0	103%

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: mm

Approved By: *John Zeller*

Date: 12/18/96



Well Number MW-1
Meter Code LD151

Site Name LAT. 0-21

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 |

Water Volume Calculation

Initial Depth of Well (feet) 44.89
Initial Depth to Water (feet) 34.75
Height of Water Column in Well (feet) 10.14
Diameter (Inches): Well 4 Gravel Pack

Diameter (Inches): Well 4 Gravel Pack

Item	Water Volume In Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.7	20.1
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

DELTA 210X

Water Removal Data

[illegible]

Comments	0.44' of Clear Drive

Developer's Signature Ernie Bird Date 11/12/96 Reviewer John Finkle Date 11/29/96



A 2223

CHAIN OF CUSTODY RECORD

[illegible]



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970085
MTR CODE SITE NAME:	LD151	Lat 0-21 MW-1
SAMPLE DATE TIME (Hrs):	2/11/97	1137
PROJECT:	Sample 4 - 2nd Quarter	
DATE OF BTEX EXT. ANAL.:	2/13/97	2/13/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	202	PPB	5	D		
TOLUENE	313	PPB	5	D		
ETHYL BENZENE	15.6	PPB	5	D		
TOTAL XYLENES	230	PPB	5	D		
TOTAL BTEX	761	PPB				

—BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 95.8 % 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: _____

Date: 2-19-97



Well Development and Purging Data

Well Number 44-1
Meter Code LD151

☐	Development
☒	Purging

Site Name WAT. 0-21

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) 44.89
Initial Depth to Water (feet) 33.82
Height of Water Column in Well (feet) 11.07

Diameter (Inches): Well 4 Gravel Pack

Item	Water Volume In Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		7.3	22.0
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]

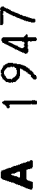
Comments

LIGHT HYDROCARBON SMELL.

Developer's Signature Kenneth E. Smith Date 2-11-97 Reviewer John H. Smith Date 2-19-97

Reviewer

Date _____



Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Requested Analysis		Preservation Technique		Type and No. of Sample Containers	Remarks		
5-8-97	Bloomfield Pipeline								
Samplers: (Signature) Dennis Bird		Date: 5-8-97							
Date	Time	Comp.	GRAB	Sample Number					
5-8-97	1105		X	970413	G-2	4°C	X	LFT. 0-21 MW-1 MC 60151	
5-8-97			X		G-1	4°C	X	TAP BLANK	
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		Received by: (Signature)	
Dennis Bird		5-8-97 1712							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		Received by: (Signature)	
Relinquished by: (Signature)		Date/Time		Received for Laboratory by: (Signature)		Date/Time		Remarks:	
				Maurice Hopper		5/19/97 0710			
Carrier Co:		Air Bill No.:		Carrier Phone No.		Date Results Reported / by: (Signature)			



6-11-97

FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970412
MTR CODE SITE NAME:	LD151	Lat O-21 Line Drip MW-1
SAMPLE DATE TIME (Hrs):	5/8/97	1105
PROJECT:	Sample 4 - 3rd Quarter	
DATE OF BTEX EXT. ANAL:	5/14/97	5/14/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	D		
BENZENE	1050	PPB	5	D,D1		
TOLUENE	1220	PPB	5	D,D1		
ETHYL BENZENE	50.8	PPB	5	D		
TOTAL XYLENES	764	PPB	5	D		
TOTAL BTEX	3090	PPB				

The Surrogate Recovery was at 97.0 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.

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

Narrative:

Approved By:

John L. Lach

Date:

6/3/97



EL PASO FIELD SERVICES

Well Development and Purging Data

Site Name LAT. 0-21

Well Number MW-1
Meter Code LO151

☐ Development
☒ Purging

Development Criteria

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

Methods of Development

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

Water Volume Calculation

Initial Depth of Well (feet) 144.39
Initial Depth to Water (feet) 33.54
Height of Water Column in Well (feet) 11.35
Diameter (Inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		<u>7.5</u>	<u>22.5</u>
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other DO CHEMISTS KIT

Water Disposal

KUTZ SEPARATOR

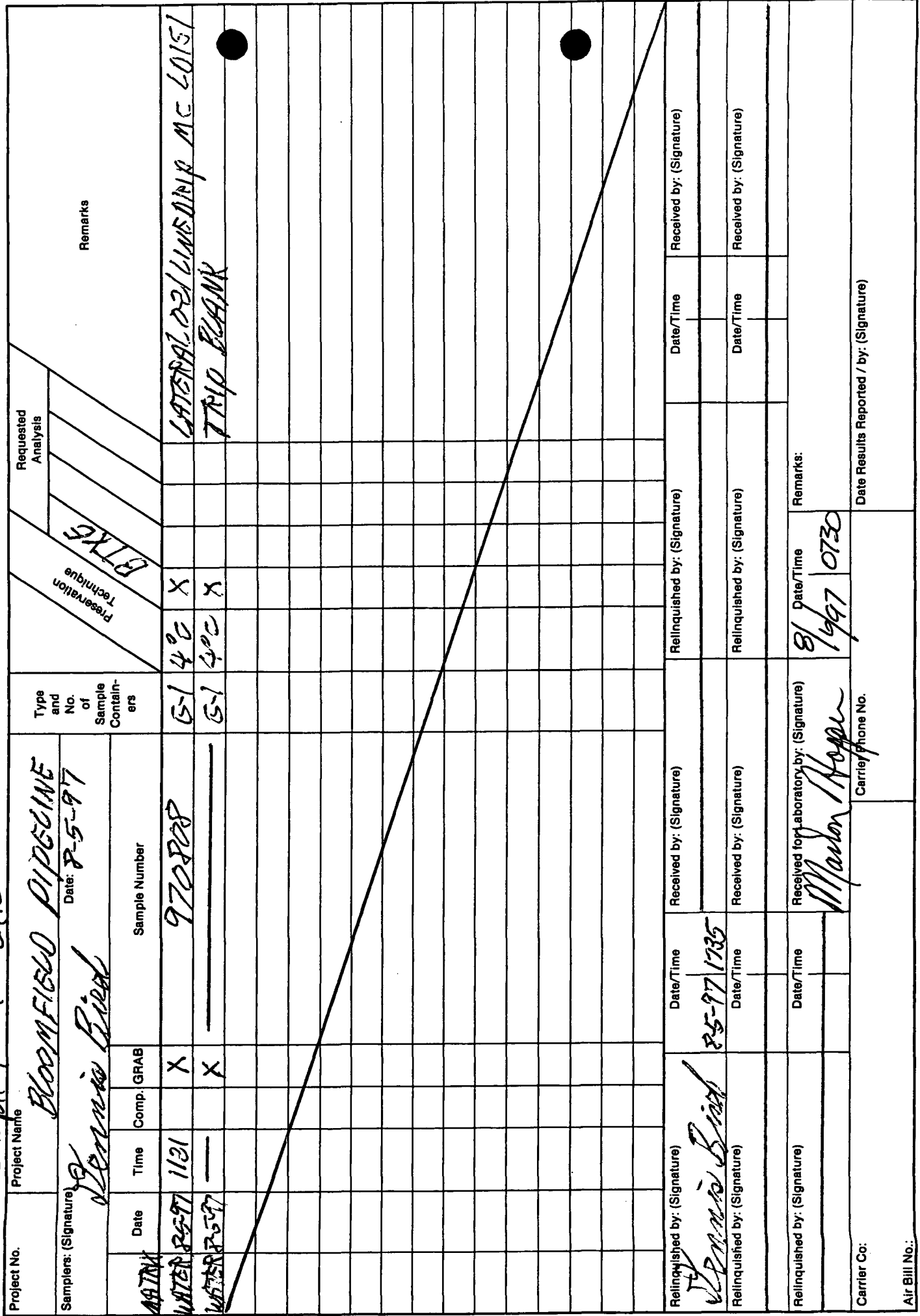
Water Removal Data

Date	Time	Development Method		Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gal)		Product Volume Removed (gallons)		Temperature °C	pH	Conductivity µmho/cm	Dissolved Oxygen mg/L	Comments
		Pump	Baller				Increment	Cumulative	Increment	Cumulative					
5-8-97	1017										18.7	6.42	1774		
5-8-97	1024						5.0	5.0			17.5	6.71	2300		
5-8-97	1031						5.0	10.0			17.6	6.85	2450		
5-8-97	1039						5.0	15.0			17.0	7.06	2540		
5-8-97	1046						5.0	20.0			17.0	7.06	2530		
5-8-97	1055						5.0	25.0			17.4	7.03	2560	0.5	

Comments LIGHT HYDROCARBON SMELL

Developer's Signature Lennin Bird

Date 5-8-97 Reviewer J.F. Date 5/27/97





FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970808
MTR CODE SITE NAME:	LD151	Lateral 0-21 Line Drip MW-1
SAMPLE DATE TIME (Hrs):	8/5/97	1121
PROJECT:	Sample 4 - 4th Quarter	
DATE OF BTEX EXT. ANAL.:	8/6/97	8/6/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	99.5	PPB	5	D		
TOLUENE	179	PPB	5	D		
ETHYL BENZENE	8.42	PPB	5	D		
TOTAL XYLENES	160	PPB	5	D		
TOTAL BTEX	447	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 90.5 % 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 L. Ladd

Date:

8/28/97

970808BTEX, 8/25/97



Well Development and Purging Data

Site Name LATERAL 0-2/ LIVE DRIP

Well Number 274-1

Meter Code LD151

Development Criteria

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

Methods of Development

- | | | | |
|--------------------------|--------------------------|-------------------------------------|--------------------------|
| ☐ | ☐ | ☒ | ☐ |
| ☐ | ☐ | ☐ | ☐ |
| ☐ | ☐ | ☐ | ☐ |

Water Volume Calculation

Initial Depth of Well (feet) 44.89
Initial Depth to Water (feet) 34.20
Height of Water Column In Well (feet) 10.69

Diameter (Inches): Well 4 Gravel Pack

Instruments

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

Water Disposal

RUT2 SEPAPATOP

Water Removal Data

[illegible]

Comments THE WATER HAS A LIGHT HYDROCARBON SMOEL.

Developer's Signature Dennis Bird

Date 8-5-97 Reviewer

Date 8/28/97

CHAIN OF CUSTODY RECORD

[illegible]



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	971183
MTR CODE SITE NAME:	LD151	Lateral 0-21 Line Drip
SAMPLE DATE TIME (Hrs):	11/4/97	1055
PROJECT:	Sample 4 5th Quarter	
DATE OF BTEX EXT. ANAL:	11/6/97	11/6/97
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1370	PPB	5	D		
TOLUENE	3040	PPB	5	D		
ETHYL BENZENE	174	PPB	5	D		
TOTAL XYLENES	2530	PPB	5	D		
TOTAL BTEX	7114	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 92.5 % 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: _____

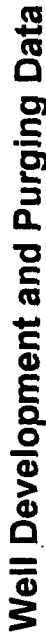
Approved By: _____

John L. Linder

Date: _____

11/12/97

971183BTEXMW,11/10/97



Well Number MW-1
Meter Code LD151

☐	Development
☒	Purging

Water Volume Calculation

Initial Depth of Well (feet)	<u>45.52</u>
Initial Depth to Water (feet)	<u>35.42</u>
Height of Water Column in Well (feet)	<u>11.10</u>
Diameter (inches):	Well <u>4</u> Gravel Pack

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

☐ Other

Initial Depth of Well (feet) 46.52
Initial Depth to Water (feet) 35.42
Height of Water Column in Well (feet) 11.10
Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		7.3	22.0
Gravel Pack			
Drilling Fluids			
Total			

☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other 2.05

KOTZ SEPARATOR

[illegible]

Developer's Signature Dennis Bird

Date 11-4-97 Reviewer

John Swack

Date 11/12/97