

3R - 174

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 Liese, 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

FOGELSON 4-1 COM #14
Meter/Line ID - 73220

SITE DETAILS

Legals - Twn: 29N Rng: 11W Sec: 4 Unit: P
NMOCD Hazard Ranking: 10 Land Type: FEDERAL
Operator: BURLINGTON RESOURCES

PREVIOUS ACTIVITIES

Site Assessment: Mar-94 Excavation: Apr-94 (65 cy) Soil Boring: Oct-95
Monitor Well: Oct-95 Geoprobe: Dec-96

1997 ACTIVITIES

Quarterly Groundwater Monitoring - Quarterly groundwater monitoring was initiated on 12/6/96 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.

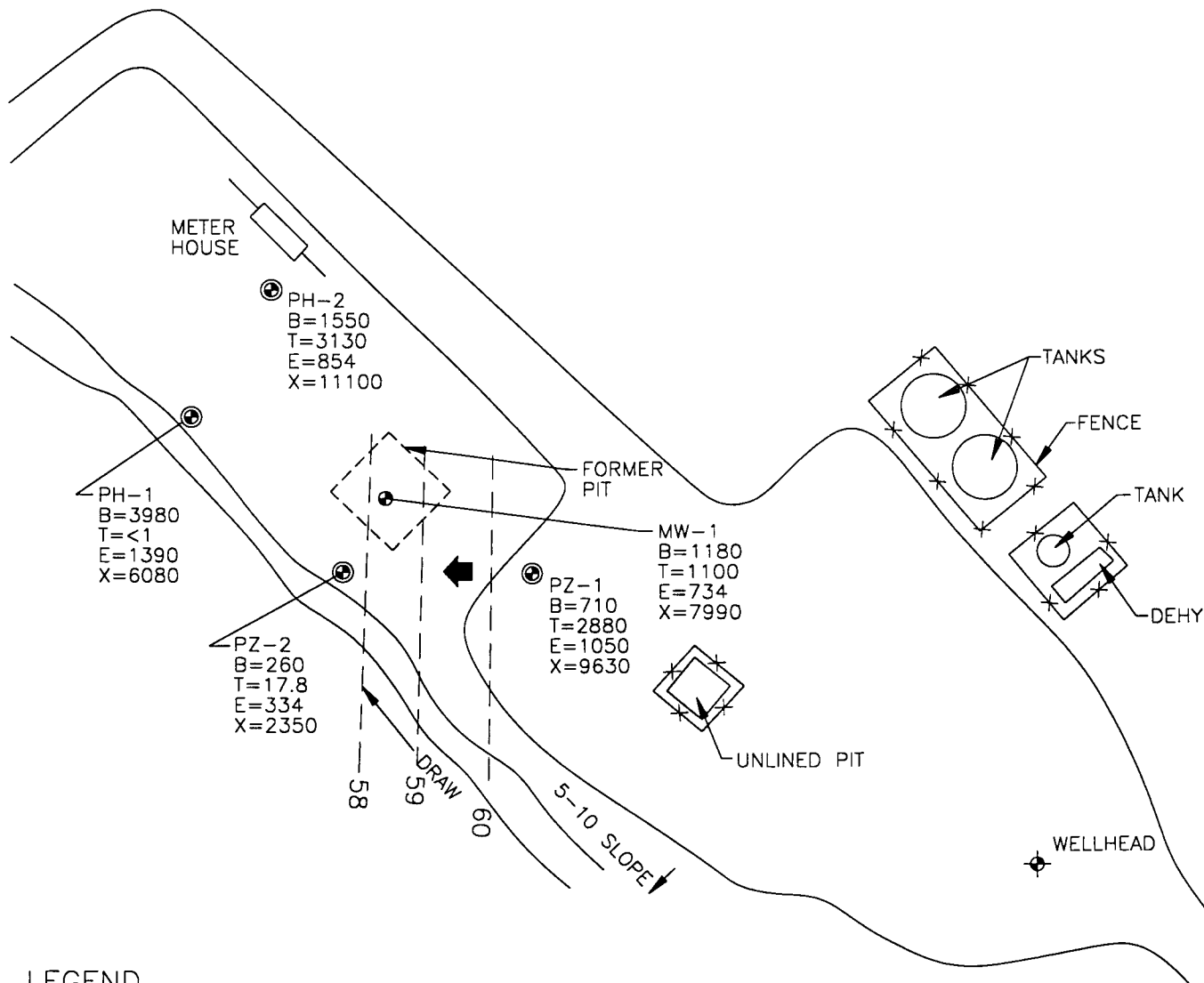
CONCLUSIONS

Based on groundwater levels collected from Well Point data, the groundwater flow trends to the west on this site, as presented in Figure 1. Groundwater samples collected from MW-1 have been above standards for benzene, and total xylenes since quarterly sampling was initiated. Downgradient and upgradient Geoprobe and Well Point groundwater samples are also in excess of standards. Off-site work will be required to define extent of migration.

One groundwater sample collected from PZ-1, which is upgradient of MW-1 and slightly downgradient of the operators unlined production pit, is in excess of standards for BTEX, indicating the unlined pit may be an upgradient source.

RECOMMENDATIONS

- EPFS proposes to conduct no further action at this site, until the operator commences with remediation of their production pit.
- Discontinue quarterly sampling of MW-1.



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

60 GROUNDWATER POTENTIOMETRIC SURFACE

APPROXIMATE GROUNDWATER GRADIENT

NOT TO SCALE



COL 17520BK-001



TITLE:

FOGELSON 4-1 #14
73220

DWN:
TMM

DES.:
CC

PROJECT NO.:

17520

CHKD:

APPD:

CC

DATE:

REV.:

1/20/98

0

FIGURE 1

EPFS GW PITS

TABLE 1

Sample #	Meter/ Line #	Site Name	Sample Date	MW #	Project	Benzene (PPB)	Toluene (PPB)	Ethyl Benzene (PPB)	Total Xylenes (PPB)	Total BTEX
961037	73220	Fogelson 4-1 Com. #14	12/06/96	1	Sample 4 - 1st Quarter	= 1110	= 388	= 713	= 7730	= 9941
970191	73220	Fogelson 4-1 Com. #14	3/10/97	1	Sample 4 - 2nd Quarter	= 1240	= 318	= 850	= 9050	= 11500
970539	73220	Fogelson 4-1 Com. #14	6/6/97	1	Sample 4 - 3rd Quarter	= 1080	= 268	= 747	= 7700	= 9800
970991	73220	Fogelson 4-1 Com. #14	9/17/97	1	Sample 4 - 4th Quarter	= 1080	= 612	= 670	= 7870	= 10232
971305	73220	Fogelson 4-1 Com. #14	12/15/97	1	Sample 4 - 5th Quarter	= 1180	= 1100	= 734	= 7990	= 11004

02-41 KUTZ

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 Fogelson 4-1 Com#14 73220

Well Logged By CM Chance

Personnel On-Site K Padilla, D. Charlie, T Flores

Contractors On-Site

Client Personnel On-Site

Elevation

Borehole Location QP - S4 - T29 - R11

GWL Depth 37.4' BGS

Logged By CM CHANCE

Drilled By K Padilla F. Rivera

Date/Time Started 10/26/95-0851

Date/Time Completed 10/26/95-1200

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				Backfill + D12'						
5										
10										
15	1	15-17	4	Br SILT, tr clay, loose, dry			0	300	995 716	0901 hr
20	2	20-22	4	AA Br CLAY, soft, high plastic, dry			0	366	817 892	0908
25	3	25-27	8	Br sandy CLAY, tr F sand, soft, med plastic, tr evaporite parting, dry			0	328	696 1008	0914
30	4	30-32	8	Br sandy CLAY, tr F sand, soft, non plastic, tr evap. Parting, dry			0	400	544 882	0931
35	5	35-37	6	DK Gray sandy CLAY, tr F sand, soft, non plastic, dry			0	389	684 998	0940
40	6	40-42	10	DK gray SAND, VF-F sand, tr med, loose, wet.			0	280	172 NA	0957

Comments:

GW@37.4' BGS after setting 15 min. No sample sent to lab due to high PID & visible discoloration. Will set well. Pull 4 1/4 augers @ 40' & go back down w/ 6 1/4 I.D. augers

Geologist Signature

Cory Chaney

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

Fogelson 4-1 Com #14 73220

Elevation

Borehole Location QP-S4-T29-R11

GWL Depth

Logged By CM CHANCE

Drilled By K Padilla L. Rivera

Date/Time Started 10/26/95-0851

Date/Time Completed 10/26/95-1200

Well Logged By

CM Chance

Personnel On-Site

K Padilla D. Charlie, T. Flores

Contractors On-Site

Client Personnel On-Site

Drilling Method

4 1/4" ID HSA

Air Monitoring Method

PID, CGI

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring			Drilling Conditions & Blow Counts
							Units: PPM	S	HS	
40							BZ	BH	HS	
45				TOB 45'						V. hard drilling
50										
55										
60										
65										
70										
75										
80										

Comments:

Geologist Signature

KUTZ
02-41

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Morvao 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 Pitts
Project Number 145DA Phase 6001-77
Project Location Fogelston 4-1 Com #14 7222D
On-Site Geologist C.M. Chance
Personnel On-Site D. Charlie, T. Flores
Contractors On-Site _____
Client Personnel On-Site _____

Elevation _____
Well Location QP-SY-TAG-R11
GWL Depth 26.9' BGS
Installed By F. Rivera
Date/Time Started 10/26/95 - 1200
Date/Time Completed 10/26/95 - 1515

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>+3'</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	Cement/Bent.	0'		
Bottom of Grout	Slurry	24'		
Top of Well Riser	4" Sch 40 Flush	+3'		
Bottom of Well Riser	Thread PVC	29'		
Top of Well Screen	4" Sch 40 Flush	29'		
Bottom of Well Screen	Thread 0-Disclos PVC	44'		
Top of Peltonite Seal	Enviroplug	24'	Top of Seal	<u>24'</u>
Bottom of Peltonite Seal	Bentonite Pellets	26'	Top of Gravel Pack	<u>26'</u>
Top of Gravel Pack	10-20	26'	Top of Screen	<u>29'</u>
Bottom of Gravel Pack	Silica Sand	44'		
Top of Natural Cave-In		44'		
Bottom of Natural Cave-In		45'		
Top of Groundwater				
Total Depth of Borehole		45'	Bottom of Screen	<u>44'</u>
			Bottom of Borehole	<u>45'</u>

Comments: Bentonite hydrated w/ 10 gal potable water. Locking well cap + pad lock placed on well
CW @ 26.9 BGS after installing well

Geologist Signature Cory Cherry

GEOPROBE

SITE ACTIVITIES

21-Feb-97

Meter/Line #: 73220

Location/Line #: Fogelson 4-1 Com #14

MW#:

Depth to GW:

Depth to Product:

Product Thickness:

Date: 1/15/97

Activity: Geoprobe

Comments: Collect GW samples from 2 probeholes. Encountered refusal with Geoprobe at 4 other locations surrounding pit. MW1 in center of pit.

SITE ACTIVITIES

21-Feb-97

Meter/Line #: 73220

Location/Line #: Fogelson 4-1 Com #14

MW#:

Depth to GW:

Depth to Product:

Product Thickness:

Date: 12/10/96

Activity: Geoprobe

Comments: Sample 2 probe holes. Refusal at 4 probe holes



Natural Gas Company

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Requested Analysis				Remarks
16297	EPFS GW Pits	Preservation Technique	Type and No. of Sample Containers	Analysis		
Samplers: (Signature) <u>CM Chavez</u>		Date: <u>12/11/96</u>				
Date	Time	Comp.	GRAB	Sample Number		
<u>12/11/96</u>	<u>1025</u>	<u>✓</u>	<u>✓</u>	<u>TRIP BLANK</u>	<u>TRIP BLANK</u>	
<u>148047</u>	<u>1025</u>	<u>✓</u>	<u>✓</u>	<u>CMC284</u>	<u>PH2 Fog e can 4-1 #14 73220</u>	
		<u>✓</u>	<u>✓</u>	<u>CMC285</u>	<u>→ Strong odor. Poten. high dissolved ph</u>	
					<u>PH3</u>	
<u>End 12/11/96</u>						
Relinquished by: (Signature) <u>Long Chavez</u>	Date/Time <u>12/11/96 1700</u>	Received by: (Signature) <u>Kelly Stovall</u>	Relinquished by: (Signature) <u>Kelly Stovall</u>	Date/Time <u>12-12-96 0950</u>	Received by: (Signature) <u>Marlow Armenter</u>	
Relinquished by: (Signature) <u>[Signature]</u>	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	
Carrier Co.	Carrier Phone No.		Date Results Reported / by: (Signature)			



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC284	948047
MTR CODE SITE NAME:	73220	Fogelson 4-1 #14
SAMPLE DATE TIME (Hrs):	12/11/96	1035
PROJECT:	GEOPROBE	
DATE OF BTEX EXT. ANAL.:	12/18/96	12/18/96
TYPE DESCRIPTION:	PH2	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1550	PPB	25	D		
TOLUENE	3130	PPB	25	D		
ETHYL BENZENE	854	PPB	25	D		
TOTAL XYLENES	11100	PPB	25	D		
TOTAL BTEX	16600	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.4 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative: _____

Approved By: John F. Allen

Date: 1-2-97

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project		DATE 12/12/95		TOTAL NUMBER OF CONTAINERS		SAMPLE TYPE		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	
948043	12/12/95	0920	Water	CMC280	2	Grad		X				PH4 DLOog Line Drie L0169	
948044	12/12/95	1005		CMC281	2	"		X				PH5 (Water reacted w/HCL. Slight prod.)	
				TRIP BLANK	1	TB		X				TRIP BLANK	
948045	12/12/95	1120		CMC282	2	Grad		X				Jaquez 3 PC PH1	
948046	12/12/95	1510		CMC283	2	11		X				PH1 Fogelson 4-1-94 Z3220	
→ Strong Prod. odor. Potential high dissolved phase													
<i>CMC 12/12/95</i>													
REINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		REINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		REMARKS	
<i>Conc. Chane</i>		12/12/95 1700		<i>W. S. Strick</i>		<i>Kelly Spavell</i>		12-11-96 9:35		<i>Mark Lynette</i>			
REINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		REINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		REMARKS	
REQUESTED TURNAROUND TIME:				SAMPLE RECEIPT REMARKS				RESULTS & INVOICES TO:					
☐ ROUTINE ☐ RUSH								FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P. O. BOX 4990 FARMINGTON, NEW MEXICO 87499					
CARRIER CO.				CHANGE CODE				505-599-2144					
BILL NO.:								FAX: 505-599-2261					



EL PASO FIELD SERVICES



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC283	948046
MTR CODE SITE NAME:	73220	Fogelson 4-1 #14
SAMPLE DATE TIME (Hrs):	12/10/96	1510
PROJECT:	GEOPROBE	
DATE OF BTEX EXT. ANAL.:	12/11/96	12/11/96
TYPE DESCRIPTION:	PH1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	D		
BENZENE	3980	PPB	50	D		
TOLUENE	<1	PPB	50	D		
ETHYL BENZENE	1380	PPB	50	D		
TOTAL XYLENES	6080	PPB	50	D		
TOTAL BTEX	11500	PPB				

-BTEX is by EPA Method 8020 -

The Surrogate Recovery was at 92.2 % 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: 12/14/96

WELLPOINTS

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole # _____

Well # PZ-1

Pag 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Fogelson 4-1 Cont #14 73220

Elevation _____

Well Location Ltr P -S4 -B9 -R11

GWL Depth 42.64 TOR

Installed By K Padilla

On-Site Geologist C CHANCE

Personnel On-Site D. Charley

Contractors On-Site _____

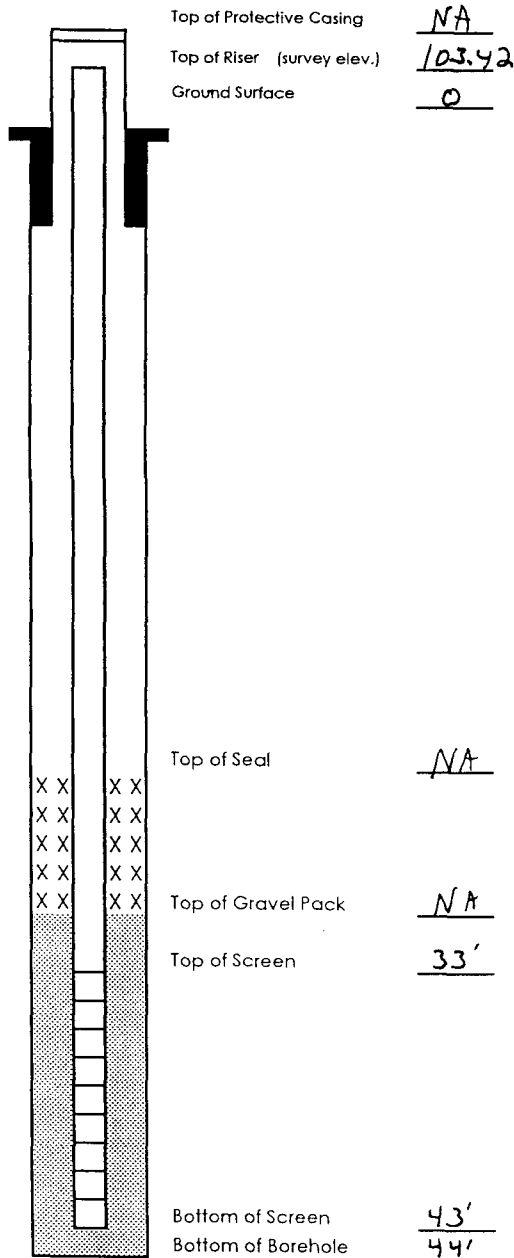
Client Personnel On-Site _____

Date/Time Started 12/31/97

Date/Time Complete 12/31/97

COMMENTS

- PZ1 is 130' + 42' from MW1
- Collect soil sample from 39-41':
DK gray sandy CLAY, v F-F sand
med stiff, med plastic, moist,
odor PID = 2297 ppm
- Install temp well @ 44' BGS
+ collect GW sample
(CMC 371)



MW1 GW @ 41.56 TOR. MW1 Riser elev. @ 99.81

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole #

Well # PZ-2

Pag 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Fogelson 4-1 Cont #14 73220

On-Site Geologist C CHANCE

Personnel On-Site D. Charley

Contractors On-Site

Client Personnel On-Site

Elevation

Well Location Ltr P -S4 -T29 -R11

GWL Depth 38.56 TOR

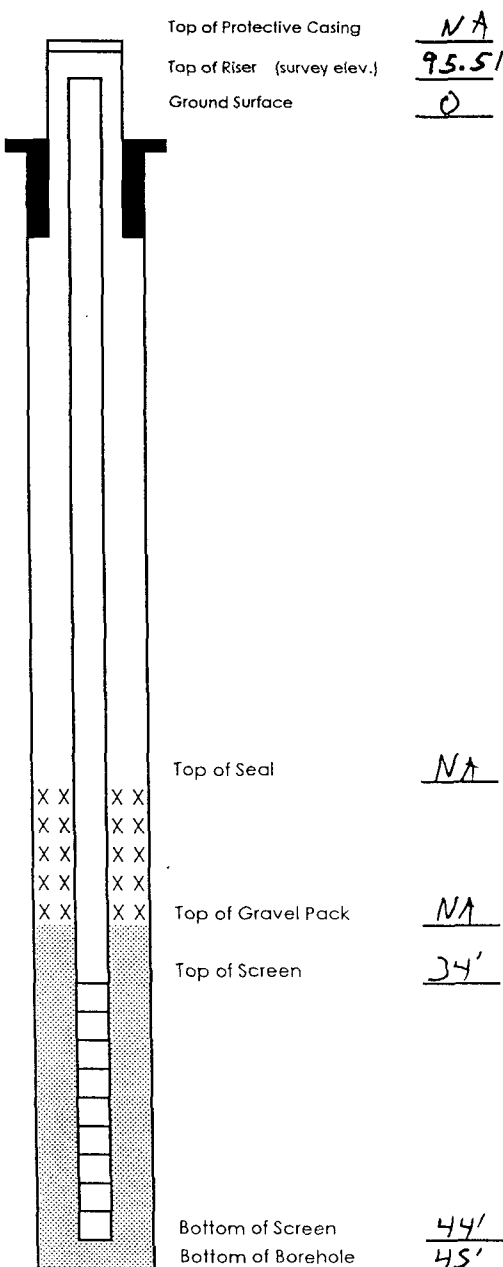
Installed By K. Padilla

Date/Time Started 10/31/97

Date/Time Complete 10/31/97

COMMENTS

- PZ2 is 195' ± 39' From MWI
- Collect soil sample @ 28-30':
Br sandy CLAY, F sand, med stiff
med plastic, dry, to gypsum packing
PID = 0 ppm
- Install temp. well & collect GW sample CMC372





El Paso
Natural Gas Company

CHAIN OF CUSTODY RECORD

Page _____ of _____

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project		DATE 10/31/97		FIELD ID		TOTAL NUMBER OF CONTAINERS		SAMPLE TYPE		REQUESTED ANALYSIS		REMARKS	
LAB ID	DATE	TIME	MATRIX	DATE	TIME	FIELD ID	DATE	TIME	TPH EPA 418.1	BTEX EPA 8020	LAB PID	SEQUENCE #	REMARKS		
971175	10/31/97	~	Water	10/31/97	1300	CMC371	1 TB	1	✓	✓			Trip BLANK		
971176	10/31/97	↓	↓	10/31/97	1300	CMC371	2 VB	2	✓	✓			Fogelson 4-1 Cont #14 73200 PZ1		
						CMC372	2 VB	2	✓	✓	CMC 10/31/97		11 PZ2		
RECEIVED NOV 12 1997															
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FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	Trip Blank	971175
MTR CODE SITE NAME:	73220	Fogelsen 4-1 Com. #14
SAMPLE DATE TIME (Hrs):	10/31/97	1300
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	11/5/97	11/5/97
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 95.6 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative: _____

Approved By: John L. Lee

Date: 11/10/97

971175BTEXWPTB,11/7/97



FIELD SERVICES LABORATORY

ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC371	971176
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com. #14
SAMPLE DATE TIME (Hrs):	10/31/97	1300
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	11/5/97	11/5/97
TYPE DESCRIPTION:	PZ-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	710	PPB	50	D		
TOLUENE	2880	PPB	50	D		
ETHYL BENZENE	1050	PPB	50	D		
TOTAL XYLENES	9630	PPB	50	D		
TOTAL BTEX	14270	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 92.6 % 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: _____

971176BTEXWP,11/7/97

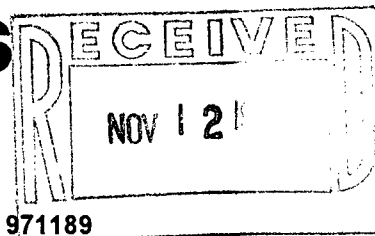
Date: _____

11/10/97



EL PASO FIELD SERVICES

QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX



Samples: 971158 to 971159, 871175 to 971176, 971178 ^{to} 971183, 971185 to 971189

QA/QC for 11/5/97 Sample Set

LABORATORY CALIBRATION CHECKS / LABORATORY CONTROL SAMPLES:

SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
ICV LA-52589 50 PPB					YES	NO
					RANGE	
Benzene	Standard	50.0	46.1	92.3	75 - 125 %	X
Toluene	Standard	50.0	46.1	92	75 - 125 %	X
Ethylbenzene	Standard	50.0	46.1	92	75 - 125 %	X
m & p - Xylene	Standard	100	92.4	92.4	75 - 125 %	X
o - Xylene	Standard	50.0	46.0	92	75 - 125 %	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
LCS LA-45476 25 PPB					YES	NO
					RANGE	
Benzene	Standard	25.0	23.4	93.5	39 - 150	X
Toluene	Standard	25.0	23.6	94	46 - 148	X
Ethylbenzene	Standard	25.0	23.3	93	32 - 160	X
m & p - Xylene	Standard	50.0	47.1	94	Not Given	X
o - Xylene	Standard	25.0	23.4	94	Not Given	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
CCV LA-52589 50 PPB					YES	NO
					RANGE	
Benzene	Standard	50.0	46.4	92.8	75 - 125 %	X
Toluene	Standard	50.0	46.2	92.4	75 - 125 %	X
Ethylbenzene	Standard	50.0	46.1	92.1	75 - 125 %	X
m & p - Xylene	Standard	100	91.9	91.9	75 - 125 %	X
o - Xylene	Standard	50.0	46.1	92	75 - 125 %	X
SAMPLE NUMBER	TYPE	EXPECTED RESULT PPB	ANALYTICAL RESULT PPB	%R	ACCEPTABLE	
CCV LA-52589 50 PPB					YES	NO
					RANGE	
Benzene	Standard	50.0	46.2	92.4	75 - 125 %	X
Toluene	Standard	50.0	46.4	92.7	75 - 125 %	X
Ethylbenzene	Standard	50.0	45.4	90.7	75 - 125 %	X
m & p - Xylene	Standard	100	90.6	90.6	75 - 125 %	X
o - Xylene	Standard	50.0	45.5	91.1	75 - 125 %	X

Narrative: Acceptable.

Benzene	Standard	50.0	45.3	50.7	75 - 125 %	X
Toluene	Standard	50.0	44.8	89.5	75 - 125 %	X
Ethylbenzene	Standard	50.0	44.0	88.0	75 - 125 %	X
m & p - Xylene	Standard	100	87.0	87.0	75 - 125 %	X
o - Xylene	Standard	50.0	44.2	88.4	75 - 125 %	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID 971179	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
Toluene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
Ethylbenzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
m & p - Xylene	Matrix Duplicate	<2	<2	0.00	+/- 20 %	X
o - Xylene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X

Narrative: Acceptable.

LABORATORY SPIKES:

SAMPLE ID 2nd Analysis 971179	SPIKE ADDED PPB	SAMPLE RESULT PPB	SPIKE SAMPLE RESULT PPB	%R	ACCEPTABLE	
					YES	NO
					RANGE	
Benzene	50	<1	46.6	93.2	75 - 125 %	X
Toluene	50	<1	46.3	93	75 - 125 %	X
Ethylbenzene	50	<1	46.2	92	75 - 125 %	X
m & p - Xylene	100	<2	92.1	92.1	75 - 125 %	X
o - Xylene	50	<1	46.2	92	75 - 125 %	X

Narrative: Acceptable

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

Narrative: Acceptable.

SOIL VIAL BLANK	SOURCE Lot MB1461	PPB (1 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.

10/5/97 TRIP BLANK	SOURCE	PPB (3 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: che

Approved By: John Lander

Date: 11/10/97



CHAIN OF CUSTODY RECORD

Page _____ of _____

Well points

PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project		DATE 11/13/97		TOTAL NUMBERS OF CONTAINERS		SAMPLE TYPE		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	
971180	11/15/97	0930	Water	CMC372	2	V6			✓			Fogelson 4-1 Cam #14 2220 P22	
971181		-		Trip Blank	1	TB			✓			TRIP BLANK	
971182	✓	1320	✓	CMC373	2	V6		✓				Miles Fed 1A(CH) 94810 P21	
	CMC			CMC374	2	V6		✓				11 P22	
RECEIVED NOV 12 1997													
NOTE: No HCL in CMC372 Packed w/GW													
RELINQUISHED BY: (Signature) Cory Chare		DATE/TIME 11/15/97 1500		RECEIVED BY: (Signature) Cory Chare		DATE/TIME 11/14/97 0920		RELINQUISHED BY: (Signature) Cory Chare		DATE/TIME 11/14/97 0920		RECEIVED BY: (Signature) John Funder	
RELINQUISHED BY: (Signature) Cory Chare		DATE/TIME 11/15/97 1500		RECEIVED BY: (Signature) Cory Chare		DATE/TIME 11/14/97 0920		RELINQUISHED BY: (Signature) Cory Chare		DATE/TIME 11/14/97 0920		RECEIVED BY: (Signature) John Funder	
REQUESTED TURNAROUND TIME: ☐ ROUTINE ☐ RUSH				SAMPLE RECEIPT REMARKS Cool - Intact Temp. 41°C				RESULTS & INVOICES TO: FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P. O. BOX 4990 FARMINGTON, NEW MEXICO 87499					
CARRIER CO.				CHARGE CODE				505-599-2144 FAX: 505-599-2261					
BILL NO.:													



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC372	971180
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com. #14
SAMPLE DATE TIME (Hrs):	11/3/97	0930
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	11/5/97	11/5/97
TYPE DESCRIPTION:	PZ-2	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	260	PPB	10	D		
TOLUENE	17.8	PPB	10	D		
ETHYL BENZENE	344	PPB	10	D		
TOTAL XYLENES	2350	PPB	10	D		
TOTAL BTEX	2972	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: _____

John Tardieu

Date: _____

11/10/97

971180BTEXWP,11/7/97



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	Trip Blank	971181
MTR CODE SITE NAME:	73220	Fogelsen 4-1 Com. #14
SAMPLE DATE TIME (Hrs):	11/3/97	0930
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	11/5/97	11/5/97
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 96.4 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative: _____

Approved By: _____

John Larch

Date: _____

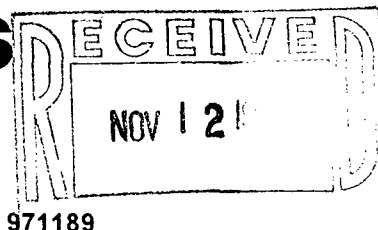
11/10/97

971181BTEXWPTB,11/7/97



EL PASO FIELD SERVICES

QUALITY CONTROL REPORT
EPA METHOD 8020 - BTEX



Samples: 971158 to 971159, 971175 to 971176, 971178^{to} 971183, 971185 to 971189

QA/QC for 11/5/97 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	46.1	92.3	75 - 125 %	X
Toluene	Standard	50.0	46.1	92	75 - 125 %	X
Ethylbenzene	Standard	50.0	46.1	92	75 - 125 %	X
m. & p - Xylene	Standard	100	92.4	92.4	75 - 125 %	X
o - Xylene	Standard	50.0	46.0	92	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	23.4	93.5	39 - 150	X
Toluene	Standard	25.0	23.6	94	46 - 148	X
Ethylbenzene	Standard	25.0	23.3	93	32 - 160	X
m & p - Xylene	Standard	50.0	47.1	94	Not Given	X
o - Xylene	Standard	25.0	23.4	94	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	46.4	92.8	75 - 125 %	X
Toluene	Standard	50.0	46.2	92.4	75 - 125 %	X
Ethylbenzene	Standard	50.0	46.1	92.1	75 - 125 %	X
m & p - Xylene	Standard	100	91.9	91.9	75 - 125 %	X
o - Xylene	Standard	50.0	46.1	92	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	46.2	92.4	75 - 125 %	X
Toluene	Standard	50.0	46.4	92.7	75 - 125 %	X
Ethylbenzene	Standard	50.0	45.4	90.7	75 - 125 %	X
m & p - Xylene	Standard	100	90.6	90.6	75 - 125 %	X
o - Xylene	Standard	50.0	45.5	91.1	75 - 125 %	X

Narrative: Acceptable.

Benzene	Standard	50.0	45.3	90.7	75 - 125 %	X
Toluene	Standard	50.0	44.8	89.5	75 - 125 %	X
Ethylbenzene	Standard	50.0	44.0	88.0	75 - 125 %	X
m & p - Xylene	Standard	100	87.0	87.0	75 - 125 %	X
o - Xylene	Standard	50.0	44.2	88.4	75 - 125 %	X

Narrative: Acceptable.

LABORATORY DUPLICATES:

SAMPLE ID	TYPE	SAMPLE RESULT PPB	DUPLICATE RESULT PPB	RPD	ACCEPTABLE	
					YES	NO
971179					RANGE	
Benzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
Toluene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
Ethylbenzene	Matrix Duplicate	<1	<1	0.00	+/- 20 %	X
m & p - Xylene	Matrix Duplicate	<2	<2	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	
					YES	NO
2nd Analysis 971179					RANGE	
Benzene	50	<1	46.6	93.2	75 - 125 %	X
Toluene	50	<1	46.3	93	75 - 125 %	X
Ethylbenzene	50	<1	46.2	92	75 - 125 %	X
m & p - Xylene	100	<2	92.1	92.1	75 - 125 %	X
o - Xylene	50	<1	46.2	92	75 - 125 %	X

Narrative: Acceptable

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

Narrative: Acceptable.

SOIL VIAL BLANK	SOURCE Lot MB1461	PPB (1 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.

10/5/97 TRIP BLANK	SOURCE	PPB (3 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: *ME*

Approved By: *John Lander*

Date: *11/10/97*

**1997 GROUNDWATER
ANALYTICAL**



El Paso
Natural Gas Company

A 1960

CHAIN OF CUSTODY RECORD

Project No.		Project Name		Requested Analysis		Remarks	
Samplers: (Signature)		Date: 12-8-96		Type and No. of Sample Containers		Preservation Technique	
Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Remarks
WATER 12-6-96	1303		X	961037	B-2	4°C	ROSELSON 4-1 COM #14 MC 73320
WATER 12-6-96					G-1	4°C	TRIP BLANK
[The following rows are crossed out with a diagonal line]							
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time	
Dennis Birel		12-6-96/1435					
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time	
Relinquished by: (Signature)		Date/Time		Received for Laboratory by: (Signature)		Remarks:	
				12/9/96/0715			
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)			
Air Bill No.:							



FIELD SERVICES LABORATORY

ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	961037
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com #14 MW-1
SAMPLE DATE TIME (Hrs):	12/6/96	1303
PROJECT:	Sample 4 - 1st Quarter	
DATE OF BTEX EXT. ANAL.:	12/9/96	12/9/96
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1110	PPB	25	D		
TOLUENE	388	PPB	25	D		
ETHYL BENZENE	713	PPB	25	D		
TOTAL XYLENES	7730	PPB	25	D		
TOTAL BTEX	9940	PPB				

-BTEX is by EPA Method 8020 -

The Surrogate Recovery was at 95.6 % 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 FelderDate: 12/13/96



Field Services Laboratory

Analytical Report

SAMPLE IDENTIFICATION

EPFS LAB ID:	961037
DATE SAMPLED:	12/06/96
TIME SAMPLED (Hrs):	1303
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	73220
SAMPLE SITE NAME:	Aztec Pipeline
SAMPLE POINT:	Fogelson 4-1 Com #14 MW-1

FIELD REMARKS:

GENERAL CHEMISTRY WATER ANALYSIS RESULTS

PARAMETER	RESULT	UNITS	DATE ANALYZED
Laboratory pH	7.3	Units	12/19/96
Alkalinity as CO ₃	0	PPM	12/19/96
Alkalinity as HCO ₃	1903	PPM	12/19/96
Calcium as Ca	402	PPM	12/19/96
Magnesium as Mg	183	PPM	12/19/96
Total Hardness as CaCO ₃	1,757	PPM	12/19/96
Chloride as Cl	237	PPM	12/06/96
Sulfate as SO ₄	8,230	PPM	12/06/96
Fluoride as F	0.7	PPM	12/19/96
Nitrate as NO ₃ -N	< 1.1	PPM	12/06/96
Nitrite as NO ₂ -N	< 1.1	PPM	12/06/96
Ammonium as NH ₄ ⁺	< 0.6	PPM	12/19/96
Phosphate as PO ₄	< 1.1	PPM	12/06/96
Potassium as K	0.5	PPM	12/19/96
Sodium as Na	3666	PPM	12/19/96
Total Dissolved Solids	13,700	PPM	12/19/96
Conductivity	14,360	umhos/cm	12/06/96
Anion/Cation %	3.7%	%, < 5.0 Accepted	12/23/96

Lab Remarks:

Reported By:

mdc

Approved By:

John L. Loh

Date:

1-2-97



EL PASO FIELD SERVICES



FIELD SERVICES LABORATORY ANALYTICAL REPORT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	961037
SAMPLE DATE:	12/06/96
SAMPLE TIME (Hrs):	1303
SAMPLED BY:	D. Bird
MATRIX:	Water
METER CODE:	73220
SAMPLE SITE NAME:	Aztec Pipeline
SAMPLE POINT:	Fogelson 4-1 Com #14 MW-1

REMARKS:

RESULTS

PARAMETER	TOTAL RESULT (mg/L)	N. M. WQCC LIMIT (mg/L)
ARSENIC	< .01	0.100
BARIUM	0.02	1.00
CADMIUM	< .0002	0.010
CHROMIUM	0.005	0.050
LEAD	< .004	0.050
MERCURY	< .00024	0.002
SELENIUM	< .003	0.050
SILVER	0.002	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: mdw

Approved By: John L. Lick

Date: 1-3-97

QUALITY CONTROL REPORT

Sample ID: 961037
Date Sampled: 12/06/96

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	4.86	4.59	106%
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: inh

Approved By: John L. Lark

Date: 1-3-97

EPFS EL PASO FIELD SERVICES

Well Development and Purging Data

Site Name ROSELSON 4-1 COM. #14

Well Number MW-1
Meter Code 73220

☐ Development
☒ Purging

Development Criteria

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

Methods of Development

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

Water Volume Calculation

Initial Depth of Well (feet) 47.79
Initial Depth to Water (feet) 40.74
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	Increment	Cumulative
Well Casing		<u>4.7</u>		<u>14.0</u>
Gravel Pack				
Drilling Fluids				
Total				

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☒ Other U.O. CHEMETS 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	Bailer				Increment	Cumulative	Increment	Cumulative					
<u>12-6-96</u>	<u>1152</u>										<u>12.3</u>	<u>5.54</u>	<u>13170</u>		
<u>12-6-96</u>	<u>1202</u>						<u>5.0</u>	<u>5.0</u>			<u>13.5</u>	<u>5.25</u>	<u>14020</u>		
<u>12-6-96</u>	<u>1209</u>						<u>5.0</u>	<u>10.0</u>			<u>12.8</u>	<u>4.82</u>	<u>13800</u>		
<u>12-6-96</u>	<u>1220</u>						<u>5.0</u>	<u>15.0</u>			<u>12.9</u>	<u>4.55</u>	<u>13500</u>		
<u>12-6-96</u>	<u>1228</u>						<u>5.0</u>	<u>20.0</u>			<u>13.5</u>	<u>4.32</u>	<u>13710</u>	<u>1.0</u>	

Comments _____

Developer's Signature Dennis Bird

Date 12-6-96 Reviewer John Zeller

Date 1-2-97



Natural Gas Company

A 2250

CHAIN OF CUSTODY RECORD

[illegible]



FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970191
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com #14
SAMPLE DATE TIME (Hrs):	3/10/97	1427
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	1240	PPB	50	D		
TOLUENE	318	PPB	50	D		
ETHYL BENZENE	850	PPB	50	D		
TOTAL XYLENES	9050	PPB	50	D		
TOTAL BTEX	11500	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 Lardie

Date:

3/18/97

EPFS

EL PASO FIELD SERVICES

Well Development and Purging Data

Site Name FOGELSON 4-1 COM. #4

Well Number MW-1
Meter Code 73220

☐ Development
☒ Purging

Development Criteria

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

Methods of Development

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

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 47.79
Initial Depth to Water (feet) 41.33
Height of Water Column in Well (feet) 6.56

Item	Water Volume In Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		<u>4.3</u>	<u>13.0</u>
Gravel Pack			
Drilling Fluids			
Total			

Instruments

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

Water Disposal

KUTZ SEPARATOR

Water Removal Data

Date	Time	Development Method		Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gal)		Product Volume Removed (gallons)		pH	Conductivity $\mu\text{mho/cm}$	Dissolved Oxygen mg/L	Comments
		Pump	Bailer			Increment	Cumulative	Increment	Cumulative				
3-10-97	1337									<u>6.92</u>	<u>12970</u>		
3-10-97	1347					<u>5.0</u>	<u>5.0</u>			<u>7.01</u>	<u>13440</u>		
3-10-97	1356					<u>5.0</u>	<u>10.0</u>			<u>7.24</u>	<u>13380</u>		
3-10-97	1407					<u>5.0</u>	<u>15.0</u>			<u>7.28</u>	<u>13390</u>		
3-10-97	1417					<u>5.0</u>	<u>20.0</u>			<u>7.32</u>	<u>13970</u>	<u>1.5</u>	

Comments HAD A STRONG H₂S SMELL IN THE WATER.

Developer's Signature Dennis Bird

Date 3-10-97 Reviewer J.F.

Date 3/18/97



El Paso
Natural Gas Company

A 2605

CHAIN OF CUSTODY RECORD

Project No.		Project Name		Requested Analysis		Remarks									
Samplers: (Signature)		Date		Type and No. of Sample Containers		Preservation Technique									
Date	Time	Comp.	GRAB	Sample Number											
6-6-97	1119		X	972539	5-1	4°C	X								
6-6-97	---		X	---	5-1	4°C	X								
FOSSILSON 4-1 COMPANY MC 73250 TRIP BEANK								Received by: (Signature)		Date/Time		Received by: (Signature)			
								Received by: (Signature)		Date/Time		Received by: (Signature)			
								Received for Laboratory by: (Signature)		Date/Time		Remarks:			
								Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)			
								Air Bill No.:							
								Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	
								Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	
								Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	
								Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	
								Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	



6-23-97

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970539
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com #14 MW-1
SAMPLE DATE TIME (Hrs):	6/6/97	1119
PROJECT:	Sample 4 - 3rd Quarter	
DATE OF BTEX EXT. ANAL.:	6/12/97	6/12/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1080	PPB	50	D		
TOLUENE	268	PPB	50	D		
ETHYL BENZENE	747	PPB	50	D		
TOTAL XYLENES	7700	PPB	50	D		
TOTAL BTEX	9800	PPB				

The Surrogate Recovery was at 95.2 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. Latta

Date:

6/17/97

970539,6/16/97



EL PASO FIELD SERVICES

Well Development and Purging Data

Site Name FOGELSON 4-1 COM. #14

Well Number AW-1
Meter Code 73220

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

☐ Other _____

Water Volume Calculating

Initial Depth of Well (feet) 47.7
Initial Depth to Water (feet) 41.4
Height of Water Column in Well (feet) 6.35

Diameter (inches): Well 4 Gravel Pack _____

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		<u>4.2</u>	<u>12.6</u>
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- ☒ pH Meter
☐ DO Monitor
☒ Conductivity Meter
☒ Temperature Meter
☐ Other D.R. CHEMETS 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
						Increment	Cumulative	Increment					
6-6-97	1048					5.0			22.0	7.56	12890		
6-6-97	1053					5.0			20.5	7.28	14100		
6-6-97	1058					5.0			20.2	7.21	14250		
6-6-97	1108					5.0			20.3	7.23	14380		
6-6-97	1110					5.0			19.9	7.29	14440	1.0	

Comments THE WATER HAD A STRONG HYDROGEN SULFIDE SMELL.

Developer's Signature Lennie Bird Date 6-6-97 Reviewer John Telford Date 6/17/97

CHAIN OF CUSTODY RECORD

Project No.	Project Name		MC #73220		Date: 9-17-97		Remarks		
Samplers: (Signature)	Dennis Bird								
Date	Time	Comp.	GRAB	Sample Number	Type and No. of Sample Containers	Preservation Technique	Requested Analysis		
9/17/97	1512		X	970991	52	40C X	FOGELSON 4-1 COM #4 MW-1		
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		Received by: (Signature)	
Dennis Bird		9-17-97 1635							
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:	
				M. Jordan Nepper		9/18/97 0800			
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)					
Air Bill No:									



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	970991
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com #14
SAMPLE DATE TIME (Hrs):	9/17/97	1512
PROJECT:	Sample 4 4th Quarter	
DATE OF BTEX EXT. ANAL.:	9/18/97	9/18/97
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1080	PPB	50	D		
TOLUENE	612	PPB	50	D		
ETHYL BENZENE	670	PPB	50	D		
TOTAL XYLENES	7870	PPB	50	D		
TOTAL BTEX	10232	PPB				

—BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 83.6 % 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:

9-22-97

970991BTEXMW,9/22/97



Well Number 11W-1
Meter Code 73720

Development Criteria

- ## Methods of Development

- ☐
- Other

4
Diameter (inches): Well

Water Removal Data

[illegible]

Developer's Signature Tennis Bied

Date 9-17-97 Reviewer John Fells Date 9-22-97

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	971305
MTR CODE SITE NAME:	73220	Fogelson 4-1 Com. #14
SAMPLE DATE TIME (Hrs):	12/15/97	1049
PROJECT:	Sample 4 5th Quarter	
DATE OF BTEX EXT. ANAL.:	12/16/97	12/16/97
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	1180	PPB	20	D		
TOLUENE	1100	PPB	20	D		
ETHYL BENZENE	734	PPB	20	D		
TOTAL XYLENES	7990	PPB	20	D		
TOTAL BTEX	11004	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 100.8 % 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: _____

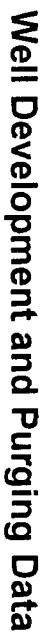
Approved By: _____

John Jordan

Date: _____

1/2/98

971305BTEXMW,12/16/97



Site Name FOGGLSON 4-1 CQM #14

☐	Development
☒	Purging

Well Number MW-1

Meter Code 15220

Development Criteria

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

Water Volume Calculation

Initial Depth of Well (feet) 41.1
Initial Depth to Water (feet) 41.38

Height of Water Column in Well (feet) 5.41

Diameter (inches): Well 4 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		42	12.7
Gravel Pack			
Drilling Fluids			
Total			

Methods of Development

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

Instruments

- | | |
|-------------------------------------|--------------------|
| ☒ | pH Meter |
| ☒ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>DO</u> |

Water Disposal

KDTE SEP 19 1979

Water Removal Data

[illegible]

Comments THE WAGER THAT I SPOKE HYUNDBEN 304746 2/10/2000.

Developers Signature [Signature] Date 12-13-17
Reviewer [Signature] Date 1/2/18

Date 12-15-97

Reviewer

Date _____

Date 1/2/98