

EPFS GROUNDWATER PITS

1998 CLOSURE REPORT

DEPUTY OIL & GAS INSPECTOR

GALLEGOS CANYON UNIT D #160

AUG 16 1999

Meter/Line ID - 14046

Legals - Twn: 29N Rng: 12W

NMOCD Hazard Ranking: 40

Operator: AMOCO PRODUCTION COMPANY

SITE DETAILS

Sec: 27

Unit: 1

Land Type: FEE

RECEIVED
APR - 2 1999
OIL CON. DIV.
DIST. 3

PREVIOUS ACTIVITIES

Site Assessment: Apr-94

Re-excavation: October-96 (1,260 cy)

Excavation: Apr-94 (40 cy)

Monitor Well: Feb-97

Soil Boring: Nov-95

Well Points: Sep-97

The pit was excavated to 12 feet beneath ground surface (bgs) and a composite soil sample was collected from the excavation bottom and four walls. Approximately 40 cubic yards of impacted soil were removed during excavation. The headspace soil reading from the excavation bottom was 349 ppm. Soil analytical was as follows; benzene - 6.9 mg/kg, total BTEX - 638 mg/kg, TPH (418.1) - 3,400 mg/kg.

In November 1995 a soil boring was drilled in the center of the excavation. Groundwater was encountered at 19 feet bgs and a soil sample was collected. The analytical results were as follows; benzene - 24 mg/kg, total BTEX - 911 mg/kg and TPH (418.1) - 2,440 mg/kg.

The pit was re-excavated to 21 feet bgs and 1,260 additional cubic yards of impacted soil were removed. Groundwater was encountered at approximately 20.5 feet bgs. A composite soil sample was collected from the four walls and the bottom of the excavation. The soil analytical was as follows; benzene - Non-detect, total BTEX - Non-detect and TPH (418.1) - 91.4 mg/kg.

One soil boring was drilled in the center of the former pit and a monitoring well was installed. No soil samples were collected, as groundwater was encountered. Quarterly groundwater monitoring was initiated on 8/6/97 and continued through 5/6/98. Groundwater analytical data are presented in Table 1. Groundwater analytical data prior to 1998 has been previously submitted in the 1997 Annual Report.

Temporary well points were installed in September of 1997 at locations identified in Figure 1. Groundwater samples were collected from the well points for analysis of BTEX components and the groundwater gradient was determined to be toward the southwest. Analytical results for all of the groundwater samples from the temporary well points showed that BTEX levels were below New Mexico Water Quality Commission standards for groundwater.

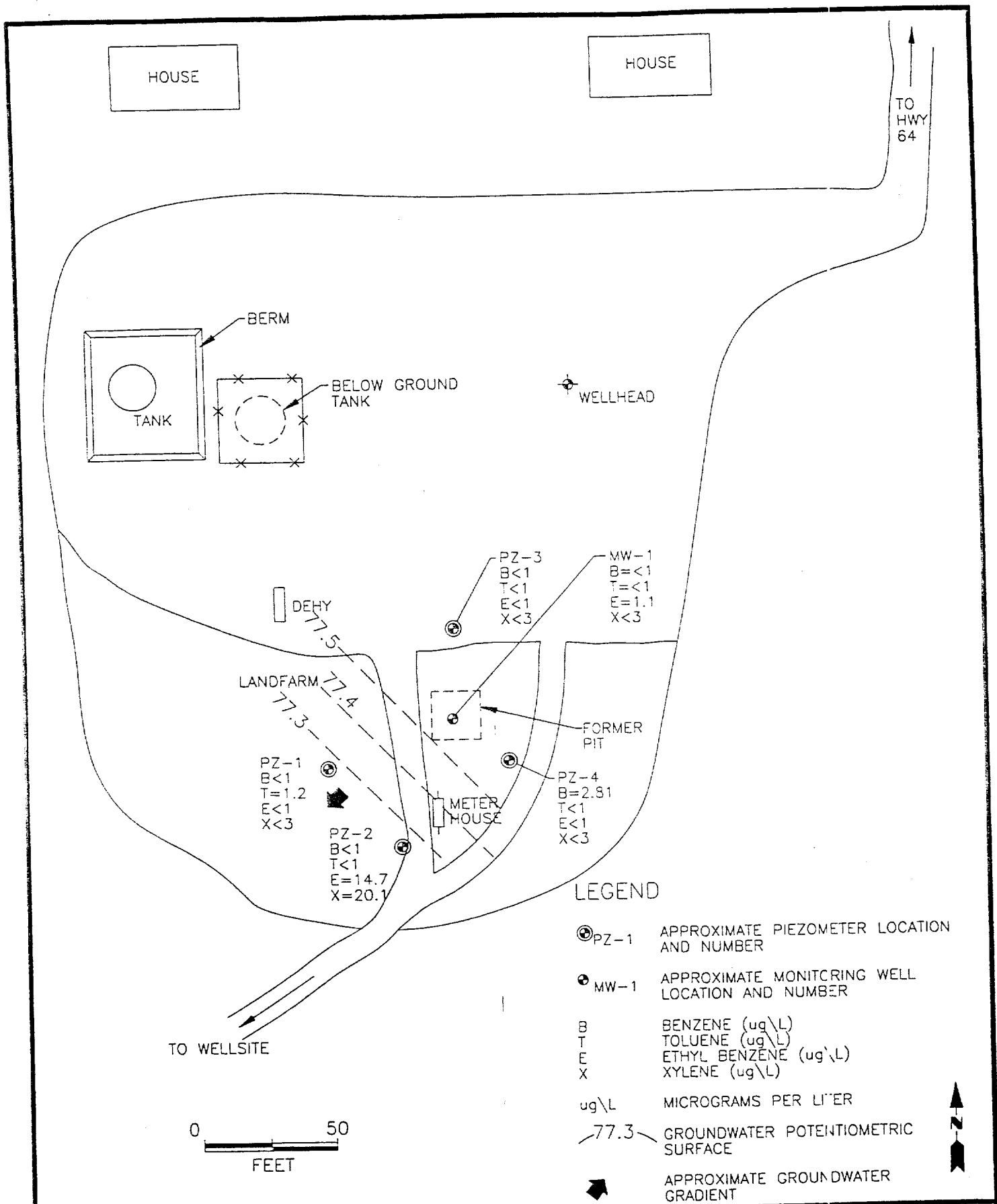
CONCLUSIONS

Initial groundwater sampling after monitoring well installation indicated benzene and xylenes to be above standards. Subsequent quarterly sampling has shown all BTEX compounds to be below standards, indicating minimal impact to groundwater. Downgradient temporary wells also indicate that BTEX compounds are below standards.

EPFS GROUNDWATER PITS 1998 CLOSURE REPORT

RECOMMENDATIONS

- EPFS request closure at this site.
- Following OCD approval for closure, MW-1 will be abandoned following OCD approved abandonment procedures.



COL. 17520J-001



TITLE: GALLEGOS CANYON
UNIT D160 14046

DWN:	DES.:
TMM	CC
CHKD:	APPD:
CC	
DATE:	REV.:
1/20/98	0

PROJECT NO.: 17520
EPFS GW PITS

FIGURE 1

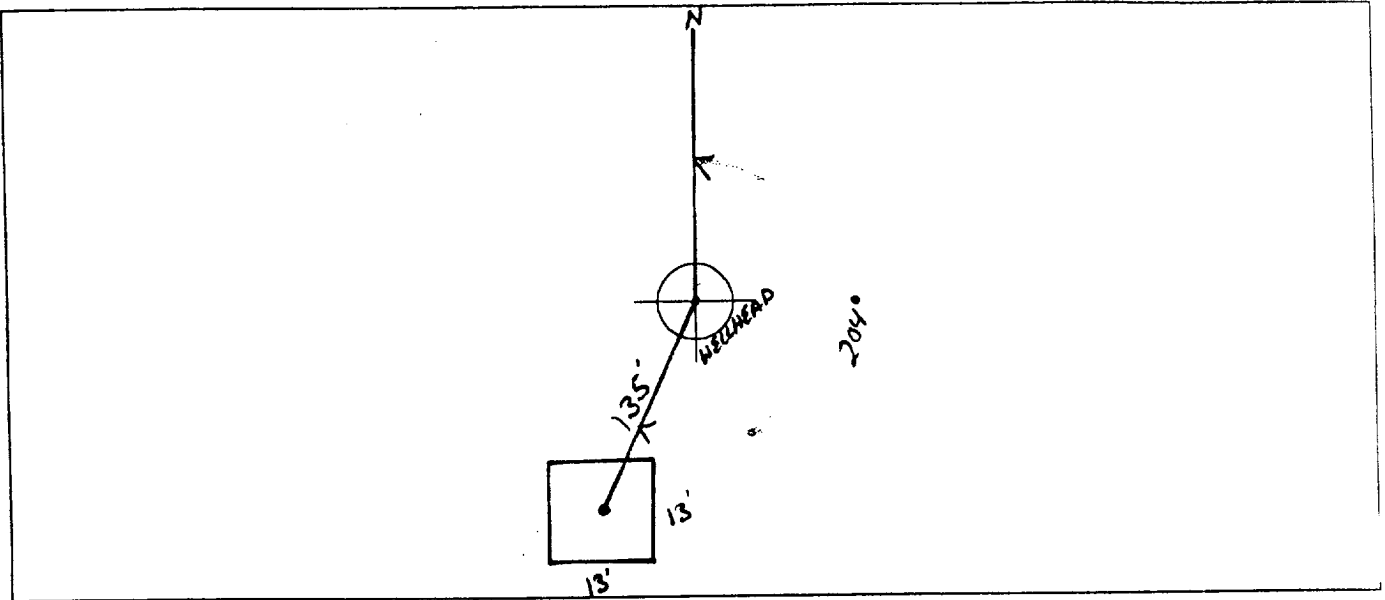
FIELD PIT SITE ASSESSMENT FORM

GENERAL	Meter: <u>14046</u> Location: <u>GALLEGOS CANYON UNIT D#160</u> Operator #: <u>0203</u> Operator Name: <u>Amoco</u> P/L District: <u>Kutz</u> Coordinates: Letter: <u>I</u> Section <u>27</u> Township: <u>29</u> Range: <u>12</u> Or Latitude _____ Longitude _____ Pit Type: Dehydrator ☒ Location Drip: _____ Line Drip: _____ Other: _____ Site Visit Date: <u>4.5.94</u> Run: <u>02</u> <u>33</u>
SITE ASSESSMENT	NMOCD Zone: Inside ☐ Land Type: BLM ☐ (From NMOCD Vulnerable ☒ State ☐ Maps) Zone ☒ Fee ☒ Outside ☐ Indian _____ Depth to Groundwater Less Than 50 Feet (20 points) ☒ 50 Ft to 99 Ft (10 points) ☐ Greater Than 100 Ft (0 points) ☐ Wellhead Protection Area : Is it less than 1000 ft from wells, springs, or other sources of fresh water extraction? , or ; Is it less than 200 ft from a private domestic water source? ☒ YES (20 points) ☐ NO (0 points) Horizontal Distance to Surface Water Body Less Than 200 Ft (20 points) ☐ 200 Ft to 1000 Ft (10 points) ☐ Greater Than 1000 Ft (0 points) ☒ Name of Surface Water Body _____ (Surface Water Body : Perennial Rivers, Major Wash, Streams, Creeks, Irrigation Canals, Ditches, Lakes, Ponds) TOTAL HAZARD RANKING SCORE: <u>40</u> POINTS
REMARKS	Remarks : <u>TWO PITS ON LOCATION. WILL CLOSE ONLY ONE. PIT IS DRY. LOCATION IS IN A FLAT BEHIND SOME TRAILERS.</u>

ORIGINAL PIT LOCATION

Original Pit : a) Degrees from North 204° Footage to Wellhead 135'
 b) Degrees from North _____ Footage to Dogleg _____
 Dogleg Name _____
 c) Length : 13' Width : 13' Depth : 2'

ORIGINAL PIT LOCATION



REMARKS :

STARTED TAKING PICTURES AT 10:12 A.M.

END DUMP

REMARKS

Completed By:

Edith Thompson
 Signature

4.5.94
 Date

FIELD PIT REMEDIATION/CLOSURE FC 1

GENERAL

Meter: 14046 Location: GALLEGOS CANYON UNIT D #160
 Coordinates: Letter: I Section 27 Township: 29 Range: 12
 Or Latitude _____ Longitude _____
 Date Started : 4/28/94 Area: 02 Run: 33

FIELD OBSERVATIONS

Sample Number(s): KP #1 KP #2 KP #3
 Sample Depth: 12' Feet
 Final PID Reading 349 PID Reading Depth 12' Feet
 Yes No
 Groundwater Encountered ☐ (1) ☒ (2) Approximate Depth X ^{KP 4/28/94} Feet

CLOSURE

Remediation Method :
 Excavation ☒ (1) Approx. Cubic Yards 40
 Onsite Bioremediation ☐ (2)
 Backfill Pit Without Excavation ☐ (3)
 Soil Disposition:
 Envirotech ☐ (1) ☒ (3) Tierra
 Other Facility ☐ (2) Name: _____
 Pit Closure Date: 4/28/94 Pit Closed By: B.E.I

REMARKS

Remarks : No Line Markers. ground WAS still HIGH
Contaminated. went DOWN 12' and closed.

Signature of Specialist: Kelly Rodella



FIELD SERVICES LABORATORY
ANALYTICAL REPORT
PIT CLOSURE PROJECT - Soil

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	Field ID KPI	Lab ID 94 50 38
MTR CODE SITE NAME:	14046	N/A
SAMPLE DATE TIME (Hrs):	4/28/94	0854
SAMPLED BY:	N/A	
DATE OF TPH EXT. ANAL.:	5-2-94	5-2-94
DATE OF BTEX EXT. ANAL.:	5/5/94	5/6/94
TYPE DESCRIPTION:	VC	Brown/Grey Clay/Sand

REMARKS:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	6.9	MG/KG		X10		
TOLUENE	130	MG/KG		X10		
ETHYL BENZENE	41	MG/KG		X10		
TOTAL XYLENES	460	MG/KG		X10		
TOTAL BTEX	638	MG/KG				
TPH (418.1) 3400	3400	MG/KG			2.01	28
HEADSPACE PID	349	PPM				
PERCENT SOLIDS	87.6	%				

— TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 —

Surrogate Recovery was at 281 % for this sample All QA/QC was acceptable.

AT I Results attached. Surrogate recovery was out AT I or limits due to matrix interference.

DF = Dilution Factor Used

Approved By:

John Jarboe

Date:

5/21/94

CHAIN OF CUSTODY RECORD

[illegible]



Analytical**Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 405313

May 13, 1994

El Paso Natural Gas Company
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE 24324

Attention: John Lambdin

On 05/03/94, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA Method 8015 analysis was added on 05/05/94 for sample 945008 per Stacy Sandler.

The matrix spike/spike duplicate data from the samples extracted on 05/05/94 is reported twice reflecting quantification using both the internal standard and external standard protocols. Both protocols were employed to quantify the samples submitted for this project.

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

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Enclosure



GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
 CLIENT : EL PASO NATURAL GAS CO. ATI I.D.: 405313
 PROJECT # : 24324
 PROJECT NAME : PIT CLOSURE

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
25	945037	NON-AQ	04/28/94	05/05/94	05/06/94	1
26	945038	NON-AQ	04/28/94	05/05/94	05/06/94	20
27	945039	NON-AQ	04/28/94	05/05/94	05/05/94	20

PARAMETER	UNITS	25	26	27
BENZENE	MG/KG	<0.025	6.9	11
TOLUENE	MG/KG	0.039	130	160
HYLBENZENE	MG/KG	<0.025	41	37
TOTAL XYLENES	MG/KG	0.063	460	380
METHYL-t-BUTYL ETHER	MG/KG	<0.12	<2.4	<2.4

SURROGATE:

BROMOFLUOROBENZENE (%) 99 281* 163*

*OUTSIDE ATI QUALITY CONTROL LIMITS DUE TO MATRIX INTERFERENCE

RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL

30 Monroe Road

Farmington, New Mexico 87401

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

Borehole # BH-1

Well #

Page 1 of 1

Project Name

EPNG PITS

Project Number

14509

Phase

6000 77

Project Location

Gallegos Canyon Unit D #110 14041

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

Air Monitoring Method

PID, CGI

Elevation

Borehole Location

QT-S27-T29-R12

GWL Depth

19.1 BGS

Logged By

CM CHANCE

Drilled By

K Padilla

Date/Time Started

10/1/95-0728

Date/Time Completed

11/1/95-0830

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				Backfill to 12'						
5										
10										
15	1	15-17	1D	Gray Silty CLAY, soft, high plastic. dry			0	580	665 545	-0738
20				TOB 17' CM (12/1/95) TOB 20'						-GW @ 19.1 -cobbles @ 118'
25										
30										
35										
40										

Comments:

Pit located using bearing & Footage from assessment form. Area has been "cleared"; w/ dozer. GW @ 19.1' BGS. CM (17) (15-17) sent to Lab (BTEX, TPH). BH grouted to surface. No well installed due to encountering GW @ < 20' BGS

Geologist Signature

CM Chance

FM 308-0565 A (Rev. 05-94)



FIELD SERVICES LABORATORY
ANALYTICAL REPORT

PIT CLOSURE PROJECT - Soil Samples Inside the GWV Zone

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC173	947720
MTR CODE SITE NAME:	14046	Gallegos Canyon Unit D #160
SAMPLE DATE TIME (Hrs):	11-1-95	0738
PROJECT:	Phase II Drilling	
DATE OF TPH EXT. ANAL.:	11/3/95	
DATE OF BTEX EXT. ANAL.:	11/2/95	11/6/95
TYPE DESCRIPTION:	V6	DARK BROWN CLAY

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE ^{mb} 55.8 _{24.1}	mh 20.9	MG/KG	10 ⁵ mh	D		
TOLUENE	306	MG/KG	10	D		
ETHYL BENZENE ^{mb} 62.5	58.1 mh	MG/KG	10 ⁵	D		
TOTAL XYLENES	526	MG/KG	10	D, D1		
TOTAL BTEX	911	MG/KG				
TPH (418.1)	2440	MG/KG			228	28
HEADSPACE PID	545	PPM				
PERCENT SOLIDS	83	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

Surrogate Recovery was at 99% for this sample All QA/QC was acceptable.

Result for m/p xylenes exceeded calibration range

AT 1 Results for mod 8015 attached (2700)

= Dilution Factor Used

proved By: J.S.

Date: 11/8/95



Analytical**Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 511319

November 14, 1995

El Paso Natural Gas
P.O. Box 4990
Farmington, NM 87499

Project Name/Number: PIT CLOSURE/PHASE II 24324

Attention: John Lambdin

On 11/08/95, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **non-aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

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

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure



GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8015 MODIFIED
 CLIENT : EL PASO NATURAL GAS ATI I.D.: 511319
 PROJECT # : 24324
 PROJECT NAME : PIT CLOSURE/PHASE II

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	947714	NON-AQ	10/31/95	11/09/95	11/09/95	1
02	947715	NON-AQ	10/31/95	11/09/95	11/09/95	1
03	947720	NON-AQ	11/01/95	11/09/95	11/11/95	5
PARAMETER			UNITS	01	02	03
FUEL HYDROCARBONS			MG/KG	<5	150	2700
HYDROCARBON RANGE				-	C7-C28	C7-C16
HYDROCARBONS QUANTITATED USING				-	GASOLINE	GASOLINE

SURROGATE:

O-TERPHENYL (%) 103 115 108

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*****
Test Method for
Oil and Grease and Petroleum Hydrocarbons
in Water and Soil
Perkin-Elmer Model 1600 FT-IR
Analysis Report
*****

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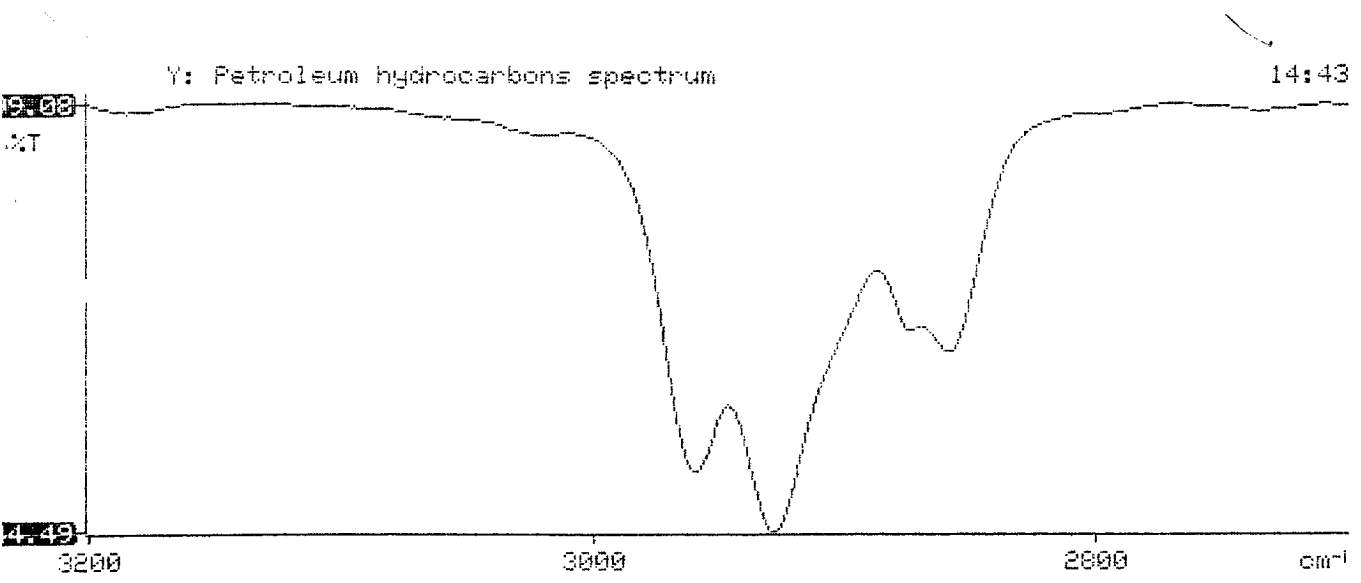
5/11/03 14:43

Sample identification
47720

Initial mass of sample, g
0.280

Volume of sample after extraction, ml
8.000

Petroleum hydrocarbons, ppm
442.061
Net absorbance of hydrocarbons (2930 cm⁻¹)
0.347



EL PASO NATURAL GAS

EPA METHOD 8020 - BTEX SOILS

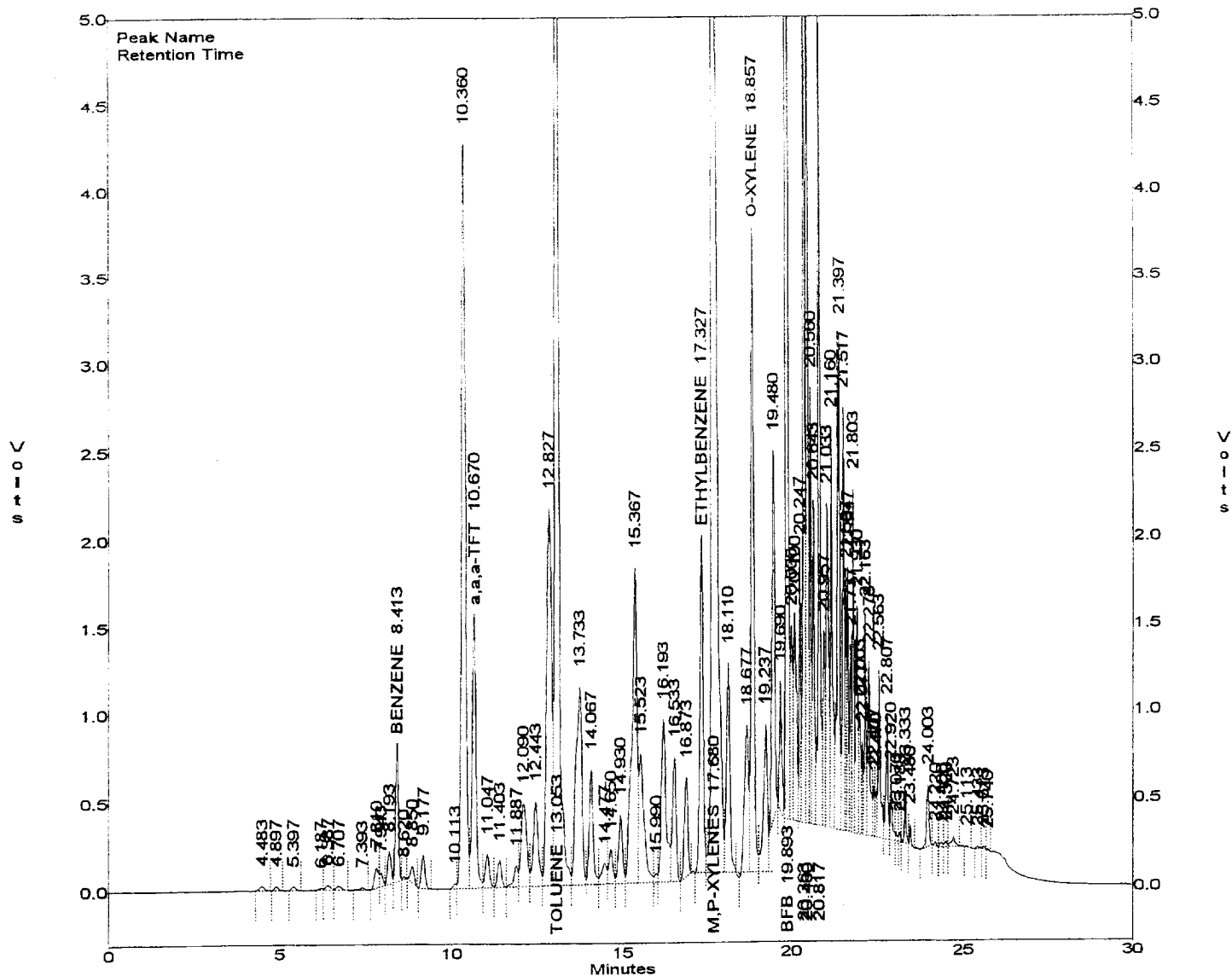
File : C:\LABQUEST\CHROM000\110695-0.007
 Method : C:\LABQUEST\METHODS\10-110295.MET
 Sample ID : 947220, 4.94G, 5U *mh*
 Acquired : Nov 06, 1995 19:58:52
 Printed : Nov 07, 1995 07:31:29
 User : MARLON

947720

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	8.413	4908293	10.3198
a,a,a-TFT	10.670	12172696	135.7477
TOLUENE	13.053	68987888	151.1898
ETHYLBENZENE	17.327	12730656	28.6935
M,P-XYLENES	17.680	103999240	203.5334
O-XYLENE	18.857	25424014	56.5461
BFB	19.893	52151552	98.6650

C:\LABQUEST\CHROM000\110695-0.007 -- Channel A



BTEX SOIL SAMPLE WORKSHEET

File	:	947720	Date Printed	:	11/7/95
Soil Mass (g)	:	4.94	Multiplier (L/g)	:	0.00101
Extraction vol. (mL)	:	10	CAL FACTOR (Analytical):	:	2000
Shot Volume (uL)	:	5	CAL FACTOR (Report):	:	2.02429

		DILUTION FACTOR:	10	Det. Limit
Benzene (ug/L)	:	10.32	Benzene (mg/Kg):	20.891 5.061
Toluene (ug/L)	:	151.19	Toluene (mg/Kg):	306.053 5.061
Ethylbenzene (ug/L)	:	28.69	Ethylbenzene (mg/Kg):	58.077 5.061
p & m-xylene (ug/L)	:	203.53	p & m-xylene (mg/Kg):	412.004 10.121
o-xylene (ug/L)	:	56.55	o-xylene (mg/Kg):	114.474 5.061
			Total xylenes (mg/Kg):	526.478 15.182
			Total BTEX (mg/Kg):	911.498

BTEX SOIL SAMPLE WORKSHEET

File	:	947720	Date Printed	:	11/7/95
Soil Mass (g)	:	4.94	Multiplier (L/g)	:	0.00101
Extraction vol. (mL)	:	10	CAL FACTOR (Analytical):	:	1000
Shot Volume (uL)	:	10	CAL FACTOR (Report):	:	1.01215

		DILUTION FACTOR:	5	Det. Limit
Benzene (ug/L)	:	23.84	Benzene (mg/Kg):	24.130 2.530
Toluene (ug/L)	:	271.11	Toluene (mg/Kg):	274.403 2.530 - over
Ethylbenzene (ug/L)	:	61.71	Ethylbenzene (mg/Kg):	62.460 2.530
p & m-xylene (ug/L)	:	278.67	p & m-xylene (mg/Kg):	282.055 5.061 - over
o-xylene (ug/L)	:	112.85	o-xylene (mg/Kg):	114.221 2.530
			Total xylenes (mg/Kg):	396.275 7.591
			Total BTEX (mg/Kg):	757.267

EL PASO NATURAL GAS

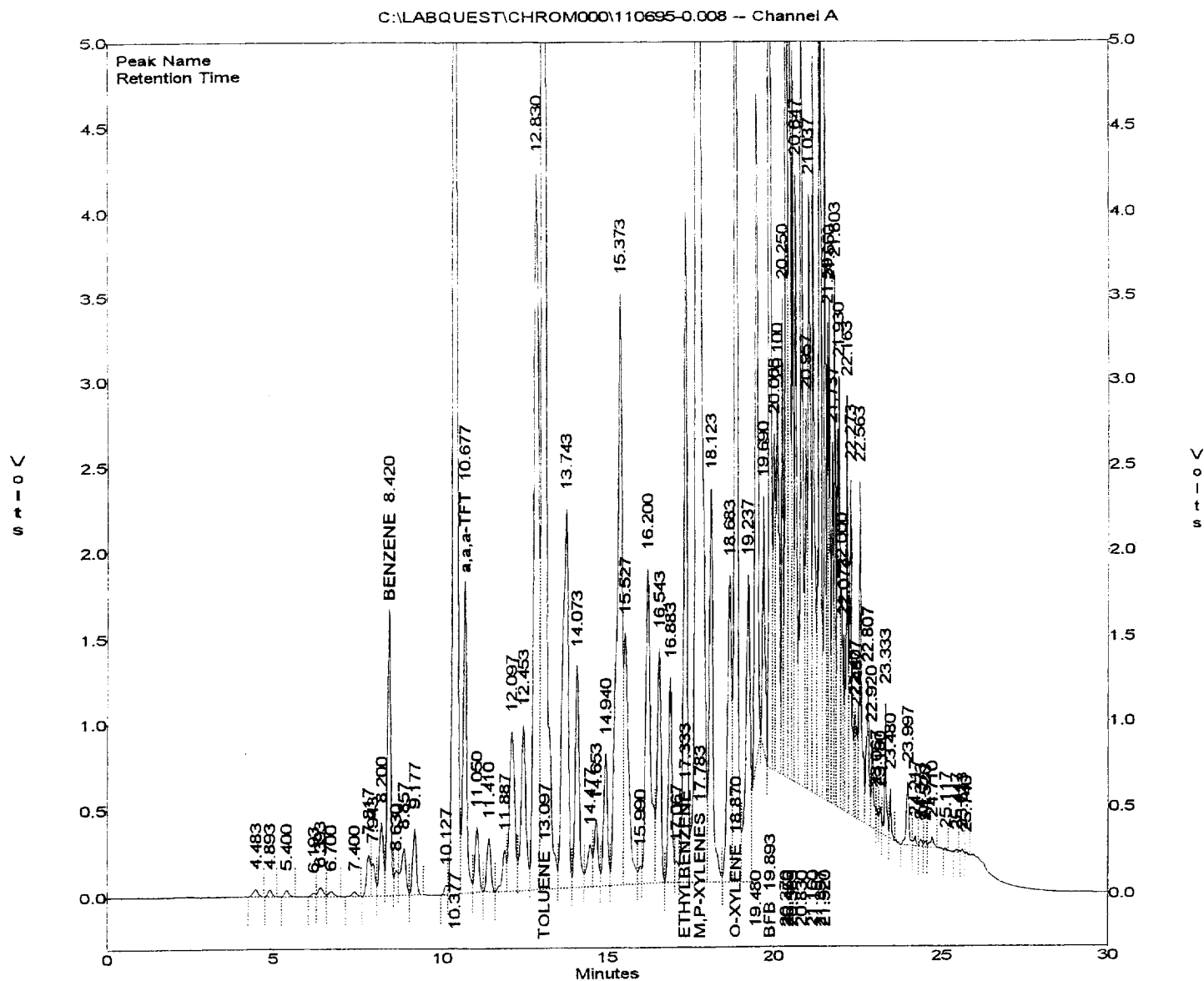
EPA METHOD 8020 - BTEX SOILS

File : C:\LABQUEST\CHROM000\110695-0.008
 od : C:\LABQUEST\METHODS\0-110295.MET
 Sample ID : 947220-4.94G,10U *mn*
 Acquired : Nov 06, 1995 20:40:16
 Printed : Nov 07, 1995 07:32:20
 User : MARLON

947720

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	8.420	11274850	23.8426
a,a,a-TFT	10.677	14179147	158.1232
TOLUENE	13.097	107619152	271.1089
ETHYLBENZENE	17.333	27180052	61.7078
M,P-XYLENES	17.783	142437488	278.6728
O-XYLENE	18.870	50685572	112.8478
BFB	19.893	50980988	96.4504



PROJECT NUMBER # 24324		PROJECT NAME Pit Closure Project		DATE: 11/1/95		TOTAL NUMBERS OF CONTAINERS		SAMPLE TYPE		REQUESTED ANALYSIS				REMARKS	
LAB		DATE	TIME	MATRIX	FIELD ID					TPH EPA 418.1	BTEX	EPA 8020	LAB PID	PPM HS	SEQUENCE #
947720	11/1/95	0738	SOIL	CMC173	1	V6	✓	✓	✓	545	154	15-17	Gallegos Canyon Unit D#160	14046	
947721	11/1/95	1105	SOIL	CMC174	1	V6	✓	✓	✓	1	155	15-16	Gallegos Canyon Unit #45E	93462	
RECEIVED BY: (Signature) <i>Chau</i> DATE/TIME 11/1/95 1330 RECEIVED BY: (Signature) <i>Chau</i> DATE/TIME 11/1/95 1330 RECEIVED BY: (Signature) <i>Chau</i> DATE/TIME 11/1/95 1330 RECEIVED BY: (Signature) <i>Chau</i> DATE/TIME 11/1/95 1330															
REQUESTED TURNAROUND TIME: ☐ ROUTINE ☐ RUSH CARRIER CO. _____															

FIELD PIT REMEDIATION/CLOSURE FORM/PHASE II

GENERAL	Meter: <u>14046</u> Location: <u>GALLIE GOS CANYON Unit D #160</u> Coordinates: Letter: <u>I</u> Section <u>27</u> Township: <u>29</u> Range: <u>12</u> Or Latitude _____ Longitude _____ Date Started : <u>10-16-96</u> Area: <u>02</u> Run: <u>33</u>
OBSERVATIONS	Sample Number(s): <u>MK 538^{H2O}</u> <u>MK 539</u> <u>MK 540</u> <u>MK 541</u> Sample Depth: <u>21'</u> Feet Final PID Reading <u>350 PPM</u> PID Reading Depth <u>21'</u> Feet Yes No Groundwater Encountered ☒ (1) ☐ (2) Approximate Depth <u>20'6"</u> Feet Final Dimensions: Length <u>3'6"</u> Width <u>37'</u> Depth <u>21'</u>
CLOSURE	Remediation Method : Excavation ☒ (1) Approx. Cubic Yards <u>1260</u> Onsite Bioremediation ☐ (2) Backfill Pit Without Excavation ☐ (3) Overburden Cubic Yards <u>40</u> Soil Disposition: Envirotech ☒ (1) ☐ (3) Tierra Other Facility ☐ (2) Name: _____ Pit Closure Date: <u>10-18-96</u> Pit Closed By: <u>Philip</u>
REMARKS	Remarks : <u>Arrived dug sample Hole to 21' Had Clean</u> <u>Bottom Thier is a sales line ON West Side OF pit and amoco</u> <u>Electric lines ON East Final sample result West-wall 140 PPM</u> <u>E-wall 37 PPM North-wall 650 PPM South-wall 89 PPM Bottom 53 PPM</u> Signature of Specialist: <u>Morgan Killion</u>



Natural Gas Company

Page _____ of _____

[illegible]

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

FD-302a (Rev. 05-01)



EL PASO FIELD SERVICES
FIELD SERVICES LABORATORY

ANALYTICAL REPORT
PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	MK538	947930
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	10/17/96	911
PROJECT:	PHASE III Excavation	
DATE OF BTEX EXT. ANAL.:	10/19/96	10/19/96
TYPE DESCRIPTION:	Grab	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	13.7	PPB	20	D		
TOLUENE	97.7	PPB	20	D		
ETHYL BENZENE	8.60	PPB	20	D		
TOTAL XYLENES	102	PPB	20	D		
TOTAL BTEX	222	PPB				

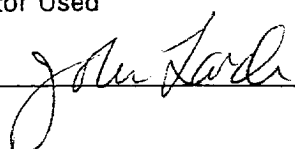
—BTEX is by EPA Method 8020 —

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

The Surrogate Recovery was at 114 % for this sample All QA/QC was acceptable.

Narrative: _____

DF = Dilution Factor Used

Approved By: 

Date: 10/24/96



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	Field ID	Lab ID
	MK539	947931
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	10/17/96	1555
PROJECT:	PHASE III Excavation	
DATE OF TPH EXT. ANAL.:	10/21/96	10/21/96
DATE OF BTEX EXT. ANAL.:	10/22/96	10/22/96
TYPE DESCRIPTION:	VC	Brown/yellow clay&sand

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	< 1	MG/KG				
TOLUENE	< 1	MG/KG				
ETHYL BENZENE	< 1	MG/KG				
TOTAL XYLENES	3.69	MG/KG				
TOTAL BTEX	3.95	MG/KG				
TPH (418.1)	91.4	MG/KG			2.05	28
HEADSPACE PID	350	PPM				
PERCENT SOLIDS	85.2	%				

— TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 115 % for this sample All QA/QC was acceptable.
Narrative:

L = Dilution Factor Used

Approved By: John Fakh

Date: 10/24/96

BTEX SOIL SAMPLE WORKSHEET

File	:	947931	Date Printed	:	10/24/96
Soil Mass (g)	:	5.09	Multiplier (L/g)	:	0.00098
Extraction vol. (mL)	:	10	CAL FACTOR (Analytical):	:	200
Shot Volume (uL)	:	50	CAL FACTOR (Report):	:	0.19646

		DILUTION FACTOR:	1	Det. Limit
Benzene (ug/L)	:	0.00	Benzene (mg/Kg):	0.000 0.491
Toluene (ug/L)	:	1.31	Toluene (mg/Kg):	0.257 0.491
Ethylbenzene (ug/L)	:	0.00	Ethylbenzene (mg/Kg):	0.000 0.491
p & m-xylene (ug/L)	:	15.1	p & m-xylene (mg/Kg):	2.967 0.982
o-xylene (ug/L)	:	3.70	o-xylene (mg/Kg):	0.727 0.491
			Total xylenes (mg/Kg):	3.694 1.473
			Total BTEX (mg/Kg):	3.951



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	MK540	947932
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	10/17/96	1555
PROJECT:	PHASE III Excavation	
DATE OF TPH EXT. ANAL.:	10/21/96	10/21/96
DATE OF BTEX EXT. ANAL.:	10/22/96	10/22/96
TYPE DESCRIPTION:	Duplicate	Brown/yellow clay&sand

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	< 1	MG/KG				
TOLUENE	< 1	MG/KG				
ETHYL BENZENE	< 1	MG/KG				
TOTAL XYLENES	2.99	MG/KG				
TOTAL BTEX	2.99	MG/KG				
TPH (418.1)	63.4	MG/KG			2.03	28
HEADSPACE PID	350	PPM				
PERCENT SOLIDS	86.7	%				

— TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 115 % for this sample All QA/QC was acceptable.

Narrative:

L = Dilution Factor Used

Approved By: John Smith

Date: 10/24/96

BTEX SOIL SAMPLE WORKSHEET

File	:	947932	Date Printed	:	10/24/96
Soil Mass (g)	:	5.08	Multiplier (L/g)	:	0.00098
Extraction vol. (mL)	:	10	CAL FACTOR (Analytical):		200
Shot Volume (uL)	:	50	CAL FACTOR (Report):		0.19685

		DILUTION FACTOR:	1	Det. Limit
Benzene (ug/L)	:	0.00	Benzene (mg/Kg):	0.000 0.492
Toluene (ug/L)	:	0.00	Toluene (mg/Kg):	0.000 0.492
Ethylbenzene (ug/L)	:	0.00	Ethylbenzene (mg/Kg):	0.000 0.492
p & m-xylene (ug/L)	:	12.0	p & m-xylene (mg/Kg):	2.362 0.984
o-xylene (ug/L)	:	3.20	o-xylene (mg/Kg):	0.630 0.492
			Total xylenes (mg/Kg):	2.992 1.476
			Total BTEX (mg/Kg):	2.992

EPFS

EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:	Field ID MK541	Lab ID 947933
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	10/17/96	1600
PROJECT:	PHASE III Excavation	
DATE OF TPH EXT. ANAL.:	10/21/96	10/21/96
DATE OF BTEX EXT. ANAL.:	10/22/96	10/22/96
TYPE DESCRIPTION:	Blank	Red sand

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q	M(g)	V(ml)
BENZENE	< 1	MG/KG				
TOLUENE	< 1	MG/KG				
ETHYL BENZENE	< 1	MG/KG				
TOTAL XYLENES	< 3	MG/KG				
TOTAL BTEX	< 6	MG/KG				
TPH (418.1)	15.7	MG/KG			2.15	28
HEADSPACE PID	NA	PPM				
PERCENT SOLIDS	94.6	%				

-- TPH is by EPA Method 418.1 and BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 113 % for this sample All QA/QC was acceptable.

Narrative:

☐ Dilution Factor Used
 Approved By: John Smith

Date: 10/24/96

BTEX SOIL SAMPLE WORKSHEET

File	:	947933	Date Printed	:	10/24/96
Soil Mass (g)	:	5.00	Multiplier (L/g)	:	0.00100
Extraction vol. (mL)	:	10	CAL FACTOR (Analytical):		200
Shot Volume (uL)	:	50	CAL FACTOR (Report):		0.20000

		DILUTION FACTOR:	1	Det. Limit
Benzene (ug/L)	:	0.00	Benzene (mg/Kg):	0.000 0.500
Toluene (ug/L)	:	0.00	Toluene (mg/Kg):	0.000 0.500
Ethylbenzene (ug/L)	:	0.00	Ethylbenzene (mg/Kg):	0.000 0.500
p & m-xylene (ug/L)	:	0.00	p & m-xylene (mg/Kg):	0.000 1.000
o-xylene (ug/L)	:	0.00	o-xylene (mg/Kg):	0.000 0.500
			Total xylenes (mg/Kg):	0.000 1.500
			Total BTEX (mg/Kg):	0.000

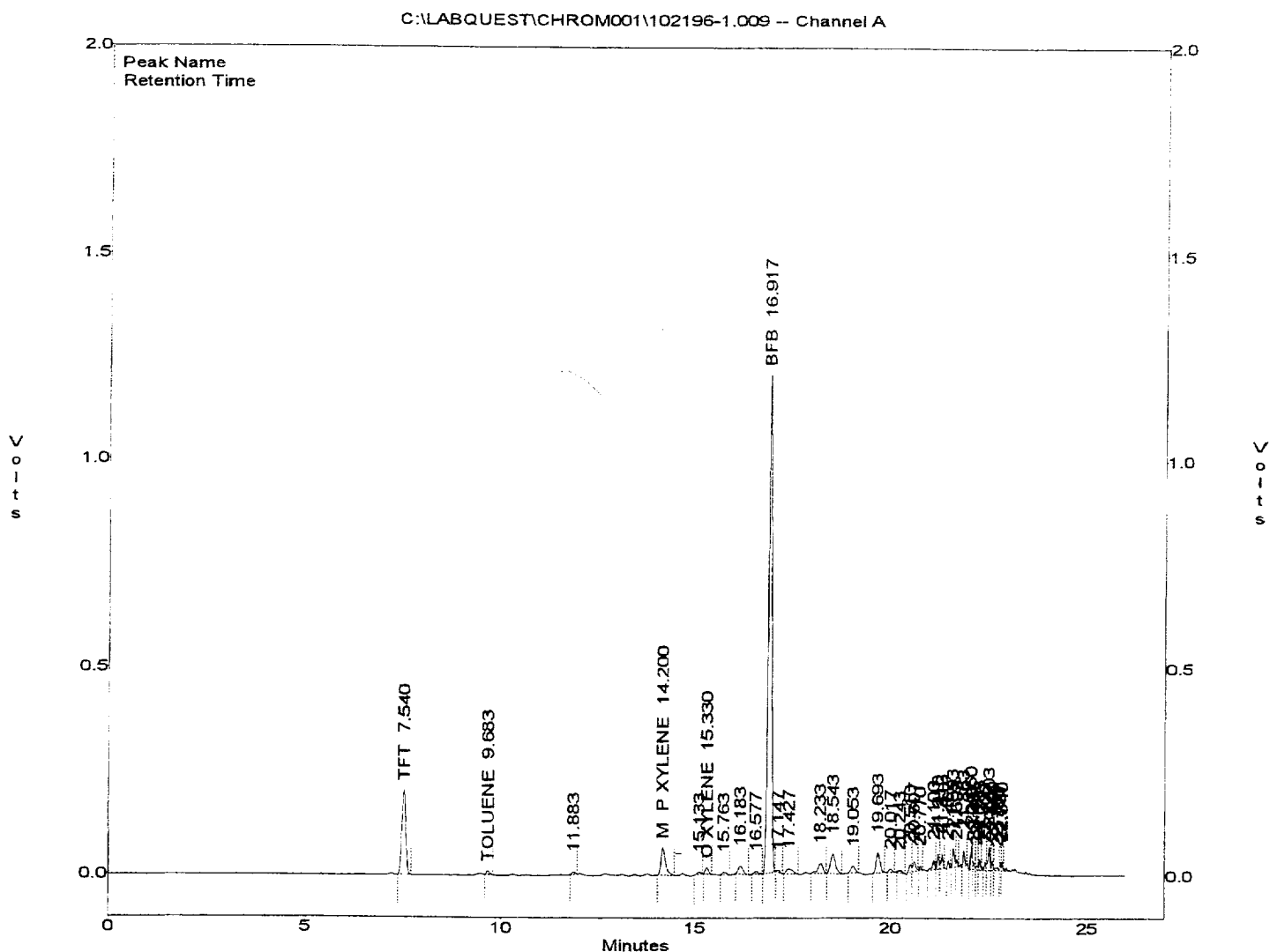
EL PASO NATURAL GAS

EPA METHOD 8020 - BTEX SOILS

File : C:\LABQUEST\CHROM001\102196-1.009
 Method : C:\LABQUEST\METHODS\1-100896.MET
 Sample ID : 947931,5.09G,50U
 Acquired : Oct 22, 1996 12:29:04
 Printed : Oct 22, 1996 12:55:33
 User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	5.567	0	0.0000
TFT	7.540	1423984	117.1946
TOLUENE	9.683	47493	1.3129
ETHYLBENZENE	13.847	0	0.0000
M & P XYLENE	14.200	538656	15.0549
O XYLENE	15.330	89617	3.7037
BFB	16.917	7889144	114.8238



Test Method for
Oil and Grease and Petroleum Hydrocarbons
in Water and Soil

Perkin-Elmer Model 1600 FT-IR

Analysis Report

96/10/21 11:33

Sample identification
947931

Initial mass of sample, g
2.050

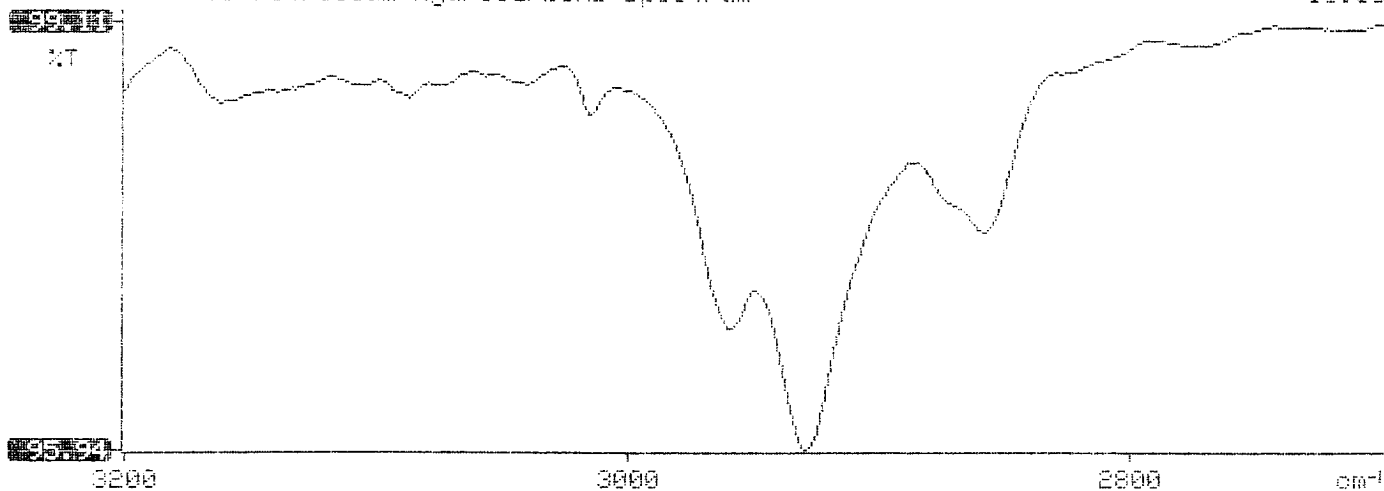
Volume of sample after extraction, ml
28.000

Petroleum hydrocarbons, ppm
91.390

Net absorbance of hydrocarbons (2930 cm⁻¹)
0.013

Y: Petroleum hydrocarbons spectrum

11:33



```

*****
*                               *
*      Test Method for         *
*      Oil and Grease and Petroleum Hydrocarbons *
*      in Water and Soil      *
*                               *
*      Perkin-Elmer Model 1600 FT-IR *
*      Analysis Report         *
*                               *
*****

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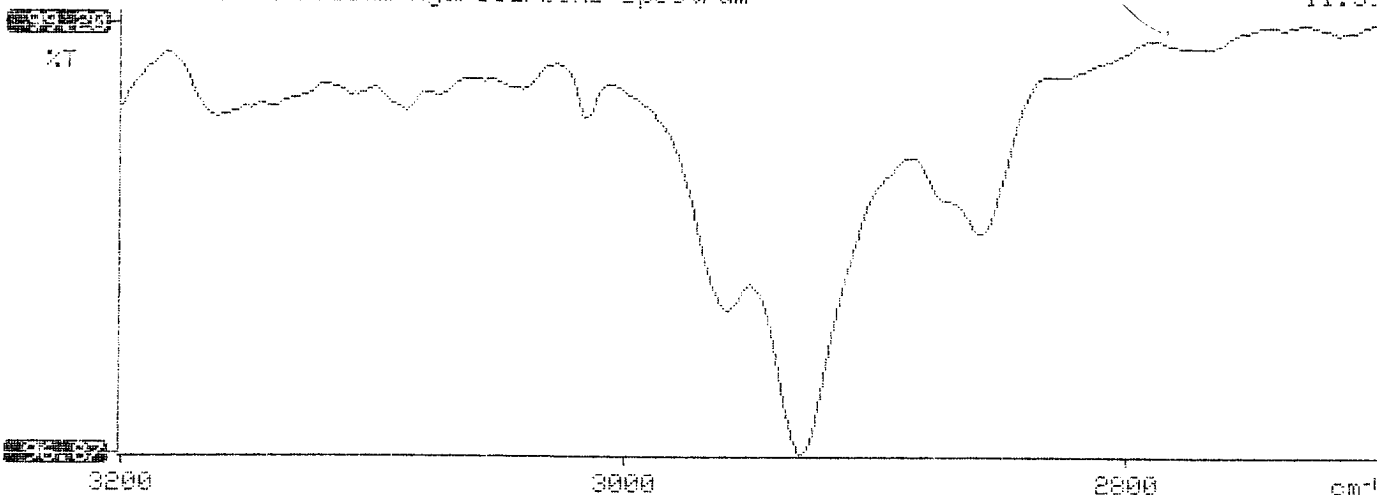
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96/10/21  11:39
*
* Sample identification
947932
*
* Initial mass of sample, g
2.030
*
* Volume of sample after extraction, ml
28.000
*
* Petroleum hydrocarbons, ppm
63.420
* Net absorbance of hydrocarbons (2930 cm-1)
0.009
*
*
*

```

Y: Petroleum hydrocarbons spectrum

11:39



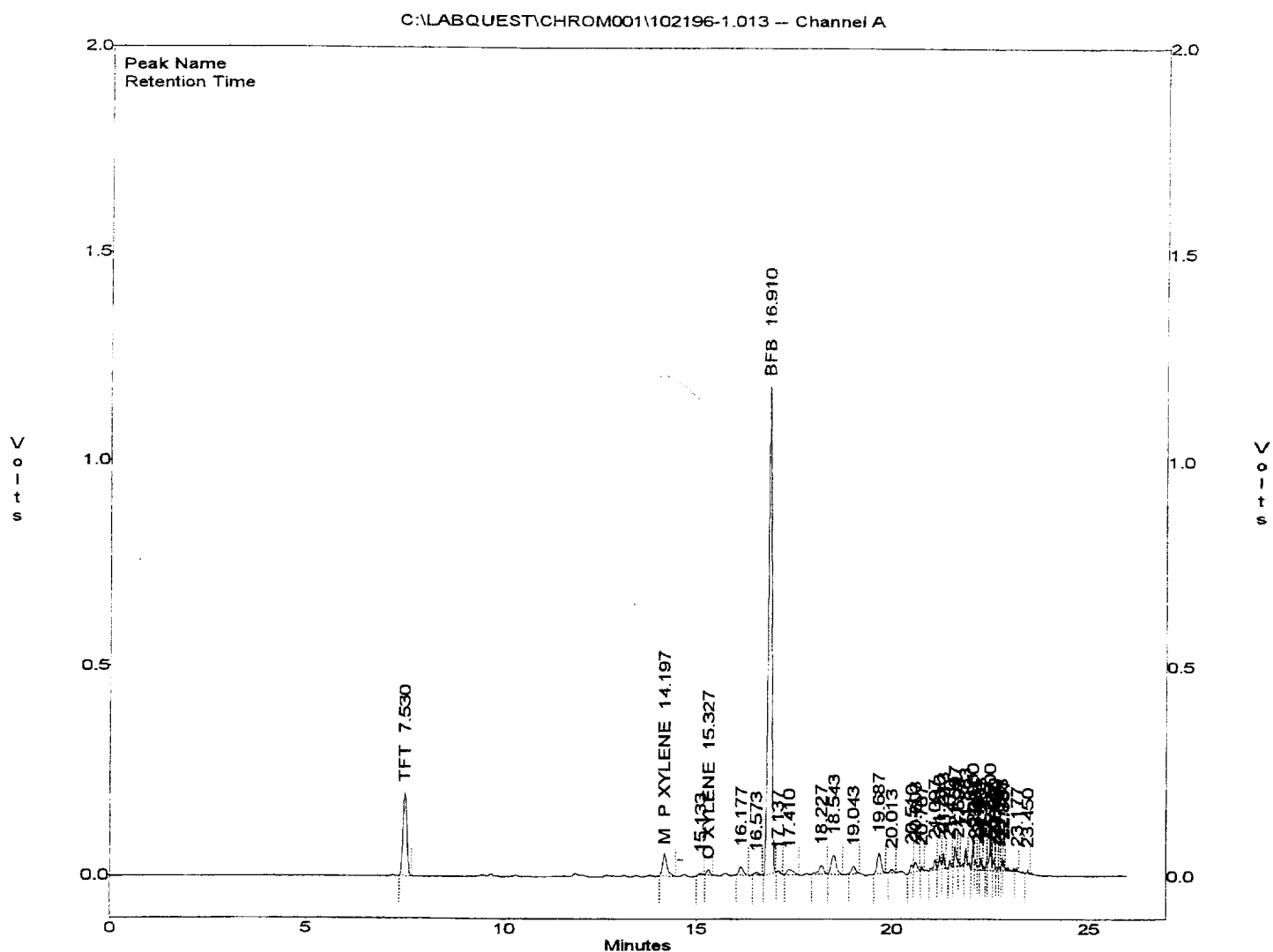
EL PASO NATURAL GAS

EPA METHOD 8020 - BTEX SOILS

File : C:\LABQUEST\CHROM001\102196-1.013
 Method : C:\LABQUEST\METHODS\1-100896.MET
 Sample ID : 947932,5.08G,50U
 Acquired : Oct 22, 1996 15:09:39
 Printed : Oct 22, 1996 15:36:08
 User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	5.567	0	0.0000
TFT	7.530	1400111	115.2298
TOLUENE	9.677	0	0.0000
ETHYLBENZENE	13.847	0	0.0000
M & P XYLENE	14.197	426406	12.0097
O XYLENE	15.327	74315	3.1989
BFB	16.910	7889551	114.8298

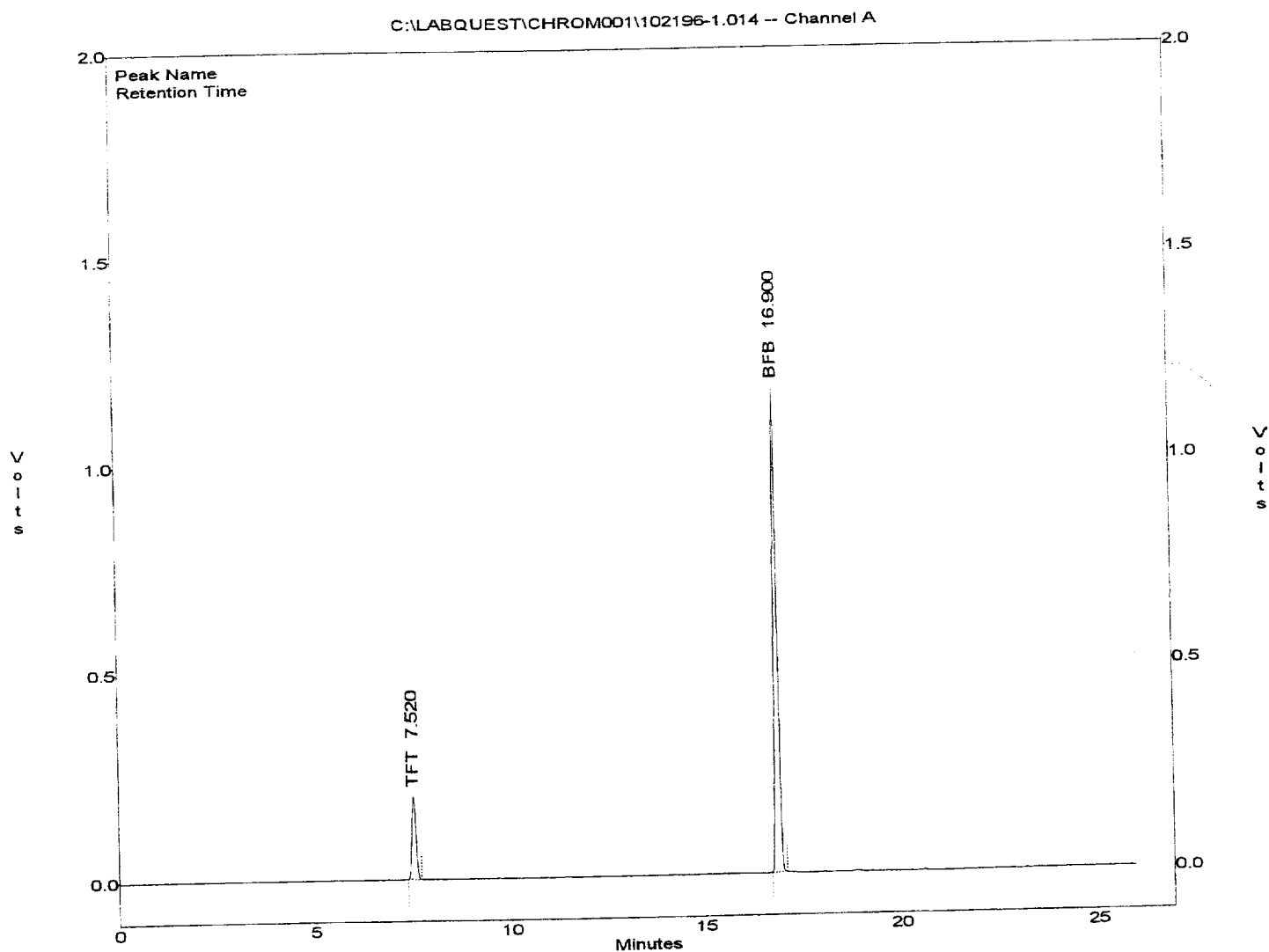


**EL PASO NATURAL GAS
EPA METHOD 8020 - BTEX SOILS**

File : C:\LABQUEST\CHROM001\102196-1.014
Method : C:\LABQUEST\METHODS\1-100896.MET
Sample ID : 947933,5.00G,50U
Acquired : Oct 22, 1996 15:50:08
Printed : Oct 22, 1996 16:16:34
User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	5.567	0	0.0000
TFT	7.520	1385094	113.9939
TOLUENE	9.677	0	0.0000
ETHYLBENZENE	13.847	0	0.0000
M & P XYLENE	14.230	0	0.0000
O XYLENE	15.367	0	0.0000
BFB	16.900	7768228	113.0639



Test Method for
Oil and Grease and Petroleum Hydrocarbons
in Water and Soil

Perkin-Elmer Model 1600 FT-IR
Analysis Report

96/10/21 11:41

Sample identification
947933

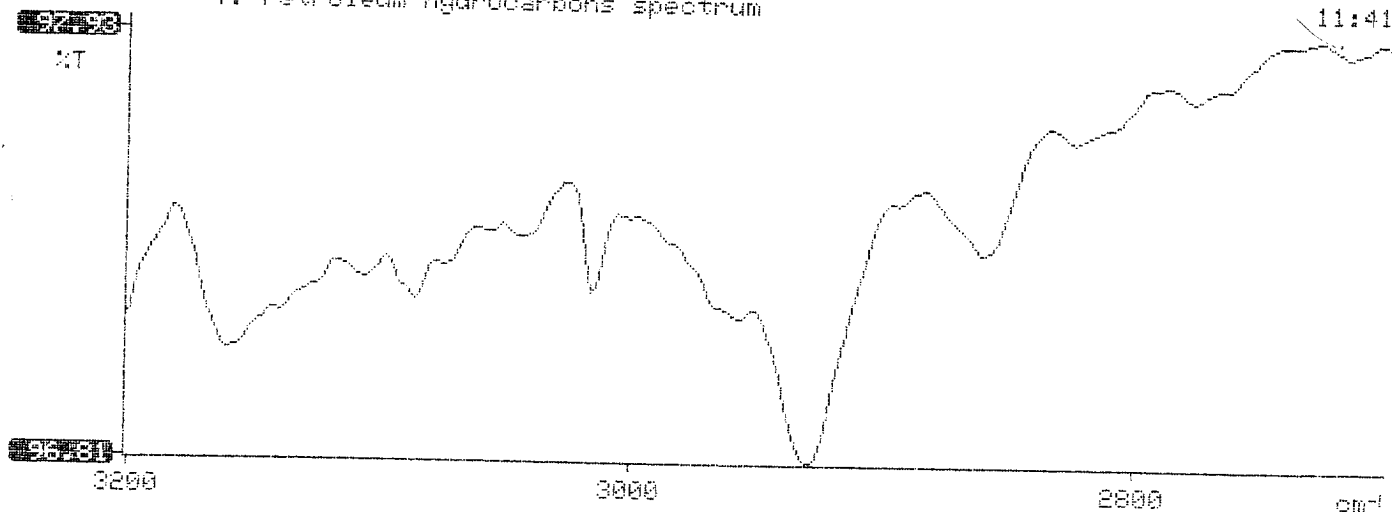
Initial mass of sample, g
2.150

Volume of sample after extraction, ml
28.000

Petroleum hydrocarbons, ppm
15.660

Net absorbance of hydrocarbons (2930 cm^{-1})
0.003

Y: Petroleum hydrocarbons spectrum



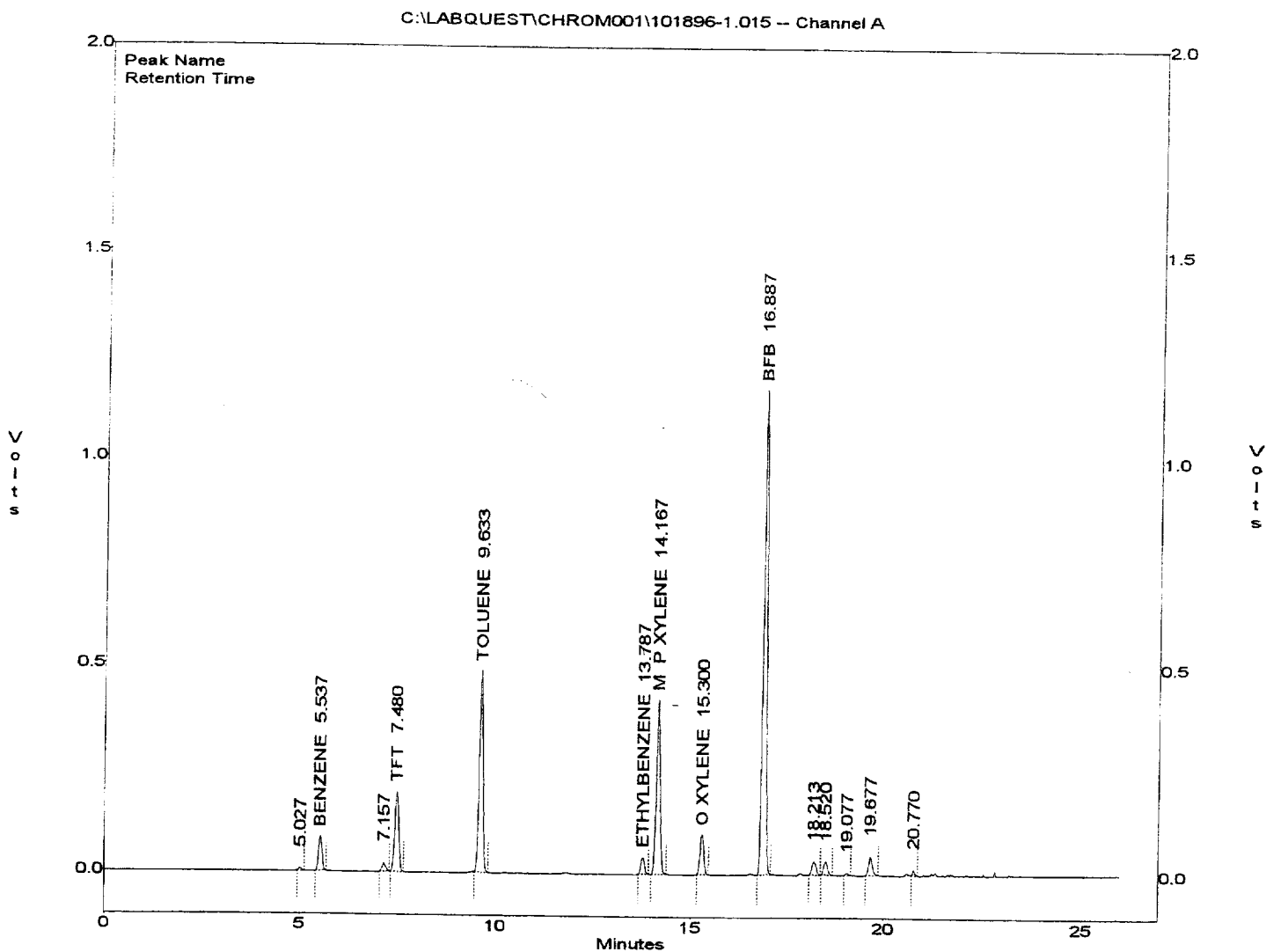
EL PASO NATURAL GAS

EPA METHOD 8020 - BTEX SOILS

File : C:\LABQUEST\CHROM001\101896-1.015
 Method : C:\LABQUEST\METHODS\1-100896.MET
 Sample ID : 947930 X20
 Acquired : Oct 19, 1996 01:22:48
 Printed : Oct 19, 1996 01:49:13
 User : MARLON

Channel A Results

COMPONENT	RET TIME	AREA	CONC (ug/L)
BENZENE	5.537	512546	13.7479
TFT	7.480	1376702	113.3033
TOLUENE	9.633	3223367	97.7431
ETHYLBENZENE	13.787	253901	8.6023
M & P XYLENE	14.167	2896191	80.7801
O XYLENE	15.300	625978	20.9203
BFB	16.887	7819608	113.8118



RECORD OF SUBSURFACE EXPLORATION

PHILIP ENVIRONMENTAL SERVICES INC.

4000 Monroe Road

Farmington, New Mexico 87401

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

Borehole # BH- 2
Well # 1
Page 1 of 1

Project Name EPFS GW PITS
Project Number 17520 Phase 6001.77
Project Location GCU UNIT D #160-14046

Elevation _____
Borehole Location T29 R12- S27- Ltr 1
GWL Depth 21' BGS
Logged By D CESARK
Drilled By M DONOHUE
Date/Time Started 2/26/97 - 1400
Date/Time Completed 1" - 1600

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

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

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (Inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM			Drilling Conditions & Blow Counts
							BZ	BH	S	
0				BACKFILL					1/15	< TIME 7
5				TO						
10				12'						
15	1	13'-15'	12"	(FILL MATERIAL) - TO 19'					0/	< 14207
20	2	18'-20'		CLAYEY, FINE-SAND, SAND-CLAY MIXTURES. DARK GRAY HC STAIN, MODERATE HC COLOR.	SC				24/51	< 14307
25				GRAVELS / COBBLES (NO SAMPLE)						
30				TD = 29'						
35										
40										

Comments:

AUGER REFUSAL IN COBBLES @ 29' BGS. GW ENCOUNTERED @ 21' BGS.
LAST RETRIEVABLE SAMPLE WAS HIGHLY CONTAMINATED, SO NOT SUBMITTED
TO LAB. SET WELL - PLEASE REFER TO WELL COMP. DIAGRAM.

Geologist Signature

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services, Inc.

4000 Monroe Rd.

Farmington, NM 87401

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

Borehole # 2
Well # 1
Page 1 of 1

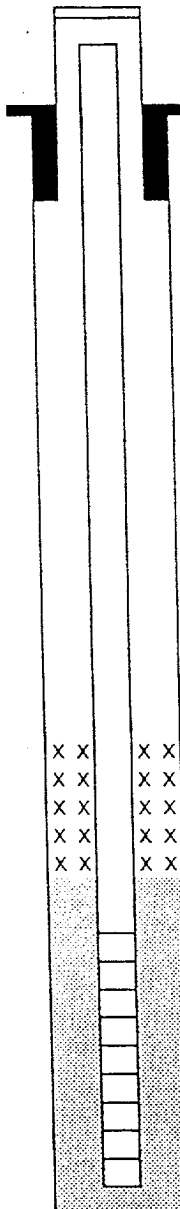
Project Name EPFS GW PITS
Project Number 17520 Phase 6002.77
Site Location GCU UNIT D#160 - 14046

Elevation _____
Well Location T29N-R12W-S27-L1'
GWL Depth -21'
Installed By M DONOHUE

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

Date/Time Started 2/26/97 - 1600
Date/Time Completed " - 1800

Depths in Reference to Ground Surface		
Item	Material	Depth (feet)
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		N/A
Bottom of Permanent Borehole Casing		N/A
Top of Concrete		
Bottom of Concrete		
Top of Grout		-1'
Bottom of Grout		-7'
Top of Well Riser	SCHED. 40 PVC	+3'
Bottom of Well Riser	"	-12'
Top of Well Screen	1010 SCREEN	-12'
Bottom of Well Screen	"	-27'
Top of Peltonite Seal	ENVIROPLUG	-7'
Bottom of Peltonite Seal	"	-9'
Top of Gravel Pack	10-20 SAND	-9'
Bottom of Gravel Pack	"	-27'
Top of Natural Cave-In		-27'
Bottom of Natural Cave-In		-29'
Top of Groundwater		-21'
Total Depth of Borehole		-29'



Top of Protective Casing N/A

Top of Riser +3'

Ground Surface -0'

Top of Seal -7'

Top of Gravel Pack -9'

Top of Screen -12'

Bottom of Screen -27'

Bottom of Borehole -29'

Comments: PROBLEMS w/ ROD BINDING IN GRAVELS/AUGER, HEAVING SANDS - HAD TO 'STEM' AUGERS w/ CLEAN WATER TO COMPLETE WELL.

Geologist Signature [Signature]

Site Activities

06-Mar-97

Meter/Line #: 14046

Location/Line #: Gallegos Canyon Unit D #160

MW#:

Depth to GW:

Depth to Product:

Product Thickness:

Date: 3/5/97

Activity: Well Completion

Sample Type:

Sample Depth:

Refusal Depth:

Comments:

Date _____



Water Sampling Data

Location No. 77 wellSerial No. WSD

Group List Number _____

Sample Type: ☒ Groundwater ☐ Surface Water ☐ Other _____ Date 3-10-97Project Name EPF's GWRITS Project No. 17520Project Manager Cork Chance Phase/Task No. 6003 77Site Name GCD #160

Sampling Specifications

Requested Sampling

Depth Interval (feet) 10' 3'

Requested Wait Following

Development/Purging (hours) —

Initial Measurements

Time Elapsed From Final Development/Purging ^{MIN}(hours) 20Initial Water Depth (feet) 21.41Nonaqueous Liquids Present (Describe) —

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings				Water Collection Data					Notes (Explain in Comments Below)
			Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/ cm)	Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	
See	well	development										+ purging d/t 2 sheet

Sample Containers

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

Preservatives: H = HCl; N = HNO₃; S = H₂SO₄; A = NaOH; O = Other (Specify); — = None

Analytical Parameter List	Container			Field Filtered		Preserved	Cooled During Collection		Sample #	Comments
	Number	Type	Volume (mL)	Yes	No		Yes	No		
BTEX	2	G	40		X	H	X		JAL-14046 -oi T1245	

Filter Type _____

Chain-of-Custody Form Number C 3059

Comments _____

Signature [Signature] Date 3-10-97 Reviewer _____ Date _____



EL PASO FIELD SERVICES



5-22-97

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	JAL 14046-01	970202
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	3/10/97	1245
PROJECT:	Phase II Drilling - Initial	
DATE OF BTEX EXT. ANAL.:	3/14/97	3/14/97
TYPE DESCRIPTION:	Monitor Well	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	72.8	PPB	5	D		
TOLUENE	<1	PPB	5	D		
ETHYL BENZENE	111	PPB	5	D		
TOTAL XYLENES	822	PPB	5	D		
TOTAL BTEX	1010	PPB				

—BTEX is by EPA Method 8020 —

The Surrogate Recovery was at 95.4 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:

Date:

4/5/97



Chain of Custody Record

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

COC Serial No. C 3059

Project Name		EPFS 9.0 PITS	
Project Number		17520	
Phase		Task 6003	
Task		77	
Samplers		J. Long	
Laboratory		Name EP/4	
Location		Farmington NM	
Sample Number (and depth)	Date	Time	Matrix
JAL T-IP BLANK	3-10-97	1115	WATER
JAL 14046.01	3-10-97	1245	WATER
JAL 08906.01	3-10-97	1610	WATER
JAL T-IP BLANK	3-11-97	1000	WATER
JAL 6053.01	3-11-97	1045	WATER
JAL 95210.01	3-11-97	1325	WATER
JAL 75220.01	3-11-97	1530	WATER
JAL T-IP BLANK	3-12-97	1150	WATER
JAL 71676.01	3-12-97	1155	WATER
JAL T-IP BLANK	3-13-97	1000	WATER
JAL 74016.01	3-13-97	1010	WATER

Relinquished by:

Received By:

Signature	Date	Time	Signature	Date	Time
	3-13-97	1420		3/13/97	1435

Samples Iced: ☒ Yes ☐ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide
- ☐ Sodium hydroxide (NaOH)
- ☒ Volatile Organic Analyte
- ☐ Hydrochloric acid (HCl)
- ☐ Metals
- ☐ Nitric acid (HNO3)
- ☐ TPH (418.1)
- ☐ Sulfuric acid (H2SO4)
- ☐ Other (Specify)
- ☐ Other (Specify)

Carrier: Hand Delivered

Shipping and Lab Notes:

Rec'd - Cool and In-TACT

Airbill No.

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

300 Monroe Rd.

Armington, 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 Gallagher Canyon Unit D 160
14046

On-Site Geologist C CHANCE

Personnel On-Site D. Charles, C. Govee

Contractors On-Site

Client Personnel On-Site

Elevation

Well Location Ltr I -S27-129-R12

GWL Depth 17.83' TDP

Installed By K. Padilla

Date/Time Started 9/29/97

Date/Time Complete 9/29/97

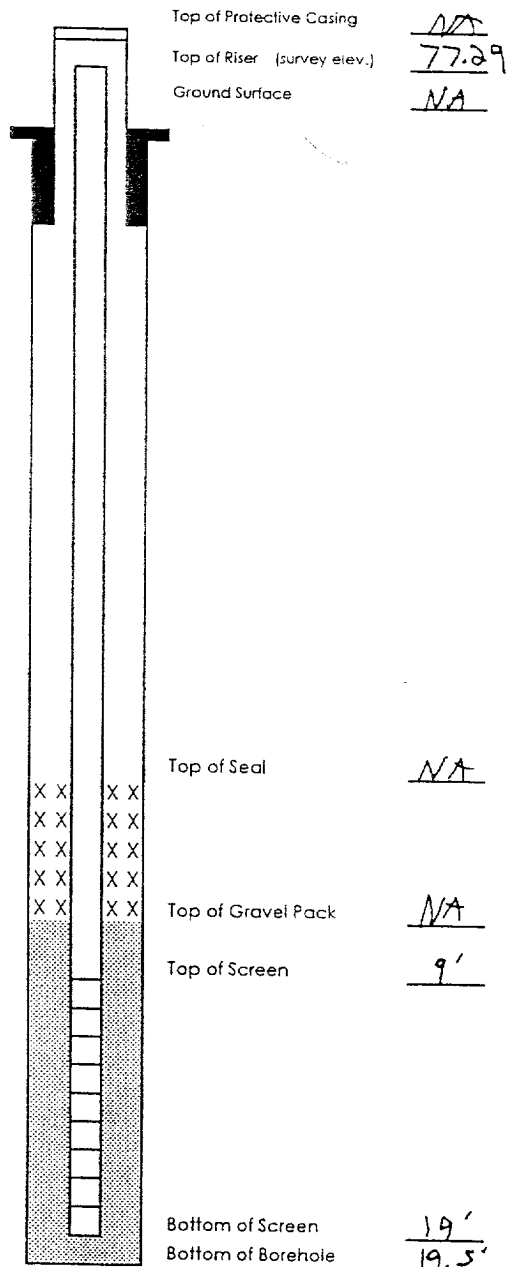
COMMENTS

PZ1 is 250' ± 49' From MW1

Collect soil sample @ 15-17'

BGS: OK br CLAY, soft,
high plastic, dry mod gypsum
parting. PID = 3 ppm

Install piezometer +
collect GW sample (CMC350)



Majority of site has been "land farmed".

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 Gallagher Canyon Unit D160
14046

On-Site Geologist C CHANCE

Personnel On-Site D. Charley, C. Gomez

Contractors On-Site

Client Personnel On-Site

Elevation

Well Location Ltr I -S27-T29-R12

GWL Depth 16.98 TOR

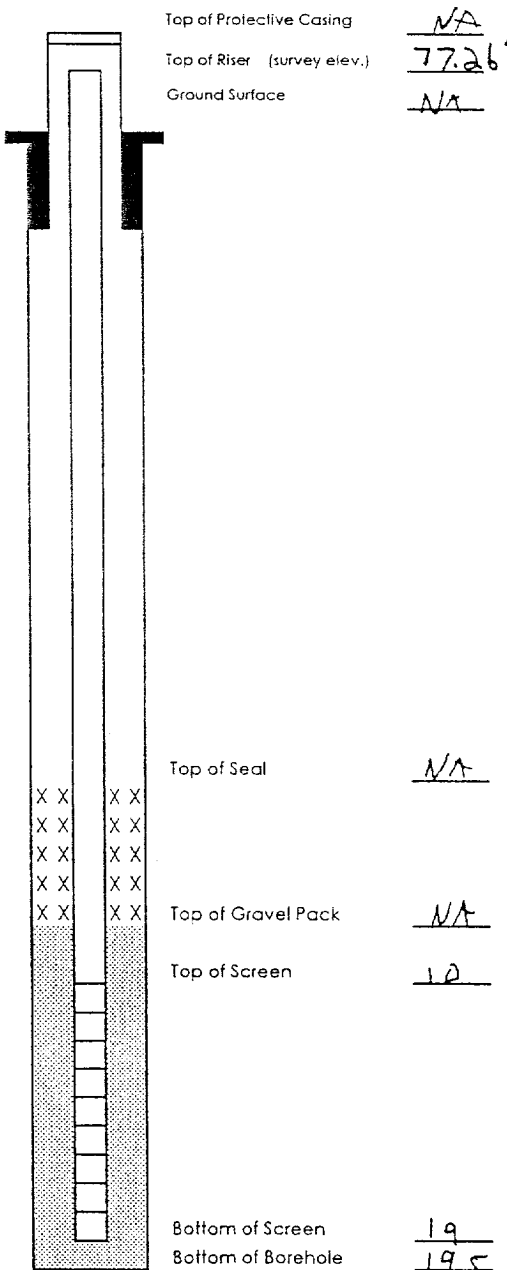
Installed By K Padilla

Date/Time Started 9/29/97

Date/Time Complete 9/29/97

COMMENTS

- PZ2 is 205° ↓ 52' from MW1
- Collect soil sample @ 15.17'
- BGS: Br/Tan mottled CLAY, med stiff, hi plastic, dry, med gypsum parting
- P10 = bl s.s.
- Install piezometer & collect GW sample (CMC 2bl)



MW1 ^{GW} ~~riser~~ elev. 77.54. MW1 GW @ 22.11 TOR

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

000 Monroe Rd.

Farmington, NM 87401

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

Elevation

Well Location Ltr I -S27-T29-R12

GWL Depth ~24' BGS

Installed By K P. J. J.

Date/Time Started 9/30/97

Date/Time Complete 9/30/97

Borehole #

Well # PZ-3

Page 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Gallegos Canyon Unit D110

14046

On-Site Geologist C CHANCE

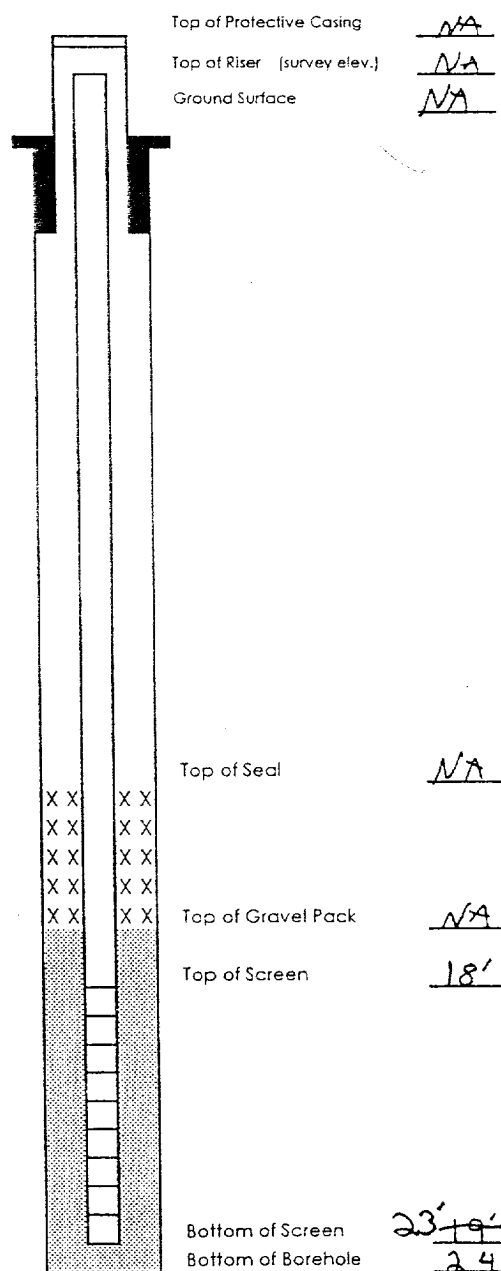
Personnel On-Site D Gomez, D Charley

Contractors On-Site

Client Personnel On-Site

COMMENTS

- P23 is 3° ↓ 35' From MW1
- Collect soil sample 20-22'
- BGS: DK Br CLAY, med stiff,
- hi plastic, dry, to ggs sum parting
- PIU = 2 ppm
- Install temp well pt +
- collect GW sample (CMC362)
- Pull well pt + gravel B-H



Note: P23 is ~5' higher in elev. than MW1

TEMPORARY PIEZOMETER INSTALLATION

Philip Services Corp.

4000 Monroe Rd.

Farmington, NM 87401

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

Elevation

Well Location Ltr I -S27-T29-R12

GWL Depth

Installed By K. Padilla

Date/Time Started 9/30/97

Date/Time Complete 9/30/97

Borehole #

Well # PZ-4

Pag 1 of 1

Project Name EPFS GW PITS

Project Number 17520 Phase 6006

Site Location Gallegos Canyon Unit D160
14846

On-Site Geologist C CHANCE

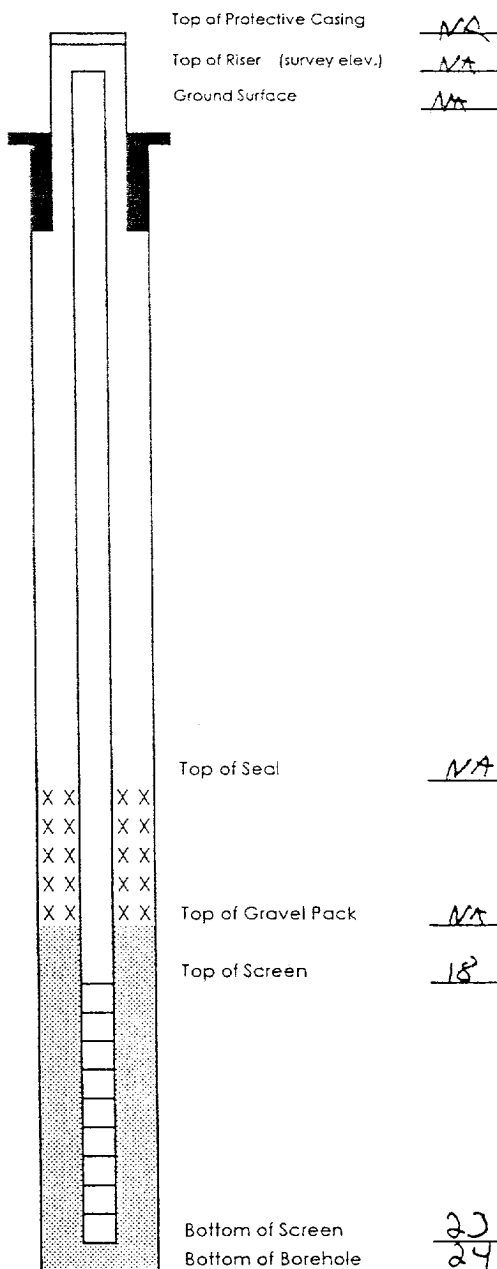
Personnel On-Site C Gomez, D Charley

Contractors On-Site

Client Personnel On-Site

COMMENTS

- PZ4 is 130° + 26' from MW1
- Collect soil sample from 15-17' BGS: Br clayey SILT, med dense, dry
PID = 7 ppm
- Install temp well pt + collect GW sample (Cmr363)
- Pull well pt + grout BH



CT NUMBER		PROJECT NAME		DATE		FIELD ID		TOTAL NUMBERS OF CONTAINERS		SAMPLE TYPE		REQUESTED ANALYSIS				REMARKS	
4324		Pit Closure Project		9/29/97													
LAB ID		DATE		TIME		MATRIX											
1072		9/29/97		-		Water		1		TB						Trip Blank	
1073		1115		1		CMC 358		2		V6						GCU A142E Q3906 P25	
1074		1215		1		CMC 359		2		V6						" P26	
1075		1410		1		CMC 360		2		V6						GCU D160 14046 P21	
1076		1530		✓		CMC 361		2		V6						" P22	
<i>See 9/29/97</i>																	
Note: GW reacted w/ HCL. VERY difficult to remove all bubbles																	

SIGNED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
<i>Long Chan</i>		9/29/97		<i>Chris Nobles</i>		9-30-97 10:05		<i>[Signature]</i>	
<i>[Signature]</i>				<i>[Signature]</i>		9-30-97 10:08		<i>[Signature]</i>	

SIGNED TURNAROUND TIME:		SAMPLE RECEIPT REMARKS	
JUNE ☐ RUSH		Temp. 34°C	
ER CO.		Intact ✓ Cool	

RESULTS & INVOICES TO:	
FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P. O. BOX 4990 FARMINGTON, NEW MEXICO 87499	



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC360	971075
MTR CODE SITE NAME:	14046	GCU D #160
SAMPLE DATE TIME (Hrs):	9/29/97	1410
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	10/1/97	10/1/97
TYPE DESCRIPTION:	PZ-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	< 1	PPB				
TOLUENE	1.20	PPB				
ETHYL BENZENE	< 1	PPB				
TOTAL XYLENES	< 3	PPB				
TOTAL BTEX	1	PPB				

--BTEX is by EPA Method 8020 --

Surrogate Recovery was at 92.8 % for this sample All QA/QC was acceptable.
= Dilution Factor Used

ative:

proved By:

Date:

10-3-97

971075BTEXWP,10/2/97



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY

ANALYTICAL REPORT

PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC361	971076
MTR CODE SITE NAME:	14046	GCU D #160
SAMPLE DATE TIME (Hrs):	9/29/97	1530
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	10/1/97	10/1/97
TYPE DESCRIPTION:	PZ-2	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	< 1	PPB				
TOLUENE	< 1	PPB				
ETHYL BENZENE	14.7	PPB				
TOTAL XYLENES	20.1	PPB				
TOTAL BTEX	35	PPB				

--BTEX is by EPA Method 8020 --

Surrogate Recovery was at 101.8 % for this sample All QA/QC was acceptable.
F = Dilution Factor Used

Narrative: _____

Approved By: John Larch

Date: 10-3-97

971075BTEXWP, 10/2/97

Well PTS

PROJECT NAME Pit Closure Project		DATE 9/20/97		FIELD ID		TOTAL NUMBERS OF CONTAINERS		SAMPLE TYPE		REQUESTED ANALYSIS				REMARKS	
LAB ID	DATE	TIME	MATRIX	DATE	FIELD ID	TPH EPA 418.1	BTEX EPA 8020	LAB PID	SEQUENCE #						
71088	9/20/97	~	Water		Trip Blank		✓			Trip Blank					
71086	↓	1000	↓		CMC362		✓			GCV D160 14046 P23					
71087	↓	1145	↓		CMC363		✓			11 P24					
RECEIVED OCT 10 1997															
Note: P24 GW reacted w/ HCL															

RECEIVED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
<i>Cony Chase</i>	9/20/97 1400	<i>Cony Chase</i>	10/2/97 1145

REQUESTED TURNAROUND TIME:	ROUTINE ☐ RUSH ☐	FIELD CO.	RESULTS & INVOICES TO:
			FIELD SERVICES LABORATORY EL PASO NATURAL GAS COMPANY P.O. BOX 4990 FARMINGTON, NEW MEXICO 87499

CHARGE CODE	NO.



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

SAMPLE NUMBER:

CMC362

Lab ID

971086

MTR CODE | SITE NAME:

14046

GCU Unit D #160

SAMPLE DATE | TIME (Hrs):

9/30/97

1000

PROJECT:

Well Points

DATE OF BTEX EXT. | ANAL.:

10/6/97

10/6/97

TYPE | DESCRIPTION:

PZ-3

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 98.8 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By:

John Tardella

Date: 10-7-97

971086BTEXWP,10/7/97



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	CMC363	971087
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	9/30/97	1145
PROJECT:	Well Points	
DATE OF BTEX EXT. ANAL.:	10/6/97	10/6/97
TYPE DESCRIPTION:	PZ-4	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	2.81	PPB				
TOLUENE	< 1	PPB				
ETHYL BENZENE	< 1	PPB				
TOTAL XYLENES	< 3	PPB				
TOTAL BTEX	3	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 97.2 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative: _____

Approved By: _____

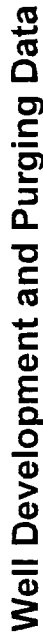
Date: _____

10-8-97

971087BTEXWP, 10/8/97

Sample #	Meter/ Line #	Site Name	Sample Date	Project	S1	Benzene (PPB)	S2	Toluene (PPB)	S3	Ethyl Benzene (PPB)	S4	Total Xylenes (PPB)	S7	Total BTX PPB
970202 *	14046	GCU Unit D #160	3/10/97	Phase II Drilling - Initial	=	72.8	<	1	=	111	=	822	=	1007
970817 *	14046	GCU Unit D #160	8/6/97	Sample 4 - 1st Qtr	=	2.65	=	1.97	=	30.1	<	6	=	35
971194 *	14046	GCU Unit D #160	11/6/97	Sample 4 - 2nd Qtr	<	1	<	1	=	1.1	<	3	<	6
980161	14046	GCU Unit D #160	2/13/98	Sample 4 - 3rd Qtr	=	2.35	=	2.98	<	1	<	3	<	5
980351	14046	GCU Unit D #160	5/6/98	Sample 4 - 4th Qtr	<	1	=	1.86	<	1	<	3	=	2

* Analytical reports provided to NMOCD in prior annual report.



☐	Development
☒	Purging

Well Number 111-1

Meter Code 14046

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 |

Water Volume Calculation

Initial Depth of Well (feet) 30.20

Initial Depth to Water (feet) 20.56

Height of Water Column in Well (feet) 9.64

4 Diameter (inches): Well Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		6.4	19.1
Gravel Pack			
Drilling Fluids			
Total			

Instruments

- | | |
|-------------------------------------|-------------------------------|
| ☒ | pH Meter |
| ☐ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>D.O. CHEMETS KIT</u> |

Water Disposal
K072 SEPARATOR

Water Removal Data

[illegible]

Comments: THE WELL BAILED ONLY 6.0 GALLONS.

Developer's Signature Tennis Bird

Date 2-13-98 Reviewer _____

John Fentler

Date 3/2/98



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980161
MTR CODE SITE NAME:	14046	GCU Unit D #160
SAMPLE DATE TIME (Hrs):	2/13/98	1147
PROJECT:	Sample 4 3rd Quarter	
DATE OF BTEX EXT. ANAL.:	2/19/98	2/19/98
TYPE DESCRIPTION:	MW-1	Water

Field Remarks:

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	2.35	PPB				
TOLUENE	2.98	PPB				
ETHYL BENZENE	< 1	PPB				
TOTAL XYLENES	< 3	PPB				
TOTAL BTEX	5	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 79.5 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By:

John F. Smith

Date:

3/2/98

980161BTEXMW, 2/19/98



SAMPLE 4 3RD TR

A 2611 3-9-98

CHAIN OF CUSTODY RECORD

Project No.	Project Name	Requested Analysis			Type and No. of Sample Containers	Preservation Technique	Remarks
		Date	Time	GRAB			
SAMPLERS (Signature): <i>Denise Bied</i>		Date: 2-13-98					
<i>DATE 2-13-98</i>	<i>1147</i>	<i>X</i>	<i>950161</i>	<i>5-1</i>	<i>40C X</i>	<i>SCU UNIT D #180 MW-1</i>	
[The following 15 rows of the table are crossed out with a diagonal line.]							
Relinquished by: (Signature) <i>Denise Bied</i>		Date/Time <i>2-13-98 1721</i>		Received by: (Signature)		Date/Time	
Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	
Relinquished by: (Signature)		Date/Time		Relinquished by: (Signature)		Date/Time	
Carrier Co:		Carrier Phone No.		Date Results Reported / by: (Signature)			
Air Bill No.:							

☐	Development
☒	Purging

Well Number NW-1
Meter Code 14046

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 |

Water Volume Calculation

Initial Depth of Well (feet) 30.20
Initial Depth to Water (feet) 21.49
Height of Water Column in Well (feet) 8.71

4 Diameter (inches): Well Gravel Pack

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

Instruments

- | | |
|-------------------------------------|--------------------|
| ☒ | pH Meter |
| ☐ | DO Monitor |
| ☒ | Conductivity Meter |
| ☒ | Temperature Meter |
| ☒ | Other <u>D.O.C</u> |

Water Disposal

KOTZ SEPARATOR

Water Removal Data

[illegible]

Comments THE WELL BAILED DRY @ 6.0 GALLONS.

Developer's Signature Dennis Bird

Date 5-6-98 Reviewer John Fawcett

Date 5/11/48



EL PASO FIELD SERVICES

FIELD SERVICES LABORATORY ANALYTICAL REPORT PIT CLOSURE PROJECT

SAMPLE IDENTIFICATION

	Field ID	Lab ID
SAMPLE NUMBER:	N/A	980351
MTR CODE SITE NAME:	14046	GCU D #160
SAMPLE DATE TIME (Hrs):	5/6/98	1120
PROJECT:	Sample 4 4th Quarter	
DATE OF BTEX EXT. ANAL.:	5/7/98	5/7/98
TYPE DESCRIPTION:	MW-1	Water

Field Remarks: _____

RESULTS

PARAMETER	RESULT	UNITS	QUALIFIERS			
			DF	Q		
BENZENE	< 1	PPB				
TOLUENE	1.86	PPB				
ETHYL BENZENE	< 1	PPB				
TOTAL XYLENES	< 3	PPB				
TOTAL BTEX	2	PPB				

--BTEX is by EPA Method 8020 --

The Surrogate Recovery was at 94.1 % for this sample All QA/QC was acceptable.
DF = Dilution Factor Used

Narrative:

Approved By: _____

John Lard

Date: _____

5/11/98

980351BTEXMW,5/8/98

CHAIN OF CUSTODY RECORD *5-18-91* *Chen.*

Project No.	Project Name		Requested Analysis		Remarks
Samplers: (Signature)	Date	Time	Comp. GRAB	Sample Number	
MC#14046	Dennis Bird				
DATE 5-6-98	5-6-98	1120	X	980351	
Preservation Technique 4°C X Type and No. of Sample Containers 5-1					
Requested Analysis GEN. ANAL. #160 MW-1					
Relinquished by: (Signature) Date/Time Received by: (Signature) Date/Time Received by: (Signature)					
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:					
Carrier Co. Carrier Phone No.					
Air Bill No.: Date Results Reported / by: (Signature)					