

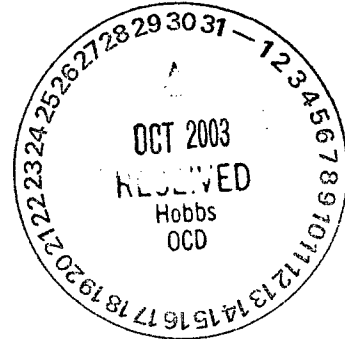


Highlander Environmental Corp.

Midland, Texas

October 14, 2003

Mr. Larry Johnson
Environmental Engineer Specialist
Oil Conservation Division- District I
1625 N. French Drive
P. O. Box 1980
Hobbs, New Mexico 88240



RE: Assessment and Work Plan for the (Arch) Pogo Producing Company, Manda B Tract C Tank Battery located in Section 28, Township 22 South, Range 37 East, Unit Letter C, Lea County, New Mexico.

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by (Arch) Pogo Producing Company to assess a spill on the Manda B Tract C Tank Battery located in Section 28, Township 22 South, Range 37 East, Unit Letter C, Lea County, New Mexico (Site). The State of New Mexico C-141 (Initial) is shown in Appendix A. The Site is shown in Figure 1.

Background

According to the State of New Mexico C-141 report, the spill occurred on September 22, 2003 from an overflow of an oil tank. The facility had no firewall constructed around the tanks. An unknown volume of oil was released and 3 barrels of oil was recovered. The fluids from the release flowed to the southwest corner of the battery and then flowed down the lease road. The impacted area at the battery measured approximately 15' x 30' and the area on the lease road measured approximately 325' long by 1' to 2' wide. The spill areas on the pad and lease road were immediately back dragged with a backhoe. The spill areas are shown on Figure 2.

Groundwater and Regulatory

According to published data from "Geology and Groundwater Resources of Lea County, New Mexico", dated 1952, one water well with a water level of 66.1' was reported in Section 28, Township 22 South, Range 37 East. The New Mexico State Engineer Office database did not show any wells in Section 28, Township 22 South, Range 37 East. However, several wells were reported in the surrounding Sections, with average depth to groundwater of 65' (Section 21), 65' (Section 26) and 60' (Section 34). The well records are shown in Appendix B.

*Pogo - 17891
facility - FPAC0605332835*

*incident - nPA C0605332930
application - pPA C0605333131*

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Assessment

On September 24, 2003, Highlander personnel installed an auger hole using a stainless steel bucket-type hand auger to evaluate and attempt to delineate the extent of impacted soil. The auger hole was placed inside the tank battery fence line. Soil samples were collected at depths of 0-1' and 2-2.5', 4-4.5', 5-5.5' and 6.5' below surface for TPH evaluation by method 8015M, BTEX by method 8021B and chloride by method SW 846-9252. The soil sample results are shown in Table 1. The laboratory reports and the chain of custody documentation are included in Appendix C.

Soil Sample Results

Referring to Table 1, the sample at 0-1', exceeded the RRAL for TPH and total BTEX with TPH at 25,440 mg/kg and total BTEX at 503.5 mg/kg. The deeper sample at 2-2.5' showed TPH to be below the method detection limit.

The chloride concentrations decreased from a high of 10,600 mg/kg at 4-4.5' and 5-5.5' to 3,100 mg/kg at 6-6.5'. Deeper samples could not be collected due to the dense, caliche formation. The chloride impact appears to be from older spills from the tank battery.

Conclusions and Recommendations

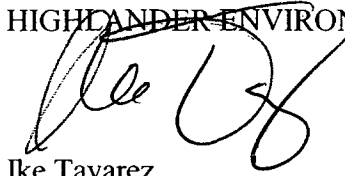
The hydrocarbon evaluation at the Site indicated a shallow impact with concentrations decreasing to below the method detection limit at a depth of 2.0' below surface. Based on the TPH analysis at 2.0' below surface, the BTEX would not be a concern at this depth. The chloride detected appears to be from older spills. The concentrations were elevated, however, declined significantly with depth. Deeper samples could be collected due to a dense, caliche formation.

Pogo proposes excavating the impacted soils from surface to approximately 6.0' below surface and dispose of these soils at Sundance Services, Inc. located in Eunice, New Mexico. Due to the tank location, the area of excavation is estimated at 12' x 15'. Once completed, soil samples will be collected with the backhoe in the excavation bottom and to attempt to vertically define extent of the chloride impact.



If you require any additional information or have any questions or comments concerning the assessment report, please call.

HIGHLANDER ENVIRONMENTAL CORP,



Ike Tavarez
Project Manager/Geologist

cc: Don Riggs – Pogo Producing Company
Rex Jasper – Pogo Producing Company



TABLE

Table 1
Pogo Producing Company
Manda B Tract C Tank Battery
Summary of Chloride, BTEX and TPH Analysis of Soil Samples
Lea County, New Mexico

Sample ID	Sample Depth, feet BGL	Sample Date	TPH			Benzene mg/kg	Toluene mg/kg	Ethyl-benzene mg/kg	Xylene mg/kg	Total BTEX mg/kg	Chloride mg/kg
			GRO mg/kg	DRO mg/kg	Total mg/kg						
AH-1	0-1'	9/24/03	8,640	16,800	25,440	18.3	141	105	239.2	503.5	6,380
AH-1	2-2.5	9/24/03	<10.0	<10.0	<10.0	-	-	-	-	-	6,420
AH-1	4-4.5'	9/24/03	-	-	-	-	-	-	-	-	10,600
AH-1	5-5.5	9/24/03	-	-	-	-	-	-	-	-	10,600
AH-1	6-6.5	9/24/03	-	-	-	-	-	-	-	-	3,100

(-) Not Analyzed

FIGURES

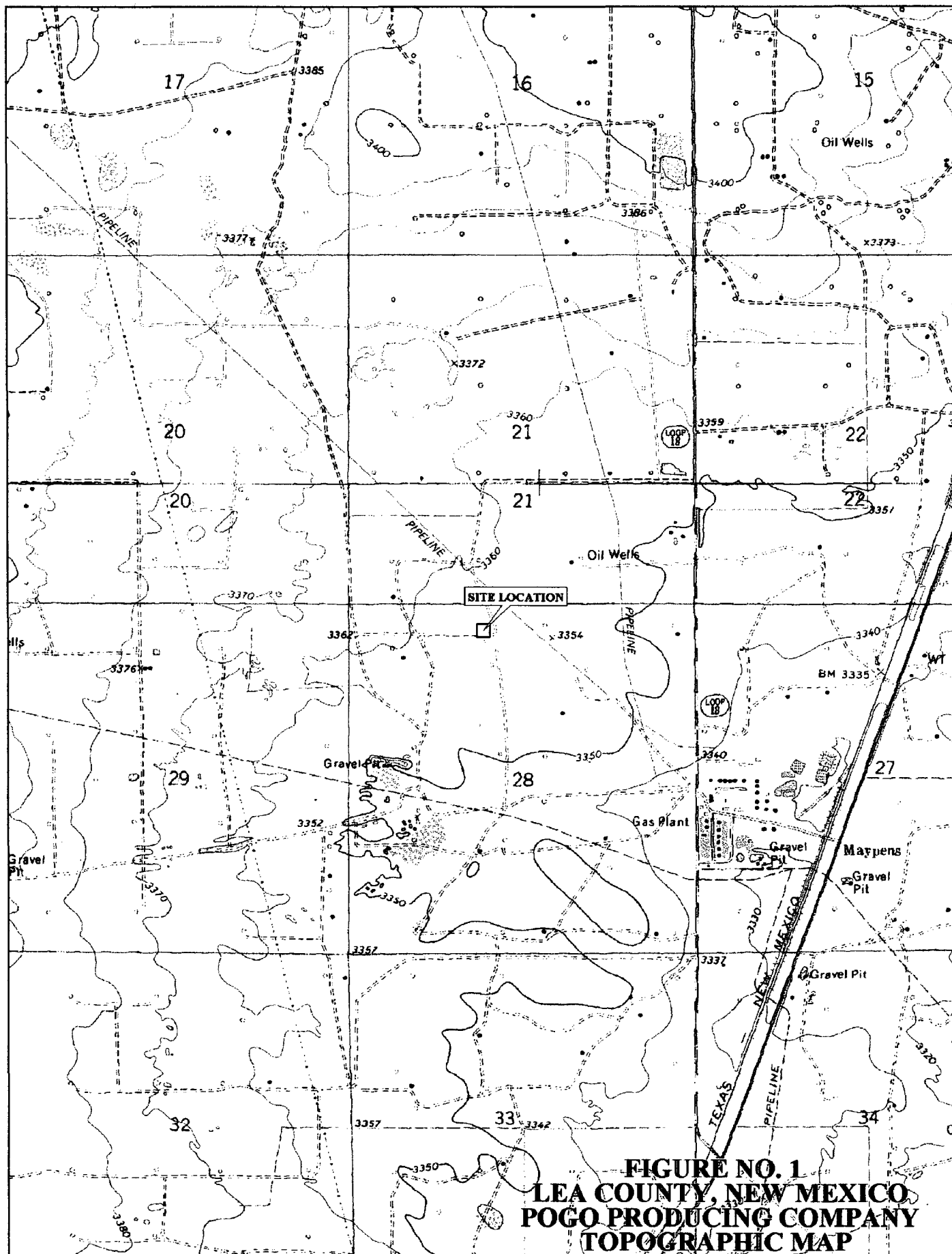
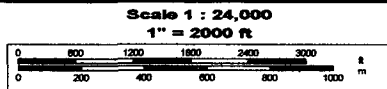
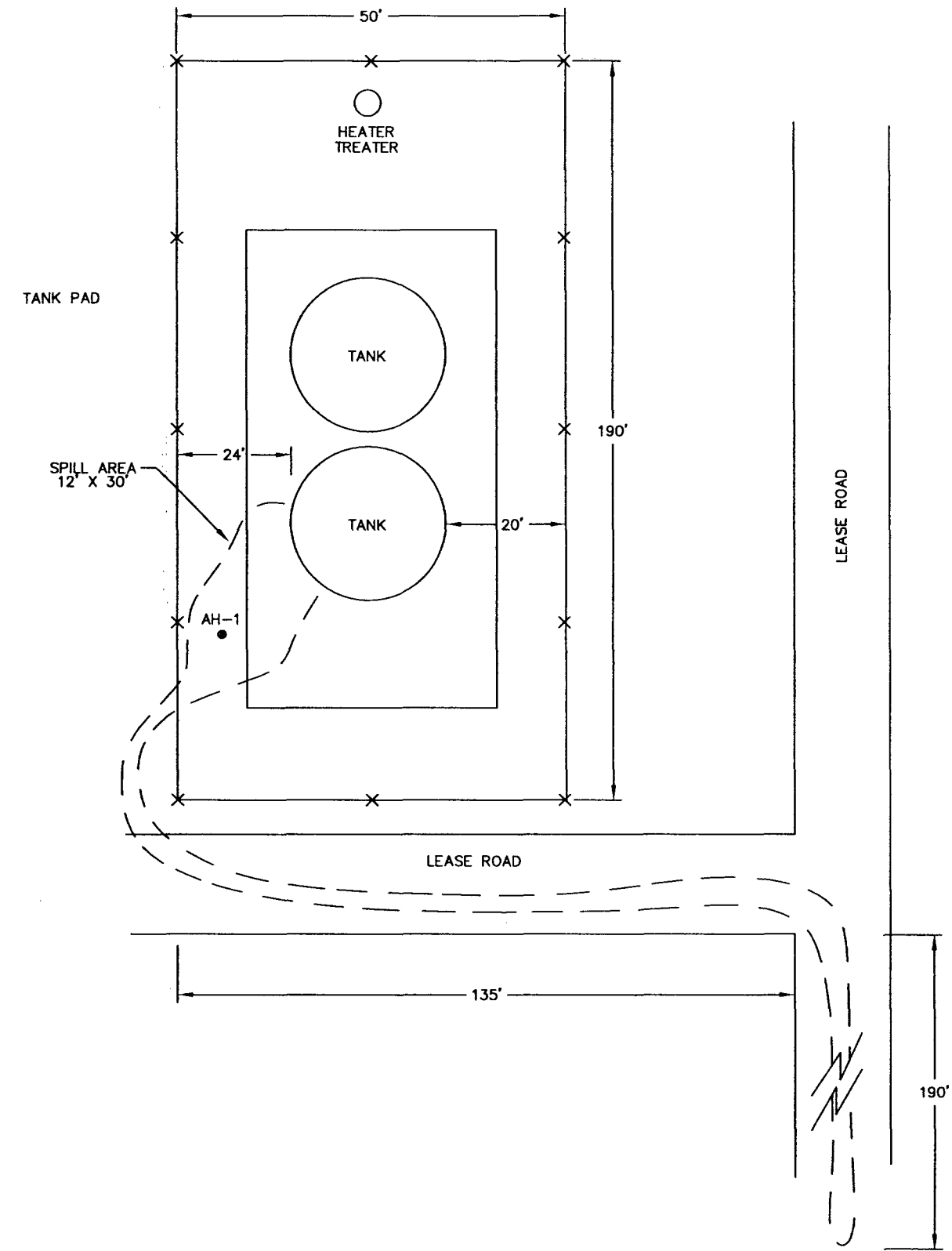
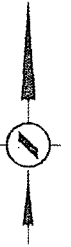


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
TOPOGRAPHIC MAP



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www.delorme.com





● AUGER HOLE LOCATION

NOT TO SCALE

FIGURE NO. 2

LEA COUNTY, NEW MEXICO	
POGO PRODUCING COMPANY	
MANDA B TRACT C TB SITE PLAN	
HIGHLANDER ENVIRONMENTAL CORP. MIDLAND, TEXAS	

DATE:	9/26/03
DWG. BY:	JDA
FILE:	C:\2081\pogo\
SITE	

APPENDIX A

State of New Mexico Form C-141

District I - (505) 393-6161
 P.O. Box 1980
 Hobbs, NM 88241-1980
 District II - (505) 748-1263
 811 South First
 Artesia, NM 88210
 District III - (505) 334-6178
 1000 Pab. Brazos Road
 Aztec, NM 87410
 District IV - (505) 827-7131

State of New Mexico
 Energy Minerals and Natural Resources Department
 Oil Conservation Division
 2040 South Pacheco Street
 Santa Fe, New Mexico 87505
 (505) 827-7131

Form C-141
 Originated 2/13/97

Submit 2 copies to
 Appropriate District
 Office in accordance
 with Rule 1.6 on
 back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name Arch Pet Inc	Contact GARY WELLS
Address EDWICK N.M.	Telephone No. 432-631-0134
Facility Name MANNA B - TRACK - C	Facility Type TANK BATTERY
Surface Owner	Mineral Owner
Lease No.	

LOCATION OF RELEASE

Unit Letter C	Section 28	Township 22	Range 37-E	Feet from the	North/South Line	Feet from the	East/West Line	County LEA
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NATURE OF RELEASE

Type of Release OIL	Volume of Release N/A	Volume Recovered 3
Source of Release STORAGE TANK RAN OVER	Date and Hour of Occurrence 9/22/03	Date and Hour of Discovery 9/22/03 1:00 PM
Was a Watercourse Notified? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? LCR MESSAGE FOR SILVIA BICKLEY	
By Whom? GARY WELLS	Date and Hour 9/22/03 1:50 PM	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully (Attach Additional Sheets If Necessary)

Describe Cause of Problem and Remedial Action Taken (Attach Additional Sheets If Necessary) **WATER LINE - BACKCUT**
ABOVE FLOODED HEATER - HEATER DUMPED ALL WATER AND OIL IN STOCK TANK RUNNING
OIL STORAGE TANK OVER.

Describe Area Affected and Cleanup Action Taken (Attach Additional Sheets If Necessary)

A 11 FL STAYED ON PAD AND
RAN DOWN EDGE OF ROAD. P.U. FL THEN BACK DRAG LOCATION AND
ROAD - NOTIFIED HIGHWAY ENVIRO TO LOOK AND DECIDED ON CLEANUP

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCOD rules and regulations all operations are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCOD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCOD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature GARY WELLS	OIL CONSERVATION DIVISION	
Printed Name GARY WELLS	Approved by District Supervisor	Expiration Date:
Title PAD SUPERVISOR	Approval Date:	Conditions of Approval:
Date 9/22/03	Phone 432-631-0134	Attached ☐

Attachment I Incident Report

Body Part Injured:	☐ Head, Face, Eye ☐ Finger, Hand, Arm,	☐ Chest, Neck ☐ Groin, Abdomen	☐ Foot, Toes, Ankle ☐ Respiratory System ☐ Other (specify): _____	☐ Back ☐ Leg
Type of Injury:	☐ Amputation ☐ Fracture, Contusion ☐ Occupational Illness	☐ Burn ☐ Imbedded Body ☐ Puncture	☐ Sprain, Strain ☐ Laceration, Abrasion ☐ Other (specify): _____	☐ Dermatitis, Irritation ☐ Inhalation
Type of Accident:	☐ Trip, Slip, Fall ☐ Overexertion ☐ Caught in, on, or between	☐ Exposure -vapor ☐ Splash, Spray	☐ Temperature Extreme ☐ Aggravate Exist. Inj. ☐ Other (specify): _____	☐ Contact by or with ☐ Struck by or against
Type of first aid treatment conducted at the scene: _____				

PROPERTY DAMAGE (This section must be completed only for property damage incidents)

Clearly describe how and to what extent the property was damaged.

OIL RAN ON LOCATION AND DOWN SIDE OF ROAD
PROPERTY DAMAGE MINIMAL

SPILL OR RELEASE INCIDENTS (This section must be completed only for spill or release incidents)

Material spilled or released	<i>OIL</i>		
Volume of the spill (estimate)	<i>UNKNOWN</i>	Nature of the damage	<i>LOCATION AND ROAD</i>

ALL INCIDENTS (This section must be completed for all incidents)

LIKELIHOOD TO RECUR

	Rate:	(Probably won't recur)
☒	Occasional	(Next 1-10 years)
☐	Frequent	(Within next year)
Witnesses: _____		

This report prepared by: (signed) <i>Garth Wells</i>	Date	<i>9/22/03</i>
Print Name <i>GARTH WELLS</i>	Title	<i>PROP. SUPERVISOR</i>

Distribution: Pogo Health, Safety and Environmental Manager

DATE ISSUED: <i>08-03-01</i>	REVISED DATE:	PAGE <i>11 of 12</i>
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Attachment I Incident Report

GENERAL INFORMATION (This section must be completed for all incidents)

Date of Incident <u>9/24/99</u>	Time of Incident <u>1:00 AM</u>	Location of Incident <u>MANPADS - Bldg.</u>
Type of Incident (Check all that apply)		
☐ Injury	☐ Property Damage	☐ Fire or Explosion
☒ Spill or Release		☐ Near Miss

ALL INCIDENTS (This section must be completed for all incidents)

Clearly describe how the incident occurred

WATER DISPOSAL LINE Pugged up - Flooding TRASH W/ WATER
DUMPING ALL OIL AND WATER INTO SINGLE STORAGE TANK
RUNNING TANK OVER.

List any factors that may have contributed to the incident.

LONG TERM USE

What action was or will be taken to prevent recurrence?

WATCH LINE CLOSER FOR PRESSURE BUILD - INDICATING
A PROBLEM OF PLUGGING UP.

INJURY (This section must be completed for injury incidents)

Employee's Name	SSN Number	Job Title
Employee's Address		Home Phone
Location sent for medical treatment		

PREPARED BY: BAKER ENERGY	DATE ISSUED: 10-31-99	SUPERCEDES ISSUE DATE:	PAGE 11 of 13
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APPENDIX B

Well Reports

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 22S Range: 37E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) ☐ Non-Domestic ☐ Domestic ☒ All

Well / Surface Data Report

Avg Depth to Water Report

Water Column Report

Clear Form

WATERS Menu

Help

AVERAGE DEPTH OF WATER REPORT 10/03/2003

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg
CP	22S	37E	05				2	79	90	85
CP	22S	37E	09				2	85	94	90
CP	22S	37E	14				1	65	65	65
CP	22S	37E	15				7	75	185	125
CP	22S	37E	18				1	190	190	190
CP	22S	37E	21				1	65	65	65
CP	22S	37E	24				1	60	60	60
CP	22S	37E	26				1	65	65	65
CP	22S	37E	34				1	60	60	60

Record Count: 17

20S 35E 20S 36E 20S 37E 20S 38E 20S 39E

21S 34E 21S 35E 21S 36E 21S 37E 21S 38E

22S 34E 22S 35E 22S 36E 22S 37E 22S 38E

23S 34E 23S 35E 23S 36E 23S 37E 23S 38E

24S 34E 24S 35E 24S 36E 24S 37E 24S 38E

25S 34E 25S 35E 25S 36E 25S 37E 25S 38E

26S 34E 26S 35E 26S 36E 26S 37E 26S 38E

BLK C22

BLK 77

TABLE 6. RECORDS OF WELLS IN SOUTHERN LEA COUNTY, N. MEX. (continued)

Location No.	Owner	Aquifer	Depth of well (feet)	Altitude of well (feet)	Water level		Year completed	Surface diameter of wells	Method of lift	Use of water	Remarks
					Depth below surface (feet)	Date measured					
22.37.21.421	Skelly Oil Co.	To(?)	—	3,360	62.0	9- -53	—	4½	N	N	Skelly Eunice Plant 1, well 12. EY 40 gpm.
22.331		To(?)	115 ±	3,350	69.0	9-29-53	1949	—	Ti	In, D	Open and uncased. Dug.
23.233	Leo Sims	Qal	77M	3,345	55.0	10-14-53	—	14	N	N	—
23.441	O. I. Boyd	Qal	70 ±	3,335	55.3	10-12-53	—	—	Lw	S	—
23.441a	do.	Qal	70 ±	3,335	55.2	10-12-53	—	7½	N	N	—
24.133a	G. Sims	Qal	127M	3,322	59.3	4-21-55	—	10	Li	N	—
24.133b	do.	Qal	80	—	—	—	—	—	Lw	N	Chemical analysis in table 8.
25.313	Marshal Drinkard	Qal	69M	3,300	50.1	10-14-53	1945	13½	N	N	—
27.334b	Skelly Oil Co.	Qal	127M	3,335	54.4	9- -53	—	8½	N	N	Skelly Eunice Plant 1, well 9.
27.410	do.	To?	182	—	—	—	—	7	Te	In, D	EY 25 gpm. Perforations 150-170 feet.
* 22.37.28.323	Clower Drilling Co.	Qal	—	3,353	66.1	9- -53	—	9¼	N	N	—
34.221	Humble Oil Co.	Qal and Tr	229	3,520	—	—	1938	—	—	In	WBZ 58-61 feet, 138-146 feet, 185-192 feet. EY 22 gpm.
36.141a	Tom Linebury	Qal	40	3,300	32.2	10-12-54	—	—	Lw	S	—
36.141b	do.	Qal	46	3,300	31.1	6- 3-55	—	6	N	N	—
22.38.18.234	The Texas Co.	Tr	386M	3,360	180	10- -53	1953	—	Li	In	WBZ gray sand, 325-380 feet. EY 20 gpm.
19.222	do.	Tr	—	3,365	146.0	10-14-53	—	7	N	N	—
23.32.4.222	C. H. and W. O. James	Tr	550	3,630	—	—	1931	8	Lw	S	EY 10 gpm.
21.222	Frank and Charles James	Tr	550	3,700	500	—	—	8	Li	S	—
23.33.12.322	San Simon Ranch	Tr	400	3,685	—	—	1953	—	Lw	S	WBZ 370-400 feet.
23.33.28.334	Brinninstool	Tr	575	3,675	500	—	—	—	Lw	D, S	EY 2.5 gpm.
23.34.1.444	San Simon Ranch	Qal	144 ± M	3,360	137.3	11-25-53	—	6	N	N	—
31.340	Continental Oil Co.	Tr	678	3,620	—	—	1953	8	Li	In	EY 47 gpm. Chemical analysis in table 8.

GROUND WATER

LEA COUNTY

81

22.36.35.314	do.	To	197	5,490	187.4	11-23-53	—	—	Lw	S	—
1.192	G. Sims	Qal	—	3,350	47.6	10-14-53	—	—	N	N	Open, uncased hole.
1.440	do.	Qal	—	—	—	—	—	—	Lw	S	Chemical analysis in table 8.
2.442	Humble Oil Co.	Qal	86M	3,360	53.9	10- 9-53	—	7	N	N	Initial yield, 68 gpm.
3.193	Sinclair Oil and Gas Co.	To	120	3,425	90	—	1946	—	Jc	D	—
3.194	do.	—	52M	3,420	Dry	9-28-53	—	—	N	N	—
3.440	Citizens Service Oil Co.	To	—	3,390	75.8	9-29-53	—	7 1/2	N	N	—
4.211	City of Eunice	To	155	3,445	110	1953	1953	10	Te	P	Well 12. Initial yield, 100 gpm;
4.213	do.	To	155	3,440	114.8	3- 6-54	1952	10	Te	P	yield in 1953, 60 gpm.
4.214a	Eunice Cementery Assoc.	To	115 ± M	3,435	108.2	9-29-53	—	6 1/2	N	N	Well 11. EY 60 gpm.
22.37.4.233	City of Eunice	To	155	3,435	110	1951	1951	8	Te	P	Well 9.
4.421	Sinclair Oil and Gas Co.	To	114 ± M	3,430	90.1	9-28-53	—	7 3/4	N	N	—
4.424	Skelly Oil Co.	To	164	—	< 139	—	1950	8 3/4	Ti	In,D	Skelly Eunice Plant 1, well 13. Initial yield, 150 gpm; dropped to 20 gpm.
8.441	Shell Oil Co.	To	168	3,400	60	1953	1936	6 3/4	Lw	D	—
9.313a	Humble Oil Co.	To	166M	3,400	72.7	9-29-53	1944	9 1/2	N	N	Humble-J. L. Greenwood well 2.
9.331	do.	To	160	—	—	—	1945	7 3/4	Te	D	Humble-J. L. Greenwood well 4.
9.333	do.	To	172	—	—	—	1946	4	Te	In	Humble-J. L. Greenwood well 5.
22.37.9.441	Humble Oil Co.	To	104 ± M	3,410	85.5	9-29-53	1940	6 3/4	N	N	Water used for oil well flooding.
10.213	Gulf Oil Corp.	To	220	3,400	100	1950	—	—	Lw	D	Humble-J. L. Greenwood well 1.
10.320	Skelly Oil Co.	To	—	3,395	81.0	9-29-53	—	11 1/2	N	N	Guif-Brunson lease well.
11.324	—	Qal	100M	3,350	45.3	10-16-53	1952	5	N	N	—
11.444	Leo Sims	Qal	—	3,345	58.7	10-16-53	—	8 3/4	Lw	S	—
12.114	G. Sims	Qal	84M	3,340	53.9	10-14-53	—	7	N	N	—
12.443	do.	Qal	59M	3,335	53.9	10-14-53	—	15	N	N	—
12.443a	do.	Qal	59M	3,335	53.3	10-14-53	—	—	N	N	Uncased and open.
15.333	H. O. Sims	To	—	3,380	81.0	9- -53	—	4 3/4	Lw	D,S	Skelly Eunice Plant 1, well 11. EY 40 gpm.
16.432	Skelly Oil Co.	To	135	—	—	—	—	7	Ti	In,D	—
16.443	do.	To	136	3,385	80.9	9-28-53	1947	8 3/4	Ti	In,D	Skelly Eunice Plant 1, well 10.
22.37.21.221	—	To(?)	—	3,380	76.5	9- -53	—	6 3/4	N	N	—

APPENDIX C

Analytical Results

ANALYTICAL REPORT

Prepared for:

**IKE TAVAREZ
HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705**

Project: Pogo/Arch-Manda B- Tract C.
PO#: 2061
Order#: G0307584
Report Date: 10/01/2003

Certificates

US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705
682-3946

Order#: G0307584
Project: 2061
Project Name: Pogo/Arch-Manda B- Tract C.
Location: Lea County NM

The samples listed below were submitted to Environmental Lab of Texas and were received under chain of custody. Environmental Lab of Texas makes no representation or certification as to the method of sample collection, sample identification, or transportation/handling procedures used prior to the receipt of samples by Environmental Lab of Texas, unless otherwise noted.

<u>Lab ID:</u>	<u>Sample :</u>	<u>Matrix:</u>	<u>Date / Time</u>	<u>Date / Time</u>	<u>Container</u>	<u>Preservative</u>
			<u>Collected</u>	<u>Received</u>		
0307584-01	AH-1 0-1'	SOIL	9/24/03	9/26/03 17:00	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M 8021B/5030 BTEX Chloride	Rejected: No		Temp: 4 C		
0307584-02	AH-1 2-2.5'	SOIL	9/24/03	9/26/03 17:00	4 oz glass	Ice
	<u>Lab Testing:</u> 8015M Chloride	Rejected: No		Temp: 4 C		
0307584-03	AH-1 4-4.5'	SOIL	9/24/03	9/26/03 17:00	4 oz glass	Ice
	<u>Lab Testing:</u> Chloride	Rejected: No		Temp: 4 C		
0307584-04	AH-1 5-5.5'	SOIL	9/24/03	9/26/03 17:00	4 oz glass	Ice
	<u>Lab Testing:</u> Chloride	Rejected: No		Temp: 4 C		
0307584-05	AH-1 6-6.5'	SOIL	9/24/03	9/26/03 17:00	4 oz glass	Ice
	<u>Lab Testing:</u> Chloride	Rejected: No		Temp: 4 C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

IKE TAVAREZ
HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705

Order#: G0307584
Project: 2061
Project Name: Pogo/Arch-Manda B- Tract C.
Location: Lea County NM

Lab ID: 0307584-01
Sample ID: AH-1 0-1'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/03	1	10	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	8,640	100
DRO, >C12-C35	16,800	100
TOTAL, C6-C35	25,440	100

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	33%	70	130
1-Chlorooctadecane	31%	70	130

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0006995-02		9/30/03	1	500	RKT	8021B

Parameter	Result mg/kg	RL
Benzene	18.3	0.500
Toluene	141	0.500
Ethylbenzene	105	0.500
p/m-Xylene	175	0.500
o-Xylene	64.2	0.500

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	388%	80	120
Bromofluorobenzene	108%	80	120

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

IKE TAVAREZ
HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705

Order#: G0307584
Project: 2061
Project Name: Pogo/Arch-Manda B- Tract C.
Location: Lea County NM

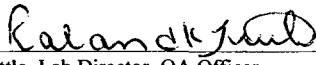
Lab ID: 0307584-02
Sample ID: AH-1 2-2.5'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/03	1	1	JLH	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	<10.0	10.0
DRO, >C12-C35	<10.0	10.0
TOTAL, C6-C35	<10.0	10.0

Surrogates	% Recovered	QC Limits (%)	
1-Chlorooctane	116%	70	130
1-Chlorooctadecane	94%	70	130

Approval:  10-02-03
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

IKE TAVAREZ
HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705

Order#: G0307584
Project: 2061
Project Name: Pogo/Arch-Manda B- Tract C.
Location: Lea County NM

Lab ID: 0307584-01
Sample ID: AH-1 0-1'

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	6380	mg/kg	1	20	9253	9/29/03	SB

Lab ID: 0307584-02
Sample ID: AH-1 2-2.5'

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	6420	mg/kg	1	20	9253	9/29/03	SB

Lab ID: 0307584-03
Sample ID: AH-1 4-4.5'

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	10600	mg/kg	1	20	9253	9/29/03	SB

Lab ID: 0307584-04
Sample ID: AH-1 5-5.5'

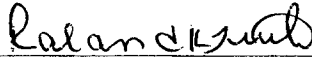
Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	10600	mg/kg	1	20	9253	9/29/03	SB

Lab ID: 0307584-05
Sample ID: AH-1 6-6.5'

Test Parameters

<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>Dilution Factor</u>	<u>RL</u>	<u>Method</u>	<u>Date Analyzed</u>	<u>Analyst</u>
Chloride	3100	mg/kg	1	20	9253	9/29/03	SB

Approval:  10-02-03
Raland K. Tuttle, Lab Director, QA Officer
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0307584

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0006973-02			<10.0		
CONTROL	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0006973-03		952	775	81.4%	
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0307565-01	79.9	952	889	85.%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0307565-01	79.9	952	905	86.7%	1.8%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg		0006973-05		1000	1056	105.6%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0307584

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0006995-02			<0.025		
Toluene-mg/kg		0006995-02			<0.025		
Ethylbenzene-mg/kg		0006995-02			<0.025		
p/m-Xylene-mg/kg		0006995-02			<0.025		
o-Xylene-mg/kg		0006995-02			<0.025		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0307590-02	0	2.5	2.65	106.6%	
Toluene-mg/kg		0307590-02	0	2.5	2.61	104.4%	
Ethylbenzene-mg/kg		0307590-02	0.03	2.5	2.52	99.6%	
p/m-Xylene-mg/kg		0307590-02	0.05	5	5.08	100.6%	
o-Xylene-mg/kg		0307590-02	0	2.5	2.45	98.0%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0307590-02	0	2.5	2.46	98.4%	7.4%
Toluene-mg/kg		0307590-02	0	2.5	2.45	98.0%	6.3%
Ethylbenzene-mg/kg		0307590-02	0.03	2.5	2.42	95.6%	4.0%
p/m-Xylene-mg/kg		0307590-02	0.05	5	4.91	97.2%	3.4%
o-Xylene-mg/kg		0307590-02	0	2.5	2.40	96.0%	2.1%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg		0006995-05		0.1	0.110	110.0%	
Toluene-mg/kg		0006995-05		0.1	0.108	108.0%	
Ethylbenzene-mg/kg		0006995-05		0.1	0.100	100.0%	
p/m-Xylene-mg/kg		0006995-05		0.2	0.202	101.0%	
o-Xylene-mg/kg		0006995-05		0.1	0.095	95.0%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0307584

BLANK	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0006982-01			<20.0		
MS	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0307584-01	6380	500	6910	106.0%	
MSD	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0307584-01	6380	500	6910	106.0%	0.0%
SRM	SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg		0006982-04		5000	4960	99.2%	

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705

Order#: G0307584

Project: Pogo/Arch-Manda B- Tract C.

The following samples were received as indicated below and on the attached Chain of Custody record. All analyses were performed within the holding time and with acceptable quality control results unless otherwise noted.

SAMPLE ID	LAB ID	MATRIX	Date Collected	Date Received
AH-1 0-1'	0307584-01	SOIL	09/24/2003	09/26/2003
AH-1 2-2.5'	0307584-02	SOIL	09/24/2003	09/26/2003
AH-1 4-4.5'	0307584-03	SOIL	09/24/2003	09/26/2003
AH-1 5-5.5'	0307584-04	SOIL	09/24/2003	09/26/2003
AH-1 6-6.5'	0307584-05	SOIL	09/24/2003	09/26/2003
AH-1 1.0-1.5'	0307584-06	SOIL	09/24/2003	09/26/2003

Surrogate recoveries on the BTEX are outside control limits due to matrix interference. (0307584-01)

The enclosed results of analyses are representative of the samples as received by the laboratory. Environmental Lab of Texas makes no representations or certifications as to the methods of sample collection, sample identification, or transportation handling procedures used prior to our receipt of samples. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved By:

Ralan d K J

Date:

10-02-03

Environmental Lab of Texas I, Ltd.

