Highlander Environmental Corp.

Midland, Texas

IRP-59
9/28/05

November 4, 2002

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 Closure Report for the Spill at the Pogo Producing Company, Seeton Tank Battery #1, Section 21, T-23-S, R-37-E, Lea County, New Mexico

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by Pogo Producing Company (Pogo) to assess a spill, which occurred at the Pogo Seeton Tank Battery #1 location in Lea County, New Mexico (Site). The Site is located in Section 21, Township 23 South, Range 37 East, Unit Letter G. The State of New Mexico C-141 (Initial) is shown in Appendix A. The Site is shown in Figure 1.

According to published data, groundwater in the area is greater than 50 feet below surface. The State of New Mexico Well Reports did not show any water wells in Section 21, Water wells were shown in Section 9, 16, and 32 with an average groundwater depth of approximately 100' below surface. State of New Mexico Well Reports are shown in Appendix B. In addition, the New Mexico State Engineers Office has been contacted to confirm the groundwater depth at the Site.

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 on the regional groundwater data, the proposed recommended remedial action level (RRAL) for TPH is 1,000 mg/kg.

Background

On September 23, 2002, a spill occurred when the transfer pump failed and the water tank ran over. The spill area was contained inside the tank battery dike. A small amount of fluids spilled over onto the lease road. The overall dimensions of the spill area measured approximately 45' x 65'. An unknown volume of produced water was released and 60 barrels recovered. The spill area is shown in Figure 2.

Assessment

On September 24, 2002, Highlander personnel collected soil samples from the spill area using a stainless steel, bucket type hand auger. A total of three (3) auger holes (AH) were installed to define the extent of the impact. All of the auger holes were installed inside the tank battery dike area. The spill area and auger hole locations are shown in Figure 2. Soil samples were collected at selected depth to a total depth of 3.0' below surface. Soil samples collected from the spill area were evaluated for Total Petroleum Hydrocarbon (TPH) by method 8015M, BTEX by method 8015B/5030 and chloride by method SW 846-9252. The soil samples results are shown in Table 1. The laboratory reports and the chain of custody documentation are included in Appendix C.

Table 1
(Concentrations in mg/kg)

Samples ID	B	T	E	X	Total BTEX	TPH			Chloride
						GRO	DRO	Total	
AH-1 (0'-1')	10.2	154	148	234.4	546.6	6,490	8,460	14,950	4,750
AH-1 (1'-2')	-	-	-	-	-	34.7	102	137	1,100
AH-1 (2'-3')	-	-	-	-	-	-	-	-	1,560
AH-2 (0'-1')	3.52	88.8	77.2	139.4	308.92	3,890	7,370	11,260	2,480
AH-2 (1'-2')	-	-	-	-	-	33.7	97.9	132	2,340
AH-2 (2'-3')	-	-	-	-	-	-	-	-	886
AH-3 (0'-1')	29.8	201	224	289.9	753.7	10,900	14,900	25,800	2,480
AH-3 (1'-2')	<0.050	3.87	0.612	7.7	12.182	332	834	1,116	514
AH-3 (2'-2.5')	-	-	-	-	-	109	392	501	408

(-) Not Analyzed

Based on the results, the impact at the Site appears to be shallow and confined to a depth of 1.0' below surface. The soil samples at 1-2' below surface showed TPH levels decreasing below RRAL, except for AH-3 (1-2'), which showed a total TPH of 1,116 mg/kg. The deeper sample at 2-2.5' dropped to 510 mg/kg. One sample, AH-3 (1'-2'), was selected for an additional BTEX analysis and showed levels below the RRAL. The chloride detected showed a decreasing levels with depth. AH-1 (2'-3'), AH-2 (2'-3') and AH-3 (2'-3') bottom hole samples showed chloride levels 1,560 mg/kg, 886 mg/kg and 408 mg/kg, respectively.

Corrective Action

Based upon the results of the sampling, it was decided to begin excavation of the impacted soils inside the bermed tank battery. The small spill area on the lease road was scraped and back dragged with the backhoe. From October 15 to 17, 2002, Key Energy Services excavated the impacted soil from the tank battery and hauled the soil to Sundance Services, Inc. in Eunice, New Mexico. The soil was excavated by hand to a depth 1.0' below surface. Approximately 108 cubic yards was removed and disposed of at Sundance. The excavated area is shown in Figure 2.

On October 24, 2002, Highlander personnel applied a treatment of Micro-Blaze to the bottom of the excavation to remediate and aid in the degradation of any hydrocarbon residue inside the tank battery dike. The excavation had been backfilled with clean fill material.

Conclusions

1. According to published data, groundwater in the area is greater than 50 feet below surface. The State of New Mexico Well Reports did not show any water wells in Section 21, Water wells were shown in Section 9, 16, and 32 with an average ground water depth of approximately 100' below surface. In addition, the New Mexico State Engineers Office has been contacted to confirm the groundwater depth at the Site.

2. 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 on the regional groundwater data, the proposed RRAL for TPH is 1,000 mg/kg.

3. The soil assessment revealed a shallow impact to a depth of 1.0' below surface. The TPH and BTEX levels were above the RRAL from 0-1' below surface, however, the soil samples at 1-2' and 2'-3' below surface showed TPH levels below the RRAL.

4. The chloride levels showed significant decrease with depth. AH-1 (2'-3'), AH-2 (2'-3') and AH-3 (2'-3') bottom hole samples showed chloride levels 1,560 mg/kg, 886 mg/kg and 408 mg/kg, respectively. Based on the results, the chloride levels are not considered an environmental concern.

5. The impacted soil, exceeding the RRAL was excavated to a depth of 1.0' below surface. Approximately 108 cubic yards was removed and disposed of at Sundance Services, Inc. in Eunice, New Mexico. In addition, a treatment of Micro-Blaze was applied to the bottom of the excavation to remediate and aid in the degradation of any hydrocarbon residue inside the tank battery dike. The excavation has been backfilled with clean fill material and closed.

Recommendation

1. Based on the results and remedial action performed at the Site, Pogo Producing Company proposes closure of the spill area. The State of New Mexico C-141 (Final) is shown in Appendix A.

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

Very truly yours,

Ike Tavarez
Project Manager/Geologist

cc: Rex Jasper - Pogo Producing
Don Riggs - Pogo Producing

FIGURES

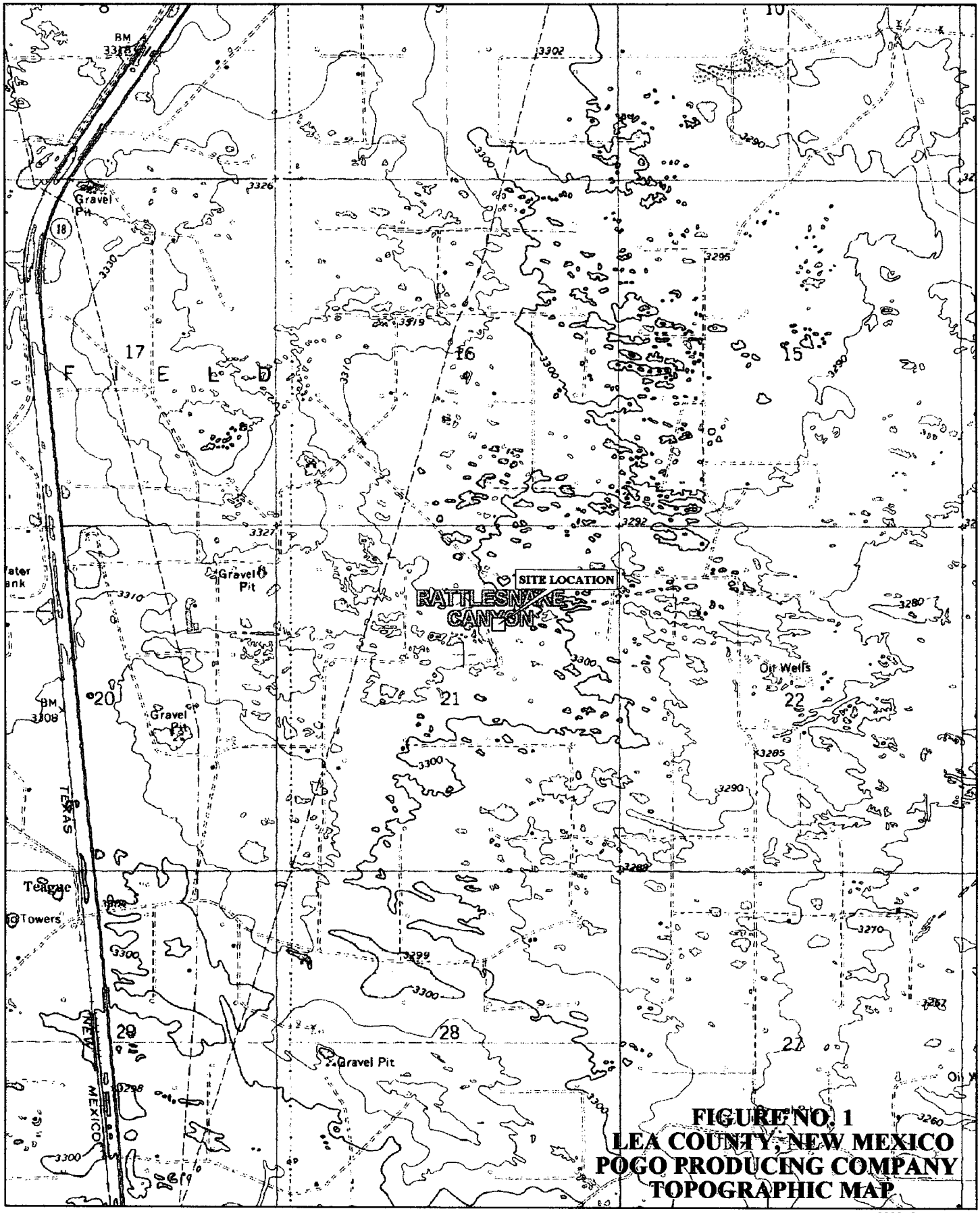
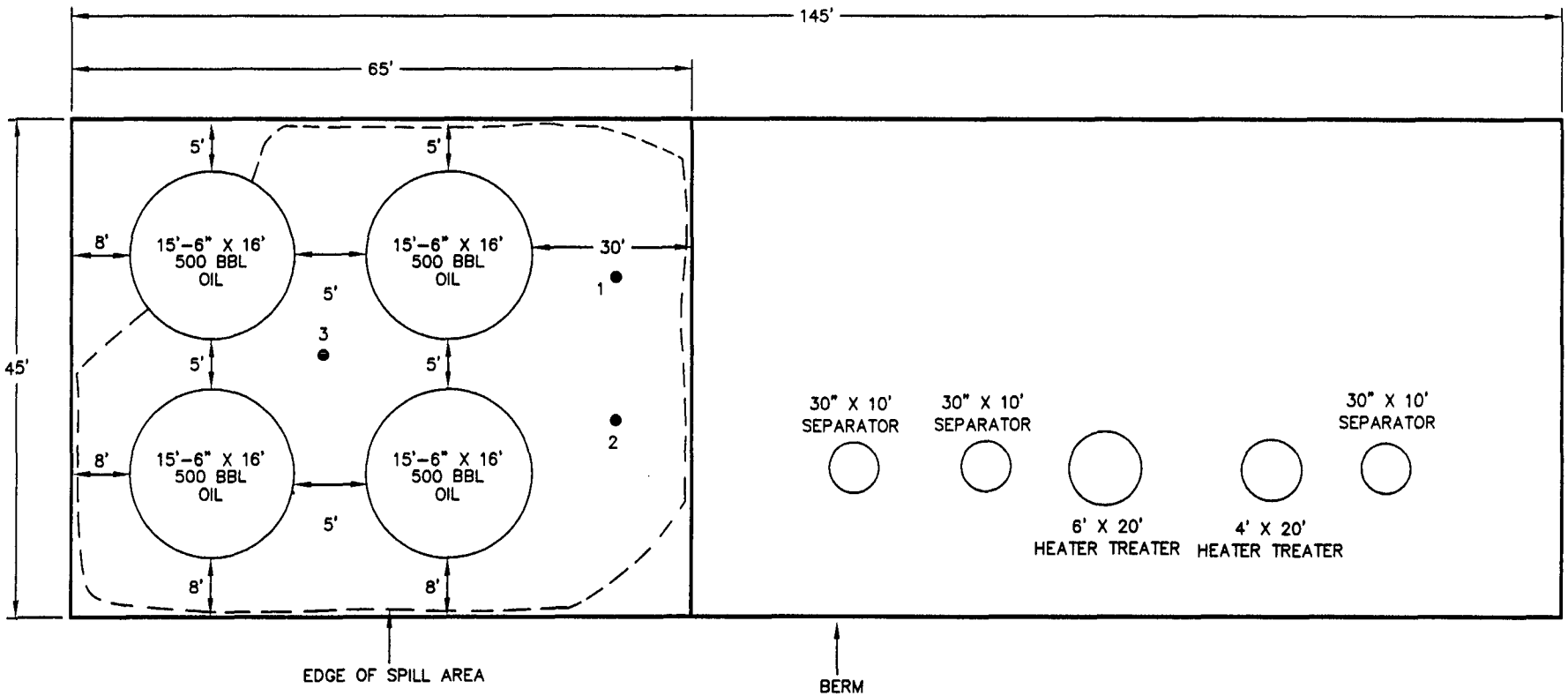


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
TOPOGRAPHIC MAP



● AUGER HOLE LOCATION

NOT TO SCALE

FIGURE NO. 2

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

SEETON TB #1
SITE PLAN

DATE: 10/7/02
DWG. BY: JDA
FILE: G:\POGO\1882\SITE

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

APPENDIX A

District I - (505) 393-6161
P.O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 746-1283
811 South First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio 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 116 on back side of form

Release Notification and Corrective Action
OPERATOR
☑ Initial Report ☐ Final Report

Name: ARCH PET INC.	Contact: GARY WELLS
Address: EUNICE NM.	Telephone No.: 915-631-0134
Facility Name: SEETON	Facility Type: TANK BAT.
Surface Owner: BYRD SAIMANS	Mineral Owner:	Lease No.: N/A

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet From the	North/South Line	Feet from the	East/West Line	County
	21	23-S	37-E					LEA

NATURE OF RELEASE

Type of Release: SALT WATER	Volume of Release: N/A / Volume Recovered: 60
Source of Release: STOCK TANK	Date and Hour of Occurrence: N/A / Date and Hour of Discovery: 9/23/02 10:30
Was Immediate Notice Given? ☑ Yes ☐ No ☐ Not Required	If YES, To Whom? SILVIA DICKEY - LEFT MESSAGE
By Whom? GARY WELLS	Date and Hour 9/23/02 12:30 P.M.
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) RAN TANK OVER - REPAIRED PUMP. TRANSFER PUMP QUITE WORKING

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary) - FL. STAYED INSIDE BURM - RAN DOWN POND. P.U. FL. OFF GROUND. WAIT ON INSTRUCTION FOR CLEANUP

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators 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 NMOCD 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, NMOCD 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:
Title: FIELD SUPERVISION	Approval Date: / Expiration Date:
Date: 9/20/02 Phone: 915-631-0134	Conditions of Approval: / Attached ☐

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company :	Arch/*Pogo Producing Company*	Contact:	*Rex Jasper*
Address:	*300 N. Marienfeld St.*	Telephone No.:	*(915) 685-8100*
Facility Name:	*Seeton Tank Battery*	Facility Type:	*Tank Battery*

Surface Owner: *D.K Boyd*	Mineral Owner:	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	*21*	*23S*	*37E*					Eddy County

NATURE OF RELEASE

Type of Release: *water*	Volume of Release: unknown	Volume Recovered: *60 bbls*
Source of Release: *Stock Tank*	Date and Hour of Occurrence: *NA*	Date and Hour of Discovery: *9/23/02 10:30*
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? NMOCD – *Silva – left message*	
By Whom? *Gary Wells (Pogo)*	Date and Hour: 9/23/01 *12:30PM*	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
NA

Describe Cause of Problem and Remedial Action Taken.*
Transfer pump quit working and ran tank over

Describe Area Affected and Cleanup Action Taken.*
The affected area and cleanup are described in the Assessment/Closure Report. The impacted soil was excavated and hauled to a proper disposal facility.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators 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 NMOCD 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, NMOCD 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: Ike Tavarez (Agent for Pogo)	OIL CONSERVATION DIVISION
Printed Name: Ike Tavarez	Approved by District Supervisor:
Title: Geologist	Approval Date: / Expiration Date:
Date: 10/25/02 Phone: (915) 682-4559	Conditions of Approval: / Attached ☐

* Attach Additional Sheets If Necessary

APPENDIX B

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 23S 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 10/25/2002

							(Depth Water in Feet)		
Bsn	**Tws**	**Rng**	**Sec**	**Zone**	**X**	**Y**	**Wells**	**Min**	**Max**	**Avg**
CP	23S	37E	09				1	100	100	100
CP	23S	37E	16				1	115	115	115
CP	23S	37E	32				1	106	106	106

Record Count: 3

APPENDIX C

ANALYTICAL REPORT

Prepared for:

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

Project: Pogo Producing Co./ Seeton TB #1

PO#:

Order#: G0204620

Report Date: 10/02/2002

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705
915-682-3946

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

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.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0204620-01	AH-1 0-1'	SOIL	9/24/02 12:50	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: 8015M, 8021B/5030 BTEX, Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-02	AH-1 1'-2'	SOIL	9/24/02 13:05	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: 8015M, Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-03	AH-1 2'-3'	SOIL	9/24/02 13:10	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-04	AH-2 0-1'	SOIL	9/24/02 13:15	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: 8015M, 8021B/5030 BTEX, Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-05	AH-2 1'-2'	SOIL	9/24/02 13:20	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: 8015M, Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-06	AH-2 2'-3'	SOIL	9/24/02 13:25	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-07	AH-3 0-1'	SOIL	9/24/02 13:40	9/25/02 16:40	4 oz glass	Ice
	Lab Testing:	**Rejected:** No		**Temp:** 10 C		

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705
915-682-3946

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

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Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
	8015M 8021B/5030 BTEX Chloride					
0204620-08	AH-3 1'-2'	SOIL	9/24/02 13:45	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: 8015M Chloride	**Rejected:** No		**Temp:** 10 C		
0204620-09	AH-3 2'-2.5'	SOIL	9/24/02 13:50	9/25/02 16:40	4 oz glass	Ice
	Lab Testing: 8015M Chloride	**Rejected:** No		**Temp:** 10 C		

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-01
Sample ID: AH-1 0-1'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/02	1	5	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**6490**	50.0
DRO, >C12-C35	**8460**	50.0
TOTAL, C6-C35	**14950**	50.0

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0003270-02		10/1/02 10:19	1	200	CK	8021B

Parameter	Result mg/kg	RL
Benzene	**10.2**	0.200
Ethylbenzene	**154**	0.200
Toluene	**148**	0.200
p/m-Xylene	**166**	0.200
o-Xylene	**68.4**	0.200

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	**507%**	**80**	**120**
Bromofluorobenzene	**118%**	**80**	**120**

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-02
Sample ID: AH-1 1'-2'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/02	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**34.7**	10.0
DRO, >C12-C35	**102**	10.0
TOTAL, C6-C35	**137**	10.0

Lab ID: 0204620-04
Sample ID: AH-2 0-1'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/02	1	5	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**3890**	50.0
DRO, >C12-C35	**7370**	50.0
TOTAL, C6-C35	**11260**	50.0

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1910 N. BIG SPRING STREET
MIDLAND, TX 79705

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-04
Sample ID: AH-2 0-1'

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0003270-02		10/1/02 11:41	1	200	CK	8021B

Parameter	Result mg/kg	RL
Benzene	3.52	0.200
Ethylbenzene	88.8	0.200
Toluene	77.2	0.200
p/m-Xylene	100	0.200
o-Xylene	39.4	0.200

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	179%	80	120
Bromofluorobenzene	114%	80	120

Lab ID: 0204620-05
Sample ID: AH-2 1'-2'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/02	1	1	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	33.7	10.0
DRO, >C12-C35	97.9	10.0
TOTAL, C6-C35	132	10.0

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-07
Sample ID: AH-3 0-1'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/02	1	10	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**10900**	100
DRO, >C12-C35	**14900**	100
TOTAL, C6-C35	**25800**	100

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0003270-02		10/1/02 12:03	1	200	CK	8021B

Parameter	Result mg/kg	RL
Benzene	**29.8**	0.200
Ethylbenzene	**201**	0.200
Toluene	**224**	0.200
p/m-Xylene	**211**	0.200
o-Xylene	**87.9**	0.200

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	**720%**	**80**	**120**
Bromofluorobenzene	**126%**	**80**	**120**

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ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-08
Sample ID: AH-3 1'-2'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		9/27/02	1	10	CK	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**332**	100
DRO, >C12-C35	**834**	100
TOTAL, C6-C35	**1166**	100

Lab ID: 0204620-09
Sample ID: AH-3 2'-2.5'

8015M

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
		10/2/02	1	1	RKT	8015M

Parameter	Result mg/kg	RL
GRO, C6-C12	**109**	10.0
DRO, >C12-C35	**392**	10.0
TOTAL, C6-C35	**501**	10.0

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

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-01
Sample ID: AH-1 0-1'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	4750	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-02
Sample ID: AH-1 1'-2'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	1100	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-03
Sample ID: AH-1 2'-3'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	1560	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-04
Sample ID: AH-2 0-1'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	2480	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-05
Sample ID: AH-2 1'-2'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	2340	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-06
Sample ID: AH-2 2'-3'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	886	mg/kg	1	20	9253	9/27/02	SB

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#: G0204620
Project: 1882
Project Name: Pogo Producing Co./ Seeton TB #1
Location: Lea County

Lab ID: 0204620-07
Sample ID: AH-3 0-1'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	2480	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-08
Sample ID: AH-3 1'-2'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	514	mg/kg	1	20	9253	9/27/02	SB

Lab ID: 0204620-09
Sample ID: AH-3 2'-2.5'

Test Parameters

Parameter	Result	Units	Dilution Factor	RL	Method	Date Analyzed	Analyst
Chloride	408	mg/kg	1	20	9253	9/27/02	SB

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

RL = Reporting Limit N/A = Not Applicable

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8015M

Order#: G0204620

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0003250-02			<10.0		
TOTAL, C6-C35-mg/kg	0003275-02			<10.0		
CONTROL SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0003250-03		952	1100	115.5%	
CONTROL DUP SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0003250-04		952	1200	126.1%	8.7%
MS SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0204680-02	0	952	1063	111.7%	
MSD SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0204680-02	0	952	1135	119.2%	6.6%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
TOTAL, C6-C35-mg/kg	0003250-05		1000	1140	114.%	
TOTAL, C6-C35-mg/kg	0003275-05		1000	880	88.%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0204620

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg	0003270-02			<0.025		
Ethylbenzene-mg/kg	0003270-02			<0.025		
Toluene-mg/kg	0003270-02			<0.025		
p/m-Xylene-mg/kg	0003270-02			<0.025		
o-Xylene-mg/kg	0003270-02			<0.025		
MS SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0204635-03	0	0.1	0.093	93.%	
Ethylbenzene-mg/kg	0204635-03	0	0.1	0.097	97.%	
Toluene-mg/kg	0204635-03	0	0.1	0.097	97.%	
p/m-Xylene-mg/kg	0204635-03	0	0.2	0.207	103.5%	
o-Xylene-mg/kg	0204635-03	0	0.1	0.097	97.%	
MSD SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0204635-03	0	0.1	0.093	93.%	0.%
Ethylbenzene-mg/kg	0204635-03	0	0.1	0.100	100.%	3.%
Toluene-mg/kg	0204635-03	0	0.1	0.098	98.%	1.%
p/m-Xylene-mg/kg	0204635-03	0	0.2	0.212	106.%	2.4%
o-Xylene-mg/kg	0204635-03	0	0.1	0.098	98.%	1.%
SRM SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0003270-05		0.1	0.090	90.%	
Ethylbenzene-mg/kg	0003270-05		0.1	0.093	93.%	
Toluene-mg/kg	0003270-05		0.1	0.095	95.%	
p/m-Xylene-mg/kg	0003270-05		0.2	0.198	99.%	
o-Xylene-mg/kg	0003270-05		0.1	0.093	93.%	

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

Test Parameters

Order#: G0204620

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0003244-01			<20.0		
MS SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0204605-01	1350	1000	2340	99.%	
MSD SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0204605-01	1350	1000	2320	97.%	0.9%
SRM SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Chloride-mg/kg	0003244-04		5000	4960	99.2%	

CASE NARRATIVE

ENVIRONMENTAL LAB OF TEXAS

Prepared for:

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

Order#: G0204620

Project: Pogo Producing Co./ Seeton TB #1

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'	0204620-01	SOIL	09/24/2002	09/25/2002
AH-1 1'-2'	0204620-02	SOIL	09/24/2002	09/25/2002
AH-1 2'-3'	0204620-03	SOIL	09/24/2002	09/25/2002
AH-2 0-1'	0204620-04	SOIL	09/24/2002	09/25/2002
AH-2 1'-2'	0204620-05	SOIL	09/24/2002	09/25/2002
AH-2 2'-3'	0204620-06	SOIL	09/24/2002	09/25/2002
AH-3 0-1'	0204620-07	SOIL	09/24/2002	09/25/2002
AH-3 1'-2'	0204620-08	SOIL	09/24/2002	09/25/2002
AH-3 2'-2.5'	0204620-09	SOIL	09/24/2002	09/25/2002

Surrogate recoveries are outside control limits due to interference from coeluting compounds

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: Roland K Tuttle Date: 10-03-02

Environmental Lab of Texas I, Ltd.

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Pogo Producing Co. SITE MANAGER: Tim Reed

PROJECT NO.: 1882 PROJECT NAME: Lea County, Seeton TB #1

204620

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1	TPH 8015 MOD.	TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride
01	9/24/02	1250				AH-1 0-1'	1				X		X			X															X
02		1305				AH-1 1'-2'	1				X					X															X
03		1310				AH-1 2'-3'	1				X																				X
04		1315				AH-2 0-1'	1				X		X			X															X
05		1320				AH-2 1'-2'	1				X					X															X
06		1325				AH-2 2'-3'	1				X																				X
07		1340				AH-3 0-1'	1				X		X			X															X
08		1345				AH-3 1'-2'	1				X					X															X
09		1350				AH-3 2'-2.5'	1				X					X															X

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 9/25/02 Time:
RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Sign) Tim Reed Tim Reed Date: 9/24/02 Time: 14:50

SAMPLE SHIPPED BY: (Circle)
FEDEX BUS AIRBILL #
HAND DELIVERED UPS OTHER:

RECEIVING LABORATORY: Environ Lab
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Cathy Kume
DATE: 9/25/02 TIME: 16:40

HIGHLANDER CONTACT PERSON: Tim Reed

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 10 C

MATRIX: W-Water (S-Soil) A-Air SL-Sludge SD-Solid O-Other

REMARKS: If TPH greater 1,000 mg/kg at 1-2', run deep sample at 2-3' Run TPH

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Enviromental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

ANALYTICAL REPORT

Prepared for:

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

Project:	Pogo Producing Co. / Seeton TB#1
PO#:	
Order#:	G0204705
Report Date:	10/08/2002

Certificates
US EPA Laboratory Code TX00158

ENVIRONMENTAL LAB OF TEXAS

SAMPLE WORK LIST

HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING STREET
MIDLAND, TX 79705
915-682-3946

Order#: G0204705
Project: 1882
Project Name: Pogo Producing Co. / Seeton TB#1
Location: Lea County

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.

Lab ID:	Sample :	Matrix:	Date / Time Collected	Date / Time Received	Container	Preservative
0204705-01	AH-3 1'-2'	SOIL	9/24/02 13:45	9/25/02 16:40	4 oz Glass	Ice

Lab Testing: **Rejected:** No **Temp:** 10 C

8021B/5030 BTEX

ENVIRONMENTAL LAB OF TEXAS

ANALYTICAL REPORT

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

Order#:	G0204705
Project:	1882
Project Name:	Pogo Producing Co. / Seeton TB#1
Location:	Lea County

Lab ID: 0204705-01
Sample ID: AH-3 1'-2'

8021B/5030 BTEX

Method Blank	Date Prepared	Date Analyzed	Sample Amount	Dilution Factor	Analyst	Method
0003374-02		10/5/02 14:41	1	25	CK	8021B

Parameter	Result mg/kg	RL
Benzene	<0.025	0.025
Ethylbenzene	3.87	0.025
Toluene	0.612	0.025
p/m-Xylene	5.25	0.025
o-Xylene	2.45	0.025

Surrogates	% Recovered	QC Limits (%)	
aaa-Toluene	86%	80	120
Bromofluorobenzene	99%	80	120

Approval: Jeanne McMurrey 10-09-02
Raland K. Tuttle, Lab Director, QA Officer — Date
Celey D. Keene, Org. Tech. Director
Jeanne McMurrey, Inorg. Tech. Director
Sandra Biezugbe, Lab Tech.
Sara Molina, Lab Tech.

DL = Diluted out N/A = Not Applicable RL = Reporting Limit

ENVIRONMENTAL LAB OF TEXAS

QUALITY CONTROL REPORT

8021B/5030 BTEX

Order#: G0204705

BLANK SOIL	LAB-ID #	Sample Concentr.	Spike Concentr.	QC Test Result	Pct (%) Recovery	RPD
Benzene-mg/kg	0003374-02			<0.025		
Ethylbenzene-mg/kg	0003374-02			<0.025		
Toluene-mg/kg	0003374-02			<0.025		
p/m-Xylene-mg/kg	0003374-02			<0.025		
o-Xylene-mg/kg	0003374-02			<0.025		
MS SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0204712-01	0	0.1	0.088	88.%	
Ethylbenzene-mg/kg	0204712-01	0	0.1	0.091	91.%	
Toluene-mg/kg	0204712-01	0	0.1	0.090	90.%	
p/m-Xylene-mg/kg	0204712-01	0	0.2	0.194	97.%	
o-Xylene-mg/kg	0204712-01	0	0.1	0.091	91.%	
MSD SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0204712-01	0	0.1	0.097	97.%	9.7%
Ethylbenzene-mg/kg	0204712-01	0	0.1	0.100	100.%	9.4%
Toluene-mg/kg	0204712-01	0	0.1	0.099	99.%	9.5%
p/m-Xylene-mg/kg	0204712-01	0	0.2	0.212	106.%	8.9%
o-Xylene-mg/kg	0204712-01	0	0.1	0.100	100.%	9.4%
SRM SOIL	**LAB-ID #**	**Sample Concentr.**	**Spike Concentr.**	**QC Test Result**	**Pct (%) Recovery**	**RPD**
Benzene-mg/kg	0003374-05		0.1	0.088	88.%	
Ethylbenzene-mg/kg	0003374-05		0.1	0.093	93.%	
Toluene-mg/kg	0003374-05		0.1	0.091	91.%	
p/m-Xylene-mg/kg	0003374-05		0.2	0.198	99.%	
o-Xylene-mg/kg	0003374-05		0.1	0.094	94.%	

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

4oz glass

PAGE: 1 OF: 1

CLIENT NAME: Pogo Producing Co.

SITE MANAGER: Tim Reed

PROJECT NO.: 1882

PROJECT NAME: Lea County, Seeton TB #1

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 (8015 MOD.) TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride
01	9/24/02	1250				AH-1 0-1'	1				X		X		X														X
02		1305				AH-1 1'-2'	1				X				X														X
03		1310				AH-1 2'-3'	1				X																		X
04		1315				AH-2 0-1'	1				X		X		X														X
05		1320				AH-2 1'-2'	1				X				X														X
06		1325				AH-2 2'-3'	1				X																		X
07		1340				AH-3 0-1'	1				X		X		X														X
08		1345				AH-3 1'-2'	1				X		X		X														X
09		1350				AH-3 2'-2.5'	1				X				X														X

-04620

Resubmit #08 -01

-264705

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 9/25/02 Time:

RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Sign) Tim Reed Tim Reed Date: 9/24/02 Time: 14:55

SAMPLE SHIPPED BY: (Circle)
FEDEX BUS AIRBILL #
HAND DELIVERED UPS OTHER:

RECEIVING LABORATORY: Environ Lab
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Cathy Kunz
DATE: 9/25/02 TIME: 16:40

HIGHLANDER CONTACT PERSON: Tim Reed

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 10 C

MATRIX: W-Water A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS: If TPH greater 1,000 mg/kg at 1'-2', run deep sample at 2-3' Run TPH

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Enviromental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

ANALYSIS: AH-3 1'-2' as per Tim 10/3/02 GW