



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop

Cabinet Secretary

Mark E. Fesmire, P.E.

Director

Oil Conservation Division

November 15, 2005

Mr. Pat Ellis EllisP@pogoproducing.com
Pogo Producing Company
300 N. Marienfield
Midland, TX 79701-7340

Re: East Livingston Ridge Closure Report
 Site Location: UL-D, Sec 18 – T22S - R32E
 Report Dated: November 3, 2005

Dear Mr. Ellis,

The New Mexico Oil Conservation Division (OCD) reviewed the above referenced report Submitted by your agent, Highlander Environmental Corp. (HEC). Based on information provided, the site requires no further action.

Please be advised that OCD approval does not relieve Pogo Producing Company of responsibility should operations result in pollution of surface water, ground water, or the environment. In addition, OCD approval does not relieve Pogo Producing Company of responsibility for compliance with any federal, state or local laws and/or regulations. If you have any questions or need assistance please call me at (505) 393-6161, x111 or e-mail larry.johnson@state.nm.us

Sincerely,

Larry Johnson - Environmental Engineer

1RP.227

CC: Roger Anderson - Environmental Bureau Chief
 Chris Williams - District I Supervisor
 Paul Sheeley- Environmental Engineer

SITE INFORMATION

General Site Information:

Site:	East Livingston Ridge Tank Battery #1
Company:	Pogo Producing Company
Section, Township and Range	Section 18, Township 22S, Range 32E
Unit Letter:	D
Lease Number:	NM32411
County:	Lea
GPS:	32-23-48.7 N / 103-42-30.0 W
Surface Owner:	BLM
Mineral Owner:	BLM
Directions:	From Jal, NM at the intersection of 18 & 128, take 128 west 35 miles past mile marker 18. Take right onto red road, travel 8.7 miles, road will merge with CR 29, travel 1.7 mile and take right onto lease road. Travel 0.7 mile on lease road, tank battery will be on right hand side of road.

Release Data:

Date Released:	6/3/2005
Type Release:	Produced Water
Source of Contamination:	Produced water tank fire
Fluid Released:	75 bbls.
Fluids Recovered:	75 bbls.

Official Communication:

Name:	Pat Ellis	Don Riggs	Ike Tavaréz
Company:	Pogo Producing Company	Pogo Producing Company	Highlander Environmental Corp.
Address:	300 N. Marienfeld St.	5 Greenway Plaza, Suite 2700	1910 N. Big Spring
P.O. Box	Box 10340		
City:	Midland Texas, 79701-7340	Houston, Texas 77046	Midland, Texas
Phone number:	(432) 685-8100	(713) 297-5045	(432) 692- 4559
Email:	EllisP@pogoproducing.com	riggsd@pogoproducing.com	itavarez@hec-enviro.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:	0	

Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



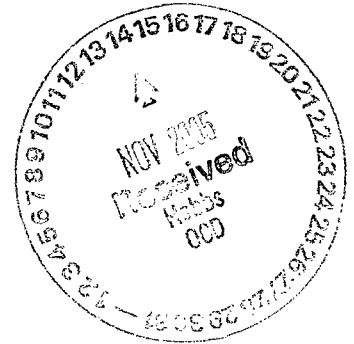
Highlander Environmental Corp.

Midland, Texas

1 RP-227
[Signature]

November 3, 2005

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



RE: Assessment and Closure Report for the Pogo Producing Company, East Livingston Ridge #1 Tank Battery, Unit Letter D, Section 18, T-22-S, R-32-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 when lightning struck a 500 barrel fiberglass water tank at the Pogo East Livingston Ridge #1 Tank Battery in Lea County, New Mexico (Site). The Site is located in Unit D, Section 18, Township 22 South, Range 32 East. The State of New Mexico C-141 (Initial) is included in Appendix C. The Site is shown in Figure 1.

Groundwater and Regulatory

According to the New Mexico Office of the State Engineer, WATERS database, the closest water wells were found in Sections 14 and 19, T-22-S, R-32-E, with reported average depths to water of 350' and 280' below ground surface (bgs). The State of New Mexico Well Reports are included in Appendix A.

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 RRAL for TPH is 5,000 mg/kg.

Background

This spill occurred on June 3, 2005 when lightning struck a 500 barrel fiberglass water tank.

A total of 75 barrels of produced water were released, with 75 barrels recovered. All of the fluids were contained within the facility firewall. The spill area is shown on Figure 2.

Inspection and Soil Sampling

Highlander personnel inspected and sampled the site on June 9, 2005. A total of five (5) auger holes (AH) were installed inside the facility firewall to delineate subsurface impact. Soil samples were collected using a stainless steel, bucket type hand auger. The auger hole locations are shown on Figure 2. The auger holes were advanced to a depths ranging from 3.5' to 5.5'. Samples were collected for evaluation of Total Petroleum Hydrocarbon (TPH) by method 8015M, BTEX by method 8021B and chloride by method 300.0. The soil sample results are shown in Table 1. The laboratory reports and the chain of custody documentation are included in Appendix B.

TPH concentrations exceeded the RRAL only in the sample from AH-5 (0-1.0'). No BTEX concentrations exceeded the RRAL for any of the sample locations. Chloride concentrations were elevated at the surface and declined with depth, with the exception of AH-5.

On September 8, 2005, a drilling rig was utilized in order to better profile the soils beneath AH-5, and to collect discreet soil samples for evaluation of subsurface chloride impact. One borehole was installed, near AH-5. Soil samples were collected at five foot increments to a total depth of 10'-11'. The chloride concentration declined from 3270 mg/kg at 5'-6' to 167 mg/kg at 10'-11'.

Corrective Action

On September 8, 2005, Highlander supervised excavation of approximately 1.0' of impacted soil from inside the facility firewall. The soil in the vicinity of AH-5, which exceeded the TPH RRAL was removed and placed on plastic on the site. One composite confirmation sample was taken and analyzed for TPH. TPH was not detected at or above the reporting limit for the confirmation sample. The soil stockpile was removed and hauled to the Sundance Disposal Facility in Eunice, New Mexico.

Conclusions

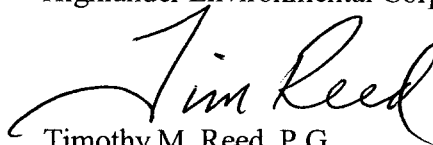
Based on the confirmation samples collected from the excavation, TPH concentrations did not exceed the RRAL and no BTEX concentrations exceeded the RRAL for any of the sample locations. Chloride concentrations were elevated at the surface and declined with depth to less than 250 mg/kg within 10' of the surface.

Based on the depth to groundwater, the auger hole and borehole sample results and the remediation performed at this facility, Pogo requests closure of this site. The State of New Mexico C-141 (Final) is included in Appendix C.



If you require any additional information or have any questions or comments concerning the assessment report, please call (432) 682-4559.

Highlander Environmental Corp.,

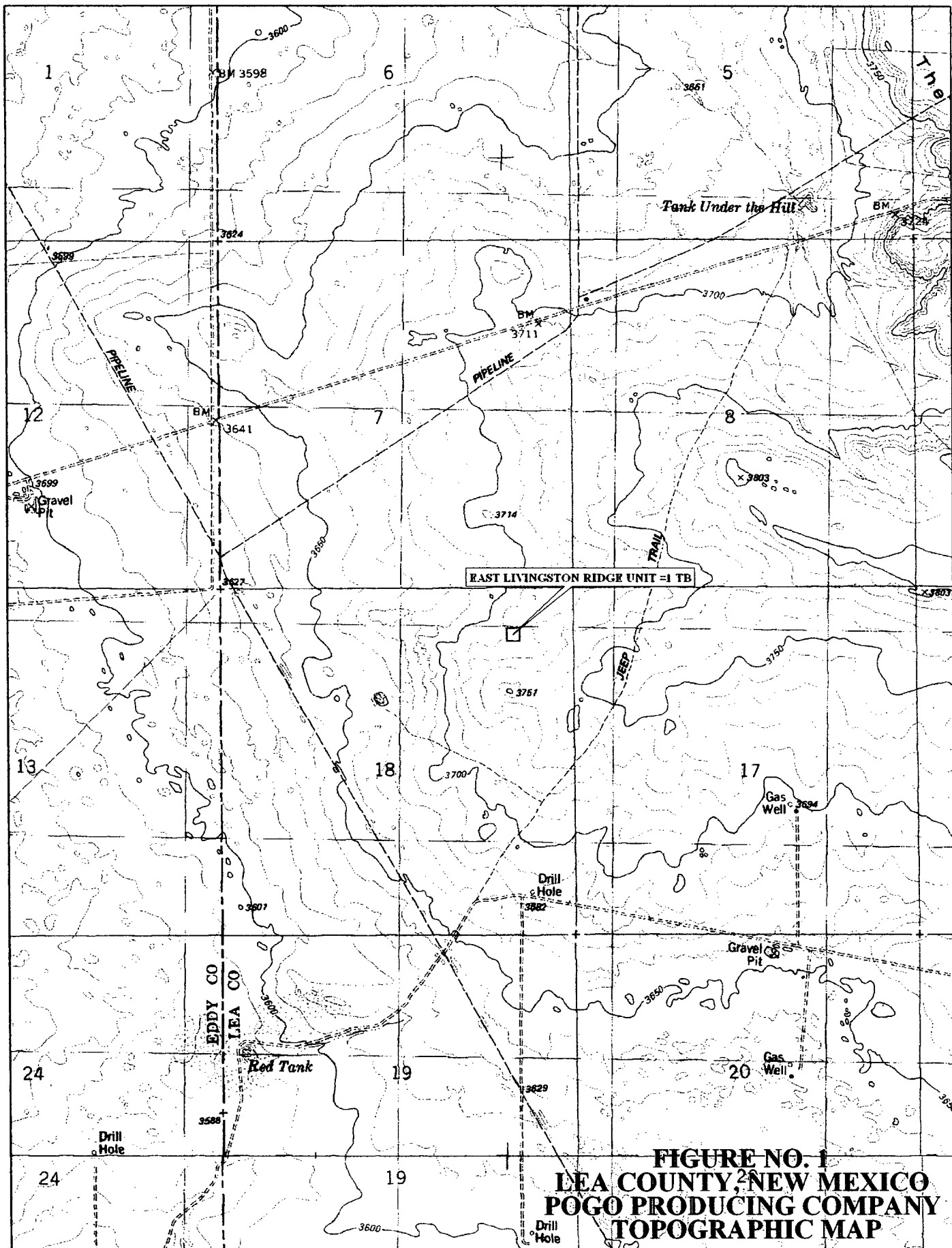


Timothy M. Reed, P.G.
Vice President

cc: Don Riggs - Pogo Producing Co.
Pat Ellis - Pogo Producing Co.



FIGURES



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www.delorme.com

Scale 1 : 24,000
 1" = 2000 ft



WELL 18
FED. #1

FACILITY PAD

LEASE RD.

EDGE OF EXCAVATION

BERM

-  SPILL AREA  EXCAVATED AREA
-  SAMPLE LOCATIONS  BOREHOLE LOCATION

NOT TO SCALE

DATE:
6/10/05
OWN. BY:
JJ
FILE:
CAP0002200/
BAR UNIT 1

FIGURE NO. 2

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY
EAST LIVINGSTON RIDGE UNIT #1 TB

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

TABLE

Table 1

Pogo Producing Company

East Livingstonston Ridge #1 Tank Battery

Lea County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			C6-C12	C12-C35	Total					
AH-1	6/9/2005	(0-1.0')	<10	111	111	<0.025	<0.025	<0.025	<0.025	196
AH-1	6/9/2005	(1.0'-1.5')	-	-	-	-	-	-	-	56
AH-1	6/9/2005	(2.0'-2.5')	-	-	-	-	-	-	-	37.4
AH-1	6/9/2005	(3.0'-3.5')	-	-	-	-	-	-	-	43.1
AH-2	6/9/2005	(0-1.0')	<10	<10	<10	<0.025	<0.025	<0.025	<0.025	1940
AH-2	6/9/2005	(1.0'-1.5')	-	-	-	-	-	-	-	39.6
AH-2	6/9/2005	(2.0'-2.5')	-	-	-	-	-	-	-	93.6
AH-2	6/9/2005	(3.0'-3.5')	-	-	-	-	-	-	-	42
AH-3	6/9/2005	(0-1.0')	<10	147	147	<0.025	<0.025	<0.025	0.0513	3960
AH-3	6/9/2005	(1.0'-1.5')	-	-	-	-	-	-	-	1320
AH-3	6/9/2005	(2.0'-2.5')	-	-	-	-	-	-	-	136
AH-3	6/9/2005	(3.0'-3.5')	-	-	-	-	-	-	-	148
AH-4	6/9/2005	(0-1.0')	<10	684	684	<0.025	<0.025	<0.025	0.0765	2230
AH-4	6/9/2005	(1.0'-1.5')	-	-	-	-	-	-	-	859
AH-4	6/9/2005	(2.0'-2.5')	-	-	-	-	-	-	-	657
AH-4	6/9/2005	(3.0'-3.5')	-	-	-	-	-	-	-	770
AH-5	6/9/2005	(0-1.0')	734	14,200	15,000	<0.025	<0.025	<0.025	<0.025	797
AH-5	6/9/2005	(1.0'-1.5')	<10.0	<10.0	<10.0	-	-	-	-	1030
AH-5	6/9/2005	(2.0'-2.5')	<10.0	<10.0	<10.0	-	-	-	-	977
AH-5	6/9/2005	(3.0'-3.5')	-	-	-	-	-	-	-	1650
AH-5	6/9/2005	(4.0'-4.5')	-	-	-	-	-	-	-	3800
BH-1	9/8/2005	(5'-6')	-	-	-	-	-	-	-	3270
BH-1	9/8/2005	(10'-11')	-	-	-	-	-	-	-	167
#1 Composite	9/8/2005		<10.0	<10.0	<10.0	-	-	-	-	-

APPENDIX A

Water Well - Average Depth to Groundwater

21 South			30 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

21 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			31 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

150 Average depth to groundwater (ft)
New Mexico Office of State Engineer Well Reports

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 22S Range: 32E 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 07/08/2005

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg
C	22S	32E	14				2	340	360	350
C	22S	32E	19				1	280	280	280

Record Count: 3

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 22S Range: 31E 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 07/08/2005

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg
C	22S	31E	16				1	448	448	448
C	22S	31E	20				3	45	48	47
C	22S	31E	28				8	401	450	444
C	22S	31E	29				1	413	413	413

Record Count: 13

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 23S Range: 32E 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 07/08/2005

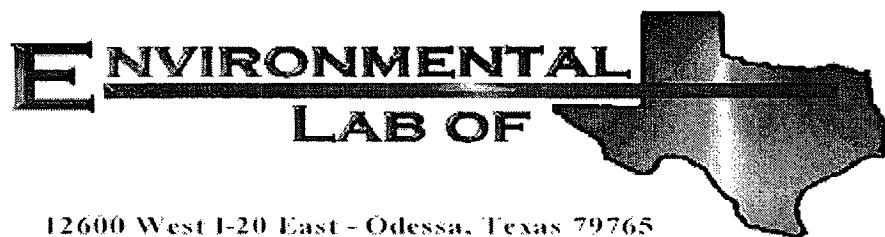
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg
C	23S	32E	21				1	400	400	400

Record Count: 1

APPENDIX B

Analytical Report

6/17/05



12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavarez

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ East Livingston Ridge #1 TB

Project Number: 2396

Location: Lea County, NM

Lab Order Number: 5F13005

Report Date: 06/17/05

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
06/17/05 10:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-1 (0-1.0')	5F13005-01	Soil	06/09/05 00:00	06/10/05 16:20
AH-1 (1.0-1.5')	5F13005-02	Soil	06/09/05 00:00	06/10/05 16:20
AH-1 (2.0-2.5')	5F13005-03	Soil	06/09/05 00:00	06/10/05 16:20
AH-1 (3.0-3.5')	5F13005-04	Soil	06/09/05 00:00	06/10/05 16:20
AH-2 (0-1.0')	5F13005-05	Soil	06/09/05 00:00	06/10/05 16:20
AH-2 (1.0-1.5')	5F13005-06	Soil	06/09/05 00:00	06/10/05 16:20
AH-2 (2.0-2.5')	5F13005-07	Soil	06/09/05 00:00	06/10/05 16:20
AH-2 (3.0-3.5')	5F13005-08	Soil	06/09/05 00:00	06/10/05 16:20
AH-3 (0-1.0')	5F13005-09	Soil	06/09/05 00:00	06/10/05 16:20
AH-3 (1.0-1.5')	5F13005-10	Soil	06/09/05 00:00	06/10/05 16:20
AH-3 (2.0-2.5')	5F13005-11	Soil	06/09/05 00:00	06/10/05 16:20
AH-3 (3.0-3.5')	5F13005-12	Soil	06/09/05 00:00	06/10/05 16:20
AH-4 (0-1.0')	5F13005-15	Soil	06/09/05 00:00	06/10/05 16:20
AH-4 (1.0-1.5')	5F13005-16	Soil	06/09/05 00:00	06/10/05 16:20
AH-4 (2.0-2.5')	5F13005-17	Soil	06/09/05 00:00	06/10/05 16:20
AH-4 (3.0-3.5')	5F13005-18	Soil	06/09/05 00:00	06/10/05 16:20
AH-5 (0-1.0')	5F13005-20	Soil	06/09/05 00:00	06/10/05 16:20
AH-5 (1.0-1.5')	5F13005-21	Soil	06/09/05 00:00	06/10/05 16:20
AH-5 (2.0-2.5')	5F13005-22	Soil	06/09/05 00:00	06/10/05 16:20
AH-5 (3.0-3.5')	5F13005-23	Soil	06/09/05 00:00	06/10/05 16:20

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/17/05 10:05

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-1 (0-1.0') (5F13005-01) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF51303	06/13/05	06/13/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		87.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		106 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	J [8.49]	10.0	mg/kg dry	1	EF51305	06/13/05	06/13/05	EPA 8015M	J
Diesel Range Organics >C12-C35	111	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	111	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		86.8 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		103 %	70-130		"	"	"	"	
AH-2 (0-1.0') (5F13005-05) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF51303	06/13/05	06/13/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		80.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		96.9 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EF51305	06/13/05	06/13/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
<i>Surrogate: 1-Chlorooctane</i>		73.2 %	70-130		"	"	"	"	
<i>Surrogate: 1-Chlorooctadecane</i>		78.0 %	70-130		"	"	"	"	
AH-3 (0-1.0') (5F13005-09) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF51303	06/13/05	06/13/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	J [0.0160]	0.0250	"	"	"	"	"	"	J
Xylene (p/m)	0.0513	0.0250	"	"	"	"	"	"	
Xylene (o)	J [0.0207]	0.0250	"	"	"	"	"	"	J
<i>Surrogate: a,a,a-Trifluorotoluene</i>		84.8 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	J [8.87]	10.0	mg/kg dry	1	EF51305	06/13/05	06/13/05	EPA 8015M	J
Diesel Range Organics >C12-C35	147	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	147	10.0	"	"	"	"	"	"	

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Page 2 of 11

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/17/05 10:05

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-3 (0-1.0') (5F13005-09) Soil									
Surrogate: 1-Chlorooctane		84.8 %	70-130		EF51305	06/13/05	06/13/05	EPA 8015M	
Surrogate: 1-Chlorooctadecane		107 %	70-130		"	"	"	"	
AH-4 (0-1.0') (5F13005-15) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF51303	06/13/05	06/13/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	J [0.0179]	0.0250	"	"	"	"	"	"	J
Xylene (p/m)	0.0511	0.0250	"	"	"	"	"	"	
Xylene (o)	0.0254	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		80.6 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.3 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	J [9.76]	10.0	mg/kg dry	1	EF51305	06/13/05	06/13/05	EPA 8015M	J
Diesel Range Organics >C12-C35	684	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	684	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		81.8 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		110 %	70-130		"	"	"	"	
AH-5 (0-1.0') (5F13005-20) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF51303	06/13/05	06/13/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		85.2 %	80-120		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.9 %	80-120		"	"	"	"	
Gasoline Range Organics C6-C12	734	50.0	mg/kg dry	5	EF51305	06/13/05	06/13/05	EPA 8015M	
Diesel Range Organics >C12-C35	14200	50.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	15000	50.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		13.6 %	70-130		"	"	"	"	S-06
Surrogate: 1-Chlorooctadecane		19.1 %	70-130		"	"	"	"	S-06

Environmental Lab of Texas

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Page 3 of 11

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
06/17/05 10:05

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-1 (0-1.0') (SF13005-01) Soil									
Chloride	196	5.00	mg/kg	10	EF51505	06/13/05	06/13/05	EPA 300.0	
% Moisture	11.4	0.1	%	1	EF51401	06/13/05	06/14/05	% calculation	
AH-1 (1.0-1.5') (SF13005-02) Soil									
Chloride	56.0	5.00	mg/kg	10	EF51505	06/13/05	06/13/05	EPA 300.0	
AH-1 (2.0-2.5') (SF13005-03) Soil									
Chloride	37.4	5.00	mg/kg	10	EF51505	06/13/05	06/13/05	EPA 300.0	
AH-1 (3.0-3.5') (SF13005-04) Soil									
Chloride	43.1	5.00	mg/kg	10	EF51505	06/13/05	06/13/05	EPA 300.0	
AH-2 (0-1.0') (SF13005-05) Soil									
Chloride	1940	25.0	mg/kg	50	EF51505	06/13/05	06/13/05	EPA 300.0	
% Moisture	8.8	0.1	%	1	EF51401	06/13/05	06/14/05	% calculation	
AH-2 (1.0-1.5') (SF13005-06) Soil									
Chloride	39.6	5.00	mg/kg	10	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-2 (2.0-2.5') (SF13005-07) Soil									
Chloride	93.6	5.00	mg/kg	10	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-2 (3.0-3.5') (SF13005-08) Soil									
Chloride	42.0	5.00	mg/kg	10	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-3 (0-1.0') (SF13005-09) Soil									
Chloride	3960	50.0	mg/kg	100	EF51506	06/14/05	06/14/05	EPA 300.0	
% Moisture	5.8	0.1	%	1	EF51401	06/13/05	06/14/05	% calculation	
AH-3 (1.0-1.5') (SF13005-10) Soil									
Chloride	1320	25.0	mg/kg	50	EF51506	06/14/05	06/14/05	EPA 300.0	

Environmental Lab of Texas

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Page 4 of 11

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX. 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
06/17/05 10:05

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-3 (2.0-2.5') (5F13005-11) Soil									
Chloride	136	5.00	mg/kg	10	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-3 (3.0-3.5') (5F13005-12) Soil									
Chloride	148	5.00	mg/kg	10	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-4 (0-1.0') (5F13005-15) Soil									
Chloride	2230	50.0	mg/kg	100	EF51506	06/14/05	06/14/05	EPA 300.0	
% Moisture	9.6	0.1	%	1	EF51401	06/13/05	06/14/05	% calculation	
AH-4 (1.0-1.5') (5F13005-16) Soil									
Chloride	859	10.0	mg/kg	20	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-4 (2.0-2.5') (5F13005-17) Soil									
Chloride	657	10.0	mg/kg	20	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-4 (3.0-3.5') (5F13005-18) Soil									
Chloride	770	10.0	mg/kg	20	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-5 (0-1.0') (5F13005-20) Soil									
Chloride	797	10.0	mg/kg	20	EF51506	06/14/05	06/14/05	EPA 300.0	
% Moisture	10.7	0.1	%	1	EF51401	06/13/05	06/14/05	% calculation	
AH-5 (1.0-1.5') (5F13005-21) Soil									
Chloride	1030	10.0	mg/kg	20	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-5 (2.0-2.5') (5F13005-22) Soil									
Chloride	977	10.0	mg/kg	20	EF51506	06/14/05	06/14/05	EPA 300.0	
AH-5 (3.0-3.5') (5F13005-23) Soil									
Chloride	1650	25.0	mg/kg	50	EF51506	06/14/05	06/14/05	EPA 300.0	

Environmental Lab of Texas

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Page 5 of 11

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/17/05 10:05

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EF51303 - EPA 5030C (GC)

Blank (EF51303-BLK1)

Prepared & Analyzed: 06/13/05

Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	87.9		ug/kg	100		87.9	80-120			
Surrogate: 4-Bromofluorobenzene	105		"	100		105	80-120			

LCS (EF51303-BS1)

Prepared: 06/13/05 Analyzed: 06/14/05

Benzene	103		ug/kg	100		103	80-120			
Toluene	95.7		"	100		95.7	80-120			
Ethylbenzene	93.8		"	100		93.8	80-120			
Xylene (p/m)	208		"	200		104	80-120			
Xylene (o)	96.3		"	100		96.3	80-120			
Surrogate: a,a,a-Trifluorotoluene	106		"	100		106	80-120			
Surrogate: 4-Bromofluorobenzene	109		"	100		109	80-120			

Calibration Check (EF51303-CCV1)

Prepared: 06/13/05 Analyzed: 06/14/05

Benzene	108		ug/kg	100		108	80-120			
Toluene	97.6		"	100		97.6	80-120			
Ethylbenzene	85.9		"	100		85.9	80-120			
Xylene (p/m)	188		"	200		94.0	80-120			
Xylene (o)	89.0		"	100		89.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	114		"	100		114	80-120			
Surrogate: 4-Bromofluorobenzene	112		"	100		112	80-120			

Matrix Spike (EF51303-MS1)

Source: 5F13006-13

Prepared: 06/13/05 Analyzed: 06/14/05

Benzene	2370		ug/kg	2500	18.3	94.1	80-120			
Toluene	2540		"	2500	361	87.2	80-120			
Ethylbenzene	2210		"	2500	206	80.2	80-120			
Xylene (p/m)	5050		"	5000	904	82.9	80-120			
Xylene (o)	2320		"	2500	311	80.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	111		"	100		111	80-120			
Surrogate: 4-Bromofluorobenzene	141		"	100		141	80-120			S-04

Environmental Lab of Texas

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Page 6 of 11

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
06/17/05 10:05

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EF51303 - EPA 5030C (GC)

Matrix Spike Dup (EF51303-MSD1)

Source: 5F13006-13

Prepared: 06/13/05 Analyzed: 06/14/05

Benzene	2440		ug/kg	2500	18.3	96.9	80-120	2.93	20	
Toluene	2560		"	2500	361	88.0	80-120	0.913	20	
Ethylbenzene	2270		"	2500	206	82.6	80-120	2.95	20	
Xylene (p/m)	5070		"	5000	904	83.3	80-120	0.481	20	
Xylene (o)	2450		"	2500	311	85.6	80-120	6.27	20	
Surrogate: <i>a,a,a</i> -Trifluorotoluene	108		"	100		108	80-120			
Surrogate: 4-Bromofluorobenzene	124		"	100		124	80-120			S-04

Batch EF51305 - Solvent Extraction (GC)

Blank (EF51305-BLK1)

Prepared & Analyzed: 06/13/05

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	37.6		mg/kg	50.0		75.2	70-130			
Surrogate: 1-Chlorooctadecane	46.0		"	50.0		92.0	70-130			

LCS (EF51305-BS1)

Prepared & Analyzed: 06/13/05

Gasoline Range Organics C6-C12	456	10.0	mg/kg wet	500		91.2	75-125			
Diesel Range Organics >C12-C35	505	10.0	"	500		101	75-125			
Total Hydrocarbon C6-C35	961	10.0	"	1000		96.1	75-125			
Surrogate: 1-Chlorooctane	41.8		mg/kg	50.0		83.6	70-130			
Surrogate: 1-Chlorooctadecane	37.6		"	50.0		75.2	70-130			

Calibration Check (EF51305-CCV1)

Prepared & Analyzed: 06/13/05

Gasoline Range Organics C6-C12	548		mg/kg	500		110	80-120			
Diesel Range Organics >C12-C35	525		"	500		105	80-120			
Total Hydrocarbon C6-C35	1070		"	1000		107	80-120			
Surrogate: 1-Chlorooctane	56.5		"	50.0		113	70-130			
Surrogate: 1-Chlorooctadecane	52.9		"	50.0		106	70-130			

Environmental Lab of Texas

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Page 7 of 11

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
06/17/05 10:05

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EF51305 - Solvent Extraction (GC)

Matrix Spike (EF51305-MS1)

Source: 5F13001-01

Prepared & Analyzed: 06/13/05

Gasoline Range Organics C6-C12	524	10.0	mg/kg dry	537	ND	97.6	75-125			
Diesel Range Organics >C12-C35	600	10.0	"	537	21.7	108	75-125			
Total Hydrocarbon C6-C35	1120	10.0	"	1070	21.7	103	75-125			
Surrogate: 1-Chlorooctane	52.4		mg/kg	50.0		105	70-130			
Surrogate: 1-Chlorooctadecane	49.9		"	50.0		99.8	70-130			

Matrix Spike Dup (EF51305-MSD1)

Source: 5F13001-01

Prepared & Analyzed: 06/13/05

Gasoline Range Organics C6-C12	549	10.0	mg/kg dry	537	ND	102	75-125	4.66	20	
Diesel Range Organics >C12-C35	550	10.0	"	537	21.7	98.4	75-125	8.70	20	
Total Hydrocarbon C6-C35	1100	10.0	"	1070	21.7	101	75-125	1.80	20	
Surrogate: 1-Chlorooctane	52.9		mg/kg	50.0		106	70-130			
Surrogate: 1-Chlorooctadecane	51.0		"	50.0		102	70-130			

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/17/05 10:05

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EF51401 - General Preparation (Prep)

Blank (EF51401-BLK1)

Prepared: 06/13/05 Analyzed: 06/14/05

% Moisture ND 0.1 %

Duplicate (EF51401-DUP1)

Source: 5F13001-01

Prepared: 06/13/05 Analyzed: 06/14/05

% Moisture 7.1 0.1 % 6.9 2.86 20

Batch EF51505 - Water Extraction

Blank (EF51505-BLK1)

Prepared & Analyzed: 06/13/05

Chloride ND 0.500 mg/kg

LCS (EF51505-BS1)

Prepared & Analyzed: 06/13/05

Chloride 10.3 mg/L 10.0 103 80-120

Calibration Check (EF51505-CCV1)

Prepared & Analyzed: 06/13/05

Chloride 10.9 mg/L 10.0 109 80-120

Duplicate (EF51505-DUP1)

Source: 5F13004-06

Prepared & Analyzed: 06/13/05

Chloride 72.7 5.00 mg/kg 88.6 19.7 20

Batch EF51506 - Water Extraction

Blank (EF51506-BLK1)

Prepared & Analyzed: 06/14/05

Chloride ND 0.500 mg/kg

LCS (EF51506-BS1)

Prepared & Analyzed: 06/14/05

Chloride 10.7 mg/L 10.0 107 80-120

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
06/17/05 10:05

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EF51506 - Water Extraction

Calibration Check (EF51506-CCV1)

Prepared & Analyzed: 06/14/05

Chloride	11.1		mg/L	10.0	111	80-120
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Duplicate (EF51506-DUP1)

Source: 5F13005-18

Prepared & Analyzed: 06/14/05

Chloride	766	10.0	mg/kg	770	0.521	20
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Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
06/17/05 10:05

Notes and Definitions

S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.

S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.

J Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag).

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

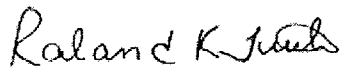
RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

6/17/2005

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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Environmental Lab of Texas

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Page 11 of 11

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559

Fax (432) 682-3946

PAGE: 1 OF: 3

ANALYSIS REQUEST (Circle or Specify Method No.)

CLIENT NAME: P060

SITE MANAGER: Ike Tovar

PROJECT NO.: 2396

PROJECT NAME: P0601 East Livingston Ridge #1 TB

Leu County, NM

SAMPLE IDENTIFICATION

LAB I.D. NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE METHOD

HCL

HNO3

ICE

NONE

PCB 8080/808																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(432) 682-4559

Fax (432) 682-3946

PAGE: 2 OF: 3

ANALYSIS REQUEST

(Circle or Specify Method No.)

CLIENT NAME: **POGO**

SITE MANAGER: **Ike Tawarez**

PROJECT NO.: **2396**

PROJECT NAME: **POGO / East Livingston Ridge #1TB**

Lea County, NM
SAMPLE IDENTIFICATION

LAB I.D. NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE METHOD

HCL

HNO3

ICE

NONE

SETEX 8020/802

MTBE 8020/802

PCB 418.1 8015 MOD

PAH 8270

HCRA Metals Ag As Ba Ca Cr Pb Hg Bi

TCAP Metals Ag As Ba Ca Cr Pb Hg Bi

TCAP Volatiles

TCAP Semi Volatiles

HCL

CCMS Vol. 8240/8260/824

CCMS Semi. Vol. 8270/825

PCB 8020/802

PCB 8020/802

HCD TSS, pH, TDS (Chloride)

Gardner Spec.

Alpha Beta (Air)

PLM (Asbestos)

4

6/9/05

S

X

AH-3 (2.0'-2.5')

1

X

72

S

X

AH-3 (3.0'-3.5')

1

X

73

S

X

AH-3 (4.0'-4.5')

1

X

74

S

X

AH-3 (5.0'-5.5')

1

X

75

S

X

AH-4 (0-1.0')

1

X

X

76

S

X

AH-4 (1.0'-1.5')

1

X

77

S

X

AH-4 (2.0'-2.5')

1

X

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(432) 682-4559

Fax (432) 682-3946

PAGE: 3 OF: 3

ANALYSIS REQUEST (Circle or Specify Method No.)

CLIENT NAME: POGO

SITE MANAGER: Ike Tavares

PROJECT NO.: 2396

PROJECT NAME: POGO/ East Livingston Ridge #1 TB
Lea County, NM
SAMPLE IDENTIFICATION

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP.

GRAB

NUMBER OF CONTAINERS

PLANNED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

STEX 6020/602

MTBE 3000/602

PAH 6270

PCRA Metals Ag As Ba Ca Cr Pb Hg Se

TCLP Metals Ag As Ba Ca Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol 6240/6250/624

GC/MS Semi. Vol 6270/625

PCH 6060/608

Post 606/608

BOD, TSS, pH, TDS, Chlorides

Cannux Spec.

Alpha Beta (Air)

PLM (Asbestos)

-21

6/19/05

S

X

AH-5 (1.0' - 1.5')

1

-22

6/19/05

S

X

AH-5 (2.0' - 2.5')

1

-23

6/19/05

S

X

AH-5 (3.0' - 3.5')

1

-24

6/19/05

S

X

AH-5 (4.0' - 4.5')

1

RELINQUISHED BY: (Signature)

Date: 6/19/05

Time: 4:20

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLED BY: (Print & Sign)

(May 19th / 12:45 PM) JCM

Date: 6/19/05

Time: 11:00

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHEPPED BY: (Circle)

FEDX BUS

AIRBILL # _____

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

HAND DELIVERED UPS

OTHER: _____

RECEIVING LABORATORY: EC

ADDRESS: _____

CITY: _____

STATE: _____

ZIP: _____

CONTACT: _____

PHONE: _____

RECEIVED BY: (Signature)

Carol Kelly

DATE: 6/19/05

TIME: 4:20

HIGHLANDER CONTACT PERSON:

Ike Tavares

Results by:

RUSH Charges

Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX:

W-Water

A-Air

SD-Solid

S-Soil

SL-Sludge

O-Other

REMARKS:

30°C 4oz jar seals/labels

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

Environmental Lab of Texas Variance / Corrective Action Report - Sample Log-In

Location: Highlander

Date/Time: 6/10/05 4:20

Order #: SF13005

Initials: CR

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	3.0	C
Is cooling container/cooler in good condition?	<input checked="" type="checkbox"/>	No		
Leaky Seals intact on cooling container/cooler?	Yes	No	Not present	
Leaky Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present	
Chain of custody present?	<input checked="" type="checkbox"/>	No		
Sample instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No		
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No		
Chain of custody agrees with sample labelist?	<input checked="" type="checkbox"/>	No		
Container labels edible and intact?	<input checked="" type="checkbox"/>	No		
Sample Matrix and quantities same as on chain of custody?	<input checked="" type="checkbox"/>	No		
Samples in order container/bottle?	<input checked="" type="checkbox"/>	No		
Samples properly preserved?	<input checked="" type="checkbox"/>	No		
Sample seals intact?	<input checked="" type="checkbox"/>	No		
Preservatives documented on Chain of Custody?	<input checked="" type="checkbox"/>	No		
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No		
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No		
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No		
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable	

Other observations:

Variance Documentation:

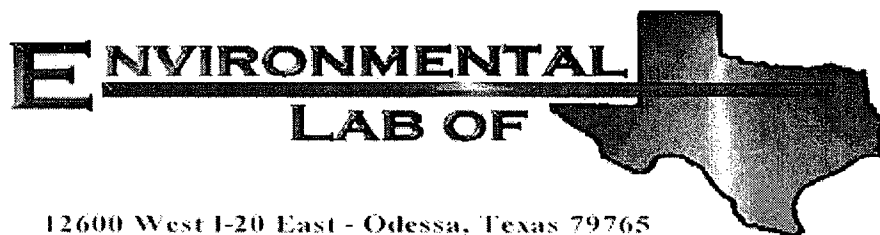
Contact Person: _____ Date/Time: _____ Contacted by: _____

Regarding: _____

Corrective Action Taken:

Analytical Report

7/5/05



12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavaréz

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ East Livingston Ridge #1 TB

Project Number: 2396

Location: Lea County, NM

Lab Order Number: 5F28011

Report Date: 07/05/05

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
07/05/05 10:17

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-5 (1.0' - 1.5')	5F28011-01	Soil	06/09/05 00:00	06/10/05 16:20
AH-5 (2.0' - 2.5')	5F28011-02	Soil	06/09/05 00:00	06/10/05 16:20

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946
Reported:
07/05/05 10:17

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-5 (1.0' - 1.5') (5F28011-01) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EF52907	06/29/05	06/29/05	EPA 8015M	O-05
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	O-05
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	O-05
Surrogate: 1-Chlorooctane		88.0 %	70-130		"	"	"	"	O-05
Surrogate: 1-Chlorooctadecane		109 %	70-130		"	"	"	"	O-05
AH-5 (2.0' - 2.5') (5F28011-02) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EF52907	06/29/05	06/29/05	EPA 8015M	O-05
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	O-05
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	O-05
Surrogate: 1-Chlorooctane		90.4 %	70-130		"	"	"	"	O-05
Surrogate: 1-Chlorooctadecane		114 %	70-130		"	"	"	"	O-05

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
07/05/05 10:17

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-5 (1.0' - 1.5') (5F28011-01) Soil									
% Moisture	2.4	0.1	%	1	EF53005	06/29/05	06/30/05	% calculation	
AH-5 (2.0' - 2.5') (5F28011-02) Soil									
% Moisture	2.3	0.1	%	1	EF53005	06/29/05	06/30/05	% calculation	

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX. 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
07/05/05 10:17

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EF52907 - Solvent Extraction (GC)

Blank (EF52907-BLK1)

Prepared & Analyzed: 06/29/05

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	36.5		mg/kg	50.0		73.0	70-130			
Surrogate: 1-Chlorooctadecane	45.5		"	50.0		91.0	70-130			

LCS (EF52907-BS1)

Prepared & Analyzed: 06/29/05

Gasoline Range Organics C6-C12	384	10.0	mg/kg wet	500		76.8	75-125			
Diesel Range Organics >C12-C35	543	10.0	"	500		109	75-125			
Total Hydrocarbon C6-C35	927	10.0	"	1000		92.7	75-125			
Surrogate: 1-Chlorooctane	40.9		mg/kg	50.0		81.8	70-130			
Surrogate: 1-Chlorooctadecane	44.6		"	50.0		89.2	70-130			

Calibration Check (EF52907-CCV1)

Prepared: 06/29/05 Analyzed: 06/30/05

Gasoline Range Organics C6-C12	460		mg/kg	500		92.0	80-120			
Diesel Range Organics >C12-C35	598		"	500		120	80-120			
Total Hydrocarbon C6-C35	1060		"	1000		106	80-120			
Surrogate: 1-Chlorooctane	61.4		"	50.0		123	70-130			
Surrogate: 1-Chlorooctadecane	61.7		"	50.0		123	70-130			

Matrix Spike (EF52907-MS1)

Source: 5F28011-01

Prepared & Analyzed: 06/29/05

Gasoline Range Organics C6-C12	455	10.0	mg/kg dry	512	ND	88.9	75-125			
Diesel Range Organics >C12-C35	557	10.0	"	512	ND	109	75-125			
Total Hydrocarbon C6-C35	1010	10.0	"	1020	ND	99.0	75-125			
Surrogate: 1-Chlorooctane	52.0		mg/kg	50.0		104	70-130			
Surrogate: 1-Chlorooctadecane	52.0		"	50.0		104	70-130			

Matrix Spike Dup (EF52907-MSD1)

Source: 5F28011-01

Prepared & Analyzed: 06/29/05

Gasoline Range Organics C6-C12	451	10.0	mg/kg dry	512	ND	88.1	75-125	0.883	20	
Diesel Range Organics >C12-C35	566	10.0	"	512	ND	111	75-125	1.60	20	
Total Hydrocarbon C6-C35	1020	10.0	"	1020	ND	100	75-125	0.985	20	
Surrogate: 1-Chlorooctane	54.0		mg/kg	50.0		108	70-130			
Surrogate: 1-Chlorooctadecane	54.0		"	50.0		108	70-130			

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Page 4 of 6

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
07/05/05 10:17

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	--------------------	-------	----------------	------------------	--------------	----------------	-----	--------------	-------

Batch EF53005 - General Preparation (Prep)

Blank (EF53005-BLK1)

Prepared: 06/29/05 Analyzed: 06/30/05

% Moisture	ND	0.1	%							
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Duplicate (EF53005-DUP1)

Source: 5F28011-01

Prepared: 06/29/05 Analyzed: 06/30/05

% Moisture	2.1	0.1	%		2.4			13.3	20	
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Environmental Lab of Texas

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Page 5 of 6

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
07/05/05 10:17

Notes and Definitions

O-05 This sample was extracted outside of the EPA recommended holding time.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:

Raland K. Tuttle

Date:

7/5/2005

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

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Environmental Lab of Texas

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Page 6 of 6

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559

Fax (432) 682-3946

PAGE: 3 OF: 3

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: PO 60

SITE MANAGER: Ike Tovar

PROJECT NO.: 2396

PROJECT NAME: PO 60 / East Livingston Ridge #1 TB

Lea County, NM

SAMPLE IDENTIFICATION

28011
LAB I.D.
NUMBER

DATE

TIME

MATRIX
COMP.
GRAB

MATRIX
COMP.
GRAB

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COMP.
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GRAB

MATRIX
COMP.
GRAB

MATRIX
COMP.
GRAB

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE
METHOD

PTX 8020/802

MTX 8020/802

TPH 418.1 (B015 MOD)

PAH 8270

PCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCMP Metals Ag As Ba Cd Cr Pb Hg Se

TCMP Volatiles

TCMP Semi Volatiles

RCI

GC/MS Vol. B240/B240/B24

GC/MS Semi Vol. B270/B25

PCB's 9080/808

PAH 808/808

ROD, TSS, pH, TDS, (Chloride)

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

RELINQUISHED BY: (Signature)

Date: 6/10/05
Time: 11:00

RECEIVED BY: (Signature)

Date: 6/10/05
Time: 11:00

SAMPLED BY: (Print & Sign)

Date: 6/10/05
Time: 11:00

RELINQUISHED BY: (Signature)

Date: 6/10/05
Time: 11:00

RECEIVED BY: (Signature)

Date: 6/10/05
Time: 11:00

SAMPLE SHIPPED BY: (Circle)

AIRBILL #

RELINQUISHED BY: (Signature)

Date: 6/10/05
Time: 11:00

RECEIVED BY: (Signature)

Date: 6/10/05
Time: 11:00

HAND DELIVERED

UPS

OTHER:

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

RECEIVED BY: (Signature)

Date: 6/10/05

Time: 11:00

HIGHLANDER CONTACT PERSON:

Ike Tovar

Results by:

RUSH Charges

Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX:

W-Water

A-Air

SD-Solid

S-Sol

SL-Sludge

O-Other

REMARKS:

3.0°C, 4oz jar sealed/labeled

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

* See attached email 062805

* Run TPH on 3-3.5' if 2-2.5' exceeds 5000mg/kg

Environmental Lab of Texas
Variance / Corrective Action Report - Sample Log-In

to: Highlander
 Date/Time: 6/10/05 4:20
 Core #: 5F13005 / 5F28011
 Vials: NR

COPY

Sample Receipt Checklist

Temperature of containers/cooler?	Yes	No	3.10
Is cooler container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Is cool. Seals intact on shipping container/cooler?	Yes	No	<input checked="" type="checkbox"/>
Is cool. Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Is cool. of custody present?	<input checked="" type="checkbox"/>	No	
Are all instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Is Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Is Chain of Custody agrees with sample labels?	<input checked="" type="checkbox"/>	No	
Is container caps sealed and intact?	<input checked="" type="checkbox"/>	No	
Is sample Name and procedures same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Is sample in proper container/bottle?	<input checked="" type="checkbox"/>	No	
Is sample properly preserved?	<input checked="" type="checkbox"/>	No	
Is sample bottles intact?	<input checked="" type="checkbox"/>	No	
Are containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Are containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Is Chain of Custody signed for indicated test?	<input checked="" type="checkbox"/>	No	
Are samples received with sufficient hold time?	<input checked="" type="checkbox"/>	No	
Are samples are zero residues?	<input checked="" type="checkbox"/>	No	Not present

Other observations:

Variance Documentation:

Contact Person: The Tavares Date/Time: 6/28/05 @ 1540 Contacted by: Jeanne McManus
 Regarding: hold time expired for TPH 8015m

Comments - Client/Target:

Client understands and wants to continue w/analysis

Highlander Environmental Corp.

Midland, Texas

FAX

DATE: 6-28-05
TO: Jennie
WITH: Environmental Lab of Texas
FAX: 1-(432) 563-1713

FROM: Ike Tavaréz
WITH: Highlander Environmental Corp.
Midland, Texas

PAGES:
(including Fax cover)

Description:

Pogo, Livingston Ridge #1: Request Additional Analyses:

Lab Order # 5F3005

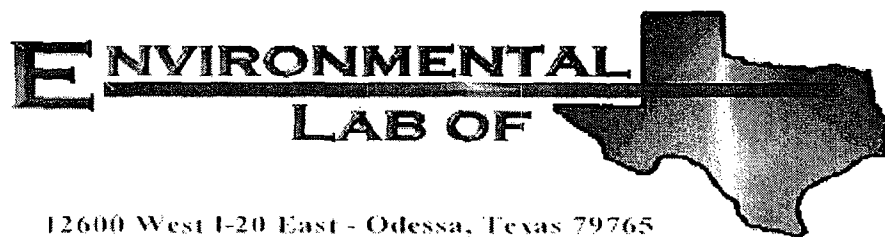
#5 1-1.5 TPH
2-2.5 TPH
3-3.5 Run, if TPH 2-2.5- sample exceed 5,000 mg/kg

HIGHLANDER ENVIRONMENTAL CORP.
1910 N. BIG SPRING
MIDLAND, TEXAS 79705
(432) 682-4559
e-mail: itavarez@hec-enviro.com

If fax is not legible please call Ike Tavaréz at (432) 682-4559

Analytical Report

7/26/05



12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavaréz

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ East Livingston Ridge #1 TB

Project Number: 2396

Location: Lea County, NM

Lab Order Number: 5G20014

Report Date: 07/26/05

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946
Reported:
07/26/05 08:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-5 (4.0-4.5')	5G20014-01	Soil	06/09/05 00:00	06/10/05 16:20

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946
Reported:
07/26/05 08:13

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-5 (4.0-4.5') (5G20014-01) Soil									
Chloride	3800	50.0	mg/kg	100	EG52508	07/22/05	07/22/05	EPA 300.0	O-04

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
07/26/05 08:13

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EG52508 - Water Extraction										
Blank (EG52508-BLK1)				Prepared & Analyzed: 07/22/05						
Chloride	ND	0.500	mg/kg							
LCS (EG52508-BS1)				Prepared & Analyzed: 07/22/05						
Chloride	10.9		mg/L	10.0		109	80-120			
Calibration Check (EG52508-CCV1)				Prepared & Analyzed: 07/22/05						
Chloride	9.34		mg/L	10.0		93.4	80-120			
Duplicate (EG52508-DUP1)				Prepared & Analyzed: 07/22/05						
Chloride	1540	25.0	mg/kg		1660			7.50	20	

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
07/26/05 08:13

Notes and Definitions

O-04 This sample was analyzed outside the EPA recommended holding time.
DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:

Raland K. Tuttle

Date:

7/26/2005

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Environmental Lab of Texas.

Page 4 of 4

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559

Fax (432) 682-3946

CLIENT NAME: P060

SITE MANAGER: Ike Tavares

PROJECT NO.: 2396

PROJECT NAME: P060 / East Livingston Ridge H1 TB

Lea County, NM
SAMPLE IDENTIFICATION

LAB I.D. NUMBER

DATE

TIME

MATRIX

CONC.

SIZE

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE METHOD

HCL

HNO3

ICE

NONE

ATX 8020/802

MTBE 8020/802

TPH 418.1 (8015 MOD)

PAH 8270

PCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8280/8284

GC/MS Semi. Vol. 8270/825

PCB's 8080/808

Pest. 808/808

BOD, TSS, pH, TDS, Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

RELINQUISHED BY: (Signature)

Date: 6/10/05

Time: 11:00

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLED BY: (Print & Sign)

Ike Tavares

Date: 6/10/05

Time: 11:00

RELINQUISHED BY: (Signature)

Date: _____

Time: _____

RECEIVED BY: (Signature)

Date: _____

Time: _____

SAMPLE SHIPPED BY: (Circle)

FEDEX ☐ BUS ☐

AIRBILL # _____

HAND DELIVERED ☒ UPS ☐

OTHER: _____

RECEIVING LABORATORY: _____

ADDRESS: _____

CITY: _____

STATE: _____

ZIP: _____

CONTACT: _____

PHONE: _____

RECEIVED BY: (Signature)

Ike Tavares

DATE: 6/10/05

TIME: 1:20

HIGHLANDER CONTACT PERSON:

Ike Tavares

Results by:

RUSH Charges

Authorized:

Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX:

W-Water

A-Air

SD-Solid

S-Sed

SL-Sludge

O-Other

REMARKS:

3.0°C. And jar spec. labels

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

Add or 07-20-05 as per attached e-mail

COPY

Environmental Lab of Texas
Variance / Corrective Action Report - Sample Log-In

to: Highlander

at Time: 6/10/05 4:20

for # SE13005 SG20014

COPY

file: NR

Sample Receipt Checklist:

Temperature of container/coolant?	Yes	No	3.12
Is the sample container in good condition?	<input checked="" type="checkbox"/>	No	
Is the Sample intact on arrival in container/coolant?	Yes	No	<input checked="" type="checkbox"/>
Is the Sample intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample instructions complete in Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when received and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample labels?	<input checked="" type="checkbox"/>	No	
Container caps sealed and intact?	<input checked="" type="checkbox"/>	No	
Sample Mark and properties same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Sample is properly sealed/protected?	<input checked="" type="checkbox"/>	No	
Sample properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	<input checked="" type="checkbox"/>	No	
Temperature documented in Chain of Custody?	<input checked="" type="checkbox"/>	No	
Time documented in Chain of Custody?	<input checked="" type="checkbox"/>	No	
Is the sample amount for analysis correct?	<input checked="" type="checkbox"/>	No	
Is sample received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
Is the sample at the test site?	<input checked="" type="checkbox"/>	No	Not at test site

Other observations:

Variance Documentation:

Contact Person: Tim Reed

Date/Time: 07-20-05 @ 1038

Contacted by: Jeanne McMurray

Regarding:

exceeded hold time for Chloride

Directions - User Taken:

As per the attached e-mail client is aware that the
hold time has been exceeded and wants to continue with
the analysis.

Jeanne McMurrey

From: "Tim Reed" <treed@hec-enviro.com>
To: "Jeanne McMurrey" <jeanne@elabtexas.com>
Sent: Wednesday, July 20, 2005 10:38 AM
Subject: RE: Report #5F20005 COG/ Keystone #4

July 20, 2005

Environmental Labs of Texas

Jeanne:

We request the following sample analysis be added to Lab Number 5F13005:

Pogo/ East Livingston Ridge #1 TB
AH-5 (4.0'-4.5'), Chloride

We realize that the sample holding time for chloride (28 days) has been exceeded.

Thank you,

Tim Reed, P.G.
Vice President
Highlander Environmental Corp.
office - (432) 682-4559
fax - (432) 682-3946
cell - (432) 557-4680

--

This message has been scanned for viruses and dangerous content by MailScanner at BasinBroadBand.com, and is believed to be clean.

--

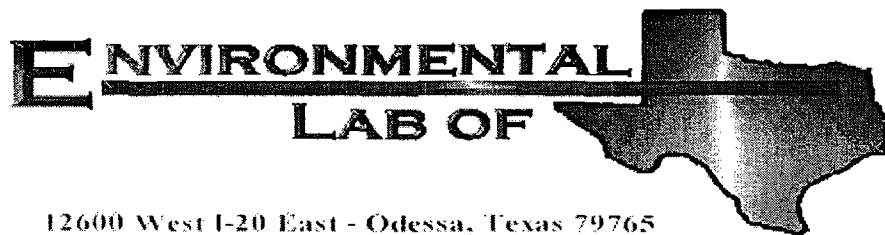
This message has been scanned for viruses and dangerous content by [MailScanner](#), and is believed to be clean.

MailScanner thanks [transtec Computers](#) for their support.

7/20/2005

Analytical Report

9/20/05



12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavaréz

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ East Livingston Ridge #1 TB

Project Number: 2396

Location: Lea Co., NM

Lab Order Number: 5113015

Report Date: 09/20/05

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
09/20/05 08:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 (5-6)	5113015-01	Soil	09/08/05 00:00	09/13/05 16:00
BH-1 (10-11)	5113015-02	Soil	09/08/05 00:00	09/13/05 16:00
#1 Composite	5113015-03	Soil	09/08/05 00:00	09/13/05 16:00

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946
Reported:
09/20/05 08:34

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
#1 Composite (5113015-03) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	E151414	09/14/05	09/17/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		91.2 %	70-130		"	"	"	"	
Surrogate: 1-Chlorooctadecane		93.8 %	70-130		"	"	"	"	

Environmental Lab of Texas

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Page 2 of 6

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
09/20/05 08:34

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 (5-6) (5113015-01) Soil									
Chloride	3270	50.0	mg/kg	100	E151508	09/15/05	09/15/05	EPA 300.0	
BH-1 (10-11) (5113015-02) Soil									
Chloride	167	10.0	mg/kg	20	E151508	09/15/05	09/15/05	EPA 300.0	
#1 Composite (5113015-03) Soil									
% Moisture	3.2	0.1	%	1	E151420	09/14/05	09/14/05	% calculation	

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946
Reported:
09/20/05 08:34

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch EI51414 - Solvent Extraction (GC)

Blank (EI51414-BLK1)

Prepared: 09/14/05 Analyzed: 09/15/05

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	44.7		mg/kg	50.0		89.4	70-130			
Surrogate: 1-Chlorooctadecane	45.2		"	50.0		90.4	70-130			

LCS (EI51414-BS1)

Prepared: 09/14/05 Analyzed: 09/15/05

Gasoline Range Organics C6-C12	412	10.0	mg/kg wet	500		82.4	75-125			
Diesel Range Organics >C12-C35	436	10.0	"	500		87.2	75-125			
Total Hydrocarbon C6-C35	848	10.0	"	1000		84.8	75-125			
Surrogate: 1-Chlorooctane	50.9		mg/kg	50.0		102	70-130			
Surrogate: 1-Chlorooctadecane	50.5		"	50.0		101	70-130			

Calibration Check (EI51414-CCV1)

Prepared: 09/14/05 Analyzed: 09/17/05

Gasoline Range Organics C6-C12	443		mg/kg	500		88.6	80-120			
Diesel Range Organics >C12-C35	422		"	500		84.4	80-120			
Total Hydrocarbon C6-C35	865		"	1000		86.5	80-120			
Surrogate: 1-Chlorooctane	51.9		"	50.0		104	0-200			
Surrogate: 1-Chlorooctadecane	53.5		"	50.0		107	0-200			

Matrix Spike (EI51414-MS1)

Source: 5113008-01

Prepared: 09/14/05 Analyzed: 09/15/05

Gasoline Range Organics C6-C12	939	10.0	mg/kg dry	568	289	114	75-125			
Diesel Range Organics >C12-C35	1400	10.0	"	568	721	120	75-125			
Total Hydrocarbon C6-C35	2340	10.0	"	1140	1010	117	75-125			
Surrogate: 1-Chlorooctane	61.4		mg/kg	50.0		123	70-130			
Surrogate: 1-Chlorooctadecane	56.5		"	50.0		113	70-130			

Matrix Spike Dup (EI51414-MSD1)

Source: 5113008-01

Prepared: 09/14/05 Analyzed: 09/15/05

Gasoline Range Organics C6-C12	914	10.0	mg/kg dry	568	289	110	75-125	2.70	20	
Diesel Range Organics >C12-C35	1400	10.0	"	568	721	120	75-125	0.00	20	
Total Hydrocarbon C6-C35	2310	10.0	"	1140	1010	114	75-125	1.29	20	
Surrogate: 1-Chlorooctane	53.0		mg/kg	50.0		106	70-130			
Surrogate: 1-Chlorooctadecane	54.2		"	50.0		108	70-130			

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
09/20/05 08:34

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI51420 - General Preparation (Prep)										
Blank (EI51420-BLK1)				Prepared & Analyzed: 09/14/05						
% Solids	100		%							
Duplicate (EI51420-DUP1)				Source: 5113009-01 Prepared & Analyzed: 09/14/05						
% Solids	96.2		%		97.6			1.44	20	
Duplicate (EI51420-DUP2)				Source: 5113010-04 Prepared & Analyzed: 09/14/05						
% Solids	98.1		%		98.1			0.00	20	
Duplicate (EI51420-DUP3)				Source: 5114002-03 Prepared & Analyzed: 09/14/05						
% Solids	99.9		%		99.9			0.00	20	
Batch EI51508 - Water Extraction										
Blank (EI51508-BLK1)				Prepared & Analyzed: 09/15/05						
Chloride	ND	0.500	mg/kg							
LCS (EI51508-BS1)				Prepared & Analyzed: 09/15/05						
Chloride	8.41		mg/L	10.0		84.1	80-120			
Calibration Check (EI51508-CCV1)				Prepared & Analyzed: 09/15/05						
Chloride	8.45		mg/L	10.0		84.5	80-120			
Duplicate (EI51508-DUP1)				Source: 5113014-07 Prepared & Analyzed: 09/15/05						
Chloride	8.74	5.00	mg/kg		8.80			0.684	20	

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ East Livingston Ridge #1 TB
Project Number: 2396
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
09/20/05 08:34

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference
LCS Laboratory Control Spike
MS Matrix Spike
Dup Duplicate

Report Approved By:

Raland K. Tuttle

Date:

9/20/2005

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer

Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

Environmental Lab of Texas

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Page 6 of 6

Environmental Lab of Texas

Variance / Corrective Action Report – Sample Log-In

Client: Highlander

Date/Time: 9/13/05 16:00

Order #: 6I13015

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	3.0 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present
Chain of custody present?	Yes	No	
Sample Instructions complete on Chain of Custody?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample label(s)	Yes	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	Not Applicable

Other observations:

Variance Documentation:

Contact Person: _____ Date/Time: _____ Contacted by: _____
Regarding: _____

Corrective Action Taken:

APPENDIX C

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
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 <u>POGO PRODUCING CO.</u>	Company <u>PAT ELLIS</u>
Address <u>PO Box 10340 MIDLAND TX 75702</u>	Telephone No. <u>432-685-8100</u>
Facility Name <u>EAST LININGSTON RIDGE UNIT #1</u>	Facility Type <u>TANK BATTERY</u>
Surface Owner <u>BLM</u>	Mineral Owner <u>BLM</u>
Lease No. <u>NM 32411</u>	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	<u>18</u>	<u>22 S</u>	<u>32 E</u>	<u>660'</u>	<u>FNL</u>	<u>990'</u>	<u>FNL</u>	<u>LEA</u>

NATURE OF RELEASE

Type of Release <u>Produced water</u>	Volume of Release <u>75 BBL</u>	Volume Recovered <u>75 BBL</u>
Source of Release <u>Produced WATER TANK FIRE</u>	Date and Hour of Occurrence <u>6/3/05 1 AM</u>	Date and Hour of Discovery <u>6/3/05 8:00 AM</u>
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <u>Buddy Hill</u>	
By Whom? <u>TOM BUTTERS</u>	Date and Hour <u>6/3/05 8:14 AM</u>	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse	

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

N/A

Describe Cause of Problem and Remedial Action Taken. (Attach Additional Sheets If Necessary) LIGHTNING STRUCK 500 BBL F.G. WTR TANK Lost 75 BBL Produced water. All STAYED INSIDE FIRE WALL.

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary) LIGHTNING STRUCK 500 BBL F.G. TANK Setting it on FIRE. 75 BBLs PROD WATER WAS OUT INSIDE FIRE WALL. Pick up water. TANK will be Replaced. Contaminated soil will be Hauled To SHERMAN LAND FARM.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC 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 NMOC 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, NMOC 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: <u>[Signature]</u>	OIL CONSERVATION DIVISION	
Printed Name: <u>CLAY OSBORN</u>	Approved by District Supervisor:	Expiration Date:
Title: <u>Field Foreman</u>	Approval Date:	Attached <input type="checkbox"/>
Date: <u>6/3/05</u>	Phone: <u>432-631-0129</u>	Conditions of Approval:

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised June 10, 2003

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	Pogo Producing Company 225149	Contact	Pat Ellis
Address	300 N. Marienfeld, Box 10340, Midland Tx. 79701	Telephone No.	(432) 685-8100
Facility Name	East Livingston Ridge #1	Facility Type	Tank Battery

Surface Owner	BLM	Mineral Owner	BLM	Lease No.	NM32411
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	18	22S	32E	660'	FNL	990'	FWL	Lea

NATURE OF RELEASE

Type of Release	Produced water	Volume of Release	75 barrels	Volume Recovered	70 barrels
Source of Release	Produced water tank fire	Date and Hour of Occurrence	6/3/05 1:00 AM	Date and Hour of Discovery	6/3/05 8:00 AM
Was Immediate Notice Given?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom?	Buddy Hill		
By Whom?	Tom Butters	Date and Hour	6/3/05 8:14 AM		
Was a Watercourse Reached?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.* N/A

Describe Cause of Problem and Remedial Action Taken.*

Lightning struck 500 barrel fiberglass water tank, tank lost 75 barrels of produced water (all stayed inside firewall). Highlander personnel inspected and sampled the site on 6/9/05. Five auger holes were installed inside firewall to delineate subsurface impact and soil samples were collected. One borehole was installed near AH-5 and soil samples were collected.

Describe Area Affected and Cleanup Action Taken.* ☐ All fluids were contained within the facility firewall. Highlander personnel supervised excavation of impacted soil from inside the facility firewall on 9/8/05. Impacted soil which exceeded the TPH RRAL was removed and placed on plastic on site. A confirmation sample was taken. TPH was not detected at or above the reporting limit for the confirmation sample. The soil stockpile was removed and hauled to Sundance Disposal Facility in Eunice, New Mexico.

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.

OIL CONSERVATION DIVISION

Signature: Patrick L. Ellis	Approved by District Supervisor:		
Printed Name: Pat Ellis			
Title: Division Environmental Safety & Health Supervisor	Approval Date:	Expiration Date:	
E-mail Address: EllisP@pogoproducing.com	Conditions of Approval:		Attached <input type="checkbox"/>
Date: 11/10/2005	Phone: (432) 685-8100		

* Attach Additional Sheets If Necessary