Highlander Environmental Corp.

Midland, Texas

August 27, 2001

Mr. Paul Sealy
Environmental Bureau
Oil Conservation Division
1625 N. French Drive
P.O. Box 1980
Hobbs, New Mexico 88240

RE: Assessment and Closure Report for the Spill located at the ~~Pogo Nafta 8 Federal #1~~, Tank Battery, Lea County, New Mexico

Dear Mr. Sealy,

Highlander Environmental Corp. (Highlander) was contacted by Pogo Producing Company (Pogo) to assess a spill, which occurred at the Pogo Nafta 8 Federal #1 tank battery in Lea County, New Mexico. The Site is located in Section 8, Township 24 South, Range 32 East. The Site location is shown in Figure 1. According to published data, groundwater in the area of the Site is sparse and no water wells are located in Section 8, Township 24 South, Range 32 East. The published data indicated water wells are located in Township 23 South, Range 32 East and completed in the Triassic at ground water depths greater than ~~500 feet~~ below surface. 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 remediation 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 5,000 mg/kg.

Background

On June 23, 2001, a spill occurred from a water tank inside the dike of the tank battery. Apparently, the water tank was struck by lighting and caught on fire during a passing thunderstorm. The spill area ~~(produce water)~~ was confined inside the dike area and no oil was released. Approximately ~~165 barrels of water~~ was released on the surface and approximately ~~140 barrels~~ were recovered with vacuum trucks. Pogo scraped the surface, inside the tank battery, with a backhoe and removed approximately 20 cubic yards of impacted soil. The soil was hauled off for disposal to Sundance Services, Inc. located in Eunice, New Mexico.

Pogo - 17891
facility - fPAC0603751107
inspect - ePAC0603751218

incident - nPAC0603751259
application - pPAC0603751389

Site Inspection and Assessment

On June 25, 2001, Highlander inspected the leak area. No visual impact was noted outside the tank battery dike. The impacted area inside of the tank battery dike measured approximately 48' x 115'. Soil samples were collected using a backhoe. A total of three test trenches were installed to define the extent of the impact. The tank battery and sample locations are shown in Figure 2. Soil samples were collected from the spill area for evaluation of TPH by method EPA 418.1, BTEX by method SW 846-8020 and chloride by method SW846-9252. Two samples were selected for BTEX evaluation based upon the highest TPH levels. The soil samples results are shown in Table 1. The laboratory reports and the chain of custody documentation are attached.

Table 1
(concentration in mg/kg)

Sample ID	Depth (ft)	TPH	B	T	E	X	Total BTEX	Chloride
#1	0-6"	421	<0.025	0.064	0.032	0.244	0.34	9,040
	2.0	29.6	-	-	-	-	-	80
	4.0	-	-	-	-	-	-	337
	6.0	-	-	-	-	-	-	118
#2	0-6"	127	-	-	-	-	-	8,240
	2.0	50.7	-	-	-	-	-	44
	4.0	-	-	-	-	-	-	15
	6.0	-	-	-	-	-	-	15
#3	0-6"	1,930	<0.025	<0.025	<0.025	0.041	0.041	4,700
	2.0	46.9	-	-	-	-	-	716
	4.0	-	-	-	-	-	-	15
	6.0	-	-	-	-	-	-	15

(-) Not Analyzed

Referring to Table 1, the areas of trench #1, #2 and #3 did not exceed the RRAL for TPH. The selected samples for BTEX in trenches (#1 and #3) showed levels below the RRAL.

The chloride evaluation showed detectable levels ranging from 15 mg/kg to 9,040 mg/kg. The shallow samples from 0-6" collected in trench #1, #2 and #3 detected chloride levels of 9,040 mg/kg, 8,240 mg/kg and 4,700 mg/kg, respectively. The deeper samples collected from the trenches showed a significant decrease in chloride concentration. Trench #1 decreased to 118 mg/kg at 6.0' below surface. The remaining trenches (#2 and #3) decreased to 15 mg/kg at 4.0' and 6.0' below surface. Based on the results, the chloride levels detected do not appear to be an environmental concern

Conclusion

1. According to published data, groundwater is sparse in the area of the Site and no water wells were located in Section 8, Township 24 South, Range 32 East. Published data indicated water wells located in Township 23 South, Range 32 East are completed in the Triassic at ground water depths greater than 500 feet below surface.

2. The New Mexico Oil Conservation Division (NMOCD) Remediation of Leaks, Spills and Releases guidelines require a risk-based evaluation of the site to determine recommended remediation 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 5,000 mg/kg.

3. During the inspection, no visual impact was noted outside the active tank battery dike. The spill area is confined inside the dike area and no oil was released. Approximately 165 barrels of water was released on the surface and approximately 140 barrels was recovered with vacuum trucks. The impacted surface area measured approximately 48' x 115'.

4. The areas of trench #1, #2 and #3 did not exceed the RRAL for TPH. The selected samples for BTEX in trenches (#1 and #3) showed levels below the RRAL. The chloride evaluation showed detectable levels ranging from 15 mg/kg to 9,040 mg/kg. The deeper samples collected from the trenches showed a significant decrease in chloride concentrations. Trench #1 decreased to 118 mg/kg at 6.0' below surface. The remaining trenches (#2 and #3) decreased to 15 mg/kg at 4.0' and 6.0' below surface. The chloride levels detected do not appear to be an environmental concern. Based on the depth to groundwater, this shallow impact is not considered a threat the groundwater in this area.

Recommendation

1. Based on the results of the investigation and depth to groundwater, Pogo Producing Company proposes closure for the spill area. The tank battery will continue to remain active and maintained.

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

Very truly yours,

Ike Tavarez
Project Manager/Geologist

cc: Don Riggs – Pogo Producing Co.
Barrett Smith – Pogo Producing Co.

September 24, 2001

Highlander Environmental Corp.
Attn: Ike Tavarez
1910 N. Big Spring
Midland, TX 79705

Re: Assessment and Closure Report Dated August 27, 2001 for Pogo Producing Company
Nafta 8 Federal #1 Tank Battery
UL_ -Sec 8-T24S-R32E

Dear Mr. Tavarez,

The New Mexico Oil Conservation Division (OCD) received your proposal for Pogo Producing Company for the above referenced site. The OCD **hereby approves** your request for closure for this site.
Please be advised that OCD approval does not relieve Pogo Producing Company of liability should your 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 other federal, state or local laws and/or regulations.

If you have any questions, or need any assistance please call me at: (505) 393-6161 x113.

Sincerely,

Paul Sheeley
Environmental Engineer
Cc: Roger Anderson - Environmental Bureau Chief
Chris Williams - District I Supervisor
William Olson - OCD Hydrologist

FIGURES

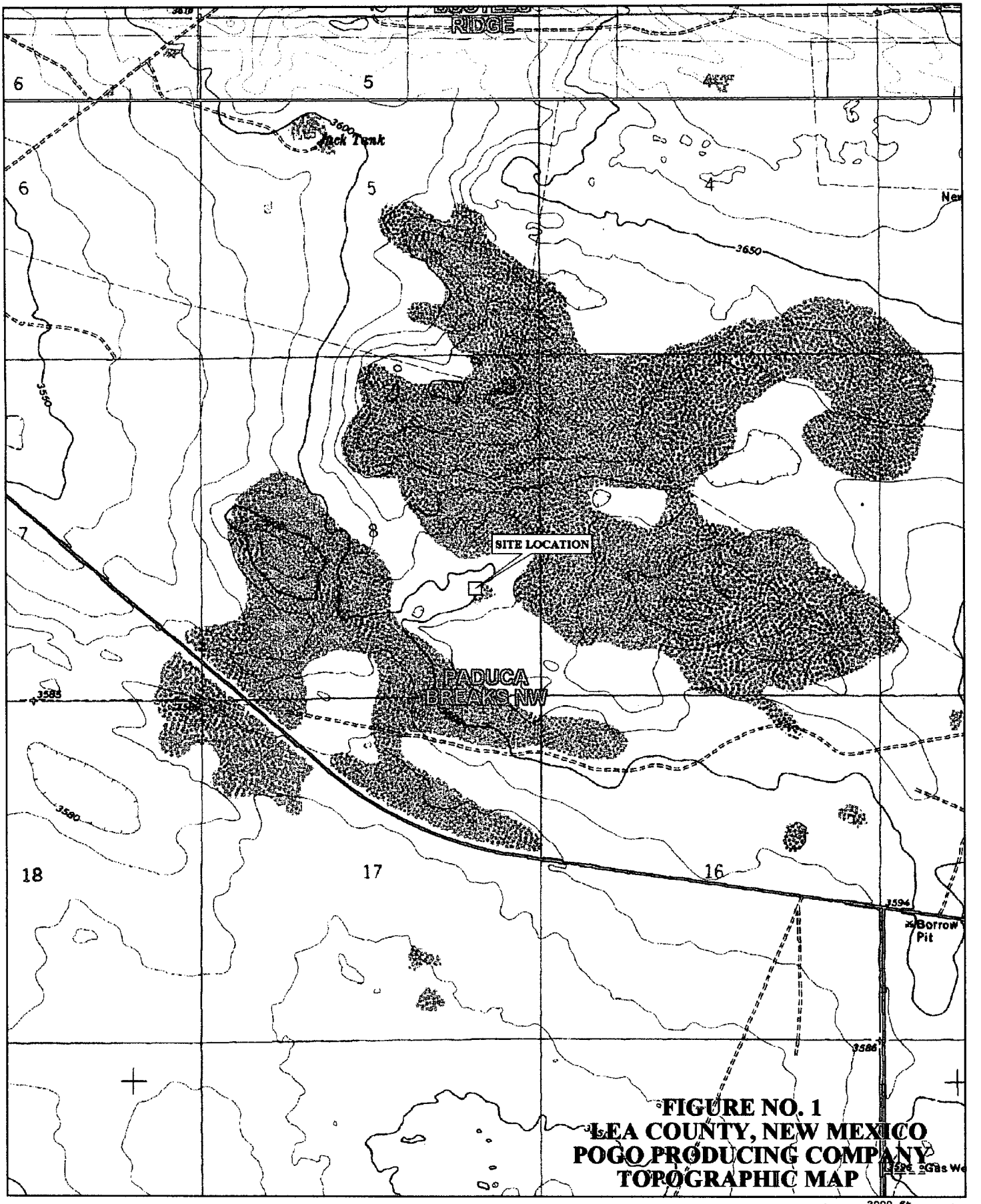
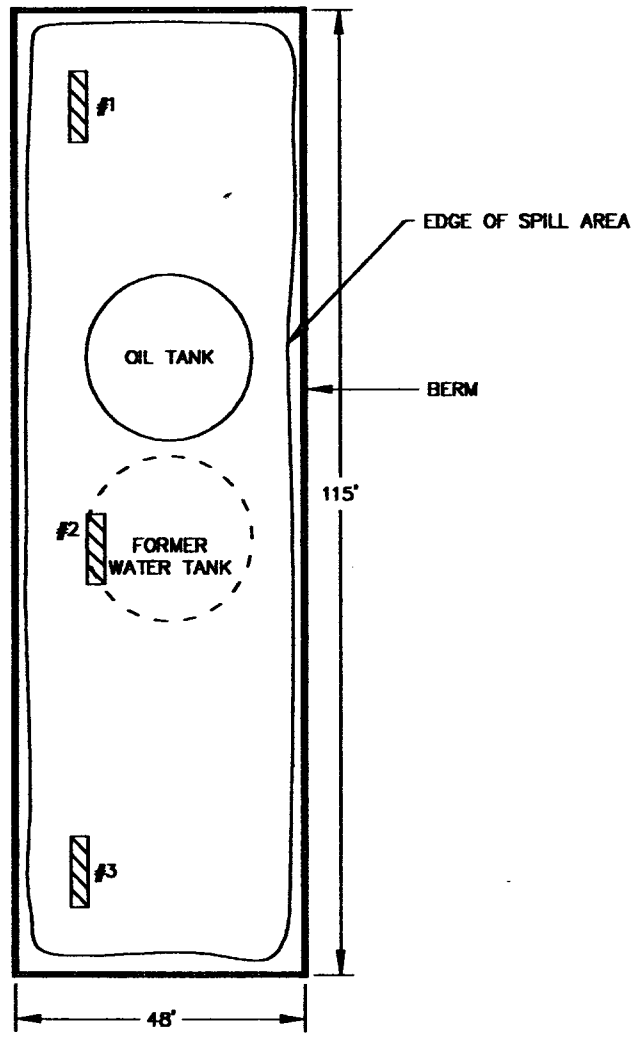


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
TOPOGRAPHIC MAP

 Scale: 1 : 24,000 Zoom Level: 13-0 Datum: WGS84

2000 ft



LEGEND

TEST TRENCH

NOT TO SCALE

DATE: 7/13/01	**FIGURE NO. 2**
DRG. BY: JDA	**LEA COUNTY, NEW MEXICO**
FILE: C:\POGO\1600\FIG-2	**POGO PRODUCING COMPANY**
	NAFTA 8 FEDERAL #1
	HIGHLANDER ENVIRONMENTAL CORP. MIDLAND, TEXAS

LABORATORY ANALYSIS

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

HIGHLANDER ENVIRONMENTAL CORP.
ATTN: MR. IKE TAVAREZ
1910 N. BIG SPRING STREET
MIDLAND, TEXAS 79705
FAX: 682-3946

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4.0 deg. C
Project #: None Given
Project Name: Pogo Producing/ Pogo/ Nafta 8 Federal #1
Project Location: Lea County, N.M.

Sampling Date: 06/25/01
Receiving Date: 06/26/01
Analysis Date: 06/26/01

ELT#	FIELD CODE	TPH mg/kg	Chloride mg/kg
41347	#1 (0-6")	421	9040
41348	#1 (2.0')	29.6	80
41349	#1 (4.0')	*	337
41350	#1 (6.0')	*	118
41351	#2 (0-6")	127	8240
41352	#2 (2.0')	50.7	44
41353	#2 (4.0')	*	15
41354	#2 (6.0')	*	15
41355	#3 (0-6")	1930	4700
41356	#3 (2.0')	46.9	716
41357	#3 (4.0')	*	15
41358	#3 (6.0')	*	15
	QUALITY CONTROL	529	4963
	TRUE VALUE	501	5000
	% INSTRUMENT ACCURACY	106	99
	SPIKED AMOUNT	250	N/A
	ORIGINAL SAMPLE	29.6	N/A
	SPIKE	289	N/A
	SPIKE DUP	284	N/A
	% EXTRACTION ACCURACY	112	N/A
	BLANK	<10	<10
	RPD	1.7	0.99

Methods: EPA 418.1, SW 846-9253

*NOTE: Analysis not requested

Raland K. Tuttle

6-27-01
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

HIGHLANDER ENVIRONMENTAL CORP.
ATTN: MR. IKE TAVAREZ
1910 N. BIG SPRING STREET
MIDLAND, TEXAS 79705
FAX: 682-3946

Sample Type: Soil
Sample Condition: Intact/ Iced/ 4.0 deg. C
Project #: None Given
Project Name: Pogo Producing/ Pogo/ Nafta 8 Federal #1
Project Location: Lea County, N.M.

Sampling Date: 06/25/01
Receiving Date: 06/26/01
Analysis Date: 06/26/01

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg
41347	#1 (0-6")	<0.025	0.064	0.032	0.161	0.083
41355	#3 (0-6")	<0.025	<0.025	<0.025	0.041	<0.025
QUALITY CONTROL		0.097	0.096	0.094	0.207	0.094
TRUE VALUE		0.100	0.100	0.100	0.200	0.100
% INSTRUMENT ACCURACY		97	96	94	104	96
SPIKED AMOUNT		0.100	0.100	0.100	0.200	0.100
ORIGINAL SAMPLE		<0.025	0.064	0.032	0.161	0.083
SPIKE		0.095	0.099	0.094	0.221	0.103
SPIKE DUP		0.096	0.102	0.097	0.228	0.106
% EXTRACTION ACCURACY		95	96	93	108	100
BLANK		<0.025	<0.025	<0.025	<0.025	<0.025
RPD		1	3	3	3	3

METHODS: EPA SW 846-8021B ,5030

Raland K. Tuttle

6-27-01
Date

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: 2

CLIENT NAME: Pogo Producing | SITE MANAGER: MKE Taravez

PROJECT NO.: | PROJECT NAME: Pogo / Nafta 8 Federal #1 Lea County, NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	ANALYSIS REQUEST (Circle or Specify Method No.): 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	ECI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride
41347	6/25/01		S		1	#1 (0-6")	1				1				X															X
41348			S		1	#1 (2.0')	1				1				X															X
41349			S		1	#1 (4.0')	1				1																			X
41350			S		1	#1 (6.0')	1				1																			X
41351			S		1	#2 (0-6")	1								X															X
41352			S		1	#2 (2.0')	1				1				X															X
41353			S		1	#2 (4.0')	1				1																			X
41354			S		1	#2 (6.0')	1				1																			X
41355			S		1	#3 (0-6")	1				1				X															X
41356			S		1	#3 (2.0')	1				1				X															X

RELINQUISHED BY: (Signature) Date: 6/26/01 Time: 8:25 | RECEIVED BY: (Signature) Date: Time: | SAMPLED BY: (Print & Sign) MKE Taravez Date: Time:

RELINQUISHED BY: (Signature) Date: Time: | RECEIVED BY: (Signature) Date: Time: | SAMPLE SHIPPED BY: (Circle) FEDEX BUS AIRBILL #: HAND DELIVERED UPS OTHER:

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

RECEIVING LABORATORY: Environ Chem Inc. | RECEIVED BY: (Signature) Jamie McMurrey

ADDRESS: | CITY: | STATE: | ZIP: | CONTACT: | PHONE: | DATE: 6-26-01 | TIME: 0825

HIGHLANDER CONTACT PERSON: MKE Taravez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.0°C

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

REMARKS: Run (2) BTEX on highest (2) TPH results.

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.

Analysis Request and Chain of Custody Record

PAGE: 2 OF: 2

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705
(915) 682-4559 Fax (915) 682-3946

CLIENT NAME: Pogo Producing
SITE MANAGER: IKE Tavarez
PROJECT NO.:
PROJECT NAME: Pogo/Watta 8 Federal #1 Lea County, NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	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. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride		
41357	6/25/01		S		/	#3 (4.0')	1				/																			X		
41358	6/25/01		S		/	#3 (6.0')	1				/																			X		

RELINQUISHED BY: (Signature) [signature] Date: 6/26/01 Time: 8:25
RECEIVED BY: (Signature) Date: Time:
SAMPLED BY: (Print & Sign) IKE Tavarez Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS AIRBILL # HAND DELIVERED UPS OTHER:

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

RECEIVING LABORATORY: EnviroLabs TX
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) [signature]
DATE: 6-26-01 TIME: 0825

HIGHLANDER CONTACT PERSON: IKE Tavarez
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.0°C
MATRIX: W-Water A-Air SD-Solid S-Soil SL-Sludge O-Other
REMARKS:

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.