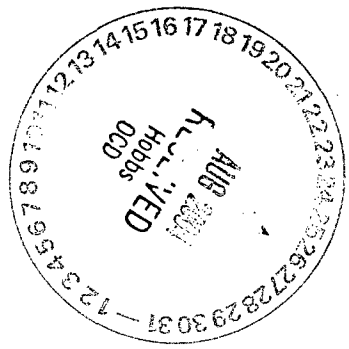
Highlander Environmental Corp.

Midland, Texas

August 16, 2004



Hobbs
1RP-007
8/26/04

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

RE: Closure Report for the Spill Area at the Pogo Producing Company (Arch Petroleum, Inc.), C. E. Lamunyon Well #44 Located in Section 22, Township 23 South, Range 37 East, 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 Producing Company (Arch) C.E. Lamunyon #44 spill in Lea County, New Mexico (Site). The Site is located in Section 22, Township 23 South, Range 37 East. The State of New Mexico C-141 (Initial) is shown in Appendix A. The Site is shown in Figure 1.

Background

On September 26, 1999, the spill occurred on the south edge of the caliche pad and road of Well #44. Two frac tanks were in use at the well site as storage tanks, and one overflowed impacting the surface soil. Approximately 15 barrels of oil were released onto the surface soil. The soil impact was observed under the frac tanks on the caliche road and southwest of the tanks on native cover. The impacted area immediately under or near the frac tanks measured approximately 10'x 70'. The southwest areas (native soil) measured approximately 3' x 35'and 15' x 10'.

Groundwater and Regulatory

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 1,000 mg/kg.

Previous Assessment and Corrective Action

Highlander previously submitted the report "Soil Investigation and Work Plan for Spill Area located at the Pogo C.E. Lamunyon Well #44, Lea County, New Mexico, dated October 4, 1999, to the NMOCD for review. The report discusses the assessment and sampling performed at the Site. The assessment report is shown in Appendix B. Based on the assessment, the Site showed a shallow impact. As recommended in the assessment report, the impacted area at the frac tanks were excavated and properly disposed. The impacted area south of the frac tanks (native soil) were remediated onsite. The soils were tilled and fertilized to enhance the remediation. Periodic composite samples were obtained to evaluate remediation efforts.

A summary of the activities performed at the Site are summarized below.

September 28, 1999	Highlander Environmental Corp. (Highlander) assessed the spill areas. Four sample points (SP-1, SP-2, SP-3 and SP-4) were installed at the spill areas to define the extents of the impact. The results showed a shallow impact at the frac tank area and native soil area to a depth of 1.0' below surface. Figure 1 shows the areas of impact and sample point locations. The results are shown in Table 1, Appendix B.
October 10, 1999	Highlander supervised the excavation of the impacted soil/caliche under the frac tanks. Once excavated, the area was backfilled with clean caliche. The soil removed was transported to Sundance, Inc. in Eunice, New Mexico for disposal.
January 5, 2000	Highlander collected a composite sample from the remediated area (native soil), which showed a total TPH concentration of 13,770 mg/kg. Highlander tilled and fertilized the area.
June 12, 2002	Highlander collected a composite sample from the remediated area (native soil), which showed a total TPH concentration of 1,800 mg/kg. Highlander tilled and fertilized the area.

Final Remediation and Results

As discussed in the Work Plan, the area located south of the frac tanks (native soil) required additional treatments and periodic maintenance to remediate the impacted soil to below 1,000 mg/kg TPH.

On June 10, 2004, Highlander collected two composite samples #1 (0-1') and #2 (0-1') from the native soil area. The results showed TPH concentrations of 37.4 mg/kg and 55.3 mg/kg below the RRAL. The BTEX analyses were all below the method detected limit.

Recommendations

Based on the results and remedial action performed at the Site, Pogo Producing Company (Arch) 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 investigation, please call.

Very truly yours,

Ike Tavarez, P.G.
Project Manager/Geologist

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

FIGURES

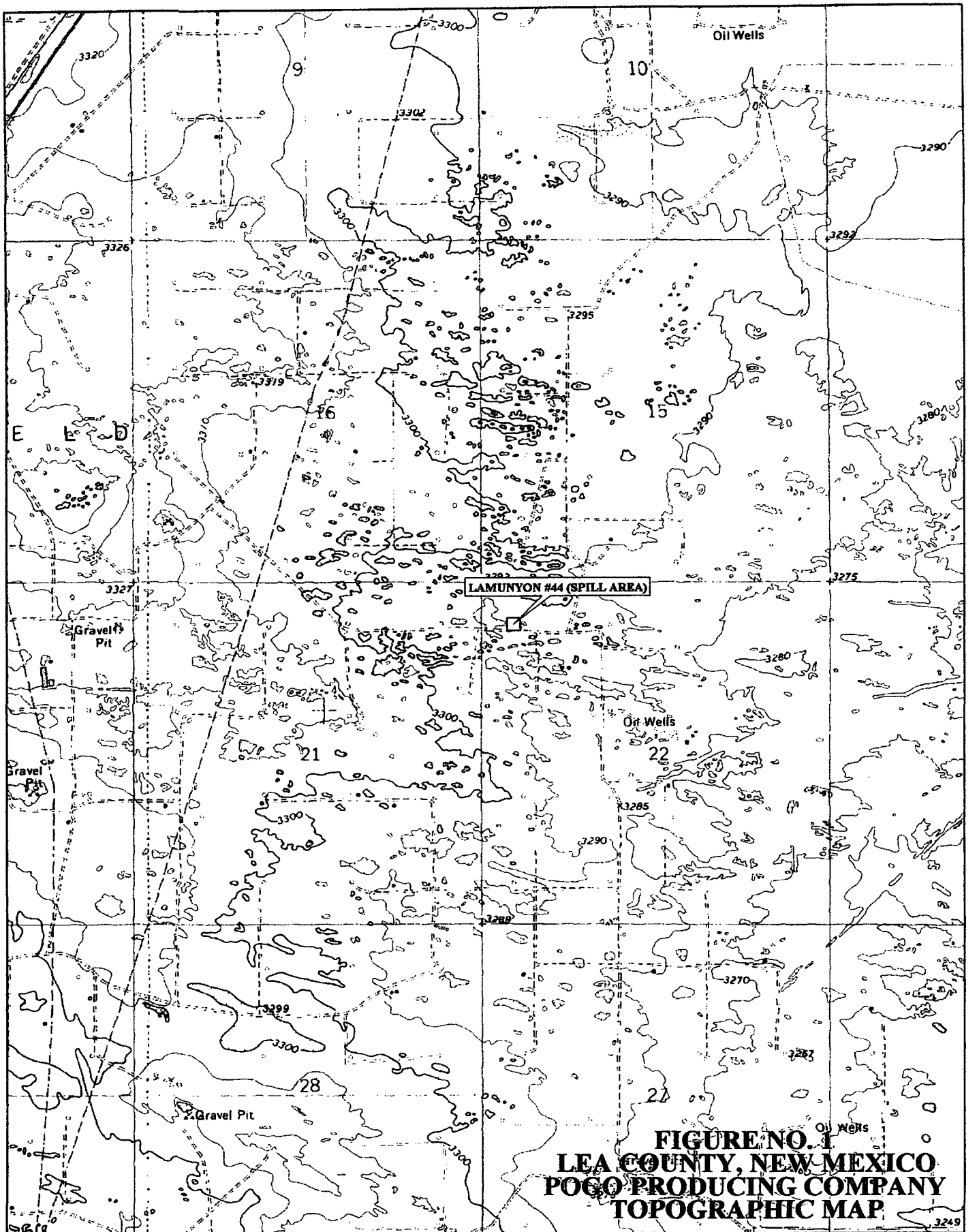
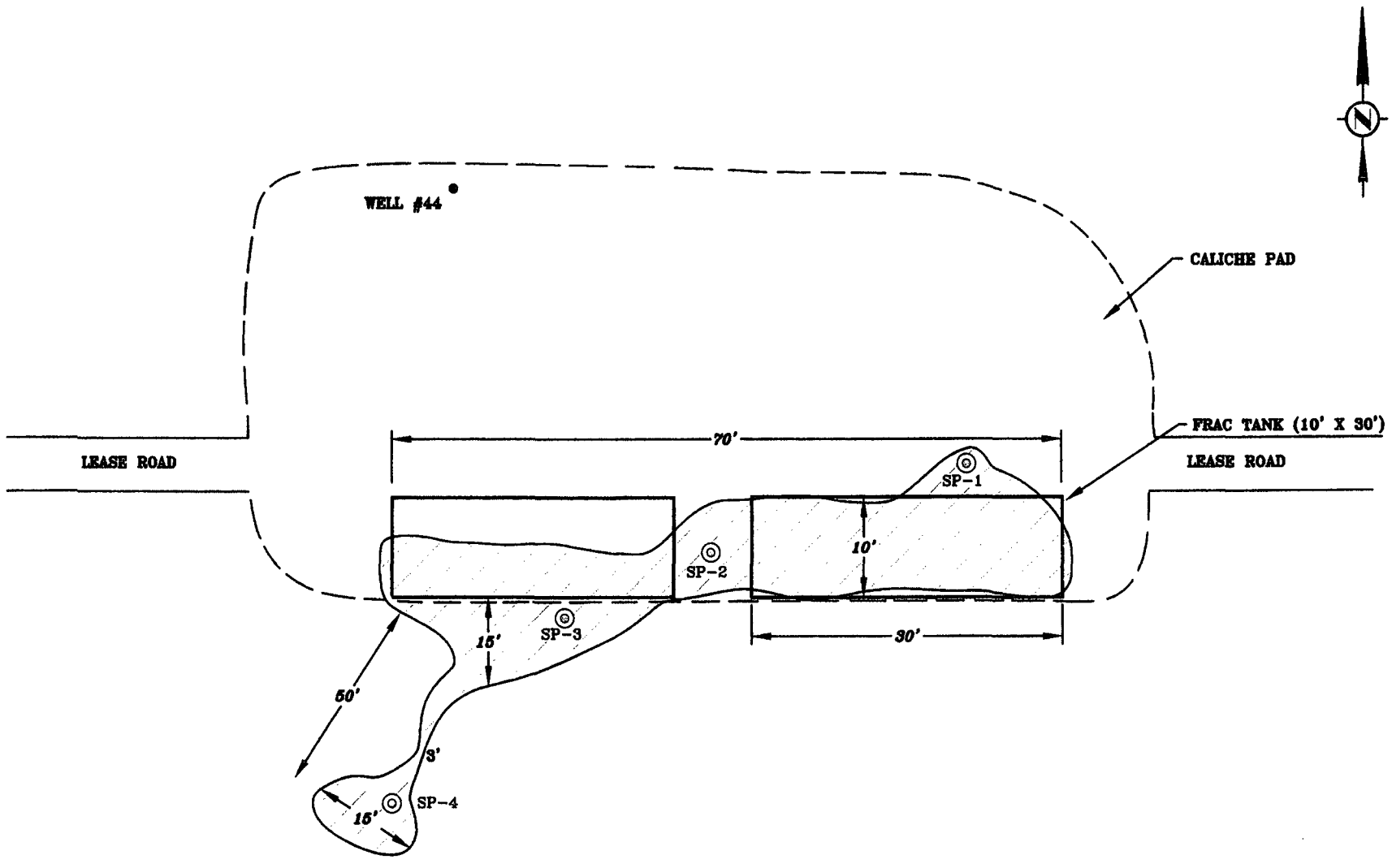


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POCO PRODUCING COMPANY
TOPOGRAPHIC MAP



FRAC TANK AREA – SOIL WAS EXCAVATED & DISPOSED
AREA SOUTH OF FRAC TANK (NATIVE SOIL) – REMEDEATED IN PLACE

SP-1 = SOIL SAMPLE LOCATION

SPILL – 9/26/99
INSPECTED – 9/28/99

FIGURE NO. 2

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY
LAMUNYON #44 (SPILL AREA)

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE: 8/16/04
DRN. BY: JJ
FILE: G:\POGO\LMN-44

APPENDIX A

State of New Mexico
Form C-141

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**	Contact **Rex Jasper**
Address **300 N. Marienfeld, Ste 600, Midland, Tx. 79701**	Telephone No. **(432) 685-8100**
Facility Name **C. E. Lamunyon, Well #44**	Facility Type **Oil Well Location**

Surface Owner **D. K Boyd**	Mineral Owner	Lease No. **030187**

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	**22**	**23S**	**37E**	**660**	**North**	**660**	**West**	**Lea**

NATURE OF RELEASE

Type of Release **Oil**	Volume of Release **15 bbls of oil**	Volume Recovered **0**
Source of Release **Frac tank overflow**	Date and Hour of Occurrence **9/26/99**	Date and Hour of Discovery **9/28/99**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **NMOCD, Hobbs**	
By Whom? Gary Wells (Pogo)	Date and Hour **9/28/99**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

The oil pumped into the frac tank ran over and spilled on the ground. Majority of the fluids released were on the lease road, except in area south of the frac tanks where it migrated on native soil.

Describe Area Affected and Cleanup Action Taken.*

The spill area at the frac tanks measured approximately 10'x 70' and the south spill area measured approximately 3'x 35' and 10' x15'. The assessment performed showed a shallow impact to a depth of 6" to 1.0' below surface. The frac tank area was excavated to a depth of 1.0' and disposed at Sundance Services, Inc. in Eunice, NM. The south spill area was remediated below RRAL . A Closure Report was prepared and submitted to the NMOCD for review.

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	OIL CONSERVATION DIVISION
Printed Name: Ike Tavarez (Agent for Pogo)	Approved by District Supervisor:
Title: Senior Geologist	Approval Date: / Expiration Date:
E-mail Address: itavarez@hec-enviro.com	Conditions of Approval: / Attached ☐
Date: 8/16/04 Phone: (432) 682-4559	

* Attach Additional Sheets If Necessary

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-14
Originated 2/13/9

Submit 2 copies t
Appropriate Distri
Office in accordanc
with Rule 116 o
back side of forr

Release Notification and Corrective Action
OPERATOR
☒ Initial Report ☐ Final Repor

Name	Contact
Arch Petroleum Inc. (Pogo Producing Co.)	Rex Jasper
Address	**Telephone No.**
300 N. Marienfeld, Midland, TX 79701	(915) 685-8100
Facility Name	**Facility Type**
C.E. Lamunyon, Well #44	Oil Well

Surface Owner	Mineral Owner	Lease No.
D.K. Boyd		030187

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
D	22	235	37E	660'	North	660'	West	Lea

NATURE OF RELEASE

Type of Release	Volume of Release	Volume Recovered
Oil	15 bbls.	None
Source of Release	**Date and Hour of Occurrence**	**Date and Hour of Discovery**
Frac tank overflow	9/26/99	9/28/99
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	**If YES, To Whom?** Hobbs - OCD	
By Whom? Gary Wells - Pogo	**Date and Hour** 9/28/99	
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)

Frac tank overflow - stopped flow to frac tanks

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

Surface soil impact - area delineated and submitted Work Plan to NMOCD in Hobbs for approval to remediate soil.

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: Robin S. McCarley
Printed Name: Robin S. McCarley
Title: Production Tech
Date: 10/11/99 Phone: 915-685-8100

OIL CONSERVATION DIVISION

Approved by District Supervisor:
Approval Date: Expiration Date:
Conditions of Approval: Attached ☐

APPENDIX B

Prior Report

Highlander Environmental Corp.

Midland, Texas

October 4, 1999

Ms. Donna Williams
Environmental Bureau
Oil Conservation Division
P.O. Box 1980
Hobbs New Mexico

RE: Soil Investigation and Work Plan for Spill Area located at the Pogo C.E. Lamunyon Well #44, Lea County, New Mexico.

Dear Ms. Williams,

On September 28, 1999, Highlander Environmental Corp. (Highlander) was contacted to inspect a spill that occurred at the Lamunyon Lease in Lea County, New Mexico. The spill area was located at Well #44. The spill occurred on September 26, 1999 and approximately 15 barrel of oil impacted the surface soil. The depth to groundwater at the Site is greater than 50 feet below surface. A risk-based evaluation was performed for Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The proposed recommended remedial action levels (RRAL) for TPH is 1,000 mg/kg for the Site. Soil samples were collected to evaluate for Total Petroleum Hydrocarbon (TPH) by method EPA 418.1 and chloride by method SW846-9252. The descriptions of the leak and sample collection are discussed below:

The spill occurred on the south edge of the pad and road of Well #44. Two frac tanks were in use at the well site, as storage tanks and one overflowed impacting the surface soil. The soil impact was observed under the frac tanks on caliche and southwest of the tanks on native cover. The impacted area immediately under or near the frac tanks measured approximately 10'x 70'. The southwest areas measured approximately 3' x 35'and 15' x 10'. Four sample points (SP-1, SP-2, SP-3 and SP-4) were installed at the spill areas to define the vertical extent of the impact. Figure 1 shows the areas of impact and sample point locations. The results are found in Table 1.

Referring to Table 1, the surface samples showed TPH levels ranging from 29,400 mg/kg (SP-3, 0-8") to 83,000 mg/kg (SP-4, 0-6"). The areas around SP-1 and SP-2 on the caliche show a shallow impact to approximately 4" and 8" below surface, respectively. The areas of SP-3 and SP-4 showed impact to approximately 1.0 below

surface. SP-3 soil samples were also analyzed for chloride had levels ranging from 106 mg/kg to 186 mg/kg. These levels should be at or near background levels for this area and are not considered an environmental concern. Copies of chemical analyses and Chain of Custody documentation are included with this report.

Conclusions and Recommendations

1. The impacted caliche under the two-frac tanks will be removed for offsite disposal. The area will be scraped from 0-8" using a backhoe. The soil removed will be disposed at Sundance, Inc. located in Eunice, New Mexico.

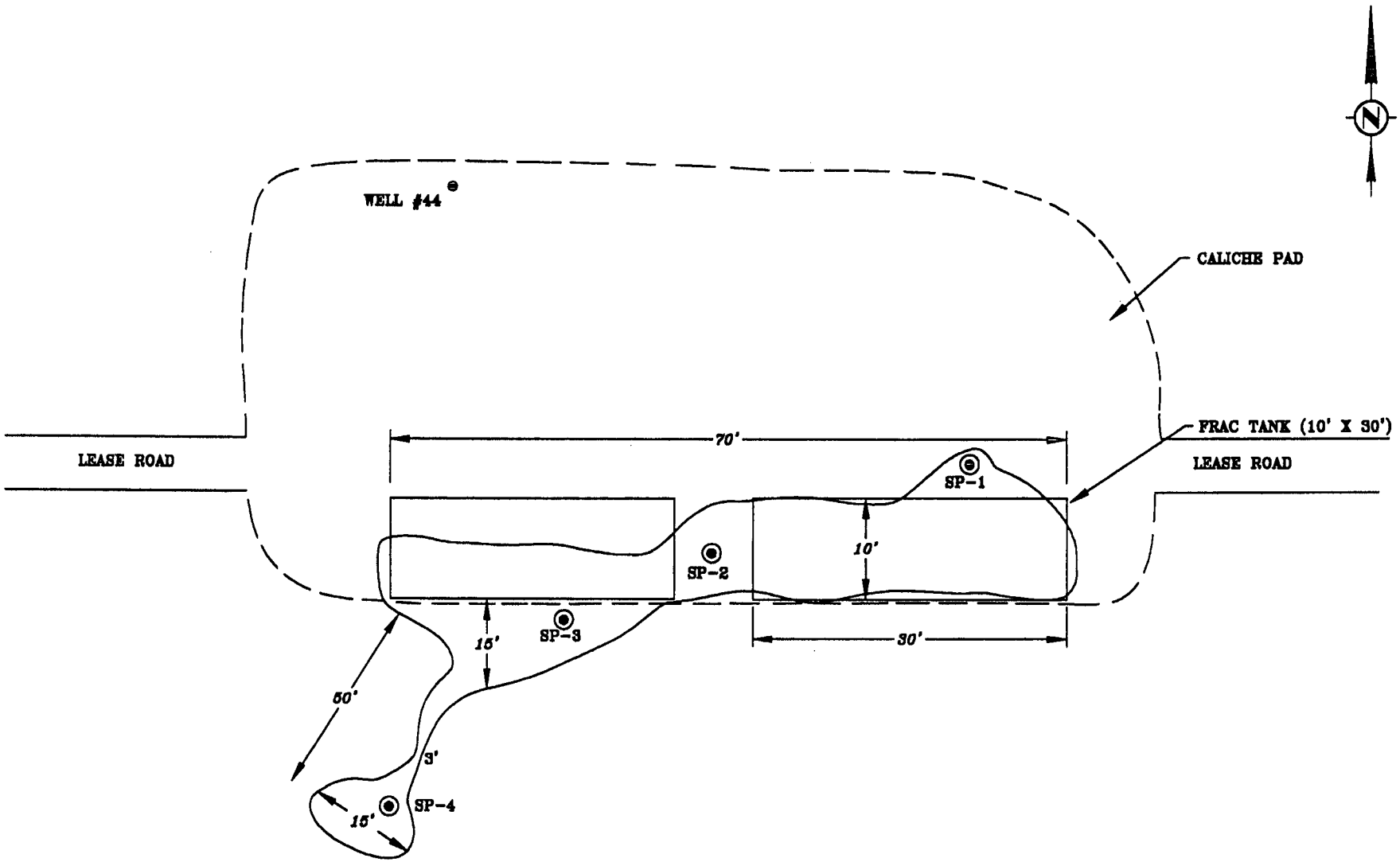
2. The native soil areas appear to be impacted to a shallow depth of approximately 1.0 feet below surface. The impacted soil will require some treatment and periodic maintenance to remediate to below 1,000 mg/kg TPH. The soil will be tilled to remediate these areas in place. Water and fertilizer will be added to the soil to enhance bio-remediation. On a monthly basis, the impacted soil will be tilled to a depth of 1.0' below surface until the TPH target level has been achieved. Periodic soil samples will be obtained to evaluate remediation efforts. Once the soil target level is achieved, a closure report will be submitted to the NMOCD.

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

Very truly yours,

Ike Tavarez
Geologist

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



SP-1 = SOIL SAMPLE LOCATION

SPILL - 9/26/99
INSPECTED - 9/26/99

FIGURE NO. 1

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY
LAMUNYON #44 (SPILL AREA)

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE: 10/6/99
DWN. BY: JDA
FILE: CAPOSER\LAS-44

Table 1
Pogo Producing Company
Lamunyon Well #44
Lea County, New Mexico
Date Sampled: 9/28/99

Sample ID	Depth	TPH (mg/kg)	Chloride (mg/kg)
SP-1	4"-6"	130	NA
SP-1	6"-1.0'	<10	NA
SP-1	2-2.5'	<10	NA
SP-2	3"-6"	1,400	NA
SP-2	8"-1.5'	<10	NA
SP-2	2-2.5'	10	NA
SP-3	0-8"	29,400	106
SP-3	1-1.5'	10	160
SP-3	2-2.5'	<10	186
SP-4	0-6"	83,000	NA
SP-4	1-1.5'	<10	NA
SP-4	2-2.5'	<10	NA

NA - Not Analyzed

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: 915-682-3946

Sample Type: Soil
Sample Condition: Intact/ Iced
Project #: 1354
Project Name: Pogo/ Lumunyon #44
Project Location: Lea Co., N.M.

Sampling Date: 09/28/99
Receiving Date: 09/29/99
Analysis Date: 09/30/99

ELT#	FIELD CODE	TPH (mg/kg)	Chloride (mg/kg)
20473	SP-1 (4"-6")	130	*
20474	SP-1 (6"-1.0')	<10	*
20475	SP-1 (2-2.5')	<10	*
20476	SP-2 (3"-6")	1400	*
20477	SP-2 (8"-1.5')	<10	*
20478	SP-2 (2-2.5')	10	*
20479	SP-3 (0-8")	29400	106
20480	SP-3 (1.0'-1.5')	10	160
20481	SP-3 (2-2.5')	<10	186
20482	SP-4 (0-6")	83000	*
20483	SP-4 (1-1.5')	<10	*
20484	SP-4 (2-2.5')	<10	*
	BLANK	<10	<10
	% INSTRUMENT ACCURACY	98	103
	% EXTRACTION ACCURACY	109	*

Methods: EPA 418.1 , SW 846-9252

Raland K. Tuttle

9-30-99
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: IKE Tavarez

PROJECT NO.: 1354 | PROJECT NAME: Pogo | LVMUNyon #44 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	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			
20473	9/28/99	2:30	S		X	Sp-1 (4"-6")	1				✓				X															X			
20474		2:34	S			Sp-1 (6"-1.0')	1				✓				X																			
20475		2:36	S			Sp-1 (2-2.5')	1				✓				X																			
20476		2:45	S			Sp-2 (3"-6")	1				✓				X																			
20477		2:48	S			Sp-2 (8"-1.5')	1				✓				X																			
20478		2:55	S			Sp-2 (2-2.5')	1				✓				X																			
20479		3:00	S			Sp-3 (0-8")	1				✓				X																	X		
20480		3:12	S			Sp-3 (1.0'-1.5')	1				✓				X																	X		
20481		3:18	S			Sp-3 (2-2.5')	1				✓				X																	X		

RELINQUISHED BY: (Signature) Date: 9/29/99 Time: 8:25 | RECEIVED BY: (Signature) Date: 9-29-99 Time: 0825 | SAMPLED BY: (Print & Sign) 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: Envirotech - TX | RECEIVED BY: (Signature)
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: TIME:

HIGHLANDER CONTACT PERSON: IKE Tavarez | 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:

ANALYSIS REQUEST (Circle or Specify Method No.)

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: 1 OF: 1

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.: 1354 | PROJECT NAME: Pogo Mumuyon #44 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
20482	9/28/99	3:20	S		X	SP-4 (0-6")	1				✓	
20483	9/28/99	3:25	S		X	SP-4 (1-1.5')	1				✓	
20484	9/28/99	3:33	S		X	SP-4 (2-2.5')	1				✓	

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8020/602	MTBE 8020/602	TPH 8015 MOD. TX1005 (418.1)	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	GCMS Vol. 8240/8260/624	GCMS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
		X														
		X														
		X														

RELINQUISHED BY: (Signature) Date: 9/29/99 Time: 8:25 | RECEIVED BY: (Signature) Date: 9-29-99 Time: 0825 | 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: Environ. Of Tx | RECEIVED BY: (Signature)
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: TIME:

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

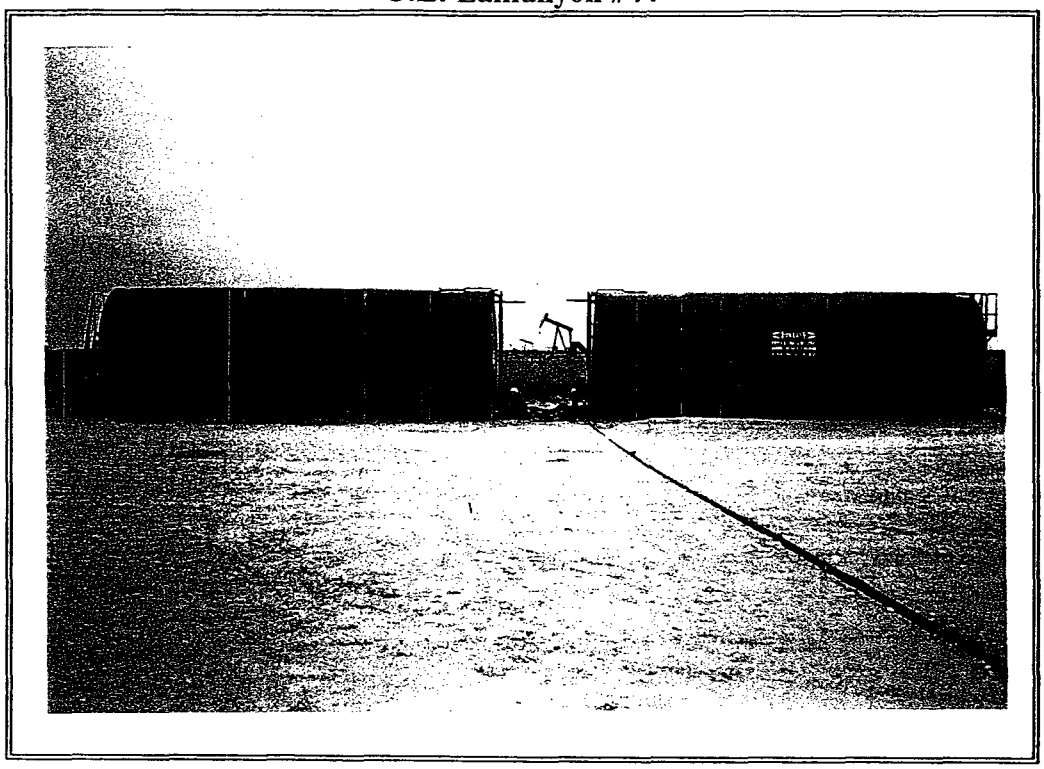
SAMPLE CONDITION WHEN RECEIVED:

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

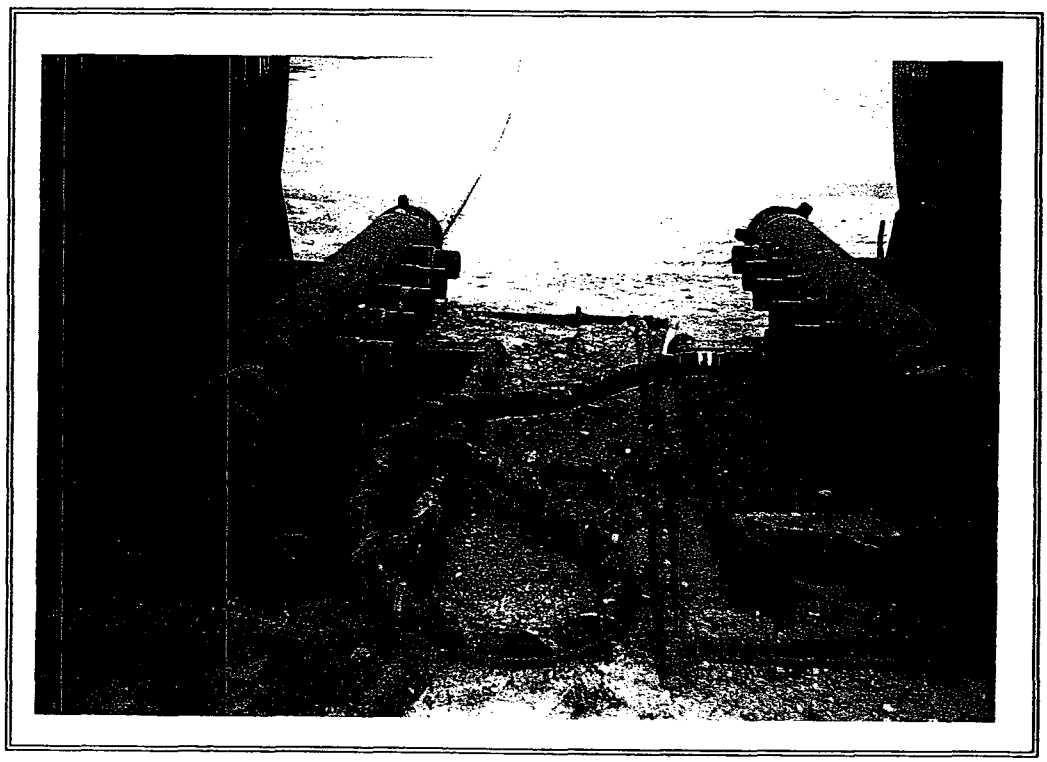
REMARKS:

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.

PHOTOGRAPHIC DOCUMENTATION
POGO - SPILL ASSESSMENT - LEA COUNTY
C.E. Lamunyon #44

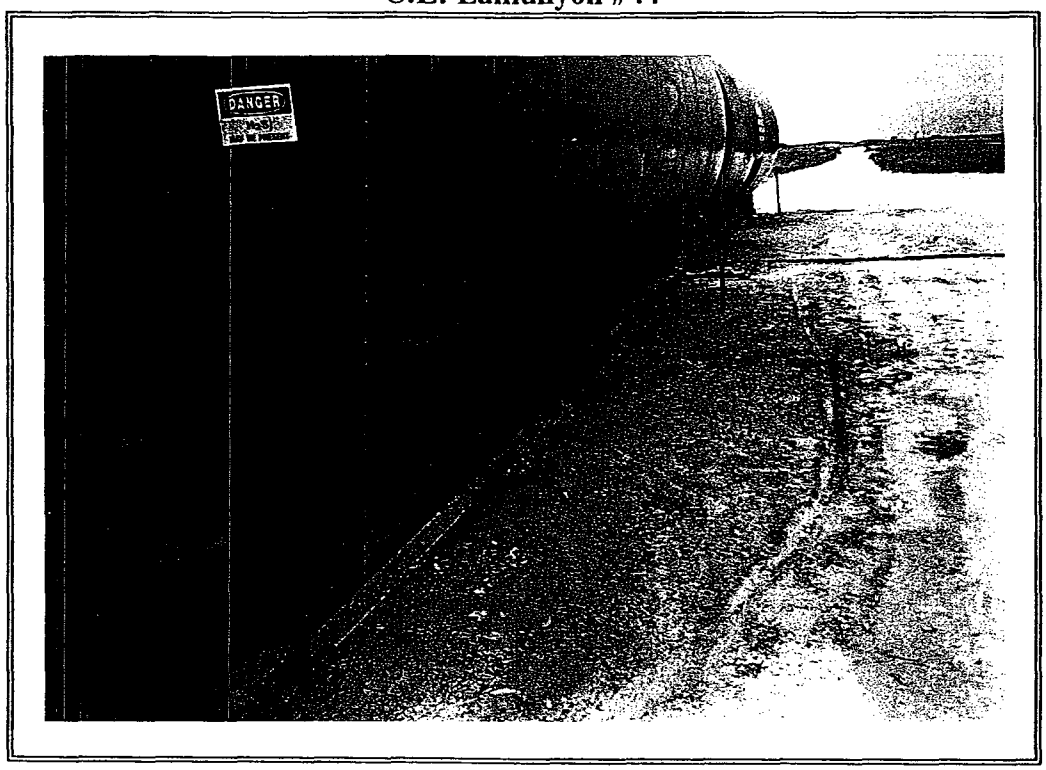


1. South view – Frac Tanks

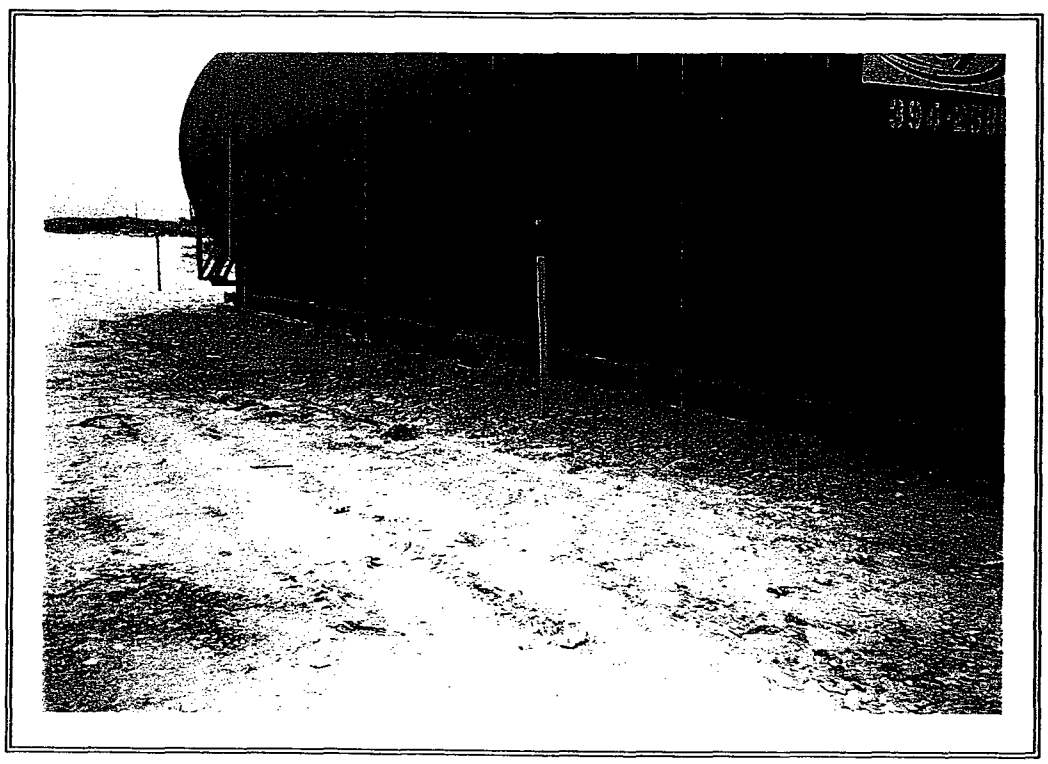


2. View of surface spill area and SP-2 (Sample Point)

PHOTOGRAPHIC DOCUMENTATION
POGO – SPILL ASSESSMENT - LEA COUNTY
C.E. Lamunyon #44

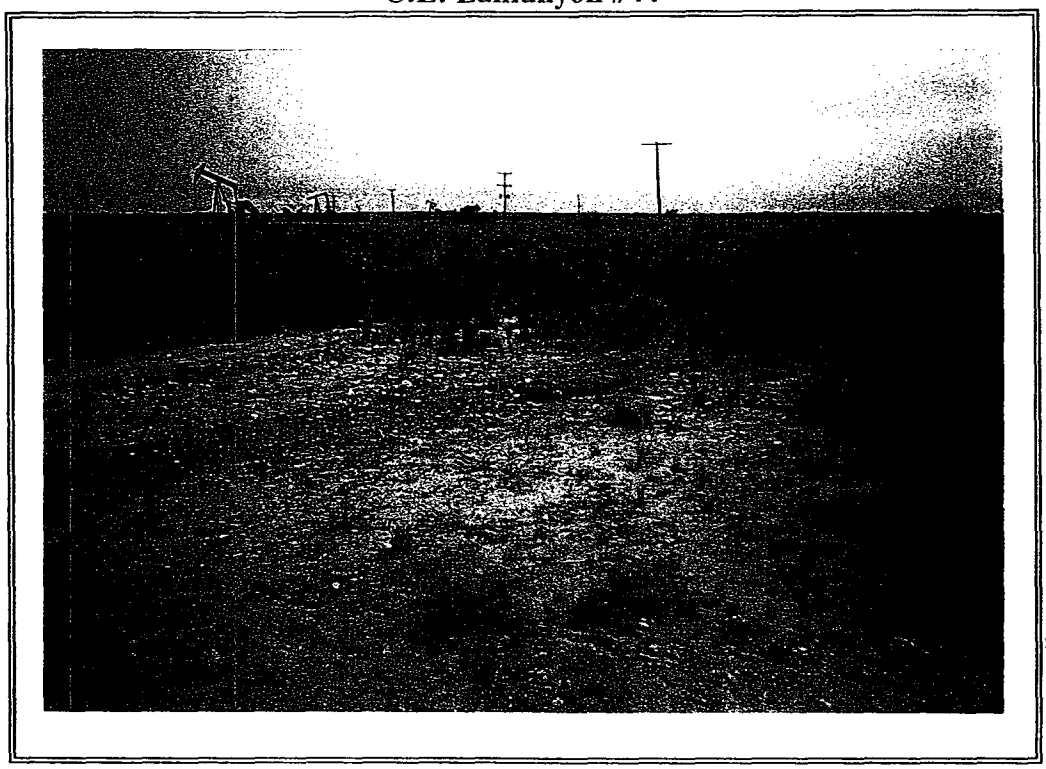


3. West view – Surface spill area north of frac tanks

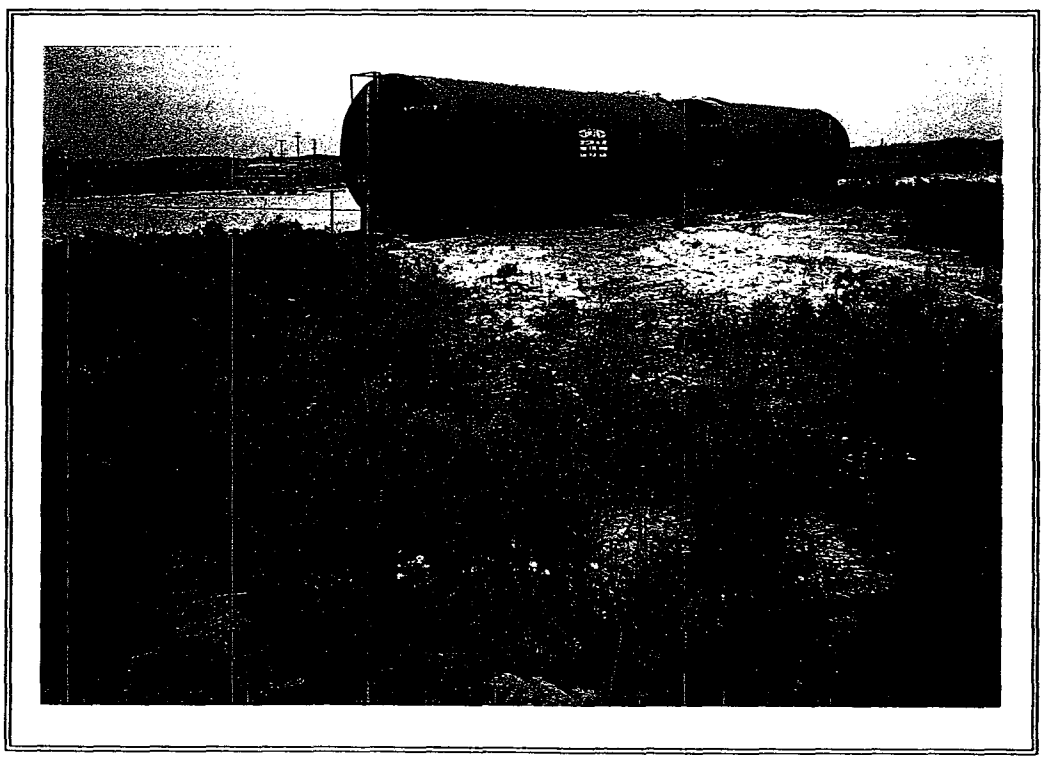


4. Southeast view - Surface spill area north of frac tanks

PHOTOGRAPHIC DOCUMENTATION
POGO - SPILL ASSESSMENT - LEA COUNTY
C.E. Lamunyon #44



7. Southwest view – Surface spill area southwest of frac tanks



8. Northeast view - Surface spill area southwest of frac tanks

APPENDIX C

Analytical Results

ENVIRONMENTAL LAB OF

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/ C.E. Lamunyen # 44
Project Number: 1354
Location: Lea County, NM

Lab Order Number: 4F14005

Report Date: 06/17/04

Highlander Environmental Corp.	Project: Pogo/ C.E. Lamunyen # 44	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: 1354	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	06/17/04 16:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
#1 (0-1)	4F14005-01	Soil	06/10/04 00:00	06/11/04 17:35
#2 (0-1)	4F14005-02	Soil	06/10/04 00:00	06/11/04 17:35

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
#1 (0-1) (4F14005-01) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EF41405	06/14/04	06/15/04	EPA 8015M	
Diesel Range Organics >C12-C35	**37.4**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**37.4**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*79.2 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*75.0 %*	*70-130*		"	"	"	"	
#2 (0-1) (4F14005-02) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EF41706	06/16/04	06/17/04	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		*89.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91.7 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EF41405	06/14/04	06/15/04	EPA 8015M	
Diesel Range Organics >C12-C35	**55.3**	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	**55.3**	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*92.4 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*90.0 %*	*70-130*		"	"	"	"	

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
#1 (0-1) (4F14005-01) Soil									
% Solids	**100**		%	1	EF41406	06/14/04	06/14/04	% calculation	
#2 (0-1) (4F14005-02) Soil									
% Solids	**100**		%	1	EF41406	06/14/04	06/14/04	% calculation	

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 EF41405 - Solvent Extraction (GC)										
Blank (EF41405-BLK1)				Prepared & Analyzed: 06/14/04						
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	*38.3*		*"*	*50.0*		*76.6*	*70-130*			
Blank (EF41405-BLK2)				Prepared: 06/14/04 Analyzed: 06/15/04						
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	*36.6*		*mg/kg*	*50.0*		*73.2*	*70-130*			
Surrogate: 1-Chlorooctadecane	*37.8*		*"*	*50.0*		*75.6*	*70-130*			
LCS (EF41405-BS1)				Prepared & Analyzed: 06/14/04						
Gasoline Range Organics C6-C12	407	10.0	mg/kg wet	500		81.4	75-125			
Diesel Range Organics >C12-C35	518	10.0	"	500		104	75-125			
Total Hydrocarbon C6-C35	925	10.0	"	1000		92.5	75-125			
Surrogate: 1-Chlorooctane	*55.2*		*mg/kg*	*50.0*		*110*	*70-130*			
Surrogate: 1-Chlorooctadecane	*42.4*		*"*	*50.0*		*84.8*	*70-130*			
LCS (EF41405-BS2)				Prepared: 06/14/04 Analyzed: 06/15/04						
Gasoline Range Organics C6-C12	414	10.0	mg/kg wet	500		82.8	75-125			
Diesel Range Organics >C12-C35	524	10.0	"	500		105	75-125			
Total Hydrocarbon C6-C35	938	10.0	"	1000		93.8	75-125			
Surrogate: 1-Chlorooctane	*54.9*		*mg/kg*	*50.0*		*110*	*70-130*			
Surrogate: 1-Chlorooctadecane	*40.5*		*"*	*50.0*		*81.0*	*70-130*			
Calibration Check (EF41405-CCV1)				Prepared: 06/14/04 Analyzed: 06/15/04						
Gasoline Range Organics C6-C12	429		mg/kg	500		85.8	80-120			
Diesel Range Organics >C12-C35	510		"	500		102	80-120			
Total Hydrocarbon C6-C35	939		"	1000		93.9	80-120			
Surrogate: 1-Chlorooctane	*55.4*		*"*	*50.0*		*111*	*70-130*			
Surrogate: 1-Chlorooctadecane	*51.7*		*"*	*50.0*		*103*	*70-130*			

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 EF41405 - Solvent Extraction (GC)										
Calibration Check (EF41405-CCV2)				Prepared: 06/14/04 Analyzed: 06/15/04						
Gasoline Range Organics C6-C12	447		mg/kg	500		89.4	80-120			
Diesel Range Organics >C12-C35	514		"	500		103	80-120			
Total Hydrocarbon C6-C35	961		"	1000		96.1	80-120			
Surrogate: 1-Chlorooctane	*47.6*		"	*50.0*		*95.2*	*70-130*			
Surrogate: 1-Chlorooctadecane	*36.9*		"	*50.0*		*73.8*	*70-130*			
Matrix Spike (EF41405-MS1)		**Source: 4F14002-02**		Prepared & Analyzed: 06/14/04						
Gasoline Range Organics C6-C12	492	10.0	mg/kg dry	562	ND	87.5	75-125			
Diesel Range Organics >C12-C35	575	10.0	"	562	ND	102	75-125			
Total Hydrocarbon C6-C35	1070	10.0	"	1120	ND	95.5	75-125			
Surrogate: 1-Chlorooctane	*60.6*		*mg/kg*	*50.0*		*121*	*70-130*			
Surrogate: 1-Chlorooctadecane	*42.5*		"	*50.0*		*85.0*	*70-130*			
Matrix Spike (EF41405-MS2)		**Source: 4F14002-21**		Prepared: 06/14/04 Analyzed: 06/15/04						
Gasoline Range Organics C6-C12	491	10.0	mg/kg dry	562	ND	87.4	75-125			
Diesel Range Organics >C12-C35	598	10.0	"	562	ND	106	75-125			
Total Hydrocarbon C6-C35	1090	10.0	"	1120	ND	97.3	75-125			
Surrogate: 1-Chlorooctane	*62.3*		*mg/kg*	*50.0*		*125*	*70-130*			
Surrogate: 1-Chlorooctadecane	*47.4*		"	*50.0*		*94.8*	*70-130*			
Matrix Spike Dup (EF41405-MSD1)		**Source: 4F14002-02**		Prepared & Analyzed: 06/14/04						
Gasoline Range Organics C6-C12	483	10.0	mg/kg dry	562	ND	85.9	75-125	1.85	20	
Diesel Range Organics >C12-C35	588	10.0	"	562	ND	105	75-125	2.24	20	
Total Hydrocarbon C6-C35	1070	10.0	"	1120	ND	95.5	75-125	0.00	20	
Surrogate: 1-Chlorooctane	*59.3*		*mg/kg*	*50.0*		*119*	*70-130*			
Surrogate: 1-Chlorooctadecane	*44.3*		"	*50.0*		*88.6*	*70-130*			
Matrix Spike Dup (EF41405-MSD2)		**Source: 4F14002-21**		Prepared: 06/14/04 Analyzed: 06/15/04						
Gasoline Range Organics C6-C12	499	10.0	mg/kg dry	562	ND	88.8	75-125	1.62	20	
Diesel Range Organics >C12-C35	592	10.0	"	562	ND	105	75-125	1.01	20	
Total Hydrocarbon C6-C35	1090	10.0	"	1120	ND	97.3	75-125	0.00	20	
Surrogate: 1-Chlorooctane	*61.2*		*mg/kg*	*50.0*		*122*	*70-130*			
Surrogate: 1-Chlorooctadecane	*47.4*		"	*50.0*		*94.8*	*70-130*			

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 EF41706 - EPA 5030C (GC)										
Blank (EF41706-BLK1)				Prepared & Analyzed: 06/16/04						
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	*86.7*		*ug/kg*	*100*		*86.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*97.8*		*"*	*100*		*97.8*	*80-120*			
LCS (EF41706-BS1)				Prepared & Analyzed: 06/16/04						
Benzene	101		ug/kg	100		101	80-120			
Toluene	97.5		"	100		97.5	80-120			
Ethylbenzene	94.2		"	100		94.2	80-120			
Xylene (p/m)	190		"	200		95.0	80-120			
Xylene (o)	99.4		"	100		99.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	*89.8*		*"*	*100*		*89.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*106*		*"*	*100*		*106*	*80-120*			
Calibration Check (EF41706-CCV1)				Prepared: 06/16/04 Analyzed: 06/17/04						
Benzene	96.7		ug/kg	100		96.7	80-120			
Toluene	93.4		"	100		93.4	80-120			
Ethylbenzene	87.3		"	100		87.3	80-120			
Xylene (p/m)	175		"	200		87.5	80-120			
Xylene (o)	90.9		"	100		90.9	80-120			
Surrogate: a,a,a-Trifluorotoluene	*96.4*		*"*	*100*		*96.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*91.4*		*"*	*100*		*91.4*	*80-120*			
Matrix Spike (EF41706-MS1)	**Source: 4F14007-03**			Prepared: 06/16/04 Analyzed: 06/17/04						
Benzene	105		ug/kg	100	ND	105	80-120			
Toluene	101		"	100	ND	101	80-120			
Ethylbenzene	95.3		"	100	ND	95.3	80-120			
Xylene (p/m)	192		"	200	ND	96.0	80-120			
Xylene (o)	97.1		"	100	ND	97.1	80-120			
Surrogate: a,a,a-Trifluorotoluene	*99.7*		*"*	*100*		*99.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*100*		*"*	*100*		*100*	*80-120*			

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 EF41706 - EPA 5030C (GC)										
Matrix Spike Dup (EF41706-MSD1)	**Source: 4F14007-03**			Prepared: 06/16/04	Analyzed: 06/17/04					
Benzene	97.9		ug/kg	100	ND	97.9	80-120	7.00	20	
Toluene	94.2		"	100	ND	94.2	80-120	6.97	20	
Ethylbenzene	90.4		"	100	ND	90.4	80-120	5.28	20	
Xylene (p/m)	183		"	200	ND	91.5	80-120	4.80	20	
Xylene (o)	94.9		"	100	ND	94.9	80-120	2.29	20	
Surrogate: a,a,a-Trifluorotoluene	*95.9*		"	*100*		*95.9*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*103*		"	*100*		*103*	*80-120*			

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 EF41406 - General Preparation (Prep)										
Blank (EF41406-BLK1)				Prepared & Analyzed: 06/14/04						
% Solids	0.0		%							
Duplicate (EF41406-DUP1)		**Source: 4F11015-01**		Prepared & Analyzed: 06/14/04						
% Solids	95.0		%		96.0			1.05	20	

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: 6-17-04

Raland K. Tuttle, QA Officer
Celey D. Keene, Lab Director, Org. Tech Director
Jeanne Mc Murrey, Inorg. Tech Director
James L. Hawkins, Chemist/Geologist
Sara Molina, Chemist
Sandra Biezugbe, Lab Tech.

Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Ike Tavarez
Company Name: Highlander Environmental
Company Address:
City/State/Zip:
Telephone No: Fax No:
Sampler Signature:

Project Name: Pogo/C.E. Lamunyon #44
Project #: 1354
Project Loc: Lea County
PO #:

4F14005

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers 4oz glass	Preservative: Ice	Preservative: HNO_3	Preservative: HCl	Preservative: NaOH	Preservative: H_2SO_4	Preservative: None	Preservative: Other (Specify)	Matrix: Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For: TPH: 418.1 (8015M) 1005 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B/5030 or BTEX 8260	RCI	N.O.R.M.	RUSH TAT (Pre-Schedule)	Standard TAT
-01	#1 (0-1)	06-10-04		1	✓									✓		✓											
-02	#2 (0-1)	↓		1	✓									✓		✓							X				

Special Instructions: * If TPH is < 1,000mg/kg run BTEX on highest

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
1°C

Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
				6/11/04	17:35

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spring St.
Midland, TX 79705

Report Date: 1/12/00

Project Number: 1354
Project Name: Pogo/Lamunyon #44, Spill Area
Project Location: Lea County, NM

Order ID Number: A00010810

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
138389	#1 Composite	Soil	1/5/00	10:30	1/8/00

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 3 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 138389
Description: #1 Composite

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
TPH DRO (mg/Kg)										
DRO		12400	5	Mod. 8015B	1/10/00	1/10/00	MA	PB00228	QC00298	50
TPH GRO (mg/Kg)										
GRO		1370	100	8015B	1/10/00	1/10/00	RC	PB00226	QC00294	0.1

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
DRO (mg/Kg)		<50	50	1/10/00	PB00228	QC00298

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
GRO (mg/Kg)		<5	0.1	1/10/00	PB00226	QC00294

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	DRO (mg/Kg)	<50	1	250	232	93		80 - 120	0 - 20	QC00298
MS	DRO (mg/Kg)	<50	1	250	232	93		70 - 130	0 - 20	QC00298
MSD	DRO (mg/Kg)	<50	1	250	243	97	5	80 - 120	0 - 20	QC00298
MSD	DRO (mg/Kg)	<50	1	250	243	97	5	70 - 130	0 - 20	QC00298

Quality Control Report
Lab Control Spikes and Duplicate Spike

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	DRO (mg/Kg)	<50	1	250	221	88		80 - 120	0 - 20	QC00298
LCS	DRO (mg/Kg)	<50	1	250	221	88		70 - 130	0 - 20	QC00298
LCSD	DRO (mg/Kg)	<50	1	250	188	75	16	80 - 120	0 - 20	QC00298
LCSD	DRO (mg/Kg)	<50	1	250	188	75	16	70 - 130	0 - 20	QC00298

	Param	Blank Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
LCS	GRO (mg/Kg)	<5	1	1	0.907	91		80 - 120	0 - 20	QC00294
LCSD	GRO (mg/Kg)	<5	1	1	0.919	92	1	80 - 120	0 - 20	QC00294

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	DRO (mg/Kg)		250	218	87	70 - 130	1/10/00	QC00298
CCV (1	DRO (mg/Kg)		250	246	98	70 - 130	1/10/00	QC00298
CCV (2	DRO (mg/Kg)		250	248	99	70 - 130	1/10/00	QC00298

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	GRO (mg/Kg)		1	1.17	117	80 - 120	1/10/00	QC00294
CCV (1	GRO (mg/Kg)		1	0.971	97	80 - 120	1/10/00	QC00294
CCV (2	GRO (mg/Kg)		1	1.04	104	80 - 120	1/10/00	QC00294

H000-0809 A00010810

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
SITE MANAGER: IKE Tavarez
PROJECT NO.: 1354
PROJECT NAME: Pogo/Lamunyon #44, Spill over Lee 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
138389	1-5-00	10:30	S	X		#1 Composite	1				X	

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. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
		X														

BTEX/GRO

RELINQUISHED BY: (Signature) — Date: 1/7/00 Time: 4:45pm
RECEIVED BY: (Signature) Ellen Shelton — Date: 1/7/00 Time: 4:45PM
SAMPLED BY: (Print & Sign) IKE Tavarez — Date: Time:

RELINQUISHED BY: (Signature) Ellen Shelton — Date: 1/7/00 Time: 11:00PM
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS UPS HAND DELIVERED — AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) Trace Tech. — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
HIGHLANDER CONTACT PERSON: IKE Tavarez — Results by:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: 01/05/00 TIME: 10:00AM

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

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

REMARKS: 4°C BUS 159 384 6837

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.

1 Sample -HS

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Pogo Producing Company

Certificate of Analysis Number:

02060443

Report To:		Project Name:	#1354 Pogo/C.E. Lamunyon
Highlander Environmental Corp		Site:	Well#44 Lea Co.,NM
Ike Tavarez		Site Address:	
1910 N. Big Spring Street			
Midland		PO Number:	
TX		State:	New Mexico
79705-		State Cert. No.:	
ph: (915) 682-4559	fax: (915) 682-3946	Date Reported:	6/24/2002

This Report Contains A Total Of 8 Pages

Excluding This Page

And

Chain Of Custody

6/24/2002

Date

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Case Narrative for:

Pogo Producing Company

Certificate of Analysis Number:

02060443

Report To:		Project Name:	#1354 Pogo/C.E. Lamunyon
Highlander Environmental Corp		Site:	Well#44 Lea Co.,NM
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ph: (915) 682-4559	fax: (915) 682-3946	Date Reported:	6/24/2002

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

SPL, Inc. is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

Joni Blankfield
Project Manager

6/24/2002
Date

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Pogo Producing Company

Certificate of Analysis Number:

02060443

Report To: Highlander Environmental Corp
Ike Tavarez
1910 N. Big Spring Street

Midland
TX
79705-
ph: (915) 682-4559 fax: (915) 682-3946

Fax To: Highlander Environmental Corp
Ike Tavarez fax : (915) 682-3946

Project Name: #1354 Pogo/C.E. Lamunyon
Site: Well#44 Lea Co.,NM
Site Address:

PO Number:
State: New Mexico
State Cert. No.:
Date Reported: 6/24/2002

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
Composite(0-1')	02060443-01	Soil	6/10/2002	6/13/2002 10:00:00 AM		☐

Joni Blankfield
Project Manager

6/24/2002
Date

Joel Grice
Laboratory Director

Ted Yen
Quality Assurance Officer

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Client Sample ID Composite(0-1') **Collected:** 06/10/2002 0:00 **SPL Sample ID:** 02060443-01

Site: **Well#44 Lea Co.,NM**

Analyses/Method	Result		Rep.Limit		Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
DIESEL RANGE ORGANICS				**MCL**	**SW8015B**		**Units: mg/Kg**		
Diesel Range Organics	1800		100		20		06/19/02 15:46	AR	1188101
Surr: n-Pentacosane	D	%	20-154		20	*	06/19/02 15:46	AR	1188101

Prep Method	Prep Date	Prep Initials
SW3550B	06/18/2002 10:59	HH

GASOLINE RANGE ORGANICS				**MCL**	**SW8015B**		**Units: mg/Kg**		
Gasoline Range Organics	ND		0.10		1		06/20/02 17:21	TM	1188557
Surr: 1,4-Difluorobenzene	103	%	63-122		1		06/20/02 17:21	TM	1188557
Surr: 4-Bromofluorobenzene	100	%	39-150		1		06/20/02 17:21	TM	1188557

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
* - Surrogate Recovery Outside Advisable QC Limits
J - Estimated Value between MDL and PQL
>MCL - Result Over Maximum Contamination Limit(MCL)
D - Surrogate Recovery Unreportable due to Dilution
MI - Matrix Interference

Quality Control Documentation

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Quality Control Report

Pogo Producing Company

#1354 Pogo/C.E. Lamunyon

Analysis: Diesel Range Organics
Method: SW8015B
WorkOrder: 02060443
Lab Batch ID: 20664A

Method Blank

RunID: HP_V_020619D-1188109 Units: mg/Kg
Analysis Date: 06/19/2002 17:42 Analyst: AR
Preparation Date: 06/18/2002 10:59 Prep By: HH Method SW3550B

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
02060443-01A	Composite(0-1')

Analyte	Result	Rep Limit
Diesel Range Organics	ND	5.0
Surr: n-Pentacosane	87.7	20-154

Laboratory Control Sample (LCS)

RunID: HP_V_020619D-1188108 Units: mg/Kg
Analysis Date: 06/19/2002 17:03 Analyst: AR
Preparation Date: 06/18/2002 10:59 Prep By: HH Method SW3550B

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Diesel Range Organics	83	66	80	50	150

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 02060464-05
RunID: HP_V_020619D-1188106 Units: mg/Kg-dry
Analysis Date: 06/19/2002 12:31 Analyst: AR
Preparation Date: 06/18/2002 10:59 Prep By: HH Method SW3550B

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Diesel Range Organics	ND	103	86	81.1	103	74	69.2	15.8	50	21	175

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

The percent recoveries for QC samples are correct as reported. Due to significant figures and rounding, the reported RPD may differ from the displayed RPD values but is correct as reported.

6/24/2002 3:06:22 PM

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Quality Control Report

Pogo Producing Company

#1354 Pogo/C.E. Lamunyon

Analysis: Gasoline Range Organics
Method: SW8015B
WorkOrder: 02060443
Lab Batch ID: R61748

Method Blank

RunID: HP_O_020620B-1188554 Units: mg/Kg
Analysis Date: 06/20/2002 3:22 Analyst: TM

Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
02060443-01A	Composite(0-1')

Analyte	Result	Rep Limit
Gasoline Range Organics	ND	0.10
Surr: 1,4-Difluorobenzene	98.0	63-122
Surr: 4-Bromofluorobenzene	95.7	39-150

Laboratory Control Sample (LCS)

RunID: HP_O_020620B-1188551 Units: mg/Kg
Analysis Date: 06/20/2002 1:53 Analyst: TM

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Gasoline Range Organics	1	1.2	116	70	130

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 02060555-12
RunID: HP_O_020620B-1188552 Units: mg/Kg
Analysis Date: 06/20/2002 2:22 Analyst: TM

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Gasoline Range Organics	0.30	0.9	0.95	71.8	0.9	1	80.0	10.8	50	26	147

Qualifiers:

ND/U - Not Detected at the Reporting Limit
B - Analyte detected in the associated Method Blank
J - Estimated value between MDL and PQL
MI - Matrix Interference
D - Recovery Unreportable due to Dilution
* - Recovery Outside Advisable QC Limits

The percent recoveries for QC samples are correct as reported. Due to significant figures and rounding, the reported RPD may differ from the displayed RPD values but is correct as reported.

Sample Receipt Checklist

And

Chain of Custody

HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TX 77054
(713) 660-0901

Sample Receipt Checklist

Workorder:	02060443	Received By:	NB
Date and Time Received:	6/13/2002 10:00:00 AM	Carrier name:	FedEx
Temperature:	4	Chilled by:	Water Ice

1.	**Shipping container/cooler in good condition?**	Yes ☑	No ☐	Not Present	☐
2.	**Custody seals intact on shippping container/cooler?**	Yes ☐	No ☐	Not Present	☑
3.	**Custody seals intact on sample bottles?**	Yes ☐	No ☐	Not Present	☑
4.	**Chain of custody present?**	Yes ☑	No ☐		
5.	**Chain of custody signed when relinquished and received?**	Yes ☑	No ☐		
6.	**Chain of custody agrees with sample labels?**	Yes ☑	No ☐		
7.	**Samples in proper container/bottle?**	Yes ☑	No ☐		
8.	**Sample containers intact?**	Yes ☑	No ☐		
9.	**Sufficient sample volume for indicated test?**	Yes ☑	No ☐		
10.	**All samples received within holding time?**	Yes ☑	No ☐		
11.	**Container/Temp Blank temperature in compliance?**	Yes ☑	No ☐		
12.	**Water - VOA vials have zero headspace?**	Yes ☐	No ☐	Not Applicable	☑
13.	**Water - pH acceptable upon receipt?**	Yes ☐	No ☐	Not Applicable	☑

SPL Representative: _____ **Contact Date & Time:** _____

Client Name Contacted: _____

Non Conformance Issues: _____

Client Instructions: _____

02060443

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3948

PAGE: 1 OF: 1

CLIENT NAME: POGO SITE MANAGER: Ike Tavarez

PROJECT NO.: 1354 PROJECT NAME: POGO / C.E. Lamunyon well #44 Lea CO. NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
	6/10/02		S	V		Composite (0-1')	1	N			V	

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	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)
		V														

44

RELINQUISHED BY: (Signature) RMJ Taylor Date: 6/12/02 Time: 4:00
RECEIVED BY: (Signature) Date: Time:
SAMPLED BY: (Print & Sign) Ray Taylor Ike Tavarez Date: 6/12/02 Time: 2:30

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: RECEIVED BY: (Signature) Corey Barnes
ADDRESS:
CITY: STATE: ZIP: DATE: 6/13/02 TIME: 1000
CONTACT: PHONE:

HIGHLANDER CONTACT PERSON: Ike Tavarez

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:

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.