Highlander Environmental Corp.

Midland, Texas

December 2, 2004

Hobbs
1R-0055
12/13/04

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 Spill at the Pogo Producing Company, C. E. Lamunyon, Well #49 Flow Line Leak, South of Well #49, Unit Letter H, Section 21, 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 (Pogo) C.E. Lamunyon Well #49, flow line in Lea County, New Mexico (Site). The Site is located in Section 21, Township 23 South, Range 37 East. The State of New Mexico C-141 (Initial) is included in Appendix A. The Site is shown in Figure 1.

Background

On October 18, 2004, the spill was discovered from a flow line leak due to corrosion and age of the pipe. The spill occurred onto native soil approximately 200' south of Well #49. The volume of oil and water released are unknown, however, Pogo recovered approximately 15 barrels of fluid. The spill area measured approximately 30'to 50' wide by 90' long. The spill area is shown in Figure 2.

Groundwater

The State of New Mexico Well Reports did not show any water wells in Section 21. However, water wells were shown in Sections 9, 16, and 32 with an average groundwater depth of approximately 100' to 115' below surface. In addition, the U.S. Geological Survey (USGS) groundwater resource data base showed two water wells located in Sections 20 and 28, with depth to water of 103' and 117', respectively. The water well in Section 28 is located south of Section 21. The State of New Mexico Well Reports and the USGS Reports are shown in Appendix B.

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 5,000 mg/kg.

Corrective Action

From October 22, to October 28, 2004, Highlander supervised the excavation of the impacted soils. To remove the saturated soil (sandy soil), the spill area was excavated to a depth ranging from 3.0' to 6.0' below surface. Below this sand layer, a caliche formation was encountered. Approximately 2.0' to 3.0' of the caliche material was removed from the bottom of the excavation. The excavation and depths are shown in Figure 3. A total of 1,313 cubic yards of material was transported and disposed at Sundance Services Inc, located in Eunice, New Mexico.

For soil sampling purposes, the excavation was segregated into four (4) areas. The segregated areas are shown in Figure 3. Soil samples were collected from the bottom of the excavation, placed into laboratory supplied containers and properly preserved during transport. Samples were analyzed for TPH by method SW 846 8015B, BTEX by EPA method 602/8021B, and chloride by method SW 846 9253. The soil sample results are shown in Table 1. The laboratory reports and the chain of custody documentation are included in Appendix C.

Table 1
(concentrations in mg/kg)

Sample ID	Depth (ft)	TPH			B	T	E	X	Chloride
		GRO	DRO	Total					
#1	0-1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	233
#2	0-1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	946
#3	0-1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	354
#4	0-1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	191

Depth (ft) - below excavation bottom

Conclusions and Recommendations

Referring to Table 1, the confirmation samples collected from the bottom of the excavations were all below the method detection limit. Chloride ranged from 191 mg/kg to 946 mg/kg. Based upon the other sample points chloride concentrations and being below 1,000 mg/kg, this area has limited potential for impact. Due to the release being a surface spill, the chloride levels will likely decrease with depth. In addition, the chloride levels detected in the bottom of the excavation are well below the root zone. Based on the results, the Sites will not require any further action and Pogo proposes closure for the Site. The excavation will be backfilled with clean fill material. The State of New Mexico C-141 (Final) is shown in Appendix A.

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

Very truly yours,

Ike Tavarez, PG
Project Manager/Senior Geologist

cc: Don Riggs – Pogo Producing Co.
Rex Jasper – Pogo Producing Co.
Jim McCormick - BLM

FIGURES

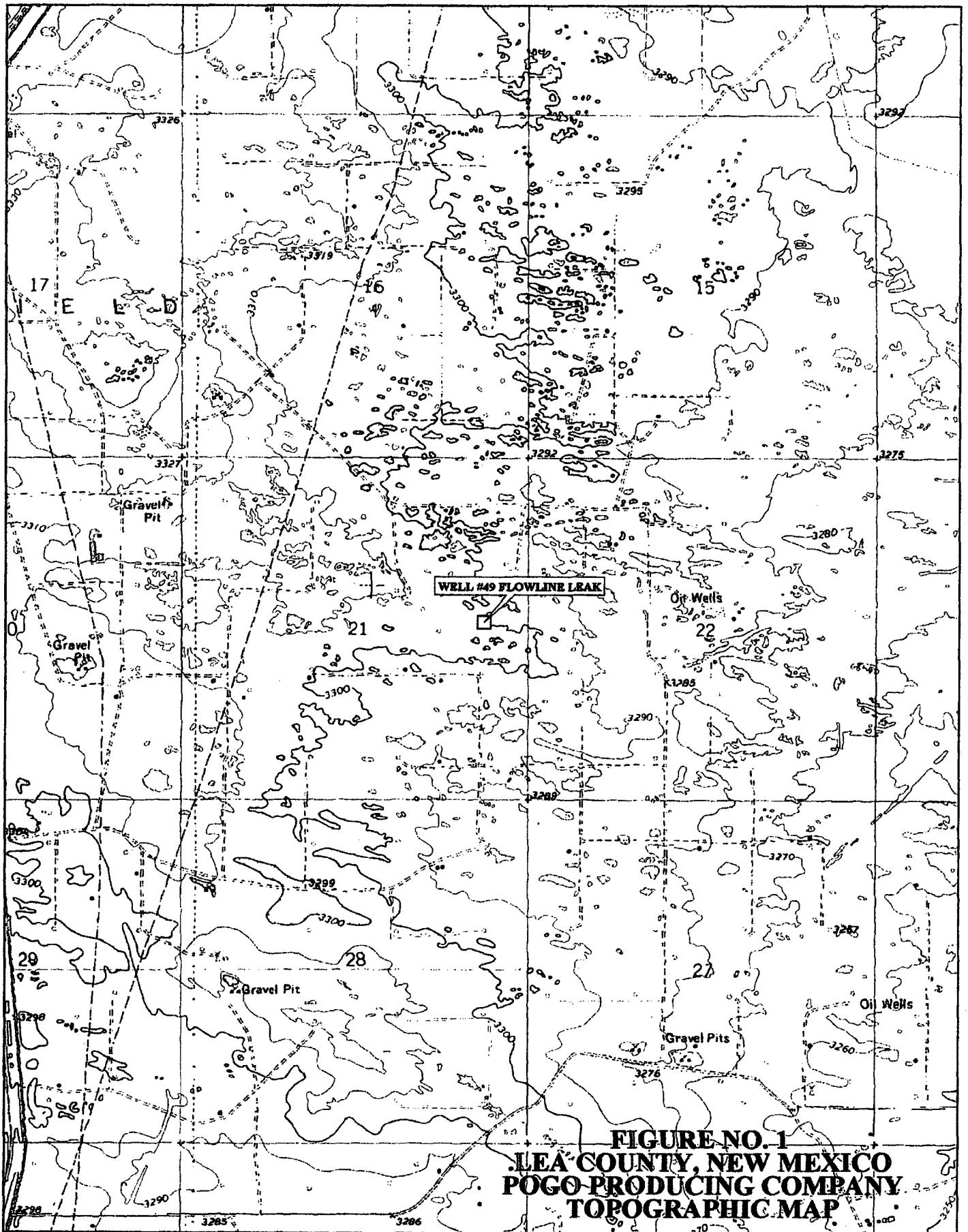
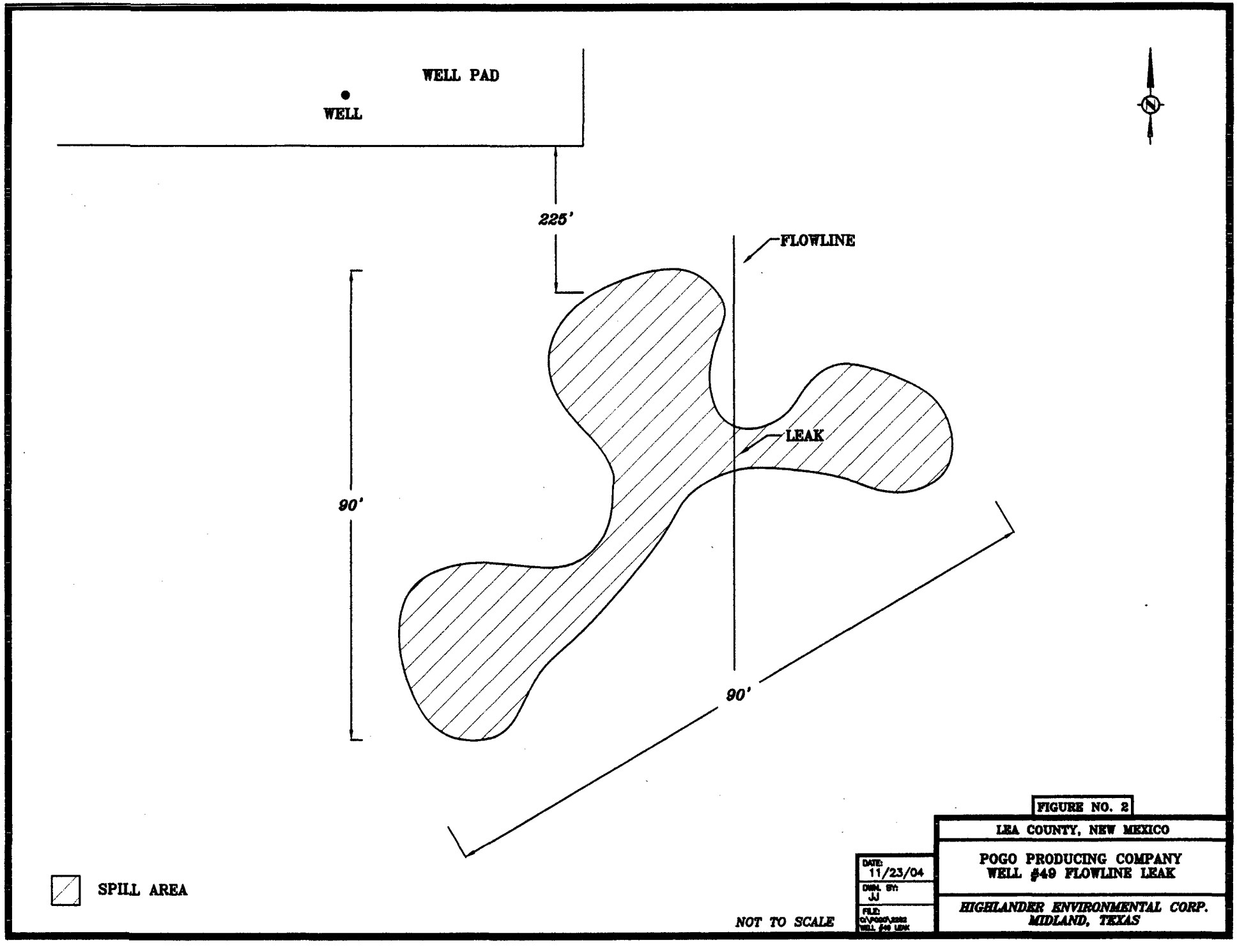
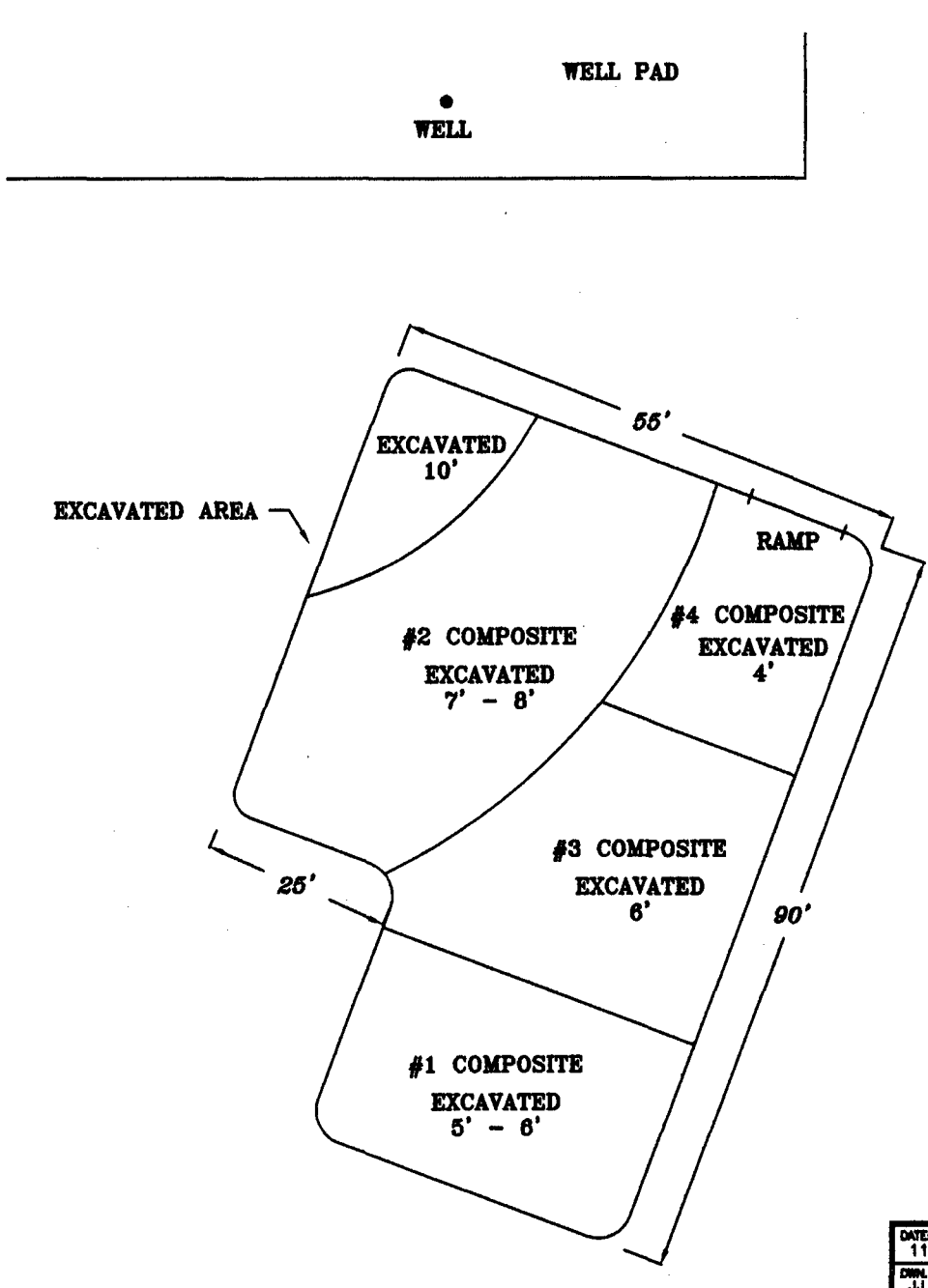


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
TOPOGRAPHIC MAP


WELL PAD
WELL
225'
FLOWLINE
LEAK
90'
90'
SPILL AREA
NOT TO SCALE
FIGURE NO. 2
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
WELL #49 FLOWLINE LEAK
DATE: 11/23/04
DRN. BY: JJ
FILE:
HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS



NOT TO SCALE

FIGURE NO. 3

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY
WELL #49 FLOWLINE LEAK EXCAVATION

DATE: 11/23/04
DWN. BY: JJ
FILE: C:\POGO\2003 WELL #49 LEAK

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

APPENDIX A

State of New Mexico
Form C-141

District I · (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II · (505) 748-1283
811 South First
Artesia, NM 88210
District III · (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV · (505) 827-7131

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

Form C-141
Originated 2/13/97

Submit 2 copies to Appropriate District Office in accordance with Rule 116 on back side of form

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

Name: Arch Pet Inc	Contact: Gary Wells
Address:	Telephone No.: 432-631-0134
Facility Name: C E Lamunyon 49	Facility Type: Pumping Well

Surface Owner	Mineral Owner	Lease No.
George Miller		030187

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	21	23-S	37E	2150	FNL	550	FEL	Lea

NATURE OF RELEASE

Type of Release: Oil & Salt Water	Volume of Release: Unknown	Volume Recovered: 15 BBLS
Source of Release: Flowline Leak	Date and Hour of Occurrence: N/A	Date and Hour of Discovery: 10/18/04 - 1:00 PM
Was Immediate Notice Given? ☑ Yes ☐ No ☐ Not Required	If YES, To Whom? Silvia Dickey Left Message on Voicemail	
By Whom? Gary Wells	Date and Hour: 10/18/04 2:00 PM	
Was a Watercourse Reached? ☐ Yes ☑ No	If YES, Volume Impacting the Watercourse.	

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

Describe Cause of Problem and Remedial Action Taken. (Attach Additional Sheets If Necessary)
Flowline Leak - P.U. Fl. off Ground.

Describe Area Affected and Cleanup Action Taken. (Attach Additional Sheets If Necessary)
Pasture Land South of Well Head - Turn over to Highlander for Cleanup Plan of Action. Will

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

Signature: Gary Wells	OIL CONSERVATION DIVISION
Printed Name: Gary Wells	Approved by District Supervisor:
Title: Field Supervision	Approval Date: / Expiration Date:
Date: 10/18/04 Phone: 432 631-0134	Conditions of Approval: / Attached ☐

Attachment I
Incident Report

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

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

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

LEAK IN FLOWLINE - MEDIUM LAND DAMAGE OF TOP SOIL - ABOUT 100' SQ. SPOT.

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

Material spilled or released	OIL & SALT WATER		
Volume of the spill (estimate)	UNKNOWN	Nature of the damage	SOIL DAMAGE

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

LIKELIHOOD TO RECUR

	Rare	(Probably won't recur)
✓	Occasional	(Next 1-10 years)
	Frequent	(Within next year)

Witnesses:

This report prepared by: (signed)	Gary Wells	Date	10/18/04
Print Name	GARY WELLS	Title	Field Supervisor

Distribution: Pogo Health, Safety and Environmental Manager

Attachment I
Incident Report

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

Date of Incident 10/18/04 Time of Incident N/A Location of Incident CEI Lawrenson 49

Type of Incident (Check all that apply)

☐ Injury ☐ Property Damage ☐ Fire or Explosion ☑ Spill or Release ☐ Near Miss

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

Clearly describe how the incident occurred

Flowline Leak

List any factors that may have contributed to the incident.

Extended use

What action was or will be taken to prevent recurrence?

Change out bad pipe - walk flowline out more frequent
Possible Replace Flowline.

INJURY (This section must be completed for injury incidents)

Employee's Name _____ SSN Number _____ Job Title _____

Employee's Address _____ Home Phone: _____

Location sent for medical treatment: _____

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 #49**	Facility Type **Oil Well Location**

Surface Owner **George Weir**	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
H	**21**	**23S**	**37E**	**2150**	**North**	**550**	**East**	**Lea**

NATURE OF RELEASE

Type of Release **Oil and Water**	Volume of Release **unknown**	Volume Recovered **15 barrels**
Source of Release **Flow Line Leak**	Date and Hour of Occurrence **unknown**	Date and Hour of Discovery **10/18/04 1:00 pm**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **NMOCD, Hobbs – left message on Silva voice mail**	
By Whom? Gary Wells (Pogo)	Date and Hour **10/18/04 2:00 pm**	
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.*
Flow line leaked due to corrosion and age of the pipe. Once discovered, Pogo immediately repaired the flow line and used a vacuum truck to recovered 15 barrels of fluid from the spill.

Describe Area Affected and Cleanup Action Taken.*

The spill occurred approximately 200' south of well #49. The spill area measured approximately 30' to 50' wide by 90' long. The impacted soils were excavated to a depth of 4.0' to 8.0' below surface. The excavated soils were transported to Sundance Service for disposal. The confirmation soil samples collected from the bottom of the excavation showed TPH and BTEX levels below the RRAL. Based on the results, the excavation will be backfilled with clean fill material A Closure Report has been 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:	OIL CONSERVATION DIVISION
Printed Name: Ike Tavarez	Approved by District Supervisor:
Title: Senior Geologist	Approval Date: / Expiration Date:
E-mail Address: itavarez@hec-enviro.com	Conditions of Approval: / Attached ☐
Date: 11/19/04 Phone: (432) 682-4559	

* Attach Additional Sheets If Necessary

APPENDIX B

Waterwell Data

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 23S Range: 37E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

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

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report | Clear Form | WATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 11/19/2004

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

Record Count: 3

Water Resources

Data Category: Ground Water Geographic Area: New Mexico go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 321617103102901

Save file of selected sites to local disk for future upload

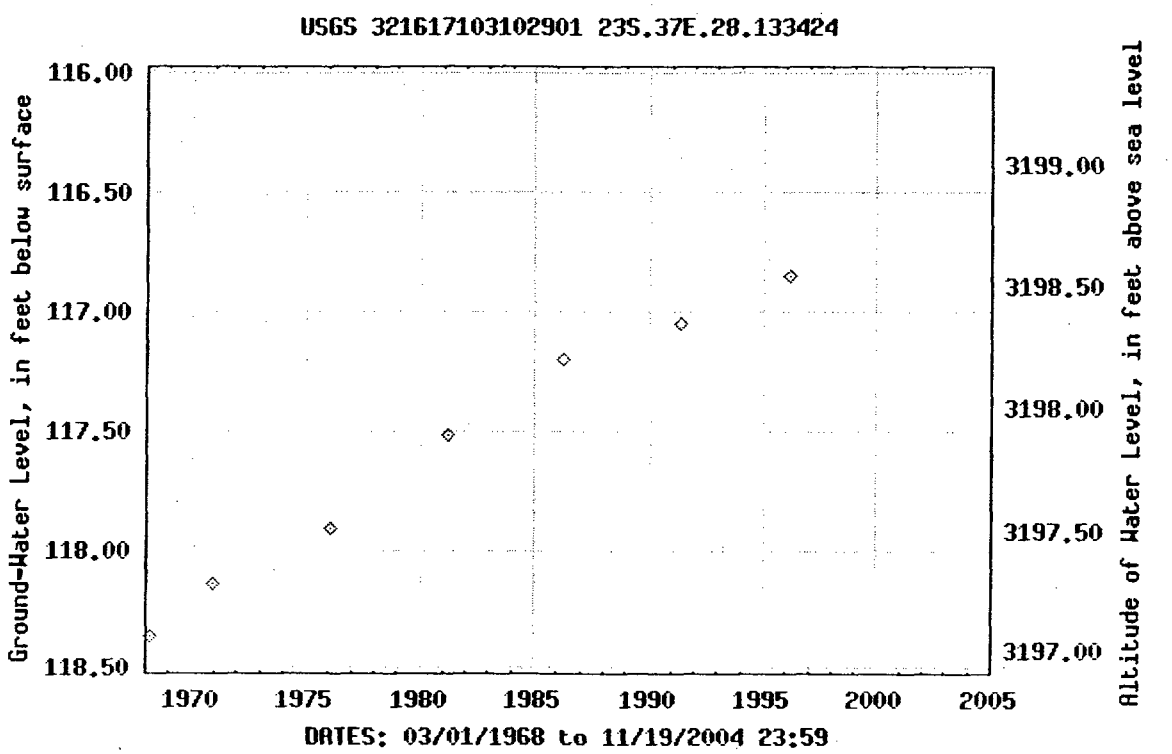
USGS 321617103102901 23S.37E.28.133424

Available data for this site Ground-water: Levels GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°16'17", Longitude 103°10'29" NAD27
Gage datum 3,315.40 feet above sea level NGVD29
The depth of the well is 150 feet below land surface.
This well is completed in ALLUVIUM,BOLSON DEPOSITS AND OTHER SURFACE DEPOSITS (110AVMB)

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 321643103113401

Save file of selected sites to local disk for future upload

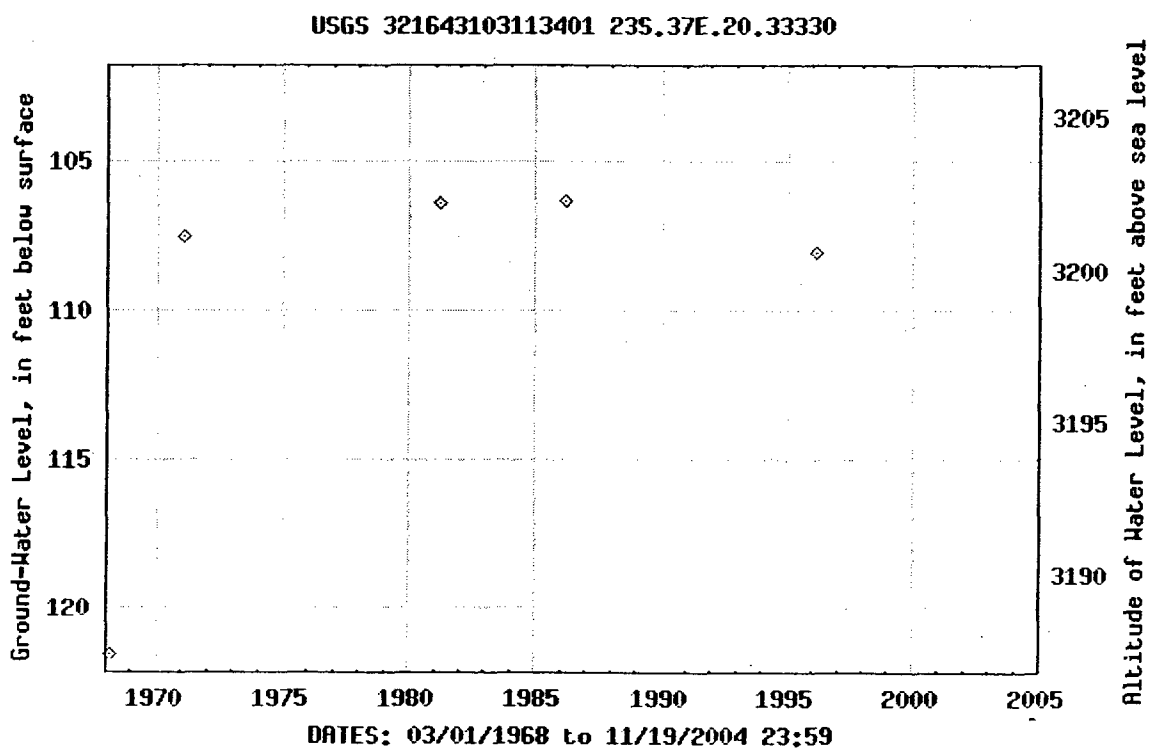
USGS 321643103113401 23S.37E.20.33330

Available data for this site Ground-water: Levels GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°16'43", Longitude 103°11'34" NAD27
Gage datum 3,308.70 feet above sea level NGVD29
The depth of the well is 177 feet below land surface.
This well is completed in ALLUVIUM,BOLSON DEPOSITS AND OTHER SURFACE DEPOSITS (110AVMB)

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.

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. LaMunyon Well #49, F/L Leak

Project Number: 2262

Location: Lea County, NM

Lab Order Number: 4K02002

Report Date: 11/05/04

Highlander Environmental Corp.	Project: Pogo/ C.E. LaMunyon Well #49, F/L Leak	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: 2262	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	11/05/04 17:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Composite #1 (0-1'), Bottom	4K02002-01	Soil	10/26/04 00:00	11/01/04 17:02
Composite #2 (0-1'), Bottom	4K02002-02	Soil	10/26/04 00:00	11/01/04 17:02
Composite #3 (0-1'), Bottom	4K02002-03	Soil	10/26/04 00:00	11/01/04 17:02
Composite #4 (0-1'), Bottom	4K02002-04	Soil	10/26/04 00:00	11/01/04 17:02

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
Composite #1 (0-1'), Bottom (4K02002-01) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK40506	11/03/04	11/03/04	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		*84.8 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*102 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EK40204	11/02/04	11/02/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*84.8 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*73.8 %*	*70-130*		"	"	"	"	
Composite #2 (0-1'), Bottom (4K02002-02) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK40506	11/03/04	11/03/04	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		*81.5 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.3 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EK40204	11/02/04	11/02/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*82.8 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*72.8 %*	*70-130*		"	"	"	"	
Composite #3 (0-1'), Bottom (4K02002-03) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK40506	11/03/04	11/03/04	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		*83.3 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*97.4 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EK40204	11/02/04	11/02/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite #3 (0-1'), Bottom (4K02002-03) Soil									
Surrogate: 1-Chlorooctane		*80.8 %*	*70-130*		*EK40204*	*11/02/04*	*11/02/04*	*EPA 8015M*	
Surrogate: 1-Chlorooctadecane		*76.4 %*	*70-130*		"	"	"	"	
Composite #4 (0-1'), Bottom (4K02002-04) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EK40506	11/03/04	11/04/04	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		*86.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.2 %*	*80-120*		"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EK40204	11/02/04	11/02/04	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		*91.6 %*	*70-130*		"	"	"	"	
Surrogate: 1-Chlorooctadecane		*79.6 %*	*70-130*		"	"	"	"	

Highlander Environmental Corp.	Project: Pogo/ C.E. LaMunyon Well #49, F/L Leak	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: 2262	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	11/05/04 17:04

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Composite #1 (0-1'), Bottom (4K02002-01) Soil									
Chloride	**223**	20.0	mg/kg Wet	2	EK40210	11/02/04	11/02/04	SW 846 9253	
% Moisture	**16.0**		%	1	EK40301	11/02/04	11/03/04	% calculation	
Composite #2 (0-1'), Bottom (4K02002-02) Soil									
Chloride	**946**	20.0	mg/kg Wet	2	EK40210	11/02/04	11/02/04	SW 846 9253	
% Moisture	**9.0**		%	1	EK40301	11/02/04	11/03/04	% calculation	
Composite #3 (0-1'), Bottom (4K02002-03) Soil									
Chloride	**354**	20.0	mg/kg Wet	2	EK40210	11/02/04	11/02/04	SW 846 9253	
% Moisture	**14.0**		%	1	EK40301	11/02/04	11/03/04	% calculation	
Composite #4 (0-1'), Bottom (4K02002-04) Soil									
Chloride	**191**	20.0	mg/kg Wet	2	EK40210	11/02/04	11/02/04	SW 846 9253	
% Moisture	**13.0**		%	1	EK40301	11/02/04	11/03/04	% calculation	

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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 EK40204 - Solvent Extraction (GC)										
Blank (EK40204-BLK1)				Prepared & Analyzed: 11/02/04						
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	*40.9*		*mg/kg*	*50.0*		*81.8*	*70-130*			
Surrogate: 1-Chlorooctadecane	*35.9*		*"*	*50.0*		*71.8*	*70-130*			
LCS (EK40204-BS1)				Prepared & Analyzed: 11/02/04						
Gasoline Range Organics C6-C12	452	10.0	mg/kg wet	500		90.4	75-125			
Diesel Range Organics >C12-C35	482	10.0	"	500		96.4	75-125			
Total Hydrocarbon C6-C35	934	10.0	"	1000		93.4	75-125			
Surrogate: 1-Chlorooctane	*45.8*		*mg/kg*	*50.0*		*91.6*	*70-130*			
Surrogate: 1-Chlorooctadecane	*35.5*		*"*	*50.0*		*71.0*	*70-130*			
Calibration Check (EK40204-CCV1)				Prepared & Analyzed: 11/02/04						
Gasoline Range Organics C6-C12	454		mg/kg	500		90.8	80-120			
Diesel Range Organics >C12-C35	498		"	500		99.6	80-120			
Total Hydrocarbon C6-C35	952		"	1000		95.2	80-120			
Surrogate: 1-Chlorooctane	*52.4*		*"*	*50.0*		*105*	*70-130*			
Surrogate: 1-Chlorooctadecane	*46.2*		*"*	*50.0*		*92.4*	*70-130*			
Matrix Spike (EK40204-MS1)	**Source: 4K02002-01**			Prepared & Analyzed: 11/02/04						
Gasoline Range Organics C6-C12	544	10.0	mg/kg dry	595	ND	91.4	75-125			
Diesel Range Organics >C12-C35	546	10.0	"	595	ND	91.8	75-125			
Total Hydrocarbon C6-C35	1090	10.0	"	1190	ND	91.6	75-125			
Surrogate: 1-Chlorooctane	*54.4*		*mg/kg*	*50.0*		*109*	*70-130*			
Surrogate: 1-Chlorooctadecane	*41.9*		*"*	*50.0*		*83.8*	*70-130*			
Matrix Spike Dup (EK40204-MSD1)	**Source: 4K02002-01**			Prepared & Analyzed: 11/02/04						
Gasoline Range Organics C6-C12	535	10.0	mg/kg dry	595	ND	89.9	75-125	1.67	20	
Diesel Range Organics >C12-C35	553	10.0	"	595	ND	92.9	75-125	1.27	20	
Total Hydrocarbon C6-C35	1090	10.0	"	1190	ND	91.6	75-125	0.00	20	
Surrogate: 1-Chlorooctane	*52.6*		*mg/kg*	*50.0*		*105*	*70-130*			
Surrogate: 1-Chlorooctadecane	*36.8*		*"*	*50.0*		*73.6*	*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 EK40506 - EPA 5030C (GC)										
Blank (EK40506-BLK1)				Prepared & Analyzed: 11/03/04						
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	*91.6*		*ug/kg*	*100*		*91.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*92.2*		*"*	*100*		*92.2*	*80-120*			
LCS (EK40506-BS1)				Prepared & Analyzed: 11/03/04						
Benzene	91.4		ug/kg	100		91.4	80-120			
Toluene	95.2		"	100		95.2	80-120			
Ethylbenzene	95.8		"	100		95.8	80-120			
Xylene (p/m)	212		"	200		106	80-120			
Xylene (o)	99.0		"	100		99.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	*101*		*"*	*100*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*113*		*"*	*100*		*113*	*80-120*			
Calibration Check (EK40506-CCV1)				Prepared: 11/03/04 Analyzed: 11/04/04						
Benzene	92.4		ug/kg	100		92.4	80-120			
Toluene	94.8		"	100		94.8	80-120			
Ethylbenzene	90.8		"	100		90.8	80-120			
Xylene (p/m)	198		"	200		99.0	80-120			
Xylene (o)	96.0		"	100		96.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	*107*		*"*	*100*		*107*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*111*		*"*	*100*		*111*	*80-120*			
Matrix Spike (EK40506-MS1)	**Source: 4K03005-10**			Prepared: 11/03/04 Analyzed: 11/04/04						
Benzene	93.9		ug/kg	100	ND	93.9	80-120			
Toluene	97.7		"	100	ND	97.7	80-120			
Ethylbenzene	96.5		"	100	ND	96.5	80-120			
Xylene (p/m)	213		"	200	ND	106	80-120			
Xylene (o)	101		"	100	ND	101	80-120			
Surrogate: a,a,a-Trifluorotoluene	*91.3*		*"*	*100*		*91.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*117*		*"*	*100*		*117*	*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 EK40506 - EPA 5030C (GC)										
Matrix Spike Dup (EK40506-MSD1)	**Source: 4K03005-10**			Prepared: 11/03/04		Analyzed: 11/04/04				
Benzene	92.7		ug/kg	100	ND	92.7	80-120	1.29	20	
Toluene	95.9		"	100	ND	95.9	80-120	1.86	20	
Ethylbenzene	93.2		"	100	ND	93.2	80-120	3.48	20	
Xylene (p/m)	204		"	200	ND	102	80-120	3.85	20	
Xylene (o)	95.9		"	100	ND	95.9	80-120	5.18	20	
Surrogate: a,a,a-Trifluorotoluene	*106*		"	*100*		*106*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*114*		"	*100*		*114*	*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 EK40210 - Water Extraction										
Blank (EK40210-BLK1)				Prepared: 11/01/04 Analyzed: 11/02/04						
Chloride	ND	20.0	mg/kg Wet							
Matrix Spike (EK40210-MS1)		Source: 4K01002-01		Prepared: 11/01/04 Analyzed: 11/02/04						
Chloride	702	20.0	mg/kg Wet	500	170	106	80-120			
Matrix Spike Dup (EK40210-MSD1)		Source: 4K01002-01		Prepared: 11/01/04 Analyzed: 11/02/04						
Chloride	659	20.0	mg/kg Wet	500	170	97.8	80-120	6.32	20	
Reference (EK40210-SRM1)				Prepared & Analyzed: 11/02/04						
Chloride	5000		mg/kg	5000		100	80-120			
Batch EK40301 - General Preparation (Prep)										
Blank (EK40301-BLK1)				Prepared: 11/02/04 Analyzed: 11/03/04						
% Moisture	0.0		%							
Duplicate (EK40301-DUP1)		Source: 4K02001-01		Prepared: 11/02/04 Analyzed: 11/03/04						
% Moisture	12.0		%		12.0			0.00	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: 11-05-04

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

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

Client: Highlander Environmental

Date/Time: 11-02-04 @ 0800

Order #: 4K02002

Initials: JMM

Sample Receipt Checklist

Temperature of container/cooler?	(Yes)	No	4.0 C
Shipping container/cooler in good condition?	(Yes)	No	N/A
Custody Seals intact on shipping container/cooler?	Yes	No	Not present N/A
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:

_____

_____

_____

_____

_____

_____

_____

_____

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: 1

CLIENT NAME: POGO SITE MANAGER: Ike Tavarez

PROJECT NO.: 2262 PROJECT NAME: POGO / C.E. LaMunyon well #49, Lea county, NM Flowline Leak

LAB I.D. NUMBER 4K02002	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 (8015 MOD.) TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride
-01	10/26/04		S	X		Composite #1 (0-1), bottom.	1				X		X		X															X
-02	10/27/04		S	X		Composite #2 (0-1), bottom	1				X		X		X															X
-03	10/28/04		S	X		composite #3 (0-1), bottom.	1				X		X		X															X
-04	10/28/04		S	X		composite #4 (0-1), bottom.	1				X		X		X															X

RELINQUISHED BY: (Signature) Date: 11/1/04 Time: 1702
RECEIVED BY: (Signature) Date: Time:
SAMPLED BY: (Print & Sign) Ray Taylor Date: 10/29/04 Time: 4:00

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: Environmental Lab of Texas
ADDRESS:
CITY: Odessa STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Jeanne McMurrey
DATE: 11-01-04 TIME: 1702

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4.0°C 4oz glass on ice

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

REMARKS: ~~Run (2)~~

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.