

# Highlander Environmental Corp.

Midland, Texas

November 29, 2006

Mr. Larry Johnson Environmental Engineer Specialist Oil Conservation Division, District 1 1625 North French Drive Hobbs, New Mexico 88240

RP#774

Re: Assessment and Closure Report for the Pogo Producing Company (Arch Petroleum), West Dollarhide Devonian Unit, Well #113, Section 4, Township 25 South, Range 38 East, Unit C, (Flow-line Spill Located in Section 33, Township 24 South, Range 38 East), Lea County, New Mexico.

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by Pogo Producing Company (Pogo) to assess a spill from a pumping well located on the West Dollarhide Devonian Unit, located in Section 4, Township 25 South, Range 38 East, Lea County, New Mexico (Site). The spill site coordinates are N 32° 10' 07.7", W 103° 04' 08.5". The State of New Mexico C-141 (Initial and Final) is included in Appendix A. The Site is shown on Figure 1.

#### **Groundwater and Regulatory**

The New Mexico State Engineer's Office database did not show any wells in Section 33, Township 24 South, Range 38 East. The USGS database showed wells in Section 19, 30, and 31 with reported water depths of 56', 68', and 97', respectively. Two wells were reported east of the Site in Andrews County, Texas with a reported depth of 106' and 114' below surface. The closest well in Andrews County, with a reported depth of 106', is located approximately 1.0 mile east of the Site. Based on the relative site elevation, the depth to groundwater for the Site is greater than 50' below surface. The New Mexico State Engineer well reports, USGS reports and TWDB reports are shown in Appendix B. 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

1910 N. Big Spring Midland, Texas 79705 application - PACO606854449

(432) 682-4559

kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

#### **Assessment and Results**

On January 24, 2006, Highlander personnel inspected and sampled the spill area. The spill area measured approximately 60' x 60'. A total of five (5) auger holes (AH-1 through AH-5) were installed using a stainless steel hand auger to assess the impacted soils. Due to a dense limestone formation, samples could not be collected below 1.0 to 2.0 feet. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Of the samples collected, the TPH concentrations exceeded the RRAL in all AH-1, AH-2, AH-4, and AH-5 at 0-0.5'. The vertical extents were only defined in AH-1 and AH-4 at a depth of 1.0' below surface. One of the three samples selected for BTEX exceeded the RRAL. The chloride concentrations ranged from 292 mg/kg (AH-2 at 0-0.5') to 4,550 mg/kg (AH-4 at 0-0.5') and the chlorides were not delineated in any of the auger holes. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The auger hole locations are shown on Figure 2. The results of the sampling are summarized in Table 1.

In order to delineate extents of the hydrocarbon/chloride impacts to the site, Highlander personnel was onsite June 15 and 16, 2006 to trench five separate areas within the leak area and remove the first 2.0 to 3.0 feet of hydrocarbon impacted soil. Once the excavation was complete, the five backhoe trenches (T-1 through T-5) were extended to a maximum depth of 13.0, 4.0, 2.5, 3.0, and 2.0 feet below ground surface (bgs), respectively. Select samples were collected and submitted for analyses of TPH, BTEX and chlorides. Of the samples collected, all TPH and BTEX samples were below RRAL. Chloride concentrations were found in T-1 at a maximum depth of 13 feet with a result of 1,890 mg/kg. A total of 370 cubic yards of excavated soil from the site were transported to Sundance Service Inc.located in Eunice, New Mexico. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix C. The trench locations are shown on Figure 3. The sampling results are summarized in Table 2.

In order to delineate the vertical extent of chlorides at the site, Highlander personnel was onsite October 12, 2006 to drill one soil boring (BH-1) in the vicinity of trench T-1. Soil boring BH-1 was extended to a depth of 21 feet bgs. Samples were collected at five foot intervals beginning at 15 feet bgs with a two foot split spoon sampler. Both of the two samples {BH-1 (15-16') and (20-21') collected and submitted for analysis of chlorides were below reporting limits. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix C. The boring location is shown on Figure 4. The results of the sampling are summarized in Table 3.

#### Conclusions

The impacted area was confined to a 60' by 60' area. The first 2.0 to 3.0 feet of hydrocarbon/chlorides was excavated and removed from the site. No remaining BTEX or TPH currently exceed the RRAL. However, chloride impacts remain to a maximum depth of 13.0 feet within the leak area and declined below 250 mg/kg at 15-16 feet bgs. Based on the depth to

groundwater and the results of the assessment, the residual chloride concentrations do not appear to be an imminent threat to groundwater.

Based upon the results of the assessment work performed at this site, Pogo requests closure of this Site. If you require any additional information or have any questions or comments concerning the assessment/closure report, please call at (432) 682-4559.

Respectfully submitted, Highlander Environmental Corp.

Offy Knolly for Timothy M. Reed, P.G.

Vice President

cc:

Pat Ellis – Pogo Producing Company Don Riggs – Pogo Producing Company

# TABLES

# Table 1 Pogo Producng Company West Dollarhide - Flowline Leak Lea County, New Mexico

	_	_	_	_	_		_	 	_	 _	_	 _		 _
Chłoride (mg'kg)	3,520	2,120	2,210	2,730		292	2,900	3,290	3,670	4,550	3,870	2,000	3,150	
Kylene (me/kg)	96.4	1		1		,	-	0.278	1	1.64	1	ł		
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	6,660	310	175	-		28,000	2,740	129	29.8	1,890	250	5,060	7,520	
107-20	4,140	119	73.8	•		16,000	1,550	<10	<10	192	19.5	2,290	2,700	
	0-0.5	0.5-1.0	1.5-2.0	2-2.5		0-0.5	1.0	0-0.5	1.0	0-0.5	1.0	0-0.5	1.0	
	1/24/2006	1/24/2006	1/24/2006	1/24/2006		1/24/2006	1/24/2006	1/24/2006	1/24/2006	1/24/2006	1/24/2006	1/24/2006	1/24/2006	
	AH-1	AH-1	AH-1	AH-1		AH-2	AH-2	AH-3	AH-3	AH-4	AH-4	AH-5	AH-5	

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(-) Not Analyzed

Pogo Producng Company West Dollarhide - Flowline Leak Lea County, New Mexico Table 2

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<b>]</b> #	T-1	T-2	T-2	T-2	T-2	T-3	T-3	T-4	T-4	T-4	T-5	T-5										

(-) Not Analyzed Depths (ft) - Below excavatiohn bottom

Pogo Producng Company West Dollarhide - Flowline Leak Lea County, New Mexico Table 3

	_	_
Chloride (mg/kg)	QN	Q
Xylene (mg/kg)	1	8
Ethyberzene (any Kg)	-	-
Toleran Disposition		•
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Total	-	
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	-	•
District	15-16'	20-21'
	10/12/2006	10/12/2006
<b>8</b> 0	BH-1	BH-1

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# FIGURE

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## APPENDIX A

## NMOCD C-141 Forms

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1. 1. juli State of New Mexico Energy Minerals and Natural Resources

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

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

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	•					OPERAT	FOR		🗌 Initia	al Report	$\boxtimes$	Final Report
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Address: 3	00 North M	Aarienfeld, S	uite 600,	Midland TX 79	0701	Telephone N	No. (432) 685-8	100				
Facility Nat	ne: West	Dollarhide I	Devonian	Unit		Facility Typ	e: Pumping We	11				
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near leak sou	irce. Appro	ximately 370	cubic yard	ls of soil were rer	noved f	rom the site (1	nostly from 0 to 2	feet de	ep). All TI	PH and BTH	EX are b	below RRAL
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## **APPENDIX B**

## Water Well Data

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#### Water Well - Average Depth to Groundwater Pogo - West Dollarhide Unit, Lea County, New Mexico

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

56 Groundwater Depth (ft) - Geology and Groundwater Conditions in Southern Lea County, New Mexico (Report 6)

# APPENDIX C

# Lab Analysis



# **Analytical Report**

#### **Prepared for:**

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

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Location: Lea County, NM

Lab Order Number: 6A25007

Report Date: 02/01/06

Highlander Environmental Corp.	Project:	Pogo/ West Dollarhide Flowline Leak	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number:	2564	Reported:
Midland TX, 79705	Project Manager:	Ike Tavarez	02/01/06 10:17

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
AH-1 0-0.5'	6A25007-01	Soil	01/24/06 00:00	01/24/06 17:20
AH-1 0.5-1.0'	6A25007-02	Soil	01/24/06 00:00	01/24/06 17:20
AH-1 1.5-2.0'	6A25007-03	Soil	01/24/06 00:00	01/24/06 17:20
AH-1 2.0-2.5'	6A25007-04	Soil	01/24/06 00:00	01/24/06 17:20
AH-2 0-0.5'	6A25007-05	Soil	01/24/06 00:00	01/24/06 17:20
AH-2 1.0'	6A25007-06	Soil	01/24/06 00:00	01/24/06 17:20
AH-3 0-0.5'	6A25007-07	Soil	01/24/06 00:00	01/24/06 17:20
AH-3 1.0'	6A25007-08	Soil	01/24/06 00:00	01/24/06 17:20
AH-4 0-0.5'	6A25007-09	Soil	01/24/06 00:00	01/24/06 17:20
AH-4 1.0'	6A25007-10	Soil	01/24/06 00:00	01/24/06 17:20
AH-5 0-0.5'	6A25007-11	Soil	01/24/06 00:00	01/24/06 17:20
AH-5 1.0'	6A25007-12	Soil	01/24/06 00:00	01/24/06 17:20

Highlander Environmental Corp.		I	Project: Pog		Fax: (432) 682-3946					
1910 N. Big Spring St. Midland TX, 79705		Project N Project M	umber: 256 anager: Ike	4 Tavarez				<b>Reported:</b> 02/01/06 10:17		
		Oı	rganics b	y GC						
		Environ	mental L	ab of To	exas					
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	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
AH-1 0-0,5' (6A25007-01) Soil										
Gasoline Range Organics C6-C12	4140	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M		
Diesel Range Organics >C12-C35	6660	10.0	"	۲	a		"			
Total Hydrocarbon C6-C35	10800	10.0	"	"	"	"	"	**		
Surrogate: 1-Chlorooctane		144 %	70-1	30	"	"	"	n	S-0	
Surrogate: 1-Chlorooctadecane		112 %	70-1	30	"	"	"	11		
AH-1 0.5-1.0' (6A25007-02) Soil										
Gasoline Range Organics C6-C12	119	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M		
Diesel Range Organics >C12-C35	310	10.0	"	n			"	*		
Total Hydrocarbon C6-C35	429	10.0	11	11	**	"	r	17		
Surrogate: 1-Chlorooctane		137 %	70-1	130	"	H	"	"	S-0	
Surrogate: 1-Chlorooctadecane		129 %	70-1	130	"	"	"	11		
AH-1 1.5-2.0' (6A25007-03) Soil										
Gasoline Range Organics C6-C12	73.8	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M		
Diesel Range Organics >C12-C35	175	10.0	п	"	"		n	ч.		
Total Hydrocarbon C6-C35	249	10.0	"	"	H	*	n	11		
Surrogate: 1-Chlorooctane		131 %	70-,	130	"	H	"	"	S-0	
Surrogate: 1-Chlorooctadecane		122 %	70-,	130	n	*	"	"		
AH-2 0-0.5' (6A25007-05) Soil										
Gasoline Range Organics C6-C12	16000	100	mg/kg dry	10	EA62514	01/25/06	01/30/06	EPA 8015M		
Diesel Range Organics >C12-C35	28000	100		"	91	"	u	n		
Total Hydrocarbon C6-C35	44000	100	•	Ħ	11	"	н	. "		
Surrogate: 1-Chlorooctane		32.2 %	70	130	"	11	"	"	S-0	
Surrogate: 1-Chlorooctadecane		31.4%	70-	130	n	"	"	n	S-0	
AH-2 1.0' (6A25007-06) Soil										
Gasoline Range Organics C6-C12	1550	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M		
Diesel Range Organics >C12-C35	2740	10.0	*		"	"	"	"		
Total Hydrocarbon C6-C35	4290	10.0	"	н	"	tt.	n	11		
Surrogate: 1-Chlorooctane		144 %	70-	130	"	"	"	"	S-0	
Surrogate: 1-Chlorooctadecane		144 %	70-	130	"	"	"	"	50	

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

Page 2 of 12

Highlander Environmental Corp. 1910 N. Big Spring St.		I Project N	Project: Pog umber: 256	o/ West D 4		Fax: (432) 682-3946 Reported:			
Midland TX, 79705		Project M	anager: Ike	Tavarez				02/01/06	10:17
		Oı	ganics b	y GC					
	-	Environ	mental L	ab of To	exas				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prenared	Analyzed	Method	Notes
AH-3 0-0.5' (6A25007-07) Soil				Difution					
Gasoline Range Organics C6-C12	J [9.44]	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M	
Diesel Range Organics >C12-C35	129	10.0	. "	"	**	"	"	n	
Total Hydrocarbon C6-C35	129	10.0	*1	"	"	м	n	н	
Surrogate: 1-Chlorooctane		129 %	70-1	30	"	"	"	н	
Surrogate: 1-Chlorooctadecane		119 %	70-1	30	"	"	"	"	
AH-3 1.0' (6A25007-08) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M	
Diesel Range Organics >C12-C35	29.8	10.0	"	ч	۳		n	W	
Total Hydrocarbon C6-C35	29.8	10.0	n	17	"	n	u	п	
Surrogate: 1-Chlorooctane		130 %	70-1	30	"	H	"	п	
Surrogate: 1-Chlorooctadecane		119 %	70-1	30	n	"	"	"	
AH-4 0-0.5' (6A25007-09) Soil									
Gasoline Range Organics C6-C12	192	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M	
Diesel Range Organics >C12-C35	1890	10.0		*		"	11		
Total Hydrocarbon C6-C35	2080	10.0	"	"	n	n	"	11	
Surrogate: 1-Chlorooctane		131 %	70-1	130	"	"	"	"	S-0
Surrogate: 1-Chlorooctadecane		138 %	70-1	130	"	"	"	"	S-0
AH-4 1.0' (6A25007-10) Soil									
Gasoline Range Organics C6-C12	19.5	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M	
Diesel Range Organics >C12-C35	250	10.0					"	н	
Total Hydrocarbon C6-C35	270	10.0	"		"	*	H	**	
Surrogate: 1-Chlorooctane		130 %	70-1	130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		123 %	<b>70</b>	130	"	"	"	n	
AH-5 0-0.5' (6A25007-11) Soil									
Gasoline Range Organics C6-C12	2290	10.0	mg/kg dry	1	EA62514	01/25/06	01/27/06	EPA 8015M	
Diesel Range Organics >C12-C35	5060	10.0	11	n		"	*	'n	
Total Hydrocarbon C6-C35	7350	10.0	H		"	17	н	"	
Surrogate: 1-Chlorooctane		171 %	70	130	"	"	"	"	<i>S</i> -
Surrogate: 1-Chlorooctadecane		153 %	70-	130	"	"	"	н	S-1

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Highlander Environmental Corp. 1910 N. Big Spring St. Midland TX, 79705		l Project N Project M	Project: P lumber: 2: anager: Ik	ogo/ West Do 564 ce Tavarez	ollarhide Flo	owline Leak		Fax: (432) 6 Report 02/01/06	582-3946 ted: 10:17
		Oı Environ	rganics mental	by GC Lab of Te	exas				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-5 1.0' (6A25007-12) Soil									
Gasoline Range Organics C6-C12	2700	20.0	mg/kg dry	2	EA62514	01/25/06	01/27/06	EPA 8015M	
Diesel Range Organics >C12-C35	7520	20.0	"			u	u	"	
Total Hydrocarbon C6-C35	10200	20.0	н			11		"	

70-130

70-130

59

"

,,

"

"

"

,,

"

S-06

77.6 %

63.2 %

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Surrogate: 1-Chlorooctane

Surrogate: 1-Chlorooctadecane

Highlander Environmental Corp.	Project: Pogo/	West Dollarhide Flowline Leak	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: 2564		Reported:
Midland TX, 79705	Project Manager: Ike Ta	warez	02/01/06 10:17

#### General Chemistry Parameters by EPA / Standard Methods

		Environn	nental L	ab of Te	exas				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-1 0-0.5' (6A25007-01) Soil									
Chloride	3520	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	12.1	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	
AH-1 0.5-1.0' (6A25007-02) Soil							_		
Chloride	2120	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	13.5	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	
AH-1 1.5-2.0' (6A25007-03) Soil									
Chloride	2210	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	14.6	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	
AH-1 2.0-2.5' (6A25007-04) Soil						<u> </u>			
Chloride	2730	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
AH-2 0-0.5' (6A25007-05) Soil									
Chloride	292	10.0	mg/kg	20	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	10.3	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	
AH-2 1.0' (6A25007-06) Soil									
Chloride	2900	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	14.3	0.1	%	1	EA62603	01/25/06	01/26/06	, % calculation	
AH-3 0-0.5' (6A25007-07) Soil									
Chloride	3290	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	11.0	0.1	%	١	EA62603	01/25/06	01/26/06	% calculation	
AH-3 1.0' (6A25007-08) Soil									
Chloride	3670	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	12.2	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	

Environmental Lab of Texas

# Project:Pogo/ West Dollarhide Flowline LeakProject Number:2564Project Manager:Ike Tavarez

#### General Chemistry Parameters by EPA / Standard Methods

Environmental	Lab of Texas
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Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-4 0-0.5' (6A25007-09) Soil	····			·					
Chloride	4550	100	mg/kg	200	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	13.7	0.1	%	I	EA62603	01/25/06	01/26/06	% calculation	
AH-4 1.0' (6A25007-10) Soil									
Chloride	3870	100	mg/kg	200	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	15.7	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	
AH-5 0-0.5' (6A25007-11) Soil									
Chloride	2000	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	10.9	0.1	%	I	EA62603	01/25/06	01/26/06	% calculation	
AH-5 1.0' (6A25007-12) Soil									
Chloride	3150	50.0	mg/kg	100	EA62605	01/26/06	01/26/06	EPA 300.0	
% Moisture	12.8	0.1	%	1	EA62603	01/25/06	01/26/06	% calculation	

Environmental Lab of Texas

# Project:Pogo/ West Dollarhide Flowline LeakProject Number:2564Project Manager:Ike Tavarez

**Reported:** 02/01/06 10:17

#### Volatile Organic Compounds by EPA Method 8260B

#### **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
AH-1 0-0.5' (6A25007-01) Soil			<u> </u>						
Benzene	12100	1000	ug/kg dry	1000	EA62609	01/26/06	01/28/06	EPA 8260B	
Toluene	65300	1000	"	"	"	"	"	n	•
Ethylbenzene	30200	1000	н	n	"	"	*		
Xylene (p/m)	63200	1000	"	н	"	*	n	u	
Xylene (o)	33200	1000	11	"	"	"	n	**	
Surrogate: Dibromofluoromethane		112 %	70-	139	"	"	и	n	
Surrogate: 1,2-Dichloroethane-d4		110 %	52-	149	н	"	"	17	
Surrogate: Toluene-d8		99.8 %	76-,	125	"	n	"	"	
Surrogate: 4-Bromofluorobenzene		109 %	66-,	145	"	н	"	IJ	
AH-3 0-0.5' (6A25007-07) Soil									
Benzene	J [33.9]	50.0	ug/kg dry	50	EA62609	01/26/06	01/28/06	EPA 8260B	
Toluene	123	50.0	n	н	"	Ħ	"	11	
Ethylbenzene	68.8	50.0		*	н			"	
Xylene (p/m)	170	50.0	"		n	11	*	"	
Xylene (o)	108	50,0	"	#	*	n	H	"	
Surrogate: Dibromofluoromethane		123 %	70-	139	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		102 %	52-	149	"	"	"	"	
Surrogate: Toluene-d8		99.4 %	76-	125	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	66-	145	v	"	"	*	
AH-4 0-0.5' (6A25007-09) Soil									
Benzene	357	25.0	ug/kg dry	25	EA62609	01/26/06	01/28/06	EPA 8260B	
Toluene	1320	25.0	*	"	n	*	"	u	
Ethylbenzene	490	25.0		"	"		*		
Xylene (p/m)	1040	25.0	"	11		"	"		
Xylene (o)	602	25.0	"	H	"	n	l1	n	
Surrogate: Dibromofluoromethane		124 %	70-	139	n	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		106 %	52-	149	"	n	"	n	

Surrogate: Toluene-d8

Surrogate: 4-Bromofluorobenzene

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

76-125

66-145

97.0 %

112 %

Highlander Environmental Corp.		Fax: (432) 682-3946								
1910 N. Big Spring St. Midland TX, 79705		Project Nu Project Ma	umber: 256 mager: Ike	4 Tavarez					<b>Repo</b> 02/01/0	orted: 6 10:17
	0	rganics by	GC - Q	uality Co	ontrol					
		Environn	nental L	ab of Te	xas					
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EA62514 - Solvent Extraction (GC)										
Blank (EA62514-BLK1)				Prepared: (	01/25/06 A	nalyzed: 01	/27/06			
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	54.8		mg/kg	50.0		110	70-130			
Surrogate: 1-Chlorooctadecane	48.9		"	50.0		97.8	70-130			
LCS (EA62514-BS1)				Prepared:	01/25/06 A	nalyzed: 01	1/27/06			
Gasoline Range Organics C6-C12	484	10.0	mg/kg wet	500		96.8	75-125			
Diesel Range Organics >C12-C35	592	10.0	"	500		118	75-125			
Total Hydrocarbon C6-C35	1080	10,0	"	1000		108	75-125			
Surrogate: 1-Chlorooctane	57.2		mg/kg	50.0		114	70-130			
Surrogate: 1-Chlorooctadecane	49.1		"	50.0		98.2	70-130			
Calibration Check (EA62514-CCV1)				Prepared:	01/25/06 A	nalyzed: 01	1/27/06			
Gasoline Range Organics C6-C12	496		mg/kg	500		99.2	80-120			
Diesel Range Organics >C12-C35	537		н	500		107	80-120			
Total Hydrocarbon C6-C35	1030		п	0001		103	80-120			
Surrogate: 1-Chlorooctane	62.1		"	50.0		124	70-130			
Surrogate: 1-Chlorooctadecane	50.9			50.0		102	70-130			
Matrix Spike (EA62514-MS1)	So	urce: 6A25011	1-01	Prepared:	01/25/06 A	nalyzed: 0	1/27/06			
Gasoline Range Organics C6-C12	647	10.0	mg/kg dry	628	7.79	102	75-125			
Diesel Range Organics >C12-C35	784	10.0		628	153	100	75-125			
Total Hydrocarbon C6-C35	1430	10.0	"	1260	153	101	75-125			
Surrogate: 1-Chlorooctane	62.7		mg/kg	50,0		125	70-130			
Surrogate: 1-Chlorooctadecane	54.8		"	50.0		110	70-130			
Matrix Spike Dup (EA62514-MSD1)	So	urce: 6A2501	1-01	Prepared:	01/25/06 A	nalyzed: 0	1/27/06			
Gasoline Range Organics C6-C12	646	10.0	mg/kg dry	628	7.79	102	75-125	0.155	20	
Diesel Range Organics >C12-C35	778	10.0		628	153	99.5	75-125	0.768	20	
Total Hydrocarbon C6-C35	1420	10.0		1260	153	101	75-125	0.702	20	
Surrogate: 1-Chlorooctane	62.4		mg/kg	50.0		125	70-130			
Surrogate: 1-Chlorooctadecane	54.7		"	50.0		109	70-130			

Highlander Environmental Corp.	Environmental Corp.     Project:     Pogo/ West Dollarhide Flowline Leak       Spring St.     Project Number:     2564												
1910 N. Big Spring St.		Project Nu	mber: 25	64					Repo	rted:			
Midland TX, 79705		Project Mai	nager: Ik	e Tavarez					02/01/0	6 10:17			
General	Chemistry Para	meters by	EPA /	Standard	Metho	ls - Qua	lity Con	trol					
		Environm	nental I	Lab of Te	xas								
A 1	Dereik	Reporting		Spike Source		WDEG	%REC		RPD	<b>N</b> .			
Analyte	Kesuit	Limit	Units	Level	Kesult	%REC	Limits	KPD	Limit	Notes			
Batch EA62603 - General Preparation	n (Prep)												
Blank (EA62603-BLK1)				Prepared 8	Analyzed:	01/26/06							
% Solids	100		%										
Duplicate (EA62603-DUP1)	Sou	rce: 6A25001-	-01	Prepared 8	Analyzed:	01/26/06							
% Solids	98.4		%		98.4			0.00	20				
Duplicate (EA62603-DUP2)	Sou	rce: 6A25007-	-06	Prepared &	Analyzed	01/26/06							
% Solids	85.5		%		85.7			0.234	20				
Batch EA62605 - Water Extraction													
Blank (EA62605-BLK1)				Prepared 8	Analyzed	01/26/06	,						
Chloride	ND	0.500	mg/kg										
LCS (EA62605-BS1)				Prepared &	Analyzed:	01/26/06							
Chloride	8.36		mg/L	10.0		83.6	80-120						
Calibration Check (EA62605-CCV1)				Prepared &	k Analyzed	01/26/06							
Chloride	8.21		mg/L	10.0		82.1	80-120						
Duplicate (EA62605-DUP1)	Sou	rce: 6A25005	-03	Prepared 8	k Analyzed	01/26/06							
Chloride	906	20.0	mg/kg		951	4.85	20						

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#### Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez

Fax: (432) 682-3946 Reported: 02/01/06 10:17

#### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Environmental Lab of Texas

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

#### Batch EA62609 - EPA 5030C (GCMS)

Blank (EA62609-BLK1)				Prepared: 01/20	5/06 Analyzed: 01.	/28/06	
Benzene	ND	25.0	ug/kg wet				
Toluene	ND	25.0	n				
Ethylbenzene	ND	25.0	"				
Xylene (p/m)	ND	25.0					
Xylene (0)	ND	25.0	н				
Surrogate: Dibromofluoromethane	58.4		ug/kg	50.0	117	70-139	
Surrogate: 1,2-Dichloroethane-d4	48.2		"	50.0	96.4	52-149	
Surrogate: Toluene-d8	49.4		"	50.0	98.8	76-125	
Surrogate: 4-Bromofluorobenzene	51.7		"	50.0	103	66-145	
LCS (EA62609-BS1)				Prepared: 01/2	6/06 Analyzed: 01	/28/06	
Benzene	1290	25.0	ug/kg wet	1250	103	70-130	
Toluene	1310	25.0	*	1250	105	70-130	
Ethylbenzene	1270	25.0	"	1250	102	70-130	
Xylene (p/m)	2530	25.0		2500	101	70-130	
Xylene (0)	1310	25.0	"	1250	105	70-130	
Surrogate: Dibromofluoromethane	60.9		ug kg	50.0	122	70-139	
Surrogate: 1,2-Dichloroethane-d4	52.2		"	50.0	104	52-149	
Surrogate: Toluene-d8	50.5		"	50.0	101	76-125	
Surrogate: 4-Bromofluorobenzene	51.1		"	50.0	102	66-145	
Calibration Check (EA62609-CCV1)				Prepared: 01/2	6/06 Analyzed: 01	/28/06	
Toluene	52.5		ug/kg	50.0	105	70-130	
Ethylbenzene	51.6			50.0	103	70-130	
Surrogate: Dibromofluoromethane	54.9		"	50.0	110	70-139	
Surrogate: 1,2-Dichloroethane-d4	48.2		"	50.0	96.4	52-149	
Surrogate: Toluene-d8	48.2		"	50.0	96.4	76-125	
Surrogate: 4-Bromofluorobenzene	51.6		"	50.0	103	66-145	

Environmental Lab of Texas

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez Fax: (432) 682-3946

**Reported:** 02/01/06 10:17

#### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### **Environmental Lab of Texas**

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EA62609 - EPA 5030C (GCMS)			Y							
Matrix Spike (EA62609-MS1)	Sour	·ce: 6A25015	-01	Prepared: 0	)1/26/06 A	nalyzed: 01	/30/06			
Benzene	1350	25.0	ug/kg dry	1350	ND	100	70-130			
Toluene	1370	25.0		1350	ND	101	70-130			
Ethylbenzene	1270	25.0	"	1350	ND	94.1	70-130			
Xylene (p/m)	2550	25.0	"	2700	ND	94.4	70-130			
Xylene (0)	1310	25.0	н	1350	ND	97.0	70-130			
Surrogate: Dibromofluoromethane	59.9		ugʻkg	50.0		120	70-139			
Surrogate: 1,2-Dichloroethane-d4	51.0		"	50.0		102	52-149			
Surrogate: Toluene-d8	50.7		"	50.0		101	76-125			
Surrogale: 4-Bromofluorobenzene	52.9		"	50.0		106	66-145			
Matrix Spike Dup (EA62609-MSD1)	Sour	-ce: 6A25015	-01	Prepared: (	)1/26/06 A	nalyzed: 01	/30/06			
Benzene	1420	25.0	ug/kg dry	1350	ND	105	70-130	4.88	20	
Toluene	1430	25.0	"	1350	ND	106	70-130	4.83	20	
Ethylbenzene	1370	25.0	11	1350	ND	101	70-130	7.07	20	
Xylene (p/m)	2770	25.0	11	2700	ND	103	70-130	8.71	20	
Xylene (o)	1440	25.0	Ħ	1350	ND	107	70-130	9.80	20	
Surrogate: Dibromofluoromethane	63.0		ug/kg	50.0		126	70-139			
Surrogate: 1,2-Dichloroethane-d4	53.2		"	50.0		106	52-149			
Surrogate: Toluene-d8	51.4		"	50.0		103	76-125			
Surrogate: 4-Bromofluorobenzene	54.5		"	50.0		109	66-145			

Environmental Lab of Texas

Highlander 1910 N. Big Midland T3	Environmental Corp. g Spring St. K, 79705	Project: Project Number: Project Manager:	Pogo/ West Dollarhide Flowline Leak 2564 Ike Tavarez	Fax: (432) 682-3946 Reported: 02/01/06 10:17
		Notes and De	finitions	
S-06	The recovery of this surrogate is outside control matrix interference's.	limits due to sample dil	lution required from high analyte concentration and/or	
S-04	limits due to a sample matrix effect.			
J				
DET				
ND				
NR	Not Reported			
dry	Sample results reported on a dry weight basis			
RPD	Relative Percent Difference			
LCS				
MS	Matrix Spike			
Dup	Duplicate			

Report Approved By:

Raland K Jut

2/1/2006

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director LaTasha Cornish, Chemist Sandra Sanchez, Lab Tech.

Date:

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

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

Environmental Lab of Texas

	Method No.)	-		6	ptrold	<u>ک</u>	808 808 808 808 808	968 8080 14. 808/ 29. 133. 29. 1948 29. 1948 29. 1998 29. 1998 2019 2019 2019 2019 2019 2019 2019 2019	ЫТ мур тер 1061 1041	×	X	~	X	X	Ц X	X	X	X	X	Date: 11240	AIRBILL &	OTHER:	RUSH Charter	Aztharised: Yza	
PAGE:	ANALITSIS KE (Circle or Specify	95 95	郡田 日 郡田 日 9001ス	भ्य नग च नग य न	929/0 929/ 929/ 929/ 9201 9201	220 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	104 1 1/0729 1114/0729 1114/07 1114/00	шэг гл 70 SM 70 S	6C 92 92 92 92 92 92 92 92 92 92 92 92 92	×		X		×.	X	X			X X	Started BY, (Print & Sec)	SAMPLE SHIPPED BY: (Circle)	BAD DELIVERED UPS	HIGHLANDER CONTACT PERSON	I/ce tawacz	4.0%
Record				2) 682-3946	PRESERVATIVE	METHUD	<u>(N/</u> )	NE NE 03 1 1	NON ION ICE ICE HIN ICH	X	~~	×	×	×.	X	XXXXX	×		X	Date: Time:	Date: Time:	Date:		5:20	I CELUI SCHANNICH
and Chain of Custody		ENVIRONMENTAL CO	N. Big Spring St.	nd, lexas farud Fax (43	SITE MANAGER: 71, 7, 2, 2	The later t	E cst Dollarhide Flowing Leak	¿ COGN+Y , IVM SAMPLE DENTIFICATION		1-1 1.0 -0.5'	-1 10.5-1.01	-1 (1.5'-2.0')	-1 12.0 - 2.5'	-210-0.51	-21/01	- 710-0.5']	- 3 (1.0.1)	1 (, 5.0 - 0) h -	1 1.0'1	1-201-0 C HEVIELVED BY: (Mgneture)	RECRIVED BY: (Rignature)	RECEVED BY: (Signature)	Recruiting at a second and a second and a second a second and a second and a second	- 211:	LATRUE F-Fator A-Ar SD-Solid F-Falor A-Ar SD-Solid F-Fall A-Square 0-Other
Analvsis Reduest s	CARACTER TANK ATO ATOTTES	HIGHLANDEK	1910	MIDIA	THENT NAME: 10 / A	1000	PROJECT NO.: 2564 POGO/C	AB LD. DATE TIME RE. Lea	NUMBER NO COM	-01 1124106 S X AH	HTX S I OF	45 X 4H		AC KAN-	Δ(n	HTV S HU	NS 1 1 1	-HTXXX X LAND	TO JAY 1 KAH.	ELNGUISHAD BY: (Signatura) Date:	REAR Price Brief Dates	RUNGUISHED BY: (Signature) Date:	ECENTING LABORATORY: ELT TIME:	DDRUESS: at 1)4 ' STATE: 7/	LAPLE CONDITION THEN RECEIVED:

PAGE: 2 OF: 2 ANALYSIS REQUEST	(Circle or Specify Method No.)		250/058 290/058 290/058 290/058 290/058 290/058	(202) (2	birm (vaper yidaye Bele yidaye Bele Bele Bele Bele Bele Bele Bele Bele Bele Bele Bele Bele Bele Bele Bele		X					[a / la / la - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	ALE ALE STUPPED FY CUPUS AREAL A	CHAND DRILVERED UPS OTHER:	HIGHLANDER CONTACT PERSON:	The Tainatez Authorizadi Mo	4.0'6	Project Manager retains pink copy - Accounting receives Gold copy.
Analysis Request and Chain of Custody Record	HIGHLANDER ENVIRONMENTAL CORP.	Midland, Texas 79705 [422] 682-3946	CLIENT NAME: PO60 SITE MANAGER: ILE TAVATE B PRESERVATIVE	PROJECT NO.: 2564 PRAJECT NAVE: PROJECT NO.: 2564 PODO / West Dollarhide Flouline Leak & E	ICE NONE ICE COUNTY, N/M PULIER DATE DENTIFICATION NUMBER DATE DENTIFICATION NUMBER DATE DENTIFICATION NUMBER DATE	-1 124106 S X 4H - 5 (0-0.5') 1 X	12 112-112-12 X 414 - 5 1 1.0' 1 X					Reicheurgerich 2014: 1-24-6 P. RECENVED BY: (Signature) Date: 12.45	RELINQUISHED BY: (Signature) Date: RECEIVED BY: (Signature) Date: Date: RECEIVED BY: (Signature)	REINQUISHKD BY: (Signature) Date: RRCEIVED BY: (Signature) Date:	RECEIVING LABORATORY: LET TIME RECEIVED BY (Server) BY (Server) (D)	and the state of t	SAMPLE CONDITION WHEN RECEIVED: MATRIX: W-Fater A-AIT 3D-Solid REMARKS: () hel	Please Fill out all copies - Laboratory retains yollow copy - Return original copy to Highlander Enviromental Corp 1

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

lient:	Highlander	<b></b> _
)ate/Time:	1/24/010 5:20	<u></u> -
Drder #:	6A25004	
nitials:	CK	

#### Sample Receipt Checklist

Variance Documentation:

Contact Person: -\_\_\_\_\_ Date/Time: \_\_\_\_\_\_ Contacted by: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Temperature of container/cooler?	Yes No	<u>4.0</u> CI
Shipping container/cooler in good condition?	Yes No	
Custody Seals intact on shipping container/cooler?	Yes No	Net present
Custody Seals intact on sample bottles?	Yes No	Cict present
Chain of custody present?	No No	
Sample Instructions complete on Chain of Custody?	Es I No I	;
Chain of Custody signed when relinquished and received?	Kas No I	
Chain cr custody agrees with sample label(s)	Yes No	
Container lacels legible and intact?	Yes No	
Sample Matrix and procerties same as on chain of custody?	Yes No I	1
Sameles in procer container/bottle?	No	• ]
Samples properly preserved?	YES NO 1	
Sample bottles intact?	No No	Ì
Preservations documented on Chain of Custody?	YES NO	
Containers documented on Chain of Custody?	Yes No I	
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:

Regarding:		·	

.

\_\_\_\_\_

Corrective Action Taken:

\_\_\_\_\_



# Analytical Report

#### **Prepared for:**

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

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Location: Lea County, NM

Lab Order Number: 6F20008

Report Date: 06/23/06

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez Fax: (432) 682-3946

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T-1 0-1.0'	6F20008-01	Soil	06/14/06 00:00	06/20/06 15:15
T-1 2.0'	6F20008-02	Soil	06/14/06 00:00	06/20/06 15:15
T-1 3.0'	6F20008-03	Soil	06/14/06 00:00	06/20/06 15:15
T-1 4.0'	6F20008-04	Soil	06/14/06 00:00	06/20/06 15:15
T-1 5.0'	6F20008-05	Soil	06/14/06 00:00	06/20/06 15:15
T-1 6.0'	6F20008-06	Soil	06/14/06 00:00	06/20/06 15:15
T-1 7.0'	6F20008-07	Soil	06/14/06 00:00	06/20/06 15:15
T-1 8.0'	6F20008-08	Soil	06/14/06 00:00	06/20/06 15:15
T-1 10.0'	6F20008-09	Soil	06/14/06 00:00	06/20/06 15:15
T-1 12.0'	6F20008-10	Soil	06/14/06 00:00	06/20/06 15:15
T-1 13.0'	6F20008-11	Soil	06/14/06 00:00	06/20/06 15:15
T-2 0-1.0'	6F20008-12	Soil	06/14/06 00:00	06/20/06 15:15
T-2 2.0'	6F20008-13	Soil	06/14/06 00:00	06/20/06 15:15
T-2 3.0'	6F20008-14	Soil	06/14/06 00:00	06/20/06 15:15
T-2 4.0'	6F20008-15	Soil	06/14/06 00:00	06/20/06 15:15
T-3 0-1.0'	6F20008-17	Soil	06/14/06 00:00	06/20/06 15:15
T-3 2.5'	6F20008-18	Soil	06/14/06 00:00	06/20/06 15:15

Project: Pogo/West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez Fax: (432) 682-3946

#### Organics by GC

**Environmental Lab of Texas** 

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
T-1 0-1.0' (6F20008-01) Soil							•		
Benzene	ND	0.0250	mg/kg dry	25	EF62101	06/20/06	06/21/06	EPA 8021B	
Toluene	ND	0.0250	"		"	"	"	**	
Ethylbenzene	ND	0.0250	"	"	**	"	• '	n	
Xylene (p/m)	ND	0.0250		"	"	11	*	"	
Xylene (o)	ND	0.0250	"	"	"	11			
Surrogate: a,a,a-Trifluorotoluene		97.8 %	80-1	20	"	#	"	n	
Surrogate: 4-Bromofluorobenzene		97.5 %	80-1	20	"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	1	EF62113	06/21/06	06/22/06	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	*	"	"	Ħ	u	n	
Carbon Ranges C28-C35	ND	10.0	н	11	"	н	"	"	
Total Hydrocarbon nC6-nC35	ND	10.0		"	u		n	n	
Surrogate: 1-Chlorooctane		74.2 %	70-1	30	н	"	"	"	
Surrogate: I-Chlorooctadecane		73.6 %	70-1	30	"	n	"	"	
T-2 0-1.0' (6F20008-12) Soil						_			
Benzene	ND	0.0250	mg/kg dry	25	EF62101	06/20/06	06/21/06	EPA 8021B	
Toluene	ND	0.0250	11	"	"	"	u	"	
Ethylbenzene	ND	0.0250	н	"	н	"	"	".	
Xylene (p/m)	ND	0.0250	н	"	"	15		n	
Xylene (o)	ND	0.0250	п	н			"	"	
Surrogate: a,a,a-Trifluorotoluene		96.5 %	80-1	20	"	"	"	н	
Surrogate: 4-Bromofluorobenzene		81.0 %	80-1	20	"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	ıng/kg dry	I	EF62113	06/21/06	06/22/06	EPA 8015M	
Carbon Ranges C12-C28	ND	10.0	н.	n	"	IT.	"		
Carbon Ranges C28-C35	ND	10.0	"	н	"	n	"	**	
Total Hydrocarbon nC6-nC35	ND	10.0	u		**	11	n	U	
Surrogate: 1-Chlorooctane	,	72.0 %	70-1	30	"	"	"	"	
Surrogate: 1-Chlorooctadecane		71.2 %	70-1	30	"	"	"	"	
T-3 0-1.0' (6F20008-17) Soil							۰ <b>.</b>		
Benzene	ND	0.0250	mg/kg dry	25	EF62101	06/20/06	06/21/06	EPA 8021B	
Toluene	ND	0.0250	"	н	**	"	"		
Ethylbenzene	ND	0.0250	"	н	"	"	н	"	
Xylene (p/m)	ND	0.0250	"		н .	u		"	
Xylene (o)	ND	0.0250		и	"	H		"	
Surrogate: a,a,a-Trifluorotoluene		100 %	80-1	20	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		85.0 %	80-1	20	"	"	"	"	
Carbon Ranges C6-C12	ND	10.0	mg/kg dry	l	EF62113	06/21/06	06/22/06	EPA 8015M	
Environmental Lab of Texas			The re	ults in this	report apply t	o the complex of	nahrad in accor	lance with the namel	

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety,

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Page 2 of 11

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez Fax: (432) 682-3946

#### Organics by GC

#### **Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
T-3 0-1.0' (6F20008-17) Soil	· ···· ····					<u>,</u> ,	······		
Carbon Ranges C12-C28	ND	10.0	mg/kg dry	1	EF62113	06/21/06	06/22/06	EPA 8015M	
Carbon Ranges C28-C35	ND	10.0	"	"	"	n	"	u	
Total Hydrocarbon nC6-nC35	ND	10.0	'n	"		n	"	n	
Surrogate: 1-Chlorooctane		71.4%	70-1.	30	"	"	"	"	
Surrogate: 1-Chlorooctadecane		70.4 %	70-1.	30	"	"	"	"	

Environmental Lab of Texas

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez

#### General Chemistry Parameters by EPA / Standard Methods

		Environn	nental L	Lab of Te	exas				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
T-1 0-1.0' (6F20008-01) Soil									
Chloride	3200	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
% Moisture	10.1	0.1	%	1	EF62202	06/21/06	06/22/06	% calculation	
T-1 2.0' (6F20008-02) Soil									
Chloride	4040	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
T-1 3.0' (6F20008-03) Soil					-				
Chloride	4900	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
T-1 4.0' (6F20008-04) Soil									
Chloride	3520	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
T-1 5.0' (6F20008-05) Soil									
Chloride	4350	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
T-1 7.0' (6F20008-07) Soil									
Chloride	2660	50.0	mg/kg	100	EF62124	06/21/06	06/21/06	EPA 300.0	
T-1 8.0' (6F20008-08) Soil									
Chloride	3150	50.0	mg/kg	100	EF62124	06/21/06	06/21/06	EPA 300.0	
T-1 10.0' (6F20008-09) Soil									
Chloride	3450	50.0	mg/kg	100	EF62124	06/21/06	06/21/06	EPA 300.0	
T-1 12.0' (6F20008-10) Soil					•				
Chloride	2580	50.0	mg/kg	100	EF62124	06/21/06	06/21/06	EPA 300.0	
T-1 13.0' (6F20008-11) Soil									
Chloride	1890	25.0	mg/kg	50	EF62124	06/21/06	06/21/06	EPA 300.0	

Environmental Lab of Texas

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez

#### General Chemistry Parameters by EPA / Standard Methods

#### **Environmental Lab of Texas**

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
T-2 0-1.0' (6F20008-12) Soil	······································								
Chloride	959	20.0	mg/kg	40	EF62124	06/21/06	06/21/06	EPA 300.0	
% Moisture	8.7	0.1	%	1	EF62202	06/21/06	06/22/06	% calculation	
T-2 2.0' (6F20008-13) Soil				-					
Chloride	546	10.0	mg/kg	20	EF62124	06/21/06	06/21/06	EPA 300.0	
T-2 3.0' (6F20008-14) Soil				_					
Chloride	639	10.0	mg/kg	20	EF62124	06/21/06	06/21/06	EPA 300.0	
T-2 4.0' (6F20008-15) Soil									
Chloride	581	10.0	mg/kg	20	EF62124	06/21/06	06/21/06	EPA 300.0	
T-3 0-1.0' (6F20008-17) Soil									
Chloride	745	10.0	mg/kg	20	EF62124	06/21/06	06/21/06	EPA 300.0	
% Moisture	9.0	0.1	%	1	EF62202	06/21/06	06/22/06	% calculation	
T-3 2.5' (6F20008-18) Soil									
Chloride	67.2	5.00	mg/kg	10	EF62124	06/21/06	06/21/06	EPA 300.0	

Environmental Lab of Texas

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-

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564

Project Manager: Ike Tavarez

Fax: (432) 682-3946

#### **Organics by GC - Quality Control**

#### **Environmental Lab of Texas**

								<u> </u>	. <u></u>	· · · · ·
Ameluta	Popult	Reporting	Unita	Spike	Source	% DEC	%REC	ספק	RPD Limit	Notes
Апајуте	Kesuit	Limit		Level	Kesuit	%REC		KPD		Notes
Batch EF62101 - EPA 5030C (GC)	·=,							<b></b>	<u></u>	
Blank (EF62101-BLK1)				Prepared: 0	)6/20/06 A1	nalyzed: 06	/21/06			
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	n							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250								
Surrogate: a,a,a-Trifluorotoluene	38.1		ug kg	40.0		95.2	80-120			
Surrogate: 4-Bromofluorobenzene	34.9		"	40.0		87.2	80-120			
LCS (EF62101-BS1)				Prepared &	Analyzed:	06/20/06				
Benzene	1.21	0.0250	mg/kg wet	1.25		96.8	80-120		• • • • • • • • • • • • • • • • • • •	
Toluene	1.29	0.0250		1.25		103	80-120			
Ethylbenzene	1.19	0.0250	n	1.25		95.2	80-120			
Xylene (p/m)	2.55	0.0250		2.50		102	80-120			
Xylene (o)	1.28	0.0250	"	1.25		102	80-120			
Surrogate: a,a,a-Trifluorotoluene	32.9		ug/kg	40.0		82.2	80-120			
Surrogate: 4-Bromofluorobenzene	36.3		"	40.0		90.8	80-120			
Calibration Check (EF62101-CCV1)				Prepared: (	06/20/06 A	nalyzed: 06	5/21/06			
Benzene	58.5		ug/kg	50.0		117	80-120			<u></u>
Toluene	59.9			50.0		120	80-120			
Ethylbenzene	58.1		"	50.0		116	80-120			
Xylene (p/m)	119		17	100		119	80-120			
Xylene (o)	59.6		"	50.0		119	80-120			
Surrogate: a,a,a-Trifluorotoluene	43.0		"	40.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	38.6		"	40.0		96.5	80-120			
Matrix Spike (EF62101-MS1)	Sou	Irce: 6F20002	2-01	Prepared:	06/20/06 A	nalyzed: 06	5/21/06			
Benzene	1.53	0.0250	mg/kg dry	1.38	ND	111	80-120			
Toluene	1.64	0.0250	"	1.38	ND	119	80-120			
Ethylbenzene	1.57	0.0250	н	1.38	ND	114	80-120			
Xylene (p/m)	3.28	0.0250	"	2.77	ND	118	80-120			
Xylene (o)	1.53	0.0250	"	1.38	ND	111	80-120			
Surrogate: a,a,a-Trifluorotoluene	46.0		ug kg	40.0	<u> </u>	115	80-120			a a constant of
Surrogate: 4-Bromofluorohenzene	42.2		"	40.0		106	80-120			

Project:Pogo/ West Dollarhide Flowline LeakProject Number:2564Project Manager:Ike Tavarez

Fax: (432) 682-3946

#### **Organics by GC - Quality Control**

**Environmental Lab of Texas** 

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

Batch EF62101 - EPA 5030C (GC)

Matrix Spike Dup (EF62101-MSD1)	Sour	Source: 6F20002-01				Prepared: 06/20/06 Analyzed: 06/21/06				
Benzene	1.54	0.0250	mg/kg dry	1.38	ND	112	80-120	0.897	20	
Toluene	1.65	0.0250	"	1.38	ND	120	80-120	0.837	20	
Ethylbenzene	1.58	0.0250	**	1.38	ND	114	80-120	0.00	20	
Xylene (p/m)	3.29	0.0250	"	2.77	ND	119	80-120	• 0.844	20	
Xylene (0)	1.65	0.0250		1.38	ND	120	80-120	7.79	20	
Surrogate: a,a,a-Trifluorotoluene	43.5		ug kg	40.0		109	80-120			
Surrogate: 4-Bromofluorohenzene	40.3		"	40.0		101	80-120			

#### Batch EF62113 - Solvent Extraction (GC)

Blank (EF62113-BLK1)				Prepared: 06/21	/06 Analyzed: 06	/22/06		
Carbon Ranges C6-C12	ND	10.0	mg/kg wet					
Carbon Ranges C12-C28	ND	10.0	n					
Carbon Ranges C28-C35	ND	10.0	9					
Total Hydrocarbon nC6-nC35	ND	10.0	Ħ					
Surrogate: 1-Chlorooctane	38.3		mg/kg	50.0	76.6	70-130		
Surrogate: 1-Chlorooctadecane	37.2		"	50.0	74.4	70-130		
LCS (EF62113-BS1)				Prepared: 06/21	/06 Analyzed: 06	/22/06		
Carbon Ranges C6-C12	499	10.0	mg/kg wet	500	99.8	75-125		
Carbon Ranges C12-C28	492	10.0	"	500	98:4	75-125		
Carbon Ranges C28-C35	ND	10.0	н	0.00		75-125		
Total Hydrocarbon nC6-nC35	992	10.0	"	1000	99.2	75-125	•.	
Surrogate: 1-Chlorooctane	44.9		mg kg	50.0	89.8	70-130		
Surrogate: 1-Chlorooctadecane	37.6		"	50.0	75.2	70-130		
Calibration Check (EF62113-CCV1)				Prepared: 06/2	1/06 Analyzed: 06	/22/06		
Carbon Ranges C6-C12	235		mg/kg	250	94.0	80-120		
Carbon Ranges C12-C28	276		"	250	110	80-120		
Total Hydrocarbon nC6-nC35	511		n	500	102	80-120		
Surrogate: 1-Chlorooctane	45.5		"	50.0	91.0	70-130		
Surrogate: 1-Chlorooctadecane	40.8		"	50.0	81.6	70-130		

Environmental Lab of Texas

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez Fax: (432) 682-3946

#### **Organics by GC - Quality Control**

**Environmental Lab of Texas** 

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

#### Batch EF62113 - Solvent Extraction (GC)

Matrix Spike (EF62113-MS1)	Source	e: 6F20008-	-01	Prepared: 0	6/21/06 A	nalyzed: 06	6/22/06			
Carbon Ranges C6-C12	555	10.0	mg/kg dry	556	ND	99.8	75-125			
Carbon Ranges C12-C28	533	10.0	"	556	ND	95.9	75-125			
Carbon Ranges C28-C35	ND	10.0	n	0.00	ND		75-125			
Total Hydrocarbon nC6-nC35	1090	10.0	n	1110	ND	98.2	75-125			
Surrogate: 1-Chlorooctane	38.8		mg/kg	50.0		77.6	70-130			
Surrogate: 1-Chlorooctadecane	37.7		"	50.0		75.4	70-130			
Matrix Spike Dup (EF62113-MSD1)	Source	e: 6F20008	-01	Prepared: 0	6/21/06 A	nalyzed: 06	5/22/06			
Carbon Ranges C6-C12	550	10.0	mg/kg dry	556	ND	98.9	75-125	0.905	20	
Carbon Ranges C12-C28	541	10.0	"	556	ND	97.3	75-125	1.49	20	
Carbon Ranges C28-C35	ND	10.0		0.00	ND		75-125		20	
Total Hydrocarbon nC6-nC35	1090	10.0	11	1110	ND	98.2	75-125	0.00	20	
Surrogate: 1-Chlorooctane	+0.6		mg/kg	50.0		81.2	70-130			
Surrogate: 1-Chlorooctadecane	36.5		"	50.0		73.0	70-130			

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Highlander Environmental Corp.		Pr	oject: Po	go/ West Dol	larhide Flo	wline Leak			Fax: (432)	682-3946
1910 N. Big Spring St.		Project Nu	mber: 25	64						
Midland TX, 79705		Project Mar	nager: Ik	e Tavarez			_			
General Cl	nemistry Para	ameters by	EPA /	Standard	Metho	ds - Qua	lity Con	trol		
		Environm	iental I	Lab of Tex	kas					
Anaiyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF62122 - General Preparation (V	WetChem)									
Blank (EF62122-BLK1)				Prepared &	. Analyzed	: 06/21/06				
Chloride	ND	0.500	mg/kg							
LCS (EF62122-BS1)				Prepared &	. Analyzed	: 06/21/06				
Chloride	10.2		mg/L	10.0		102	80-120			
Calibration Check (EF62122-CCV1)				Prepared &	. Analyzed	: 06/21/06				
Chloride	10.4		mg/L	10.0		104	80-120			
Duplicate (EF62122-DUP1)	Sou	rce: 6F20016-	02	Prepared &	. Analyzed	: 06/21/06				
Chloride	1890	25.0	mg/kg		1880			0.531	20	
Duplicate (EF62122-DUP2)	Sou	irce: 6F20007-	04	Prepared &	z Analyzed	: 06/21/06				
Chloride	3240	50.0	mg/kg		3210			0.930	20	
Matrix Spike (EF62122-MS1)	Sou	rce: 6F20016-	02	Prepared 8	Analyzed	: 06/21/06				
Chloride	2530	25.0	mg/kg	500	1880	130	80-120			S-07
Matrix Spike (EF62122-MS2)	Sou	ırce: 6F20007-	-04	Prepared &	Analyzed	: 06/21/06				
Chloride	4570	50.0	mg/kg	1000	3210	136	80-120			S-07
Batch EF62124 - General Preparation (	WetChem)									
Blank (EF62124-BLK1)				Prepared &	2 Analyzed	: 06/21/06				
Chloride	ND	0.500	ıng/kg							
LCS (EF62124-BS1)				Prepared &	2 Analyzed	: 06/21/06				
Chloride	10.7		mg/L	10.0		107	80-120			

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#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### Environmental Lab of Texas

<u> </u>										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EF62124 - General Preparation (WetCh	em)									
Calibration Check (EF62124-CCV1)				Prepared &	Analyzed:	06/21/06				
Chloride	10.6		mg/L	0.01		106	80-120			
Duplicate (EF62124-DUP1)	Sou	rce: 6F20008-	12	Prepared &	Analyzed:	06/21/06				
Chloride	954	20.0	mg/kg		959			0.523	20	
Duplicate (EF62124-DUP2)	Sou	rce: 6F20010-	05	Prepared &	Analyzed:	06/21/06				
Chloride	340	10.0	mg/kg		340			0.00	20	
Matrix Spike (EF62124-MS1)	Sou	rce: 6F20008-	12	Prepared 8	2 Analyzed:	06/21/06				
Chloride	1470	20.0	mg/kg	400	959	128	80-120	- <del>18.00.0</del> .		S-07
Matrix Spike (EF62124-MS2)	Sou	rce: 6F20010-	05	Prepared 8	z Analyzed:	06/21/06				
Chloride	599	10.0	mg/kg	200	340	130	80-120			S-07
Batch EF62202 - General Preparation (Prep)										
Blank (EF62202-BLK1)	-			Prepared: (	06/21/06 A	nalyzed: 06	5/22/06			
% Moisture	ND	0.1	%							
Duplicate (EF62202-DUP1)	Sou	rce: 6F20008-	01	Prepared:	06/21/06 A	nalyzed: 06	5/22/06			
% Moisture	9.9	0.1	%		10.1			2.00	20	

Environmental Lab of Texas

Highlander Environmental Corp.Project:Pogo/ West Dollarhide Flowline Leak1910 N. Big Spring St.Project Number:2564Midland TX, 79705Project Manager:Ike Tavarez

#### **Notes and Definitions**

S-07 Recovery outside Laboratory historical or method prescribed limits.

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 Just

6/23/2006

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director LaTasha Cornish, Chemist Sandra Sanchez, Lab Tech.

Date:

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Fax: (432) 682-3946

NAW BOARNA PAGE: 1 0	JUY NECULU ANALYSIS REQUEST	CORP (Circle or Specify Method No.)	95 95 95	BH Pc BH 9d	IX (432) 682-3946	LEITAU PO AR PO AR P		Contract Space BOD' 123' 1 BOD' 123' 1 BOD' 123' 1 CC.NE & 9090' CC.NE & 9090' SCI CC.NE & 9090' SCI CC.NE & 9090' SCI SCI SCI SCI SCI SCI SCI SCI	X X X X	X	X	X	X	X	X	X I	X		Date: Superan ar; (Prin) 4 3R) Date: Time: Time: Time:	Dete: Adurte Statepan BY: (Circle)	Deter Deter Detroited Deter Detroited Deter	HIGHLANDER CONTACT PERSON:	7 2.15	Hd RKURKS:
ctarin of have	and chain of cusco	FNVIPONMENTAI		and. Texas 79705	Fa	SITE MANAGER: I/LE TAUWER	vest Dollarhide Flowline Lead	ER CONATY / NA SAMPLE IDENTIFICATION	-1 0 -1.0'	2.0'	3.0'	<u>  4.0</u>	1 5.0'	6.0	7.0'	8.0'	10.0'	12.0'	1. (C-20-17, RECEIVED BY: (Suppature)	RECEIVED BY: (Rignature)	RECEIVED BY: (Signature)	e HECHTY AND A ALEMAN A	The man 1/20/01	KATRUX: E-Total Life TI-SU
Analucia Douroet	Analysis Request	HICHIANDER		Midla	(432) 682-4559	POGO	PROJECT NO.: 2564 PROJECT NAME	LAB I.D. DATE THE THE LA	1-1 X 2 8411/190 800	1-1 X S 1 00-	1-1×12	1-1 X X 1-1-1	1-1X 1 12-1	1-7 X 1 100-	1-7 X Z X 7-1	1-1X 5 X0	1-1 X 1/ 1 100	10 V 5 X7-1	LINQUINTED BY: (Sanatural OA Bata.	UINQUERHED BY0 (Signature) Date: .	illinguishind BY: (Signature) Date:	CERTING LABORATORY: ELT TIME:	DRESS 0 4 1) 14 STATE: T	MPLE CONDITION WHEN RECEIPED:

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

inder YA NI SE 121701010 ste Time NOOS ler# OI ٨ als

### Sample Receipt Checklist

mperature of container/cooler?	Yes	No	GC C
ipping container/cooler in good condition?	Xes	No_	
stody Seals intact on shipping container/cooler?	Yes	No	tict presage
stody Seals intact on sample bottles?	Yes	No	Clot preserv
ain of custody present?	1 Xas	No	
mole Instructions complete on Chain of Custody?	Yes	No	
ian of Custody signed when relinquished and received?	X	l Na	
an of custody agrees with sample label(s)	1 des	l tio	
intainer labels legible and intact?	E S	I NO	
mple Matrix and properties same as on chain of custody?	BB	1 No	
imples in proper container/bottle?	1800	I No	
imples properly preserved?	(CE)	No	
imple bottles intact?		1 No	
eservations documented on Chain of Custody?	Tep	1 1.0	
ontainers documented on Chain of Custody?	X35	I NO	
ifficient sample amount for indicated test?	Xes	1 No	
samples received within sufficient hold time?	63	No	
DC samples have zero headspace?	ET	I No	Not Approaple

ther observations:

ontact Person egarding	Variance Documentation: Date:Time:	_ Contacted by:
orrective Action Taken.		
· · · · · · · · · · · · · · · · · · ·		



# Analytical Report

#### **Prepared for:**

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

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Location: Lea County, NM

Lab Order Number: 6F20007

Report Date: 06/23/06

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez Fax: (432) 682-3946

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
T-4 0-1.0'	6F20007-01	Soil	06/15/06 00:00	06/20/06 15:15
T-4 2.0'	6F20007-02	Soil	06/15/06 00:00	06/20/06 15:15
T-4 3.0'	6F20007-03	Soil	06/15/06 00:00	06/20/06 15:15
T-5 0-1.0'	6F20007-04	Soil	06/15/06 00:00	06/20/06 15:15
T-5 2.0'	6F20007-05	Soil	06/15/06 00:00	06/20/06 15:15

1910 N. Big Spring St.Project Number: 2564Midland TX, 79705Project Manager: Ike Tavarez	Highlander Environmental Corp.	Project:	Pogo/ West Dollarhide Flowline Leak	Fax: (432) 682-3946
Midland TX, 79705 Project Manager: Ike Tavarez	1910 N. Big Spring St.	Project Number:	2564	
	Midland TX, 79705	Project Manager:	Ike Tavarez	,

#### General Chemistry Parameters by EPA / Standard Methods

		Environn	nental L	ab of Te	exas				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
T-4 0-1.0' (6F20007-01) Soil									
Chloride	3970	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
T-4 2.0' (6F20007-02) Soil									
Chloride	4000	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300.0	
T-4 3.0' (6F20007-03) Soil					·				
Chloride	731	10.0	mg/kg	20	EF62122	06/21/06	06/21/06	EPA 300.0	
T-5 0-1.0' (6F20007-04) Soil			2						
Chloride	3210	50.0	mg/kg	100	EF62122	06/21/06	06/21/06	EPA 300,0	
T-5 2.0' (6F20007-05) Soil								_	
Chloride	487	10.0	mg/kg	20	EF62122	06/21/06	06/21/06	EPA 300.0	

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#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### Environmental Lab of Texas

	Reporting		Spike	Source		%REC		RPD	
Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
em)									
			Prepared &	k Analyzed:	06/21/06				
ND	0.500	mg/kg							
			Prepared 8	k Analyzed:	06/21/06				
10.2		mg/L	0.01		102	80-120			
			Prepared &	2 Analyzed:	06/21/06				
10.4		mg/L	10.0		104	80-120			
Sou	rce: 6F20016-	02	Prepared &	2 Analyzed:	06/21/06				
1890	25.0	mg/kg		1880			0.531	20	
Sou	rce: 6F20007-	04	Prepared &	& Analyzed	: 06/21/06				
3240	50.0	mg/kg		3210			0.930	20	
Sou	rce: 6F20016-	02	Prepared &	k Analyzed	: 06/21/06				
2530	25.0	mg/kg	500	1880	130	80-120			S-07
Sou	rce: 6F20007-	-04	Prepared &	& Analyzed	: 06/21/06				
4570	50.0	mg/kg	1000	3210	136	80-120			S-07
	Result hem) ND 10.2 10.4 Sou 1890 Sou 3240 Sou 2530 Sou 4570	Reporting Limit           Result         Limit           nem)         0.500           ND         0.500           10.2         0.500           10.4         Source: 6F20016-           1890         25.0           Source: 6F20007-         3240         50.0           Source: 6F20016-         25.0         Source: 6F20016-           2530         25.0         Source: 6F20007-           3000         3000         Source: 3000         3000           3000         3000         3000         3000	Reporting Result         Limit         Units           nem)	Reporting Result         Spike Limit         Spike Level           hem)         Prepared &           ND         0.500         mg/kg           ND         0.500         mg/kg           10.2         mg/L         10.0           Prepared &         10.4         mg/L         10.0           Source:         6F20016-02         Prepared &           1890         25.0         mg/kg         25.0           3240         50.0         mg/kg         500           Source:         6F20016-02         Prepared &           3240         50.0         mg/kg         500           Source:         6F20016-02         Prepared &           50.0         mg/kg         500           2530         25.0         mg/kg         500           4570         50.0         mg/kg         1000	Reporting ResultSpike LimitSource ResultResultLimitUnitsLevelResultnem)Prepared & AnalyzedND0.500mg/kgND0.500mg/kg10.2mg/L10.0Prepared & AnalyzedPrepared & Analyzed10.4mg/L10.0Source:6F20016-02Prepared & Analyzed189025.0mg/kg1880Source:6F20007-04Prepared & Analyzed324050.0mg/kg3210Source:6F20016-02Prepared & Analyzed323025.0mg/kg500Source:6F20016-02Prepared & Analyzed253025.0mg/kg500Source:6F20007-04Prepared & Analyzed253025.0mg/kg500Source:6F20007-04Prepared & Analyzed253025.0mg/kg500Source:6F20007-04Prepared & Analyzed253025.0mg/kg500Source:6F20007-04Prepared & Analyzed253025.0mg/kg1000Source:6F20007-04Prepared & AnalyzedSource:6F20007-04Prepared & AnalyzedSource:6F20007-04Prepared & AnalyzedSource:6F20007-04Prepared & AnalyzedSource:6F20007-04Prepared & Analyzed	Reporting Result         Spike Limit         Source Result         Source Result         Source Result         Source Result         Result         %REC           hem)         Prepared & Analyzed:         06/21/06         06/21/06           ND         0.500         mg/kg         Prepared & Analyzed:         06/21/06           10.2         mg/L         10.0         102           10.2         mg/L         10.0         102           Prepared & Analyzed:         06/21/06         104           10.4         mg/L         10.0         104           Source:         6F20016-02         Prepared & Analyzed:         06/21/06           1890         25.0         mg/kg         1880         106/21/06           3240         50.0         mg/kg         3210         25.0           Source:         6F20016-02         Prepared & Analyzed:         06/21/06           3240         50.0         mg/kg         3210         3210           Source:         6F20016-02         Prepared & Analyzed:         06/21/06           2530         25.0         mg/kg         500         1880         130           Source:         6F20007-04         Prepared & Analyzed:         06/21/06 <td< td=""><td>Reporting Result         Spike Limit         Source Result         %REC Limits           Presult         VREC         Limits           Prepared &amp; Analyzed: 06/21/06         Prepared &amp; Analyzed: 06/21/06           ND         0.500         mg/kg           Prepared &amp; Analyzed: 06/21/06         Prepared &amp; Analyzed: 06/21/06           10.2         mg/L         10.0         102         80-120           Prepared &amp; Analyzed: 06/21/06         Prepared &amp; Analyzed: 06/21/06         80-120           Source: 6F20016-02         Prepared &amp; Analyzed: 06/21/06         80-120           Source: 6F20016-02         Prepared &amp; Analyzed: 06/21/06         80-120           Source: 6F20016-02         Prepared &amp; Analyzed: 06/21/06         90           Source: 6F2007-04         Prepared &amp; Analyzed: 06/21/06         90           Source: 6F20007-04         Prepared &amp; Analyzed: 06/21/06         90      <tr< td=""><td>Reporting Result         Spike Limit         Source Result         %REC Limits         %RPD           hem)         <math>10115</math> <math>10115</math> <math>10115</math> <math>10115</math> <math>RPD</math>           hem)         <math>10115</math> <math>10115</math> <math>10115</math> <math>RPD</math>           ND         <math>0.500</math> <math>mg/kg</math> <math>102</math> <math>106/21/06</math>           ND         <math>0.500</math> <math>mg/kg</math> <math>10.0</math> <math>102</math> <math>80-120</math>           10.2         <math>mg/L</math> <math>10.0</math> <math>102</math> <math>80-120</math>           Prepared &amp; Analyzed:         <math>06/21/06</math> <math>0.531</math> <math>0.531</math>           Source:         <math>6F20016-02</math>         Prepared &amp; Analyzed:         <math>06/21/06</math>           1890         <math>25.0</math> <math>mg/kg</math> <math>1880</math> <math>0.531</math>           Source:         <math>6F2007-04</math>         Prepared &amp; Analyzed:         <math>06/21/06</math>           3240         <math>50.0</math> <math>mg/kg</math> <math>3210</math> <math>0.930</math>           Source:         <math>6F20016-02</math>         Prepared &amp; Analyzed:         <math>06/21/06</math> <math>2530</math> <math>25.0</math> <math>mg/kg</math> <math>3210</math> <math>0.930</math>           Source:         <math>6F20016-02</math>         Prepared &amp; Analyzed:         <math>06/21/06</math></td><td>Reporting Result         Spike Limit         Source Result         %REC kesult         %REC kesult         RPD kimit         RPD kimit           nem)         Prepared &amp; Analyzed:         06/21/06         KPD         Limit         RPD         Limit           nem)         Prepared &amp; Analyzed:         06/21/06         KPD         Limit         RPD         Limit           nD         0.500         mg/kg         Prepared &amp; Analyzed:         06/21/06         Source:         Source:         Offer the second sec</td></tr<></td></td<>	Reporting Result         Spike Limit         Source Result         %REC Limits           Presult         VREC         Limits           Prepared & Analyzed: 06/21/06         Prepared & Analyzed: 06/21/06           ND         0.500         mg/kg           Prepared & Analyzed: 06/21/06         Prepared & Analyzed: 06/21/06           10.2         mg/L         10.0         102         80-120           Prepared & Analyzed: 06/21/06         Prepared & Analyzed: 06/21/06         80-120           Source: 6F20016-02         Prepared & Analyzed: 06/21/06         80-120           Source: 6F20016-02         Prepared & Analyzed: 06/21/06         80-120           Source: 6F20016-02         Prepared & Analyzed: 06/21/06         90           Source: 6F2007-04         Prepared & Analyzed: 06/21/06         90           Source: 6F20007-04         Prepared & Analyzed: 06/21/06         90 <tr< td=""><td>Reporting Result         Spike Limit         Source Result         %REC Limits         %RPD           hem)         <math>10115</math> <math>10115</math> <math>10115</math> <math>10115</math> <math>RPD</math>           hem)         <math>10115</math> <math>10115</math> <math>10115</math> <math>RPD</math>           ND         <math>0.500</math> <math>mg/kg</math> <math>102</math> <math>106/21/06</math>           ND         <math>0.500</math> <math>mg/kg</math> <math>10.0</math> <math>102</math> <math>80-120</math>           10.2         <math>mg/L</math> <math>10.0</math> <math>102</math> <math>80-120</math>           Prepared &amp; Analyzed:         <math>06/21/06</math> <math>0.531</math> <math>0.531</math>           Source:         <math>6F20016-02</math>         Prepared &amp; Analyzed:         <math>06/21/06</math>           1890         <math>25.0</math> <math>mg/kg</math> <math>1880</math> <math>0.531</math>           Source:         <math>6F2007-04</math>         Prepared &amp; Analyzed:         <math>06/21/06</math>           3240         <math>50.0</math> <math>mg/kg</math> <math>3210</math> <math>0.930</math>           Source:         <math>6F20016-02</math>         Prepared &amp; Analyzed:         <math>06/21/06</math> <math>2530</math> <math>25.0</math> <math>mg/kg</math> <math>3210</math> <math>0.930</math>           Source:         <math>6F20016-02</math>         Prepared &amp; Analyzed:         <math>06/21/06</math></td><td>Reporting Result         Spike Limit         Source Result         %REC kesult         %REC kesult         RPD kimit         RPD kimit           nem)         Prepared &amp; Analyzed:         06/21/06         KPD         Limit         RPD         Limit           nem)         Prepared &amp; Analyzed:         06/21/06         KPD         Limit         RPD         Limit           nD         0.500         mg/kg         Prepared &amp; Analyzed:         06/21/06         Source:         Source:         Offer the second sec</td></tr<>	Reporting Result         Spike Limit         Source Result         %REC Limits         %RPD           hem) $10115$ $10115$ $10115$ $10115$ $RPD$ hem) $10115$ $10115$ $10115$ $RPD$ ND $0.500$ $mg/kg$ $102$ $106/21/06$ ND $0.500$ $mg/kg$ $10.0$ $102$ $80-120$ 10.2 $mg/L$ $10.0$ $102$ $80-120$ Prepared & Analyzed: $06/21/06$ $0.531$ $0.531$ Source: $6F20016-02$ Prepared & Analyzed: $06/21/06$ 1890 $25.0$ $mg/kg$ $1880$ $0.531$ Source: $6F2007-04$ Prepared & Analyzed: $06/21/06$ 3240 $50.0$ $mg/kg$ $3210$ $0.930$ Source: $6F20016-02$ Prepared & Analyzed: $06/21/06$ $2530$ $25.0$ $mg/kg$ $3210$ $0.930$ Source: $6F20016-02$ Prepared & Analyzed: $06/21/06$	Reporting Result         Spike Limit         Source Result         %REC kesult         %REC kesult         RPD kimit         RPD kimit           nem)         Prepared & Analyzed:         06/21/06         KPD         Limit         RPD         Limit           nem)         Prepared & Analyzed:         06/21/06         KPD         Limit         RPD         Limit           nD         0.500         mg/kg         Prepared & Analyzed:         06/21/06         Source:         Source:         Offer the second sec

Environmental Lab of Texas

Fax: (432) 682-3946 Project: Pogo/ West Dollarhide Flowline Leak Highlander Environmental Corp. Project Number: 2564 1910 N. Big Spring St. Midland TX, 79705 Project Manager: Ike Tavarez **Notes and Definitions** S-07 Recovery outside Laboratory historical or method prescribed limits. Analyte DETECTED DET Analyte NOT DETECTED at or above the reporting limit ND NR Not Reported Sample results reported on a dry weight basis drv RPD Relative Percent Difference LCS Laboratory Control Spike Matrix Spike MS Duplicate Dup

Report Approved By:

Kaland K Junts 6/23/2006 Date:

Raland K. Tuttle, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director LaTasha Cornish, Chemist Sandra Sanchez, Lab Tech.

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Environmental Lab of Texas

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sis Request and Chain of Custody Record		GHLANDER ENVIRONMENTAL CORP.	1910 N. Big Spring St. Midland, Teyes 79705	82-4559 Fax (432) 682-3946	PO60 SITE MANAGER. I'VE TUVENO BO METHOD	2564 PROJECT NAME: 2564 PO60/ LUEST Dollarhide Flowkieleak & E	NONE ICE HUO3 CERVE SARPLE DENTIFICATION NUTRENED (N NUTRENED (N N	766 5 X 7-4 0-1.0' 1 X	1 5 X 7-4 2.0' 1 X	S X 7-4 3.0'	X 7-5 0-1.0' 1 X	v S X 7-5 2.0' II X			(Signature) Date: 12-20-(NO RECEIVED BY: (Signature) Date: (1.14)	(IAAM ULL) the second of the second sec	: (Signature) Data:	(TORY: LL TIME: RECEIVED #1,1(Signature)/// 0 )	54 - EARE 1/ 201 10/20/00 mile 3:15	V THEN RECEIVED: MATRIX: F-Eter A-AIT SU-Solid REMARKS: V THEN RECEIVED: MATRIX: F-Eter A-AIT SU-Solid REMARKS: C-SU-Solid 0-Other 4-0
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## Environmental Lab of Texas Variance / Corrective Action Report – Sample Log-In

ent:	Highlander			
ate/Time:	_1e[20[010 B:15			
der #:	6F20007			
tials:	CK			

## Sample Receipt Checklist

mperature of container/cooler?	Yes	No	
pping container/cooler in good condition?	tes	No	
stody Seals intact on shipping container/cooler?	Yes	Na	MIGI DIESERT
istody Seals intact on sample bottles?	Yes	No	Not present
ain of custody present?	Xes	No	
mple Instructions complete on Chain of Custody?	Yas	Na	
ain of Custody signed when relinguished and received?	225	No	
nain of custody agrees with sample label(s)	Jes .	No	
intainer labels legible and intact?	1 Ares	No	
mple Matrix and properties same as on chain of custody?	1 Kes	No	
imples in procer container/bottle?	1880	Na Na	· · ·
imples properly preserved?	(रस)	Na	
imple bottles intact?	Yas	No	
eservations documented on Chain of Custody?	Tes	No	
ontainers documented on Chain of Custody?	1 Xas	No	
ifficient sample amount for indicated test?	Yes	No	······
samples received within sufficient hold time?		l No	
OC samples have zero headspace?	MALTER	No	Not Applicable

ther observations:

Contact Person: legarding:	Variance Documentation: Date/Time:	_ Contacted by:
Corrective Action Taken:	· · · · · · · · · · · · · · · · · · ·	



# Analytical Report

#### **Prepared for:**

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

Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Location: Lea County, NM

Lab Order Number: 6J12006

Report Date: 10/18/06

#### Project: Pogo/ West Dollarhide Flowline Leak Project Number: 2564 Project Manager: Ike Tavarez

Fax: (432) 682-3946

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 15'-16'	6J12006-01	Soil	10/12/06 00:00	10-12-2006 13:15
BH-I 20'-21"	6J12006-02	Soil	10/12/06 00:00	10-12-2006 13:15

Page 1 of 5

Highlander Enviro	onmental Corp.	Project:	Pogo/ West Dollarhide Flowline Leak	Fax: (432) 682-3946
1910 N. Big Sprin	g St.	Project Number:	2564	
Midland TX, 7970	)5	Project Manager:	Ike Tavarez	

#### General Chemistry Parameters by EPA / Standard Methods

#### **Environmental Lab of Texas**

Analyte	Result	Reporting Limit Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 15'-16' (6J12006-01) Soil								
Chloride	ND	20.0 mg/kg Wet	2	EJ61408	10/14/06	10/15/06	SW 846 9253	
BH-1 20'-21" (6J12006-02) Soil								
Chloride	ND	20.0 mg/kg Wet	2	EJ61409	10/14/06	10/15/06	SW 846 9253	

Environmental Lab of Texas

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

#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### Environmental Lab of Texas

		Reporting		Spike	Source	,	%REC		·RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	C Limits	RPD	Limit	Notes
Batch EJ61408 - Water Extraction										
Blank (EJ61408-BLK1)				Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	ND	20,0	mg/kg Wet							
LCS (EJ61408-BS1)				Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	91.5	5.00	mg/kg Wet	100		91.5	80-120			
Matrix Spike (EJ61408-MS1)	Sour	rce: 6J10013	-01	Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	510	20,0	mg/kg Wet	500	0.00	102	80-120			
Matrix Spike Dup (EJ61408-MSD1)	Source: 6J10013-01 Pre		Prepared:	10/14/06	Analyzed:	10/15/06				
Chloride	500	20.0	mg/kg Wet	500	0.00	100	80-120	1.98	20	
Reference (EJ61408-SRM1)				Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	51.0		ıng/kg	50.0		102	80-120			
Batch EJ61409 - Water Extraction										
Blank (EJ61409-BLK1)				Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	ND	10.0	mg/kg Wet	······						
LCS (EJ61409-BS1)				Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	91.5	5.00	mg/kg Wet	100		. 91.5	80-120			
Matrix Spike (EJ61409-MS1)	Sou	rce: 6J12018	-01	Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	19000	20.0	mg/kg Wet	500	18500	100	80-120			
Matrix Spike Dup (EJ61409-MSD1)	Sou	rce: 6J12018	8-01	Prepared:	10/14/06	Analyzed:	10/15/06			
Chloride	19000	20,0	ing/kg Wet	500	18500	) 100	80-120	0.00	20	

Environmental Lab of Texas

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

#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### **Environmental Lab of Texas**

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

#### Batch EJ61409 - Water Extraction

Reference (EJ61409-SRM1)	Prepared: 10/14/06 Analyzed: 10/15/06							
Chloride	51.0	5.00	ing/kg Wet	50.0	102	80-120		

Environmental Lab of Texas

Highlander l 1910 N. Big Midland TX	Environmental Corp. Spring St. , 79705	Project:       Pogo/ West Dollarhide Flowline Leak       Fax: (4         Project Number:       2564         Project Manager:       Ike Tavarez						
		Notes and De	finitions					
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, Lab Manager Celey D. Keene, Lab Director, Org. Tech Director Peggy Allen, QA Officer Jeanne Mc Murrey, Inorg. Tech Director La Tasha Cornish, Chemist Sandra Sanchez, Lab Tech.

Date:

10/18/2006

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Environmental Lab of Texas

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Docord	y necoru	- dau	. July			432) 682-3946	PRESERVATIVE	(N/2)	ADAE WOUL CE CONE CONE CONE CONE CONE CONE CONE C		X					Date: Time:	Dato: Turei	Date: Time		2012 1315	REMARKS	
	IAID OI LUSLOG	NINENTAL	TUTVINIAL	pring St.	as 79705	Fax (	AGER: I've Tucorez	rhide flow live Leak	, X/M IDENTIFICATION	15'-16'	10- 00					RECEIVED BY: (Signature)	RECEIVED BY: (Signatura)	RECEIVED BY: (Stgneture)	RECEIVED BY: (Signature)	10-12-06 II	-Fater A-Air 210-Salld Sall SI-Sudge 0-Other	
	est and U	ED ENVILL	TIANT TO	910 N. Big S	Midland, Texa	3	SITE MAN	CT NAME: 50 / West Dolla	Ley COUNTY	(BH-1	1 - HU - I					Date: 10112100 Time: 1:12	Data: Time:	Date:	lime:	r 🗡 — 🔤	RATTON	<u> </u>
	ysıs keque	ICULAND	I UT I LAINDI	÷ '		682-4559	" Pobo	2564 PROJE	THE CONTRACT OF CONTRACTO OF CONTR	X S 9471	( 5 90					rr: (Signature)	iY: (Signatura)	Y: (Signature)	RATORY: CLT	64 STATE: 1 PROME-	ON WHEN RECEIVED:	702 01055 TO 201
	Anal	17	T			(432)	CLENT NAM	PROJECT NO.	LAB I.D. NULGER	1/0/ 10-	-07, 141					RELINGUERED B	RELINGUISHED B	RELAYOUTSHED B	PECEIVING LABO	ADDRESS. GTTY: 0001	SALPLE CONDITA	2 J

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

Client:	Highlander Environmental
Date/ Time:	10-12-06 @ 1315
Lab ID # :	6 J12006
Initials:	JMM

#### Sample Receipt Checklist

	,		•	l l	client Initials
#1	Temperature of container/ cooler?	(Yes)	No	5.0 °C	
#2	Shipping container in good condition?	Yes	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	(res-)	'No		
#6	Sample instructions complete of Chain of Custody?	YES	No		
#7	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Tes	No	Not Applicable	-
#10	Sample matrix/ properties agree with Chain of Custody?	(Yes)	No		
#11	Containers supplied by ELOT?	Yes	No		
#12	Samples in proper container/ bottle?	(Yes)	No	See Below	
#13	Samples properly preserved?	(Yes)	No	See Below	
#14	Sample bottles intact?	(Yes)	No		
#15	Preservations documented on Chain of Custody?	TES	No		
#16	Containers documented on Chain of Custody?	(Yes)	No		
#17	Sufficient sample amount for indicated test(s)?	(res)	No	See Below	
#18	All samples received within sufficient hold time?	(Yes)	No	See Below	
#19	VOC samples have zero headspace?	Yes	No	Not Applicable	T

#### Variance Documentation

Contact:	Contacted by:	Date/ Time:
Regarding:		······································
Corrective Action Taken:		
		· · · · · · · · · · · · · · · · · · ·

Check all that Apply:

 $\square$ 

See attached e-mail/ fax

Client understands and would like to proceed with analysis Cooling process had begun shortly after sampling event

# SITE INFORMATION

### Report Type: CLOSURE REPORT

<b>教</b> 行教育。由于由各国的研究工作	· · · · · · · · · · · · · · · · · · ·
Site:	West Dollarhide Devonian Unit, Well #113 (Flow-line spill)
Company:	Pogo Producing Company (Arch Petroleum)
Well Location:	Section 4, T25S, R38E
Spill Location:	Section 33, T24S, R38E
Unit Letter:	Unit P - (spill area) , Unit C - (Well #113)
Lease Number:	300-00705-00
County:	Lea
Spill GPS:	32° 10' 07.7", 103° 04' 08.5"
Surface Owner:	George Willis
Mineral Owner:	State
Directions:	From Jal, New Mexico - Intersection of 18 and 128, go 6.3 miles east on Hwy 128,
	turn left (north) on lease road, go 3.0 miles and turn right (east), go 0.7 miles and turn
	right (north) at T, go 0.1 miles onto well pad, spill located 100' south of pad.
Date Released:	1/15/2006
Type Release:	Oil and water
Source of Contamination:	Flow line leak
Fluid Released:	Not Determined
Fluids Recovered:	15

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

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Depth to Groundwater:		Ranking Score		Site Data
<50 ft		20		
50-99 ft	· · · · · ·	10		
>100 ft.		0		Average Depth >100 BS
WellHead Protection:		Ranking Score	[	Site Data
Water Source <1,000 ft., Private <2	00 ft.	. 20		None
Water Source >1,000 ft., Private >2	00 ft.	0		
Surface Body of Water:		Ranking Score		Site Data 0132425
<200 ft.		20		None 214 62
200 ft - 1,000 ft.		10		None
>1,000 ft.		0		
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Total Ranking Sco	re:	10		ie anit u
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