

1R - 440

REPORTS

DATE:

7/11/2005



180440

Highlander Environmental Corp.

Midland, Texas

July 11, 2005

RECEIVED

JUL 26 2005

OIL CONSERVATION
DIVISION

Mr. Wayne Price
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

Re: Addendum To "Subsurface Investigation and Work Plan for the Pogo Producing Company, E.C. Hill "A, B and C" Tank Battery, Located in Section 27, Township 23 South, Range 37 East, Lea County New Mexico", dated February 8, 2005.

Dear Mr. Price:

Subsequent to our telephone conferences on July 1, July 5, and July 6, 2005, the following addendum is submitted to address certain concerns the New Mexico Oil Conservation Division (NMOCD) had with the current workplan for capping the site. The concerns were as follows:

1. There is a concern that the footprint for the 40 mil liner may not be sufficient to adequately cover all soils in areas where TPH values exceed 1000 mg/kg. In particular, the areas northwest of the excavated areas (BH-7) and the area north of BH-1 require further delineation.

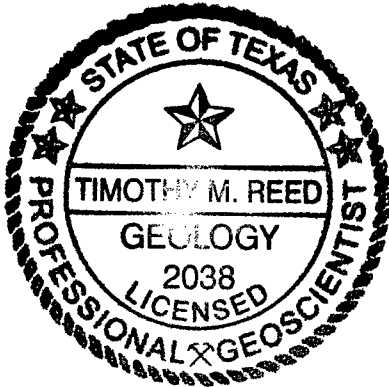
Highlander supervised the placement of one additional soil boring labeled BH-12 (MW-2) on May 24, 2005. TPH concentrations were not detected at or above laboratory reporting limits of 10 mg/kg for any sample, with the exception of the 10'-12' sample, which had a TPH concentration of 18.4 mg/kg. An additional soil boring is proposed north of BH-1 to further delineate the north.

2. There is a concern that there are excessive residual BTEX concentrations in the deep subsurface soils (BH-1 and BH-4), which, if exposed to groundwater fluctuations, (smear zone) could be a continued source for groundwater impact.

In order to adequately address residual BTEX concentrations in the soil and capillary fringe above the water table, Highlander proposes to install and operate, as part of the groundwater remediation system, a limited Soil Vapor Extraction (SVE) system or equivalent type of treatment. This system will be installed after the 40 mil cap has been installed. The cap should serve to enhance the soil

remediation system. At some time prior to closure of the Site, Highlander will demonstrate that residual BTEX concentrations in the smear zone meet or exceed regulatory guidelines.

If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.



Respectfully submitted,
Highlander Environmental Corp.

Tim Reed
Timothy M. Reed, P.G.
Vice President

cc: Rex Jasper -Pogo
Don Riggs - Pogo



FIGURES

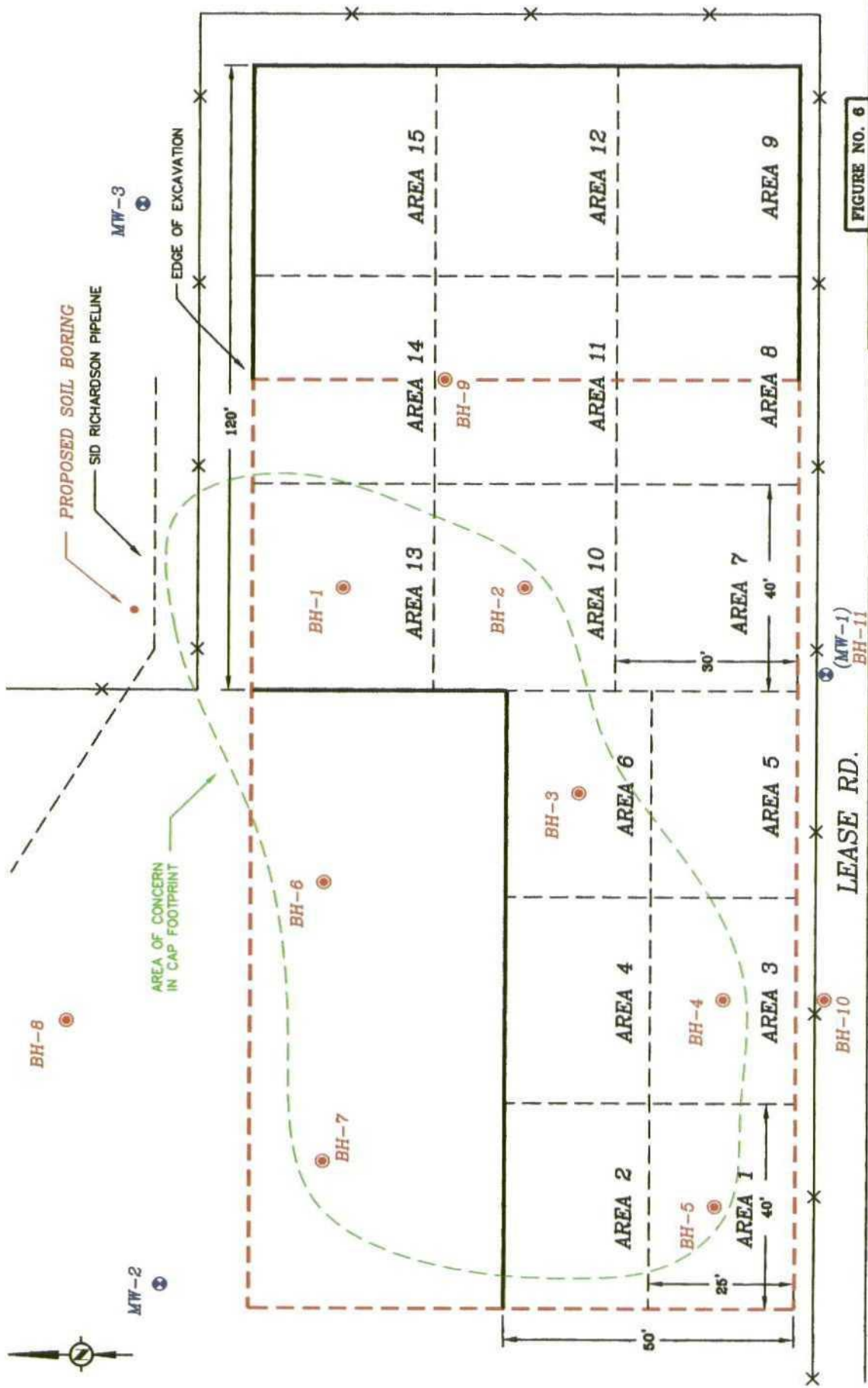


FIGURE NO. 6

LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
E.C. HILL "A" "B" & "C" TB
AREA OF CONCERN
HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE:	2/9/05
DWG. BY:	JJ
FILE:	ENVIRONMENTAL
	FILE NO. 4

PROPOSED PERIMETER TO CAP (AREA 100' X 180')

PROPOSED SOIL BORING

MONITOR WELL

BOREHOLE LOCATION

NOT TO SCALE

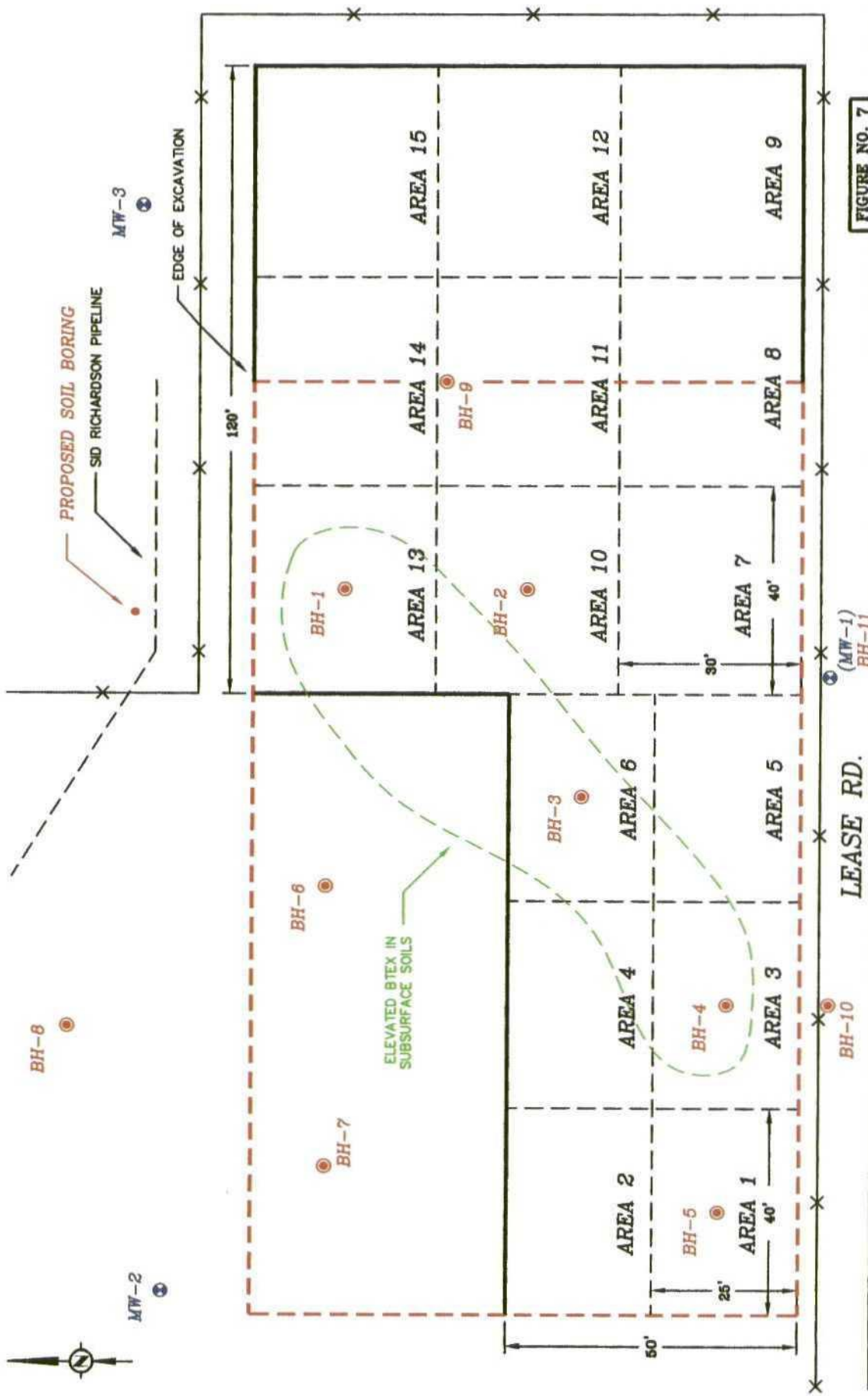


FIGURE NO. 7

LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
E.C. HILL "A" "B" & "C" TB ELEVATED BTEX
HIGHLANDER ENVIRONMENTAL CORP. MIDLAND, TEXAS

DATE 2/9/05
DRG. BY JJ
FILE ENVIRONMENTAL

PROPOSED PERIMETER TO CAP (AREA 100' X 180')

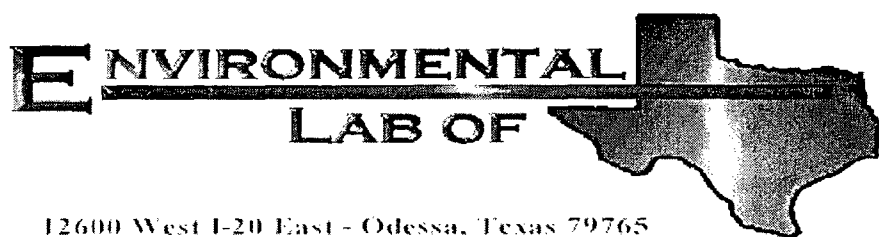
PROPOSED SOIL BORING

MONITOR WELL
BOREHOLE LOCATION

NOT TO SCALE

APPENDIX A

Analytical Data



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/ Arch E.C. Hill TB

Project Number: 1746

Location: Lea County, NM

Lab Order Number: 5E27003

Report Date: 06/01/05

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

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/01/05 08:34

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-12 (10-11)	5E27003-02	Soil	05/24/05 00:00	05/26/05 17:20
BH-12 (20-21)	5E27003-03	Soil	05/24/05 00:00	05/26/05 17:20
BH-12 (35-36)	5E27003-04	Soil	05/24/05 00:00	05/26/05 17:20

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

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:
06/01/05 08:34

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BII-12 (10-11) (5E27003-02) Soil									
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EE52514	05/27/05	05/31/05	EPA 8015M	
Diesel Range Organics >C12-C35	18.4	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	18.4	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		86.2 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		104 %		70-130	"	"	"	"	
BII-12 (20-21) (5E27003-03) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EE52705	05/27/05	05/27/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		94.3 %		80-120	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.5 %		80-120	"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EE52514	05/27/05	05/28/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		78.8 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		74.0 %		70-130	"	"	"	"	
BII-12 (35-36) (5E27003-04) Soil									
Benzene	ND	0.0250	mg/kg dry	25	EE52705	05/27/05	05/27/05	EPA 8021B	
Toluene	ND	0.0250	"	"	"	"	"	"	
Ethylbenzene	ND	0.0250	"	"	"	"	"	"	
Xylene (p/m)	ND	0.0250	"	"	"	"	"	"	
Xylene (o)	ND	0.0250	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		90.5 %		80-120	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.9 %		80-120	"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EE52514	05/27/05	05/28/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	"	"	"	"	"	
Total Hydrocarbon C6-C35	ND	10.0	"	"	"	"	"	"	
Surrogate: 1-Chlorooctane		84.4 %		70-130	"	"	"	"	
Surrogate: 1-Chlorooctadecane		83.8 %		70-130	"	"	"	"	

Environmental Lab of Texas

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

Page 2 of 8

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

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/01/05 08:34

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-12 (10-11) (5E27003-02) Soil									
% Moisture	5.4	0.1	%	1	EE53106	05/27/05	05/31/05	% calculation	
BH-12 (20-21) (5E27003-03) Soil									
% Moisture	4.2	0.1	%	1	EE53106	05/27/05	05/31/05	% calculation	
BH-12 (35-36) (5E27003-04) Soil									
% Moisture	2.3	0.1	%	1	EE53106	05/27/05	05/31/05	% calculation	

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Page 3 of 8

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

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/01/05 08:34

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch EE52514 - Solvent Extraction (GC)

Blank (EE52514-BLK1)

Prepared: 05/25/05 Analyzed: 05/28/05

Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: 1-Chlorooctane	38.8		mg/kg	50.0		77.6	70-130			
Surrogate: 1-Chlorooctadecane	41.9		"	50.0		83.8	70-130			

LCS (EE52514-BS1)

Prepared: 05/25/05 Analyzed: 05/28/05

Gasoline Range Organics C6-C12	423	10.0	mg/kg wet	500		84.6	75-125			
Diesel Range Organics >C12-C35	596	10.0	"	500		119	75-125			
Total Hydrocarbon C6-C35	1020	10.0	"	1000		102	75-125			
Surrogate: 1-Chlorooctane	41.2		mg/kg	50.0		82.4	70-130			
Surrogate: 1-Chlorooctadecane	40.1		"	50.0		80.2	70-130			

Calibration Check (EE52514-CCV1)

Prepared: 05/25/05 Analyzed: 05/27/05

Gasoline Range Organics C6-C12	490		mg/kg	500		98.0	80-120			
Diesel Range Organics >C12-C35	575		"	500		115	80-120			
Total Hydrocarbon C6-C35	1070		"	1000		107	80-120			
Surrogate: 1-Chlorooctane	46.2		"	50.0		92.4	70-130			
Surrogate: 1-Chlorooctadecane	48.6		"	50.0		97.2	70-130			

Matrix Spike (EE52514-MS1)

Source: 5E27003-02

Prepared: 05/27/05 Analyzed: 05/28/05

Gasoline Range Organics C6-C12	443	10.0	mg/kg dry	529	ND	83.7	75-125			
Diesel Range Organics >C12-C35	532	10.0	"	529	18.4	97.1	75-125			
Total Hydrocarbon C6-C35	976	10.0	"	1060	18.4	90.3	75-125			
Surrogate: 1-Chlorooctane	47.1		mg/kg	50.0		94.2	70-130			
Surrogate: 1-Chlorooctadecane	42.5		"	50.0		85.0	70-130			

Matrix Spike Dup (EE52514-MSD1)

Source: 5E27003-02

Prepared: 05/27/05 Analyzed: 05/28/05

Gasoline Range Organics C6-C12	450	10.0	mg/kg dry	529	ND	85.1	75-125	1.57	20	
Diesel Range Organics >C12-C35	545	10.0	"	529	18.4	99.5	75-125	2.41	20	
Total Hydrocarbon C6-C35	995	10.0	"	1060	18.4	92.1	75-125	1.93	20	
Surrogate: 1-Chlorooctane	48.4		mg/kg	50.0		96.8	70-130			
Surrogate: 1-Chlorooctadecane	44.6		"	50.0		89.2	70-130			

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Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/01/05 08:34

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE52705 - EPA 5030C (GC)										
Blank (EE52705-BLK1)				Prepared & Analyzed: 05/27/05						
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
Xylene (p/m)	ND	0.0250	"							
Xylene (o)	ND	0.0250	"							
Surrogate: a,a,a-Trifluorotoluene	91.1		ug/kg	100		91.1	80-120			
Surrogate: 4-Bromofluorobenzene	87.3		"	100		87.3	80-120			
LCS (EE52705-BS1)				Prepared & Analyzed: 05/27/05						
Benzene	99.8		ug/kg	100		99.8	80-120			
Toluene	92.5		"	100		92.5	80-120			
Ethylbenzene	92.9		"	100		92.9	80-120			
Xylene (p/m)	205		"	200		102	80-120			
Xylene (o)	101		"	100		101	80-120			
Surrogate: a,a,a-Trifluorotoluene	111		"	100		111	80-120			
Surrogate: 4-Bromofluorobenzene	120		"	100		120	80-120			
Calibration Check (EE52705-CCV1)				Prepared & Analyzed: 05/27/05						
Benzene	97.9		ug/kg	100		97.9	80-120			
Toluene	88.0		"	100		88.0	80-120			
Ethylbenzene	83.3		"	100		83.3	80-120			
Xylene (p/m)	180		"	200		90.0	80-120			
Xylene (o)	84.1		"	100		84.1	80-120			
Surrogate: a,a,a-Trifluorotoluene	106		"	100		106	80-120			
Surrogate: 4-Bromofluorobenzene	87.3		"	100		87.3	80-120			
Matrix Spike (EE52705-MS1)				Source: 5E27003-04 Prepared & Analyzed: 05/27/05						
Benzene	97.1		ug/kg	100	ND	97.1	80-120			
Toluene	90.9		"	100	ND	90.9	80-120			
Ethylbenzene	89.6		"	100	ND	89.6	80-120			
Xylene (p/m)	196		"	200	ND	98.0	80-120			
Xylene (o)	91.3		"	100	ND	91.3	80-120			
Surrogate: a,a,a-Trifluorotoluene	104		"	100		104	80-120			
Surrogate: 4-Bromofluorobenzene	101		"	100		101	80-120			

Environmental Lab of Texas

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

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/01/05 08:34

Organics by GC - Quality Control

Environmental Lab of Texas

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

Batch EE52705 - EPA 5030C (GC)

Matrix Spike Dup (EE52705-MSD1)

Source: 5E27003-04

Prepared & Analyzed: 05/27/05

Benzene	100		ug/kg	100	ND	100	80-120	2.94	20	
Toluene	93.1		"	100	ND	93.1	80-120	2.39	20	
Ethylbenzene	92.8		"	100	ND	92.8	80-120	3.51	20	
Xylene (p/m)	205		"	200	ND	102	80-120	4.00	20	
Xylene (o)	96.4		"	100	ND	96.4	80-120	5.43	20	
Surrogate: a,a,a-Trifluorotoluene	104		"	100		104	80-120			
Surrogate: 4-Bromofluorobenzene	104		"	100		104	80-120			

Environmental Lab of Texas

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

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:
06/01/05 08:34

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EE53106 - General Preparation (Prep)										
Blank (EE53106-BLK1)										
% Moisture	ND	0.1	%							Prepared: 05/27/05 Analyzed: 05/31/05
Duplicate (EE53106-DUP1)										
% Moisture	1.2	0.1	%		1.1			8.70	20	Source: 5E27001-01 Prepared: 05/27/05 Analyzed: 05/31/05

Environmental Lab of Texas

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1910 N. Big Spring St.
Midland TX. 79705

Project: Pogo/ Arch E.C. Hill TB
Project Number: 1746
Project Manager: Ike Tavaréz

Fax: (432) 682-3946
Reported:
06/01/05 08:34

Notes and Definitions

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

Report Approved By:

Raland K. Tuttle

Date:

6/1/2005

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 Sanchez, Lab Tech.

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

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

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Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(432) 682-4559

Fax (432) 682-3946

CLIENT NAME: <u>Pogo Probing</u>		SITE MANAGER: <u>Mike Pover</u>		PRESERVATIVE METHOD	
PROJECT NO.: <u>1746</u>		PROJECT NAME: <u>Pogo Arch-E.C. Hill TB</u>		NUMBER OF CONTAINERS	
LAB ID. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB
015124/65			3		BH-12 (5-6)
025124/65			3		BH-12 (10-11)
035124/65			3		BH-12 (20-21)
045124/65			3		BH-12 (35-36)
FILTERED (Y/N) HCL HNO3 ICE NONE PCMA Metals Ag As Ba Cd Cr Pb Hg Se PCP Volatiles PCP Semi Volatiles GC MS Vol. B240/B260/B24 GC MS Semi. Vol. B270/B25 PCB's B080/B09 Fuel. B08/B08 BOD, TSS, pH, TDS, Chloride Germin. Spec. Alpha Beta (Air) PIM (Asbestos)					

RELINQUISHED BY: (Signature)	DATE: _____	TIME: _____	RECEIVED BY: (Signature)	DATE: _____	TIME: _____
RELINQUISHED BY: (Signature)	DATE: _____	TIME: _____	RECEIVED BY: (Signature)	DATE: _____	TIME: _____
RELINQUISHED BY: (Signature)	DATE: _____	TIME: _____	RECEIVED BY: (Signature)	DATE: _____	TIME: _____
RECEIVING LABORATORY:	STATE:	ZIP:	MATRIX:	DATE: 5-26-05	TIME: 1720
ADDRESS:	REMARKS: 402 labeled				
CITY:	SAMPLE CONDITION WHEN RECEIVED: Lac 3.5K				
CONTACT:	SAMPLES SHIPPED BY: (Circle) FREIGHT HAND DELIVERED UPS HIGHLANDER CONTACT PERSON: Mike Pover				
RUSH CHARGE AUTHORIZED:			No		

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

Environmental Lab of Texas

Variance / Corrective Action Report – Sample Log-In

Client: Highlander

Date/Time: 5/27/05 8:20

Order #: 5E27003

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	<u>3.5</u> C
Shipping container/cooler in good condition?	<u>Yes</u>	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	<u>Yes</u>	No	Not present
Chain of custody present?	<u>Yes</u>	No	
Sample Instructions complete on Chain of Custody?	<u>Yes</u>	No	
Chain of Custody signed when relinquished and received?	<u>Yes</u>	No	
Chain of custody agrees with sample label(s)	<u>Yes</u>	No	
Container labels legible and intact?	<u>Yes</u>	No	
Sample Matrix and properties same as on chain of custody?	<u>Yes</u>	No	
Samples in proper container/bottle?	<u>Yes</u>	No	
Samples properly preserved?	<u>Yes</u>	No	
Sample bottles intact?	<u>Yes</u>	No	
Preservations documented on Chain of Custody?	<u>Yes</u>	No	
Containers documented on Chain of Custody?	<u>Yes</u>	No	
Sufficient sample amount for indicated test?	<u>Yes</u>	No	
All samples received within sufficient hold time?	<u>Yes</u>	No	
VOC samples have zero headspace?	<u>Yes</u>	No	Not Applicable

Other observations:

Variance Documentation:

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

Regarding: _____

Corrective Action Taken:
