1R - 440

REPORTS

DATE:

8/29/2005

IR0440

Highlander Environmental Corp.

Midland, Texas

August 29, 2005

RECEIVED
SEP - 9 2005
OIL CONSERVATION DIVISION

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

Re: Interim Report Detailing the Installation of Two Additional Monitoring Wells at 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.

Dear Mr. von Gonten:

As part of the ongoing investigation of the E.C. Hill Tank Battery, Highlander Environmental Corp. (Highlander) previously prepared and submitted a work plan for the drilling of two additional monitoring wells at the E.C. Hill "A, B and C" Tank Battery in Lea County, New Mexico, Lea County New Mexico (Site) located in Section 27, Township 23 South, Range 37 East. The Site is shown in Figure 1. This facility is an old battery, which has had numerous spills from previous operators. Prior to Pogo Producing Company, the tank battery was operated by Chevron and Midcontinent.

Monitor Well Installation and Sampling

On May 24-25, 2005, Highlander supervised the installation of two (2) groundwater monitoring well (MW-2 and MW-3) around the perimeter of the excavation to establish a Site gradient. Prior to completion of the monitor wells, soil samples were collected from a soil boring (BH-12), south of the current MW-2 location. Samples were collected at ten (10) foot intervals and field screened with a photoionization detector (PID). Selected samples were submitted to the laboratory for analysis of TPH, BTEX and chloride concentrations. The laboratory report and chain of custody are shown in Appendix A.

The monitor wells were drilled using air/water rotary drilling techniques, and constructed according to EPA and NMOCD standards, with approximately 15 feet of screen below the water table and 5 feet above. The wells were drilled to depths of 102' (MW-2) and 101' (MW-3) below surface. The well screen was surrounded with a graded silica sand to a depth approximately 3 feet above the screen. A layer of bentonite pellets, approximately 3 feet thick was placed in the borehole above the sand. The remainder of the borehole was filled with cement and bentonite grout to about one (1) foot below ground. The well was secured with locking steel protectors with a concrete pad measuring approximately 3 feet by 3 feet. The location of the monitor wells are shown on Figure 2.

The monitor well completion details are shown in Appendix B.

Following installation, the wells were developed by hand bailing using a dedicated hand bailer to remove fine grained sediment, disturbed during drilling, and to ensure collection of representative groundwater samples. Water removed from the well was placed in a 55-gallon drum.

On June 17, 2005 Highlander gauged all three monitor wells. Monitor well MW-1 had a trace of phase-separated hydrocarbon, (PSH) measured at 0.03'. On June 24, 2004, MW-2 and MW-3 were purged using a submersible pump, until temperature, conductivity and pH stabilized. Groundwater samples were collected and analyzed for BTEX by method EPA 8021B and chloride by method EPA 325.3M. All samples were delivered to the laboratory under chain of custody control. Water level measurements were used to construct a water table map included as Figure 3. As shown on Figure 3, the gradient appears to be in a southeasterly direction.

No BTEX was detected in MW-2 at or above the reporting limits. Traces of BTEX were found in MW-3, however, the concentrations were well below the New Mexico Water Quality Control Commission (WQCC) standards. Chloride concentrations were 102 mg/L in MW-2 and 420 mg/L in MW-3. The laboratory report and chain of custody are shown in Appendix A.

Additional Groundwater Investigation

This site will be evaluated for additional monitor well placement, particularly to the south and southeast of the existing MW-1. Quarterly gauging and sampling will be performed on the existing monitor wells. The wells will be inspected for the presence of phase-separated hydrocarbons (PSH) and, if present in sufficient quantity, a sample will be collected and analyzed by gas chromatography (GC) to determine composition and origin. If PSH is detected in the monitor well, a groundwater sample will not be collected. Once inspected, the well will be properly purged and sampled with a clean, dedicated, polyethelene bailers and disposable line. The groundwater samples will be submitted to a laboratory for analysis of Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) by method EPA 8021B, and chloride by method 300.0.

Highlander will prepare a work plan to address further groundwater investigation to be performed. Please call me at (432) 682-4559 if you have questions.

Respectfully submitted,
Highlander Environmental Corp.

Tim Reed

Timothy M. Reed, P.G.
Vice President

cc: Pat Ellis –Pogo
Don Riggs - Pogo

FIGURES

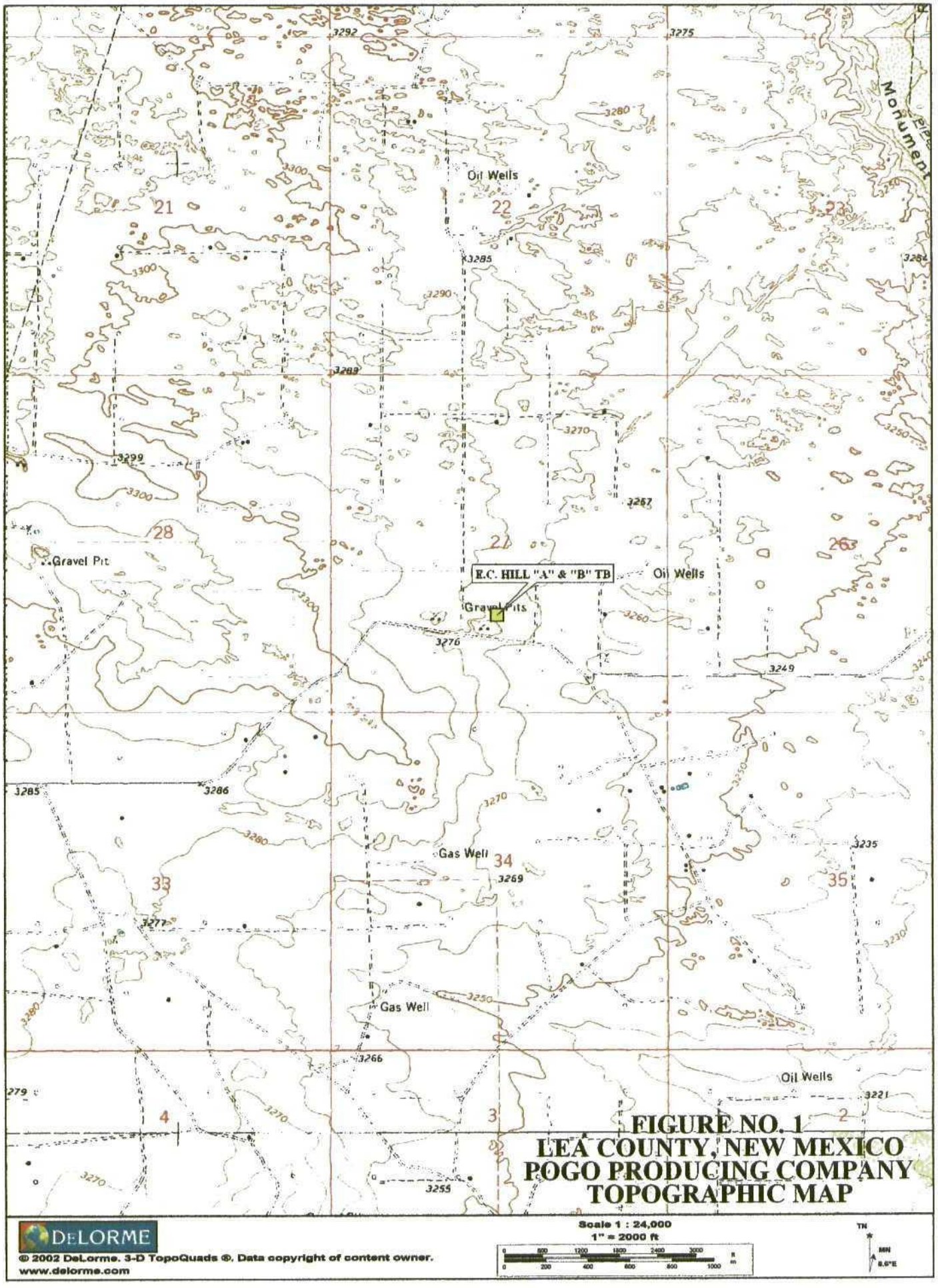
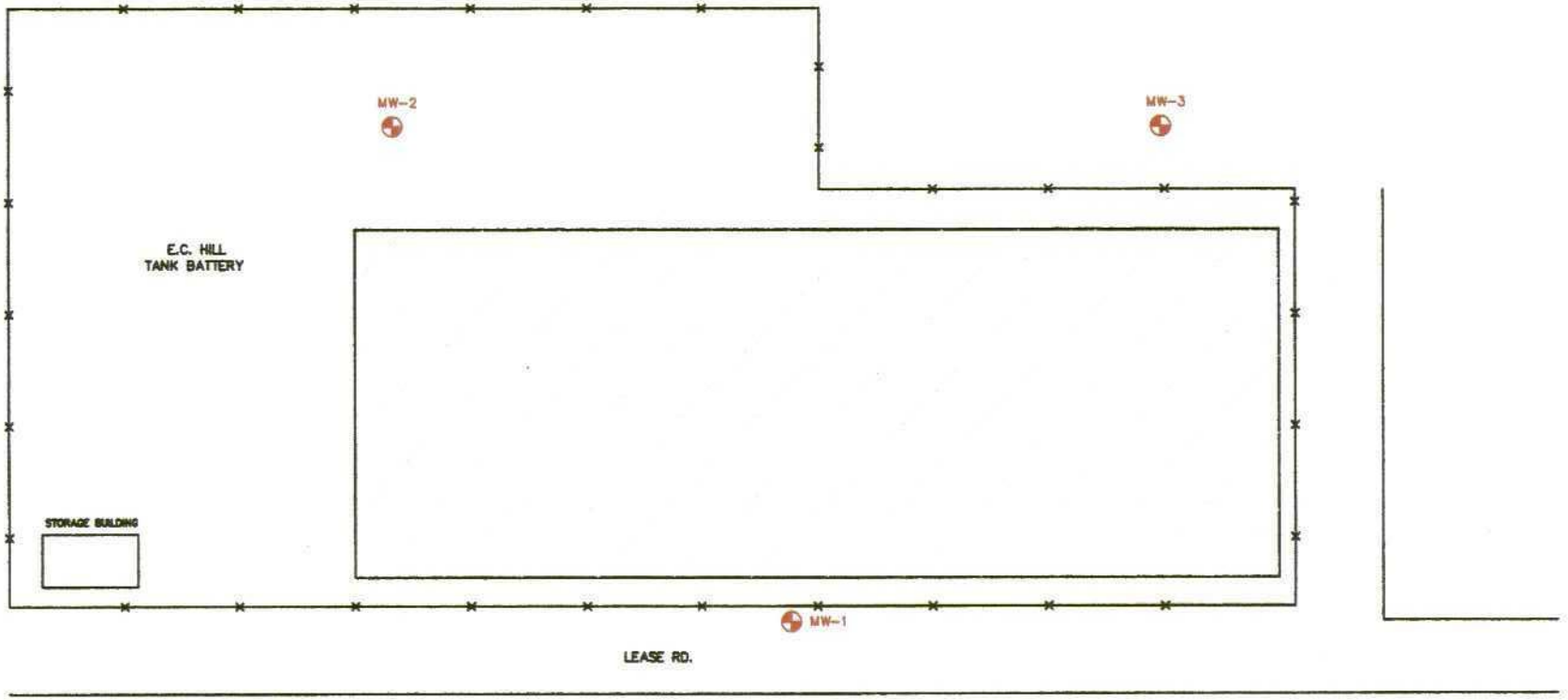


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
TOPOGRAPHIC MAP



WELL NO.	NORTHING (Y)	EASTING (X)	ELEVATION TOC
MW-1	464,731.6	865,589.3	3,274.52
MW-2	464,875.8	865,461.9	3,274.99
MW-3	464,872.2	865,667.1	3,276.48

MONITOR WELL LOCATIONS

EXCAVATED AREA

NOT TO SCALE

DATE: 8/30/05

DWG. BY: JJ

FILE: C:\POGO\1746\HILL_A-B FIG 2

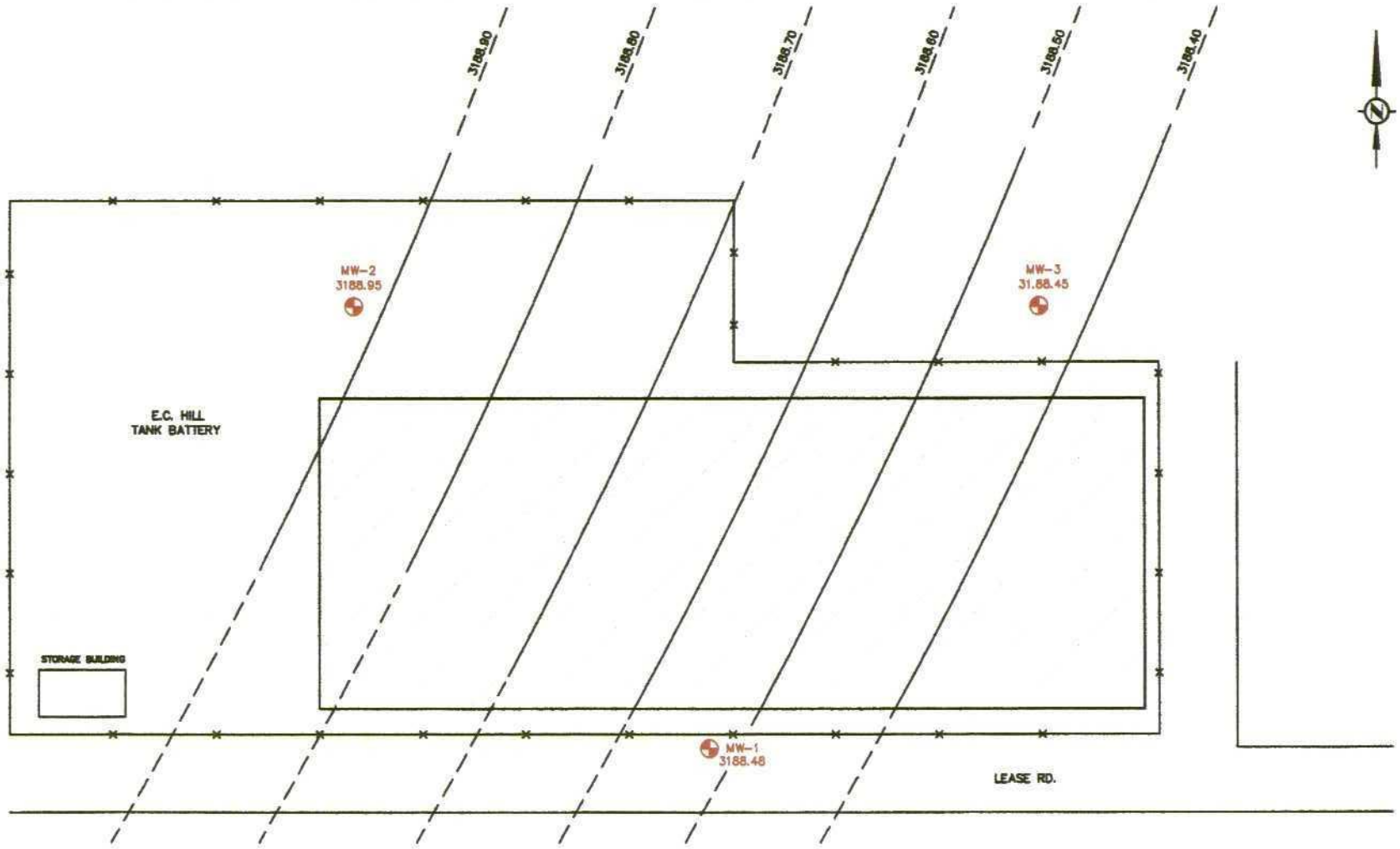
FIGURE NO. 2

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS



WELL NO.	NORTHING (Y)	EASTING (X)	ELEVATION TOC
MW-1	464,731.6	865,589.3	3,274.52
MW-2	464,875.8	865,461.9	3,274.99
MW-3	464,872.2	865,687.1	3,276.48

MONITOR WELL LOCATIONS

EXCAVATED AREA

NOT TO SCALE

FIGURE NO. 3

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB
WATER TABLE MAP

DATE: 8/30/05

DWG. BY: JJ

FILE: C:\POGO\1746\HILL_A-B.DW

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

APPENDIX A

Analytical Reports

Analytical Report

Report Date: 5/31/2005

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavarez

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ Arch E.C. Hill TB

Project Number: 1746

Location: Lea County, NM

Lab Order Number: 5E27003

Report Date: 05/31/05

Highlander Environmental Corp.	Project: Pogo/ Arch E.C. Hill TB	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: 1746	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	05/31/05 15:55

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

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

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-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*		"	"	"	"	
BH-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*		"	"	"	"	
BH-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*		"	"	"	"	

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	

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 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*			

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*			

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*			

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)				Prepared: 05/27/05 Analyzed: 05/31/05						
% Moisture	ND	0.1	%							
Duplicate (EE53106-DUP1)		**Source: 5E27001-01**		Prepared: 05/27/05 Analyzed: 05/31/05						
% Moisture	1.2	0.1	%		1.1			8.70	20	

Notes and Definitions

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

Report Approved By: Raland K Tuttle Date: 5-31-05

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.

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

Other observations:

_____

_____

_____

Variance Documentation:

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

Regarding:

_____

_____

_____

Corrective Action Taken:

_____

_____

_____

_____

_____

_____

_____

_____

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(432) 682-4559 Fax (432) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Pogo Producing. SITE MANAGER: IKE Tavarez

PROJECT NO.: 1746 PROJECT NAME: Pogo / Arch-E.C. Hill TB Lea. NM.

SEQ 7003

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 / 8015 MOD. / TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
01	5/24/05		S		-	BH-12 (5-6)	1				-					1 fold													
02	5/24/05		S		-	BH-12 (10-11)	1				-				X														
03	5/24/05		S		-	BH-12 (20-21)	1				-		X		X														
04	5/24/05		S		-	BH 12 (35-36')	1				-		X		X														

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 5/26/05 Time: 5:20 RECEIVED BY: (Signature) Date: Time: SAMPLED BY: (Print & Sign) IKE Tavarez Date: Time:

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

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

RECEIVING LABORATORY: ECT RECEIVED BY: (Signature)
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: 5-26-05 TIME: 1720

HIGHLANDER CONTACT PERSON: IKE Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: Rec 3.5°C

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

REMARKS: 4oz label/seal

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

Analytical Report

Report Date: 7/07/2005

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavarez

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ E.C. Hill T.B.

Project Number: None Given

Location: None Given

Lab Order Number: 5F29002

Report Date: 07/07/05

Highlander Environmental Corp.	Project: Pogo/ E.C. Hill T.B.	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: None Given	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	07/07/05 12:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	5F29002-01	Water	06/24/05 11:50	06/28/05 16:50
MW-3	5F29002-02	Water	06/24/05 13:20	06/28/05 16:50

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

Highlander Environmental Corp.	Project: Pogo/ E.C. Hill T.B.	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: None Given	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	07/07/05 12:37

Organics by GC

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (5F29002-01) Water									
Benzene	ND	0.00100	mg/L	1	EF53021	06/30/05	06/30/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*92.9 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*105 %*	*80-120*		"	"	"	"	
MW-3 (5F29002-02) Water									
Benzene	**0.00166**	0.00100	mg/L	1	EF53021	06/30/05	06/30/05	EPA 8021B	
Toluene	**0.00226**	0.00100	"	"	"	"	"	"	
Ethylbenzene	**0.00143**	0.00100	"	"	"	"	"	"	
Xylene (p/m)	**0.00497**	0.00100	"	"	"	"	"	"	
Xylene (o)	**0.00878**	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*94.3 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*118 %*	*80-120*		"	"	"	"	

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

Highlander Environmental Corp.	Project: Pogo/ E.C. Hill T.B.	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: None Given	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	07/07/05 12:37

General Chemistry Parameters by EPA / Standard Methods

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-2 (5F29002-01) Water									
Chloride	**102**	5.00	mg/L	10	EF53026	06/30/05	06/30/05	EPA 300.0	
MW-3 (5F29002-02) Water									
Chloride	**420**	12.5	mg/L	25	EF53026	06/30/05	06/30/05	EPA 300.0	

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

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 EF53021 - EPA 5030C (GC)										
Blank (EF53021-BLK1)				Prepared & Analyzed: 06/30/05						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*87.4*		*ug/l*	*100*		*87.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*82.8*		*"*	*100*		*82.8*	*80-120*			
LCS (EF53021-BS1)				Prepared & Analyzed: 06/30/05						
Benzene	117		ug/l	100		117	80-120			
Toluene	108		"	100		108	80-120			
Ethylbenzene	106		"	100		106	80-120			
Xylene (p/m)	185		"	200		92.5	80-120			
Xylene (o)	91.0		"	100		91.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	*113*		*"*	*100*		*113*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*119*		*"*	*100*		*119*	*80-120*			
Calibration Check (EF53021-CCV1)				Prepared: 06/30/05 Analyzed: 07/01/05						
Benzene	92.5		ug/l	100		92.5	80-120			
Toluene	85.4		"	100		85.4	80-120			
Ethylbenzene	91.2		"	100		91.2	80-120			
Xylene (p/m)	163		"	200		81.5	80-120			
Xylene (o)	84.4		"	100		84.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	*91.8*		*"*	*100*		*91.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*109*		*"*	*100*		*109*	*80-120*			
Matrix Spike (EF53021-MS1)	**Source: 5F29004-02**			Prepared & Analyzed: 06/30/05						
Benzene	99.6		ug/l	100	ND	99.6	80-120			
Toluene	91.8		"	100	ND	91.8	80-120			
Ethylbenzene	95.1		"	100	ND	95.1	80-120			
Xylene (p/m)	165		"	200	ND	82.5	80-120			
Xylene (o)	86.7		"	100	ND	86.7	80-120			
Surrogate: a,a,a-Trifluorotoluene	*98.2*		*"*	*100*		*98.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*119*		*"*	*100*		*119*	*80-120*			

Organics by GC - Quality Control

Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EF53021 - EPA 5030C (GC)										
Matrix Spike Dup (EF53021-MSD1)	**Source: 5F29004-02**			Prepared & Analyzed: 06/30/05						
Benzene	103		ug/l	100	ND	103	80-120	3.36	20	
Toluene	96.3		"	100	ND	96.3	80-120	4.78	20	
Ethylbenzene	101		"	100	ND	101	80-120	6.02	20	
Xylene (p/m)	176		"	200	ND	88.0	80-120	6.45	20	
Xylene (o)	92.2		"	100	ND	92.2	80-120	6.15	20	
Surrogate: a,a,a-Trifluorotoluene	*102*		"	*100*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*117*		"	*100*		*117*	*80-120*			

Highlander Environmental Corp.	Project: Pogo/ E.C. Hill T.B.	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: None Given	**Reported:**
Midland TX, 79705	Project Manager: Ike Tavarez	07/07/05 12:37

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 EF53026 - General Preparation (WetChem)										
Blank (EF53026-BLK1)				Prepared & Analyzed: 06/30/05						
Chloride	ND	0.500	mg/L							
LCS (EF53026-BS1)				Prepared & Analyzed: 06/30/05						
Chloride	11.5		mg/L	10.0		115	80-120			
Calibration Check (EF53026-CCV1)				Prepared & Analyzed: 06/30/05						
Chloride	11.5		mg/L	10.0		115	80-120			
Duplicate (EF53026-DUP1)	**Source: 5F29013-01**			Prepared & Analyzed: 06/30/05						
Chloride	87.8	2.50	mg/L		85.3			2.89	20	

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

Highlander Environmental Corp.	Project: Pogo/ E.C. Hill T.B.	Fax: (432) 682-3946
1910 N. Big Spring St.	Project Number: None Given	**Reported:**
Midland TX. 79705	Project Manager: Ike Tavarez	07/07/05 12:37

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: 7/7/2005

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.

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

Analysis Request and Chain of Custody Record

PAGE: 1 OF: 1

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 Fax (432) 682-3946

CLIENT NAME: Toso Road

SITE MANAGER: Ike Tavarez

PROJECT NO.:

PROJECT NAME: EC Hill T.B.

SP79002

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
-01	6-24-05	11:50	W		✓	MW-2	3	Y			✓		X													X			
-02	6-24-05	1:20	W		✓	MW-3	3	Y					X													X			

RELINQUISHED BY: (Signature) [signature] Date: 6-28-05 Time: 2:30

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: ECT
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) [signature] DATE: 6/28/05 TIME: 4:50

SAMPLED BY: (Print & Sign) [signature] Date: 6-24-05 Time: 1:20

SAMPLE SHIPPED BY: (Circle) FEDEX BUS AIRBILL #
HAND DELIVERED UPS OTHER:

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

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

REMARKS: seals/labels 1L-poly 4-VOA 2.5°C

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

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

Client: Highlander

Date/Time: 6/29/05 8:00

Order #: 5F29002

Initials: CK

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	2.5 C
Shipping container/cooler in good condition?	Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	Not present
Custody Seals intact on sample bottles?	Yes	No	Not present
Chain of custody present?	Yes	No	
Sample instructions complete on Chain of Custody?	Yes	No	
Chain of Custody signed when relinquished and received?	Yes	No	
Chain of custody agrees with sample label(s)	Yes	No	
Container labels legible and intact?	Yes	No	
Sample Matrix and properties same as on chain of custody?	Yes	No	
Samples in proper container/bottle?	Yes	No	
Samples properly preserved?	Yes	No	
Sample bottles intact?	Yes	No	
Preservations documented on Chain of Custody?	Yes	No	
Containers documented on Chain of Custody?	Yes	No	
Sufficient sample amount for indicated test?	Yes	No	
All samples received within sufficient hold time?	Yes	No	
VOC samples have zero headspace?	Yes	No	Not Applicable

Other observations:

_____

_____

_____

Variance Documentation:

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

Regarding:

_____

_____

_____

Corrective Action Taken:

_____

_____

_____

_____

_____

_____

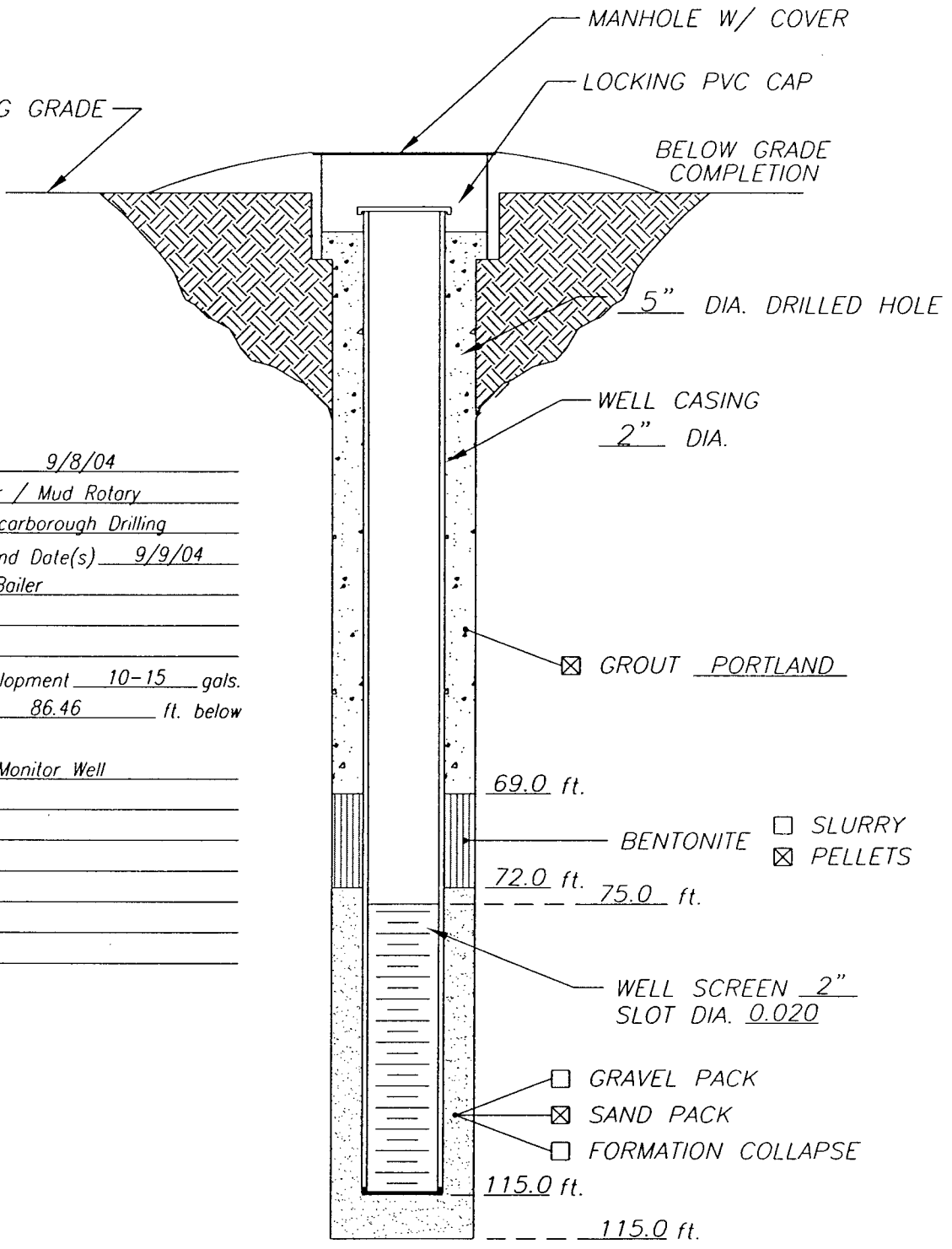
_____

_____

APPENDIX B

Well Construction Logs

WELL CONSTRUCTION LOG



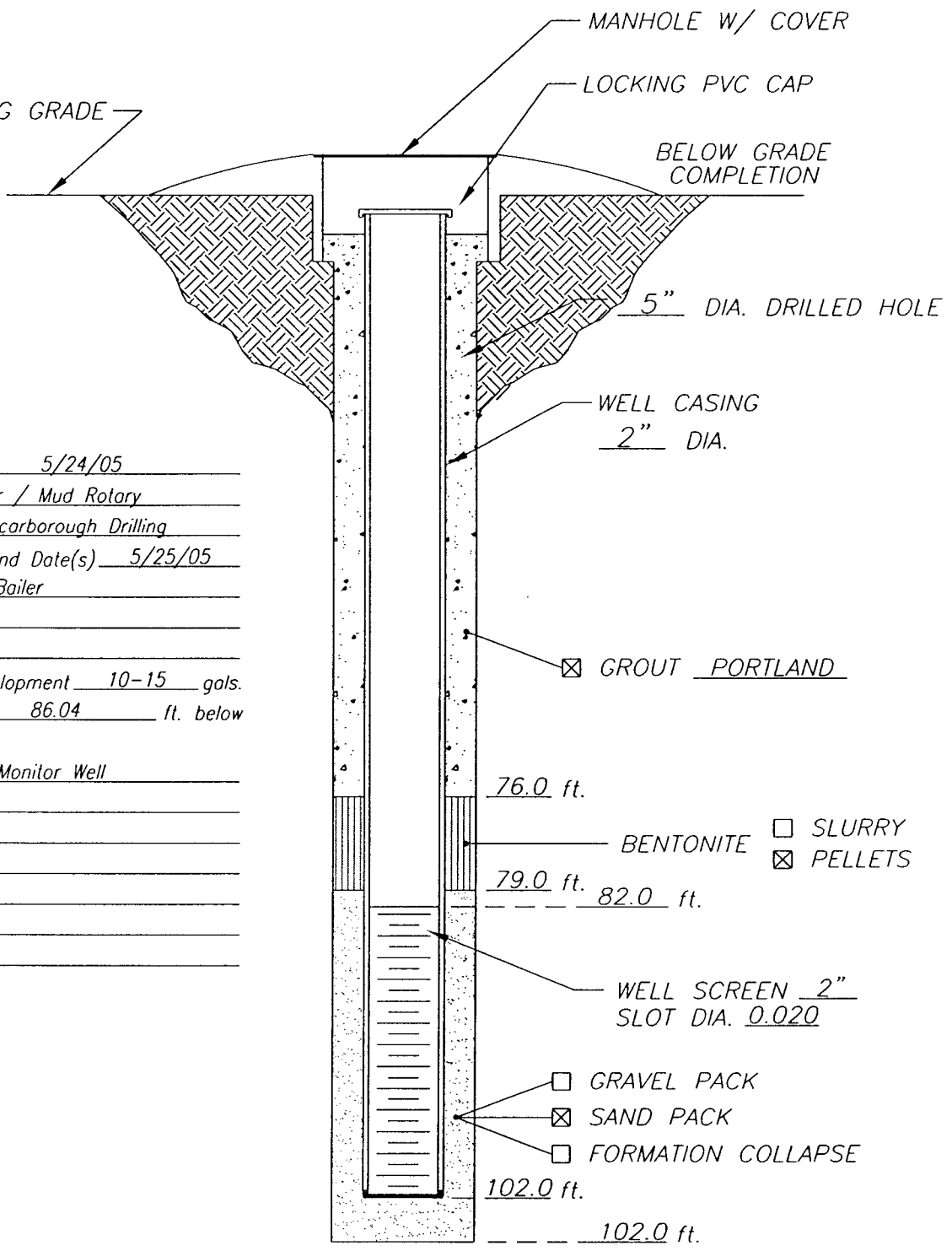
Installation Date(s) 9/8/04
Drilling Method Air / Mud Rotary
Drilling Contractor Scarborough Drilling
Development Technique(s) and Date(s) 9/9/04
Hand Bailer

Water Removed During Development 10-15 gals.
Static Depth to Water 86.46 ft. below Ground Level
Well Purpose Monitor Well

Remarks

DATE: 9/8/04	CLIENT: POGO PRODUCING COMPANY	WELL NO.
Highlander Environmental	PROJECT: E. C. HILL A, B & C TB	MW-1 (BH-11)
	LOCATION: Lea County, New Mexico	

WELL CONSTRUCTION LOG



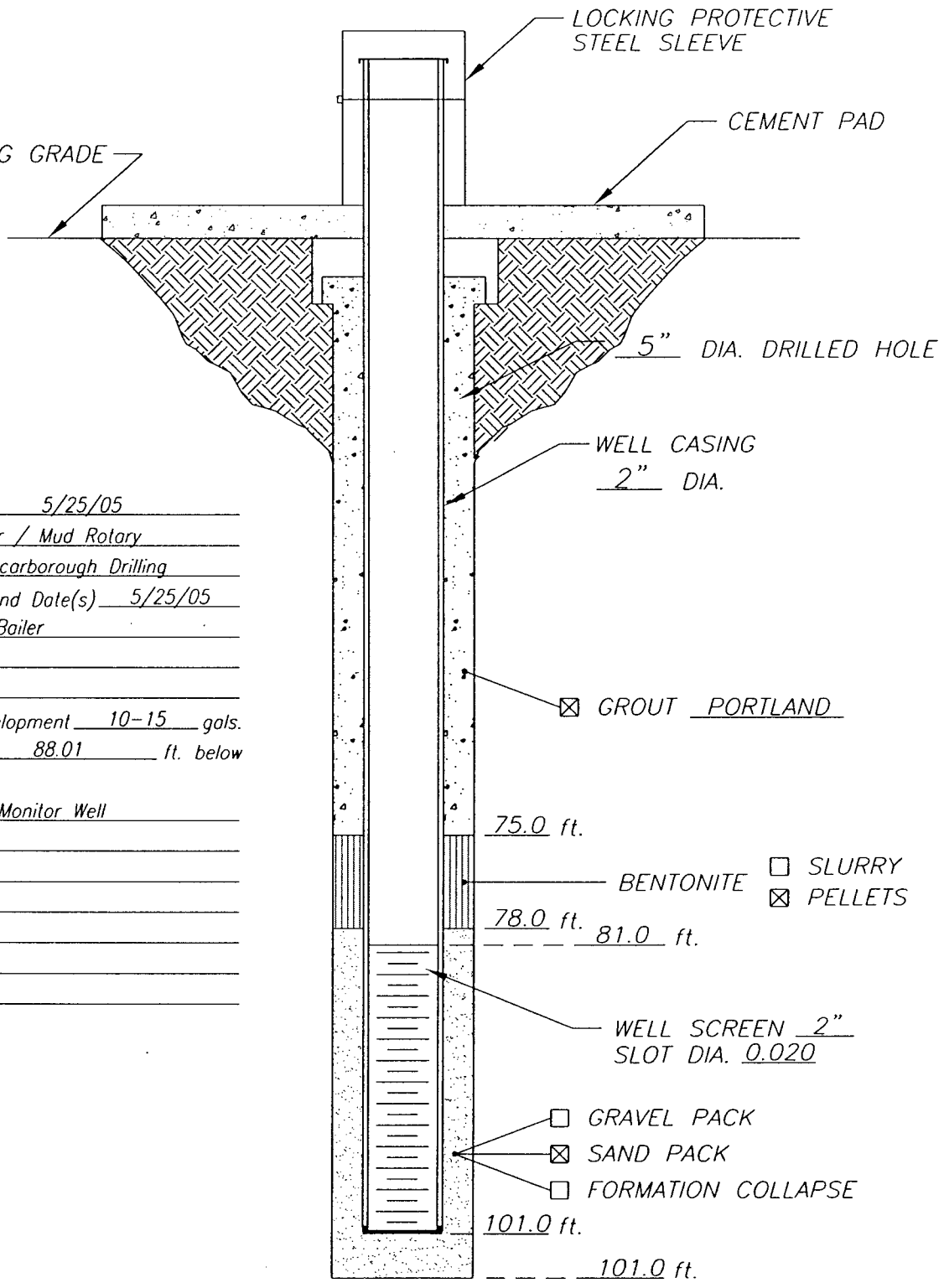
Installation Date(s) 5/24/05
Drilling Method Air / Mud Rotary
Drilling Contractor Scarborough Drilling
Development Technique(s) and Date(s) 5/25/05
Hand Bailer

Water Removed During Development 10-15 gals.
Static Depth to Water 86.04 ft. below Ground Level
Well Purpose Monitor Well

Remarks

DATE: 5/24/05	CLIENT: POGO PRODUCING COMPANY	WELL NO.
Highlander Environmental	PROJECT: E. C. HILL A, B & C TB	MW-2
	LOCATION: Lea County, New Mexico	

WELL CONSTRUCTION LOG



Installation Date(s) 5/25/05
Drilling Method Air / Mud Rotary
Drilling Contractor Scarborough Drilling
Development Technique(s) and Date(s) 5/25/05
Hand Bailer

Water Removed During Development 10-15 gals.
Static Depth to Water 88.01 ft. below Ground Level
Well Purpose Monitor Well

Remarks

DATE: 5/25/05	CLIENT: POGO PRODUCING COMPANY	WELL NO.
Highlander Environmental	PROJECT: E. C. HILL A, B & C TB	MW-3
	LOCATION: Lea County, New Mexico	