

1R - 431

# REPORTS

DATE:

4/5/2006



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Ike Tavaréz

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Gruy Petroleum/ Riddle State #1

Project Number: 2321

Location: Lea County, NM

Lab Order Number: 6C29010

Report Date: 04/05/06

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

Project: Gruy Petroleum/ Riddle State #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

**Reported:**  
04/05/06 12:03

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	6C29010-01	Water	03/27/06 10:30	03/29/06 14:50
MW-2	6C29010-02	Water	03/27/06 11:15	03/29/06 14:50
MW-3	6C29010-03	Water	03/27/06 12:00	03/29/06 14:50
RW-1	6C29010-04	Water	03/27/06 09:30	03/29/06 14:50

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**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (6C29010-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	EC63016	03/30/06	03/31/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		97.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.5 %	80-120		"	"	"	"	
<b>MW-2 (6C29010-02) Water</b>									
Benzene	ND	0.00100	mg/L	1	EC63016	03/30/06	03/31/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		108 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		90.0 %	80-120		"	"	"	"	
<b>MW-3 (6C29010-03) Water</b>									
Benzene	ND	0.00100	mg/L	1	ED60305	04/03/06	04/03/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		101 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		81.2 %	80-120		"	"	"	"	
<b>RW-1 (6C29010-04) Water</b>									
Benzene	ND	0.00100	mg/L	1	ED60305	04/03/06	04/03/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		100 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.0 %	80-120		"	"	"	"	

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Reported:  
04/05/06 12:03

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (6C29010-01) Water</b>									
Chloride	10.0	2.50	mg/L	5	ED60306	03/31/06	04/03/06	EPA 300.0	
<b>MW-2 (6C29010-02) Water</b>									
Chloride	17.1	2.50	mg/L	5	ED60306	03/31/06	04/03/06	EPA 300.0	
<b>MW-3 (6C29010-03) Water</b>									
Chloride	55.4	5.00	mg/L	10	ED60306	03/31/06	04/03/06	EPA 300.0	
<b>RW-1 (6C29010-04) Water</b>									
Chloride	21700	250	mg/L	500	ED60306	03/31/06	04/03/06	EPA 300.0	

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**Organics by GC - Quality Control**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch EC63016 - EPA 5030C (GC)**

**Blank (EC63016-BLK1)**

Prepared & Analyzed: 03/30/06

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	33.8		ug/l	40.0		84.5	80-120			
Surrogate: 4-Bromofluorobenzene	38.6		"	40.0		96.5	80-120			

**LCS (EC63016-BS1)**

Prepared & Analyzed: 03/30/06

Benzene	0.0405	0.00100	mg/L	0.0500		81.0	80-120			
Toluene	0.0441	0.00100	"	0.0500		88.2	80-120			
Ethylbenzene	0.0593	0.00100	"	0.0500		119	80-120			
Xylene (p/m)	0.102	0.00100	"	0.100		102	80-120			
Xylene (o)	0.0499	0.00100	"	0.0500		99.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	34.4		ug/l	40.0		86.0	80-120			
Surrogate: 4-Bromofluorobenzene	39.8		"	40.0		99.5	80-120			

**Calibration Check (EC63016-CCV1)**

Prepared: 03/30/06 Analyzed: 03/31/06

Benzene	45.1		ug/l	50.0		90.2	80-120			
Toluene	41.8		"	50.0		83.6	80-120			
Ethylbenzene	46.8		"	50.0		93.6	80-120			
Xylene (p/m)	95.9		"	100		95.9	80-120			
Xylene (o)	47.5		"	50.0		95.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	39.7		"	40.0		99.2	80-120			
Surrogate: 4-Bromofluorobenzene	35.1		"	40.0		87.8	80-120			

**Matrix Spike (EC63016-MS1)**

Source: 6C24010-02

Prepared: 03/30/06 Analyzed: 03/31/06

Benzene	0.0450	0.00100	mg/L	0.0500	ND	90.0	80-120			
Toluene	0.0429	0.00100	"	0.0500	ND	85.8	80-120			
Ethylbenzene	0.0491	0.00100	"	0.0500	ND	98.2	80-120			
Xylene (p/m)	0.0999	0.00100	"	0.100	ND	99.9	80-120			
Xylene (o)	0.0492	0.00100	"	0.0500	ND	98.4	80-120			
Surrogate: a,a,a-Trifluorotoluene	35.1		ug/l	40.0		87.8	80-120			
Surrogate: 4-Bromofluorobenzene	36.9		"	40.0		92.2	80-120			

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 4 of 8

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

Project: Gruy Petroleum/ Riddle State #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
04/05/06 12:03

**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 EC63016 - EPA 5030C (GC)**

**Matrix Spike Dup (EC63016-MSD1)**

Source: 6C24010-02

Prepared: 03/30/06 Analyzed: 03/31/06

Benzene	0.0433	0.00100	mg/L	0.0500	ND	86.6	80-120	3.85	20	
Toluene	0.0415	0.00100	"	0.0500	ND	83.0	80-120	3.32	20	
Ethylbenzene	0.0475	0.00100	"	0.0500	ND	95.0	80-120	3.31	20	
Xylene (p/m)	0.0971	0.00100	"	0.100	ND	97.1	80-120	2.84	20	
Xylene (o)	0.0475	0.00100	"	0.0500	ND	95.0	80-120	3.52	20	
Surrogate: a,a,a-Trifluorotoluene	43.1		ug/l	40.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	34.5		"	40.0		86.2	80-120			

**Batch ED60305 - EPA 5030C (GC)**

**Blank (ED60305-BLK1)**

Prepared & Analyzed: 04/03/06

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	42.0		ug/l	40.0		105	80-120			
Surrogate: 4-Bromofluorobenzene	37.4		"	40.0		93.5	80-120			

**LCS (ED60305-BS1)**

Prepared & Analyzed: 04/03/06

Benzene	0.0451	0.00100	mg/L	0.0500		90.2	80-120			
Toluene	0.0435	0.00100	"	0.0500		87.0	80-120			
Ethylbenzene	0.0584	0.00100	"	0.0500		117	80-120			
Xylene (p/m)	0.101	0.00100	"	0.100		101	80-120			
Xylene (o)	0.0498	0.00100	"	0.0500		99.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	43.5		ug/l	40.0		109	80-120			
Surrogate: 4-Bromofluorobenzene	46.2		"	40.0		116	80-120			

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Midland TX, 79705

Project: Gruy Petroleum/ Riddle State #1  
Project Number: 2321  
Project Manager: Ike Tavarez

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Reported:  
04/05/06 12:03

**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 ED60305 - EPA 5030C (GC)**

**Calibration Check (ED60305-CCV1)**

Prepared: 04/03/06 Analyzed: 04/04/06

Benzene	43.0		ug/l	50.0		86.0	80-120			
Toluene	40.2		"	50.0		80.4	80-120			
Ethylbenzene	44.6		"	50.0		89.2	80-120			
Xylene (p/m)	90.6		"	100		90.6	80-120			
Xylene (o)	45.4		"	50.0		90.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.0		"	40.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	38.5		"	40.0		96.2	80-120			

**Matrix Spike (ED60305-MS1)**

Source: 6C29010-03

Prepared: 04/03/06 Analyzed: 04/04/06

Benzene	0.0435	0.00100	mg/L	0.0500	ND	87.0	80-120			
Toluene	0.0418	0.00100	"	0.0500	ND	83.6	80-120			
Ethylbenzene	0.0573	0.00100	"	0.0500	ND	115	80-120			
Xylene (p/m)	0.0983	0.00100	"	0.100	ND	98.3	80-120			
Xylene (o)	0.0469	0.00100	"	0.0500	ND	93.8	80-120			
Surrogate: a,a,a-Trifluorotoluene	42.9		ug/l	40.0		107	80-120			
Surrogate: 4-Bromofluorobenzene	40.4		"	40.0		101	80-120			

**Matrix Spike Dup (ED60305-MSD1)**

Source: 6C29010-03

Prepared: 04/03/06 Analyzed: 04/04/06

Benzene	0.0420	0.00100	mg/L	0.0500	ND	84.0	80-120	3.51	20	
Toluene	0.0413	0.00100	"	0.0500	ND	82.6	80-120	1.20	20	
Ethylbenzene	0.0562	0.00100	"	0.0500	ND	112	80-120	2.64	20	
Xylene (p/m)	0.0968	0.00100	"	0.100	ND	96.8	80-120	1.54	20	
Xylene (o)	0.0465	0.00100	"	0.0500	ND	93.0	80-120	0.857	20	
Surrogate: a,a,a-Trifluorotoluene	40.8		ug/l	40.0		102	80-120			
Surrogate: 4-Bromofluorobenzene	38.0		"	40.0		95.0	80-120			

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

Project: Gruy Petroleum/ Riddle State #1  
 Project Number: 2321  
 Project Manager: Ike Tavarez

Fax: (432) 682-3946  
**Reported:**  
 04/05/06 12:03

**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
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**Batch ED60306 - General Preparation (WetChem)**

**Blank (ED60306-BLK1)**

Prepared & Analyzed: 04/03/06

Chloride ND 0.500 mg/L

**LCS (ED60306-BS1)**

Prepared & Analyzed: 04/03/06

Chloride 8.69 mg/L 10.0 86.9 80-120

**Calibration Check (ED60306-CCV1)**

Prepared & Analyzed: 04/03/06

Chloride 9.04 mg/L 10.0 90.4 80-120

**Duplicate (ED60306-DUP1)**

Source: 6C29006-01

Prepared & Analyzed: 04/03/06

Chloride 570 10.0 mg/L 564 1.06 20

Highlander Environmental Corp.  
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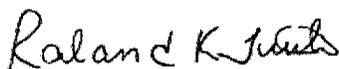
Fax: (432) 682-3946

Reported:  
04/05/06 12:03

### 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:



Date:

4/5/2006

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.

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



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

Client: Highlander  
 Date/Time: 3/29/06 2:50  
 Order #: 6029010  
 Initials: UL

Sample Receipt Checklist

Temperature of container/cooler?	Yes	No	5.0 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Custody Seals intact on shipping container/cooler?	Yes	No	<u>Not present</u>
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/>	No	
Container labels legible and intact?	<input checked="" type="checkbox"/>	No	
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Samples in proper container/bottle?	<input checked="" type="checkbox"/>	No	
Samples properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	<input checked="" type="checkbox"/>	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable

Other observations:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Variance Documentation:

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

\_\_\_\_\_  
 \_\_\_\_\_

Corrective Action Taken:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**

Governor

**Joanna Prukop**

Cabinet Secretary

**Mark E. Fesmire, P.E.**

Director

**Oil Conservation Division**

April 17, 2006

Mr. Timothy M. Reed  
Highlander Environmental Corp.  
1910 N. Big Spring  
Midland, TX 79705

RE: 2005 Annual Summary Report  
Gruy Petroleum Management Co. Riddle State #1 Well Site  
Unit Letter B, Section 1, Township 22 South, Range 34 East  
Lea County, New Mexico  
NMOCD File 1R-0431

Dear Mr. Reed:

The New Mexico Oil Conservation Division (NMOCD) has received and reviewed the above report, submitted by Highlander Environmental Corp. on behalf of Gruy Petroleum Management Co. (Gruy). This report is hereby accepted and approved with the following understandings and conditions:

1.

*Phone call to Tim Reed  
4-17-06 requesting update on  
CI- in groundwater @ RW-1.  
Possible need for additional  
recovery well.*



# Highlander Environmental Corp.

Midland, Texas

2006 MAR 27 PM 12 15

February 15, 2006

Mr. Ed Martin  
New Mexico Energy, Minerals, & Natural Resources  
Oil Conservation Division, Environmental Bureau  
1220 S. St. Francis Drive  
Santa Fe, New Mexico 87505

IR-431

**Re: 2005 Annual Summary Report for the Gruy Petroleum Management Company, Riddle State #1 Well, Located in Unit Letter B, Section 1, Township 22 South, Range 34 East, Lea County New Mexico.**

Dear Mr. Martin:

Highlander Environmental Corp. (Highlander) was contacted by Gruy Petroleum Management to investigate an open reserve pit at the Riddle State #1 well in Lea County, New Mexico (Site) located in Unit Letter B, Section 1, Township 22 South, Range 34 East. The Site is shown on Figure 1.

## Background

This well, originally drilled by Matador, is temporarily abandoned. Prior to the well completion, it was sold to Tom Brown, Inc. and eventually to Gruy. The well was drilled prior to the implementation of the New Mexico Oil Conservation Division (NMOCD) Pit and Below Grade Tank Guidelines, issued November 1, 2004. According to information provided to Highlander, the reserve pit contents were planned to be buried in trenches located on the east and west ends of the reserve pit.

In January 2005, Environmental Plus, Inc (EPI) of Eunice, New Mexico installed six hand auger holes and one borehole in and around the reserve pit and trenches. The hand auger holes indicated chloride impact to the west trench and reserve pit area. The borehole was installed outside the southwest end of the reserve pit. The borehole data showed increasing chloride concentrations with depth and was converted to a temporary monitor well (TMW-1). The reported depth to water was 45' below ground surface (bgs). Samples taken from the monitor well indicated chloride impact to the groundwater. The temporary monitor well location is shown on Figure 2.

EPI submitted a "Written notification of groundwater impact and preliminary groundwater delineation plan", dated January 21, 2005. Three (3) permanent monitor wells were proposed for the site to establish hydraulic gradient and delineate groundwater impact. Soil sampling performed by

EPI indicated that the only constituent of concern was chloride, as TPH and BTEX concentrations were not detected at or above the method detection limits.

### **Regulatory and Groundwater**

A risk-based evaluation was performed for the Site in accordance with the NMOCD Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based on the regional groundwater data, the proposed RRAL for TPH is 100 mg/kg.

### **Borehole Installation and Sampling**

On March 22-23, 2005, a total of eight (8) soil borings were placed in the bottom of the reserve pit and west trench to delineate residual chloride impact to subsurface soils. Soil borings indicated that the pit contents had been removed down to native soils. Soil samples were collected with a split spoon sampler in five foot increments. The boreholes were installed to depths of 37' below the bottom of the reserve pit excavation. Soil samples were analyzed for chloride by method EPA 300.0. The data was submitted to the NMOCD in a work plan dated May 2, 2005. Copies of laboratory analyses and chain-of-custody documentation are included in Appendix A. The location of the soil borings are shown on Figure 3. The results of the sampling are summarized in Table 1.

Based on the soils assessment, subsurface chloride impact appeared to have migrated to groundwater in the vicinity of boreholes BH-5, BH-6 and BH-8, and appeared to be confined to the immediate vicinity of the reserve pit.

### **Pit Remediation**

On March 1-8, 2005, Highlander personnel supervised the removal of the reserve pit contents down to native soil. The reserve pit contents were excavated out of the reserve pit and the east and west trenches by Sweatt Construction Company, Hobbs, New Mexico. A total of 4710 yds<sup>3</sup> of material was removed and hauled to Controlled Recovery, Inc. for disposal. After removal, the depth of the reserve pit was 5' to 8' below ground surface.

Upon receipt of NMOCD approval, on July 18, 2005, Highlander supervised the removal of topsoil in a 5' radius around the western half of the reserve pit. This material was placed into the excavation to serve as bedding material for a 40 mil plastic cap. The plastic liner material was installed on August 23, 2005. The plastic was extended to 5' outside the current excavation in order to adequately encapsulate residual chloride impact. The cap area measured approximately 100' x 170'. The remainder of the excavation was backfilled with clean topsoil. The placement of the cap is shown on Figure 4.



## **Monitor Well Installation**

On March 24, 2005, three monitor wells (MW-1, MW-2 and MW-3) were installed around the reserve pit. The wells were drilled to depths of 61-62' bgs and completed with 2" PVC screen and casing. According to published data, the groundwater gradient in the vicinity of the site is reportedly south-southwest. One monitor well was placed north of the reserve pit, one was placed southwest of the well pad and one was placed southeast of the well pad. The monitor well locations are shown on Figure 2. The temporary monitor well was plugged by EPI on May 13, 2005.

Following installation, the wells were developed by hand bailing using dedicated hand bailers to remove fine grained sediment, disturbed during drilling, and to ensure collection of representative groundwater samples. Purged water from the wells was taken to a Gruy tank battery north of the site for disposal into the water tank.

## **Recovery Well Installation/Operation**

An Application for Water Exploration/Development was submitted on April 12, 2005 to the New Mexico Commissioner of Public Lands, for a well at this site. On August 10, 2005, Highlander filed an Application for Permit to Use Underground Waters with the New Mexico Office of the State Engineer's office for this well, to be used to supply drilling water. This permitted well was to also be the recovery well for the site. The water removed from the well was to be stored in an onsite tank for drilling water usage. On September 1, 2005, Highlander supervised the installation of a 6" recovery well (RW-1). The recovery well was installed on the south side of the closed reserve pit. The well was drilled to a total depth of 60' bgs, and completed with 4" PVC screen and casing. On October 11, 2005, a solar submersible pump system was installed in the recovery well and the system started up.

On November 18, 2005, the system was serviced and the meter was replaced, due to failure. At that time, the total meter reading was 21,100 gallons of water recovered. In December, 2005, the total volume recovered was 17,025 gallons for a total recorded recovery well volume of 38,125 gallons of water for 2005.

## **Monitor, Recovery Well Sampling**

On March 30, 2005, Highlander purged three casing volumes from the three monitor wells and the temporary monitor well using a submersible pump. Groundwater samples were collected and analyzed for BTEX by method EPA 8021B and major anion and cations by methods EPA 160.1, 300.0, 310.2M, and 6010B. All samples were delivered to the laboratory under chain of custody control. Prior to sampling, the wells were gauged and inspected for the presence of phase-separated hydrocarbons (PSH). No PSH was encountered in the wells. The laboratory report and chain of custody are included in Appendix B. The results are summarized in Table 2.

Based upon the results and at the direction of the NMOCD, a quarterly sampling program was instituted for this site. Quarterly samples were taken on June 21, September 14 and December



15, 2005. The results are summarized in Table 2. Using the water level data, potentiometric surface maps were prepared, which indicate a south-southwest hydraulic gradient. The potentiometric surface maps are included as Figures 5-8.

### **Groundwater Sample Results**

Referring to Table 2, no BTEX concentrations were detected at or above the reporting limits for any of the samples. The New Mexico Water Quality Control Commission (WQCC) limit of 250 mg/L chloride was exceeded only in the temporary monitor well, TMW-1 and subsequent recovery well (RW-1), with chloride concentrations ranging from 18,800 to 24,500 mg/L.

### **Conclusions**

1. Soil sampling performed by EPI indicated that the only constituent of concern was chloride, as TPH and BTEX concentrations were not detected at or above the method detection limits.
2. Highlander personnel supervised the removal of the reserve pit contents down to native soil. The reserve pit contents were excavated out of the reserve pit and the east and west trenches by Sweatt Construction Company, Hobbs, New Mexico. A total of 4710 yds<sup>3</sup> of material was removed and hauled to Controlled Recovery, Inc. for disposal. After removal, the depth of the reserve pit was 5' to 8' below ground surface.
3. Upon receipt of NMOCD approval, on July 18, 2005, Highlander supervised the removal of topsoil in a 5' radius around the western half of the reserve pit. This material was placed into the excavation to serve as bedding material for a 40 mil plastic cap. The plastic liner material was installed on August 23, 2005. The plastic was extended to 5' outside the current excavation in order to adequately encapsulate residual chloride impact. The remainder of the excavation was backfilled with clean topsoil.
4. Based on the soils assessment, subsurface chloride impact appears to have migrated to groundwater in the vicinity of boreholes BH-5, BH-6 and BH-8, and appear to be confined to the immediate vicinity of the western end of the reserve pit area.
5. No BTEX concentrations were detected at or above the reporting limits for any of the groundwater samples. The New Mexico Water Quality Control Commission (WQCC) limit of 250 mg/L chloride was exceeded only in the recovery well, TMW-1, with a chloride concentration of 24,500 mg/L.
6. An Application for Water Exploration/Development was submitted on April 12, 2005 to the New Mexico Commissioner of Public Lands, for a well at this site. On August 10, 2005, Highlander filed an Application for Permit to Use Underground Waters with the New Mexico Office of the State Engineer's office for this well, to be used to supply drilling water. This permitted well was to also be the recovery well for the site. The water removed from the well supervised the installation of a 6" recovery well (RW-1). The recovery well was installed on



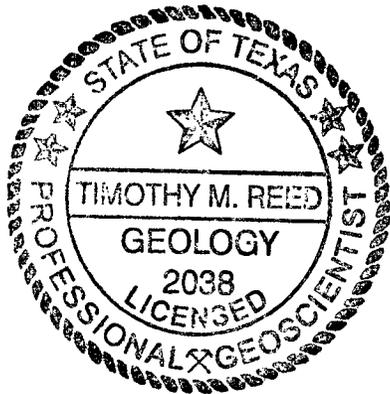
the south side of the closed reserve pit. The well was drilled to a total depth of 60' bgs, and completed with 4" PVC screen and casing. On October 11, 2005, a solar submersible pump system was installed in the recovery well.

7. A total recorded volume of 38,125 gallons of water was produced out of the recovery well and placed into an adjoining tank for use as supply water for drilling operations.
8. The temporary monitor well was plugged by EPI on May 13, 2005.

### Recommendations

1. The recovery well will continue to be operated within the parameters of the issued permit for remediation and drilling water purposes.
2. The three monitor wells, as well as the recovery well will be sampled on a quarterly basis for chloride, with the results submitted annually. As neither the soil sampling nor groundwater sampling has indicated any BTEX Constituents of Concern (COC), BTEX sampling will be discontinued unless advised otherwise by the NMOCD.

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



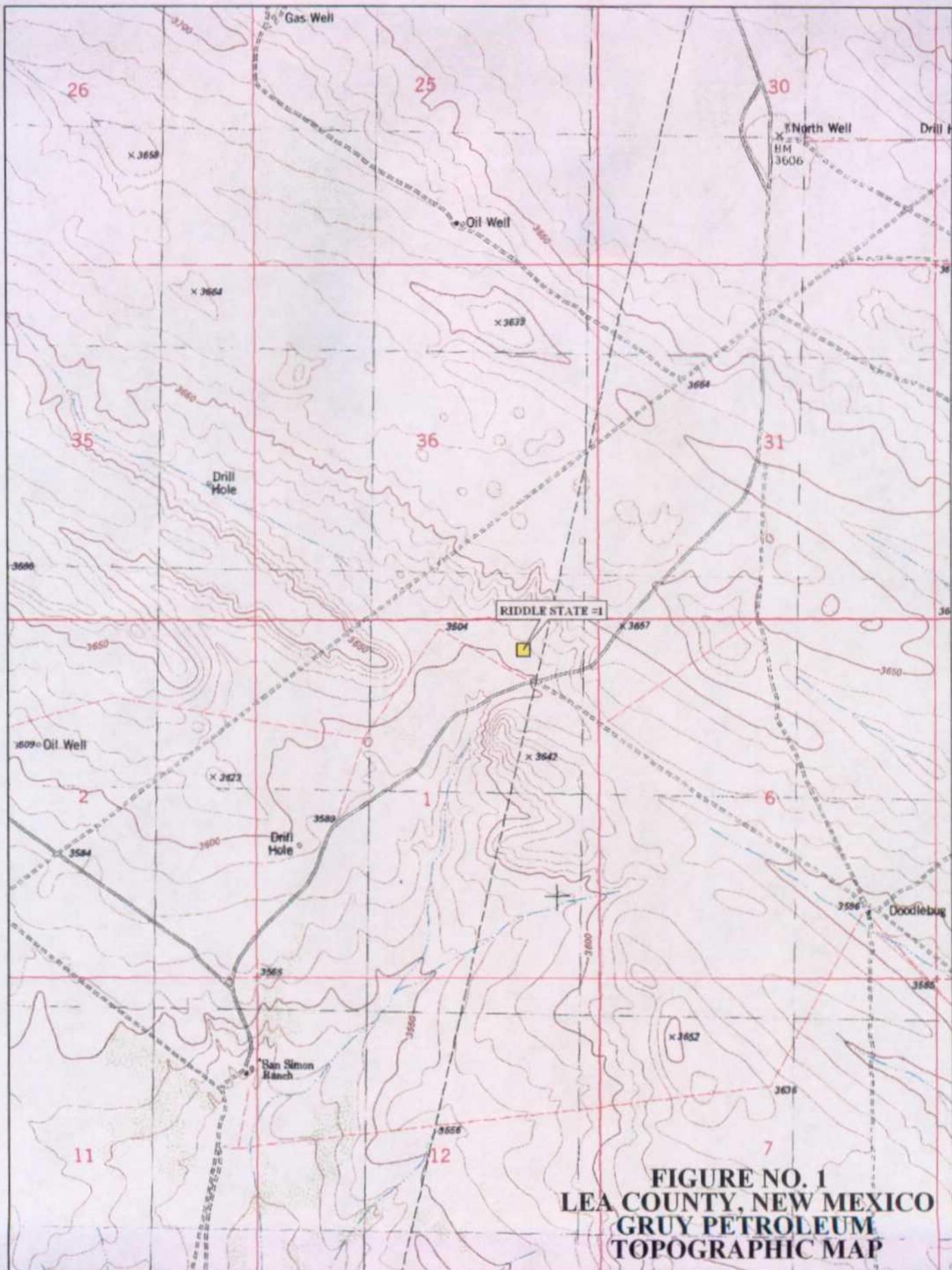
Respectfully submitted,  
Highlander Environmental Corp.

A handwritten signature in cursive script that reads "Tim Reed".

Timothy M. Reed, P.G.  
Vice President

cc: Larry Johnson – NMOCD, Hobbs, NM  
Evan Wahob - Gruy  
Bob Jennings – Gruy



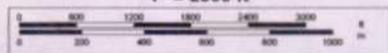


**FIGURE NO. 1  
LEA COUNTY, NEW MEXICO  
GRUY PETROLEUM  
TOPOGRAPHIC MAP**



© 2002 DeLorme. 3-D TopoQuads®. Data copyright of content owner.  
www.delorme.com

Scale 1 : 24,000  
1" = 2000 ft



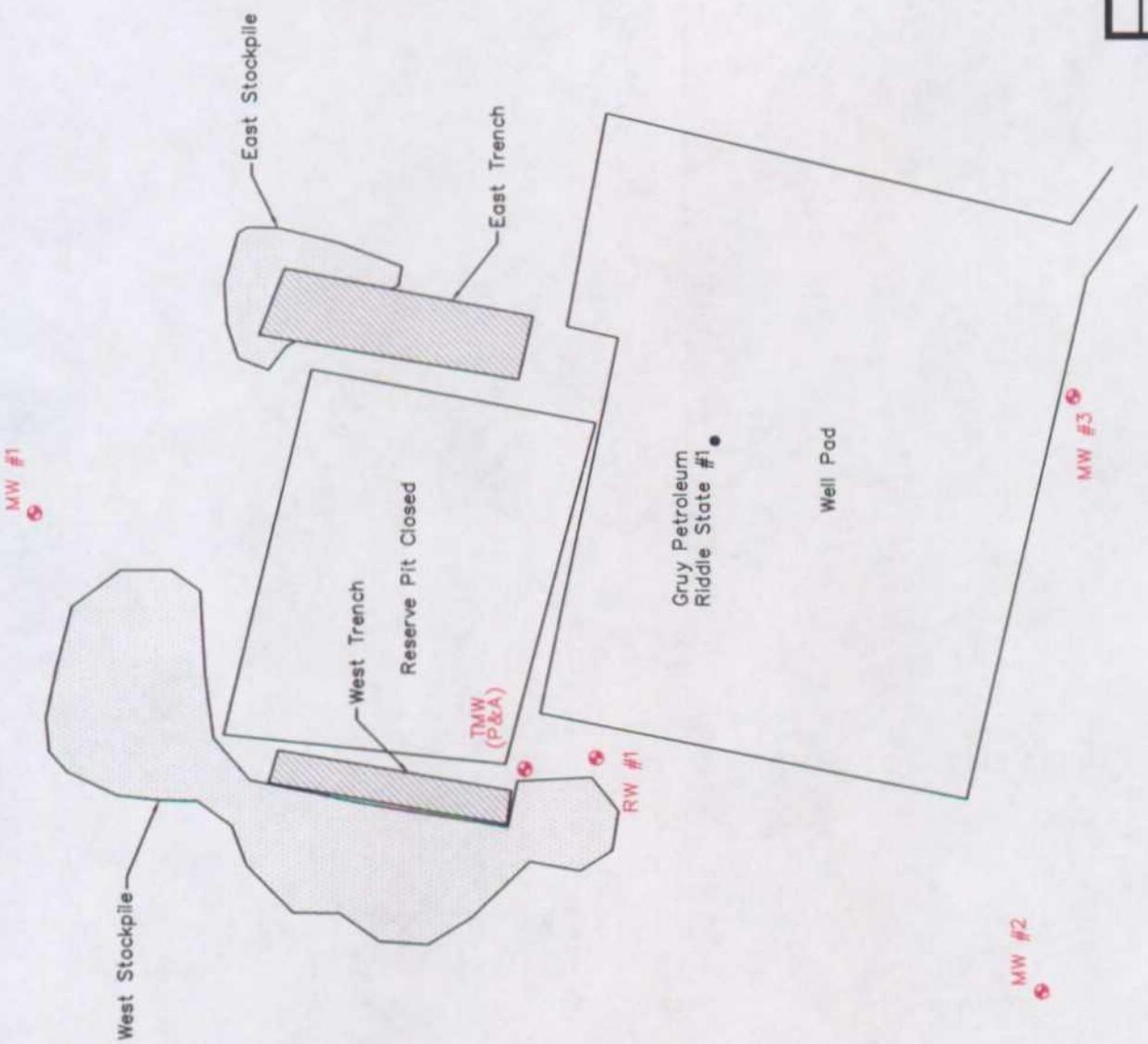


FIGURE NO. 2

LEA COUNTY, NEW MEXICO

GRUY PETROLEUM  
RIDDLE STATE #1  
SITE MAP

HIGHLANDER ENVIRONMENTAL CORP.  
MIDLAND, TEXAS

DATE	2/4/05
DRAWN BY	JJ
FILE	C:\WORK\050211
SCALE	RIDDLE STATE SITE MAP

NOT TO SCALE

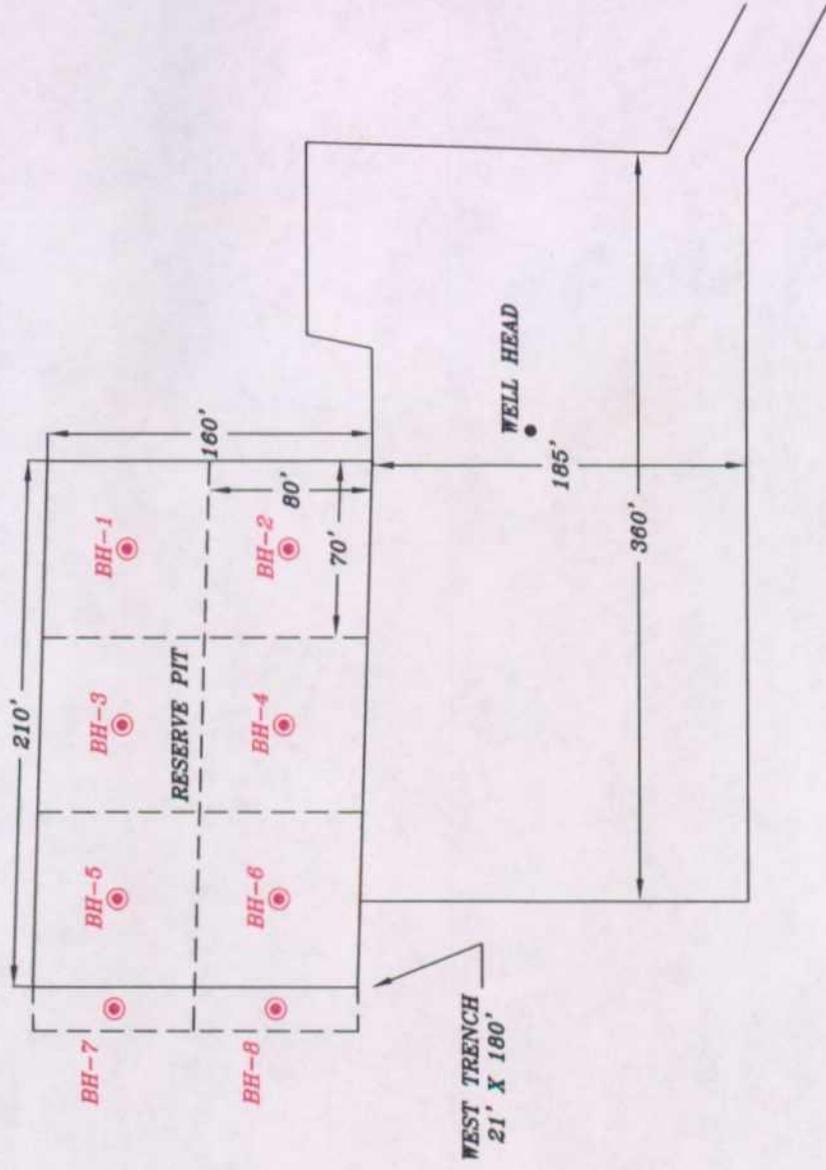
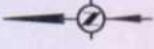


FIGURE NO. 3

LEA COUNTY, NEW MEXICO

GRUY PETROLEUM  
RIDDLE STATE #1  
BOREHOLE LOCATION MAP

HIGHLANDER ENVIRONMENTAL CORP.  
MIDLAND, TEXAS

DATE:	2/4/05
DRAWN BY:	JJ
FILE:	05/04/05/01/01
SCALE:	AS SHOWN

● BOREHOLE LOCATIONS

NOT TO SCALE

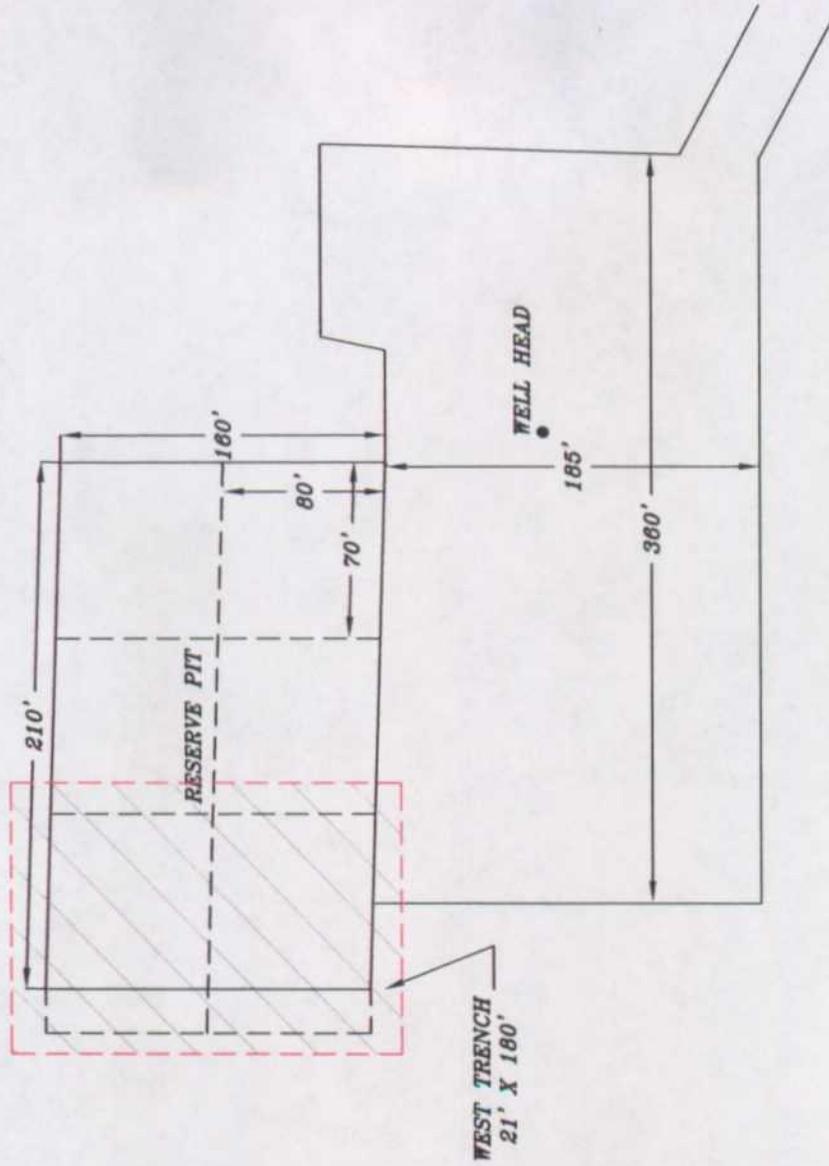


FIGURE NO. 4

LEA COUNTY, NEW MEXICO

GRUY PETROLEUM  
RIDDLE STATE #1  
SOIL CAP DIAGRAM

HIGHLANDER ENVIRONMENTAL CORP.  
MIDLAND, TEXAS

DATE:  
2/4/05

DRAWN BY:  
JU

FILE:  
C:\projects\2005\1231  
NODE STATE #1

NOT TO SCALE

SOIL CAP AREA 170' X 100'



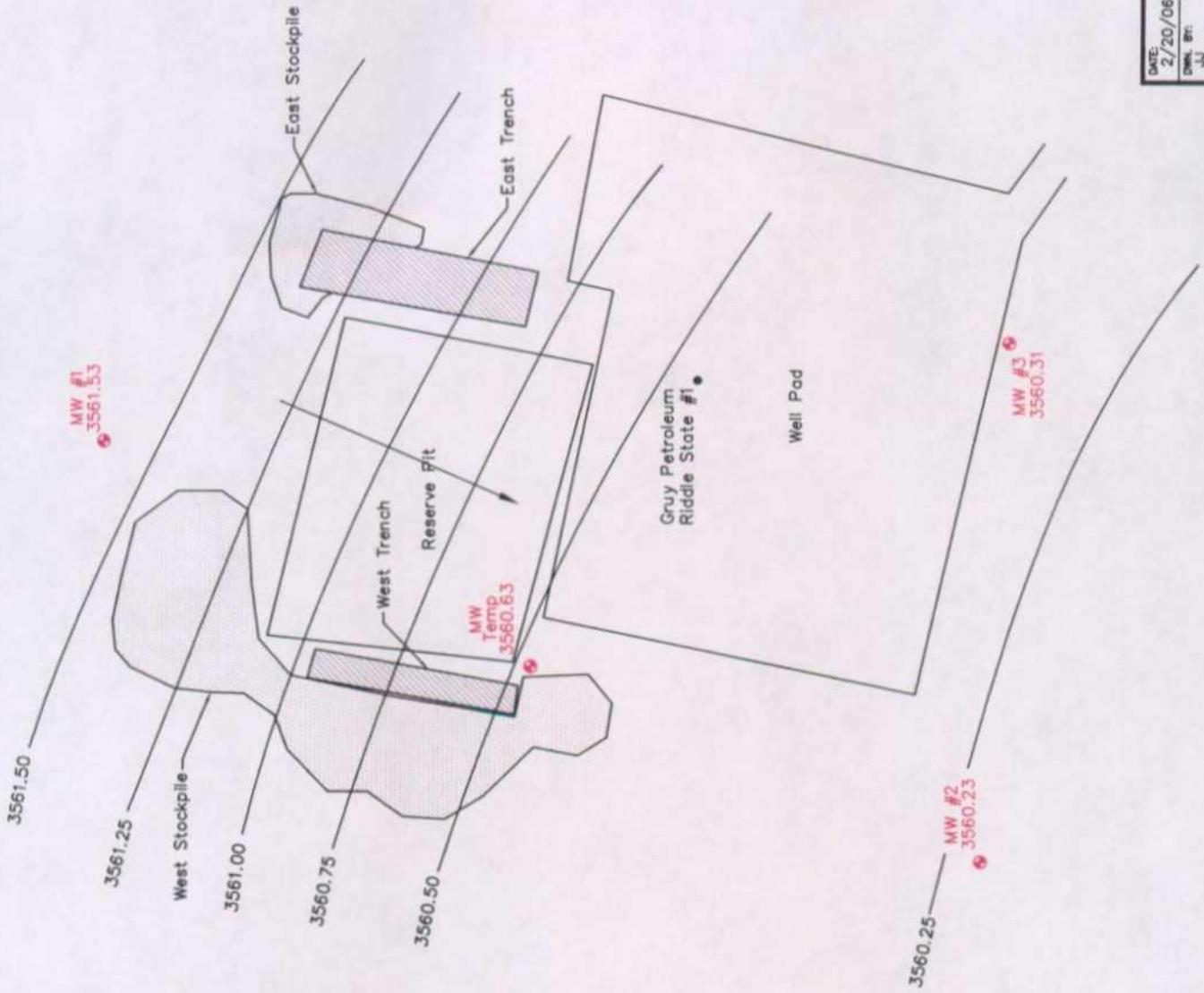
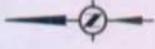


FIGURE NO. 5

LEA COUNTY, NEW MEXICO  
GRUY PETROLEUM  
RIDDLE STATE #1  
GROUNDWATER TABLE MAP  
3/16/05  
HIGHLANDER ENVIRONMENTAL CORP.  
MIDLAND, TEXAS

DATE:	2/20/06
DRAWN BY:	JJ
FILE:	0:\VAL\06\1281
WELL STATE:	WT

NOT TO SCALE

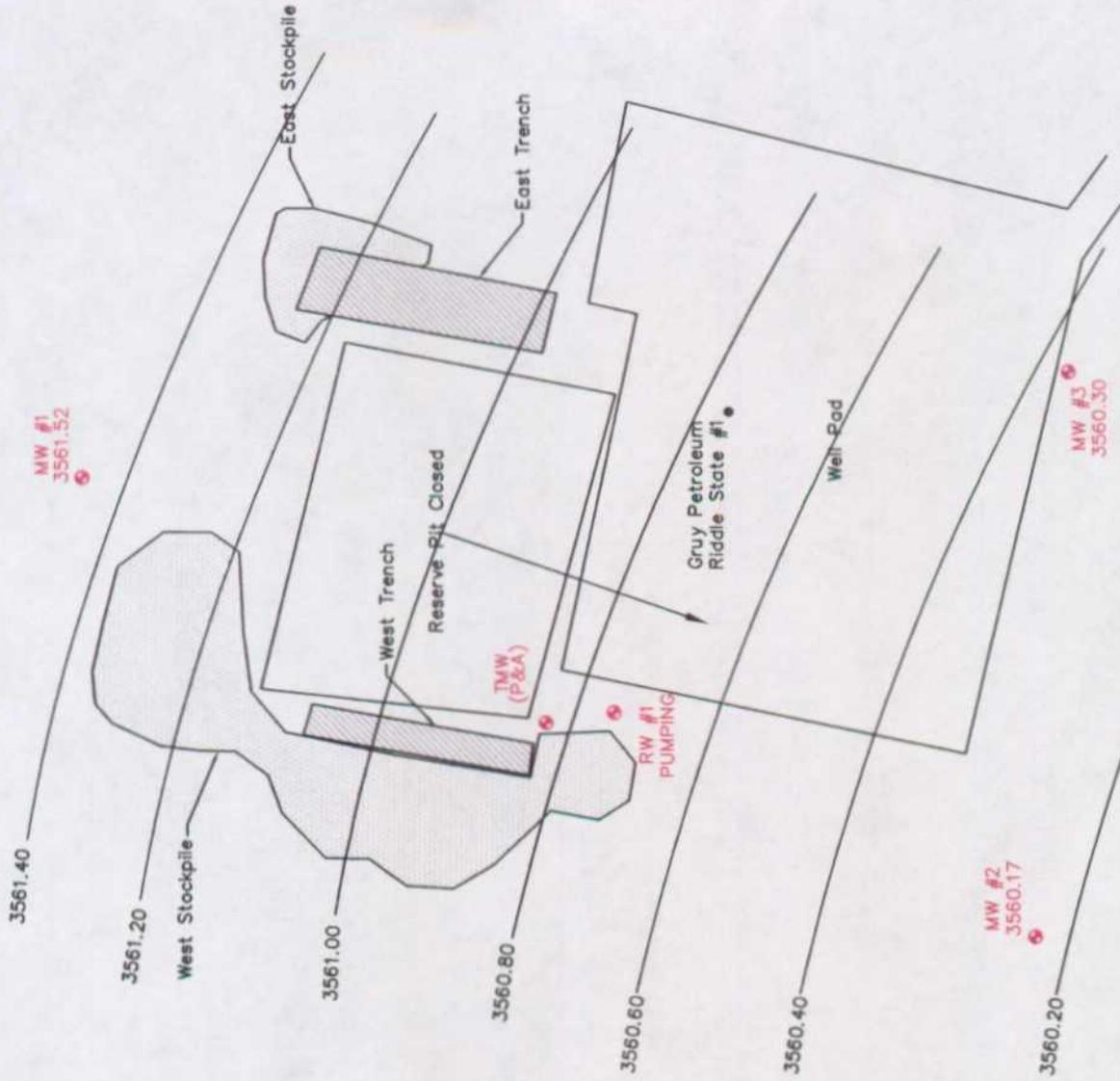
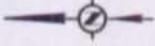


FIGURE NO. 6

LEA COUNTY, NEW MEXICO  
GRUY PETROLEUM  
RIDDLE STATE #1  
GROUNDWATER TABLE MAP  
6/20/06  
HIGHLANDER ENVIRONMENTAL CORP.  
MIDLAND, TEXAS

DATE:	2/20/06
DRAWN BY:	JJ
FILE:	C:\N\06\0321
SCALE:	AS SHOWN

NOT TO SCALE

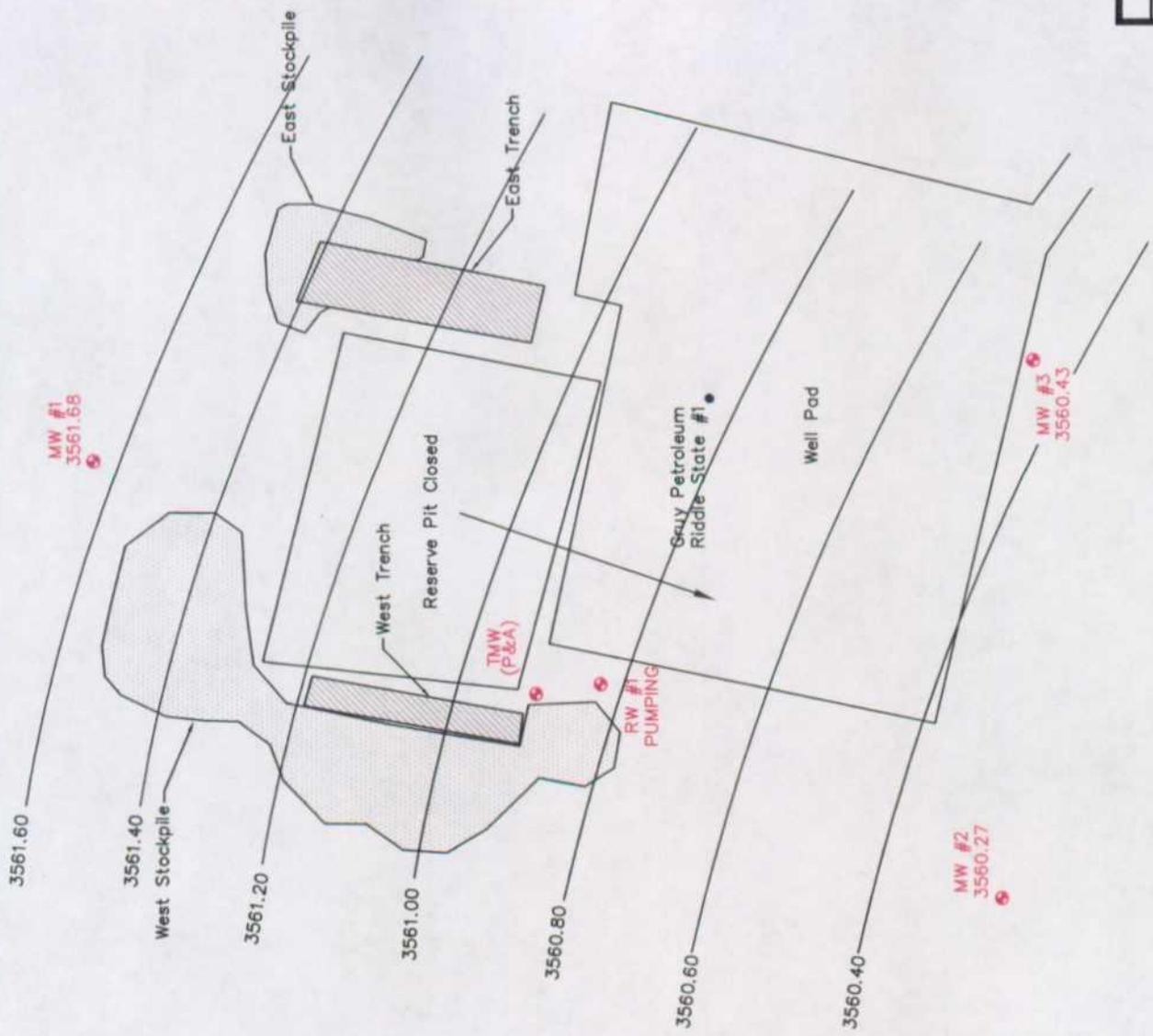


FIGURE NO. 7

LEA COUNTY, NEW MEXICO  
 GRUY PETROLEUM  
 RIDDLE STATE #1  
 GROUNDWATER TABLE MAP  
 9/14/05  
 HIGHLANDER ENVIRONMENTAL CORP.  
 MIDLAND, TEXAS

DATE:	2/20/06
DRAWN BY:	JJ
FILE:	G:\V\GUY\0521
SCALE:	AS SHOWN

NOT TO SCALE

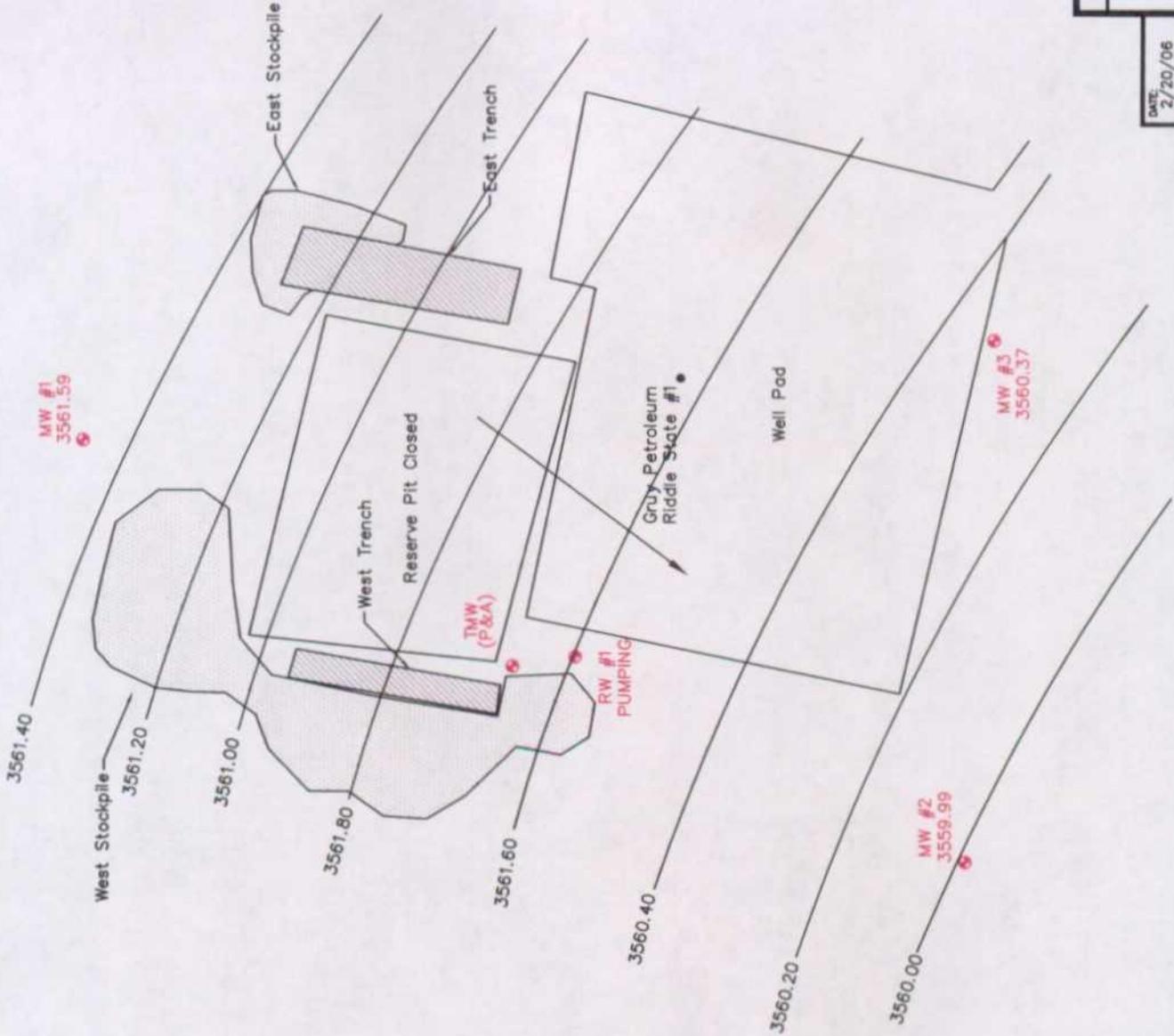


FIGURE NO. 6

LEA COUNTY, NEW MEXICO

GRUY PETROLEUM  
RIDDLE STATE #1

GROUNDWATER TABLE MAP  
12/15/05

HIGHLANDER ENVIRONMENTAL CORP.  
MIDLAND, TEXAS

DATE:	2/20/06
DRAWN BY:	JJ
FILE:	07/01/05/0001/001
SCALE:	AS SHOWN

NOT TO SCALE

Table 1, Borehole Samples  
 Gruy Petroleum Management Co.  
 Riddle State #1  
 Lea County, NM

Sample ID	Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			C6-C12	C12-C35	Total					
BH-1	03/22/05	1'-3'	-	-	-	-	-	-	-	44.3
BH-1	03/22/05	5'-7'	-	-	-	-	-	-	-	26
BH-1	03/22/05	10'-12'	-	-	-	-	-	-	-	27.2
BH-2	03/22/05	1'-3'	-	-	-	-	-	-	-	31.5
BH-2	03/22/05	5'-7'	-	-	-	-	-	-	-	27.2
BH-2	03/22/05	10'-12'	-	-	-	-	-	-	-	24.5
BH-3	03/22/05	1'-3'	-	-	-	-	-	-	-	21.6
BH-3	03/22/05	5'-7'	-	-	-	-	-	-	-	28.7
BH-3	03/22/05	10'-12'	-	-	-	-	-	-	-	30.2
BH-4	03/22/05	1'-3'	-	-	-	-	-	-	-	23
BH-4	03/22/05	5'-7'	-	-	-	-	-	-	-	34.5
BH-4	03/22/05	10'-12'	-	-	-	-	-	-	-	58.5
BH-5	03/22/05	1'-3'	-	-	-	-	-	-	-	8480
BH-5	03/22/05	5'-7'	-	-	-	-	-	-	-	4070
BH-5	03/22/05	10'-12'	-	-	-	-	-	-	-	2770
BH-5	03/22/05	15'-17'	-	-	-	-	-	-	-	2480
BH-5	03/22/05	20'-22'	-	-	-	-	-	-	-	3230
BH-5	03/22/05	25'-27'	-	-	-	-	-	-	-	5640
BH-5	03/22/05	30'-32'	-	-	-	-	-	-	-	4030
BH-5	03/22/05	35'-37'	-	-	-	-	-	-	-	1540
BH-6	03/23/05	1'-3'	-	-	-	-	-	-	-	19800
BH-6	03/23/05	5'-7'	-	-	-	-	-	-	-	18400
BH-6	03/23/05	10'-12'	-	-	-	-	-	-	-	4540
BH-6	03/23/05	15'-17'	-	-	-	-	-	-	-	881
BH-6	03/23/05	20'-22'	-	-	-	-	-	-	-	586
BH-6	03/23/05	25'-27'	-	-	-	-	-	-	-	2390
BH-6	03/23/05	30'-32'	-	-	-	-	-	-	-	723
BH-6	03/23/05	35'-37'	-	-	-	-	-	-	-	1360

( - ) Not analyzed



Table 2, Monitor Wells  
 Gruy Petroleum Management Co.  
 Riddle State #1  
 Lea County, NIM

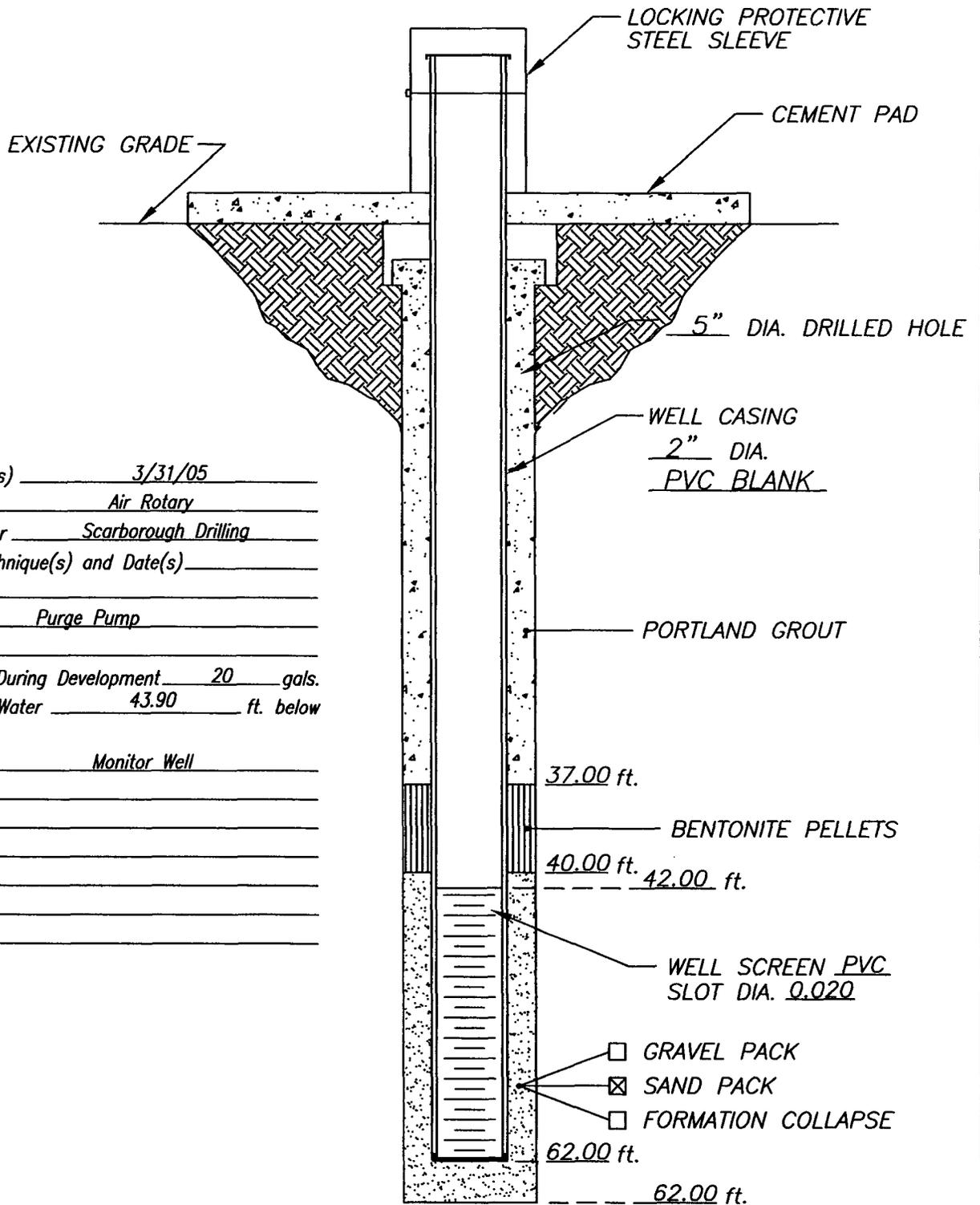
Sample ID	Date Sampled	Benzene (mg/l)	Toluene (mg/l)	Ethylbenzene (mg/l)	Xylene (mg/l)	Total Alkalinity (mg/l)	Chloride (mg/l)	TDS (mg/l)	Sulfate (mg/l)
MW-1	03/30/05	ND	ND	ND	ND	149	31.8	260	40.4
	06/20/05	ND	ND	ND	ND	-	17.0	257	28.1
	09/14/05	ND	ND	ND	ND	-	9.0	-	-
	12/15/05	ND	ND	ND	ND	-	10.6	-	-
MW-2	03/30/05	ND	ND	ND	ND	170	50.8	330	81.2
	06/20/05	ND	ND	ND	ND	-	39.7	350	54.6
	09/14/05	ND	ND	ND	ND	-	34.5	-	-
	12/15/05	ND	ND	ND	ND	-	19.6	-	-
MW-3	03/30/05	ND	ND	ND	ND	169	65.8	422	93.6
	06/20/05	ND	ND	ND	ND	-	57.0	419	85.7
	09/14/05	ND	ND	ND	ND	-	42.6	-	-
	12/15/05	ND	ND	ND	ND	-	54.2	-	-
TMW-1	03/30/05	ND	ND	ND	ND	266	14200	24500	3490
RW-1	09/14/05	ND	ND	ND	ND	-	21200	-	-
	12/15/05	ND	ND	ND	ND	-	18800	-	-

( - ) Not analyzed ND Not detected at or above the reporting limit

**APPENDIX A**

**Well Construction Logs**

# WELL CONSTRUCTION LOG



Installation Date(s) 3/31/05  
 Drilling Method Air Rotary  
 Drilling Contractor Scarborough Drilling  
 Development Technique(s) and Date(s) \_\_\_\_\_

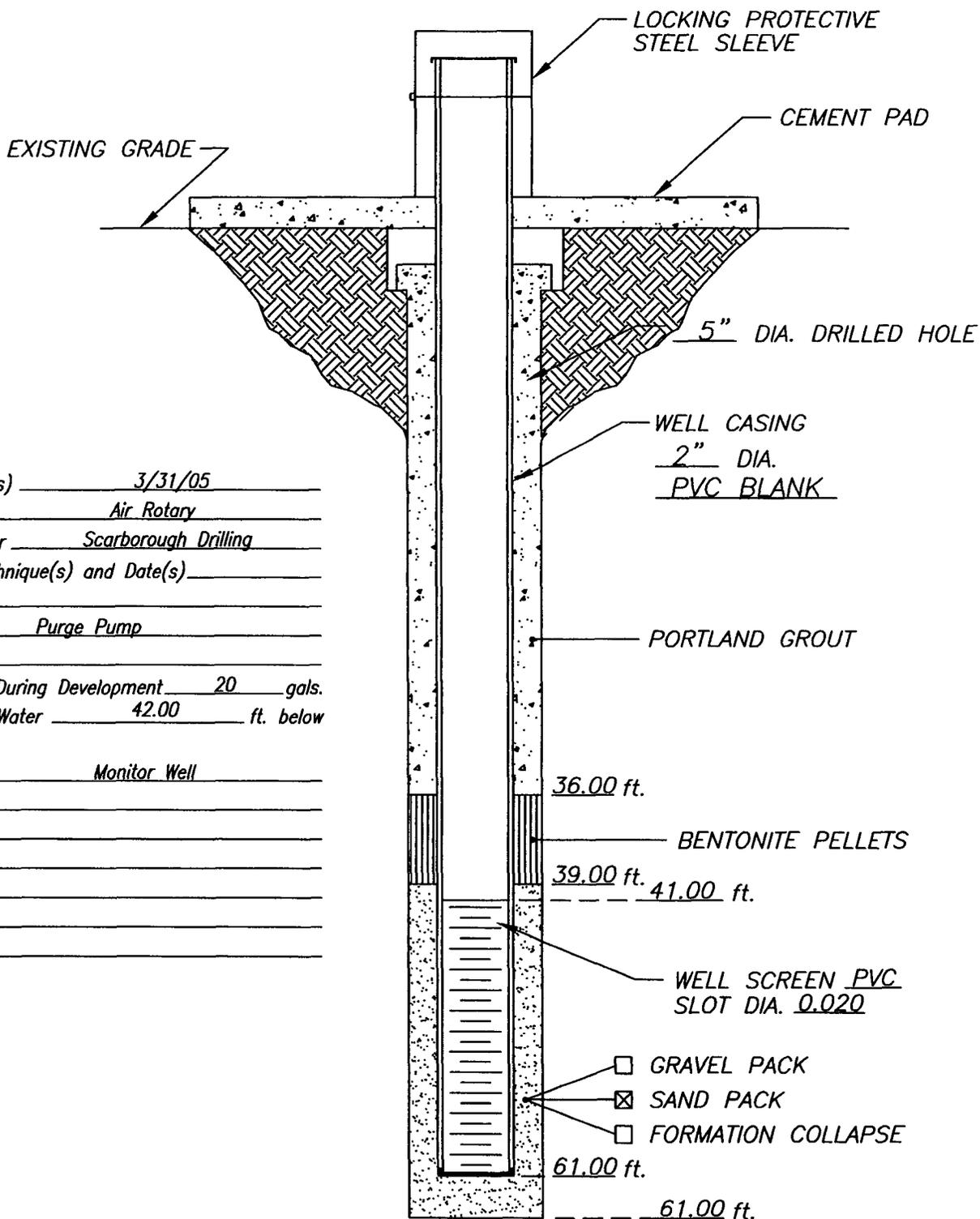
Purge Pump

Water Removed During Development 20 gals.  
 Static Depth to Water 43.90 ft. below  
 Ground Level  
 Well Purpose Monitor Well

Remarks \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: <u>3/31/05</u>	CLIENT: <i>Gruy Petroleum Management Company</i>	WELL NO.
<b>Highlander Environmental</b>	PROJECT: <i>Riddle State #1</i>	MW-1
	LOCATION: <i>Lea County, New Mexico</i>	

# WELL CONSTRUCTION LOG



Installation Date(s) 3/31/05  
 Drilling Method Air Rotary  
 Drilling Contractor Scarborough Drilling  
 Development Technique(s) and Date(s) \_\_\_\_\_

Purge Pump

Water Removed During Development 20 gals.  
 Static Depth to Water 42.00 ft. below  
 Ground Level  
 Well Purpose Monitor Well

Remarks \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 3/31/05

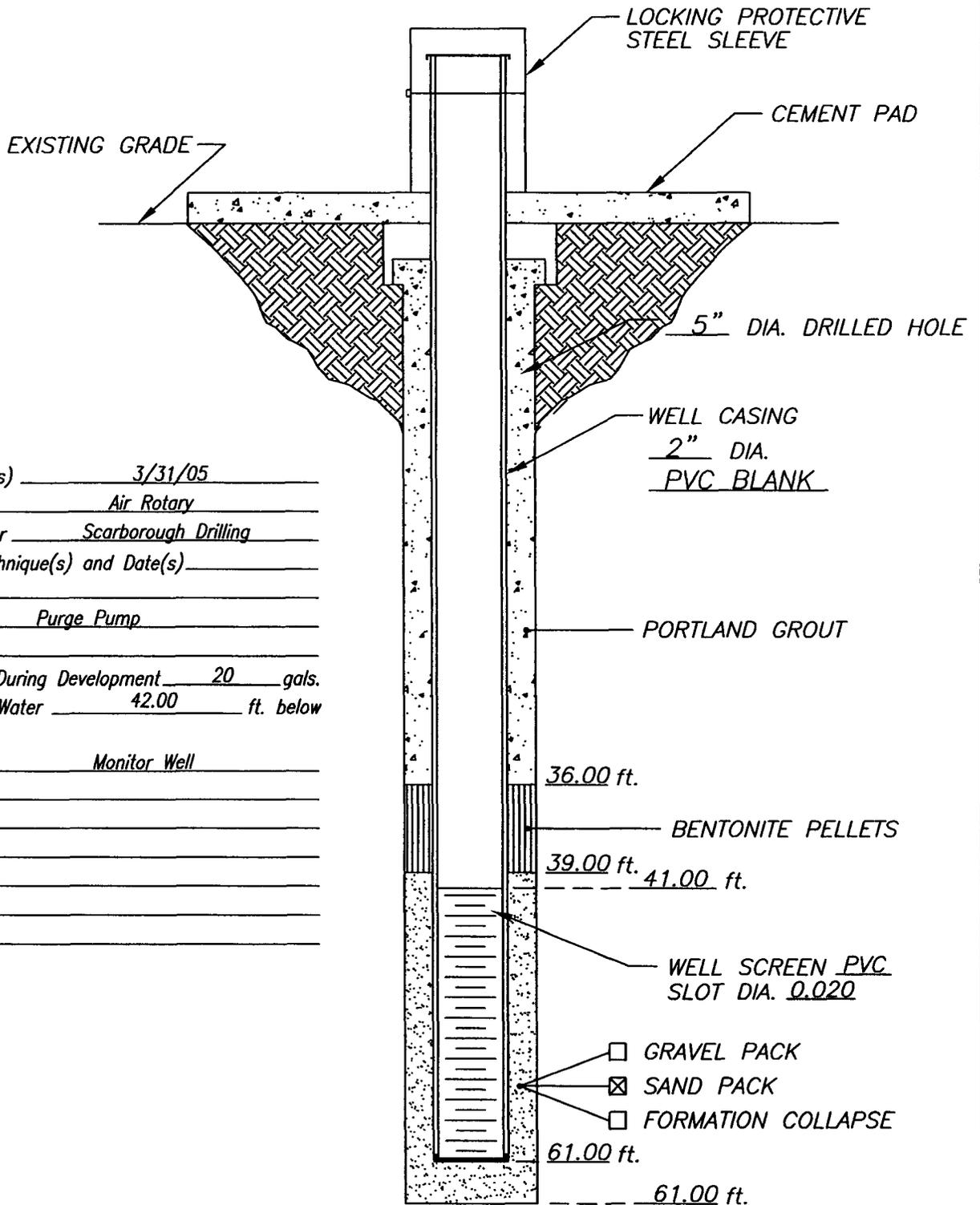
**Highlander  
Environmental**

CLIENT: *Gruy Petroleum Management Company*  
 PROJECT: *Riddle State #1*  
 LOCATION: *Lea County, New Mexico*

WELL NO.

**MW-2**

# WELL CONSTRUCTION LOG



Installation Date(s) 3/31/05  
 Drilling Method Air Rotary  
 Drilling Contractor Scarborough Drilling  
 Development Technique(s) and Date(s) \_\_\_\_\_

Purge Pump

Water Removed During Development 20 gals.  
 Static Depth to Water 42.00 ft. below  
 Ground Level  
 Well Purpose Monitor Well

Remarks \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

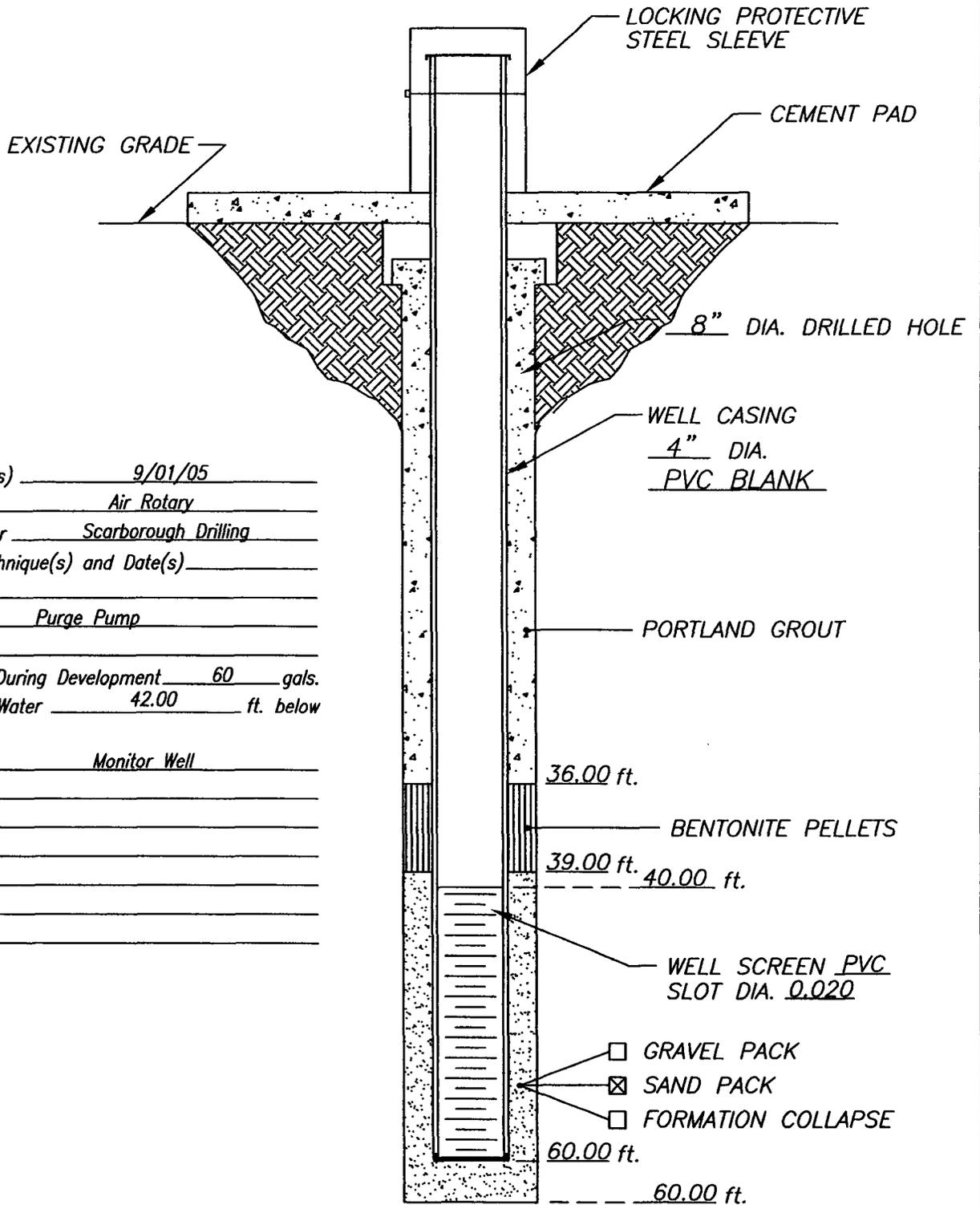
- GRAVEL PACK
- SAND PACK
- FORMATION COLLAPSE

DATE: 3/31/05  
**Highlander  
Environmental**

CLIENT: *Gruy Petroleum Management Company*  
 PROJECT: *Riddle State #1*  
 LOCATION: *Lea County, New Mexico*

WELL NO.  
**MW-3**

# WELL CONSTRUCTION LOG



Installation Date(s) 9/01/05  
 Drilling Method Air Rotary  
 Drilling Contractor Scarborough Drilling  
 Development Technique(s) and Date(s) \_\_\_\_\_

\_\_\_\_\_  
Purge Pump  
 \_\_\_\_\_

Water Removed During Development 60 gals.  
 Static Depth to Water 42.00 ft. below  
 Ground Level  
 Well Purpose Monitor Well

Remarks \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

DATE: 9/01/05  
**Highlander  
Environmental**

CLIENT: *Gruy Petroleum Management Company*  
 PROJECT: *Riddle State #1*  
 LOCATION: *Lea County, New Mexico*

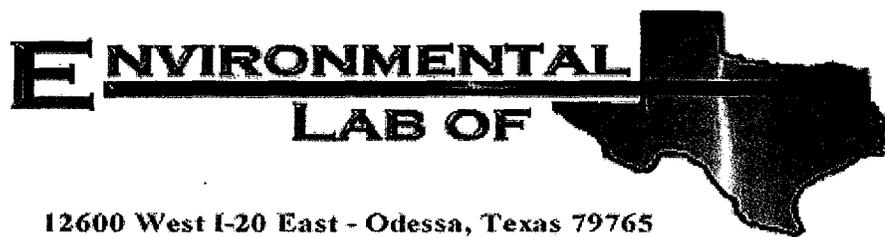
WELL NO.  
**RW-1**

**APPENDIX B**

**Analytical Reports**

**Analytical Report**

**6/23/2005**



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

**Prepared for:**

Tim Reed

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Gruy Petroleum- Riddle State #1 MW Sampling

Project Number: 2321

Location: None Given

Lab Order Number: 5F21001

Report Date: 06/23/05

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946  
Reported:  
06/23/05 11:37

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	5F21001-01	Water	06/20/05 11:30	06/20/05 16:20
MW-2	5F21001-02	Water	06/20/05 11:50	06/20/05 16:20
MW-3	5F21001-03	Water	06/20/05 12:05	06/20/05 16:20

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946  
Reported:  
06/23/05 11:37

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (SF21001-01) Water</b>									
Chloride	17.0	2.50	mg/L	5	EF52301	06/22/05	06/22/05	EPA 300.0	
Total Dissolved Solids	257	5.00	"	1	EF52212	06/22/05	06/23/05	EPA 160.1	
Sulfate	28.1	2.50	"	5	EF52301	06/22/05	06/22/05	EPA 300.0	
<b>MW-2 (SF21001-02) Water</b>									
Chloride	39.7	2.50	mg/L	5	EF52301	06/22/05	06/22/05	EPA 300.0	
Total Dissolved Solids	350	5.00	"	1	EF52212	06/22/05	06/23/05	EPA 160.1	
Sulfate	54.6	2.50	"	5	EF52301	06/22/05	06/22/05	EPA 300.0	
<b>MW-3 (SF21001-03) Water</b>									
Chloride	57.0	2.50	mg/L	5	EF52301	06/22/05	06/22/05	EPA 300.0	
Total Dissolved Solids	419	5.00	"	1	EF52212	06/22/05	06/23/05	EPA 160.1	
Sulfate	85.7	2.50	"	5	EF52301	06/22/05	06/22/05	EPA 300.0	

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 4

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
 Project Number: 2321  
 Project Manager: Tim Reed

Fax: (432) 682-3946

Reported:  
 06/23/05 11:37

**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 EF52212 - Filtration Preparation**

**Blank (EF52212-BLK1)**

Prepared: 06/22/05 Analyzed: 06/23/05

Total Dissolved Solids	ND	5.00	mg/L							
------------------------	----	------	------	--	--	--	--	--	--	--

**Duplicate (EF52212-DUP1)**

Source: SF16004-04

Prepared: 06/22/05 Analyzed: 06/23/05

Total Dissolved Solids	277	5.00	mg/L		276			0.362	20	
------------------------	-----	------	------	--	-----	--	--	-------	----	--

**Batch EF52301 - General Preparation (WetChem)**

**Blank (EF52301-BLK1)**

Prepared & Analyzed: 06/22/05

Sulfate	ND	0.500	mg/L							
Chloride	ND	0.500	"							

**LCS (EF52301-BS1)**

Prepared & Analyzed: 06/22/05

Sulfate	11.1		mg/L	10.0		111	80-120			
Chloride	11.8		"	10.0		118	80-120			

**Calibration Check (EF52301-CCV1)**

Prepared & Analyzed: 06/22/05

Sulfate	10.0		mg/L	10.0		100	80-120			
Chloride	10.7		"	10.0		107	80-120			

**Duplicate (EF52301-DUP1)**

Source: SF21001-01

Prepared & Analyzed: 06/22/05

Sulfate	25.7	2.50	mg/L		28.1			8.92	20	
Chloride	17.1	2.50	"		17.0			0.587	20	

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

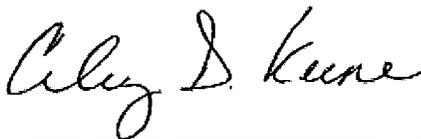
Fax: (432) 682-3946

Reported:  
06/23/05 11:37

### 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: \_\_\_\_\_



Date: \_\_\_\_\_

6/23/2005

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.

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

Environmental Lab of Texas

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Page 4 of 4

# 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

SITE MANAGER:

*Tim Reed*

CLIENT NAME:

*Grady Petroleum*

PROJECT NO.:

*2321*

PROJECT NAME:

*Riddle Stake #1 MW Sampling*

LAB I.D. NUMBER  
*2100*

DATE  
*6/29/05*

TIME  
*1130*

MATRIX  
*01*

COMP.  
*02*

GRAB  
*03*

SAMPLE IDENTIFICATION  
*MW-1*

NUMBER OF CONTAINERS  
*1*

FILTERED (Y/N)  
*X*

PRESERVATIVE METHOD  
*ICE*

HCL  
*X*

HNO3  
*X*

NONE  
*X*

PAGE: *1*

OFF: *1*

ANALYSIS REQUEST  
(Circle or Specify Method No.)

PCMS Vol. 8240/8260/824	
PCMS Semi. Vol. 8270/825	
PUB'S 8080/808	
PUB'S 808/808	
BOD, TSS, pH, TDS, Chloride	
Gamma Spec.	
Alpha Beta (Air)	
PLM (Asbestos)	<i>XXXX</i>
CL, SO <sub>4</sub> , TDS	<i>XXXX</i>

HTK 9080/808	
HTK 9080/808	
TPH 48.1 BOIS MOD. THIOS	
PAH 8870	
HCR Metals Ag Au Ba Cd Cr Pb Hg Se	
TCP Metals Ag Au Ba Cd Cr Pd Hg Se	
TCP Volatiles	
TCP Semi Volatiles	
ECI	
GCMS Vol. 8240/8260/824	
GCMS Semi. Vol. 8270/825	
PUB'S 8080/808	
PUB'S 808/808	
BOD, TSS, pH, TDS, Chloride	
Gamma Spec.	
Alpha Beta (Air)	
PLM (Asbestos)	
CL, SO <sub>4</sub> , TDS	

RELINQUISHED BY: (Signature) *Tim Reed* Date: *6/29/05*  
 TIME: *4:35 PM*

RECEIVED BY: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_  
 TIME: \_\_\_\_\_

RELINQUISHED BY: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_  
 TIME: \_\_\_\_\_

RECEIVED BY: (Signature) \_\_\_\_\_ Date: \_\_\_\_\_  
 TIME: \_\_\_\_\_

RECEIVING LABORATORY: *Environmental Labs, Inc.*  
 ADDRESS: \_\_\_\_\_  
 CITY: *Midland* STATE: *TX* ZIP: \_\_\_\_\_  
 CONTACT: *Jeannette* PHONE: *563-1360*

MATRIX: *01*

DATE: *6/29/05* TIME: *4:20*

REMARKS: *no label / no seal*

HIGHLANDER CONTACT PERSON: *Tim Reed*

Sample by: \_\_\_\_\_  
 HUSE Charge Authorized: \_\_\_\_\_  
 Yes No *0*

REMARKS: *no label / no seal*

11 - 2004

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: 6/20/05  
 Order #: 5F2100  
 Initials: CK

**Sample Receipt Checklist**

Temperature of container/cooler?	Yes	No	<u>18.0 C</u>
Shipping container/cooler in good condition?	<u>YES</u>	No	
Custody Seals intact on shipping container/cooler?	Yes	No	<u>NOT PRESENT</u>
Custody Seals intact on sample bottles?	Yes	No	<u>NOT PRESENT</u>
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)	Yes	No	<u>None</u>
Container labels legible and intact?	Yes	No	<u>NA</u>
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:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Analytical Report**

**6/28/2005**

**E** NVIRONMENTAL  
LAB OF



12600 West I-20 East - Odessa, Texas 79765

## Analytical Report

Prepared for:

Tim Reed

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Gruy Petroleum- Riddle State #1 MW Sampling

Project Number: 2321

Location: Lea County, NM

Lab Order Number: 5F22005

Report Date: 06/28/05

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946

Reported:  
06/28/05 14:01

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	SF22005-01	Water	06/21/05 14:45	06/22/05 09:00
MW-2	SF22005-02	Water	06/21/05 15:00	06/22/05 09:00
MW-3	SF22005-03	Water	06/21/05 15:10	06/22/05 09:00

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946

Reported:  
06/28/05 14:01

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (SF22005-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	EF52711	06/27/05	06/27/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		120 %	80-120	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		102 %	80-120	"	"	"	"	"	
<b>MW-2 (SF22005-02) Water</b>									
Benzene	ND	0.00100	mg/L	1	EF52711	06/27/05	06/27/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		106 %	80-120	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.0 %	80-120	"	"	"	"	"	
<b>MW-3 (SF22005-03) Water</b>									
Benzene	ND	0.00100	mg/L	1	EF52711	06/27/05	06/27/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		114 %	80-120	"	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		99.5 %	80-120	"	"	"	"	"	

Environmental Lab of Texas

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Page 2 of 5

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946

Reported:  
06/28/05 14:01

**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 EF52711 - EPA 5030C (GC)**

**Blank (EF52711-BLK1)**

Prepared & Analyzed: 06/27/05

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	21.7		ug/l	20.0		108	80-120			
Surrogate: 4-Bromofluorobenzene	19.2		"	20.0		96.0	80-120			

**LCS (EF52711-BS1)**

Prepared & Analyzed: 06/27/05

Benzene	104		ug/l	100		104	80-120			
Toluene	105		"	100		105	80-120			
Ethylbenzene	105		"	100		105	80-120			
Xylene (p/m)	206		"	200		103	80-120			
Xylene (o)	97.9		"	100		97.9	80-120			
Surrogate: a,a,a-Trifluorotoluene	22.2		"	20.0		111	80-120			
Surrogate: 4-Bromofluorobenzene	23.8		"	20.0		119	80-120			

**LCS Dup (EF52711-BSD1)**

Prepared & Analyzed: 06/27/05

Benzene	104		ug/l	100		104	80-120	0.00	20	
Toluene	106		"	100		106	80-120	0.948	20	
Ethylbenzene	98.9		"	100		98.9	80-120	5.98	20	
Xylene (p/m)	207		"	200		104	80-120	0.966	20	
Xylene (o)	93.7		"	100		93.7	80-120	4.38	20	
Surrogate: a,a,a-Trifluorotoluene	23.2		"	20.0		116	80-120			
Surrogate: 4-Bromofluorobenzene	21.4		"	20.0		107	80-120			

**Calibration Check (EF52711-CCV1)**

Prepared: 06/27/05 Analyzed: 06/28/05

Benzene	96.9		ug/l	100		96.9	80-120			
Toluene	98.6		"	100		98.6	80-120			
Ethylbenzene	92.8		"	100		92.8	80-120			
Xylene (p/m)	193		"	200		96.5	80-120			
Xylene (o)	87.5		"	100		87.5	80-120			
Surrogate: a,a,a-Trifluorotoluene	21.4		"	20.0		107	80-120			
Surrogate: 4-Bromofluorobenzene	20.0		"	20.0		100	80-120			

Environmental Lab of Texas

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Page 3 of 5

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946

Reported:  
06/28/05 14:01

**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 EF52711 - EPA 5030C (GC)**

**Matrix Spike (EF52711-MS1)**

Source: 5F27009-02

Prepared: 06/27/05 Analyzed: 06/28/05

Benzene	92.7		ug/l	100	ND	92.7	80-120			
Toluene	91.7		"	100	ND	91.7	80-120			
Ethylbenzene	87.5		"	100	ND	87.5	80-120			
Xylene (p/m)	177		"	200	ND	88.5	80-120			
Xylene (o)	85.0		"	100	ND	85.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	20.0		"	20.0		100	80-120			
Surrogate: 4-Bromofluorobenzene	22.0		"	20.0		110	80-120			

Environmental Lab of Texas

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Page 4 of 5

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

Project: Gruy Petroleum- Riddle State #1 MW Sampling  
Project Number: 2321  
Project Manager: Tim Reed

Fax: (432) 682-3946

Reported:  
06/28/05 14:01

### 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: 6/28/2005

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.

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



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

Client: Highlander  
 Date/Time: 6/22/05 9:15  
 Order #: SF22005  
 Initials: CA

**Sample Receipt Checklist**

Temperature of container/cooler?	Yes	No	4.0 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Custody Seals intact on shipping container/cooler?	<input checked="" type="checkbox"/>	No	Not present
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/>	No	
Container labels legible and intact?	<input checked="" type="checkbox"/>	No	
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Samples in proper container/bottle?	<input checked="" type="checkbox"/>	No	
Samples properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	<input checked="" type="checkbox"/>	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable

Other observations:

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**Variance Documentation:**

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

Regarding:

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Corrective Action Taken:

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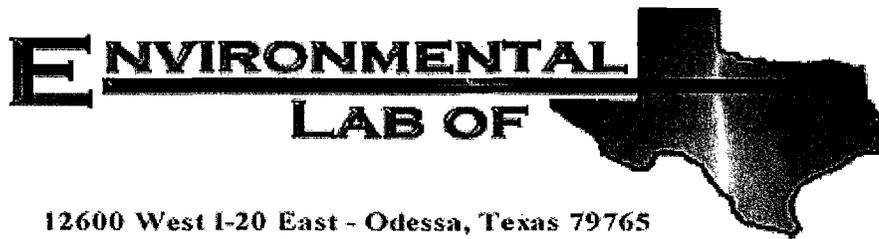
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**Analytical Report**

**9/28/2005**



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: Gruy/ Riddle #1

Project Number: 2321

Location: Lea County, NM

Lab Order Number: 5119004

Report Date: 09/28/05

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
09/28/05 15:16

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	5I19004-01	Water	09/14/05 10:45	09/16/05 15:45
MW-2	5I19004-02	Water	09/14/05 11:45	09/16/05 15:45
MW-3	5I19004-03	Water	09/14/05 12:20	09/16/05 15:45
RW-1	5I19004-04	Water	09/14/05 14:00	09/16/05 15:45

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
09/28/05 15:16

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (5I19004-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	E152622	09/26/05	09/26/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		101 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.2 %	80-120		"	"	"	"	
<b>MW-2 (5I19004-02) Water</b>									
Benzene	ND	0.00100	mg/L	1	E152622	09/26/05	09/26/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		86.2 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		95.0 %	80-120		"	"	"	"	
<b>MW-3 (5I19004-03) Water</b>									
Benzene	ND	0.00100	mg/L	1	E152622	09/26/05	09/26/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		95.2 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		89.5 %	80-120		"	"	"	"	
<b>RW-1 (5I19004-04) Water</b>									
Benzene	ND	0.00100	mg/L	1	E152622	09/26/05	09/26/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		92.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		98.2 %	80-120		"	"	"	"	

Environmental Lab of Texas

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:  
09/28/05 15:16

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (5I19004-01) Water</b>									
Chloride	9.00	2.50	mg/L	5	EI52001	09/19/05	09/20/05	EPA 300.0	
<b>MW-2 (5I19004-02) Water</b>									
Chloride	34.5	5.00	mg/L	10	EI52001	09/19/05	09/20/05	EPA 300.0	
<b>MW-3 (5I19004-03) Water</b>									
Chloride	42.6	5.00	mg/L	10	EI52001	09/19/05	09/20/05	EPA 300.0	
<b>RW-1 (5I19004-04) Water</b>									
Chloride	21200	250	mg/L	500	EI52001	09/19/05	09/20/05	EPA 300.0	

Environmental Lab of Texas

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Page 3 of 7

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
09/28/05 15:16

**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 EI52622 - EPA 5030C (GC)**

**Blank (EI52622-BLK1)**

Prepared & Analyzed: 09/26/05

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	44.5		ug/l	40.0		111	80-120			
Surrogate: 4-Bromofluorobenzene	47.8		"	40.0		120	80-120			

**LCS (EI52622-BS1)**

Prepared & Analyzed: 09/26/05

Benzene	43.1		ug/l	50.0		86.2	80-120			
Toluene	41.6		"	50.0		83.2	80-120			
Ethylbenzene	49.3		"	50.0		98.6	80-120			
Xylene (p/m)	91.4		"	100		91.4	80-120			
Xylene (o)	52.4		"	50.0		105	80-120			
Surrogate: a,a,a-Trifluorotoluene	38.0		"	40.0		95.0	80-120			
Surrogate: 4-Bromofluorobenzene	42.0		"	40.0		105	80-120			

**Calibration Check (EI52622-CCV1)**

Prepared: 09/26/05 Analyzed: 09/27/05

Benzene	49.9		ug/l	50.0		99.8	80-120			
Toluene	44.9		"	50.0		89.8	80-120			
Ethylbenzene	50.2		"	50.0		100	80-120			
Xylene (p/m)	92.4		"	100		92.4	80-120			
Xylene (o)	50.9		"	50.0		102	80-120			
Surrogate: a,a,a-Trifluorotoluene	40.2		"	40.0		100	0-200			
Surrogate: 4-Bromofluorobenzene	39.6		"	40.0		99.0	0-200			

**Matrix Spike (EI52622-MS1)**

Source: 5123008-07

Prepared: 09/26/05 Analyzed: 09/27/05

Benzene	0.0413	0.00100	mg/L	0.0500	ND	82.6	80-120			
Toluene	0.0406	0.00100	"	0.0500	ND	81.2	80-120			
Ethylbenzene	0.0483	0.00100	"	0.0500	ND	96.6	80-120			
Xylene (p/m)	0.0887	0.00100	"	0.100	ND	88.7	80-120			
Xylene (o)	0.0537	0.00100	"	0.0500	ND	107	80-120			
Surrogate: a,a,a-Trifluorotoluene	33.5		ug/l	40.0		83.8	80-120			
Surrogate: 4-Bromofluorobenzene	43.5		"	40.0		109	80-120			

Environmental Lab of Texas

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Page 4 of 7

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

Project: Gruy/ Riddle #1  
 Project Number: 2321  
 Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:  
 09/28/05 15:16

**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 E152622 - EPA 5030C (GC)**

**Matrix Spike Dup (E152622-MSD1)**

Source: 5123008-07

Prepared: 09/26/05 Analyzed: 09/27/05

Benzene	0.0461	0.00100	mg/L	0.0500	ND	92.2	80-120	11.0	20	
Toluene	0.0448	0.00100	"	0.0500	ND	89.6	80-120	9.84	20	
Ethylbenzene	0.0553	0.00100	"	0.0500	ND	111	80-120	13.9	20	
Xylene (p/m)	0.0985	0.00100	"	0.100	ND	98.5	80-120	10.5	20	
Xylene (o)	0.0572	0.00100	"	0.0500	ND	114	80-120	6.33	20	
Surrogate: a,a,a-Trifluorotoluene	34.5		ug/l	40.0		86.2	80-120			
Surrogate: 4-Bromofluorobenzene	46.8		"	40.0		117	80-120			

Environmental Lab of Texas

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Page 5 of 7

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
09/28/05 15:16

**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
<b>Batch EI52001 - General Preparation (WetChem)</b>										
<b>Blank (EI52001-BLK1)</b> Prepared: 09/19/05 Analyzed: 09/20/05										
Chloride	ND	0.500	mg/L							
<b>LCS (EI52001-BS1)</b> Prepared: 09/19/05 Analyzed: 09/20/05										
Chloride	8.10		mg/L	10.0		81.0	80-120			
<b>Calibration Check (EI52001-CCV1)</b> Prepared: 09/19/05 Analyzed: 09/20/05										
Chloride	10.2		mg/L	10.0		102	80-120			
<b>Duplicate (EI52001-DUP1)</b> Source: 5I19003-01 Prepared: 09/19/05 Analyzed: 09/20/05										
Chloride	154	5.00	mg/L		151			1.97	20	

Environmental Lab of Texas

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Page 6 of 7

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

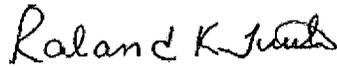
Fax: (432) 682-3946

Reported:  
09/28/05 15:16

### 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:



Date:

9/28/2005

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.

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Environmental Lab of Texas

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

Client: Highlander

Date/Time: 9/16/05 3:45

Order #: SI 19004

Initials: CK

**Sample Receipt Checklist**

	Yes	No	
Temperature of container/cooler?			3.0 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/>	No	
Custody Seals intact on shipping container/cooler?	<input checked="" type="checkbox"/>	No	Not present
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/>	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/>	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/>	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/>	No	
Container labels legible and intact?	<input checked="" type="checkbox"/>	No	
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/>	No	
Samples in proper container/bottle?	<input checked="" type="checkbox"/>	No	
Samples properly preserved?	<input checked="" type="checkbox"/>	No	
Sample bottles intact?	<input checked="" type="checkbox"/>	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/>	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/>	No	Not Applicable

Other observations:

\_\_\_\_\_

\_\_\_\_\_

**Variance Documentation:**

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

Corrective Action Taken:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

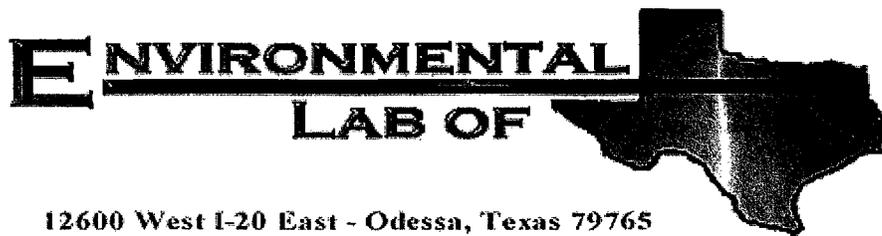
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**Analytical Report**

**12/27/2005**



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: Gruy/ Riddle #1

Project Number: 2321

Location: Lea County, NM

Lab Order Number: 5L16003

Report Date: 12/27/05

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
12/27/05 09:36

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	5L16003-01	Water	12/15/05 10:45	12/15/05 17:15
MW-2	5L16003-02	Water	12/15/05 11:30	12/15/05 17:15
MW-3	5L16003-03	Water	12/15/05 12:30	12/15/05 17:15
RW-1	5L16003-04	Water	12/15/05 12:45	12/15/05 17:15

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
12/27/05 09:36

**Organics by GC**  
**Environmental Lab of Texas**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (SL16003-01) Water</b>									
Benzene	ND	0.00100	mg/L	1	EL52003	12/20/05	12/21/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		87.2 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		82.5 %	80-120		"	"	"	"	
<b>MW-2 (SL16003-02) Water</b>									
Benzene	ND	0.00100	mg/L	1	EL52003	12/20/05	12/21/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		87.5 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		85.8 %	80-120		"	"	"	"	
<b>MW-3 (SL16003-03) Water</b>									
Benzene	ND	0.00100	mg/L	1	EL52003	12/20/05	12/21/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		85.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		84.2 %	80-120		"	"	"	"	
<b>RW-1 (SL16003-04) Water</b>									
Benzene	ND	0.00100	mg/L	1	EL52003	12/20/05	12/21/05	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
<i>Surrogate: a,a,a-Trifluorotoluene</i>		83.0 %	80-120		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		81.0 %	80-120		"	"	"	"	

Environmental Lab of Texas

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Page 2 of 7

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
12/27/05 09:36

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>MW-1 (5L16003-01) Water</b>									
Chloride	10.6	2.50	mg/L	5	EL52019	12/20/05	12/20/05	EPA 300.0	
<b>MW-2 (5L16003-02) Water</b>									
Chloride	19.6	2.50	mg/L	5	EL52019	12/20/05	12/20/05	EPA 300.0	
<b>MW-3 (5L16003-03) Water</b>									
Chloride	54.2	5.00	mg/L	10	EL52019	12/20/05	12/20/05	EPA 300.0	
<b>RW-1 (5L16003-04) Water</b>									
Chloride	18800	250	mg/L	500	EL52019	12/20/05	12/20/05	EPA 300.0	

Environmental Lab of Texas

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
12/27/05 09:36

**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 EL52003 - EPA 5030C (GC)**

Blank (EL52003-BLK1) Prepared: 12/20/05 Analyzed: 12/21/05										
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	33.8		ug/l	40.0		84.5	80-120			
Surrogate: 4-Bromofluorobenzene	35.2		"	40.0		88.0	80-120			

LCS (EL52003-BS1) Prepared: 12/20/05 Analyzed: 12/22/05										
Benzene	0.0416	0.00100	mg/L	0.0500		83.2	80-120			
Toluene	0.0484	0.00100	"	0.0500		96.8	80-120			
Ethylbenzene	0.0478	0.00100	"	0.0500		95.6	80-120			
Xylene (p/m)	0.0985	0.00100	"	0.100		98.5	80-120			
Xylene (o)	0.0483	0.00100	"	0.0500		96.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	38.5		ug/l	40.0		96.2	80-120			
Surrogate: 4-Bromofluorobenzene	33.0		"	40.0		82.5	80-120			

Calibration Check (EL52003-CCV1) Prepared: 12/20/05 Analyzed: 12/21/05										
Benzene	48.8		ug/l	50.0		97.6	80-120			
Toluene	53.4		"	50.0		107	80-120			
Ethylbenzene	49.7		"	50.0		99.4	80-120			
Xylene (p/m)	99.5		"	100		99.5	80-120			
Xylene (o)	50.4		"	50.0		101	80-120			
Surrogate: a,a,a-Trifluorotoluene	32.9		"	40.0		82.2	80-120			
Surrogate: 4-Bromofluorobenzene	32.4		"	40.0		81.0	80-120			

Matrix Spike (EL52003-MS1) Source: SL16003-01 Prepared: 12/20/05 Analyzed: 12/21/05										
Benzene	0.0448	0.00100	mg/L	0.0500	ND	89.6	80-120			
Toluene	0.0568	0.00100	"	0.0500	ND	114	80-120			
Ethylbenzene	0.0577	0.00100	"	0.0500	ND	115	80-120			
Xylene (p/m)	0.119	0.00100	"	0.100	ND	119	80-120			
Xylene (o)	0.0584	0.00100	"	0.0500	ND	117	80-120			
Surrogate: a,a,a-Trifluorotoluene	39.7		ug/l	40.0		99.2	80-120			
Surrogate: 4-Bromofluorobenzene	37.0		"	40.0		92.5	80-120			

Environmental Lab of Texas

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:  
12/27/05 09:36

**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 EL52003 - EPA 5030C (GC)**

**Matrix Spike Dup (EL52003-MSD1)**

Source: SL16003-01

Prepared: 12/20/05 Analyzed: 12/22/05

Benzene	0.0436	0.00100	mg/L	0.0500	ND	87.2	80-120	2.71	20	
Toluene	0.0535	0.00100	"	0.0500	ND	107	80-120	6.33	20	
Ethylbenzene	0.0559	0.00100	"	0.0500	ND	112	80-120	2.64	20	
Xylene (p/m)	0.115	0.00100	"	0.100	ND	115	80-120	3.42	20	
Xylene (o)	0.0575	0.00100	"	0.0500	ND	115	80-120	1.72	20	
Surrogate: a,a,a-Trifluorotoluene	37.6		ug/l	40.0		94.0	80-120			
Surrogate: 4-Bromofluorobenzene	38.0		"	40.0		95.0	80-120			

Environmental Lab of Texas

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Page 5 of 7

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

Project: Gruy/ Riddle #1  
 Project Number: 2321  
 Project Manager: Ike Tavaréz

Fax: (432) 682-3946

Reported:  
 12/27/05 09:36

**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
<b>Batch EL52019 - General Preparation (WetChem)</b>										
<b>Blank (EL52019-BLK1)</b>				Prepared & Analyzed: 12/20/05						
Chloride	ND	0.500	mg/L							
<b>LCS (EL52019-BS1)</b>				Prepared & Analyzed: 12/20/05						
Chloride	8.34		mg/L	10.0		83.4	80-120			
<b>Calibration Check (EL52019-CCV1)</b>				Prepared & Analyzed: 12/20/05						
Chloride	8.36		mg/L	10.0		83.6	80-120			
<b>Duplicate (EL52019-DUP1)</b>				Source: 5L19006-01		Prepared & Analyzed: 12/20/05				
Chloride	1680	25.0	mg/L		1650			1.80	20	

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

Project: Gruy/ Riddle #1  
Project Number: 2321  
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Reported:  
12/27/05 09:36

### 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:

12/27/2005

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.

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Environmental Lab of Texas

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Page 7 of 7



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

Client: Highlander

Date/Time: 12/15/05 5:15

Order #: 5L16003

Initials: ck

**Sample Receipt Checklist**

Temperature of container/cooler?	Yes	No	5.0 C
Shipping container/cooler in good condition?	<input checked="" type="checkbox"/> Yes	No	
Custody Seals intact on shipping container/cooler?	Yes	No	<del>Not present</del>
Custody Seals intact on sample bottles?	<input checked="" type="checkbox"/> Yes	No	Not present
Chain of custody present?	<input checked="" type="checkbox"/> Yes	No	
Sample Instructions complete on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
Chain of Custody signed when relinquished and received?	<input checked="" type="checkbox"/> Yes	No	
Chain of custody agrees with sample label(s)	<input checked="" type="checkbox"/> Yes	No	
Container labels legible and intact?	<input checked="" type="checkbox"/> Yes	No	
Sample Matrix and properties same as on chain of custody?	<input checked="" type="checkbox"/> Yes	No	
Samples in proper container/bottle?	<input checked="" type="checkbox"/> Yes	No	
Samples properly preserved?	<input checked="" type="checkbox"/> Yes	No	
Sample bottles intact?	<input checked="" type="checkbox"/> Yes	No	
Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
Containers documented on Chain of Custody?	<input checked="" type="checkbox"/> Yes	No	
Sufficient sample amount for indicated test?	<input checked="" type="checkbox"/> Yes	No	
All samples received within sufficient hold time?	<input checked="" type="checkbox"/> Yes	No	
VOC samples have zero headspace?	<input checked="" type="checkbox"/> Yes	No	Not Applicable

Other observations:

\_\_\_\_\_

\_\_\_\_\_

**Variance Documentation:**

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

Corrective Action Taken:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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