

NM1-19  
Monitoring  
Report  
2013

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013  
Page 1

June 17, 2013

New Mexico Energy, Minerals, & Natural Resources Dept.  
Oil Conservation Division Environmental Bureau  
Attn: Mr. Brad A. Jones  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

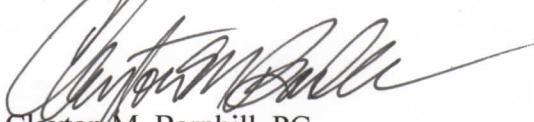
**Re: Submittal of First Quarterly Monitoring Report for Year 2013**  
**Gandy Marley Inc., Commercial Landfarm**  
**Gandy Marley Inc., Operator / PRP**  
**SW/4 of Section 4, SE/4 of Section 5, NE/4 of Section 8, & NW/4 of Section 9,**  
**T. 11 S., R.31 E., NMPM**  
**Chaves County, New Mexico**  
**Commercial Landfarm Permit (NM-01-0019)**

Dear Mr. Jones:

Clayton M. Barnhill, CMB Environmental and Geological Services Inc., on behalf of the owner/operator, Gandy Marley Inc., submit the attached Quarterly Monitoring Report for the above-mentioned site.

If you have any questions about the contents of the report, please do not hesitate to call me. Thank you.

Sincerely,



Clayton M. Barnhill, PG  
CMB Environmental & Geological Services, Inc.  
PO Box 2304  
Roswell, NM 88202-2304  
Phone: (575) 622-2012 Phone Fax: (575) 625-0538  
Cellular: (575) 626-1615  
[cmbenviro@gmail.com](mailto:cmbenviro@gmail.com)

Cc: Gandy Marley Inc.

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013  
Page 2

## QUARTERLY MONITORING REPORT

Please include the following information:

1. Site Name: **Gandy Marley Landfarm**
2. Responsible party: **Gandy Marley Inc.**
3. Responsible party mailing address (list contact person if different):

**Gandy Marley Inc.**  
**Attn: Mr. Larry Gandy, Vice President, Project Manager**  
**PO Box 1658**  
**Roswell, NM 88202-1658**

4. Commercial Landfarm Permit Number: **NM-01-0019**

5. Address/legal description:

**SW/4 of Section 4, SE/4 of Section 5, NE/4 of Section 8, & NW/4 of Section 9**  
**T. 11 S. R. 31 E., NMPM**  
**Chaves County, NM**

6. Author/consulting company:

**Clayton M. Barnhill, PG, CMB Environmental & Geological Services, Inc.**

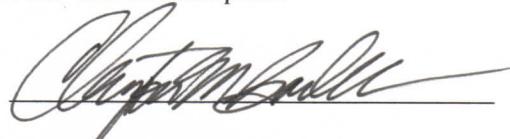
7. Date of report: **June 17, 2013**

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013  
Page 3

### STATEMENT OF FAMILIARITY

I, the undersigned, am personally familiar with the information submitted in this report and the attached documents and attest that it is true and complete.

Signature:



Name: Clayton M. Barnhill, PG

Affiliation: CMB Environmental and Geological Services, Inc.

Title: Sr. / Principal Geologist

Certified Scientist #: State of Wyoming Professional Geologist 3072, exp. 12/31/13

Date:

06/17/2013

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013  
Page 4

## I. INTRODUCTION

CMB Environmental and Geological Services Inc., on behalf of Gandy Marley Inc., the owner/operator of the Gandy Marley Inc., Landfarm located in the SW/4 of Section 4, SE/4 of Section 5, NE/4 of Section 8, & NW/4 of Section 9, Township 11 South, Range 31 East, Chaves County, New Mexico, has prepared this quarterly monitoring report in accordance with conditions set forth in Commercial Landfarm Permit Number NM-01-0019 (Gandy Marley Inc., approved by the New Mexico Energy, Minerals, & Natural Resources Department Oil Conservation Division (NMOCD) Environmental Bureau on January 17, 2006.

The Gandy Marley Inc, Commercial Landfarm is located approximately 33 miles northwest of Tatum, NM in Sections 4, 5, 8 & 9, T. 11 S. R. 31 E., Chaves County, New Mexico (Figure 1). In January of 2006, the New Mexico Energy, Minerals, & Natural Resources Department Oil Conservation Division (NMOCD) Environmental Bureau approved a Commercial Landfarm Permit NM-01-0019. The commercial landfarm is being managed in accordance with the NMOCD approved Commercial Landfarm Permit NM-01-0019. Received soils on the landfarm are deposited in bermed cells in six-inch lifts and disked on a regular basis to enhance aeration. Groundwater below the site is at a depth between 122.62' foot (MW-2) and 130.32' foot (MW-1) below the top of casing of both monitor wells. Groundwater beneath the site has a total dissolved solids concentration of approximately 8970 milligrams per liter.

### A. Scope of Work

The approved scope of work for the first quarter of monitoring year 2013 consists of collecting confirmation soil samples beneath all site cells actively landfarmed or previously active, analyzing the subsurface soil samples for total petroleum hydrocarbons (TPH), and BTEX, and compiling and reporting data or analyses that demonstrate the media located in the remediation cell has been remediated to an acceptable level by the NMOCD Commercial Landfarm Permit NM-01-0019.

The soil sampling adequately monitored the vadose zone beneath the facility. Appendix 3 contains the complete analytical results for soils sampled in these Cells.

The sampling protocol for the monitoring activities can be found in Appendix 1. Appendix 2 contains field notes with GPS Coordinates of sample points for this monitoring event. Laboratory analysis reports of soil samples are in Appendix 3.

### B. Quarter Highlights

First quarter 2013 soil sampling / monitoring was performed on May 29, 2013. This quarter's monitoring activities include the following:

- Collection of one Remediation Cell Soil samples from all active and previously active landfarm remediation cells for laboratory analysis of the parameters outlined in section (A) above.
- Gauging Leak Detection Monitors of Evaporation Pond # 1 with a Solinst Interface Probe.
- Preparation of this report.

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013  
Page 5

## ACTIVITIES PERFORMED DURING THIS QUARTER

### C. Monitoring Activities

Landfarm Remediation cell soil samples were collected beneath the remediation cells and submitted to Trace Analysis Laboratory, located in Lubbock Texas and were analyzed for TPH using EPA Method 418.1, BTEX using EPA Method 8021B.

The soil sampling adequately monitored the vadose zone beneath the facility. Laboratory analysis reports and chain of custody forms are in Appendix 3.

A Solinst interface probe was lowered down to total depth of the PVC piping of the leak detection in evaporation pond # 1. No fluids or leaks were detected by the interface probe.

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013  
Page 6

## II. SUMMARY AND CONCLUSIONS

### A. Assessment of Remediation Activities:

Analyses from a soil sample of the vadose zone soils in all Landfarm Cells (with the exception of Cell 15) show the sampled vadose zone soils at three feet below ground surface in all cells to contain less than <0.0200 (Mg/Kg) BTEX, and TPH concentrations  $\leq$  500 (Mg/Kg) TPH. Cell #15 had a TPH concentration of 3960 Mg/Kg, and Cell #12 had a TPH concentration of 335 (Mg/Kg). These were the only cells with strongly elevated TPH Concentrations. Elevated cell soil concentrations  $>$  100 Mg/Kg TPH in the vadose zone three feet below ground surface need additional soil sampling to adequately test the soils in the cell treatment zone and to be in compliance with existing permit conditions and NMAC Rule 36.

A Solinst interface probe was lowered down to total depth of the PVC piping of the leak detection in evaporation pond # 1. No fluids or leaks were detected by the interface probe.

Perched groundwater below the site is at a depth of 122' feet to 130' feet below ground surface, and has a total dissolved solids concentration of approximately 8970 milligrams per liter.

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013

## LIST OF FIGURES

Figure	Included	N/A
1 Site Map	X	
2 Topographic Map with sample locations plotted	X	

Site Name: Gandy Marley Landfarm  
 Commercial Landfarm Permit NM-01-0019  
 Report Date: June 17, 2013

## LIST OF TABLES

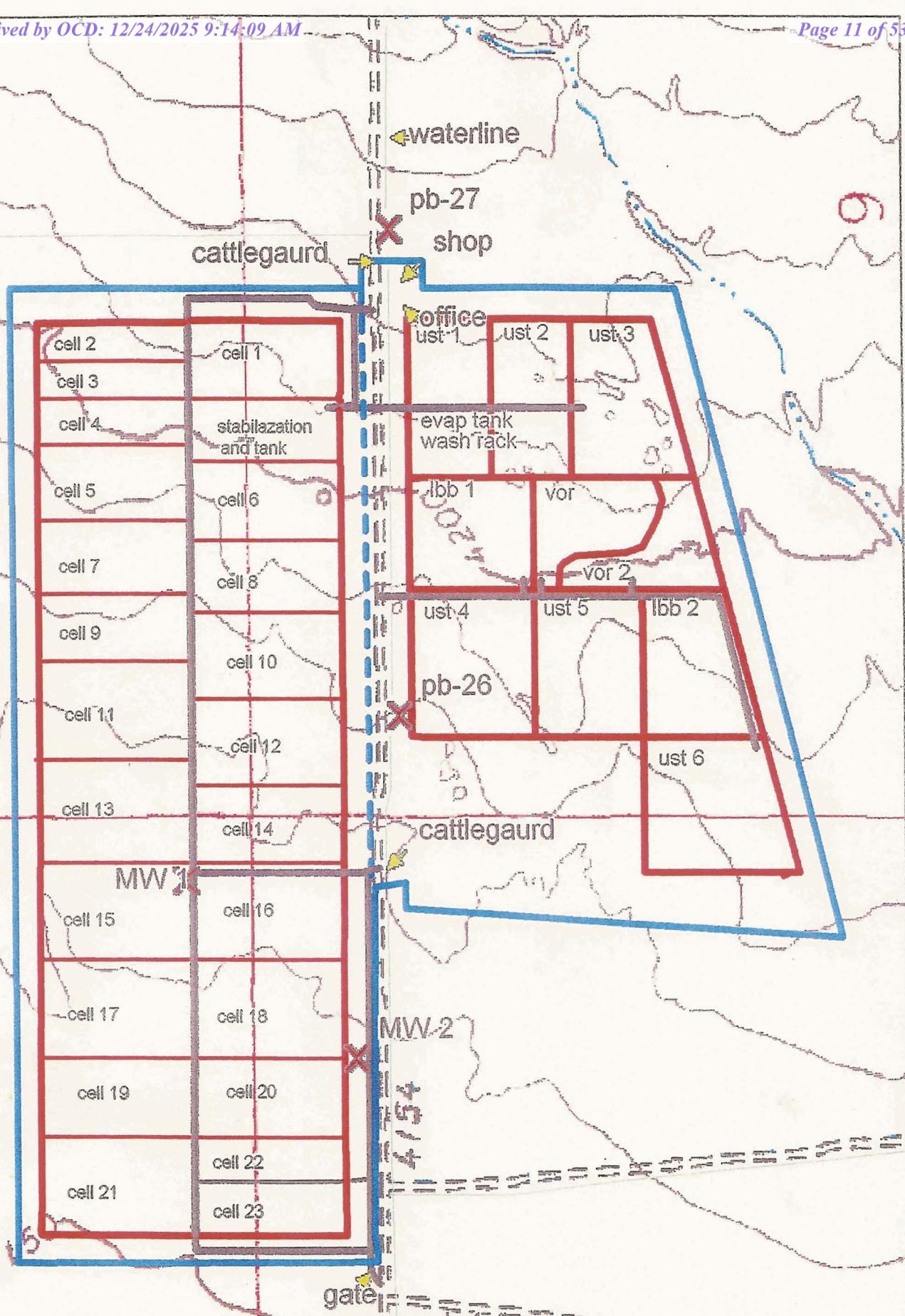
Table	Included	N/A
1      Lab Analysis Summary Reports of Cell Soil Samples	X	

## LIST OF APPENDICES

Appendix	Included	N/A
1      Sampling Protocol	X	
2      Field Notes /with GPS Coordinates of samples	X	
3      Laboratory Reports	X	

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013

## Figures:



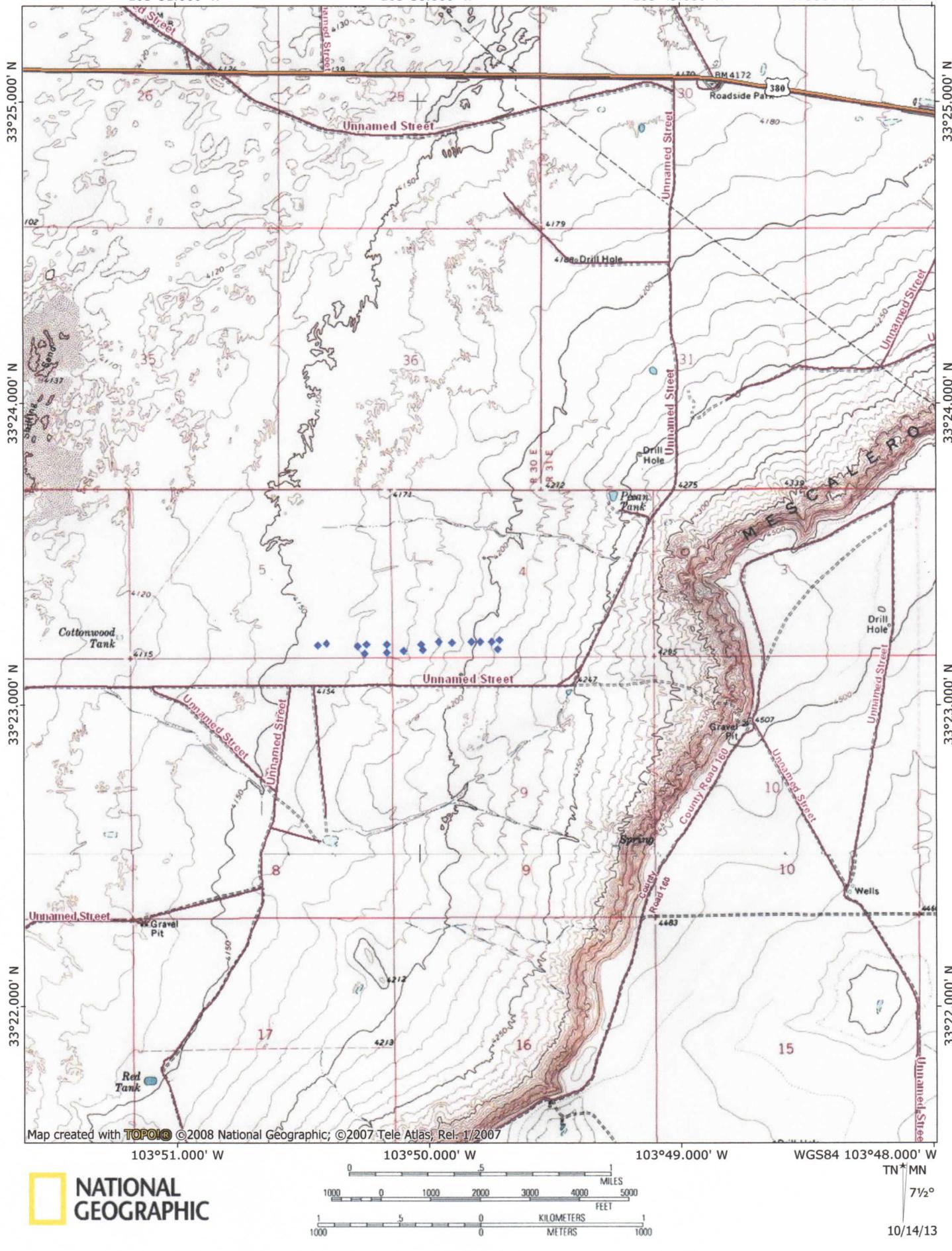
06/17/13 GMI Landfarm First Quarter 2013 Soil Sample Locations

103°51.000' W

103°50.000' W

103°49.000' W

WGS84 103°48.000' W



Map created with TOPO!® ©2008 National Geographic; ©2007 Tele Atlas, Rel. 1/2007

103°51.000' W

103°50.000' W

103°49.000' W

WGS84 103°48.000' W

TN<sup>★</sup>/MN

7½°

1

10/14/13

200, 201, 202

Figure 1 consists of two horizontal scale bars. The top scale bar is labeled 'MILES' at the right end and 'FEET' below it. It has major tick marks at 0, 5, 1000, 2000, 3000, 4000, and 5000. The bottom scale bar is labeled 'KILOMETERS' at the right end and 'METERS' below it. It has major tick marks at 1, 5, 0, and 0. The '0' and '0' marks are aligned vertically, representing the same point in both units of measurement.

NATIONAL  
GEOGRAPHIC

Site Name: Gandy Marley Landfarm  
Commercial Landfarm Permit NM-01-0019  
Report Date: June 17, 2013

## Tables:

Report Date: June 13, 2013

Work Order: 13053120

Page Number: 1 of 2

## Summary Report

Bret Riley  
Gandy Marley Inc.

P. O. Box 1658  
Roswell, NM 88202

Report Date: June 13, 2013

Work Order: 13053120



Project Location: Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM  
Project Name: GMI Landfarm  
Project Number: 1st Quarter Soil Sampling 2013

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
330623	Cell 1	soil	2013-05-29	14:30	2013-05-31
330624	Cell 2	soil	2013-05-29	14:36	2013-05-31
330625	Cell 3	soil	2013-05-29	14:42	2013-05-31
330626	Cell 4	soil	2013-05-29	14:47	2013-05-31
330627	Cell 5	soil	2013-05-29	14:53	2013-05-31
330628	Cell 7	soil	2013-05-29	14:57	2013-05-31
330629	Cell 9	soil	2013-05-29	15:03	2013-05-31
330630	Cell 10	soil	2013-05-29	15:10	2013-05-31
330631	Cell 11	soil	2013-05-29	15:15	2013-05-31
330632	Cell 12	soil	2013-05-29	15:20	2013-05-31
330633	Cell 13	soil	2013-05-29	15:25	2013-05-31
330634	Cell 14	soil	2013-05-29	15:30	2013-05-31
330635	Cell 15	soil	2013-05-29	15:35	2013-05-31
330636	Cell 16	soil	2013-05-29	15:40	2013-05-31
330637	Cell 17	soil	2013-05-29	15:45	2013-05-31
330638	Cell 19	soil	2013-05-29	15:50	2013-05-31
330639	Cell 21	soil	2013-05-29	15:55	2013-05-31

Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	BTEX Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	MTBE MTBE (mg/Kg)	TPH 418.1 TRPHC (mg/Kg)
<b>330623 - Cell 1</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<10.0
<b>330624 - Cell 2</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<10.0
<b>330625 - Cell 3</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<10.0
<b>330626 - Cell 4</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<10.0
<b>330627 - Cell 5</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<b>17.5</b>
<b>330628 - Cell 7</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<b>33.1</b>
<b>330629 - Cell 9</b>	<0.0200	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>	<0.0200 Q <sub>S</sub>		<10.0

continued ...

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296  
This is only a summary. Please, refer to the complete report package for quality control data.

Report Date: June 13, 2013

Work Order: 13053120

Page Number: 2 of 2

... continued

Sample - Field Code	BTEX				MTBE (mg/Kg)	TPH 418.1 TRPHC (mg/Kg)
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)		
<b>330630 - Cell 10</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<b>113</b>
<b>330631 - Cell 11</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0
<b>330632 - Cell 12</b>	<0.200 <sup>1</sup>	<0.200	<0.200	<0.200		<b>335</b>
<b>330633 - Cell 13</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0
<b>330634 - Cell 14</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0
<b>330635 - Cell 15</b>	<0.100 <sup>2</sup>	<0.100 Qs	<0.100 Qs	<0.100 Qs		<b>3960</b>
<b>330636 - Cell 16</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0
<b>330637 - Cell 17</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0
<b>330638 - Cell 19</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0
<b>330639 - Cell 21</b>	<0.0200	<0.0200 Qs	<0.0200 Qs	<0.0200 Qs		<10.0

<sup>1</sup>Dilution due to surfactants.<sup>2</sup>Dilution due to surfactants.

## **Appendix 1**

### **Sampling Protocol**

## **Appendix 1**

### **Sampling Protocol**

Site Remediation cells were checked for the presence of phase-separated hydrocarbons (PSH).

A Gandy Marley Inc. owned and operated front end loader dug down with the loader bucket 18" inches to 24" inches below the surface of the remediation cell. An 8" inch loader mounted drill auger was then used to create a soil boring below the exposed soil surface to a depth of 36" inches below the original ground surface of the remediation cell. An AMS 3" inch Stainless steel hand auger was then used by Clayton M. Barnhill, PG (CMB Environmental & Geological Services Inc.) to collect the soil samples beneath the remediation cells. The AMS stainless steel auger and the 8" inch drilling auger were de-contaminated between sample points by cleaning with a brush in an Alconox soap solution and then rinsing with potable water. New Nitrile gloves were changed at each sample point to avoid cross contamination. Borings were backfilled with impermeable bentonite pellets and hydrated.

Samples analyzed for TPH 418.1, BTEX 8021. Soil Samples were collected in one 4 ounce glass jar containing no preservative.

Samples were immediately placed on ice in an insulated cooler and were delivered to the Trace Analysis Laboratory, located in Lubbock, Texas, for analysis. Chain of custody documentation accompanied the samples at all times.

## **Appendix 2**

### **Field Notes**

126

Location

Project / Client

SMT Land Farm Date 15/19/13  
1st Quarter 2013 Soil SamplingLocation 6MT Land Farm Date 05/29/13  
1st Qtr 2013 Soil Sampling  
Project / Client B4: CMB Environment/

Cell #	GPS Coordinates	Remarks
Cell 1	33.23.188 103.49.722	Brown clayey w/ gravel Sand - No organic
Cell 2	33.23.216 103.49.714	" " " "
Cell 3	33.23.210 103.49.717	Red clay and organic material present
Cell 4	33.23.211 103.49.721	Brown clayey 20% gravel
Cell 5	33.23.212 103.49.825	No organic material
Cell 6	c 14:53	" " " "
Cell 7	33.23.208 103.49.902	" " " "
	c 14:57	" " " "
Cell 9	33.23.209 103.49.956	Brown clayey sand w/ gravel 20% gravel
Cell 10	33.23.184 103.50.048	No organic material
Cell 11	33.23.202 103.50.027	" " " "
Cell 12	33.23.180 103.50.096	" " " "
	c 15:15	" " " "
	c 15:20	" " " "

Cell #	GPS Coordinates	Remarks
Cell 13	33.23.203 103.50.112	Brown clayey
Cell 14	33.23.176 103.50.161	" " " "
Cell 15	33.23.203 103.50.210	" " " "
Cell 16	33.23.172 103.50.250	" " " "
Cell 17	33.23.197 103.50.274	" " " "
Cell 18	33.23.204 103.50.445	20% gravel w/ fine calcic
Cell 19	33.23.204 103.50.445	Red clayey sand No organic
Cell 20	33.23.198 103.50.437	No organic
	c 15:55	" " " "

## Appendix 3



# TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 806-794-1296 FAX 806-794-1298  
 200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944  
 5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313  
 (BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750  
 E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

## Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Bret Riley  
 Gandy Marley Inc.

Report Date: June 13, 2013

P. O. Box 1658  
 Roswell, NM, 88202

Work Order: 13053120



Project Location: Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Project Name: GMI Landfarm

Project Number: 1st Quarter Soil Sampling 2013

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
330623	Cell 1	soil	2013-05-29	14:30	2013-05-31
330624	Cell 2	soil	2013-05-29	14:36	2013-05-31
330625	Cell 3	soil	2013-05-29	14:42	2013-05-31
330626	Cell 4	soil	2013-05-29	14:47	2013-05-31
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330630	Cell 10	soil	2013-05-29	15:10	2013-05-31
330631	Cell 11	soil	2013-05-29	15:15	2013-05-31
330632	Cell 12	soil	2013-05-29	15:20	2013-05-31
330633	Cell 13	soil	2013-05-29	15:25	2013-05-31
330634	Cell 14	soil	2013-05-29	15:30	2013-05-31
330635	Cell 15	soil	2013-05-29	15:35	2013-05-31
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330638	Cell 19	soil	2013-05-29	15:50	2013-05-31
330639	Cell 21	soil	2013-05-29	15:55	2013-05-31

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 30 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.



---

Dr. Blair Leftwich, Director  
Dr. Michael Abel, Project Manager

# Report Contents

<b>Case Narrative</b>	<b>5</b>
<b>Analytical Report</b>	<b>6</b>
Sample 330623 (Cell 1) . . . . .	6
Sample 330624 (Cell 2) . . . . .	6
Sample 330625 (Cell 3) . . . . .	7
Sample 330626 (Cell 4) . . . . .	8
Sample 330627 (Cell 5) . . . . .	8
Sample 330628 (Cell 7) . . . . .	9
Sample 330629 (Cell 9) . . . . .	10
Sample 330630 (Cell 10) . . . . .	11
Sample 330631 (Cell 11) . . . . .	11
Sample 330632 (Cell 12) . . . . .	12
Sample 330633 (Cell 13) . . . . .	13
Sample 330634 (Cell 14) . . . . .	13
Sample 330635 (Cell 15) . . . . .	14
Sample 330636 (Cell 16) . . . . .	15
Sample 330637 (Cell 17) . . . . .	16
Sample 330638 (Cell 19) . . . . .	16
Sample 330639 (Cell 21) . . . . .	17
<b>Method Blanks</b>	<b>19</b>
QC Batch 101914 - Method Blank (1) . . . . .	19
QC Batch 101915 - Method Blank (1) . . . . .	19
QC Batch 102141 - Method Blank (1) . . . . .	19
QC Batch 102234 - Method Blank (1) . . . . .	20
<b>Laboratory Control Spikes</b>	<b>21</b>
QC Batch 101914 - LCS (1) . . . . .	21
QC Batch 101915 - LCS (1) . . . . .	21
QC Batch 102141 - LCS (1) . . . . .	22
QC Batch 102234 - LCS (1) . . . . .	22
QC Batch 101914 - MS (1) . . . . .	23
QC Batch 101915 - MS (1) . . . . .	23
QC Batch 102141 - MS (1) . . . . .	24
<b>Calibration Standards</b>	<b>25</b>
QC Batch 101914 - CCV (1) . . . . .	25
QC Batch 101914 - CCV (2) . . . . .	25
QC Batch 101914 - CCV (3) . . . . .	25
QC Batch 101915 - CCV (1) . . . . .	25
QC Batch 101915 - CCV (2) . . . . .	26
QC Batch 101915 - CCV (3) . . . . .	26
QC Batch 102141 - CCV (1) . . . . .	26
QC Batch 102141 - CCV (2) . . . . .	27
QC Batch 102141 - CCV (3) . . . . .	27

QC Batch 102141 - CCV (4) . . . . .	27
QC Batch 102234 - CCV (1) . . . . .	27
QC Batch 102234 - CCV (2) . . . . .	28
<b>Appendix</b>	<b>29</b>
Report Definitions . . . . .	29
Laboratory Certifications . . . . .	29
Standard Flags . . . . .	29
Result Comments . . . . .	29
Attachments . . . . .	30

## Case Narrative

Samples for project GMI Landfarm were received by TraceAnalysis, Inc. on 2013-05-31 and assigned to work order 13053120. Samples for work order 13053120 were received intact at a temperature of 3.4 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	86349	2013-05-31 at 08:21	101914	2013-05-31 at 08:21
BTEX	S 8021B	86350	2013-05-31 at 08:21	101915	22013-05-31 at 08:21
BTEX	S 8021B	86620	2013-06-12 at 15:01	102234	2013-06-12 at 15:01
TPH 418.1	E 418.1	86538	2013-06-10 at 11:00	102141	2013-06-10 at 11:15

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 13053120 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 6 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

## Analytical Report

### Sample: 330623 - Cell 1

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 101914  
Prep Batch: 86349

Analytical Method: S 8021B  
Date Analyzed: 2013-05-31  
Sample Preparation: 2013-05-31

Prep Method: S 5035  
Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	69.2 - 120

### Sample: 330623 - Cell 1

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 102141  
Prep Batch: 86538

Analytical Method: E 418.1  
Date Analyzed: 2013-06-10  
Sample Preparation: 2013-06-10

Prep Method: N/A  
Analyzed By: DS  
Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			<10.0	mg/Kg	1	10.0

### Sample: 330624 - Cell 2

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 101914  
Prep Batch: 86349

Analytical Method: S 8021B  
Date Analyzed: 2013-05-31  
Sample Preparation: 2013-05-31

Prep Method: S 5035  
Analyzed By: JS  
Prepared By: JS

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 7 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.98	mg/Kg	1	2.00	99	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.21	mg/Kg	1	2.00	110	69.2 - 120

**Sample: 330624 - Cell 2**

Laboratory: Lubbock  
 Analysis: TPH 418.1  
 QC Batch: 102141  
 Prep Batch: 86538

Analytical Method: E 418.1  
 Date Analyzed: 2013-06-10  
 Sample Preparation: 2013-06-10

Prep Method: N/A  
 Analyzed By: DS  
 Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			<10.0	mg/Kg	1	10.0

**Sample: 330625 - Cell 3**

Laboratory: Lubbock  
 Analysis: BTEX  
 QC Batch: 101914  
 Prep Batch: 86349

Analytical Method: S 8021B  
 Date Analyzed: 2013-05-31  
 Sample Preparation: 2013-05-31

Prep Method: S 5035  
 Analyzed By: JS  
 Prepared By: JS

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	69.2 - 120

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 8 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

**Sample: 330625 - Cell 3**

Laboratory:	Lubbock	Analytical Method:	E 418.1	Prep Method:	N/A
Analysis:	TPH 418.1	Date Analyzed:	2013-06-10	Analyzed By:	DS
QC Batch:	102141	Sample Preparation:	2013-06-10	Prepared By:	DS
Prep Batch:	86538				

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			<10.0	mg/Kg	1	10.0

**Sample: 330626 - Cell 4**

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	22013-05-31	Analyzed By:	JS
QC Batch:	101915	Sample Preparation:	2013-05-31	Prepared By:	JS
Prep Batch:	86350				

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Jb,Qs	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.19	mg/Kg	1	2.00	110	69.2 - 120

**Sample: 330626 - Cell 4**

Laboratory:	Lubbock	Analytical Method:	E 418.1	Prep Method:	N/A
Analysis:	TPH 418.1	Date Analyzed:	2013-06-10	Analyzed By:	DS
QC Batch:	102141	Sample Preparation:	2013-06-10	Prepared By:	DS
Prep Batch:	86538				

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			<10.0	mg/Kg	1	10.0

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 9 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

**Sample: 330627 - Cell 5**

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 101914  
Prep Batch: 86349

Analytical Method: S 8021B  
Date Analyzed: 2013-05-31  
Sample Preparation: 2013-05-31

Prep Method: S 5035  
Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Surrogate		Flag	Cert	Result	Spike Amount	Percent Recovery
Trifluorotoluene (TFT)				1.94 mg/Kg	1 2.00	97 69.6 - 120
4-Bromofluorobenzene (4-BFB)				2.14 mg/Kg	1 2.00	107 69.2 - 120

**Sample: 330627 - Cell 5**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 102141  
Prep Batch: 86538

Analytical Method: E 418.1  
Date Analyzed: 2013-06-10  
Sample Preparation: 2013-06-10

Prep Method: N/A  
Analyzed By: DS  
Prepared By: DS

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
TRPHC			17.5	mg/Kg	1	10.0

**Sample: 330628 - Cell 7**

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 101914  
Prep Batch: 86349

Analytical Method: S 8021B  
Date Analyzed: 2013-05-31  
Sample Preparation: 2013-05-31

Prep Method: S 5035  
Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs	1	<0.0200	mg/Kg	1	0.0200

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 10 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.22	mg/Kg	1	2.00	111	69.2 - 120

**Sample: 330628 - Cell 7**

Laboratory: Lubbock	Analysis: TPH 418.1	Analytical Method: E 418.1	Prep Method: N/A
QC Batch: 102141		Date Analyzed: 2013-06-10	Analyzed By: DS
Prep Batch: 86538		Sample Preparation: 2013-06-10	Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			33.1	mg/Kg	1	10.0

**Sample: 330629 - Cell 9**

Laboratory: Lubbock	Analysis: BTEX	Analytical Method: S 8021B	Prep Method: S 5035
QC Batch: 101914		Date Analyzed: 2013-05-31	Analyzed By: JS
Prep Batch: 86349		Sample Preparation: 2013-05-31	Prepared By: JS

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.16	mg/Kg	1	2.00	108	69.2 - 120

**Sample: 330629 - Cell 9**

Laboratory: Lubbock	Analysis: TPH 418.1	Analytical Method: E 418.1	Prep Method: N/A
QC Batch: 102141		Date Analyzed: 2013-06-10	Analyzed By: DS
Prep Batch: 86538		Sample Preparation: 2013-06-10	Prepared By: DS

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 11 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

### Sample: 330630 - Cell 10

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	22013-05-31	Analyzed By:	JS
QC Batch:	101915	Sample Preparation:	2013-05-31	Prepared By:	JS
Prep Batch:	86350				

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Jb, Qs	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.09	mg/Kg	1	2.00	104	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	69.2 - 120

### Sample: 330630 - Cell 10

Laboratory:	Lubbock	Analytical Method:	E 418.1	Prep Method:	N/A
Analysis:	TPH 418.1	Date Analyzed:	2013-06-10	Analyzed By:	DS
QC Batch:	102141	Sample Preparation:	2013-06-10	Prepared By:	DS
Prep Batch:	86538				

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			113	mg/Kg	1	10.0

### Sample: 330631 - Cell 11

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	22013-05-31	Analyzed By:	JS
QC Batch:	101915	Sample Preparation:	2013-05-31	Prepared By:	JS
Prep Batch:	86350				

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 12 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs, U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Jb, Qs	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	69.2 - 120

**Sample: 330631 - Cell 11**

Laboratory: Lubbock  
 Analysis: TPH 418.1  
 QC Batch: 102141  
 Prep Batch: 86538

Analytical Method: E 418.1  
 Date Analyzed: 2013-06-10  
 Sample Preparation: 2013-06-10

Prep Method: N/A  
 Analyzed By: DS  
 Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

**Sample: 330632 - Cell 12**

Laboratory: Lubbock  
 Analysis: BTEX  
 QC Batch: 102234  
 Prep Batch: 86620

Analytical Method: S 8021B  
 Date Analyzed: 2013-06-12  
 Sample Preparation: 2013-06-12

Prep Method: S 5035  
 Analyzed By: JS  
 Prepared By: JS

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	1	U	<0.200	mg/Kg	10	0.0200
Toluene	U	1	<0.200	mg/Kg	10	0.0200
Ethylbenzene	U	1	<0.200	mg/Kg	10	0.0200
Xylene	U	1	<0.200	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			16.7	mg/Kg	10	20.0	84	79.9 - 120
4-Bromofluorobenzene (4-BFB)			18.0	mg/Kg	10	20.0	90	80 - 120

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 13 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

**Sample: 330632 - Cell 12**

Laboratory:	Lubbock	Analytical Method:	E 418.1	Prep Method:	N/A
Analysis:	TPH 418.1	Date Analyzed:	2013-06-10	Analyzed By:	DS
QC Batch:	102141	Sample Preparation:	2013-06-10	Prepared By:	DS
Prep Batch:	86538				

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			<b>335</b>	mg/Kg	1	10.0

**Sample: 330633 - Cell 13**

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	22013-05-31	Analyzed By:	JS
QC Batch:	101915	Sample Preparation:	2013-05-31	Prepared By:	JS
Prep Batch:	86350				

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.99	mg/Kg	1	2.00	100	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.17	mg/Kg	1	2.00	108	69.2 - 120

**Sample: 330633 - Cell 13**

Laboratory:	Lubbock	Analytical Method:	E 418.1	Prep Method:	N/A
Analysis:	TPH 418.1	Date Analyzed:	2013-06-10	Analyzed By:	DS
QC Batch:	102141	Sample Preparation:	2013-06-10	Prepared By:	DS
Prep Batch:	86538				

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 14 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

**Sample: 330634 - Cell 14**

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 101915  
Prep Batch: 86350

Analytical Method: S 8021B  
Date Analyzed: 22013-05-31  
Sample Preparation: 2013-05-31

Prep Method: S 5035  
Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Surrogate		Flag	Cert	Result	Spike Amount	Percent Recovery
Trifluorotoluene (TFT)				1.99 mg/Kg	1 2.00	100 69.6 - 120
4-Bromofluorobenzene (4-BFB)				2.17 mg/Kg	1 2.00	108 69.2 - 120

**Sample: 330634 - Cell 14**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 102141  
Prep Batch: 86538

Analytical Method: E 418.1  
Date Analyzed: 2013-06-10  
Sample Preparation: 2013-06-10

Prep Method: N/A  
Analyzed By: DS  
Prepared By: DS

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
TRPHC	U		<10.0	mg/Kg	1	10.0

**Sample: 330635 - Cell 15**

Laboratory: Lubbock  
Analysis: BTEX  
QC Batch: 101915  
Prep Batch: 86350

Analytical Method: S 8021B  
Date Analyzed: 22013-05-31  
Sample Preparation: 2013-05-31

Prep Method: S 5035  
Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
Benzene	2	U	<0.100	mg/Kg	5	0.0200
Toluene	Qs,U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	Qs,U	1	<0.100	mg/Kg	5	0.0200
Xylene	Qs,U	1	<0.100	mg/Kg	5	0.0200

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 15 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			10.3	mg/Kg	5	10.0	103	69.6 - 120
4-Bromofluorobenzene (4-BFB)			9.50	mg/Kg	5	10.0	95	69.2 - 120

**Sample: 330635 - Cell 15**

Laboratory: Lubbock	Analysis: TPH 418.1	Analytical Method: E 418.1	Prep Method: N/A
QC Batch: 102141		Date Analyzed: 2013-06-10	Analyzed By: DS
Prep Batch: 86538		Sample Preparation: 2013-06-10	Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC			3960	mg/Kg	5	10.0

**Sample: 330636 - Cell 16**

Laboratory: Lubbock	Analysis: BTEX	Analytical Method: S 8021B	Prep Method: S 5035
QC Batch: 101915		Date Analyzed: 22013-05-31	Analyzed By: JS
Prep Batch: 86350		Sample Preparation: 2013-05-31	Prepared By: JS

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.13	mg/Kg	1	2.00	106	69.2 - 120

**Sample: 330636 - Cell 16**

Laboratory: Lubbock	Analysis: TPH 418.1	Analytical Method: E 418.1	Prep Method: N/A
QC Batch: 102141		Date Analyzed: 2013-06-10	Analyzed By: DS
Prep Batch: 86538		Sample Preparation: 2013-06-10	Prepared By: DS

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 16 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

### Sample: 330637 - Cell 17

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	22013-05-31	Analyzed By:	JS
QC Batch:	101915	Sample Preparation:	2013-05-31	Prepared By:	JS
Prep Batch:	86350				

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.89	mg/Kg	1	2.00	94	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	69.2 - 120

### Sample: 330637 - Cell 17

Laboratory:	Lubbock	Analytical Method:	E 418.1	Prep Method:	N/A
Analysis:	TPH 418.1	Date Analyzed:	2013-06-10	Analyzed By:	DS
QC Batch:	102141	Sample Preparation:	2013-06-10	Prepared By:	DS
Prep Batch:	86538				

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

### Sample: 330638 - Cell 19

Laboratory:	Lubbock	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	22013-05-31	Analyzed By:	JS
QC Batch:	101915	Sample Preparation:	2013-05-31	Prepared By:	JS
Prep Batch:	86350				

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 17 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.05	mg/Kg	1	2.00	102	69.2 - 120

**Sample: 330638 - Cell 19**

Laboratory: Lubbock  
 Analysis: TPH 418.1  
 QC Batch: 102141  
 Prep Batch: 86538

Analytical Method: E 418.1  
 Date Analyzed: 2013-06-10  
 Sample Preparation: 2013-06-10

Prep Method: N/A  
 Analyzed By: DS  
 Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

**Sample: 330639 - Cell 21**

Laboratory: Lubbock  
 Analysis: BTEX  
 QC Batch: 101915  
 Prep Batch: 86350

Analytical Method: S 8021B  
 Date Analyzed: 2013-05-31  
 Sample Preparation: 2013-05-31

Prep Method: S 5035  
 Analyzed By: JS  
 Prepared By: JS

Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	Qs,U	1	<0.0200	mg/Kg	1	0.0200
Xylene	Qs,U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.16	mg/Kg	1	2.00	108	69.2 - 120

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 18 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

**Sample: 330639 - Cell 21**

Laboratory: Lubbock  
Analysis: TPH 418.1  
QC Batch: 102141  
Prep Batch: 86538

Analytical Method: E 418.1  
Date Analyzed: 2013-06-10  
Sample Preparation: 2013-06-10

Prep Method: N/A  
Analyzed By: DS  
Prepared By: DS

Parameter	Flag	Cert	Result	Units	Dilution	RL
TRPHC	U		<10.0	mg/Kg	1	10.0

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 19 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

## Method Blanks

**Method Blank (1)** QC Batch: 101914

QC Batch: 101914  
Prep Batch: 86349

Date Analyzed: 2013-05-31  
QC Preparation: 2013-05-31

Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	MDL	Units	RL
Benzene		1	<0.00473	mg/Kg	0.02
Toluene		1	<0.00416	mg/Kg	0.02
Ethylbenzene		1	<0.00511	mg/Kg	0.02
Xylene		1	<0.00430	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	69.6 - 120
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	69.2 - 120

**Method Blank (1)** QC Batch: 101915

QC Batch: 101915  
Prep Batch: 86350

Date Analyzed: 22013-05-31  
QC Preparation: 2013-05-31

Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	MDL	Units	RL
Benzene		1	<0.00473	mg/Kg	0.02
Toluene		1	<0.00416	mg/Kg	0.02
Ethylbenzene		1	<0.00511	mg/Kg	0.02
Xylene		1	0.00710	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	69.6 - 120
4-Bromofluorobenzene (4-BFB)			1.73	mg/Kg	1	2.00	86	69.2 - 120

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 20 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

**Method Blank (1)** QC Batch: 102141

QC Batch: 102141  
Prep Batch: 86538

Date Analyzed: 2013-06-10  
QC Preparation: 2013-06-10

Analyzed By: DS  
Prepared By: DS

Parameter	Flag	Cert	MDL Result	Units	RL
TRPHC			<5.72	mg/Kg	10

**Method Blank (1)** QC Batch: 102234

QC Batch: 102234  
Prep Batch: 86620

Date Analyzed: 2013-06-12  
QC Preparation: 2013-06-12

Analyzed By: JS  
Prepared By: JS

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00338	mg/Kg	0.02
Toluene		1	<0.00334	mg/Kg	0.02
Ethylbenzene		1	<0.00403	mg/Kg	0.02
Xylene		1	<0.00373	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	79.9 - 120
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	80 - 120

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 21 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

# Laboratory Control Spikes

## Laboratory Control Spike (LCS-1)

QC Batch: 101914  
Prep Batch: 86349Date Analyzed: 2013-05-31  
QC Preparation: 2013-05-31Analyzed By: JS  
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.91	mg/Kg	1	2.00	<0.00473	96	74.6 - 120
Toluene		1	2.00	mg/Kg	1	2.00	<0.00416	100	77.1 - 120
Ethylbenzene		1	2.02	mg/Kg	1	2.00	<0.00511	101	75 - 120
Xylene		1	6.20	mg/Kg	1	6.00	<0.00430	103	77 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.87	mg/Kg	1	2.00	<0.00473	94	74.6 - 120	2	20
Toluene		1	1.96	mg/Kg	1	2.00	<0.00416	98	77.1 - 120	2	20
Ethylbenzene		1	1.98	mg/Kg	1	2.00	<0.00511	99	75 - 120	2	20
Xylene		1	6.07	mg/Kg	1	6.00	<0.00430	101	77 - 120	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.91	1.96	mg/Kg	1	2.00	96	98	69.6 - 120
4-Bromofluorobenzene (4-BFB)	2.10	1.99	mg/Kg	1	2.00	105	100	69.2 - 120

## Laboratory Control Spike (LCS-1)

QC Batch: 101915  
Prep Batch: 86350Date Analyzed: 22013-05-31  
QC Preparation: 2013-05-31Analyzed By: JS  
Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.93	mg/Kg	1	2.00	<0.00473	96	74.6 - 120
Toluene		1	2.02	mg/Kg	1	2.00	<0.00416	101	77.1 - 120
Ethylbenzene		1	2.06	mg/Kg	1	2.00	<0.00511	103	75 - 120
Xylene		1	6.32	mg/Kg	1	6.00	0.0071	105	77 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 22 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.78	mg/Kg	1	2.00	<0.00473	89	74.6 - 120	8	20
Toluene		1	1.87	mg/Kg	1	2.00	<0.00416	94	77.1 - 120	8	20
Ethylbenzene		1	1.92	mg/Kg	1	2.00	<0.00511	96	75 - 120	7	20
Xylene		1	5.85	mg/Kg	1	6.00	0.0071	98	77 - 120	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.86	1.89	mg/Kg	1	2.00	93	94	69.6 - 120
4-Bromofluorobenzene (4-BFB)	2.05	1.75	mg/Kg	1	2.00	102	88	69.2 - 120

**Laboratory Control Spike (LCS-1)**QC Batch: 102141 Date Analyzed: 2013-06-10 Analyzed By: DS  
Prep Batch: 86538 QC Preparation: 2013-06-10 Prepared By: DS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit
TRPHC			286	mg/Kg	1	250	<5.72	114	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit	RPD	RPD Limit
TRPHC			265	mg/Kg	1	250	<5.72	106	80 - 120	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

**Laboratory Control Spike (LCS-1)**QC Batch: 102234 Date Analyzed: 2013-06-12 Analyzed By: JS  
Prep Batch: 86620 QC Preparation: 2013-06-12 Prepared By: JS

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec. Rec.	Rec. Limit
Benzene		1	1.73	mg/Kg	1	2.00	<0.00338	86	78.1 - 120
Toluene		1	1.79	mg/Kg	1	2.00	<0.00334	90	78.7 - 120
Ethylbenzene		1	1.81	mg/Kg	1	2.00	<0.00403	90	79.4 - 120
Xylene		1	5.42	mg/Kg	1	6.00	<0.00373	90	78.6 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 23 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Param	F	C	LCSD		Dil.	Spike Amount	Matrix		Rec.		RPD	RPD Limit
			Result	Units			Result	Rec.	Limit			
Benzene		1	1.72	mg/Kg	1	2.00	<0.00338	86	78.1 - 120	1	20	
Toluene		1	1.78	mg/Kg	1	2.00	<0.00334	89	78.7 - 120	1	20	
Ethylbenzene		1	1.81	mg/Kg	1	2.00	<0.00403	90	79.4 - 120	0	20	
Xylene		1	5.41	mg/Kg	1	6.00	<0.00373	90	78.6 - 120	0	20	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS		LCSD		Dil.	Spike Amount	LCS		LCSD		Rec. Limit
	Result	Result	Units	Result			Rec.	Rec.	Rec.	Rec.	
Trifluorotoluene (TFT)		1.65		1.64	mg/Kg	1	2.00	82	82	79.9 - 120	
4-Bromofluorobenzene (4-BFB)		1.73		1.74	mg/Kg	1	2.00	86	87	80 - 120	

### Matrix Spike (MS-1) Spiked Sample: 330625

QC Batch: 101914  
Prep Batch: 86349

Date Analyzed: 2013-05-31  
QC Preparation: 2013-05-31

Analyzed By: JS  
Prepared By: JS

Param	F	C	MS		Dil.	Spike Amount	Matrix		Rec.		Limit
			Result	Units			Result	Rec.	Limit		
Benzene			1	2.27	mg/Kg	1	2.00	<0.00473	114	68.8 - 120	
Toluene	Q <sub>S</sub>	Q <sub>S</sub>	1	2.53	mg/Kg	1	2.00	<0.00416	126	71.8 - 122	
Ethylbenzene	Q <sub>S</sub>	Q <sub>S</sub>	1	2.68	mg/Kg	1	2.00	<0.00511	134	75 - 130	
Xylene	Q <sub>S</sub>	Q <sub>S</sub>	1	8.19	mg/Kg	1	6.00	0.0055	136	75.4 - 129	

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD		Dil.	Spike Amount	Matrix		Rec.		RPD	RPD Limit
			Result	Units			Result	Rec.	Limit			
Benzene			1	2.28	mg/Kg	1	2.00	<0.00473	114	68.8 - 120	0	20
Toluene	Q <sub>S</sub>	Q <sub>S</sub>	1	2.58	mg/Kg	1	2.00	<0.00416	129	71.8 - 122	2	20
Ethylbenzene	Q <sub>S</sub>	Q <sub>S</sub>	1	2.74	mg/Kg	1	2.00	<0.00511	137	75 - 130	2	20
Xylene	Q <sub>S</sub>	Q <sub>S</sub>	1	8.40	mg/Kg	1	6.00	0.0055	140	75.4 - 129	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS		MSD		Dil.	Spike Amount	Spike		MS		MSD		Rec. Limit
	Result	Result	Units	Result			Rec.	Rec.	Rec.	Rec.	Rec.	Rec.	
Trifluorotoluene (TFT)		2.06		2.02	mg/Kg	1	2		103	101	69.6 - 120		
4-Bromofluorobenzene (4-BFB)		2.27		2.25	mg/Kg	1	2		114	112	69.2 - 120		

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 24 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM**Matrix Spike (MS-1)** Spiked Sample: 330626QC Batch: 101915  
Prep Batch: 86350Date Analyzed: 22013-05-31  
QC Preparation: 2013-05-31Analyzed By: JS  
Prepared By: JS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene			1	2.19	mg/Kg	1	2.00	<0.00473	110 68.8 - 120
Toluene	Qs	Qs	1	2.48	mg/Kg	1	2.00	<0.00416	124 71.8 - 122
Ethylbenzene	Qs	Qs	1	2.63	mg/Kg	1	2.00	<0.00511	132 75 - 130
Xylene	Qs	Qs	1	8.10	mg/Kg	1	6.00	0.0064	135 75.4 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene			1	2.28	mg/Kg	1	2.00	<0.00473	114 68.8 - 120	4	20
Toluene	Qs	Qs	1	2.57	mg/Kg	1	2.00	<0.00416	128 71.8 - 122	4	20
Ethylbenzene	Qs	Qs	1	2.76	mg/Kg	1	2.00	<0.00511	138 75 - 130	5	20
Xylene	Qs	Qs	1	8.46	mg/Kg	1	6.00	0.0064	141 75.4 - 129	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.10	2.05	mg/Kg	1	2	105	102	69.6 - 120
4-Bromofluorobenzene (4-BFB)	2.21	2.26	mg/Kg	1	2	110	113	69.2 - 120

**Matrix Spike (MS-1)** Spiked Sample: 330623QC Batch: 102141  
Prep Batch: 86538Date Analyzed: 2013-06-10  
QC Preparation: 2013-06-10Analyzed By: DS  
Prepared By: DS

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
TRPHC			238	mg/Kg	1	250	7.14	92	80 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	RPD	RPD Limit
TRPHC			250	mg/Kg	1	250	7.14	97	80 - 120	5 20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013Work Order: 13053120  
GMI LandfarmPage Number: 25 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

# Calibration Standards

## Standard (CCV-1)

Param	Flag	Cert	Units	CCVs	CCVs	CCVs	Percent	Date
				True	Found	Percent	Recovery	
Benzene	1		mg/kg	0.100	0.0961	96	80 - 120	2013-05-31
Toluene	1		mg/kg	0.100	0.101	101	80 - 120	2013-05-31
Ethylbenzene	1		mg/kg	0.100	0.102	102	80 - 120	2013-05-31
Xylene	1		mg/kg	0.300	0.310	103	80 - 120	2013-05-31

## Standard (CCV-2)

Param	Flag	Cert	Units	CCVs	CCVs	CCVs	Percent	Date
				True	Found	Percent	Recovery	
Benzene	1		mg/kg	0.100	0.0970	97	80 - 120	2013-05-31
Toluene	1		mg/kg	0.100	0.103	103	80 - 120	2013-05-31
Ethylbenzene	1		mg/kg	0.100	0.102	102	80 - 120	2013-05-31
Xylene	1		mg/kg	0.300	0.312	104	80 - 120	2013-05-31

## Standard (CCV-3)

Param	Flag	Cert	Units	CCVs	CCVs	CCVs	Percent	Date
				True	Found	Percent	Recovery	
Benzene	1		mg/kg	0.100	0.0902	90	80 - 120	2013-05-31
Toluene	1		mg/kg	0.100	0.0935	94	80 - 120	2013-05-31
Ethylbenzene	1		mg/kg	0.100	0.0952	95	80 - 120	2013-05-31
Xylene	1		mg/kg	0.300	0.290	97	80 - 120	2013-05-31

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 26 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

### Standard (CCV-1)

QC Batch: 101915 Date Analyzed: 22013-05-31 Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	1		mg/kg	0.100	0.0927	93	80 - 120	22013-05-31
Toluene	1		mg/kg	0.100	0.0974	97	80 - 120	22013-05-31
Ethylbenzene	1		mg/kg	0.100	0.0990	99	80 - 120	22013-05-31
Xylene	1		mg/kg	0.300	0.301	100	80 - 120	22013-05-31

### Standard (CCV-2)

QC Batch: 101915 Date Analyzed: 22013-05-31 Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	1		mg/kg	0.100	0.0962	96	80 - 120	22013-05-31
Toluene	1		mg/kg	0.100	0.101	101	80 - 120	22013-05-31
Ethylbenzene	1		mg/kg	0.100	0.102	102	80 - 120	22013-05-31
Xylene	1		mg/kg	0.300	0.311	104	80 - 120	22013-05-31

### Standard (CCV-3)

QC Batch: 101915 Date Analyzed: 22013-05-31 Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	1		mg/kg	0.100	0.0909	91	80 - 120	22013-05-31
Toluene	1		mg/kg	0.100	0.0941	94	80 - 120	22013-05-31
Ethylbenzene	1		mg/kg	0.100	0.0954	95	80 - 120	22013-05-31
Xylene	1		mg/kg	0.300	0.290	97	80 - 120	22013-05-31

### Standard (CCV-1)

QC Batch: 102141 Date Analyzed: 2013-06-10 Analyzed By: DS

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 27 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	100	87.0	87	80 - 120	2013-06-10

### Standard (CCV-2)

QC Batch: 102141 Date Analyzed: 2013-06-10 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	100	86.3	86	80 - 120	2013-06-10

### Standard (CCV-3)

QC Batch: 102141 Date Analyzed: 2013-06-10 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	100	87.8	88	80 - 120	2013-06-10

### Standard (CCV-4)

QC Batch: 102141 Date Analyzed: 2013-06-10 Analyzed By: DS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
TRPHC			mg/Kg	100	97.8	98	80 - 120	2013-06-10

### Standard (CCV-1)

QC Batch: 102234 Date Analyzed: 2013-06-12 Analyzed By: JS

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 28 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	1		mg/kg	0.100	0.0873	87	80 - 120	2013-06-12
Toluene	1		mg/kg	0.100	0.0900	90	80 - 120	2013-06-12
Ethylbenzene	1		mg/kg	0.100	0.0915	92	80 - 120	2013-06-12
Xylene	1		mg/kg	0.300	0.272	91	80 - 120	2013-06-12

### Standard (CCV-2)

QC Batch: 102234

Date Analyzed: 2013-06-12

Analyzed By: JS

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	1		mg/kg	0.100	0.0840	84	80 - 120	2013-06-12
Toluene	1		mg/kg	0.100	0.0871	87	80 - 120	2013-06-12
Ethylbenzene	1		mg/kg	0.100	0.0907	91	80 - 120	2013-06-12
Xylene	1		mg/kg	0.300	0.266	89	80 - 120	2013-06-12

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 29 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

## Appendix

### Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

### Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-13-9	Lubbock

### Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

### Result Comments

Report Date: June 13, 2013  
1st Quarter Soil Sampling 2013

Work Order: 13053120  
GMI Landfarm

Page Number: 30 of 30  
Sec. 4, 5, 8, 9, T11S-R31E, Chavez Co., NM

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- 1 Dilution due to surfactants.
- 2 Dilution due to surfactants.

## Attachments

The scanned attachments will follow this page.  
Please note, each attachment may consist of more than one page.





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<https://www.emnrd.nm.gov/ocd/contact-us>

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS

Action 537519

**CONDITIONS**

Operator:  GANDY MARLEY INC PO Box 1658 Roswell, NM 88202	OGRID: 195280
	Action Number: 537519
	Action Type: [C-137] Non-Fee SWMF Submittal (SWMF NON-FEE SUBMITTAL)

**CONDITIONS**

Created By	Condition	Condition Date
joseph.kennedy	Records retention only	12/24/2025