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North America Division

January 25, 2011

Mr. John Axelson  
Department Of Natural Resources  
Oil & Gas Conservation Commission  
1120 Lincoln St., Suite 801  
Denver CO 80203-2136

RE: Excavation Report  
Lorenz F22-1,2  
API 05-123-15139  
Sec.22, T5N R65W  
Weld County, Colorado  
Remediation Project #5465

Dear Mr. Axelson:

Please find attached the Excavation Summary Report for the Lorenz F22-1,2. Noble Energy Inc. would like to claim business confidentiality protection for the information submitted in this letter, the supporting materials attached and all previous and subsequent correspondence related to this matter. Please contact the Noble Energy Environmental Department at (970) 785-5000 if you have any questions or require additional information.

Sincerely,

A handwritten signature in black ink that reads 'm. COX'.

Mike Cox  
Environmental Coordinator

A handwritten signature in black ink that reads 'Marty Faraguna'.

Marty Faraguna  
Environmental Specialist

Attachments

# **REMEDIATION SUMMARY REPORT**

## **LORENZ F 22-1 TANK BATTERY WELD COUNTY, COLORADO**

**JANUARY 2011**

**Prepared for:**

**NOBLE ENERGY, INC.  
Platteville, Colorado**



**REMEDIATION SUMMARY REPORT**

**LORENZ F 22-1 TANK BATTERY  
WELD COUNTY, COLORADO**

**JANUARY 2011**

**Prepared for:**

**NOBLE ENERGY, INC.  
804 Grand Avenue  
Platteville, Colorado 80651**

**Prepared by:**

**LT ENVIRONMENTAL, INC.  
4600 West 60<sup>th</sup> Avenue  
Arvada, Colorado 80003  
(303) 433-9788**

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## EXECUTIVE SUMMARY

This report was prepared by LT Environmental, Inc. (LTE), on behalf of Noble Energy, Inc. (Noble), to document remediation activities at the Lorenz F 22-1 Tank Battery (Site). The Site is located in a grazing pasture, 0.1 miles south and 0.1 miles west of the intersection of U.S Highway 34 and Weld County Road (WCR) 45 (Figure 1).

The scope of work for this project included mitigation of petroleum hydrocarbon impacts following the identification of a tank battery release. The source removal program was accomplished via excavation/removal of hydrocarbon-impacted soils and groundwater. Activities included; confirmation sampling and analysis, application of a groundwater amendment, documentation, health and safety monitoring, and reporting.

Noble contractors excavated impacted soil at the site from December 14 through December 16, 2010. A total volume of 760 cubic yards of impacted soils were transported offsite to the Buffalo Ridge Landfill, located in Weld County, Colorado. A total volume of 730 barrels (bbs) of impacted groundwater was removed from the excavation and transported offsite to Conquest Disposal Facility located in Weld County, Colorado. The excavation was backfilled with clean soils. The final excavation extent was 90 feet by 30 feet, to a depth of 5 feet below ground surface (bgs).

In the northwest portion of the excavation, access restrictions prohibited the removal of impacted soil within 10 feet of a DCP Midstream (DCP) pipeline. Confirmation samples were collected from the north wall, and pothole excavations were conducted 5 feet north of the pipeline. Pothole excavation sample analytical results indicate that soil contamination does not extend north of the DCP pipeline.

Following the completion of source removal activities, an activated carbon remediation amendment was installed in the base of the excavation to remediate any residual hydrocarbons remaining. A total of 300 pounds of groundwater amendment was applied to the excavation.

Based on field screening and the analytical results from the confirmation sidewall and pothole samples collected, accessible soil has been remediated to below the Colorado Oil and Gas Conservation Commission (COGCC) Standards. As seen by the data collected from the site, hydrocarbon impacts have been removed to the extent practical, and the remaining soil above standards is limited in extent. We expect that with removal of the bulk of the source, natural attenuation processes will be enhanced and will ultimately reduce impacts to below standard.

LTE will install groundwater monitoring wells at a later date, after Site construction activities are completed, to determine if residual groundwater impacts exist at the Site. A monitoring well installation and groundwater monitoring summary report will be submitted under separate cover. LTE, on behalf of Noble, will conduct quarterly groundwater monitoring with the goal of observing four consecutive quarters of analytical data below regulatory standard. When this goal is achieved, a No Further Action request will be submitted to the COGCC.

## **SECTION 1.0**

### **INTRODUCTION**

This report was prepared by LT Environmental, Inc. (LTE) for Noble Energy, Inc. (Noble) to document excavation activities at the Lorenz F 22-1 Tank Battery (Site). The purpose of this project was to remove hydrocarbon-impacted soils and groundwater from the Site.

#### **1.1 SITE DESCRIPTION**

The Site is located 0.1 miles south and 0.1 miles west of the intersection of U.S Highway 34 and Weld County Road (WCR) 45. The legal description of the Site is the northeast quarter of the northeast quarter of Section 22, Township 5 North, Range 65 West of the Sixth Principal Meridian, in Weld County, Colorado (Figure 1). The Site is bordered to the south and west by pasture land, to the north by an irrigation ditch, and to the east by WCR 45.

The Site geology was predominantly observed as a sandy clay that extended from the ground surface to groundwater at approximately 5 feet below ground surface (bgs). The groundwater was observed at approximately 2.5 feet bgs.

The Site is located at an elevation of 4,622 feet above mean sea level in an area with localized flat topography. There is an irrigation canal located 15 feet north of the tank battery.

#### **1.2 SCOPE OF WORK**

The scope of work for this remediation project included the removal of impacted soils and treatment of impacted groundwater. Impacted soils were transported offsite to the Buffalo Ridge Landfill and replaced with clean soils from Varra Companies, Inc. (Varra) of Greeley, Colorado. Impacted groundwater was transported offsite to the Conquest Disposal Facility located in Weld County, Colorado. A groundwater amendment mixture was installed in the base of the excavation to reduce the potential for groundwater impact resulting from residual hydrocarbons.

During onsite activities, Noble and LTE personnel conducted field screening of soils, soil sampling, excavation oversight, health and safety monitoring, installation of the groundwater amendment, and documentation activities.

A summary of field activities, analytical results from soil sampling, and conclusions are presented in the subsequent sections.

## SECTION 2.0

### SUMMARY OF FIELD ACTIVITIES

#### 2.1 EXCAVATION ACTIVITIES

From December 14 through December 16, 2010, Noble contractors excavated impacted soils. During remediation activities, soil staining was observed at depths from 2 feet bgs to 5 feet bgs. LTE personnel conducted field screening of volatile organic compounds (VOCs) using a photoionization detector (PID) and collected confirmation soil samples to determine the extent of impact.

The final dimensions of the excavation were approximately 90 feet east-west by 30 feet north-south, and the total depth of the excavation was approximately 5 feet. A total volume of 760 cubic yards of impacted soil were excavated and transported offsite to the Buffalo Ridge Landfill located in Weld County, Colorado. A total volume of 730 barrels (bbs) of impacted groundwater was removed via vacuum truck and transported offsite to Conquest Disposal Facility located in Weld County, Colorado.

Soil samples were collected from the impacted interval along the side walls of the excavation. Each sample was field-screened for VOCs with a PID to determine if additional excavation was required. Once PID measurements indicated accessible impacted soil had been removed, confirmation soil samples were collected and submitted to an analytical laboratory.

Soil samples were not collected from the base of the excavation because the final excavation depth extended below the static water level. The potential for residual hydrocarbon impact below the water table in the excavation will be characterized through collection and analysis of groundwater samples, and will be presented in future groundwater monitoring reports.

The extent of the excavation was controlled to the north by a DCP Midstream (DCP) natural gas pipeline. Soil was removed to within 10 feet of the pipeline at which point wall samples were collected from the excavation. In areas where wall sample laboratory results exceeded the COGCC Standards, potholing was conducted 5 feet north of the DCP pipeline and a sample was collected for analysis. Results confirm that the impacted soil does not extend beyond the DCP pipeline.

Figure 2 presents the excavation extent as well as the location and analytical results for the soil samples collected from the excavation.

A total of 11 samples were collected from the excavation sidewalls, and each of the samples were submitted to Origins Laboratory, Inc. (Origins) of Denver, Colorado. Soil samples were submitted for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260B, and total petroleum hydrocarbons (TPH) as total volatile hydrocarbons - gasoline range organics (GRO) and

total extractable hydrocarbons – diesel range organics (DRO) by EPA Modified Method 8015.

After field screening indicated the accessible impacted soils had been removed, the excavation was backfilled with clean fill provided by Varra.

## **2.2 GROUNDWATER AMENDMENT APPLICATION**

Groundwater was observed at the Site at approximately 2.5 feet bgs. To reduce the potential for any further groundwater impact resulting from residual hydrocarbons, a groundwater amendment was applied to the entire base of the excavation after field screening measurements and confirmation sample analytical results demonstrated the accessible impacted soils were removed.

The groundwater remediation amendment applied to the excavation was comprised of activated carbon inoculated with electron acceptors (nitrate and sulfate) and nutrients (phosphorus and nitrogen) designed to promote biodegradation of petroleum hydrocarbons. A total of 300 pounds of the groundwater remediation amendment was applied to the base of the excavation.

## SECTION 3.0

### ANALYTICAL RESULTS

Soil samples were collected to define the extent of the excavation and confirm that impacts above regulatory standard were removed. Confirmation soil samples were collected from the impacted interval along the side walls of the excavation and from potholes to the north of the DCP pipeline. Soil sample locations and analytical results are illustrated on Figure 2. Soil samples were sent to Origins for analysis of BTEX using EPA Method 8260B, and TPH as GRO and DRO using EPA Modified Method 8015.

The COGCC standard for TPH in soil is 500 milligrams per kilogram (mg/kg). The COGCC standards for BTEX in soil are 0.17 mg/kg for benzene, 85 mg/kg for toluene, 100 mg/kg for ethylbenzene, and 175 mg/kg for total xylenes.

Analytical results indicate benzene was detected at concentrations of 0.67 mg/kg and 7.89 mg/kg in SS02 and SS05, respectively. TPH was detected at concentrations of 896 mg/kg and 684 mg/kg in SS02 and SS05, respectively. Toluene, ethylbenzene and total xylenes were not detected above COGCC standards in the perimeter samples collected from the excavation and potholes.

Soil sample analytical results are summarized in the attached Table. Copies of the laboratory analytical reports are included in Appendix A.

## SECTION 4.0

### SUMMARY AND CONCLUSIONS

From December 14 through December 16, 2010, Noble excavated and removed 760 cubic yards of impacted soil and 730 bbs of impacted groundwater from the excavation at the Site.

During remediation activities, evidence of impact to the subsurface, in the form of staining and odor, was observed ranging in depth from 2 feet to 5 feet bgs. LTE conducted field-screening of VOCs and collection of soil confirmation samples for laboratory analysis from the excavated area. Access restrictions prevented the removal of soil to the north of the excavation. Pothole excavations were conducted north of the remaining impact to verify the extent of contaminated soils.

Impacted soils were excavated and transported to the Buffalo Ridge Landfill. Impacted groundwater was removed via vacuum truck and transported to the Conquest Disposal Facility. Clean soils were imported from Varra for use as backfill in the excavation. LTE collected confirmation soil samples during soil excavation activities. Analytical results from soil samples collected from the impacted interval along the walls of the excavation and potholes indicate that the accessible petroleum impacted soils have been removed to below the COGCC standards. Excavation wall samples SS02 and SS05, indicated concentrations of benzene and TPH above COGCC standards, but pothole locations further north indicated compliance with COGCC standards.

To prevent any future impact from residual hydrocarbons in the excavation, 300 pounds of a hydrocarbon degrading amendment were applied to the base of the excavation.

LTE is in the process of conducting post-excavation groundwater monitoring activities at the Site. LTE will use monitoring wells, to be installed at a later date, to conduct groundwater monitoring at the Site. A summary of the monitoring well installation, sampling activities, and groundwater analytical results will be included with the first post-remediation quarterly groundwater monitoring report to be submitted under separate cover.

## **TABLE**

**TABLE 1**

**SOIL ANALYTICAL RESULTS  
LORENZ F 22-1 TANK BATTERY  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVH-GRO (mg/kg)	TEH-DRO (mg/kg)
SS01	12/14/2010	<0.004	<0.004	<0.004	<0.004	<50	<50
SS02	12/14/2010	<b>0.67</b>	0.576	3.68	57.4	<b>478</b>	<b>418</b>
SS03	12/14/2010	<0.004	<0.004	<0.004	<0.004	<50	<50
SS04	12/15/2010	<0.004	<0.004	<0.004	0.0369	<50	<50
SS05	12/15/2010	<b>7.89</b>	8.11	6.22	76.3	<b>387</b>	<b>297</b>
SS06	12/15/2010	<0.004	<0.004	<0.004	0.0335	<50	<50
SS07	12/16/2010	<0.004	<0.004	<0.004	<0.004	<50	<50
SS08	12/16/2010	<0.004	<0.004	<0.004	0.016	<50	<50
SS09	12/16/2010	<0.004	<0.004	0.00476	0.0482	<50	<50
SS10	12/16/2010	<0.004	<0.004	<0.004	<0.004	<50	<50
SS11	12/16/2010	<0.004	<0.004	<0.004	<0.004	<50	275
SS04 (pothole)	11/29/2010	<0.004	<0.004	<0.004	<0.004	<50	<50
SS07 (pothole)	11/29/2010	<0.004	<0.004	<0.004	<0.004	<50	<50
SS08 (pothole)	11/29/2010	0.0234	<0.020	0.234	2.89	103	237
<b>COGCC Standard</b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>Combined to 500</b>	

**Notes:**

mg/kg - milligrams per kilogram

< indicates result is less than the stated laboratory method reporting limit

**bold** indicates samples exceed COGCC standard

TVH-GRO - Total Volatile Hydrocarbons - Gasoline Range Organics

TEH-DRO - Total Extractable Hydrocarbons - Diesel Range Organics

COGCC - Colorado Oil & Gas Conservation Commission

Benzene, toluene, ethylbenzene, and total xylenes analyzed by EPA Method 8260B

TVH-GRO and TEH-DRO analyzed by EPA Modified Method 8015

Samples were collected from the smear zone at 0.5 to 5 feet below ground surface

## **FIGURES**

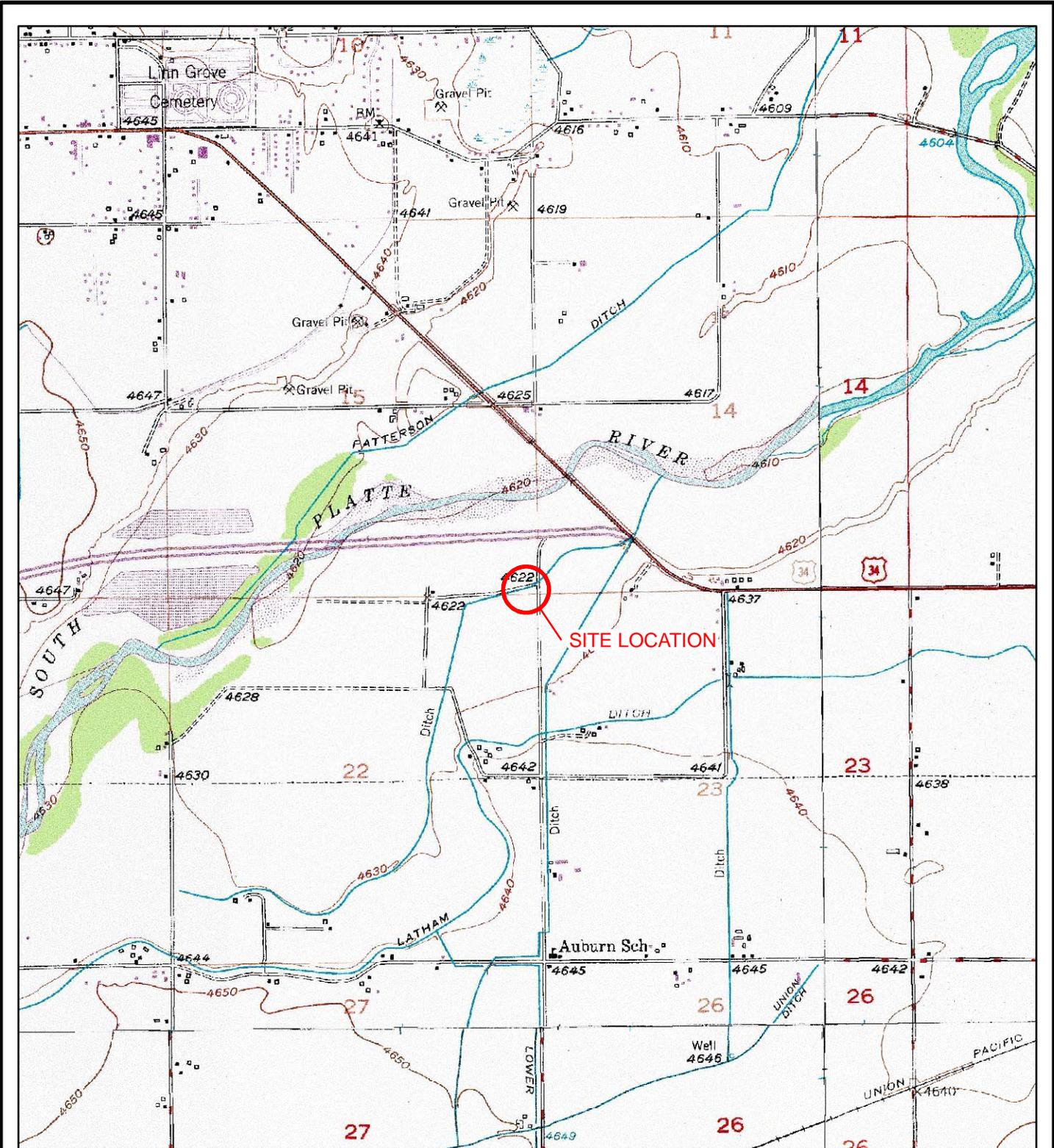
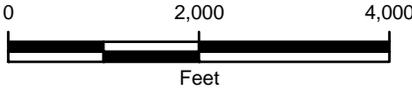


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

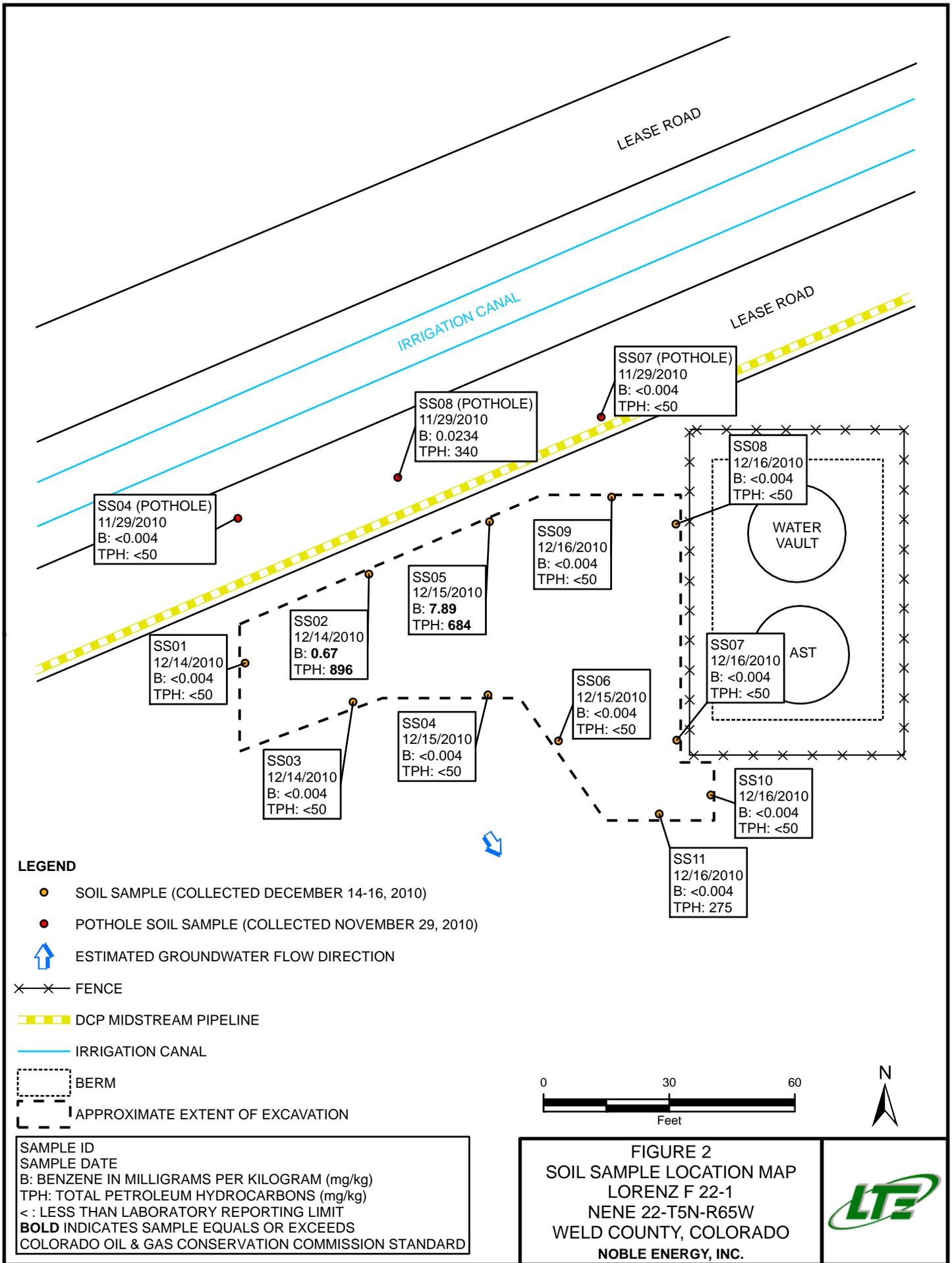
**LEGEND**

○ SITE LOCATION



**FIGURE 1**  
**SITE LOCATION MAP**  
 LORENZ F 22-1  
 NENE 22-T5N-R65W  
 WELD COUNTY, COLORADO  
 NOBLE ENERGY, INC.





**FIGURE 2**  
**SOIL SAMPLE LOCATION MAP**  
**LORENZ F 22-1**  
**NENE 22-T5N-R65W**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**



**APPENDIX A**  
**LABORATORY ANALYTICAL REPORTS**

December 15, 2010

LT Environmental, Inc.  
Matthew Harrison  
4600 West 60th Avenue  
Arvada CO 80003

Project Name- Noble - Lorenz F22-1

Project Number- NEPI047

Attached are your analytical results for Noble - Lorenz F22-1 received by Origins Laboratory, Inc. December 14, 2010 4:33 pm. This project is associated with Origins project number X012098-01 .

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEPI047  
Project: Noble - Lorenz F22-1

**CROSS REFERENCE REPORT**

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
SS01	X012098-01	Soil	12/14/2010 11:50:00AM	12/14/2010 16:33
SS02	X012098-02	Soil	12/14/2010 1:20:00PM	12/14/2010 16:33
SS03	X012098-03	Soil	12/14/2010 1:40:00PM	12/14/2010 16:33

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

\_\_\_\_\_  
Noelle E Doyle.



LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047  
 Project: Noble - Lorenz F22-1

**SS01**

12/14/2010 11:50:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012098-01 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL14005	12/14/2010	12/15/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.9 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	101 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL14004	12/14/2010	12/15/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	97.1 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047  
 Project: Noble - Lorenz F22-1

**SS02**

12/14/2010 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012098-02 (Soil)

**BTEX by EPA 8260B**

Benzene	0.670	0.200	mg/kg	50	OL14005	12/14/2010	12/15/2010	
Toluene	0.576	0.200	"	"	"	"	"	
Ethylbenzene	3.68	0.200	"	"	"	"	"	
Xylenes, total	57.4	2.00	"	500	"	"	12/15/2010	

Surrogate: 1,2-Dichloroethane-d4	93.7 %	77.6-134			"	"	12/15/2010	
Surrogate: Toluene-d8	82.4 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	94.0 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH) by EPA 8015M**

Gasoline (C6-C10)	478	50.0	mg/kg	1	OL14004	12/14/2010	12/15/2010	
Diesel (C10-C28)	418	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	103 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEP1047  
Project: Noble - Lorenz F22-1

**SS03**

12/14/2010 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X012098-03 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL14005	12/14/2010	12/15/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.9 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	101 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	108 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL14004	12/14/2010	12/15/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	86.1 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEPI047  
 Project: Noble - Lorenz F22-1

**Extractable Petroleum Hydrocarbons by 8015M - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch OL14004 - Default Prep GC-Semi</b>										
<b>Blank (OL14004-BLK1)</b>					Prepared: 12/14/2010 Analyzed: 12/14/2010					
Gasoline (C6-C10)	ND	50.0	mg/kg				65-140			
Diesel (C10-C28)	ND	50.0	"				60-140			
TPH - Carbon Chain Total	ND	50.0	"							
<i>Surrogate: o-Terphenyl</i>	<i>42.9</i>		<i>g</i>	<i>50.0</i>		<i>85.8</i>	<i>65-140</i>			
<b>LCS (OL14004-BS1)</b>					Prepared: 12/14/2010 Analyzed: 12/14/2010					
Gasoline (C6-C10)	78.9	50.0	mg/kg				65-140			
Diesel (C10-C28)	429	50.0	"	500		85.7	60-140			
<i>Surrogate: o-Terphenyl</i>	<i>46.9</i>		<i>g</i>	<i>50.0</i>		<i>93.9</i>	<i>65-140</i>			
<b>Matrix Spike (OL14004-MS1)</b>					Source: X012080-01		Prepared: 12/14/2010 Analyzed: 12/14/2010			
Gasoline (C6-C10)	85.5	50.0	mg/kg		ND		65-130			
Diesel (C10-C28)	463	50.0	"	500	ND	92.6	60-140			
<i>Surrogate: o-Terphenyl</i>	<i>47.6</i>		<i>g</i>	<i>50.0</i>		<i>95.2</i>	<i>65-140</i>			
<b>Matrix Spike Dup (OL14004-MSD1)</b>					Source: X012080-01		Prepared: 12/14/2010 Analyzed: 12/14/2010			
Gasoline (C6-C10)	ND	50.0	mg/kg		ND		65-130		20	
Diesel (C10-C28)	474	50.0	"	500	ND	94.9	60-140	2.39	25	
<i>Surrogate: o-Terphenyl</i>	<i>48.4</i>		<i>g</i>	<i>50.0</i>		<i>96.8</i>	<i>65-140</i>			

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047  
 Project: Noble - Lorenz F22-1

**Volatile Organic Compounds by EPA Method 8260B - Quality Control  
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch OL14005 - EPA 5030B**

**Blank (OL14005-BLK1)**

Prepared: 12/14/2010 Analyzed: 12/14/2010

Benzene	ND	0.004	mg/kg							
Toluene	ND	0.004	"							
Ethylbenzene	ND	0.004	"							
m,p-Xylene	ND	0.008	"							
o-Xylene	ND	0.004	"							

Surrogate: 1,2-Dichloroethane-d4	61.5		ug/L	62.5		98.5	77.6-134			
Surrogate: Toluene-d8	61.5		"	62.5		98.4	81.4-121			
Surrogate: 4-Bromofluorobenzene	65.7		"	62.5		105	74.7-123			

**LCS (OL14005-BS1)**

Prepared: 12/14/2010 Analyzed: 12/14/2010

Benzene	0.20	0.004	mg/kg	0.200		99.2	75.2-128			
Toluene	0.20	0.004	"	0.200		101	76.3-130			
Surrogate: 1,2-Dichloroethane-d4	57.7		ug/L	62.5		92.4	77.6-134			
Surrogate: Toluene-d8	63.6		"	62.5		102	81.4-121			
Surrogate: 4-Bromofluorobenzene	66.4		"	62.5		106	74.7-123			

**Matrix Spike (OL14005-MS1)**

Source: X012062-01

Prepared: 12/14/2010 Analyzed: 12/14/2010

Benzene	0.21	0.004	mg/kg	0.200	ND	104	77.6-132			
Toluene	0.20	0.004	"	0.200	ND	101	74-136			
Surrogate: 1,2-Dichloroethane-d4	61.0		ug/L	62.5		97.7	77.6-134			
Surrogate: Toluene-d8	63.3		"	62.5		101	81.4-121			
Surrogate: 4-Bromofluorobenzene	66.9		"	62.5		107	74.7-123			

**Matrix Spike Dup (OL14005-MSD1)**

Source: X012062-01

Prepared: 12/14/2010 Analyzed: 12/14/2010

Benzene	0.21	0.004	mg/kg	0.200	ND	104	77.6-132	0.0961	13.1	
Toluene	0.20	0.004	"	0.200	ND	101	74-136	0.0395	20.9	
Surrogate: 1,2-Dichloroethane-d4	59.7		ug/L	62.5		95.5	77.6-134			
Surrogate: Toluene-d8	61.9		"	62.5		99.0	81.4-121			
Surrogate: 4-Bromofluorobenzene	67.5		"	62.5		108	74.7-123			

Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEP1047  
Project: Noble - Lorenz F22-1

**Notes and Definitions**

ND Analyte NOT DETECTED at or above the reporting limit  
RPD Relative Percent Difference

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

\_\_\_\_\_  
Noelle E Doyle.

December 16, 2010

LT Environmental, Inc.  
Matthew Harrison  
4600 West 60th Avenue  
Arvada CO 80003

Project Name- Noble - Lorenz F22-1

Project Number- NEPI047.01

Attached are your analytical results for Noble - Lorenz F22-1 received by Origins Laboratory, Inc. December 15, 2010 4:42 pm. This project is associated with Origins project number X012116-01 .

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEPI047.01  
Project: Noble - Lorenz F22-1

**CROSS REFERENCE REPORT**

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
SS04	X012116-01	Soil	12/15/2010 10:30:00AM	12/15/2010 16:42
SS05	X012116-02	Soil	12/15/2010 11:00:00AM	12/15/2010 16:42
SS06	X012116-03	Soil	12/15/2010 2:45:00PM	12/15/2010 16:42

Origins Laboratory, Inc.



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

\_\_\_\_\_  
Noelle E Doyle.



LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**SS04**

12/15/2010 10:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012116-01 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL15002	12/15/2010	12/16/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	<b>0.0369</b>	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	103 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	102 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL15003	12/15/2010	12/16/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	92.5 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**SS05**

12/15/2010 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012116-02 (Soil)

**BTEX by EPA 8260B**

Benzene	7.89	0.500	mg/kg	125	OL15002	12/15/2010	12/16/2010	
Toluene	8.11	0.500	"	"	"	"	"	
Ethylbenzene	6.22	0.500	"	"	"	"	"	
Xylenes, total	76.3	0.500	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	98.1 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	92.1 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH) by EPA 8015M**

Gasoline (C6-C10)	387	50.0	mg/kg	1	OL15003	12/15/2010	12/16/2010	
Diesel (C10-C28)	297	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	92.4 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEP1047.01  
Project: Noble - Lorenz F22-1

**SS06**

12/15/2010 2:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X012116-03 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL15002	12/15/2010	12/16/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	<b>0.0335</b>	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	93.6 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	100 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	103 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL15003	12/15/2010	12/16/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	102 %	65-140			"	"	"	
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Origins Laboratory, Inc.



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Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEPI047.01  
 Project: Noble - Lorenz F22-1

**Extractable Petroleum Hydrocarbons by 8015M - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch OL15003 - Default Prep GC-Semi</b>										
<b>Blank (OL15003-BLK1)</b>					Prepared: 12/15/2010 Analyzed: 12/16/2010					
Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
TPH - Carbon Chain Total	ND	50.0	"							
<i>Surrogate: o-Terphenyl</i>	<i>44.9</i>		<i>g</i>	<i>50.0</i>		<i>89.7</i>	<i>65-140</i>			
<b>LCS (OL15003-BS1)</b>					Prepared: 12/15/2010 Analyzed: 12/16/2010					
Gasoline (C6-C10)	224	50.0	mg/kg				65-140			
Diesel (C10-C28)	516	50.0	"	500		103	60-140			
<i>Surrogate: o-Terphenyl</i>	<i>50.8</i>		<i>g</i>	<i>50.0</i>		<i>102</i>	<i>65-140</i>			
<b>Matrix Spike (OL15003-MS1)</b>		Source: X012077-05			Prepared: 12/15/2010 Analyzed: 12/16/2010					
Gasoline (C6-C10)	126	50.0	mg/kg		39.0		65-130			
Diesel (C10-C28)	1960	50.0	"	500	1900	12.9	60-140			QM-05
<i>Surrogate: o-Terphenyl</i>	<i>51.5</i>		<i>g</i>	<i>50.0</i>		<i>103</i>	<i>65-140</i>			
<b>Matrix Spike Dup (OL15003-MSD1)</b>		Source: X012077-05			Prepared: 12/15/2010 Analyzed: 12/16/2010					
Gasoline (C6-C10)	169	50.0	mg/kg		39.0		65-130	29.5	20	QM-05
Diesel (C10-C28)	2980	50.0	"	500	1900	216	60-140	41.1	25	QM-05
<i>Surrogate: o-Terphenyl</i>	<i>54.2</i>		<i>g</i>	<i>50.0</i>		<i>108</i>	<i>65-140</i>			

Origins Laboratory, Inc.



Noelle E Doyle,

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**Volatile Organic Compounds by EPA Method 8260B - Quality Control  
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch OL15002 - EPA 5030B**

**Blank (OL15002-BLK1)**

Prepared: 12/15/2010 Analyzed: 12/15/2010

Benzene	ND	0.004	mg/kg							
Toluene	ND	0.004	"							
Ethylbenzene	ND	0.004	"							
m,p-Xylene	ND	0.008	"							
o-Xylene	ND	0.004	"							

<i>Surrogate: 1,2-Dichloroethane-d4</i>	60.7		ug/L	62.5		97.1	77.6-134			
<i>Surrogate: Toluene-d8</i>	64.8		"	62.5		104	81.4-121			
<i>Surrogate: 4-Bromofluorobenzene</i>	66.2		"	62.5		106	74.7-123			

**LCS (OL15002-BSI)**

Prepared: 12/15/2010 Analyzed: 12/15/2010

Benzene	0.22	0.004	mg/kg	0.200		112	75.2-128			
Toluene	0.23	0.004	"	0.200		113	76.3-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	57.9		ug/L	62.5		92.7	77.6-134			
<i>Surrogate: Toluene-d8</i>	63.4		"	62.5		101	81.4-121			
<i>Surrogate: 4-Bromofluorobenzene</i>	65.2		"	62.5		104	74.7-123			

**Matrix Spike (OL15002-MSI)**

Source: X012084-01

Prepared: 12/15/2010 Analyzed: 12/15/2010

Benzene	0.22	0.004	mg/kg	0.200	ND	111	77.6-132			
Toluene	0.23	0.004	"	0.200	0.01	106	74-136			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	60.3		ug/L	62.5		96.4	77.6-134			
<i>Surrogate: Toluene-d8</i>	63.5		"	62.5		102	81.4-121			
<i>Surrogate: 4-Bromofluorobenzene</i>	66.0		"	62.5		106	74.7-123			

**Matrix Spike Dup (OL15002-MSD1)**

Source: X012084-01

Prepared: 12/15/2010 Analyzed: 12/15/2010

Benzene	0.22	0.004	mg/kg	0.200	ND	109	77.6-132	1.74	13.1	
Toluene	0.22	0.004	"	0.200	0.01	104	74-136	1.98	20.9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	59.9		ug/L	62.5		95.9	77.6-134			
<i>Surrogate: Toluene-d8</i>	64.3		"	62.5		103	81.4-121			
<i>Surrogate: 4-Bromofluorobenzene</i>	65.8		"	62.5		105	74.7-123			

Origins Laboratory, Inc.



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Noelle E Doyle,

LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEP1047.01  
Project: Noble - Lorenz F22-1

**Notes and Definitions**

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference

Origins Laboratory, Inc.



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\_\_\_\_\_  
Noelle E Doyle.

December 17, 2010

LT Environmental, Inc.  
Matthew Harrison  
4600 West 60th Avenue  
Arvada CO 80003

Project Name- Noble - Lorenz F22-1

Project Number- NEPI047.01

Attached are your analytical results for Noble - Lorenz F22-1 received by Origins Laboratory, Inc. December 16, 2010 5:20 pm. This project is associated with Origins project number X012125-01 .

The analytical results in the following report were analyzed under the guidelines of EPA Methods specified in SW-846. The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEPI047.01  
Project: Noble - Lorenz F22-1

**CROSS REFERENCE REPORT**

Sample ID	Laboratory ID	Matrix	Sampled	Date Received
SS07	X012125-01	Soil	12/16/2010 10:10:00AM	12/16/2010 17:20
SS08	X012125-02	Soil	12/16/2010 12:50:00PM	12/16/2010 17:20
SS09	X012125-03	Soil	12/16/2010 1:20:00PM	12/16/2010 17:20
SS10	X012125-04	Soil	12/16/2010 3:00:00PM	12/16/2010 17:20
SS11	X012125-05	Soil	12/16/2010 3:10:00PM	12/16/2010 17:20

Origins Laboratory, Inc.



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\_\_\_\_\_  
Noelle E Doyle.



LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**SS07**

12/16/2010 10:10:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012125-01 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL16006	12/16/2010	12/17/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	90.3 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	103 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.9 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL16005	12/16/2010	12/17/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	97.7 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**SS08**

12/16/2010 12:50:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012125-02 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL16006	12/16/2010	12/17/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	0.0160	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	94.3 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	104 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	105 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL16005	12/16/2010	12/17/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	108 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada CO 80003

Matthew Harrison  
Project Number: NEP1047.01  
Project: Noble - Lorenz F22-1

**SS09**

12/16/2010 1:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X012125-03 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL16006	12/16/2010	12/17/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	0.00476	0.00400	"	"	"	"	"	
Xylenes, total	0.0482	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	90.5 %	77.6-134			"	"	"	
Surrogate: Toluene-d8	103 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	106 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH)by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL16005	12/16/2010	12/17/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	92.7 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**SS10**

12/16/2010 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012125-04 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL16006	12/16/2010	12/17/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	83.9 %	77.6-134			"	"	12/17/2010	
Surrogate: Toluene-d8	102 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	101 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH) by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL16005	12/16/2010	12/17/2010	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	94.8 %	65-140			"	"	"	
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Origins Laboratory, Inc.



The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Noelle E Doyle,

LT Environmental, Inc.  
 4600 West 60th Avenue  
 Arvada CO 80003

Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**SS11**

12/16/2010 3:10:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
 X012125-05 (Soil)

**BTEX by EPA 8260B**

Benzene	ND	0.00400	mg/kg	1	OL16006	12/16/2010	12/17/2010	
Toluene	ND	0.00400	"	"	"	"	"	
Ethylbenzene	ND	0.00400	"	"	"	"	"	
Xylenes, total	ND	0.00400	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	84.8 %	77.6-134			"	"	12/17/2010	
Surrogate: Toluene-d8	103 %	81.4-121			"	"	"	
Surrogate: 4-Bromofluorobenzene	114 %	74.7-123			"	"	"	

**GRO (TVPH)/DRO (TEPH) by EPA 8015M**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	OL16005	12/16/2010	12/17/2010	
Diesel (C10-C28)	275	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	96.1 %	65-140			"	"	"	
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Matthew Harrison  
 Project Number: NEP1047.01  
 Project: Noble - Lorenz F22-1

**Extractable Petroleum Hydrocarbons by 8015M - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch OL16005 - Default Prep GC-Semi</b>										
<b>Blank (OL16005-BLK1)</b>					Prepared: 12/16/2010 Analyzed: 12/17/2010					
Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
TPH - Carbon Chain Total	ND	50.0	"							
<i>Surrogate: o-Terphenyl</i>	46.5		g	50.0		93.0	65-140			
<b>LCS (OL16005-BS1)</b>					Prepared: 12/16/2010 Analyzed: 12/16/2010					
Gasoline (C6-C10)	81.9	50.0	mg/kg				65-140			
Diesel (C10-C28)	469	50.0	"	500		93.9	60-140			
<i>Surrogate: o-Terphenyl</i>	46.5		g	50.0		93.0	65-140			
<b>Matrix Spike (OL16005-MS1)</b>					Source: X012119-01		Prepared: 12/16/2010 Analyzed: 12/16/2010			
Gasoline (C6-C10)	82.7	50.0	mg/kg		ND		65-130			
Diesel (C10-C28)	478	50.0	"	500	ND	95.7	60-140			
<i>Surrogate: o-Terphenyl</i>	46.2		g	50.0		92.4	65-140			
<b>Matrix Spike Dup (OL16005-MSD1)</b>					Source: X012119-01		Prepared: 12/16/2010 Analyzed: 12/16/2010			
Gasoline (C6-C10)	91.8	50.0	mg/kg		ND		65-130	10.4	20	
Diesel (C10-C28)	526	50.0	"	500	ND	105	60-140	9.42	25	
<i>Surrogate: o-Terphenyl</i>	51.2		g	50.0		102	65-140			

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**Volatile Organic Compounds by EPA Method 8260B - Quality Control  
 Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch OL16006 - EPA 5030B</b>										
<b>Blank (OL16006-BLK1)</b>					Prepared: 12/16/2010 Analyzed: 12/16/2010					
Benzene	ND	0.004	mg/kg							
Toluene	ND	0.004	"							
Ethylbenzene	ND	0.004	"							
m,p-Xylene	ND	0.008	"							
o-Xylene	ND	0.004	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>62.1</i>		<i>ug/L</i>	<i>62.5</i>		<i>99.4</i>	<i>77.6-134</i>			
<i>Surrogate: Toluene-d8</i>	<i>65.1</i>		<i>"</i>	<i>62.5</i>		<i>104</i>	<i>81.4-121</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>66.0</i>		<i>"</i>	<i>62.5</i>		<i>106</i>	<i>74.7-123</i>			
<b>LCS (OL16006-BS1)</b>					Prepared: 12/16/2010 Analyzed: 12/16/2010					
Benzene	0.22	0.004	mg/kg	0.200		108	75.2-128			
Toluene	0.21	0.004	"	0.200		105	76.3-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>56.6</i>		<i>ug/L</i>	<i>62.5</i>		<i>90.6</i>	<i>77.6-134</i>			
<i>Surrogate: Toluene-d8</i>	<i>64.1</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>81.4-121</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>71.2</i>		<i>"</i>	<i>62.5</i>		<i>114</i>	<i>74.7-123</i>			
<b>Matrix Spike (OL16006-MS1)</b>					Source: X012118-02		Prepared: 12/16/2010 Analyzed: 12/16/2010			
Benzene	0.20	0.004	mg/kg	0.200	ND	99.5	77.6-132			
Toluene	0.19	0.004	"	0.200	ND	93.3	74-136			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>61.5</i>		<i>ug/L</i>	<i>62.5</i>		<i>98.4</i>	<i>77.6-134</i>			
<i>Surrogate: Toluene-d8</i>	<i>64.2</i>		<i>"</i>	<i>62.5</i>		<i>103</i>	<i>81.4-121</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>67.9</i>		<i>"</i>	<i>62.5</i>		<i>109</i>	<i>74.7-123</i>			
<b>Matrix Spike Dup (OL16006-MSD1)</b>					Source: X012118-02		Prepared: 12/16/2010 Analyzed: 12/16/2010			
Benzene	0.20	0.004	mg/kg	0.200	ND	98.1	77.6-132	1.44	13.1	
Toluene	0.18	0.004	"	0.200	ND	91.8	74-136	1.58	20.9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>60.9</i>		<i>ug/L</i>	<i>62.5</i>		<i>97.4</i>	<i>77.6-134</i>			
<i>Surrogate: Toluene-d8</i>	<i>62.3</i>		<i>"</i>	<i>62.5</i>		<i>99.6</i>	<i>81.4-121</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>69.6</i>		<i>"</i>	<i>62.5</i>		<i>111</i>	<i>74.7-123</i>			

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**Notes and Definitions**

ND Analyte NOT DETECTED at or above the reporting limit  
RPD Relative Percent Difference

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