



## **GROUNDWATER MONITORING AND MONITORING WELL INSTALLATION REPORT APRIL 2014**

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### **STATE 16-16I4 FLOW LINE COGCC REMEDIATION #8264**

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), installed post-remediation groundwater monitoring wells and conducted groundwater monitoring activities at the State 16-16I4 Flow Line (Site). The Site is located approximately 0.4 miles west of the intersection of County Road 44 and County Road 55 in Weld County, Colorado. The legal site description is the southwest quarter of the southeast quarter of Section 16, Township 4 North, Range 64 West, 6<sup>th</sup> Principal Meridian. The Site Location Map is provided as Figure 1. Site history and remediation activities were described in preceding reports.

### **Monitoring Well Installation**

LTE personnel, under the direction of Noble, were on site February 19 and April 21, 2014, to install a total of seven monitoring wells (SB06 through SB12) to delineate the potential extent of dissolved-phase petroleum hydrocarbon impact at the Site. The soil borings were advanced using a direct-push drill rig operated by Site Services Drilling, LLC of Golden, Colorado. The monitoring wells were constructed of 1-inch diameter polyvinyl chloride (PVC) casing extending from the surface stickups to depths to approximately 12 feet below ground surface (bgs). The lower 10 feet of each monitoring well consists of 0.010-inch factory-slotted PVC well screen. Silica sand was placed from the bottom of each soil boring to one foot above the screened interval to act as filter pack for the monitoring well. Bentonite chips were placed from the top of the silica sand to the ground surface and hydrated to provide a seal against surface contamination and precipitation infiltration. Monitoring well locations are depicted on Figure 2. The Well Completion Diagrams are included as Attachment 1. There was slight staining in SB12 from ground surface to two feet bgs. There was no staining, odor, or elevated photo-ionization detector (PID) readings observed in any of the remaining soil borings.

### **Soil Sampling**

During monitoring well installation, soil samples were collected for laboratory analysis based on the sample interval that exhibited visible soil staining or where the highest PID reading was observed above the groundwater saturated zone. On February 19, 2014, three soil samples (SB06@4', SB07@4', and SB08@4') were collected, placed on ice, then submitted with a complete chain of custody form to Origins Laboratory, Inc. of Denver, Colorado (Origins), for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons (TPH) as gasoline range organics (GRO) by United States Environmental Protection Agency (EPA) Method 8260C and TPH as diesel range organics (DRO) by EPA Method 8015C. On April 21, 2014, four soil samples (SB09@4.5', SB10@4.5', SB11@4.5', and SB12@2') were collected, placed on ice, then submitted with a complete chain

of custody form to Summit Scientific in Golden, Colorado, for analysis of BTEX, naphthalene, and TPH as GRO by EPA Method 8260B and TPH as DRO by EPA Method 8015.

### **Groundwater Sampling**

Three monitoring wells, SB06 through SB08, were sampled on March 19, 2014 to verify point-of-compliance. Following the installation of monitoring wells SB09 through SB12 on April 21, 2014, all twelve monitoring wells (SB01 through SB12) were sampled on April 24, 2014. Prior to purging, depth to groundwater was measured and recorded for calculating well-specific target purge volumes and relative groundwater elevations. Following well development and purging, groundwater samples were collected, placed on ice, then submitted with a complete chain of custody form to Origins for analysis of BTEX by EPA Method 8260C.

### **Hydrogeology**

During the April 2014 monitoring event, depth to groundwater ranged from 5.85 feet below top of casing (btoc) in monitoring well SB02 to 6.61 feet btoc in monitoring well SB11. Groundwater was calculated to flow generally northwest with an average hydraulic gradient of 0.007 feet per foot. The Relative Groundwater Elevation Map is provided as Figure 3.

### **Soil Analytical Results**

The Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 standards for BTEX, naphthalene, and TPH in soil are 0.17 milligrams per kilogram (mg/kg), 85 mg/kg, 100 mg/kg, 175 mg/kg, 23 mg/kg, and 500 mg/kg, respectively. Soil analytical results indicate all soil samples are in compliance with applicable COGCC Table 910-1 standards. The soil analytical results are presented on Figure 4 and summarized in Table 1. The laboratory soil analytical report is included as Attachment 2.

### **Groundwater Analytical Results**

The Colorado Department of Public Health and Environment-Water Quality Control Commission has established Regulation 41-The Basic Standards for Ground Water (WQCC Reg 41) for BTEX at 5.0 micrograms per liter ( $\mu\text{g/L}$ ), 560  $\mu\text{g/L}$ , 700  $\mu\text{g/L}$ , and 1,400  $\mu\text{g/L}$ , respectively. The March 2014 groundwater analytical results indicated monitoring wells SB06 and SB07 exceeded WQCC Reg 41 for benzene at concentrations of 33.6  $\mu\text{g/L}$  and 245  $\mu\text{g/L}$ , respectively. Groundwater analytical results for April 2014 indicated monitoring wells SB02, SB03, SB06, SB07, and SB11 exceeded WQCC Reg 41 for benzene at concentrations of 444  $\mu\text{g/L}$ , 53.7  $\mu\text{g/L}$ , 180  $\mu\text{g/L}$ , 228  $\mu\text{g/L}$ , and 6.0  $\mu\text{g/L}$ , respectively. All remaining samples were in compliance with applicable WQCC Reg 41 standards. Groundwater analytical results are presented on Figure 5 and summarized in Table 2 along with the current estimated benzene groundwater plume. The laboratory groundwater analytical reports are included as Attachment 2.

## **Summary and Conclusions**

The excavation activities, in conjunction with the laboratory analytical results of soil samples collected from the monitoring well installations, indicated that all impacted soil has been removed. Groundwater remediation efforts will be described in future reports. LTE, under the direction of Noble, will continue to conduct quarterly groundwater monitoring with the goal of obtaining four consecutive quarters with laboratory analytical results in compliance with applicable WQCC Reg 41 standards. The next quarterly groundwater monitoring event is scheduled for July 2014.

## FIGURES

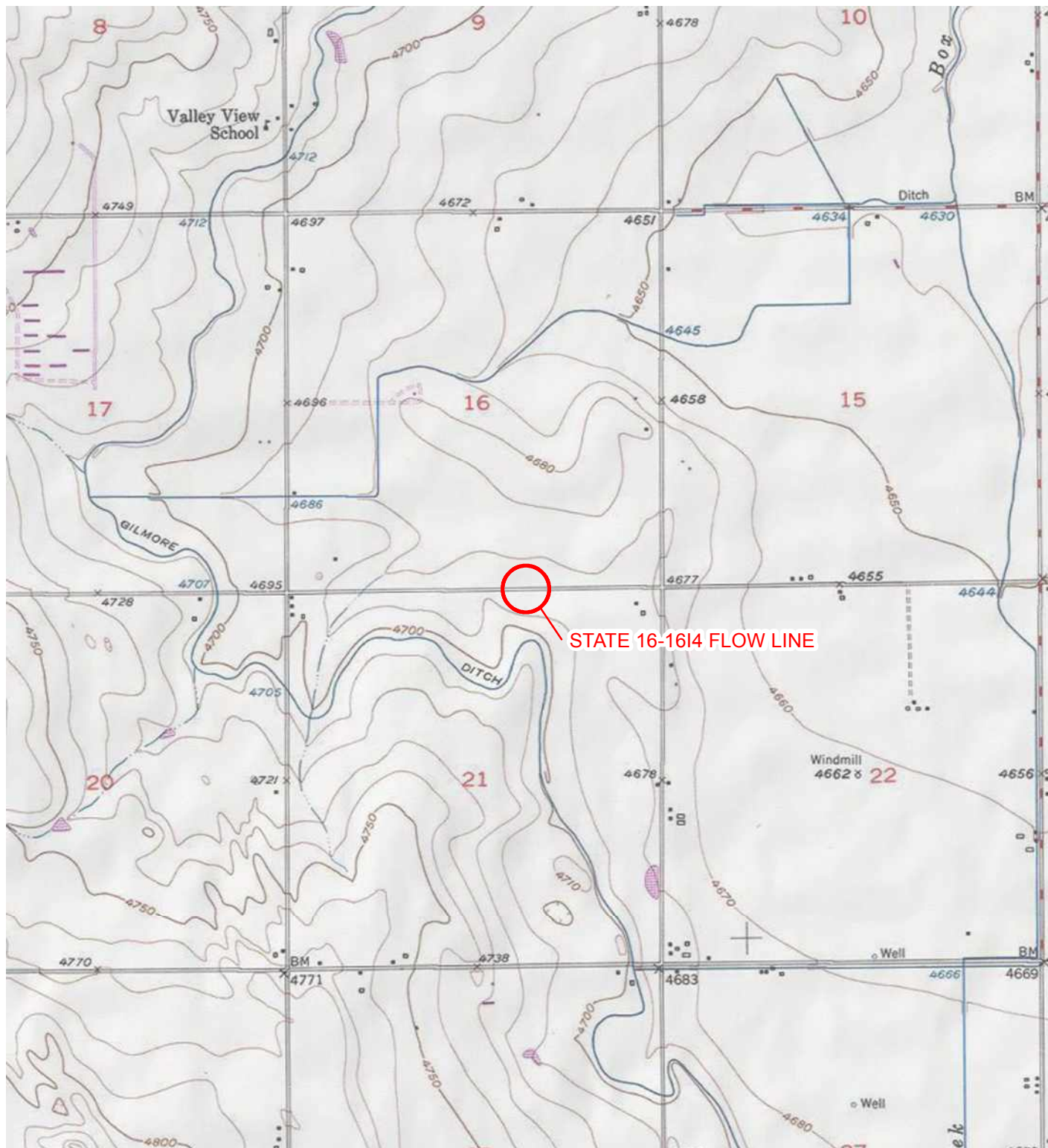


IMAGE COURTESY OF ESRI/USGS

# LEGEND

○ SITE LOCATION

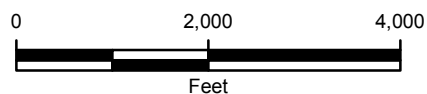


FIGURE 1  
SITE LOCATION MAP  
STATE 16-1614 FLOW LINE  
WELD COUNTY, COLORADO




NOBLE ENERGY, INC.





IMAGE COURTESY OF ESRI

## LEGEND

-  MONITORING WELL
-  FLOW LINE
-  EXCAVATION EXTENT

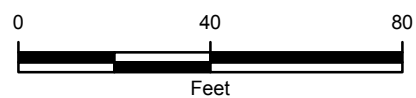
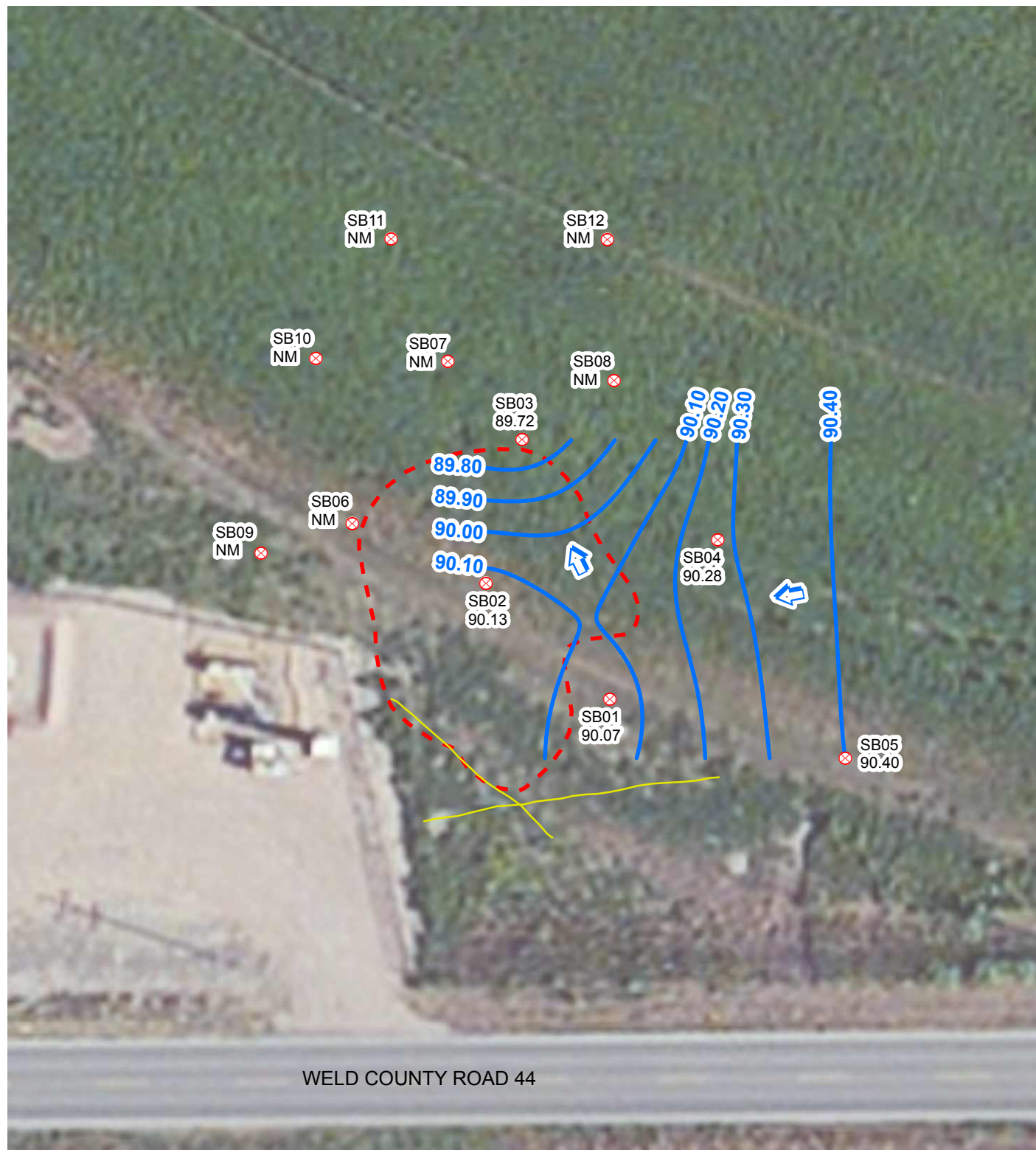


FIGURE 2  
SITE MAP  
STATE 16-1614 FLOW LINE  
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.







# LEGEND

- ⊗ MONITORING WELL
- ↑ CALCULATED GROUNDWATER FLOW DIRECTION
- FLOW LINE
- EXCAVATION EXTENT
- RELATIVE GROUNDWATER ELEVATION CONTOUR  
CONTOUR INTERVAL = 0.10 FEET  
GRADIENT = 0.007 FEET/FOOT

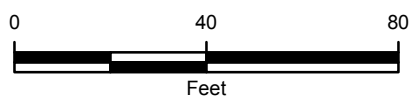


IMAGE COURTESY OF ESRI

**FIGURE 3**  
**RELATIVE GROUNDWATER ELEVATION MAP**  
**STATE 16-1614 FLOW LINE**  
**APRIL 24, 2014**  
**WELD COUNTY, COLORADO**  
**NOBLE ENERGY, INC.**



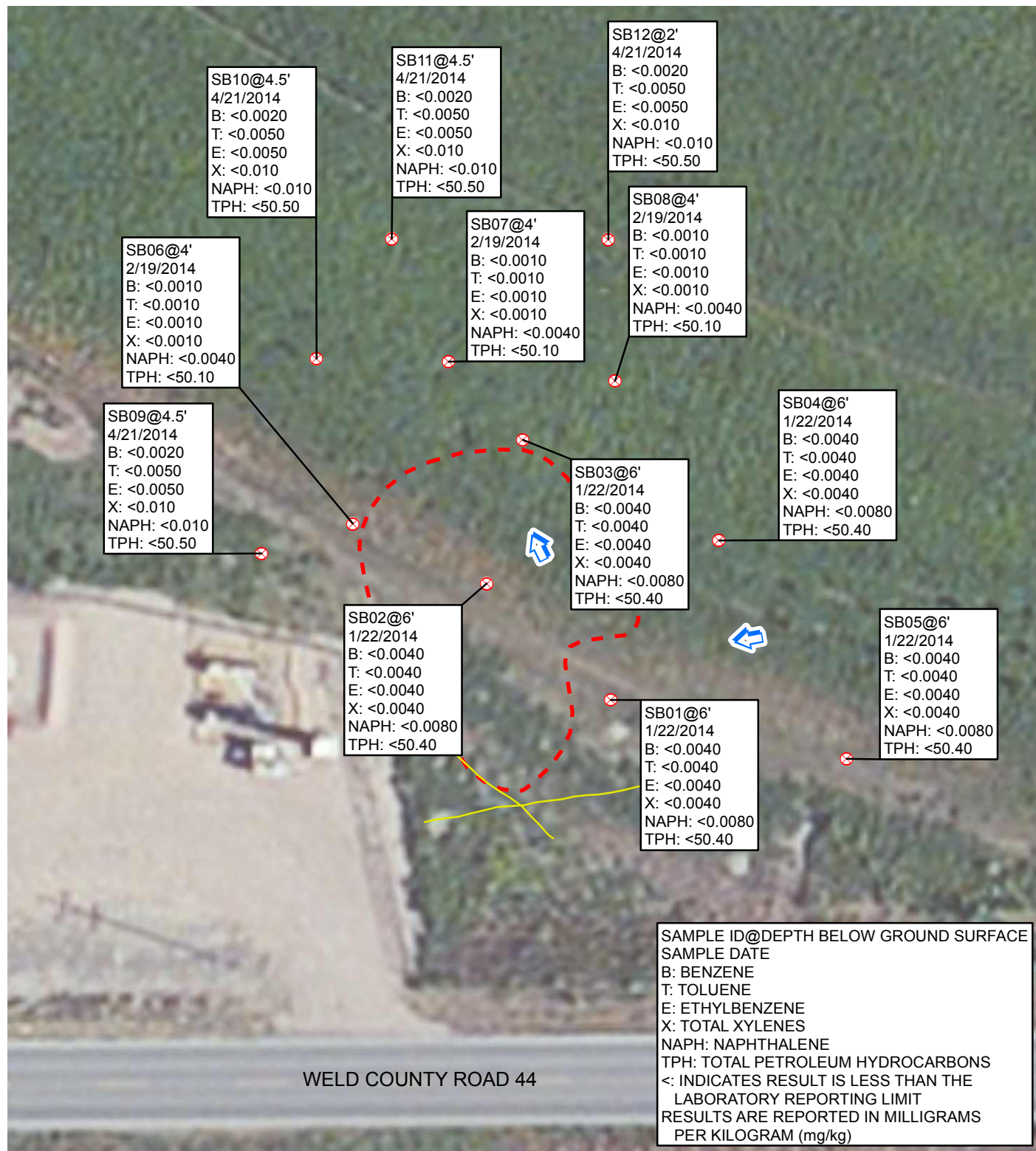




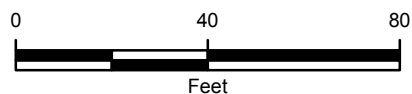


IMAGE COURTESY OF ESRI

## LEGEND

-  MONITORING WELL
-  CALCULATED GROUNDWATER FLOW DIRECTION
-  FLOW LINE
-  EXCAVATION EXTENT

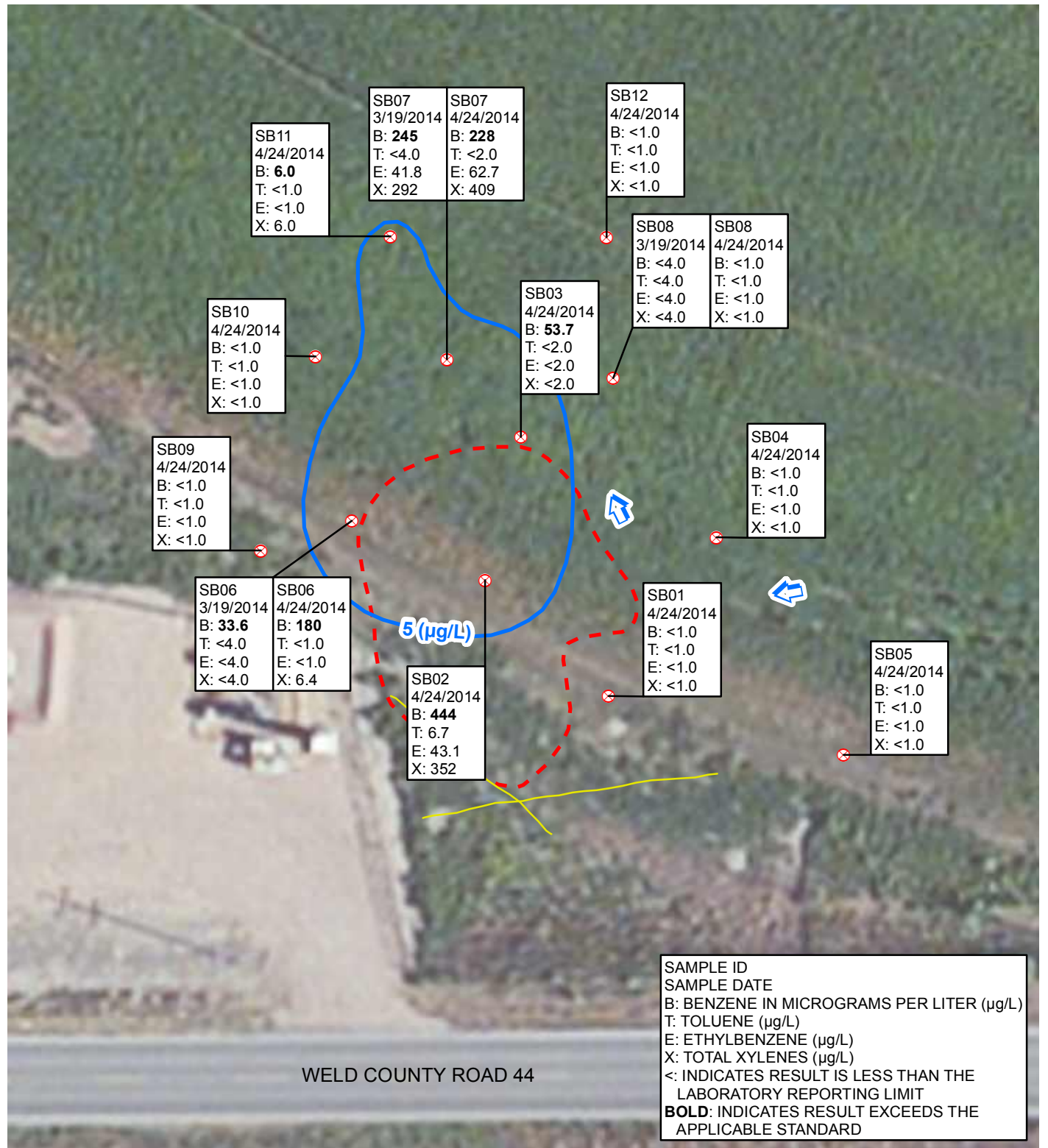


**FIGURE 4**  
**SOIL ANALYTICAL RESULTS**  
**STATE 16-1614 FLOW LINE**  
**WELD COUNTY, COLORADO**

**NOBLE ENERGY, INC.**







## LEGEND

- ⊗ MONITORING WELL
- ↑ CALCULATED GROUNDWATER FLOW DIRECTION
- FLOW LINE
- BENZENE ISOCONCENTRATION CONTOUR
- - - EXCAVATION EXTENT

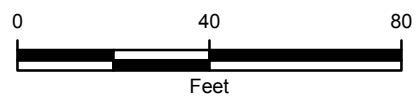


FIGURE 5  
GROUNDWATER ANALYTICAL RESULTS  
STATE 16-1614 FLOW LINE  
MARCH 19, 2014 & APRIL 24, 2014  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.



## **TABLES**

TABLE 1

**SOIL ANALYTICAL RESULTS  
STATE 16-1614 FLOW LINE  
WELD COUNTY, COLORADO  
NOBLE ENERGY, INC.**

Soil Sample	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)
SB01@6'	1/22/2014	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080	<0.40	<50.0	<50.40
SB02@6'	1/22/2014	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080	<0.40	<50.0	<50.40
SB03@6'	1/22/2014	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080	<0.40	<50.0	<50.40
SB04@6'	1/22/2014	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080	<0.40	<50.0	<50.40
SB05@6'	1/22/2014	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080	<0.40	<50.0	<50.40
SB06@4'	2/19/2014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0040	<0.10	<50.0	<50.10
SB07@4'	2/19/2014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0040	<0.10	<50.0	<50.10
SB08@4'	2/19/2014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0040	<0.10	<50.0	<50.10
SB09@4.5'	4/21/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SB10@4.5'	4/21/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SB11@4.5'	4/21/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SB12@2'	4/21/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
<b>COGCC Table 910-1 Standard</b>		<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>--</b>	<b>--</b>	<b>500</b>

**NOTES:**

COGCC - Colorado Oil and Gas Conservation Commission

DRO - diesel range organics analyzed by EPA Method 8015 or 8015C

GRO - gasoline range organics analyzed by EPA Method 8260B or 8260C

mg/kg - milligrams per kilogram

TPH - total petroleum hydrocarbons is the sum of GRO and DRO

&lt; - indicates result is less than the stated laboratory reporting limit

-- - not applicable

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

TABLE 2

## GROUNDWATER ANALYTICAL RESULTS

STATE 16-16I4 FLOW LINE

WELD COUNTY, COLORADO

NOBLE ENERGY, INC.

Monitoring Well	Date	Depth to Water (feet btoc)	Relative Groundwater Elevation (feet)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
SB01	1/29/2014	6.05	90.25	<4.0	<4.0	<4.0	<4.0
	4/24/2014	6.23	90.07	<1.0	<1.0	<1.0	<1.0
SB02	1/29/2014	5.75	90.23	<b>109</b>	172	14.6	155
	4/24/2014	5.85	90.13	<b>444</b>	6.7	43.1	352
SB03	1/29/2014	5.45	90.45	<b>262</b>	<4.0	<4.0	9.4
	4/24/2014	6.18	89.72	<b>53.7</b>	<2.0	<2.0	<2.0
SB04	1/29/2014	6.06	90.22	<4.0	<4.0	<4.0	<4.0
	4/24/2014	6.00	90.28	<1.0	<1.0	<1.0	<1.0
SB05	1/29/2014	5.68	90.64	<4.0	<4.0	<4.0	<4.0
	4/24/2014	5.92	90.40	<1.0	<1.0	<1.0	<1.0
SB06	3/19/2014	5.19	NM	<b>33.6</b>	<4.0	<4.0	<4.0
	4/24/2014	6.21	NM	<b>180</b>	<1.0	<1.0	6.4
SB07	3/19/2014	5.20	NM	<b>245</b>	<4.0	41.8	<4.0
	4/24/2014	6.40	NM	<b>228</b>	<2.0	62.7	409
SB08	3/19/2014	5.39	NM	<4.0	<4.0	<4.0	<4.0
	4/24/2014	6.60	NM	<1.0	<1.0	<1.0	<1.0
SB09	4/24/2014	6.15	NM	<1.0	<1.0	<1.0	<1.0
SB10	4/24/2014	6.43	NM	<1.0	<1.0	<1.0	<1.0
SB11	4/24/2014	6.61	NM	<b>6.0</b>	<1.0	<1.0	6.0
SB12	4/24/2014	6.40	NM	<1.0	<1.0	<1.0	<1.0
CDPHE WQCC Reg 41				<b>5.0</b>	<b>560</b>	<b>700</b>	<b>1,400</b>

## NOTES:

btoc - below top of casing

µg/L - micrograms per liter

&lt; - indicates result is less than the stated laboratory reporting limit

NM - not measured

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


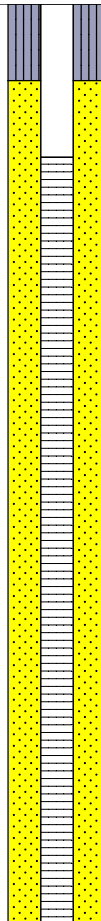
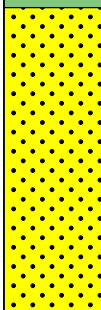
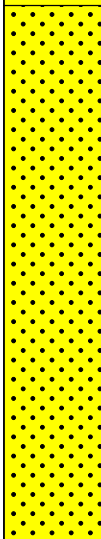
**BOLD** indicates result exceeds the applicable standardCDPHE WQCC Reg 41 - Colorado Department of Public Health and Environment-Water Quality Control Commission  
Regulation 41-The Basic Standards for Ground Water



**ATTACHMENT 1**  
**WELL COMPLETION DIAGRAMS**


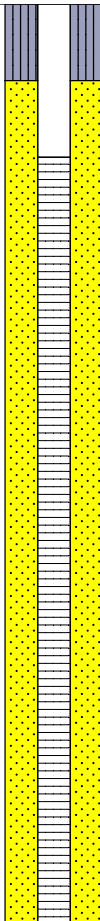
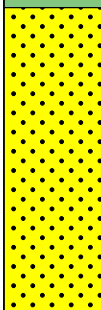
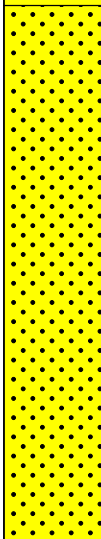


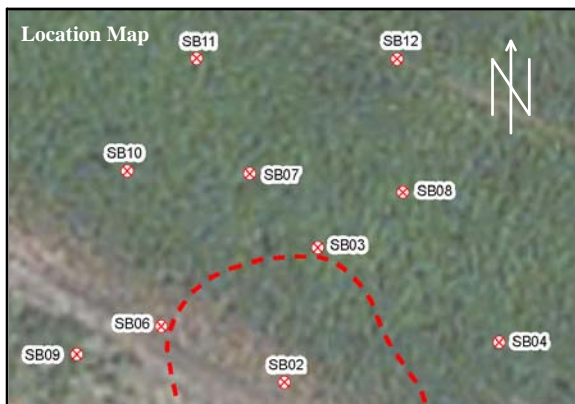
*Compliance • Engineering • Remediation*  
**LT Environmental, Inc.**  
**4600 W. 60th Avenue**  
**Arvada, Colorado 80003**

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
	0.0		Moist			0	SP		Topsoil: Topsoil - 0'-1'	
	0.0		Wet	SB06 @ 4'	3/5			SP: Sand - 1'-5' - fine grained, medium brown, moist, poorly graded, no odor		
	0.0				5			SP: Sand - 5'-12' - fine grained, light brown, wet, poorly graded, no odor		
	0.0				2/5					
	0.0				10					
	0.0			2/2				Flush Mount		



*Compliance • Engineering • Remediation*  
**LT Environmental, Inc.**  
**4600 W. 60th Avenue**  
**Arvada, Colorado 80003**

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									
	0.0		Moist			0	SP		Topsoil: Topsoil - 0'-1'	
	0.0		Wet	SB07 @ 4'	5/5			SP: Sand - 1'-5' - fine grained, medium brown, moist, poorly graded, no odor		
	0.0				5			SP: Sand - 5'-12' - fine grained, light brown, wet, poorly graded, no odor		
	0.0				5/5					
	0.0				10					
	0.0			2/2					Flush Mount	



## BORING LOG/MONITORING WELL COMPLETION DIAGRAM

**BORING/WELL NO.: SB08****DETECTOR:** MiniRae2000

**GRAVEL PACK:** 10-20 Silica Sand

**CASING TYPE: SCH. 40 PVC**

**SCREEN TYPE: SCH. 40 PVC**

[illegible]

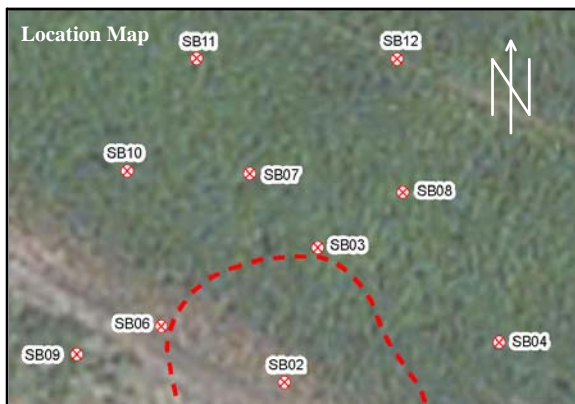






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**LT Environmental, Inc.**  
**4600 W. 60th Avenue**  
**Arvada, Colorado 80003**

[illegible]



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***LT Environmental, Inc.***

**4600 W. 60th Avenue**

**Arvada, Colorado 80003**

## BORING LOG/MONITORING WELL COMPLETION DIAGRAM

**BORING/WELL NO.: SB11**

**DATE:** 4/21/14

**LOGGED BY:** Bill Baldwin

**DRILL MTHD:** Direct Push

**PROJECT:**State 16-16I4

**PROJECT NO.:** 008313110

**DRILLED BY:** Site Services

**SAMPLE MTHD:** Continuous

**DETECTOR:** MiniRae2000

**GRAVEL PACK: 10-20 Silica Sand**

**CASING TYPE: SCH. 40 PVC**

**SCREEN TYPE: SCH. 40 PVC**

**HOLE DIA.:2.25"**

**SEAL:** Bent. Chips

**CASING DIA.: 1"**

**SCREEN SLOT: 0.010"**

**TD: 12'      DTW: 5'**

**GROUT:** NA

**CASING LENGTH:** 2'

**SCREEN LENGTH:** 10'

Vapor (ppm)		Staining	Moisture Content	Sample	Sample Run	Depth (ft. bgs.)	USCS	Soil Type	Lithology Description	Well Construction
0.0	1000.0									



## BORING LOG/MONITORING WELL COMPLETION DIAGRAM

**BORING/WELL NO.:** SB12                      **PROJECT:** State 16-1614  
**DATE:** 4/21/14                                **PROJECT NO.:** 008313110  
**LOGGED BY:** Bill Baldwin                   **DRILLED BY:** Site Services  
**DRILL MTHD:** Direct Push                   **SAMPLE MTHD:** Continuous

**DETECTOR:** MiniRae2000  
**GRAVEL PACK:** 10-20 Silica Sand  
**CASING TYPE:** SCH. 40 PVC  
**SCREEN TYPE:** SCH. 40 PVC

**HOLE DIA.:2.25"**  
**SEAL:** Bent. Chips  
**CASING DIA.: 1"**  
**SCREEN SLOT: 0.010"**

TD: 12' DTW: 5'  
GROUT: NA  
CASING LENGTH: 2'  
SCREEN LENGTH: 10'

[illegible]



**ATTACHMENT 2**  
**LABORATORY ANALYTICAL REPORTS**



February 26, 2014

LT Environmental, Inc.

Dan Hosler

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - State 16-1614

Project Number - 008313110

Attached are your analytical results for Noble - State 16-1614 received by Origins Laboratory, Inc. February 21, 2014. This project is associated with Origins project number X402202-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

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



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB06 @ 4'	X402202-01	Soil	February 19, 2014 14:00	02/21/2014 17:00
SB07 @ 4'	X402202-02	Soil	February 19, 2014 13:32	02/21/2014 17:00
SB08 @ 4'	X402202-03	Soil	February 19, 2014 13:00	02/21/2014 17:00

Origins Laboratory, Inc.



Noelle Doyle Mathis, President

*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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

www.originslaboratory.com

page 1 of 1

Client: LTC  
Address:  
Telephone Number:  
Email Address: d.hosler@ltenv.com

Project Manager: Dan Hosler  
Project Name: State 16-1614  
Project Number: 008313110  
Samples Collected By: DHosler

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis		Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	Other	Time	
SB 14016 @ 4'	2/19/14	1400	1					X				X	1
SB 14017 @ 4'	2/19/14	1330	1					X				X	2
SB 14018 @ 4'	2/19/14	1300	1					X				X	3
													4
													5
													6
													7
													8
													9
													10
Relinquished By: [Signature]	Date: 2/21/14	Time: 1700		Received By: [Signature]									Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input checked="" type="checkbox"/> Standard
Relinquished By: [Signature]	Date: 2/21/14	Time: 1700		Received By: [Signature]									

Date Results Needed

Origins Laboratory, Inc.

*Noelle Doyle Mathis*

Noelle Doyle Mathis, President

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

Dan Hosler

Project Number: 008313110

Project: Noble - State 16-1614

Origins Laboratory

F-012207-01-R1  
Effective Date: 01/09/12

## Sample Receipt Checklist

Origins Work Order: X402202

Client: LTE

Client Project ID: State 16-1614

Checklist Completed by: Jose Smith

Shipped Via: Pick up  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 2/21/14 17:24

Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_

Cooler Number/Temperature: \_\_\_\_\_ / 4.2 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe)

Thermometer ID: 1002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<u>2/24/14</u> <u>2:03</u>	<input checked="" type="checkbox"/>		No Sample Times provided
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	Soil
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	Soil
Additional Comments (if any):	Added Sample Times and depths to COC Based off information on Sample containers.			

<sup>(1)</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager)

2/25/14 2:10  
Date/Time Reviewed

Origins Laboratory, Inc.



Noelle Doyle Mathis, President

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

Dan Hosler

Project Number: 008313110

Project: Noble - State 16-1614

SB06 @ 4'

2/19/2014 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X402202-01 (Soil)

## Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4B24008	02/24/2014	02/25/2014
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Surrogate: o-Terphenyl	74.9 %	59-131			"	"	"
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## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.10	mg/kg	1	4B24010	02/24/2014	02/24/2014
-----------------------------	----	------	-------	---	---------	------------	------------

Benzene	ND	0.0010	"	"	"	"	"
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Toluene	ND	0.0010	"	"	"	"	"
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Ethylbenzene	ND	0.0010	"	"	"	"	"
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Xylenes, total	ND	0.0010	"	"	"	"	"
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Napthalene	ND	0.0040	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	105 %	70-130			"	"	"
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Surrogate: Toluene-d8	110 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Dan Hosler

Project Number: 008313110

Project: Noble - State 16-1614

SB07 @ 4'

2/19/2014 1:32:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X402202-02 (Soil)

## Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4B24008	02/24/2014	02/25/2014
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Surrogate: o-Terphenyl	79.5 %	59-131			"	"	"
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## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.10	mg/kg	1	4B24010	02/24/2014	02/24/2014
-----------------------------	----	------	-------	---	---------	------------	------------

Benzene	ND	0.0010	"	"	"	"	"
---------	----	--------	---	---	---	---	---

Toluene	ND	0.0010	"	"	"	"	"
---------	----	--------	---	---	---	---	---

Ethylbenzene	ND	0.0010	"	"	"	"	"
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Xylenes, total	ND	0.0010	"	"	"	"	"
----------------	----	--------	---	---	---	---	---

Napthalene	ND	0.0040	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	99.7 %	70-130			"	"	"
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Surrogate: Toluene-d8	106 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	102 %	70-130			"	"	"
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Dan Hosler

Project Number: 008313110

Project: Noble - State 16-1614

SB08 @ 4'

2/19/2014 1:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X402202-03 (Soil)

## Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4B24008	02/24/2014	02/25/2014
------------------	----	------	-------	---	---------	------------	------------

Surrogate: o-Terphenyl	78.0 %	59-131			"	"	"
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## GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.10	mg/kg	1	4B24010	02/24/2014	02/24/2014
-----------------------------	----	------	-------	---	---------	------------	------------

Benzene	ND	0.0010	"	"	"	"	"
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Toluene	ND	0.0010	"	"	"	"	"
---------	----	--------	---	---	---	---	---

Ethylbenzene	ND	0.0010	"	"	"	"	"
--------------	----	--------	---	---	---	---	---

Xylenes, total	ND	0.0010	"	"	"	"	"
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Napthalene	ND	0.0040	"	"	"	"	"
------------	----	--------	---	---	---	---	---

Surrogate: 1,2-Dichloroethane-d4	101 %	70-130			"	"	"
----------------------------------	-------	--------	--	--	---	---	---

Surrogate: Toluene-d8	106 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	103 %	70-130			"	"	"
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 4B24010 - EPA 5030 (soil)

Blank (4B24010-BLK1)

Prepared: 02/24/2014 Analyzed: 02/24/2014

Gasoline Range Hydrocarbons	ND	0.1	mg/kg							
Benzene	ND	0.001	"							
Toluene	ND	0.001	"							
Ethylbenzene	ND	0.001	"							
Xylenes, total	ND	0.001	"							
Naphthalene	ND	0.004	"							
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	65		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 4B24010 - EPA 5030 (soil)

**LCS (4B24010-BS1)**

Prepared: 02/24/2014 Analyzed: 02/24/2014

Benzene	0.1	0.001	mg/kg	0.100		99.7	70-130			
Toluene	0.1	0.001	"	0.100		95.6	70-130			
Ethylbenzene	0.08	0.001	"	0.100		84.5	70-130			
m,p-Xylene	0.2	0.002	"	0.200		83.5	70-130			
o-Xylene	0.09	0.001	"	0.100		85.6	70-130			
Naphthalene	0.09	0.004	"	0.100		87.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		100	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	70-130			

Origins Laboratory, Inc.



Noelle Doyle Mathis, President

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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Dan Hosler

Project Number: 008313110

Project: Noble - State 16-1614

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 4B24010 - EPA 5030 (soil)

Matrix Spike (4B24010-MS1)		Source: X402202-01			Prepared: 02/24/2014 Analyzed: 02/24/2014					
Benzene	0.1	0.001	mg/kg	0.100	ND	106	70-130			
Toluene	0.1	0.001	"	0.100	ND	101	70-130			
Ethylbenzene	0.09	0.001	"	0.100	ND	87.3	70-130			
m,p-Xylene	0.2	0.002	"	0.200	ND	84.8	70-130			
o-Xylene	0.09	0.001	"	0.100	ND	86.0	70-130			
Naphthalene	0.09	0.004	"	0.100	ND	87.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	60		ug/kg	62.5		96.1	70-130			
Surrogate: Toluene-d8	67		"	62.5		107	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

Volatile Organic Compounds by GC/MS SW846 8260C - 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 4B24010 - EPA 5030 (soil)

Matrix Spike Dup (4B24010-MSD1)		Source: X402202-01			Prepared: 02/24/2014 Analyzed: 02/24/2014					
Benzene	0.1	0.001	mg/kg	0.100	ND	100	70-130	5.30	20	
Toluene	0.09	0.001	"	0.100	ND	94.1	70-130	7.25	20	
Ethylbenzene	0.08	0.001	"	0.100	ND	84.0	70-130	3.85	20	
m,p-Xylene	0.2	0.002	"	0.200	ND	82.2	70-130	3.11	20	
o-Xylene	0.08	0.001	"	0.100	ND	84.1	70-130	2.26	20	
Naphthalene	0.09	0.004	"	0.100	ND	87.5	70-130	0.458	20	
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		98.3	70-130			
Surrogate: Toluene-d8	65		"	62.5		105	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

**Volatile Organic Compounds by GC/MS SW846 8260C - 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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**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
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**Batch 4B24008 - EPA 3580**

<b>Blank (4B24008-BLK1)</b>				Prepared: 02/24/2014 Analyzed: 02/24/2014						
Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	41		g	50.0		81.4	59-131			
<b>Blank (4B24008-BLK2)</b>				Prepared: 02/24/2014 Analyzed: 02/24/2014						
Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	37		g	50.0		74.2	59-131			
<b>LCS (4B24008-BS1)</b>				Prepared: 02/24/2014 Analyzed: 02/24/2014						
Diesel (C10-C28)	986	50.0	mg/kg	1000		98.6	64-121			
Surrogate: o-Terphenyl	42		g	50.0		84.6	59-131			
<b>LCS (4B24008-BS2)</b>				Prepared: 02/24/2014 Analyzed: 02/24/2014						
Diesel (C10-C28)	866	50.0	mg/kg	1000		86.6	64-121			
Surrogate: o-Terphenyl	38		g	50.0		75.1	59-131			
<b>Matrix Spike (4B24008-MS1)</b>				Source: X402202-02	Prepared: 02/24/2014 Analyzed: 02/24/2014					
Diesel (C10-C28)	836	50.0	mg/kg	1000	ND	83.6	53-125			
Surrogate: o-Terphenyl	37		g	50.0		73.7	59-131			
<b>Matrix Spike (4B24008-MS2)</b>				Source: X402202-03	Prepared: 02/24/2014 Analyzed: 02/24/2014					
Diesel (C10-C28)	861	50.0	mg/kg	1000	ND	86.1	53-125			
Surrogate: o-Terphenyl	40		g	50.0		79.6	59-131			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Dan Hosler  
Project Number: 008313110  
Project: Noble - State 16-1614

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
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Batch 4B24008 - EPA 3580

<b>Matrix Spike Dup (4B24008-MSD1)</b>		<b>Source: X402202-02</b>			Prepared: 02/24/2014 Analyzed: 02/24/2014					
Diesel (C10-C28)	872	50.0	mg/kg	1000	ND	87.2	53-125	4.19	20	
Surrogate: o-Terphenyl	37		g	50.0		74.0	59-131			
<b>Matrix Spike Dup (4B24008-MSD2)</b>		<b>Source: X402202-03</b>			Prepared: 02/24/2014 Analyzed: 02/24/2014					
Diesel (C10-C28)	818	50.0	mg/kg	1000	ND	81.8	53-125	5.11	20	
Surrogate: o-Terphenyl	37		g	50.0		73.3	59-131			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Dan Hosler

Project Number: 008313110

Project: Noble - State 16-1614

### Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 25, 2014

Dan Hosler  
LT Environmental, Inc.  
4600 West 60th Avenue  
Arvada, CO 80003  
RE: NEP - State 16-16I4

Enclosed are the results of analyses for samples received by Summit Scientific on 04/21/14 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' or 'Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury  
President / Laboratory Manager





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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

**Reported:**  
04/25/14 17:37

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB09@4.5'	1404142-01	Soil	04/21/14 09:00	04/21/14 17:00
SB10@4.5'	1404142-02	Soil	04/21/14 09:45	04/21/14 17:00
SB11@4.5'	1404142-03	Soil	04/21/14 10:15	04/21/14 17:00
SB12@2'	1404142-04	Soil	04/21/14 10:45	04/21/14 17:00

Summit Scientific

*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

Project: NEP - State 16-16I4

Project Number: 0083-13110  
Project Manager: Dan Hosler

**Reported:**  
04/25/14 17:37

Summit Scientific

52

741 Corporate Circle Suite I • Golden, Colorado 80401  
303-277-9310 • 303-374-5933 Fax

Client: LT Environmental

Address: 4400 W. 26th Ave  
Project Manager: Dan Hosier

City/State/Zip: Arvada CO 8003

Phone: 303.433.9788 Fax:

Sampler Name: W. Baldwin

Sample Description		Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix		Analyze For:	Special Instructions	
					HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #		Other (Specify)
S87 @ 4.5'		4/21/14	0800	1		X							
S810 @ 4.5'		4/21/14	0945	1			X						
S811 @ 4.5'		4/21/14	1015	1		X							
S812 @ 2'		4/21/14	1045	1		X							
Relinquished by:		Date/Time:		Received by:		Date/Time:		Turn Around Time (Clock)		Notes:			
[Signature]		4/21/14 - 1600		[Signature]		4/21/14 1700		Same Day 24 Hours 48 Hours		<input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> Standard 			
Relinquished by:		Date/Time:		Received by:		Date/Time:		Sample Integrity:		Temperature Upon Receipt:			
[Signature]		4/21/14 - 1600		[Signature]		4/21/14 1700		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2°C			

[www.s2scientific.com](http://www.s2scientific.com)

Summit Scientific

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

**Reported:**  
04/25/14 17:37

**SB09@4.5'**  
**1404142-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/21/14 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404151	04/23/14	04/25/14	8015M	

Date Sampled: **04/21/14 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.3 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/21/14 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1404152	04/22/14	04/24/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/21/14 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

Reported:  
04/25/14 17:37

**SB10@4.5'**  
**1404142-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/21/14 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404151	04/23/14	04/25/14	8015M	

Date Sampled: **04/21/14 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		90.6 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/21/14 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1404152	04/22/14	04/24/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/21/14 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

Reported:  
04/25/14 17:37

**SB11@4.5'**  
**1404142-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/21/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404151	04/23/14	04/25/14	8015M	

Date Sampled: **04/21/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		109 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/21/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1404152	04/22/14	04/24/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/21/14 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

Reported:  
04/25/14 17:37

**SB12@2'**  
**1404142-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/21/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1404151	04/23/14	04/25/14	8015M	

Date Sampled: **04/21/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **04/21/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1404152	04/22/14	04/24/14	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/21/14 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

**Reported:**  
04/25/14 17:37

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1404151 - EPA 3550A**

**Blank (1404151-BLK1)**

Prepared & Analyzed: 04/23/14

C10-C28 (DRO) ND 50 mg/kg

**LCS (1404151-BS1)**

Prepared & Analyzed: 04/23/14

C10-C28 (DRO) 486 50 mg/kg 455 107 73-134

**Matrix Spike (1404151-MS1)**

**Source: 1404139-01**

Prepared & Analyzed: 04/23/14

C10-C28 (DRO) 501 50 mg/kg 474 51.6 94.7 50-148

**Matrix Spike Dup (1404151-MSD1)**

**Source: 1404139-01**

Prepared & Analyzed: 04/23/14

C10-C28 (DRO) 475 50 mg/kg 471 51.6 89.8 50-148 5.41 13

Summit Scientific

*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

Project: NEP - State 16-1614  
Project Number: 0083-13110  
Project Manager: Dan Hosler

Reported:  
04/25/14 17:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

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

**Batch 1404152 - EPA 5030 Soil MS**

**Blank (1404152-BLK1)**

Prepared: 04/22/14 Analyzed: 04/23/14

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0465		"	0.0392	119	23-173				
Surrogate: Toluene-d8	0.0407		"	0.0394	103	20-170				
Surrogate: 4-Bromofluorobenzene	0.0435		"	0.0394	110	21-167				

**LCS (1404152-BS1)**

Prepared: 04/22/14 Analyzed: 04/24/14

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0987	0.0020	"	0.0976	101	58-130				
Toluene	0.102	0.0050	"	0.0978	105	61-134				
Ethylbenzene	0.118	0.0050	"	0.0971	122	74-139				
m,p-Xylene	0.241	0.010	"	0.196	123	73-137				
o-Xylene	0.121	0.0050	"	0.0967	125	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0437		"	0.0388	113	23-173				
Surrogate: Toluene-d8	0.0382		"	0.0391	97.5	20-170				
Surrogate: 4-Bromofluorobenzene	0.0383		"	0.0391	97.9	21-167				

**LCS (1404152-BS2)**

Prepared: 04/22/14 Analyzed: 04/24/14

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.110	0.0020	"	0.0989	111	58-130				
Toluene	0.112	0.0050	"	0.0992	113	61-134				
Ethylbenzene	0.119	0.0050	"	0.0984	121	74-139				
m,p-Xylene	0.237	0.010	"	0.198	120	73-137				
o-Xylene	0.120	0.0050	"	0.0980	123	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0493		"	0.0394	125	23-173				
Surrogate: Toluene-d8	0.0433		"	0.0397	109	20-170				
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0397	99.9	21-167				

Summit Scientific

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

Project: NEP - State 16-1614  
Project Number: 0083-13110  
Project Manager: Dan Hosler

Reported:  
04/25/14 17:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

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

**Batch 1404152 - EPA 5030 Soil MS**

**Matrix Spike (1404152-MS1)**

**Source: 1404139-01**

Prepared: 04/22/14

Analyzed: 04/24/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.102	0.0020	"	0.0951	ND	107	30-131			
Toluene	0.0979	0.0050	"	0.0954	ND	103	30-134			
Ethylbenzene	0.101	0.0050	"	0.0947	ND	107	22-153			
m,p-Xylene	0.194	0.010	"	0.191	ND	101	10-159			
o-Xylene	0.0978	0.0050	"	0.0943	ND	104	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0379		97.6	23-173			
Surrogate: Toluene-d8	0.0390		"	0.0382		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0361		"	0.0382		94.6	21-167			

**Matrix Spike (1404152-MS2)**

**Source: 1404139-02**

Prepared: 04/22/14

Analyzed: 04/24/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0962	0.0020	"	0.0985	ND	97.6	30-131			
Toluene	0.0893	0.0050	"	0.0988	ND	90.4	30-134			
Ethylbenzene	0.0885	0.0050	"	0.0980	ND	90.3	22-153			
m,p-Xylene	0.168	0.010	"	0.198	ND	85.0	10-159			
o-Xylene	0.0871	0.0050	"	0.0976	ND	89.2	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0383		"	0.0392		97.6	23-173			
Surrogate: Toluene-d8	0.0408		"	0.0395		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0379		"	0.0395		95.8	21-167			

**Matrix Spike Dup (1404152-MSD1)**

**Source: 1404139-01**

Prepared: 04/22/14

Analyzed: 04/24/14

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0938	0.0020	"	0.0959	ND	97.9	30-131	7.85	34	
Toluene	0.0906	0.0050	"	0.0962	ND	94.2	30-134	7.80	30	
Ethylbenzene	0.0928	0.0050	"	0.0954	ND	97.3	22-153	8.66	24	
m,p-Xylene	0.177	0.010	"	0.192	ND	91.9	10-159	9.11	68	
o-Xylene	0.0899	0.0050	"	0.0950	ND	94.6	31-151	8.36	38	
Surrogate: 1,2-Dichloroethane-d4	0.0359		"	0.0382		94.0	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0385		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0364		"	0.0385		94.7	21-167			

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

Reported:  
04/25/14 17:37

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

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

**Batch 1404152 - EPA 5030 Soil MS**

Matrix Spike Dup (1404152-MSD2)				Source: 1404139-02		Prepared: 04/22/14		Analyzed: 04/24/14		
Naphthalene	ND	0.010	mg/kg		ND		10-158			42
Benzene	0.0876	0.0020	"	0.0946	ND	92.6	30-131	9.28		34
Toluene	0.0824	0.0050	"	0.0949	ND	86.8	30-134	8.06		30
Ethylbenzene	0.0812	0.0050	"	0.0941	ND	86.2	22-153	8.62		24
m,p-Xylene	0.155	0.010	"	0.190	ND	81.6	10-159	8.15		68
o-Xylene	0.0790	0.0050	"	0.0937	ND	84.2	31-151	9.84		38
Surrogate: 1,2-Dichloroethane-d4	0.0365		"	0.0377		97.0	23-173			
Surrogate: Toluene-d8	0.0389		"	0.0380		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0360		"	0.0380		94.9	21-167			

Summit Scientific

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

Project: NEP - State 16-1614

Project Number: 0083-13110  
Project Manager: Dan Hosler

**Reported:**  
04/25/14 17:37

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

A handwritten signature in black ink, appearing to be 'JMH'.



March 24, 2014

LT Environmental, Inc.

Charles Greeson

4600 West 60th Avenue

Arvada

CO 80003

Project Name - Noble - State 16-1614

Project Number - 008313110

Attached are your analytical results for Noble - State 16-1614 received by Origins Laboratory, Inc. March 19, 2014. This project is associated with Origins project number X403190-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

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



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645



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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB06	X403190-01	Water	March 19, 2014 9:38	03/19/2014 17:00
SB07	X403190-02	Water	March 19, 2014 9:55	03/19/2014 17:00
SB08	X403190-03	Water	March 19, 2014 9:12	03/19/2014 17:00

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 Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

www.originslaboratory.com

X403190

**ORIGINS**  
LABORATORY, INC

page 1 of 1

Project Manager: CHARLES GREESON  
Project Name: STATE 16-1614  
Project Number: 008313110  
Samples Collected By: GLEN THOMPSON

Client: LT Environmental, Inc.  
Address: 4600 W 60th Ave, Arvada, CO 80003  
Telephone Number: 303.433.9788  
Email Address:

Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative					Matrix			Analysis	Sample Instructions	
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #	Other			
SB06	3/19/14	938	3	X					X				BTEX	1
SB07	3/19/14	955	3											2
SB08	3/19/14	912	3											3
														4
														5
														6
														7
														8
														9
														10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
[Signature]	3/14/14	1700	[Signature]	3/19/14	1700	Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/>
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input checked="" type="checkbox"/>

Date Results Needed

Origins Laboratory, Inc.

[Signature]

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

Origins Laboratory

F-012207-01-R1  
Effective Date: 01/09/12

## Sample Receipt Checklist

Origins Work Order: X403190 Client: LTE  
Client Project ID: State 16-1614  
Checklist Completed by: Jesse Smith Shipped Via: Pick up  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)  
Date/time completed: 3/20/14 8:48 Airbill #: NA  
Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: ☐  
Cooler Number/Temperature: 119 °C / 1 °C / 1 °C (Describe)  
Thermometer ID: 7002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to < 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for sub-contracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO <sub>3</sub> , HCl, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Samples will be analyzed within 7 days of collection
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note date, time and person contacted as well as the corrective action to be taken in the additional comments (above) and the case narrative.

Reviewed by (Project Manager)

03-19-14 6:19  
Date/Time Reviewed

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.

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

SB06

3/19/2014 9:38:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X403190-01 (Water)

## BTEX by EPA 8260C

Benzene	33.6	4.0	ug/L	4	4C20009	03/20/2014	03/21/2014
Toluene	ND	4.0	"	"	"	"	"
Ethylbenzene	ND	4.0	"	"	"	"	"
Xylenes, total	ND	4.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	105 %	87.3-113			"	"	"
Surrogate: Toluene-d8	97.0 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	88.6-111			"	"	"

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 Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB07

3/19/2014 9:55:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X403190-02 (Water)

### BTEX by EPA 8260C

Benzene	245	4.0	ug/L	4	4C20009	03/20/2014	03/21/2014
Toluene	ND	4.0	"	"	"	"	"
Ethylbenzene	41.8	4.0	"	"	"	"	"
Xylenes, total	292	4.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	107 %	87.3-113			"	"	"
Surrogate: Toluene-d8	99.9 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB08

3/19/2014 9:12:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X403190-03 (Water)

### BTEX by EPA 8260C

Benzene	ND	4.0	ug/L	4	4C20009	03/20/2014	03/21/2014
Toluene	ND	4.0	"	"	"	"	"
Ethylbenzene	ND	4.0	"	"	"	"	"
Xylenes, total	ND	4.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	106 %	87.3-113			"	"	"
Surrogate: Toluene-d8	99.1 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	101 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

Volatile Organic Compounds by GC/MS SW846 8260C - 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 4C20009 - EPA 5030B (Water)

Blank (4C20009-BLK1)

Prepared: 03/20/2014 Analyzed: 03/21/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	102		87.3-113			
Surrogate: Toluene-d8	62		"	62.5	100		90.9-108			
Surrogate: 4-Bromofluorobenzene	64		"	62.5	102		88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President



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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control  
Origins Laboratory, Inc.

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

Batch 4C20009 - EPA 5030B (Water)

LCS (4C20009-BS1)

Prepared: 03/20/2014 Analyzed: 03/21/2014

Benzene	57.8	1.0	ug/L	50.0	116	75-126
Toluene	55.8	1.0	"	50.0	112	78.7-126
Ethylbenzene	57.3	1.0	"	50.0	115	81-130
m,p-Xylene	116	2.0	"	100	116	77.2-133
o-Xylene	55.8	1.0	"	50.0	112	77.9-126
Surrogate: 1,2-Dichloroethane-d4	63		"	62.5	100	87.3-113
Surrogate: Toluene-d8	62		"	62.5	99.3	90.9-108
Surrogate: 4-Bromofluorobenzene	63		"	62.5	101	88.6-111

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

## Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control

### Origins Laboratory, Inc.

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

Batch 4C20009 - EPA 5030B (Water)

Matrix Spike (4C20009-MS1)		Source: X403185-05			Prepared: 03/20/2014 Analyzed: 03/21/2014					
Benzene	63.2	1.0	ug/L	50.0	7.2	112	74-130			
Toluene	56.1	1.0	"	50.0	ND	112	73-131			
Ethylbenzene	57.4	1.0	"	50.0	ND	115	76-132			
m,p-Xylene	116	2.0	"	100	ND	116	69-139			
o-Xylene	57.4	1.0	"	50.0	ND	115	74-131			
Surrogate: 1,2-Dichloroethane-d4	62		"	62.5		98.7	87.3-113			
Surrogate: Toluene-d8	62		"	62.5		98.8	90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.1	88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control**  
**Origins Laboratory, Inc.**

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

Batch 4C20009 - EPA 5030B (Water)

Matrix Spike Dup (4C20009-MSD1)		Source: X403185-05			Prepared: 03/20/2014 Analyzed: 03/21/2014					
Benzene	62.8	1.0	ug/L	50.0	7.2	111	74-130	0.588	20	
Toluene	56.5	1.0	"	50.0	ND	113	73-131	0.640	20	
Ethylbenzene	57.0	1.0	"	50.0	ND	114	76-132	0.769	20	
m,p-Xylene	117	2.0	"	100	ND	117	69-139	0.464	20	
o-Xylene	57.1	1.0	"	50.0	ND	114	74-131	0.402	20	
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		98.0	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		101	90.9-108			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	88.6-111			

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

### Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

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 Doyle Mathis, President



April 29, 2014

LT Environmental, Inc.

Charles Greeson

4600 West 60th Avenue

Arvada

CO 80003

Project Name - Noble - State 16-1614

Project Number - 008313110

Attached are your analytical results for Noble - State 16-1614 received by Origins Laboratory, Inc. April 24, 2014. This project is associated with Origins project number X404251-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

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



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

### CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SB01	X404251-01	Water	April 24, 2014 11:00	04/24/2014 17:10
SB02	X404251-02	Water	April 24, 2014 11:05	04/24/2014 17:10
SB03	X404251-03	Water	April 24, 2014 11:10	04/24/2014 17:10
SB04	X404251-04	Water	April 24, 2014 11:15	04/24/2014 17:10
SB05	X404251-05	Water	April 24, 2014 11:20	04/24/2014 17:10
SB06	X404251-06	Water	April 24, 2014 11:25	04/24/2014 17:10
SB07	X404251-07	Water	April 24, 2014 11:30	04/24/2014 17:10
SB08	X404251-08	Water	April 24, 2014 11:35	04/24/2014 17:10
SB09	X404251-09	Water	April 24, 2014 11:45	04/24/2014 17:10
SB10	X404251-10	Water	April 24, 2014 12:00	04/24/2014 17:10
SB11	X404251-11	Water	April 24, 2014 12:15	04/24/2014 17:10
SB12	X404251-12	Water	April 24, 2014 12:30	04/24/2014 17:10

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

www.originslaboratory.com

page 1 of 2

**ORIGINS**  
LABORATORY, INC

Client: LTE  
Address: \_\_\_\_\_  
Telephone Number: \_\_\_\_\_  
Project Manager/Send Report To: Charles Greeson  
Email Address: Cgreeson@ltenv.com  
Project Name/Number: State 16-141, 008313110  
Samples Collected By: Jayson George Lister

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #		
SB01	6/24/11	1100	3	X				X			BTEX	Lab filter
SB02		1105										
SB03		1110										
SB04		1115										
SB05		1120										
SB06		1125										
SB07		1130										
SB08		1135										
SB09		1145										
SB10		1200										
Relinquished By: <u>[Signature]</u>	Date: <u>6/24/11</u>	Time: <u>1100</u>	Received By: <u>[Signature]</u>	Date: <u>6/24/11</u>	Time: <u>1100</u>	Turnaround Time:						
Relinquished By: <u>[Signature]</u>	Date: <u>6/24/11</u>	Time: <u>1100</u>	Received By: <u>[Signature]</u>	Date: <u>6/24/11</u>	Time: <u>1100</u>	Same Day <input type="checkbox"/>		24 Hr <input type="checkbox"/>				
						48 Hr <input type="checkbox"/>		72 Hr <input type="checkbox"/>				
						Standard <input checked="" type="checkbox"/>						

Notes: Results Needed:

Origins Laboratory, Inc.

[Signature]

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.



Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**ORIGINS**  
LABORATORY, INC

Client: LTE

Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Project Manager/Send Report To: \_\_\_\_\_

Email Address: \_\_\_\_\_

Project Name/Number: \_\_\_\_\_

Samples Collected By: \_\_\_\_\_

X404251

Charles Greeson  
Greeson@Ltenv.com  
State 16-1641 008313110  
Jayson Evangelista

www.originslaboratory.com

page 23 of 23

[illegible]

**What Results Needed:**

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Origins Laboratory, Inc.

*[Handwritten signature]*

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

Origins Laboratory

F-012207-01-R1  
Effective Date: 01/09/12

## Sample Receipt Checklist

Origins Work Order: X404251

Client: LTE

Client Project ID: State 16-1614

Checklist Completed by: Jeff Smith

Shipped Via: Pick Up  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 4/25/14 8:36

Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid ☒ Water ☐ Other: ☐ (Describe)

Cooler Number/Temperature: 129 °C 1 °C 1 °C (Describe)

Thermometer ID: T002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)2</sup>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Is a chain-of-custody (COC) present and filled out completely <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded <sup>(1)2</sup>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)2</sup> (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Samples will be analyzed with in 7 Days of Collection
Additional Comments (if any):				

<sup>(1)2</sup>If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by: [Signature] (Project Manager)

4/29/14 9:33  
Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB01

4/24/2014 11:00:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-01 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4  
Surrogate: Toluene-d8  
Surrogate: 4-Bromofluorobenzene

103 % 87.3-113  
101 % 90.9-108  
96.6 % 88.6-111

" " "  
" " "  
" " "

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**SB02****4/24/2014 11:05:00AM**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**  
**X404251-02 (Water)****BTEX by EPA 8260C**

Benzene	444	10.0	ug/L	10	4D25002	04/25/2014	04/28/2014
Toluene	6.7	1.0	"	1	"	"	04/25/2014
Ethylbenzene	43.1	1.0	"	"	"	"	"
Xylenes, total	352	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4  
Surrogate: Toluene-d8  
Surrogate: 4-Bromofluorobenzene

110 % 87.3-113  
103 % 90.9-108  
95.6 % 88.6-111

" " "  
" " "  
" " "

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**SB03****4/24/2014 11:10:00AM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X404251-03 (Water)****BTEX by EPA 8260C**

Benzene	53.7	2.0	ug/L	2	4D25002	04/25/2014	04/25/2014
Toluene	ND	2.0	"	"	"	"	"
Ethylbenzene	ND	2.0	"	"	"	"	"
Xylenes, total	ND	2.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	101 %	87.3-113	"	"	"
Surrogate: Toluene-d8	102 %	90.9-108	"	"	"
Surrogate: 4-Bromofluorobenzene	99.1 %	88.6-111	"	"	"

Origins Laboratory, Inc.



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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB04

4/24/2014 11:15:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-04 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	103 %	87.3-113			"	"	"
Surrogate: Toluene-d8	108 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	103 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB05

4/24/2014 11:20:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-05 (Water)

### BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	98.7 %	87.3-113	"	"	"
Surrogate: Toluene-d8	105 %	90.9-108	"	"	"
Surrogate: 4-Bromofluorobenzene	102 %	88.6-111	"	"	"

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President



LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

SB06

4/24/2014 11:25:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-06 (Water)

## BTEX by EPA 8260C

Benzene	180	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014	
Toluene	ND	1.0	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	
Xylenes, total	6.4	1.0	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	102 %	87.3-113			"	"	"	
Surrogate: Toluene-d8	101 %	90.9-108			"	"	"	
Surrogate: 4-Bromofluorobenzene	98.8 %	88.6-111			"	"	"	

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President



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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB07

4/24/2014 11:30:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-07 (Water)

### BTEX by EPA 8260C

Benzene	228	2.0	ug/L	2	4D25002	04/25/2014	04/25/2014
Toluene	ND	2.0	"	"	"	"	"
Ethylbenzene	62.7	2.0	"	"	"	"	"
Xylenes, total	409	2.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	101 %	87.3-113			"	"	"
Surrogate: Toluene-d8	101 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	99.0 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

SB08

4/24/2014 11:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-08 (Water)

## BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4  
Surrogate: Toluene-d8  
Surrogate: 4-Bromofluorobenzene

98.0 % 87.3-113  
102 % 90.9-108  
92.4 % 88.6-111

" " "  
" " "  
" " "

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

SB09

4/24/2014 11:45:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X404251-09 (Water)

## BTEX by EPA 8260C

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4

99.3 % 87.3-113

"

"

"

Surrogate: Toluene-d8

102 % 90.9-108

"

"

"

Surrogate: 4-Bromofluorobenzene

95.3 % 88.6-111

"

"

"

Origins Laboratory, Inc.



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LT Environmental, Inc.  
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Arvada CO 80003

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**SB10****4/24/2014 12:00:00PM**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**  
**X404251-10 (Water)****BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	99.7 %	87.3-113	"	"	"
Surrogate: Toluene-d8	101 %	90.9-108	"	"	"
Surrogate: 4-Bromofluorobenzene	99.6 %	88.6-111	"	"	"

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Arvada CO 80003

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**SB11****4/24/2014 12:15:00PM**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

**Origins Laboratory, Inc.**  
**X404251-11 (Water)****BTEX by EPA 8260C**

Benzene	6.0	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	6.0	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	101 %	87.3-113			"	"	"
Surrogate: Toluene-d8	102 %	90.9-108			"	"	"
Surrogate: 4-Bromofluorobenzene	100 %	88.6-111			"	"	"

Origins Laboratory, Inc.



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Arvada CO 80003

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**SB12****4/24/2014 12:30:00PM**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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**Origins Laboratory, Inc.**  
**X404251-12 (Water)****BTEX by EPA 8260C**

Benzene	ND	1.0	ug/L	1	4D25002	04/25/2014	04/25/2014
Toluene	ND	1.0	"	"	"	"	"
Ethylbenzene	ND	1.0	"	"	"	"	"
Xylenes, total	ND	1.0	"	"	"	"	"

Surrogate: 1,2-Dichloroethane-d4	102 %	87.3-113	"	"	"
Surrogate: Toluene-d8	99.9 %	90.9-108	"	"	"
Surrogate: 4-Bromofluorobenzene	95.3 %	88.6-111	"	"	"

Origins Laboratory, Inc.



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4600 West 60th Avenue  
Arvada CO 80003

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

Volatile Organic Compounds by GC/MS SW846 8260C - 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 4D25002 - EPA 5030B (Water)

Blank (4D25002-BLK1)

Prepared: 04/25/2014 Analyzed: 04/25/2014

Benzene	ND	1.0	ug/L							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes, total	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	103		87.3-113			
Surrogate: Toluene-d8	64		"	62.5	103		90.9-108			
Surrogate: 4-Bromofluorobenzene	61		"	62.5	98.1		88.6-111			

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Arvada CO 80003

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control  
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4D25002 - EPA 5030B (Water)										
LCS (4D25002-BS1)					Prepared: 04/25/2014 Analyzed: 04/25/2014					
Benzene	45.2	1.0	ug/L	50.0		90.4	75-126			
Toluene	43.2	1.0	"	50.0		86.3	78.7-126			
Ethylbenzene	40.7	1.0	"	50.0		81.4	81-130			
m,p-Xylene	84.1	2.0	"	100		84.1	77.2-133			
o-Xylene	44.2	1.0	"	50.0		88.5	77.9-126			
Surrogate: 1,2-Dichloroethane-d4	61		"	62.5		97.6	87.3-113			
Surrogate: Toluene-d8	64		"	62.5		102	90.9-108			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.9	88.6-111			

Origins Laboratory, Inc.



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LT Environmental, Inc.

4600 West 60th Avenue

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Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

## Volatile Organic Compounds by GC/MS SW846 8260C - 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 4D25002 - EPA 5030B (Water)

Matrix Spike (4D25002-MS1)		Source: X404251-12			Prepared: 04/25/2014 Analyzed: 04/25/2014					
Benzene	58.8	1.0	ug/L	50.0	ND	118	74-130			
Toluene	55.8	1.0	"	50.0	ND	112	73-131			
Ethylbenzene	53.5	1.0	"	50.0	ND	107	76-132			
m,p-Xylene	107	2.0	"	100	ND	107	69-139			
o-Xylene	52.4	1.0	"	50.0	ND	105	74-131			
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		96.6	87.3-113			
Surrogate: Toluene-d8	63		"	62.5		101	90.9-108			
Surrogate: 4-Bromofluorobenzene	59		"	62.5		94.4	88.6-111			

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Noelle Doyle Mathis, President

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

Charles Greeson  
Project Number: 008313110  
Project: Noble - State 16-1614

**Volatile Organic Compounds by GC/MS SW846 8260C - 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 4D25002 - EPA 5030B (Water)

Matrix Spike Dup (4D25002-MSD1)		Source: X404251-12			Prepared: 04/25/2014 Analyzed: 04/25/2014					
Benzene	56.5	1.0	ug/L	50.0	ND	113	74-130	3.95	20	
Toluene	55.1	1.0	"	50.0	ND	110	73-131	1.34	20	
Ethylbenzene	51.9	1.0	"	50.0	ND	104	76-132	3.09	20	
m,p-Xylene	105	2.0	"	100	ND	105	69-139	2.13	20	
o-Xylene	52.7	1.0	"	50.0	ND	105	74-131	0.533	20	
Surrogate: 1,2-Dichloroethane-d4	60		"	62.5		95.9	87.3-113			
Surrogate: Toluene-d8	64		"	62.5		102	90.9-108			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.4	88.6-111			

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LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Charles Greeson

Project Number: 008313110

Project: Noble - State 16-1614

### Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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