



December 3, 2014

Mr. Raul Sanchez
Base Construction Foreman
Noble Energy, Inc.
2115 117th Avenue
Greeley, Colorado 80634

Mr. Jacob Evans
Senior Environmental Specialist
Noble Energy, Inc.
2115 117th Avenue
Greeley, Colorado 80634

RE: **Remediation Activity Summary and No Further Action Request**
Sigg 28-11K2 Flow Line
Weld County, Colorado
COGCC Tracking #400726308

Dear Mr. Sanchez and Mr. Evans:

LT Environmental, Inc. (LTE), under the direction of Noble Energy, Inc. (Noble), conducted environmental remediation and confirmation soil sampling following the identification of petroleum hydrocarbon impacted soil at the Sigg 28-11K2 Flow Line (Site). This correspondence describes the remediation work conducted on November 26, 2014. The Site is located approximately 0.25 miles east of County Road 77 and 0.33 miles north of County Road 16 in Weld County, Colorado. The legal site description is the northeast quarter of the southwest quarter of Section 28, Township 2 North, Range 62 West, 6th Principal Meridian. The Site Location Map is provided as Figure 1.

Site History and Excavation Scope of Work

During discovery of a flow line leak, petroleum hydrocarbon impacted soil was discovered at the Site on November 7, 2014. As a result, LTE personnel, under the direction of Noble, were on site to oversee and document excavation activities, direct excavation work, field screen excavated soil, collect confirmation soil samples, and provide health and safety oversight. The contractor operating the excavation equipment was BG Services, LLC of Fort Lupton, Colorado. The excavated soil was field screened for volatile organic compounds using a photo-ionization detector (PID).

The excavation activity was conducted on November 26, 2014. The excavation was located in the area of the tank battery. The Site Map is provided as Figure 2. Excavated soil consisted primarily of sands from ground surface to total depth of the excavation at approximately 16 feet below ground surface (bgs). Petroleum hydrocarbon odor was observed from 5 feet below



ground surface to the total depth throughout the excavation. Petroleum hydrocarbon staining was observed during excavation activities at 5 feet to 8 feet bgs. The total extent of the excavation was approximately 25 feet east-west by 30 feet north-south to a total depth of 16 feet bgs. Groundwater was not encountered during excavation activities. A total of 25 truckloads (approximately 250 cubic yards) of soil was removed from the Site and transported to the Waste Management Buffalo Ridge Landfill in Keenesburg, Colorado, for final disposal.

Confirmation Soil Sampling

LTE personnel, under the direction of Noble, collected five discrete confirmation soil samples from the excavation sidewalls and floor once PID readings indicated that petroleum hydrocarbon impacted soil had been removed. All confirmation soil samples were collected, placed on ice, then submitted with a complete chain of custody form to Summit Scientific of Golden, Colorado, for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), total petroleum hydrocarbons (TPH) as gasoline range organics (GRO), and naphthalene by United States Environmental Protection Agency (EPA) Method 8260B, and TPH as diesel range organics (DRO) by EPA Method 8015.

Excavation 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. Excavation soil analytical results indicated all soil samples representative of the final extent of the excavation were compliant with applicable COGCC Table 910-1 standards and below laboratory reporting limits. The laboratory soil analytical results are presented on Figure 3 and summarized in Table 1. The laboratory analytical report is attached.

Summary

LTE, under the direction of Noble, conducted oversight of source removal of petroleum hydrocarbon impacted soil at the Site. Per the excavation activities conducted and confirmation soil sample laboratory analytical results, the impacted soil was removed. Approximately 250 cubic yards of petroleum hydrocarbon impacted soil was removed from the excavation and transported to the Waste Management Buffalo Ridge Landfill in Keenesburg, Colorado, for final disposal. Groundwater was not encountered in the excavation and soil samples collected from the floor and sidewalls of the final extent of the excavation were in compliance with applicable COGCC Table 9-10 standards. As a result, Noble respectfully requests a No Further Action status for the Sigg 28-11K2 Flow Line.



LTE appreciates the opportunity to provide environmental services to Noble. Please call us at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read "Chris Roy".

Chris Roy
Project Manager

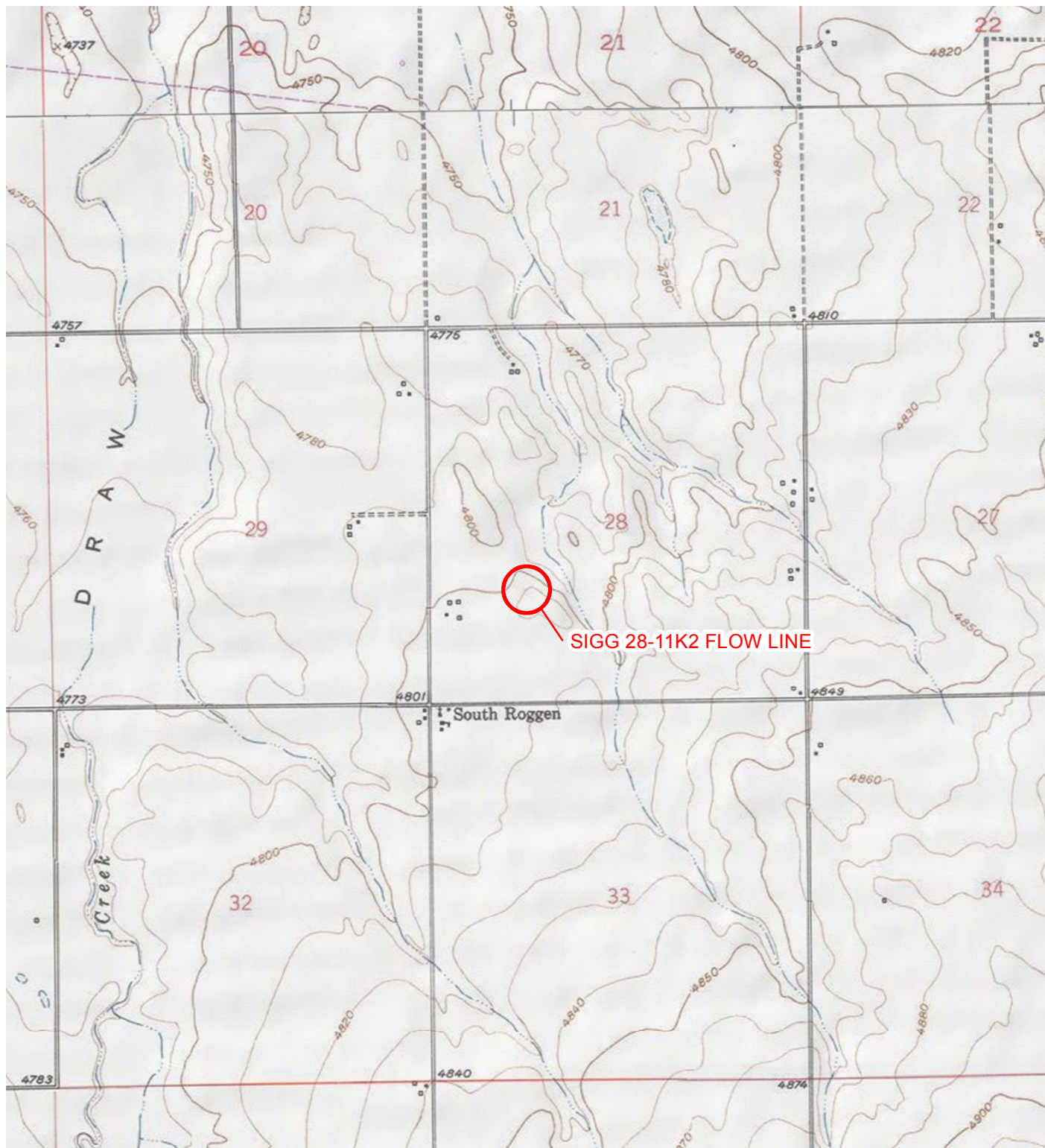
A handwritten signature in black ink, appearing to read "Steve Kahn".

Steve Kahn, P.E.
Principal

Attachments

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Excavation Soil Analytical Results
Table 1	Excavation Soil Analytical Results
Attachment	Laboratory Analytical Report

FIGURES



LEGEND

IMAGE COURTESY OF ESRI/USGS

○ SITE LOCATION

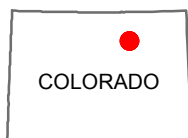
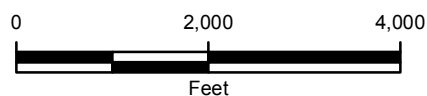


FIGURE 1
SITE LOCATION MAP
SIGG 28-11K2 FLOW LINE
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.





IMAGE COURTESY OF ESRI

LEGEND

- SOIL SAMPLE
- EXCAVATION EXTENT

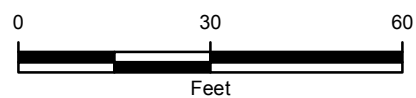
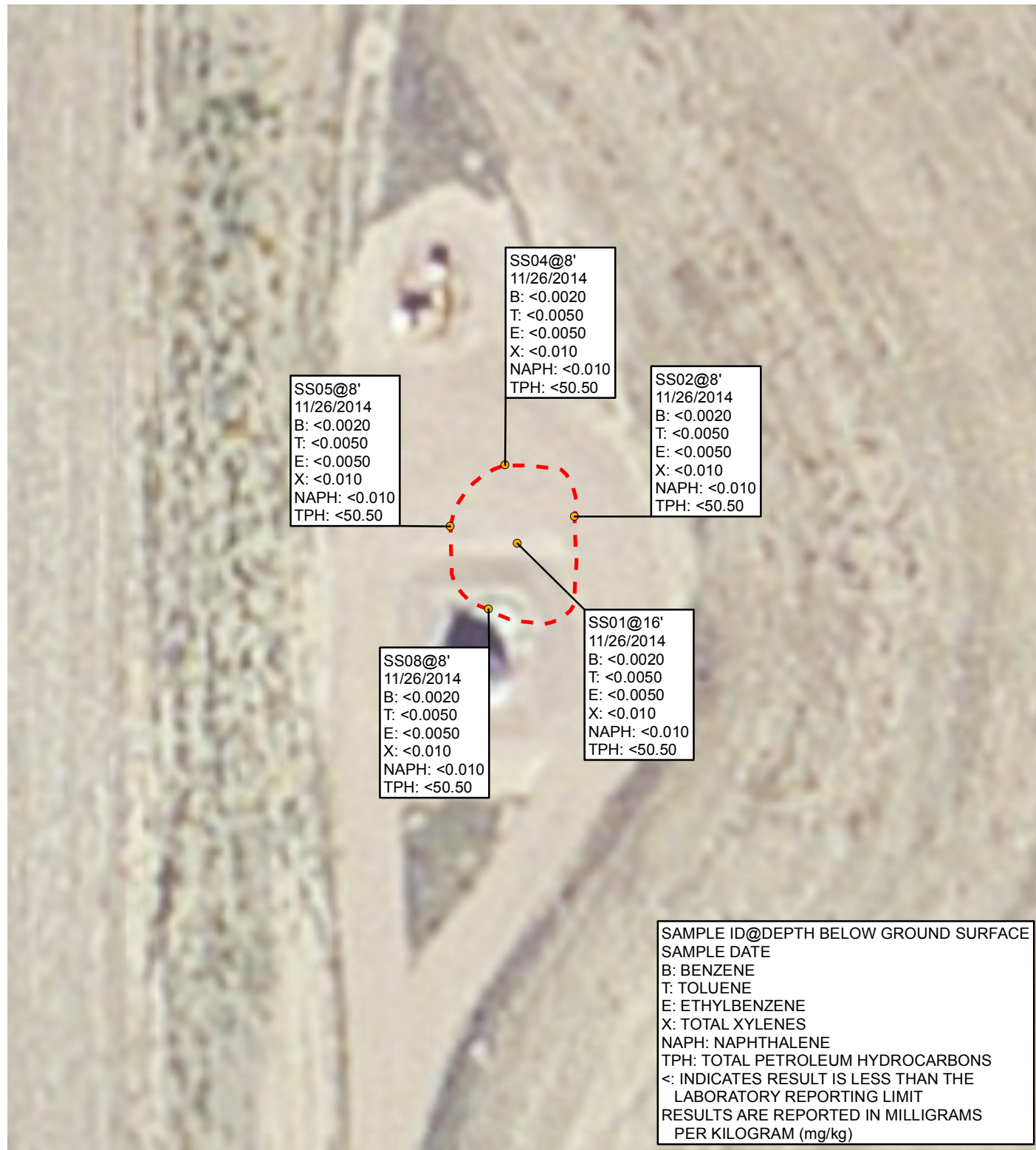


FIGURE 2
SITE MAP
SIGG 28-11K2 FLOW LINE
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.





LEGEND

- SOIL SAMPLE
- EXCAVATION EXTENT

IMAGE COURTESY OF ESRI

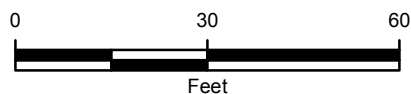


FIGURE 3
EXCAVATION SOIL ANALYTICAL RESULTS
SIGG 28-11K2 FLOW LINE
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.



TABLES

TABLE 1

**EXCAVATION SOIL ANALYTICAL RESULTS
SIGG 28-11K2 TANK BATTERY
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)
SS01@16'	11/26/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SS02@8'	11/26/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SS04@8'	11/26/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SS05@8'	11/26/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
SS08@8'	11/26/2014	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<0.50	<50	<50.50
COGCC Table 910-1 Standard		0.17	85	100	175	23	--	--	500

NOTES:

COGCC - Colorado Oil and Gas Conservation Commission

DRO - diesel range organics analyzed by EPA Method 8015

GRO - gasoline range organics analyzed by EPA Method 8260B

mg/kg - milligrams per kilogram

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

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

-- - not applicable

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

ATTACHMENT
LABORATORY ANALYTICAL REPORT



Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

November 30, 2014

Chris Roy
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: Sigg 28-11 K#2

Enclosed are the results of analyses for samples received by Summit Scientific on 11/26/14 17:15. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, flowing script.

Paul Shrewsbury
President



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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@16'	1411188-01	Soil	11/26/14 09:50	11/26/14 17:15
SS02@8'	1411188-02	Soil	11/26/14 09:40	11/26/14 17:15
SS04@8'	1411188-03	Soil	11/26/14 11:30	11/26/14 17:15
SS05@8'	1411188-04	Soil	11/26/14 12:30	11/26/14 17:15
SS08@8'	1411188-05	Soil	11/26/14 14:30	11/26/14 17:15

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: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

Summit Scientific 141188

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Client: LTE Page 1 of 1
Address: 4600 W. 60th
City/State/Zip: Arvada, CO 80003 Project Manager: Roy
Phone: 303-333-9788 Fax: E-Mail: mailto:info@ltenv.com + LT Env Team
Sampler Name: W. B. M. Project Name: Sigg 28-11 K2
Project Number: 008314075

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:				Special Instructions
				HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)				
SS01016'	11/26/14	0750	1			X		X				X	X	X	
SS0208'		0740										X	X	X	
SS0408'		1130										X	X	X	
SS0508'		1230										X	X	X	
SS0608'		1430										X	X	X	
[Handwritten signature across the table]															
Relinquished by: <u>mm</u>		Date/Time: <u>11/26/14 / 1715</u>		Received by: <u>MD</u>		Date/Time: <u>11/26/14 / 1715</u>		Turn Around Time (Check)				Notes:			
Relinquished by:		Date/Time:		Received by:		Date/Time:		Same Day <input checked="" type="checkbox"/> 72 Hours <input type="checkbox"/>				Monday Dec. 1st 2014			
Relinquished by:		Date/Time:		Received by:		Date/Time:		24 Hours <input type="checkbox"/> Standard <input type="checkbox"/>							
Relinquished by:		Date/Time:		Received in Lab by:		Date/Time:		Sample Integrity: <u>Dec. 1st 2014</u>				Temperature Upon Receipt: <u>3°C</u>			
Relinquished by:		Date/Time:		Received in Lab by:		Date/Time:		Intact: <u>Yes</u> No <input type="checkbox"/>							

www.s2scientific.com

Summit Scientific

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

SS01@16'
1411188-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/26/14 09:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1411254	11/28/14	11/28/14	8015M	

Date Sampled: 11/26/14 09:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/26/14 09:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1411253	11/28/14	11/28/14	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: 11/26/14 09:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

SS02@8'
1411188-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/26/14 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1411254	11/28/14	11/28/14	8015M	

Date Sampled: 11/26/14 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/26/14 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1411253	11/28/14	11/29/14	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: 11/26/14 09:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

SS04@8'
1411188-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/26/14 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1411254	11/28/14	11/28/14	8015M	

Date Sampled: 11/26/14 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/26/14 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1411253	11/28/14	11/29/14	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: 11/26/14 11:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		118 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

SS05@8'
1411188-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/26/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1411254	11/28/14	11/28/14	8015M	

Date Sampled: 11/26/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/26/14 12:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1411253	11/28/14	11/29/14	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: 11/26/14 12:30

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		102 %	21-167		"	"	"	"	

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

SS08@8'
1411188-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 11/26/14 14:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (TEPH-DRO)	ND	50	mg/kg	1	1411254	11/28/14	11/29/14	8015M	

Date Sampled: 11/26/14 14:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 11/26/14 14:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1411253	11/28/14	11/29/14	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: 11/26/14 14:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

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 1411254 - EPA 3550A

Blank (1411254-BLK1)

Prepared & Analyzed: 11/28/14

C10-C28 (TEPH-DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.9		"	12.2		106	30-150			

LCS (1411254-BS1)

Prepared & Analyzed: 11/28/14

C10-C28 (TEPH-DRO)	504	50	mg/kg	501		101	73-134			
Surrogate: o-Terphenyl	12.5		"	12.2		102	30-150			

Matrix Spike (1411254-MS1)

Source: 1411188-01

Prepared & Analyzed: 11/28/14

C10-C28 (TEPH-DRO)	462	45	mg/kg	453	16.5	98.4	50-148			
Surrogate: o-Terphenyl	11.0		"	11.0		100	30-150			

Matrix Spike Dup (1411254-MSD1)

Source: 1411188-01

Prepared & Analyzed: 11/28/14

C10-C28 (TEPH-DRO)	490	45	mg/kg	454	16.5	104	50-148	5.90	13	
Surrogate: o-Terphenyl	11.7		"	11.1		106	30-150			

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

Project: Sigg 28-11 K#2
Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

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 1411253 - EPA 5030 Soil MS

Blank (1411253-BLK1)

Prepared: 11/28/14 Analyzed: 11/29/14

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0422</i>		<i>"</i>	<i>0.0396</i>		<i>107</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>96.9</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>	<i>21-167</i>			

LCS (1411253-BS1)

Prepared: 11/28/14 Analyzed: 11/29/14

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0906	0.0020	"	0.100		90.6	58-130			
Toluene	0.0871	0.0050	"	0.100		87.1	61-134			
Ethylbenzene	0.0936	0.0050	"	0.0992		94.3	74-139			
m,p-Xylene	0.181	0.010	"	0.200		90.8	73-137			
o-Xylene	0.0946	0.0050	"	0.0984		96.2	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0429</i>		<i>"</i>	<i>0.0396</i>		<i>108</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.1</i>	<i>21-167</i>			

Matrix Spike (1411253-MS1)

Source: 1411188-01

Prepared: 11/28/14 Analyzed: 11/29/14

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0843	0.0020	"	0.0919	ND	91.8	30-131			
Toluene	0.0817	0.0050	"	0.0919	ND	88.9	30-134			
Ethylbenzene	0.0893	0.0050	"	0.0912	ND	98.0	22-153			
m,p-Xylene	0.173	0.010	"	0.183	ND	94.4	10-159			
o-Xylene	0.0909	0.0050	"	0.0904	ND	101	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0364</i>		<i>109</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0366</i>		<i>"</i>	<i>0.0368</i>		<i>99.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0363</i>		<i>"</i>	<i>0.0368</i>		<i>98.8</i>	<i>21-167</i>			

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

Project: Sigg 28-11 K#2

Project Number: 008314075
Project Manager: Chris Roy

Reported:
11/30/14 15:52

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 1411253 - EPA 5030 Soil MS

Matrix Spike Dup (1411253-MSD1)		Source: 1411188-01			Prepared: 11/28/14		Analyzed: 11/29/14			
Naphthalene	ND	0.010	mg/kg		ND		10-158			42
Benzene	0.0850	0.0020	"	0.0916	ND	92.8	30-131	0.803		34
Toluene	0.0821	0.0050	"	0.0916	ND	89.6	30-134	0.440		30
Ethylbenzene	0.0905	0.0050	"	0.0908	ND	99.7	22-153	1.35		24
m,p-Xylene	0.175	0.010	"	0.183	ND	95.5	10-159	0.821		68
o-Xylene	0.0927	0.0050	"	0.0901	ND	103	31-151	1.88		38
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0363		110	23-173			
Surrogate: Toluene-d8	0.0362		"	0.0366		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0365		"	0.0366		99.7	21-167			

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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

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